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## BIBLIOGRAPHY

The bibliography comprises

- all the papers cited in the two volumes of the present work
- all papers dealing with Lemnaceae which came to the knowledge of the authors.

Since not all papers on Lemnaceae could be consulted in the original version, the references had to be taken from reviewing works or from literature services. Therefore, the indications may not always be complete. For the English, French, German, Italian, and Spanish papers, the titles are given in the original language. Titles of all other languages have been translated into English, and the original language is indicated in brackets. In very few cases it was not possible to translate the title. Most of the papers cited contain English summaries.

The papers are arranged alphabetically according to the first author. If two or more authors with the same surname occur, the alphabetic order of the initials is decisive. Surnames with prefixes as De, Van, Von, etc. are listed under the first letter of the prefix though this may sometimes be unfamiliar, especially if the prefix is a title of nobility.

Papers written by more than one author are listed as follows:

- papers with two authors are given in the alphabetical order
- papers with more than two authors follow chronologically.

This procedure is thought to facilitate the tracing of all citations in the text where the first author is followed by "et al."

- ABBA G., 1976: Apunti di Floristica Piemontese. *Allonia* **21**, 97-103.
- ABDIEV M., 1971a: Duckweed communities in water bodies of Uzbekistane. (In Russian). *Kultiv.Vodor.Vyssh.Vodn.Rast.Uzbekistane* **1971**, 106-117.
- ABDIEV M., 1971b: Inflated duckweed (*Lemna gibba* L.) in culture. (In Russian). *Kultiv.Vodor.Vyssh.Vodn.Rast.Uzbekistane* 131-136.
- ABDULLAEV D.A. 1969: The use of common duckweed as green feed for chickens. (In Russian). *Uzbekskii Biol.Zh.(USSR)* **13**, 42-43.
- ABDULLAEV D.A., 1972: On the efficient utilization of aquatic swamp plants of the Fergana Valley in the economy. (In Russian). *Kultiv.Vodor. Vyssh.Vodn.Rast.Uzbekistane* 119-132.
- ACCORSI C.A., MAZZANTI M.B., MARCHETTI D.B., FORLANI L. and SORBINI L., 1982: Primi cenni stratigrafici et e palinologici su sedimenti di pozzi nell'area di Verona. I. Sequenza di Avesa. *G.Bot.Ital.* **116** (suppl.1), 143-144.
- ADABRA-MICHANOL Y., MONEGER R. and FRANCKE B., 1975: Effets de la kiné-  
tine à la lumière et à l'obscurité, sur les caroténoïdes et les chlo-  
rophylls des frondes de la *Spirodela polyrrhiza* (L.) Schleiden. *Phy-  
siol.Veg.* **13(3)**, 619-635.
- ADIE J.R., 1904: *Lemna minor* as a preventive against mosquitoes. *Indian  
Med.Gaz.* **39**, 207-208
- AEBLI D., 1986: Der Einfluss der Phosphat-Ernährung auf das Wachstum und  
die Entwicklung von Makrophyten. Institut für Pflanzenbau ETHZ. Di-  
ploma Thesis. 55 pp.
- AGAMI M., LIATAV M. and WAISEL Y., 1976: The effects of various compo-  
nents of water pollution on the behaviour of some aquatic macrophytes  
of the coastal rivers of Israel. *Aquat.Bot.* **2**, 203-213.
- AGREN G.I., 1985: Limits to plant production. *J.Theoret.Biol.* **113(1)**,  
89-92.
- AHMAD N. and YOUNUS M., 1979: Aquatic plants of Lahore. *Pakistan Assoc.  
Advan.Sci.* 41 pp.
- AHRENS J.F. and BLOCK P.M., 1972: Phytotoxicity and persistence of sima-  
zine in a shallow lake. *Connecticut Agric.Exp.Stn.Valley Lab.Proc.NE  
Weed Soc.* **26**, 266.
- ALBANELL E., PLAIXATS J. and ANDRES J., 1985: Interaction of abscisic  
acid and 6-benzylaminopurine on the metabolism of *Lemna minor* L.  
*Plant Cell Physiol.* **26(8)**, 1557-1564.
- ALBERGONI F.G. and BASSO B., 1985: An apparatus for the simultaneous  
measurement of photosynthetic <sup>14</sup>CO<sub>2</sub> fixation by a large number of  
leaf samples. *Maydica* **30(1)**, 75-84.
- ALBERSHEIM P., AUGUR C., DARVILL A.G., DOARES S.H., EBERHARD S., GOLLIN  
D.J., MARFA-RIERA V., MOHNEN D., NURI W.A., O'NEILL R.A., TOUBART P.  
and YORK W.S., 1987: Oligosaccharines are active in defense respon-  
ses, growth, and development. Lecture 2-096-2 at the 24th Int. Bot.  
Congress Berlin (West), Germany.
- ALCER G., 1956: Die Aufnahme von Harnstoff und Glyzerin durch die Pflan-  
zenzelle in Abhängigkeit von der Acidität der Aussenlösung und des  
Zellsaftes. *Protoplasma* **47**, 78-102.
- ALIKHUNI s. ALIKUNHI
- ALIKUNHI K.H., RAMCHADRAN V. and CHAUDHURI H., 1952: On the role of  
duckweed (*Lemna minor*) in the preparation of carp nurseries. *Sci.  
Cult.(Calcutta)* **17**, 436-437.
- ALLENBY K.G., 1967: The manganese and calcium contents of some aquatic  
plants and the water in which they grow. *Hydrobiologia* **29**, 239-244.
- ALLENBY K.G., 1968: Some analyses of aquatic plants and waters. *Hydro-  
biologia* **32**, 486-490.
- ALLENBY K.G., 1981: Some analyses of aquatic plants and their waters.  
*Hydrobiologia* **77(2)**, 177-189.

- ALLISON F.E., LOVE K.S., PINCK L.A. and GADDY V.L., 1948: Gaseous losses of nitrogen from green plants. I. Studies with *Chlorella* and *Lemna*. *Plant Physiol.* **23**, 496-504.
- ALMADI L., 1961: Distribution of *Wolffia arrhiza*. (In Hung.). *Bot.Közlem* **49**, 112-113.
- ALMESTRAND A. and LUNDH A., 1951: Studies on the vegetation and hydro-chemistry of Scanian lakes 1-11. *Bot.Not.* **2(3)**, 7-141.
- ALMQUIST E., 1929: The vegetation and flora of Uppland. (In Swedish). *Acta Phytogeogr. Suecica* **1**, 622 pp.
- AL-RAIS A.H., MYERS A. and WATSON L., 1971: The isolation and properties of oxalate crystals from plants. *Ann.Bot.* **35(143)**, 1213-1218.
- AL-SHALAN I. and KANDELER R., 1978: Tageslängenabhängigkeit der Wirkung von Abscisinsäure und Benzyladenin auf das Wachstum von *Lemna gibba* Gl. *Biochem.Physiol.Pflanzen* **172**, 521-529.
- AL-SHALAN I. and KANDELER R., 1979: Aufnahme und Verteilung von Gibberellin A<sub>1</sub> bei der Kurztagpflanze *Lemna paucicostata* 6746. *Z.Pflanzenphys.* **94**, 257-262.
- AMADO R., MUELLER-HIEMEYER R. and MARTI U., 1980: Proteingehalt, Aminosäurezusammensetzung und Neutralzuckergerhalt von Lemnaceen. Vorläufige Mitteilung. *Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich* **70**, 102-117.
- AMANOVA N.M., 1982: Boron in fodder plants of Tadzhikistan. (In Russian). *Izv.Akad.Nauk Tadzh.SSR,Otd.Biol.Nauk* **1**, 64-70.
- AMBASHI R.S., 1970: Ecosystem study of a tropical pond in relation to primary production of different vegetational zones. *Hydrobiologia* **12**, 57-61.
- AMBORSKI R.L. and LARKIN J.M., 1980: Human and animal health aspects. In: CULLEY D.D. and FRYE J.B. (eds.), *US Dept. of Energy Final Rep. Baton Rouge*. 15 pp. (Polycopy).
- AMBROSE K.L., 1978: The ecological significance and release of organic compounds by members of the Lemnaceae: A qualitative and quantitative investigation. M.S.Thesis, Univ. Pittsburgh. 83 pp.
- ANCONA H.L., 1930: Las Lemnaceas y las larvas de los mosquitos. *Univ. Nac.Anal.Inst.Biol. (Mexico)* **1**, 33-37.
- ANDERSEN I.H., 1983: Effects of photosynthesis on *Lemna gibba*. (In Norwegian.) Hovedfagsoppgave, *Bot.Inst., Fytotron. Univ. Oslo*.
- ANDERSEN I.H., DONS C., NILSEN S. and HAUGSTAD M.K., 1985: Growth, photosynthesis and photorespiration of *Lemna gibba*: response to variations in CO<sub>2</sub> and O<sub>2</sub> concentrations and photon flux density. *Photosynth.Res.* **6(1)**, 87-96.
- ANDERSON A.C., ABDELGHANI A.A. and McDONELL D., 1980: Screening of four vascular aquatic plants for uptake of monosodium methanearsonate. *Sci.Tot.Environ.* **16**, 95-98.
- ANDERSON J.L., THOMSON W.W. and SWADER J.A., 1973: Fine structure of *Wolffia arrhiza*. *Can.J.Bot.* **51**, 1619-1622.
- ANDERSON J.W., 1980: Assimilation of inorganic sulfate into cysteine. In: STUMPF P.K. and CONN E.E. (eds.), *The biochemistry of plants*. Acad.Press, New York. **5**, 203-223.
- ANDERSON J.W. and EMES M.J., 1985: Purification and properties of hydroxypyruvate reductase from *Lemna minor*. *Int.J.Biochem.* **17(10)**, 1085-1090.
- ANDERSON L.E., 1982: Isolation and purification of aldolase from *Pisum sativum*. In: EDELMAN M., HALLICK R.B. and CHUA N.H. (eds.), *Methods in chloroplast molecular biology*. Elsevier, North-Holland. Biomed. Press. 715-722.
- ANDRES J. and SMITH H., 1976: Evidence for a rapid effect of abscisic

- acid on amino acid metabolism in Lemna. *Plant.Sci.Lett.* **6**, 315-318.
- ANDRONOVA L.M., 1972: Antitussive properties of certain medical plants. (In Russian). *Rastit.Resur.* **8(4)**, 588-591.
- ANGERILLI N.P.D., 1980a: Influences of extracts of freshwater vegetation on the survival and oviposition by *Aedes aegypti* (Diptera: Culicidae). *Can.Entomol.* **112**, 1249-1252.
- ANGERILLI N.P.D., 1980b: A similarity dendrogram as an indicator of mosquito breeding sites. *Can.Mosq.News* **40(1)**, 117-118.
- ANGERILLI N.P.D. and BEIRNE B.P., 1974: Influences of some freshwater plants on the development and survival of mosquito larvae in British Columbia. *Can.J.Zool.* **52**, 813-815.
- ANGERILLI N.P.D. and BEIRNE B.P., 1980: Influences of aquatic plants on colonization of artificial ponds by mosquitoes and their insect predators. *Can.Entomol.* **112(8)**, 793-796.
- ANGERILLI N.P.D. and BEIRNE B.P., 1982: Mortality of introduced mosquito larvae in natural and artificial ponds containing aquatic vegetation. *Prot.Ecol.* **4(4)**, 381-386.
- ANTANINENE A.S. and TRAINAUSKAITE I.Y., 1985: Production and biochemical characteristics of macrophytes from Lake Druksiai, Lithuanian-USSR, in 1982. (In Russian). *Liet.Tsr.Mokslu Akad.Darb.Ser.C,Biol.Mokslai* **1985(1)**, 68-75.
- ANTIPCHUK A.F., 1974: Numbers of heterotrophic bacteria on some higher plants in carp ponds. *Hydrobiol.J.* **10(1)**, 48-49.
- ANTONIELLI M. and CAGIOTTI M.R., 1976: Presenza di chlorofillide in idrofite ed alghe del lago Trasimeno e variabilità del pigmento in *Spirogyra*. *Riv.Idrobiol.* **14**, 3-11.
- APPENROTH K.-J. und AUGSTEN H., 1987: An improvement of the protein determination in plant tissues with the dye-binding method according to Bradford. *Biochem.Physiol.Pflanz.* **182(1)**, 85-89.
- APPENROTH K.-J., AUGSTEN H., LIEBERMANN B. and FEIST H., 1982: Effects of light quality on amino acid composition of proteins in *Wolffia arrhiza* (L.) Wimm. using a specially modified Bradford method. *Biochem.Physiol. Pflanz.* **177(3)**, 251-258.
- APPENROTH K.-J., MOOTZ M. and AUGSTEN H., 1986: Effect of light quality on the alanine and aspartate aminotransferases in *Wolffia arrhiza* L. In: LAMBERS H., NEETESON J.J. and STULEN I. (eds.), *Fundamental, ecological and agricultural aspects of nitrogen metabolism in higher plants*. Nijhoff Publ., Dordrecht/Boston/Lancaster. 215-218.
- APPLETON C.C. and SHARP B.L., 1985: A preliminary study on the emergence of *Mansonia uniformis* from swamps at Richards Bay, Natal, South Africa. *J.Entomol.Soc.Southern Africa* **48(1)**, 179-184.
- ARAI S., 1986: Enzymatically modified proteins as new surfactants, their properties and functions. *J.Am.Oil Chem.Spc.* **63(4)**, 420-421.
- ARBER A., 1919: On the vegetative morphology of *Pistia* and the Lemnaceae. *Proc.R.Soc.* **91**, 96-103.
- ARBER A., 1920: *Water plants: a study of aquatic angiosperms*. Cambridge Univ.Press. 435 pp.
- ARMITAGE K.B. and FASSETT N.C., 1971: Aquatic plants of El Salvador. *Arch.Hydrobiol.* **69(2)**, 234-255.
- ARMSTRONG W.P., 1981a: *Wolffia punctata* Griseb. (Lemnaceae). *Madroño* **28**, 37.
- ARMSTRONG W.P., 1981b: *Wolffia columbiana* Karst. (Lemnaceae). *Madroño* **28**, 187-188.
- ARMSTRONG W.P., 1982: Duckweeds, California's smallest wildflowers. *Fremontia* **10(3)**, 16-22.
- ARMSTRONG W.P., 1983: A marriage between a fern and an alga. *Environ. Southwest* **500**, 20-24.

- ARMSTRONG W.P., 1984: *Wolffia globosa* (Roxb.) Hartog et Plas (Lemnaceae). *Madroño* **31(3)**, 191.
- ARMSTRONG W.P., 1985: A status report on the genus *Wolffia* in California. *Fremontia* **13(1)**, 11-14.
- ARMSTRONG W.P., 1986: Lemnaceae - Duckweed Family in California. 25 pp. (Polycopy).
- ARMSTRONG W.P. and THORNE R.F., 1984: The genus *Wolffia* (Lemnaceae) in California. *Madroño* **31(3)**, 171-179.
- ARNASON T., HEBDA R.J. and JOHNS T., 1981: Use of plants for food and medicine by native peoples of Eastern Canada. *Can.J.Bot.* **59**, 2189-2325.
- ARNDT H., WUESTLING W., HIEKEL H.G. and BOEHM H., 1979: Influence of substituents in various acetophenone derivatives on course of action on gas interchange inhibition of synchronous cultures *Chlorella vulgaris*. (In German). In: SCHUETTE H.R., (ed.), *Wirkungsmechanismen von Herbiziden und synthetischen Wachstumsregulatoren*. Fischer, Jena. 93-100.
- ARNER D.H., WESLEY D. and ANDING G., 1968: A quantitative study of invertebrates found in certain wetland plant communities in Mississippi. *Mississippi State Univ. Water Resources Res.Inst.* 25 pp.
- ARNOTT H.J. and PAUTARD F.G.E., 1965: Development of raphide idioblasts in *Lemna*. *Amer.J.Bot.* **52**, 618-619.
- ARNOTT H.J. and PAUTARD F.G.E., 1970: Calcification in plants. In: SCHRAER H. (ed.), *Biological calcification*. New York.
- ARO E.-M., 1982: A comparison of the chlorophyll-protein composition and chloroplast ultrastructure in two bryophytes and two higher plants. *Z.Pflanzenphysiol.* **108(2)**, 97-105.
- ASCHERSON P. and GRAEBNER P., 1902-1904: Synopsis der mitteleuropäischen Flora. Engelmann, Leipzig. **2/2**, 390-397.
- ASHBY E., 1929a: The interaction of factors in the growth of *Lemna*. III. The interrelationship of duration and intensity of light. *Ann.Bot.* **43**, 333-354.
- ASHBY E., 1929b: The interaction of factors in the growth of *Lemna*. IV. The influence of minute quantities of organic matter upon growth and reproduction. *Ann.Bot.* **43**, 805-816.
- ASHBY E., 1935: An analysis of the influence of light and temperature on the assimilation rate and the rate of multiplication. *Ann.Bot.* **49**, 309-336.
- ASHBY E., 1950: Leaf morphology and physiological age. *Sci.Prog.* **152**, 678-685.
- ASHBY E. and OXLEY T.A., 1935: The interaction of factors in the growth of *Lemna*. VI. An analysis of the influence of light intensity and temperature on the assimilation rate and the rate of frond multiplication. *Ann.Bot.* **49**, 309-336.
- ASHBY E. and WANGERMANN E., 1949: Senescence and rejuvenation in *Lemna minor*. *Nature* **164**, 187.
- ASHBY E. and WANGERMANN E., 1950 s. 1949
- ASHBY E. and WANGERMANN E., 1951: Study in the morphogenesis of leaves. VII. 2. Correlative effects of fronds in *Lemna minor*. *New Phytol.* **50**, 200-209.
- ASHBY E. and WANGERMANN E., 1954: The effects of meristem ageing on morphology and behaviour of fronds in *Lemna minor*. *Ann.N.Y.Acad.Sci.* **57**, 476-483.
- ASHBY E., BOLAS B.D. and HENDERSON F.Y., 1928: The interaction of factors in the growth of *Lemna*. I. Method and technique. *Ann.Bot.* **42**, 771-782.

- ASHBY E., WANGERMAN E. and WINTER E.J., 1949: Studies in the morphogenesis of leaves. III. Preliminary observations on vegetative growth in *Lemna minor*. *New Phytol.* **48**, 374-381.
- ASTON H.I., 1973: Aquatic plants of Australia. Melbourne Univ.Press. 368 pp.
- ATHIAS-BINCHE F. and FERNANDEZ N.A., 1986: Analyse démographique d'une population d'*Hydrozetes lemnae* Coggi, acarien oribate inféodé à la lentille d'eau *Lemna gibba* L. en Argentine. 2. Les relations prédateur/proie. *Zool.Jb.Syst.* **113(2)**, 229-249.
- ATRI F.R., 1983: Schwermetalle und Wasserpflanzen. Schriftenreihe Ver. Wasser-, Boden- u. Lufthygiene **55**, 155 pp.
- AUGSTEN H., 1983: Zur Eignung der Lemnaceae als Testsystem für Herbizide. *Wiss.Schriftenreihe Ped.Hochschule Potsdam, Reihe B*, **35**, 86-91.
- AUGSTEN H., 1984a: Lemnaceen: Aspekte ihrer Praxisrelevanz. *Biol.Rundsch.* **22(4)**, 225-235.
- AUGSTEN H., 1984b: Photosynthese und Biomassebildung bei Lemnaceen. *Coll.Pfl.physiol., Humboldt-Univ., Berlin*, **7(2)**, 213-222.
- AUGSTEN H. and HUBALD M., 1980: Das rhythmische Verhalten der Nitratreduktase bei Lemnaceen und der Einfluss von Aminosäuren auf die Aktivität des Enzyms. *Wiss.Z.Ernst-Moritz-Arndt-Univ.Greifsw., Math.-Natw.Reihe* **29(1-2)**, 47-50.
- AUGSTEN H. and JUNGNICHEL F., 1979: Verfahren zur Ausleseprüfung und Bestimmung phytoaktiver Substanzen. German East Patent No. 133595. 21 pp.
- AUGSTEN H. and JUNGNICHEL F., 1983: Zur Steuerung der Turionenausbildung bei *Spirodela polyrhiza* (L.) Schleiden durch Licht, Phosphat und Zucker. *Wiss.Z.Ernst-Moritz-Arndt-Univ.Greifsw., Math.-Natw.Reihe* **32(3-4)**, 64-66.
- AUGSTEN H. and JUNGNICHEL F., 1984: Action of microelements on developmental processes in mass propagated axenic plants. *Proc.Intern. Symp., Plant tissue and cell culture application to crop improvement. Prague.* 497-498.
- AUGSTEN H., KUNZ E. and APPENROTH K.-J., 1987: Phytochrome-mediated germination of light and dark grown turions of *Spirodela polyrhiza*. *14th Int.Bot.Congr.Berlin, Abstr.*, 124.
- AUSTIN C.F., 1867: Lemnaceae. In: GRAY A., *Man.Bot.*, 478-480.
- AUSTIN C.F., 1870: *Wolffia columbiana*. *Bull.Torr.Bot.Club* **1**, 36.
- AVENA G.C., BLASI C. and RUBECA L., 1975: *Riccio fluitantis-Azolletum caroliniana*, associazione nuova indicatrice ecologica per lo stato delle acque di un tratto del F. Tevere. *Ann.Bot.(Roma)* **34**, 175-190.
- AVENA G.C., BLASI C. and SCOPPOLA A., 1982: Indagini ecologico-fitogeografiche sulle zone umide interne del Lazio. II. Sintassonomia delle comunità afferenti alla classe Lemnatea minoris presenti nella Bonifica Pontina. *Ann.Bot.(Roma)* **40**, 49-61.
- AYADI A., 1971: Effet du calcium sur l'absorption du potassium par la *Lemna minor*. *Physiol.Veg.* **9(1)**, 107-108.
- AYADI A. and THELLIER M., 1970: Formulation électrocinétique de l'effet de régulation par le calcium de l'absorption du rubidium chez la *Lemna minor*. *C.R.Acad.Sci.Paris, D* **271**, 1280-1283.
- AYADI A., DEMUYTER P. and THELLIER M., 1971: Interprétation électrocinétique des interactions compétitives réciproques  $K^+/Rb^+$  lors de l'absorption de ces ions par la *Lemna minor*. *C.R.Acad.Sci.Paris, D* **273**, 67-70.
- AYADI A., STELZ T., MONNIER A., LASSALLES L.P. and THELLIER M., 1974: Application of an electrokinetic formulation to the study of the effect of alkaline-earth cations on the absorption of  $K^+$ -ions by *Lemna minor*. *Ann.Bot.* **38**, 677-696.

- BACIECZKO W., 1982: *Wolffia arrhiza* (L.) Wimm. in the West Pomerania area (Poland). (In Polish). Zesz.Nauk.Acad.Roln. Szcz. **29**, 3-11.
- BAHADIR M., 1987: Safe formulations of agrochemicals. *Chemosphere* **16**(2-3), 615-622.
- BAHADIR M. and KORTE F., 1987: New slow release application techniques with heterocyclic herbicides in aquatic weed control. *Heterocycles* (Tokyo) **25**(1), 333-335.
- BAHADIR M. and PFISTER G., 1985: A comparative study on pesticide formulations for application in running waters. *Ecotoxicology and Environ. Safety* **10**(2), 197-201.
- BAHL J., 1971: Sur la préparation de suspensions de chloroplastes isolés de *Spirodela polyrrhiza* (L.) Schleiden. *C.R.Acad.Sci.Paris, D* **272**, 2185-2187.
- BAHL J., LECHEVALLIER D. and MONEGER R., 1971: Sur les lipides chloroplastiques des frondes de la *Spirodela polyrrhiza* (L.) Schleiden cultivées sur milieu minéral et sur milieu saccharosé. *C.R.Acad. Sci.Paris, D* **272**(18), 2330-2323.
- BAI R., 1985: Biodegradability of substrate during anaerobic digestion of various biomass. *Reg.J.Energy Heat Mass Transfer* **7**(1), 33-38.
- BAILEY D.R. 1971: Comparison of oats and *Lemna oligorrhiza* for diuron bioassay. *Queensl.J.Agric.Anim.Sci.* **27**, 395-400.
- BAKAYA U. and KAUL V., 1973: *Lemna-Salvinia*, the noxious floating aquatic weed complex in Kashmir. Regional seminar on noxious aquatic vegetation in tropics and sub-tropics. *Abstr.*, 21-22. UNESCO, New Delhi, India. 70 pp.
- BAKER J.H. and FARR I.S., 1987: Importance of dissolved organic matter produced by duckweed (*Lemna minor*) in a southern English river. *Freshwat.Biol.* **17**(2), 325-330.
- BAKER J.H. and ORR D.R., 1986: Distribution of epiphytic bacteria on freshwater plants. *J.Ecol.* **74**, 155-165.
- BAKHADIROVA Z., 1982: Flora and vegetation of fish ponds in the Tashkent fish nursery (Uzbek-SSR, USSR). (In Russian). *Uzb.Biol.Zh.* **1982**(3), 33-34.
- BAKSHI I.S., 1983: Effects of asparagine, irradiation and NADH on the nitrate reductase in *Wolffia microscopica*. *Biol.Plant* **25**(4), 259-265.
- BAKSHI I.S., FAROOQI A.H.A. and MAHESHWARI S.C., 1978: Circadian rhythm in nitrate reductase activity in the duckweed *Wolffia microscopica* Griff. *Z.Pflanzenphysiol.* **90**(2), 165-169.
- BAKSHI I.S., FAROOQI A.H.A. and MAHESHWARI S.C., 1979: Control of circadian rhythm in nitrate reductase activity in *Wolffia microscopica* Griff. *Plant Cell Physiol.* **20**(5), 957-963.
- BALDI B.G., SLOVIN J.P. and COHEN J.D., 1984: Synthesis and activity of halogen substituted indole-3-acetic acids: suitability for use in selection of genetic mutants. *Plant Physiol.* **75**(suppl.1), 107.
- BALDWIN J.D.C. and MYERS R., 1980: Duckweed harvesting and transport. Baton Rouge. 5 pp. (Polycopy).
- BALL G.A., BEAL E.O. and FLECKER E.A., 1967: Variation of chromatographic spot pattern of two species of clonal plants grown under controlled environmental conditions. *Brittonia* **19**, 273-279.
- BANERJEE M., 1971: Chromosome studies in Lemnaceae. *Rev.Roum.Embryol. Ser.Cytol.* **8**(2), 21-27.
- BANGERTER E.B., 1978: New and interesting records of adventive plants from the Auckland Institute and Museum Herbarium. Part 4. *Rec.Auckl. Inst.Mus.* **15**, 27-36.
- BARBECK W., 1880: On the development of *Lemna minor*. *Proc.Acad. Philadelphia* **1880**, 230-232.

- BARBER J.T. and CALDWELL C.R., 1976: Ascorbic acid and *Lemna gibba*: uptake, binding to macromolecules and effects upon RNA synthesis and flowering. *Plant Physiol.* **57**(5), 21.
- BARBORA B.C., 1972: Chemical control of weeds in drains, drain sides and other non-tea pockets. *Two and a Bud* **19**(1), 25-28.
- BARON D., WELLMANN E. and GRISEBACH H., 1972: Purification and properties of an enzyme from cell suspension cultures of parsley catalyzing the synthesis of UDP-apiose and UDP-D-xylose from UDP-D-glucuronic acid. *Biochim.Biophys.Acta* **258**, 310-318.
- BASZYNSKI T., KROL M. and WOLINSKA D., 1981: Photosynthetic apparatus of *Lemna minor* L. as affected by chromate treatment. In: AKOYUNOGLLOY G. (ed.), *Photosynthesis II. Electron transport and photophosphorylation*. *Photosynth., Proc.Int.Congr., 5th*, **2**, 111-122.
- BATA J., 1973: The effect of pH, kinetin and sucrose on the branching pattern in *Lemna trisulca* L. *Bull.Inst.Jard.Bot.Univ.Beograd* **8**, n.s., 45-52.
- BATA J. and NESCOVIC M., 1974: The effect of gibberellic acid and kinetin on chlorophyll retention in *Lemna trisulca* L. *Z.Pflanzenphys.* **73**, 86-88.
- BATA J. and NESKOVIC M., 1982a: Effect of external factors on growth and morphogenesis in *Lemna trisulca* L. in axenic culture. I. Plant hormones. *Bull.Inst.Jard.Bot.Univ.Beograd* **15**(1-3), 1-9.
- BATA J. and NESKOVIC M., 1982b: Effect of external factors on growth and morphogenesis in *Lemna trisulca* L. in axenic culture. II. Light conditions. *Bull.Jard.Bot.Univ.Beograd* **15**(1-3), 10-13.
- BAUER A., SCHAEFER C. and ERISMANN K.H., 1971: Zur Frage der Stickstoffinkorporation in Aminosäuren und Proteine bei *Lemna minor* unter Photosynthesebedingungen. *Verh.Schweiz.Naturf.Ges.* **151**, 107-109.
- BAUER A., SCHLUNEGGER U. and ERISMANN K.H., 1973: Untersuchungen zur Ammoniumassimilation in Aminosäuren und Proteine bei *Lemna minor* L. unter Photosynthesebedingungen. *Verh.Schweiz.Naturf.Ges.* **153**, 79-82.
- BAUER R., HUBER W. and SANKHLA N., 1976: Effect of abscisic acid on photosynthesis in *Lemna minor* L. *Z.Pflanzenphys.* **77**, 237-246.
- BAUMEISTER W. and ERNST W., 1978: *Mineralstoffe und Pflanzenwachstum*. Fischer, Stuttgart/New York.
- BAUR R.J. and BUCK D.H., 1980: Active research on the use of duckweeds in the culture of grass carp, Tilapia, and fresh water prawns. Ill. *Nat.Hist.Survey, R.R.I., Kinmundy, Ill.* (Polycopy).
- BEAL E.O., 1977: A manual of marsh and aquatic vascular plants of North Carolina with habitat data. *N.C.Agric.Exp.Stat.Tech.Bull., Raleigh, N.C.*, **247**, 298 pp.
- BEAMS H.W., KESSEL R.G. and SHIH C.Y., 1979: Effects of ultracentrifugation on the mesophyll cells and chloroplasts of spinach leaf, and on the cells and chloroplasts of entire duckweed plants. *Biol.Cell.* **35**, 87-96.
- BEARDSLEE H.C., 1877: *Wolffia*. *Bot.Gaz.* **2**, 99.
- BEATSON M.E., 1955: Data for the study of postglacial history. XV. Subfossil pollen of *Lemna* in Quaternary deposit. *New Phytol.* **54**, 208.
- BEAUMONT G., BASTIN R. and THERRIEN H.P., 1976: Effets physiologiques de l'atrazine à doses sublétales sur *Lemna minor* L. I. Influence sur la croissance, la teneur en chlorophylle, en protéines et en azote soluble et total. II. Influence sur la photosynthèse et sur la respiration. *Nat.Can.* **103**, 527-533; **103**, 535-541.
- BEAUMONT G., BASTIN R. and THERRIEN H.P., 1978: Effets physiologiques de l'atrazine à doses sublétales sur *Lemna minor* L. III. Influence sur les protéines solubles et les acides nucléiques. *Nat.Can.* **105**, 103-113.

- BEAUMONT G., LORD A. and GRENIER G., 1980: Effets physiologiques de l'atrazine à doses sublétales sur *Lemna minor*. V. Influence sur l'ultrastructure des chloroplastes. *Can.J.Bot.* **58**, 1571-1577.
- BEAUVOIS DE P., 1816: Mémoire sur les *Lemna* ou lentille d'eau, sur leur fructification et sur la germination de leur grain. *J.Phys.Chim. Hist.Nat.* **82**, 101-115.
- BECHERER A., 1956: *Florae Vallesiacae Supplementum*. *Denkschr.Schweiz. Naturf.Ges.* **81**, 556 pp.
- BECK E., 1964: Apian aus der Zellwand höherer Pflanzen. *Ber.Deutsch.Bot. Ges.* **77**, 396-397.
- BECK E., 1967: Isolierung und Charakterisierung eines Apiogalakturonans aus der Zellwand von *Lemna minor*. *Z.Pflanzenphysiol.* **57**, 444-461.
- BECK E., 1969: Biosynthesis of branched chain sugars. *XIth Int.Bot. Congr., Seattle. Abstr.*, 10.
- BECK E., 1982: Branched-chain sugars. In: LOEWUS F.A. and TANNER W. (eds.), *Plant carbohydrates I, Encycl. Plant Physiol.* Springer, Berlin/Heidelberg/New York. n.s. **13a**, 124-157.
- BECK E. and KANDLER O., 1965: Apiose als Bestandteil der Zellwand höherer Pflanzen. *Z.Naturforsch.* **20b**, 62-67.
- BECK E. and KANDLER O., 1966: Isotopenstudien zur Biosynthese von Apiose in *Lemna*. *Z.Pflanzenphysiol.* **55**, 71-84.
- BEER S., 1985: Effects of CO<sub>2</sub> and O<sub>2</sub> on the photosynthetic O<sub>2</sub> evolution of *Spirodela polyrrhiza* turions. *Plant Physiol.* **79(1)**, 199-201.
- BEGUM S. and KHATUN R., 1983: Study on the occurrence of aquatic weeds and algae in Dhaka city and its suburbs. *Bangladesh J.Sci.Ind.Res.* **18(1/4)**, 136-145
- BELL D.J., HARDWICK N.E., ISHERWOOD F.A. and CAHN R.S., 1954: D(+)-Apiose from the monocotyledon *Posidonia australis*. *J.Chem.Soc.(London)* **1954**, 3702.
- BELL W.A., 1949: Uppermost Cretaceous and Paleocene floras of Western Alberta. *Canada Dept.Mi.Res.Geol.Surv.Bull.* **13**, 1-229.
- BELLANDO M., MONTACCHINI F. and AMEDEI G., 1978: L'azione fitotossica dell'Irpexil (acetidrossamoilacetato di metile) sulle piante superiori. Nota prima: azione brachizzante ed inibizione mitotica. *G.Bot. Ital.* **112(1-2)**, 97-106.
- BENKOVA D., 1957: Blühende *Wolffia* (*Wolffia arrhiza* [L.]) im nördlichen Kaukasus-Vorland. (In Russian). *Biologia* **12**, 460-463.
- BENNINK G.J.H. and DE VRIES J.W.A., 1975: Flower development in *Chrysanthemum* and *Lemna* under long-day conditions with the cytokinin benzyladenine. *2nd Symp.Plant Growth Regulators, Sofia, 1975. Abstr.*, 66-67.
- BENNINK G.J.H. and DE VRIES J.W.A., 1977: Flower development in *Lemna perpusilla* under long-day conditions with the cytokinin benzyladenine. In: KUDREV T., IVANOVA I. and KARANOV E. (eds.), *Plant Growth Regulators. Proc.2nd Int.Symp.,Sofia,1975.* 544-547.
- BENNINK G.J.H., VAN DEN BERG R., KOOL H.J. and STEGWEE D., 1970: Flowering in *Lemna minor*. *Acta Bot.Neerl.* **19**, 385-392.
- BENSON A.A., NISSEN P., COONEY R.V., HERRERA-LASSO J.M. and SUMMONS R. E., 1981: Arsenic metabolic paths in aquatic and terrestrial plants. *Proc.13th Int.Bot.Congr. Abstr.*, 26.
- BEN-TAL Y. and CLELAND C.F., 1981: Investigation of the mode of action of salicylic acid in inducing flowering in *Lemna obscura* through the use of [<sup>14</sup>C] labeled salicylic acid. *Plant Physiol.* **67(4 suppl.)**, 103.
- BEN-TAL Y. and CLELAND C.F., 1982: Uptake and metabolism of [<sup>14</sup>C] salicylic acid in *Lemna gibba* strain G3. *Plant Physiol.* **70(1)**, 291-296.

- BENTLEY C.A., 1910: The natural history of Bombay malaria. J. Bombay Nat.Hist.Soc. **20**, 392-422.
- BEPPU T., 1981: Wolffia in Japan. (In Japan.). Acta Phytotax.Geobot. **32**, 197.
- BEPPU T. and TAKIMOTO A., 1981a: Geographical distribution and cytological variation of Lemna paucicostata Hegelm. in Japan. Bot.Mag.Tokyo **94**, 11-20.
- BEPPU T. and TAKIMOTO A., 1981b: Further studies on flowering of Lemna paucicostata in Japan. Bot.Mag.Tokyo **94**, 69-76.
- BEPPU T. and TAKIMOTO A., 1981c: Growth of various ecotypes of Lemna paucicostata in Japan under various temperature conditions, and their wintering forms. Bot.Mag.Tokyo **94**, 107-114.
- BEPPU T. and TAKIMOTO A., 1983: Flowering behavior of the hybrids between strains 6746 and 371 of Lemna paucicostata Hegelm. Aquat.Bot. **17(3-4)**, 295-299.
- BEPPU T. and TAKIMOTO A., 1984, s. 1983
- BEPPU T., YANASE D., NOBUCHI T. and MURATA G., 1985: A revision of Lemna paucicostata group in Japan. (In Japanese). Acta Phytotax.Geobot. **36**, 45-58.
- BERBERICH S., 1986: Duckweed may unlock sunflower's secret. Agric.Res., Washington DC, **34(7)**, 12.
- BERGAMINI P.G., PALMAS G., PIANTELLI F., SANI M., BANDITELLI P., PREVITERA M. and SODI F., 1979: Study of <sup>137</sup>Cs absorption by Lemna minor. Health Phys. **37**, 315-321.
- BERNABEU C., TOBIN E.M., FOWLER A., ZABIN I. and LAKE J.A., 1983: Nascent polypeptide chains exit the ribosome in the same relative position in both eukaryotes and prokaryotes. J.Cell Biol. **96**, 1471-1474.
- BERRIMAN D.J., 1973: The first record of Spirodela punctata (Lemnaceae) from Rhodesia. Kew Bull. **28**, 325-326.
- BERRY C.J., Jr. and SCHRECK C.B., 1975: Toxicity of diquat and endothal separately and combined on several species of aquatic plants. Va.J. Sci. **26(4)**, 159.
- BERTOSSI M.F., 1950: L'idrazide maleica come fitormone. Atti.Ist.Bot. Univ.Pavia ser. 5, **8**, 155-166.
- BERTSCH K., 1952: Wolffia arrhiza in Württemberg. Jb.Ver.Vaterl.Naturkde. Württbg. **107**, 133-136.
- BERUBE R., BEAUMONT G. and GRENIER G., 1982: Effets physiologiques de la benzyladénine sur la Lemna minor. I. Influence sur la composition lipidique. Can.J.Bot. **60(6)**, 758-764.
- BEST P.H., PIETERSE A.H., SOEKARJO R. and DE LANGE L., 1977: A preliminary study of the internal gas composition of Lemna gibba L. Acta Bot.Neerl. **26**, 109-113.
- BEYER B.H., 1983: Oekologisch-systematische Differenzierung in der Familie der Lemnaceae in bezug auf den Bedarf an Calcium und Magnesium. Diploma Thesis. Geobotanisches Institut ETH,Stiftung Rübel,Zürich. 137 pp. (Polycopy).
- BEZEMER-SYBRANDY S.M., 1969: Investigations on cytokinins. Studies with Lemna minor L. (In Dutch). Ph.D.Thesis. Univ.Leiden. 81 pp.
- BEZEMER-SYBRANDY S.M. and VELDSTRA H., 1971a: Investigations on cytokinins. III. Cytokinin activity in Lemna minor tRNA hydrolysates. Physiol.Plant. **24**, 369-373.
- BEZEMER-SYBRANDY S.M. and VELDSTRA H., 1971b: Investigations on cytokinin. IV. The metabolism of 6-benzylaminopurine in Lemna minor. Physiol.Plant. **25**, 1-7.
- BEZEMER-SYBRANDY S.M., TASSERON-DE JONG J.G. and VELDSTRA H., 1968: Effects of visible light on kinetin solutions. Biochem.Biophys.Acta **161**, 568-571.

- BHALLA P.R., PIETERSE A.H. and SABHARWAL P.S., 1973: Some aspects of flowering, gibbosity and turion formation in Lemnaceae. *Acta Bot. Neerl.* **22**, 433-445.
- BHALLA P.R. and SABHARWAL P.S., 1971: Investigations on the effect of tobacco smoke constituents on growth and morphogenesis of plant tissues. *In Vitro* **6(5)**, 402.
- BHALLA P.R. and SABHARWAL P.S., 1972a: Induction of flowering in *Lemna minor* by EDDHA. *Acta Bot. Neerl.* **21**, 200-202.
- BHALLA P.R. and SABHARWAL P.S., 1972b: Induction of flowering in *Lemna gibba* G3 by aspirin. *In Vitro* **7(4)**, 281.
- BHALLA P.R. and SABHARWAL P.S., 1974: Effects of tobacco smoke and some of its constituents on growth and flowering of *Lemna gibba* G3. *Environ. Pollut.* **6**, 59-66.
- BHALLA P.R. and SABHARWAL P.S., 1975: Induction of flowering in *Lemna gibba* G3 by aspirin. *Experientia* **31**, 540-541.
- BHANTHUMNAVIN K. and MCGARRY M.G., 1971: *Wolffia arrhiza* as a possible source of inexpensive protein. *Nature* **232(5331)**, 495.
- BHAT P.K., DAGAR J.C., SINGH V.P. and MALL L.P., 1977: Studies on interspecific associations of aquatic plants. *Biologia(Lahore)* **23**, 117-124.
- BHATNAGAR P. and TILLBERG E., 1982: Uptake of radioactivity by *Lemna gibba* from  $1-^{14}\text{C}$ -indole-3-acetic acid applied to the medium. *Physiol. Plant.* **54(2)**, 183-188.
- BHATTA H.L., SASTRY C.A. and NIGAM R.K., 1973: Control of aquatic weeds from water bodies using grass carp. *Indian J. Environ. Health* **15**, 92-99.
- BIANCHETTI R., 1963: Azione della luce sull'assorbimento, l'utilizzazione ed il trasporto dei glucidi. *G. Bot. Ital.* **70**, 329-337.
- BIEDLINGMAIER S., KOEST H.-P. and SCHMIDT A., 1986: Utilization of sulfonic acids as the only sulfur source for growth of photosynthetic organisms. *Planta* **169(4)**, 518-523.
- BIELECKI K. and SKRABKA H., 1976: Effect of some herbicides on photosynthesis of *Spirodela polyrrhiza*. (In Polish). *Acta Agrobot.* **29(1)**, 59-68.
- BIELECKI K., STACHURSKA A., and GRZYS E., 1981: Effect of the detergent Tween 20 on the phytotoxicity of linuron. (In Polish). *Zesz. Nauk. Akad. Roln. Wroclawin* **131**, 99-108.
- BIELENSKI U., GARREC J.P., DEMARTY M., RIPOLL C. and THELLIER M., 1984a: Kinetic parameters in the compartmental analysis of lithium transport in *Lemna gibba* using the stable isotopes,  $^6\text{Li}$  and  $^7\text{Li}$ , as tracers. *Physiol. Plant.* **61(2)**, 236-242.
- BIELENSKI U., RIPOLL C., DEMARTY M., LUETTGE U. and THELLIER M., 1984b: Estimation of cellular parameters in the compartmental analysis of  $\text{Li}^+$  transport in *Lemna gibba* using the stable isotopes,  $^6\text{Li}$  and  $^7\text{Li}$ , as tracers. *Physiol. Plant.* **62(1)**, 32-38.
- BIELESKI R.L., 1968a: Levels of phosphate in *Spirodela*. *Plant Physiol.* **43**, 1297-1308.
- BIELESKI R.L., 1968b: Effect of phosphorus deficiency on levels of phosphorus compounds in *Spirodela*. *Plant Physiol.* **43**, 1309-1316.
- BIELESKI R.L., 1971: Enzyme changes in plants following changes in their mineral nutrition. *Proc. 6th Int. Coll. Plant Analysis and Fertilizer Problems, Tel Aviv, 1970*, **1**, 143-153.
- BIELESKI R.L., 1972: Turnover of phospholipids in normal and phosphorus-deficient *Spirodela*. *Plant Physiol.* **49(5)**, 740-745.
- BIELESKI R.L., 1974: Development of an externally located alkaline phosphatase as a response to phosphorus deficiency. In: BIELESKI R.L.,

- FERGUSON A.R. and CRESSWELL M.M. (eds.), Mechanisms of regulation of plant growth. Bull. 12, The Royal Soc. of New Zealand, Wellington, 165-170.
- BIELESKI R.L and JOHNSON P.N., 1972: The external location of phosphatase activity in phosphorus-deficient *Spirodela oligorrhiza*. Aust.J. Biol.Sci. 25(4), 707-720.
- BIERHUIZEN J.F., 1954: Observations on potassium deficiency in *Lemna minor* L. Meded.Landbouwhogeschool Wageningen 54, 311-319.
- BIERNACHI W.N. and WINOGRADOV A.P., 1931: Elementary structure of *Lemna*; determination of species. (In Russian). DAN SSR 6.
- BIGGS R.H., 1983: Studies of ultraviolet-B radiation on growth and development of *Lemna minor*. Plant Physiol. 72(suppl.), 163.
- BIGGS R.H., 1984: Ultraviolet-B radiation alters proteins and asexual and sexual reproduction of *Lemna minor*. Plant Physiol. 75(suppl.), 135.
- BIGGS R.H. and KOSSUTH S.V., 1980: Developmental effects of Sandoz 6706 and ultraviolet-B radiation on *Spirodela punctata* and *Lemna minor*. Plant Physiol. 65(suppl.), 83.
- BIGGS R.H. and KOSSUTH S.V., 1985: Stress proteins in *Lemna minor*. Plant Physiol. 77(4 suppl.), 154.
- BINOT R.A., NAVEAU H.P. and NYNS E.-J., 1981: Methanogenic potential activity of mixed liquors (fluorometric monitoring). Biotechnol.Lett. 3(11), 623-628.
- BIRMINGHAM B.C. and COLMAN B., 1983: Potential phytotoxicity of diquat accumulated by aquatic plants and sediments. Water,Air,Soil Pollut. 19(2), 123-131.
- BISCOE T.D., 1873: The winter state of our duckweeds. Am.Nat. 7, 257-268.
- BISHOP W.E. and PERRY R.L., 1981: Development and evaluation of a flow-through growth inhibition test with duckweed (*Lemna minor*). ASTM Spec.Tech.Publ. 737, 421-435.
- BITCOVER E.H. and SIELING D.H., 1951: Effect of various factors on the utilization of nitrogen and iron by *Spirodela polyrrhiza* (L.) Schleid. Plant Physiol. 26, 290-303.
- BITTING L.E., Sr., 1974: Field uses of invert emulsions. Hyacinth Control J. 34-35.
- BJOERND AHL G., 1984: Growth performance, nutrient uptake and human utilization of duckweeds (Lemnaceae family). The Phytotron, Univ. Oslo and Agric.Res.Counc.Norway. 102 pp.
- BJOERND AHL G. and NILSEN S., 1985: Growth potential of *Lemna gibba*: effect of CO<sub>2</sub> enrichment at high photon flux rate. Aquat.Bot. 22(1), 79-82.
- BLACK J.M., 1978: Lemnaceae. In: JESSOP J.P. (ed.), Flora of South Australia. (3rd ed.). Adelaide. 304-306.
- BLACKBURN K.B., 1933: Notes on chromosomes of the duckweeds (Lemnaceae) introducing the question of chromosome size. Proc.Univ.Durham Phil. Soc. 9, 84-90.
- BLACKBURN R.D., 1976: Effective control of an aquatic weed nuisance. Publ.Wks. 107(5), 58-60.
- BLACKBURN R.D. and SUTTON D.L., 1971: Growth of the white amur (*Ctenopharyngodon idella* Val.) on selected species of aquatic plants. Proc. Eur.Weed Res.Council 3, 87-93.
- BLACKBURN R.D. and WELDON L.W., 1965: The sensitivity of duckweeds (Lemnaceae) and *Azolla* to diquat and paraquat. Weeds 13, 147-149.
- BLACKMAN G.E., 1952: Studies in the principles of phytotoxicity. I. The assessment of relative toxicity. J.Exp.Bot. 3, 1-27.

- BLACKMAN G.E., 1956: Interrelationships between the uptake of 2:4-dichlorophenoxyacetic acid, growth, and ion absorption. In: WAIN R.L. and WIGHTMAN F. (eds.), The chemistry and mode action of plant growth substances. Butterworth, London. 253-259.
- BLACKMAN G.E., PARKE M. H. and GARTON G., 1954: The physiological activity of substituted phenols. Arch.Biochem.Biophys. **54**, 45-71.
- BLACKMAN G.E. and PRASAD R., 1962: The influence of light intensity and temperature on the phytotoxicity of dalapon to Lemna minor and Salvinia natans. Res.Prog.Rept.Western Weed Control Conf., 91-92.
- BLACKMAN G.E. and ROBERTSON-CUNINGHAME R.C., 1953: The influence of pH on the phytotoxicity of 2:4 dichlorophenoxyacetic acid to Lemna minor. New Phytol. **52**, 71-76.
- BLACKMAN G.E. and ROBERTSON-CUNINGHAME R.C., 1954: Interactions in the physiological effects of growth substances on plant development. J. Exp.Bot. **5**, 184-203.
- BLACKMAN G.E. and ROBERTSON-CUNINGHAME R.C., 1955: Interrelationship between light intensity, temperature, and the physiological effects of 2:4-dichlorophenoxyacetic acid on the growth of Lemna minor. J. Exp.Bot. **6**, 156-176.
- BLACKMAN G.E. and SARGENT J.A., 1959: The uptake of growth substances. II. The absorption and accumulation of 2:3:5-triiodobenzoic acid by the root and frond of Lemna minor. J.Exp.Bot. **10**, 480-503.
- BLACKMAN G.E., SENN G., BIRCH W.R. and POWELL R.G., 1959: The uptake of growth substances. 1. Factors controlling the uptake of phenoxyacetic acids by Lemna minor. J.Exp.Bot. **10**, 33-54.
- BLACKWOOD G.C. and LEAVER C.J., 1977: The effect of light on protein synthesis in green leaves. Colloq.Int. C.N.R.S. No. **261**: Acides nucléiques et synthèse des protéines chez les végétaux. 611-615.
- BLAKE C.H., 1938: Wolffia floridana in Massachusetts. Rhodora **40**, 76.
- BLAKE G. and DUBOIS J.P., 1979: Rôle des macrophytes aquatiques dans l'épuration, synthèse bibliographique. Rapp.Ministère d'Environm. et du Cadre de Vie. 91 pp.
- BLAKE G. and DUBOIS J.P., 1981: Water epuration: role of aquatic macrophytes in elimination mineral elements. Int.Coll.Aquat.Water Plants, Brussels, 1981, Abstr., 27.
- BLAKE G. and DUBOIS J.P., 1982: Epuration des eaux: rôles des macrophytes aquatiques dans l'élimination des éléments minéraux. In: SYMOENS J.J., HOOPER P. and COMPERE P. (eds.), Studies on aquatic plants. R.Bot.Soc.Belg. 315-323.
- BLAKE S.F., 1933: Wolffia lingulata in Louisiana. Rhodora **35**, 226.
- BLAKE S.F., 1952: Wolffia papulifera in Texas. Rhodora **54**, 306-307.
- BLATTER E. and HALLBERG C., 1921: Species novae Indiae Orientalis. J. Ind.Bot. **2**, 49-50.
- BLAZEY E.B. and McCLURE J.W., 1968: The distribution and taxonomic significance of lignin in the Lemnaceae. Am.J.Bot. **55**(10), 1240-1245.
- BLODGETT F.H., 1914: Development of the embryo and the germination in Lemna perpusilla. Science **39**, 292.
- BLODGETT F.H., 1915: Morphology of the Lemna frond. Bot.Gaz. **60**, 383-390.
- BLODGETT F.H., 1923: The embryo of Lemna. Am.J.Bot. **10**, 336-342.
- BLUETHGEN J., 1964: Allgemeine Klimageographie. De Gruyter, Berlin. 599 pp.
- BOCCHI A., 1981: Effetti del fitato di sodio su Lemna minor. I. Allungamento della radice in assenza di sali minerali nel mezzo di coltura. Ann.Fac.Med.Vet.Univ.Parma **1**, 113-118.
- BOCCHI A., 1982: Effetti del fitato di sodio su Lemna minor. II. Influ-

- enza sul ciclo di sviluppo vegetativo e sulle caratteristiche delle colonie. Ann.Fac.Med.Vet.Univ.Parma 2, 71-80.
- BOCION P.F., CATTANACH C.J., EGGENBERG P., GRESSEL J., HAGMANN M.-L., MALKIN S. and WENGER J., 1987: Synthesis and characterization of a group of dihydropyrimidobenzimidazole photosystem II herbicides. Pestic.Biochem.Physiol. 28(1), 75-84.
- BOECHER M. and NOVACKY A., 1978: The active component of membrane potential of Lemna gibba effect of fusicoccin. Plant Physiol. 61(4 suppl.), 107.
- BOECHER M. and NOVACKY A., 1981: Effect of tentoxin on the membrane potential of Lemna gibba Gl. Plant Sci.Lett. 23(3), 269-276.
- BOECHER M., FISCHER E., ULLRICH-EBERIUS C. and NOVACKY A., 1980: Effect of fusicoccin on the membrane potential, on the uptake of glucose and glycine, and on the ATP level in Lemna gibba Gl. Plant Sci.Lett. 18, 215-220.
- BOECKER E., 1936: Ueber eine Lemna mit regelmässig homodromer und antidromer Verzweigung. Flora 130, 438-440.
- BOESZOERMENYI E., 1955: Contributions to the mineral nutrition of Lemna minor. (In Hung.). Ph.D.Thesis. Univ. Budapest.
- BOESZOERMENYI E. and BOESZOERMENYI Z., 1957: N and P nutrition and the physiological age of Lemna minor L. Acta Bot.Acad.Sci.Hung. 3, 1-7.
- BOGACKA T. and GROBA J., 1980: Toxicity and biodegradation of chlorfenvinfos, carbaryl, and propoxur in an aquatic environment. (In Polish). Bromatol.Chem.Toksykol. 13(2), 151-158.
- BOGACKA T., WIKTOR J. and GROBA J., 1983: Toxicity and biodegradation of selected pesticides in water environment. (In Polish). Bromatol.Chem. Toksykol. 16(2), 145-159.
- BOGNER J., 1985: Wolffiella welwitschii und Wolffiella denticulata (Lemnaceae). Aqua-Planta 10(3), 3-5.
- BOLGIANO R.W., 1979: Effects of various changes in the nutrient medium on growth and potassium accumulation in Lemna. M.S.Thesis. James Madison Univ., Harrisonburg, Virginia.
- BOLLARD E.G., 1966: A comparative study of the ability of organic nitrogenous compounds to serve as sole sources of nitrogen for the growth of plants. Plant and Soil 25, 153-166.
- BOLLARD E.G. and COOK A.R., 1968: Regulation of urease in a higher plant. Life Sci. Part II, 7(20), 1091-1094.
- BOLLARD E.G., COOK A.R. and TURNER N.A., 1968: Urea as a sole source of nitrogen for plant growth. I. The development of urease activity in Spirodela oligorrhiza. Planta 83, 1-12.
- BOLLMANN O., STROTHER S. and HOFFMANN-OSTENHOF O., 1980: Studies on the biosynthesis of cyclitols. XL. The enzymes involved in the synthesis of phytic acid in Lemna gibba. Mol.Cell Biochem. 30, 171-175.
- BONEY S.E., 1977: Chemical and physical characterization of a two-stage animal waste lagoon supporting aquatic plants. M.S.Thesis. Louisiana State Univ., Baton Rouge, La.
- BONG C.L., COLE A.L.J., WALKER J.R.L. and PETERS J.A., 1979: Effect of sodium fluoroacetate ("Compound 1080") on the soil microflora. Soil Biol.Biochem. 11(1), 13-18.
- BONG C.L., WALKER J.R.L. and PETERS J.A., 1980: The effect of fluoroacetate ("Compound 1080") and fluoride upon duckweeds. N.Z.J.Sci. 23, 179-183.
- BONOMI A., QUARANTELLI A., SUPERCHI P., SABBIONI A. and MALAVASI P., 1981: Contributo alla conoscenza della composizione chimico-bromatologica del giacinto d'acqua (Eichhornia crassipes) e della lenticchia d'acqua (Lemna minor) coltivati su reflui di porcilaia parzialmente trattati. Ann.Fac.Med.Vet.Univ. Parma, 1, 198-216.

- BORESCH K., 1935/36: Gehalt der Pflanzen an Mineralstoffen. *Tabulae Biologicae* **10**, 315-353 (1935) and **11**, 136-191 (1936).
- BORNKAMM R., 1964: Zur Oxalatsynthese von *Lemna minor* L. unter verschiedenen Anzuchtbedingungen. Vorläufige Mitteilung. *Ber.Deutsch.Bot.Ges.* **77**, Sondernummer (187)-(193).
- BORNKAMM R., 1965: Die Rolle des Oxalats im Stoffwechsel höherer grüner Pflanzen. Untersuchungen an *Lemna minor* L. *Flora A* **156**, 139-171.
- BORNKAMM R., 1966a: Die Oxalsäure im Stoffwechsel höherer Pflanzen. *Umschau* **1966**, 262.
- BORNKAMM R., 1966b: Ein Jahresrhythmus des Wachstums bei *Lemna minor* L. *Planta* **69**, 178-186.
- BORNKAMM R., 1969a: Typen des Oxalatstoffwechsels grüner Blätter bei einigen Familien höherer Pflanzen. *Flora A* **160**, 317-336.
- BORNKAMM R., 1969b: Interactions and their influence on protein content of plants. 11th Int.Bot.Congr. and Int.Wood Chemistry Symp. 1969, Seattle. Abstr., 18.
- BORNKAMM R., 1970a: Dunkel-Assimilation von Nitrat bei *Lemna minor* L. *Planta* **92**, 50-56.
- BORNKAMM R., 1970b: Ueber den Einfluss der Konkurrenz auf die Substanzproduktion und den N-Gehalt der Wettbewerbspartner. *Flora A* **159**, 84-104.
- BORNKAMM R., 1970c: Ueber den Oxalat- und Stickstoffgehalt von Pflanzen aus verschiedenen Höhenstufen. *Oecol.Plant.* **5**, 335-343.
- BORSTLAP A.C., 1970: Antagonistic effects of branched chain amino acids on the growth of *Spirodela polyrhiza* (L.) Schleiden. *Acta Bot.Neerl.* **19(2)**, 211-215.
- BORSTLAP A.C., 1972: Changes in the free amino acids of *Spirodela polyrhiza* (L.) Schleiden during growth inhibition by L-valine, L-isoleucine, or L-leucine. A gas chromatographic study. *Acta Bot.Neerl.* **21**, 404-416.
- BORSTLAP A.C., 1974: Antagonisms between amino acids in the growth of *Spirodela polyrhiza* due to competitive amino acid uptake. *Acta Bot. Neerl.* **23**, 723-738.
- BORSTLAP A.C., 1975: Metabolic fate of exogenously supplied branched-chain amino acids in *Spirodela polyrhiza*. *Acta Bot.Neerl.* **24(2)**, 203-206.
- BORSTLAP A.C., 1977a: Kinetics of the uptake of some neutral amino acids by *Spirodela polyrhiza*. *Acta Bot.Neerl.* **26**, 115-128.
- BORSTLAP A.C., 1977b: Effects of branched-chain amino acids on the growth of *Spirodela polyrhiza*. Ph.D.Thesis. Univ. Utrecht. 116 pp.
- BORSTLAP A.C., 1978: Glycine and L-alanine as antagonists of growth inhibition by the branched-chain amino acids in *Spirodela polyrhiza*. *J.Exp.Bot.* **29(110)**, 709-718.
- BORSTLAP A.C., 1981: Interactions between the branched-chain amino acids in the growth of *Spirodela polyrhiza*. *Planta* **151**, 314-319.
- BORSTLAP A.C. and VERNOOY-GERRITSEN M., 1985: In-vivo control of valine and leucine synthesis in the duckweed *Spirodela polyrhiza*. *Planta* **164(1)**, 129-134.
- BORSTLAP A.C., MEENKS J.L.D., VAN ECK W.F. and BICKER J.T.E., 1986: Kinetics and specificity of amino acid uptake by the duckweed *Spirodela polyrhiza* (L.) Schleiden. *J.Exp.Bot.* **37(180)**, 1020-1035.
- BOSS M.L., DIJKMAN M.J. and RUSSELL E., 1963b: Standardized culture of some Lemnaceae. *Quart.J.Florida Acad.Sci.* **26(4)**, 335-346.
- BOSS M.L., DIJKMAN M.J. and THEILING V.B., 1963a: Aging studies on *Lemna*. *Quart.J.Florida Acad.Sci.* **26**, 175-183.
- BOTTOMLEY W.B., 1914: Some accessory factors in plant growth and nutrition. *Proc.R.Soc. B* **87**, 237-247.

- BOTTOMLEY W.B., 1917: Some effects of organic growth promoting substances (auximones) on the growth of *Lemna minor* in mineral culture solutions. *Proc.R.Soc. B* **89**, 481-507.
- BOTTOMLEY W.B., 1919: The effect of nitrogen-fixing organisms and nucleic acid derivatives on plant growth. *Proc.R.Soc. B* **91**, 83-95.
- BOTTOMLEY W.B., 1920a: The growth of *Lemna* plants in mineral solution and in their natural media. *Ann.Bot.* **34**, 345-352.
- BOTTOMLEY W.B., 1920b: The effect of organic matter on the growth of various water plants in culture solution. *Ann.Bot.* **34**, 353-367.
- BOUDET A., HUMPHREY T.J. and DAVIES D.D., 1975: The measurement of protein turnover by density labelling. *Biochem.J.* **152**, 409-416.
- BOULGER G.S., 1881: The ancestry of duckweeds. (Reprint of an unknown journal: Gb. 17.9.1981). 1 p.
- BOURU W.S., 1932: Ecological and physiological studies on certain aquatic angiosperms. *Contrib.Boyce Thompson Inst.* **4(4)**, 425-496.
- BOUTIN C., 1983: Les macrophytes, leur rôle dans l'épuration des eaux usées et leur insertion dans les différents systèmes de traitement; étude sur site réel de l'exportation d'éléments nutritifs par les lentilles d'eau. Rep. of ENSP to CEMAGREF. (Polycopy).
- BOWEN H.J.M., 1958a: Variation in *Lemna gibba*. *Proc.Bot.Soc.Brit.Isles* **3**, 86-87.
- BOWEN H.J.M., 1958b: Two American species of *Lemna*. *Proc.Bot.Soc.Brit. Isles* **3**, 87.
- BOWKER D.W., 1978: Interactions of aquatic macrophytes and epiphytic algae in freshwater ecosystems. Ph.D.Thesis. Univ.of London.
- BOWKER D.W. and DENNY P., 1980: The seasonal succession and distribution of epiphytic algae in the phyllosphere of *Lemna minor* L. *Arch.Hydrobiol.* **90**, 39-55.
- BOWKER D.W. and DUFFIELD A.N., 1981: Population growth of *Lemna gibba* L. in the Gwent levels drainage channels. *Proc.Conf.Aquat.Weeds and their Contr. Nat.Veg.Res.Stat., Wellesbourne.* 67-76.
- BOWKER D.W., DUFFIELD A.N. and DENNY P., 1980: Methods for the isolation, sterilization and cultivation of Lemnaceae. *Freshw.Biol.* **10**, 385-388.
- BOWMAN C. and DYER T.A., 1979: 4.5S ribonucleic acid, a novel ribosome component in the chloroplasts of flowering plants. *Biochem.J.* **183**, 605-614.
- BOYD C.E., 1968: Fresh-water plants: a potential source of protein. *Econ.Bot.* **22**, 359-368.
- BOYD C.E., 1975: Competition for light by aquatic plants. *Circ.Agric. Exp.Stat.Auburn Univ.* **215**, 19 pp.
- BOYD C.E. and SCARSBROOK E., 1975: Chemical composition of aquatic weeds. In: BREZONIK P.L. and FOX J.L. (eds.), *Proc.Symp.Water quality management through biological control*, Gainesville. 144-150.
- BRADEN D.A. and CIALONE J.C., 1971: Toxicity of paraquat-treated plant tissue to *Lemna minor* L. *Proc.Northeastern Weed Sci.Soc. Abstr.* **25**, 220.
- BRADLEY G.H., 1932: Some factors associated with the breeding of Anopheles mosquitoes. *J.Agric.Res.* **44**, 381-399.
- BRAENDLE R., 1978: Downward transport of sulfur compounds from primary bean leaves (*Phaseolus vulgaris*) following gasing with sulfur-35 labelled hydrogen sulfide. Translation 23884 of Al Ahram Center. 9 pp.
- BRAENDLE R. and ERISMANN K.H., 1968: Photosynthese-abhängige Sulfidaufnahme grüner Pflanzen. *Naturwissenschaften* **55**, 41.
- BRAENDLE R., STOECKLI B. and ERISMANN K.H., 1975: Beeinflussung der Thymidinphosphorylierung und Inkorporation durch Schwefeldioxid und Sul-

- fit bei der Wasserlinse (*Lemna minor* L.). *Experientia* **31**, 511-513.
- BRAENDLE R., STRASSER R. and ERISMANN K.H., 1968: Intermediärprodukte der H<sub>2</sub>S-Assimilation bei *Lemna minor* L. *Verh.Schweiz.Naturf.Ges.* **148**, 122-124.
- BRAUN-BLANQUET J. and RUEBEL E., 1932-1935: Flora von Graubünden. *Veröff.Geobot.Inst.Rübel,Zürich* **7**, 1695 pp.
- BRAUN S.A.M., 1986: Abscisinsäure und Indolelessigsäure in Wasserpflanzen und deren Beziehung zum Wachstum unter natürlichen Umweltbedingungen. Ph.D.Thesis. TU München. 130 pp.
- BRAVO H., 1930: Las Lemnaceas del valle de Mexico. *An.Inst.Biol.(Mexico)* **1**, 7-37.
- BRECHT E., 1986: The light-harvesting chlorophyll a/b-protein complex II of the higher plants. Results from a twenty-year research period. *Photobiochem.Photobiophys.* **12(1-2)**, 37-50.
- BREHM V., 1935: Die Organismenwelt der Wasserlinsenteppiche. *Mikrokosmos* **28**, 109.
- BREZNY O., MEHTA I. and SHARMA R.K., 1973: Studies on evapotranspiration of some aquatic weeds. *Weed Sci.* **21(3)**, 197-204.
- BRISTOW J.M., CARDENAS J., FULLERTON T.M. and SIERRA J., 1972: Aquatic weeds. *Columbian Agr.Inst. and the Intern.Plant Protection Center, Oregon State Univ., Agency for Intern. Development.*
- BROCK M.A. and LANE J.A.K., 1983: The aquatic macrophyte flora of saline wetlands in Western Australia in relation to salinity and permanence. *Hydrobiologia* **105**, 63-76.
- BRONGNIART A., 1833: Notes sur la structure du fruit des Lemna. *Arch. Bot.* **2**, 97-104.
- BROOKS J.S., 1940: The cytology and morphology of the Lemnaceae. Ph.D. Thesis. Cornell University.
- BROOKS R.E., 1981: *Wolffia*, new record for Colorado, USA. *Southwest Nat.* **26(3)**, 321.
- BROOKS R.E. and HAUSER L.A., 1978: Aquatic vascular plants in Kansas. I. Submersed and floating leaved plants. *Tech.Publ.State Biol.Surv.Kansas* **7**, 70 pp.
- BROOKS R.E. and MCGREGOR R.L., 1979: New records and notes on the vascular flora of Kansas for 1978. *Tech.Publ.State Biol.Surv.Kansas* **8**, 87-92.
- BROUARD F., BORIES A. and SAUZE F., 1983: Advance in anaerobic digestion of aquatic plants. (In French). *Comm.Eur.Communities EUR* **8245**, 334-338.
- BROWN B.T. and RATTIGAN B.M., 1979: Toxicity of soluble copper and other metal ions to *Elodea canadensis*. *Environ.Pollut.* **20**, 303-314.
- BRUCE B.D. and MALKIN R., 1987: Composition and function of photosystem I in *Lemna*. *Symp. on plant membranes. J.Cell Biochem. (suppl. 11 part B)*, 83.
- BRUMFIELD B.M., EVANS D.K. and BRANT A.E., 1982: Additions to the wetland flora of West Virginia. *Castanea* **47(2)**, 179-181.
- BRUNAUD A., 1974 s. 1974c
- BRUNAUD A., 1974a: Organisation de la pousse végétative d'une Lemnacée: *Spirodela polyrrhiza* (L.) Schleid. *C.R.Acad.Sci.Paris, D* **278**, 1183-1186.
- BRUNAUD A., 1974b: Organisation végétative chez les *Lemna minor* L. et *Wolffia arrhiza* (L.) Wimm. *C.R.Acad.Sci.Paris, D* **278(16)**, 2019-2022.
- BRUNAUD A., 1974c: Organisation de la pousse fertile chez le *Lemna minor*. *C.R.Acad.Sci.Paris, D* **278(23)**, 2913-2916.
- BRUNEL J.F., HIEPKO P. and SCHOLZ H., 1984: Flore analytique du Togo. *Phanérogames. Englera* **4**. 751 pp.

- BRUNK D.G. and RHODES D., 1987: Effects of aminoxyacetate on amino acid metabolism of *Lemna minor* L. *Plant Physiol.* **83**(4 suppl.), 24.
- BRUNOLD C., 1972: Regulation der Sulfataufnahme und der Sulfatassimilation durch Schwefelwasserstoff. Diss.Univ. Bern.
- BRUNOLD C. and ERISMANN K.H., 1968: Der Mechanismus der Photosynthesehemmung durch Acetat bei *Lemna minor*. *Verh.Schweiz.Naturf.Ges.* **148**, 124-125.
- BRUNOLD C. and ERISMANN K.H., 1970: Die Hemmung der Sulfataufnahme durch  $H_2S$  bei *Lemna minor*. *Verh.Schweiz.Naturf.Ges.* **150**, 238-239.
- BRUNOLD C. and ERISMANN K.H., 1972:  $H_2S$  als Schwefelquelle bei *Lemna minor* L. *Verh.Schweiz.Naturf.Ges.* **152**, 145-147.
- BRUNOLD C. and ERISMANN K.H., 1974:  $H_2S$  als Schwefelquelle bei *Lemna minor* L.: Einfluss auf das Wachstum, den Schwefelgehalt und die Sulfataufnahme. *Experientia* **30**, 465-467.
- BRUNOLD C. and ERISMANN K.H., 1975:  $H_2S$  as sulfur source in *Lemna minor* L. II. Direct incorporation into cysteine and inhibition of sulfate assimilation. *Experientia* **31**, 508-509.
- BRUNOLD C. and ERISMANN K.H., 1976: Sulfur dioxide as a sulfur source in duckweeds (*Lemna minor* L.). *Experientia* **32**, 296-297.
- BRUNOLD C. and SCHMIDT A., 1976: Regulation of adenosine 5'-phosphosulfate sulfotransferase activity by  $H_2S$  in *Lemna minor* L. *Planta* **133**, 85-88.
- BRUNOLD C. and SCHMIDT A., 1978: Regulation of sulfate assimilation in plants. 7. Cysteine inactivation of adenosine 5'-phosphosulfate sulfotransferase in *Lemna minor* L. *Plant Physiol.* **61**, 342-347.
- BRUNOLD Ch. and SUTER M., 1983: Aktivitätsmessung der Adenosin 5'phosphosulfat-Sulfotransferase und ihre Anwendung bei der Untersuchung der de novo-Synthese des Enzyms. *Bot.Helv.* **93**, 105-114.
- BRUNOLD C. and SUTER M., 1984a: Effect of sulfate concentration on nitrate and sulfate assimilating enzymes of *Lemna minor*. *Plant Physiol.* **75**(suppl.1), 198.
- BRUNOLD C. and SUTER M., 1984b: Regulation of sulfate assimilation by nitrogen nutrition in the duckweed *Lemna minor* L. *Plant Physiol.* **76**, 579-583.
- BRUNOLD C. and SUTER M., 1986: Regulation of adenosine 5'phosphosulfate sulfotransferase activity of *Lemna minor* by sulfate. *Experientia* **42** (6). 712.
- BRUNOLD C., SUTER M. and LAVANCHY P., 1987: Effect of high and low sulfate concentrations on adenosine 5'-phosphosulfate sulfotransferase activity from *Lemna minor*. *Physiol.Plant.* **70**(2), 168-174.
- BUCKINGHAM G.R., HAAG K.H. and HABECK D.H., 1986: Native insects enemies of aquatic macrophytes. Beetles. *Aquatics* **8**, 28-34.
- BUCKLE D. and RALPH R.K., 1977: Control of growth of *Spirodela oligorrhiza* in darkness. *Plant Sci.Lett.* **9**, 347-350.
- BUCZEK J., 1984a: The occurrence of a nitrate reductase inactivating factor in extracts of *Spirodela polyrrhiza*. *Acta Soc.Bot.Pol.* **53**(3), 411-417.
- BUCZEK J., 1984b: The effect of ionic and non-ionic surfactants on the growth, nitrate reductase and nitrite reductase activities of *Spirodela polyrrhiza* (L.) Schleiden. *Acta Soc.Bot.Pol.* **53**(4), 551-559.
- BUCZEK J. and SULEJ J., 1986: Density gradient localization of vanadate- and  $NO_3^-$ -sensitive ATPase from sterile cultures of *Spirodela polyrrhiza* (L.) Schleiden. *Acta Soc.Bot.Pol.* **55**, 253-262.
- BUDDHARI W., VIRABALIN R. and AIKAMPHON K., 1984: Effects of external lead concentration on the uptake and distribution of lead in plants. In: THYAGARAJAN G. (ed.), *Proc.Int.Conf. on Water Hyacinth*. Nairobi, Kenya, UN Environ.Progr. 379-385.

- BUGNON F., 1974: Sur un type d'organisation morphologique des pousses fertiles ou de leurs dérivés, particulièrement répandu chez les Monocotylédones. C.R.Acad.Sci.Paris, D **278(12)**, 1553-1556.
- BUIKEMA A.L., Jr., MCGINNISS M.J. and CAIRNS J., Jr., 1979: Phenolics in aquatic ecosystems - a selected review of recent literature. Mar. Environ.Res. **2(2)**, 87-182.
- BUMBY M.J., 1982: A survey of aquatic macrophytes and chemical qualities of nineteen locations in Costa Rica. Brenesia **19/20**, 487-535.
- BURK C.J., LAUERMANN S.D. and MESROBIAN A.L., 1976: The spread of several introduced or recently invading aquatics in Western Massachusetts. Rhodora **78(816)**, 767-772.
- BURKART A., 1957: The vegetation of the Parana River Delta. Darwiniana **11(3)**, 457-561.
- BURTON J.H., ISLINGER S. and MUZTAR A.J., 1975: The nutritional value of water plants. J.Anim.Sci. **41(1)**, 332.
- BURTON T.M., KING D.L. and ERVIN J.L., 1978: Aquatic plant harvesting as a lake restoration technique. Proc.Natl.Conf.on Lake Restoration, Minneapolis, 117-185.
- BUSTINE D.L. and KINDEL P.K., 1969: Biosynthesis of D-Apiose in a cell-free system from Lemna minor L. J.Biol.Chem. **244(5)**, 1382-1385.
- BUTLER G.W. and PETERSON P.J., 1967: Uptake and metabolism of inorganic forms of selenium-75 by Spirodela oligorrhiza. Austral.J.Biol.Sci. **20(1)**, 77-86.
- BYTNIIEWSKA K., 1977: Nitrogen and protein contents in some aquatic plant species. Acta Soc.Bot.Pol. **46(2)**, 165-172.
- BYTNIIEWSKA K. and MACIEJEWSKA-POTAPCZYK W., 1980: Amino acid composition and biological value of proteins in some aquatic plant species. Biochem.Physiol.Pflanz. **175(2)**, 172-175.
- BYTNIIEWSKA K. and POTAPCZYK W., 1981: Growth and contents of total and readily soluble protein in aseptic culture of Spirodela polyrrhiza (L.) Schleid. Acta Physiol.Plant. **3(3)**, 125-133.
- CADEVALL J., 1933: Flora de Catalunya. Barcelona. **5**, 396-398.
- CALDWELL O.W., 1899: On the life history of Lemna minor. Bot.Gaz. **27**, 37-66.
- CALLAHAN F.E. and MATTOO A.K., 1987: Characterization of thylakoid protein acylation, comparison of in vivo and in vitro acylated proteins. Plant Physiol. **83(4 suppl.)**, 113.
- CALLAHAN F.E., MATTOO A.K., NORMAN H.A., ST.JOHN J.B., WERGIN W.P., NELSON N. and EDELMANN M., 1986: Dynamics of chloroplast membrane metabolism. J.Cell.Biol. **103(5 Part 2)**. 521A.
- CAMP W.H., 1933: Distribution and flowering in Wolffia papulifera. Ohio J.Sci. **33**, 163.
- CANTON J.H., SLOOF W., KOOL H.J., STRUYS J., POUW T.J.M., WEGMAN R.C.C. and PIET G.J., 1985: Toxicity, biodegradability, and accumulation of a number of Cl/N-containing compounds for classification and establishing water quality criteria. Regul.Toxicol.Pharmacol. **5(2)**, 123-131.
- CAPOZZI A., 1952: Recherche sul potere fitodinamico di alcuni insetticidi sistemici fosfororganici. Atti Ist.Bot.Univ.Lab.Crittogam.(Pavia), ser. 5, **10**, 117-124.
- CARNEY K.J. and EBINGER J.E., 1982: Aquatic macrophytes in the Shelbyville moraine area of East-Central Illinois. Trans.Ill.Acad.Sci. **75(1-2)**, 143-147.
- CASPERSON G., 1956: Wärmehaushaltstudien an Wasserpflanzen. Ber.Deutsch. Bot.Ges. **69**, 479-486.

- CASSANI J.R., 1981: Feeding behaviour of underyearling hybrids of the grass carp, *Ctenopharyngodon idella*, female, and the bighead, *Hypophthalmichthys nobilis*, male, on selected species of aquatic plants. *J.Fish Biol.* **18(2)**, 127-133.
- CASSANI J.R. and CATON W.E., 1983: Feeding behaviour of yearling and older hybrid grass carp. *J.Fish.Biol.* **22(1)**, 35-42.
- CASSANI J.R. and CATON W.E., 1986: Growth comparisons of diploid and triploid grass carp under varying conditions. *Progressive Fish-Culturist* **48(3)**, 184-187.
- CASSANI J.R., CATON W.E. and HANSEN T.H., Jr., 1982: Culture and diet of hybrid grass carp fingerlings. *J.Aquatic Plant Manage.* **20**, 30-32.
- CAUSSE H., 1976: Etude du renouvellement des protéines végétales: mise au point et application d'une méthode de mesure de la vitesse de dégradation des protéines chez *Lemna minor* L. Ph.D.Thesis. Univ. Paul Sabatier, Toulouse. 63 pp.
- CAUX P.-Y., WEINBERGER P. and CARLISLE D.B., 1986: Dowanol, an environmentally safe adjuvant. *Environ.Toxicol.Chem.* **5(12)**, 1047-1054.
- CAYOUILLE J., BERNARD J.-P., ROY C. and DUBE M., 1983: Plantes vasculaires nouvelles pour le Québec: additions, échappées de culture et éphémérophytes. *Nat.Can.* **110(3)**, 293-312.
- CEDEÑO-MALDONADO A. and LIU L.C., 1976: Effect of two substituted urea and two s-triazine type herbicides on the photosynthesis of *Lemna perpusilla* Torr. *J.Agric.Univ. Puerto Rico* **60**, 369-374.
- CEDEÑO-MALDONADO A., LIU L.C. and DELGADO L., 1979: Effect of photosynthetic inhibitor herbicides on nitrate reductase activity of non-target species. *J.Agric.Univ. Puerto Rico* **63**, 412-414.
- CELINSKI F., 1954: The smallest flowering plant, *Wolffia arrhiza* (L.) Wimm. (In Polish). *Wzeczswiat* **3(4)**, 75-79.
- CEMAGREF - Division qualité des eaux, pêche et pisciculture, 1982: Biomasse dans les lagunes d'épuration: biomasse végétale récoltable dans les lagunes d'épuration de Chauenne (Doubs). Rep. COMES. 21 pp. (Polycopied; cited from HUBAC et al. 1984).
- CERVINKOVA H., 1976: Investigating of triazine residues by bioassays (abstract). *Sbornik Vedeckych Praci ze 6. Ceskoslovenske Konference o Ochrane Rostlin, Czechoslovakia.* Abstr. 227-229.
- CESKA A. and CESKA O., 1979: Additions to the flora of British Columbia. *Can.Field-Nat.* **94**, 69-74.
- CHABRECK R.H. and PALMISANO A.W., 1973: The effects of hurricane camille on the marshes of the Mississippi River Delta. *Ecology* **54**, 1118-1123.
- CHAMP M.A., DAVIS F.S. and WAYLAND J.R., 1973: Ultrahigh-frequency electromagnetic radiation utilized for aquatic vegetation control. *Sport Fishery Abstr.* **19**, 17584.
- CHAMURIS G.P. and NIELSEN P.T., 1980: Phytochrome control of root growth in *Lemna* species. *Va.J.Sci.* **31(4)**, 105.
- CHAMURIS G.P. and NIELSEN P.T., 1983: Phytochrome control of root growth rate in *Lemna* spp. *Am.J.Bot.* **70(6)**, 827-829.
- CHANG S.-M., YANG C.-C. and SUNG S.-C., 1977: The cultivation and the nutritional value of Lemnaceae. *Bull.Inst.Chem.Acad.Sin.* **24**, 19-30.
- CHANG S.-M., YANG C.-C. and SUNG S.-C., 1978: The effects of plant hormones on the cultivation and chemical composition of Lemnaceae. *Bull. Inst.Chem.Acad.Sin.* **25**, 19-34.
- CHANG W.-C. and CHIU P.-L., 1976: Induction of callus from fronds of duckweed (*Lemna gibba* L.). *Bot.Bull.Acad.Sin.* **17**, 106-109.
- CHANG W.-C. and CHIU P.-L., 1978: Regeneration of *Lemna gibba* G3 through callus culture. *Z.Pflanzenphys.* **89**, 91-94.
- CHANG W.-C. and HSING Y.-I., 1978: Callus formation and regeneration of

- frond-like structures in *Lemna perpusilla* 6746 on a defined medium. *Plant Sci.Lett.* **13**, 133-136.
- CHAO T.-F., 1952: A study of phytotoxine action of 2,4-dichlorophenoxy-acetic acid on certain aquatic plants. *Diss.Univ.of Michigan*.
- CHAPMAN K.S.R., TREWAVAS A. and VAN LOON L.C., 1975: Regulation of the phosphorylation of chromatin-associated proteins in *Lemna* and *Hordeum*. *Plant Physiol.* **55**, 293-296.
- CHARPENTIER S. and GARNIER J., 1985: Etude de la multiplication et de la formation des colonies de *Spirodela polyrrhiza* L. *C.R.Acad.Sci.Paris*, III, **300(15)**, 587-590.
- CHARPENTIER S., GARNIER J. and FLAUGNATTI R., 1987: Toxicity and bioaccumulation of cadmium in experimental cultures of duckweed *Lemna polyrrhiza* L. *Bull.Environ.Contam.Toxicol.* **38(6)**, 1055-1061.
- CHARUDATTAN R. and LIN C.Y., 1974: Isolates of *Penicillium*, *Aspergillus* and *Trichoderma* toxic to aquatic plants. *Hyacinth Control J.* **12**, 70-73.
- CHASSANY-DE CASABIANCA M.-L., 1982a: Production de biomasse macrophytique flottante et épuration des eaux résiduaires. *Tech.Eau Assainissement* **422**, 17-26.
- CHASSANY-DE CASABIANCA M.-L., 1982b: De l'exploitation de la biomasse végétale aquatique aux nouveaux systèmes de production à macrophytes sur eaux résiduaires urbaines. *Eau Ind.* **64**, 43-48.
- CHASSANY-DE CASABIANCA M.-L., et SAUZE F., 1981: Cultures de macrophytes sur eaux résiduaires; premières données écologiques; méthanisation des macrophytes aquatiques. *Comm.Eur.Communities*, EUR **7091**, 665-677.
- CHATURVEDI R., HAUGSTAD M.K. and NILSEN S., 1982: The relationship between photosynthetic electron transport and photorespiratory  $^{14}\text{CO}_2$  release after DCMU treatment in the duckweed *Lemna gibba*. *Physiol. Plant.* **56(1)**, 23-27.
- CHATURVEDI R., HAUGSTAD M.K., NILSEN S. and SKOGEN D., 1985: Photoinhibition of photosynthesis: effect of light and selective excitation of photosystems on recovery. *Photosynthetica* **19(3)**, 382-387.
- CHEADLE V.I., 1942: The occurrence and types of vessels in the various organs of the plant in the Monocotyledoneae. *Am.J.Bot.* **29**, 441-450.
- CHECHENKIN M.N., 1955: The distribution of high saturated fatty acids in the fats of fresh water plants. (In Russian). *Biokhimiya* **20**, 249-250.
- CHEN K. and WILDMAN S.G., 1981: Differentiation of fraction 1 protein in relation to age and distribution of angiosperm groups. *Plant Syst. Evol.* **138(1-2)**, 89-113.
- CHEN P.K., LEATHER G.R. and KLAYMAN D.L., 1987: Allelopathic effect of artemisinin and its related compounds from *Artemisia annua*. *Plant Physiol.* **83(4 suppl.)**, 68.
- CHEN S.J., HSU E.L. and CHEN Y.L., 1982: Fate of the herbicide benthocarb (thiobencarb) in a rice paddy model ecosystem. *J.Pestic.Sci.* **7(3)**, 335-340.
- CHEN S.S.C. and PARK W.-M., 1976: Dual effects of abscisic acid on the growth of a duckweed. *Taiwania* **21**, 50-51.
- CHERRY D.S. and GUTHRIE R.K., 1975: Removal of ash basin effluent by the abiotic and biotic parameters of an aquatic drainage system. *ASB Bull.* **22(2)**, 46.
- CHERRY D.S. and GUTHRIE R.K., 1979: The uptake of chemical elements from coal ash and settling basin effluent by primary producers. II. Relation between concentrations in ash deposits and tissues of grasses growing on the ash. *Sci.Total Environ.* **13(1)**, 27-31.
- CHERRY D.S., GUTHRIE R.K. and RODGERS J.H., 1978: Cycling of elements in duckweed (*Lemna perpusilla*) in an ash settling basin and swamp drain-

- age system. *Water Research* **12(10)**, 765-770.
- CHESTER E.W., 1975: Range extensions and first report for some Tennessee vascular plants. *Castanea* **40(1)**, 56-63.
- CHIAPPARINI L. and BISIACH M., 1968: On the chemical control of *Lemna polyrrhiza* and other submerged weeds as a measure of prevention of such other plant infestations as *Nelumbo speciosum* and *Nymphaea alba*. *Notiz.Mal.Piante* **78-79**, 141-157.
- CHITNIS P.R., HAREL E., KOHORN B., KARLIN-NEUMANN G., TOBIN E.M. and THORNER J.P., 1985: A model for the folding of the light-harvesting complex. II. Apoprotein of *Lemna gibba*. *J.Cell.Biochem. Suppl.* (9 part B). 118.
- CHITNIS P.R., HAREL E., KOHORN B., TOBIN E.M. and THORNER J.P., 1986: Assembly of the precursor and processed light-harvesting chlorophyll a/b protein of *Lemna* into the light-harvesting complex II of barley etiochloroplasts. *J.Cell.Biol.* **102(3)**, 982-988.
- CHITNIS P.R., NECHUSHTAI R., HAREL E. and THORNER J.P., 1987: Some requirements for the insertion of the precursor of apoproteins of *Lemna* light-harvesting complex II into barley thylakoids. In: BIGGINS J. (ed.), *Prog.Photosynth.Res., Proc.7th Int.Congr.Photosynth.* Nijhoff, Dordrecht, Netherlands. **4**, 573-576.
- CHIU M.M. and FALK R.H., 1975: Ultrastructural study on *Lemna perpusilla*. *Cytologia* **40**, 313-322.
- CHOI H.O., AHN S.B. and KIM S.N., 1973: Survey of the distribution and amount of weeds emerged in paddy fields in the central part of Korea. *Res.Rep.Off.Rural Dev. C* **15**, 69-75.
- CHOMCHALOW N., 1971: Miracle plant. *Agric.Sci.(Thai Agric.Sci.Assoc., Bangkok)* **4(4)**, 319-330.
- CHORNA H.A., 1978: Findings of rare aquatic plants in the Donets River (USSR). (In Russian). *Ukr.Bot.Zh.* **35(5)**, 476-478.
- CHORNA H.A., 1979: Flowering of *Lemna* in water bodies of the northern Donets River valley (USSR). (In Russian). *Ukr.Bot.Zh.* **36(4)**, 371-372.
- CHUA S.E. and DICKSON M.H., 1964: The effect of flashing light supplemented by continuous red and far-red light on the growth of *Lemna minor* L. in the presence of growth regulators. *Can.J.Bot.* **42**, 57-64.
- CHUDYBA H. 1969: Water plants with high protein content. (In Russian). *Wszeczwiat* **10**, 253-255.
- CIFFERI R. and CIFFERI F., 1949: Effetto di alcune metilcumarine sul teste moltiplicazione fronde di *Lemna*. *Atti Ist.Bot.Univ.Lab.Crittogamico,Pavia Ser.* **5(3)**, 322-325.
- CILLIE C.C., 1962: Operation and performance of sewage maturation ponds at Paarl, South Africa. *Inst.Sewage Purif.J.Proc.* **3**, 234-240.
- CLAPHAM A.R., TUTIN T.G. and WARBURG E.F., 1962: *Flora of the British Isles.* Univ.Press, Cambridge. 1052-1054.
- CLARE P. and EDWARDS R.W., 1983: The macroinvertebrate fauna of the drainage channels of the Gwent Levels, South Wales, UK. *Freshwater Biol.* **13(3)**, 205-226.
- CLARK H.L., 1979: Lemnaceae. In: GODFREY R.K. and WOOTEN J.M. (eds.), *Aquatic plants of Southeastern United States. Monocotyledons.* 464-476.
- CLARK H.L. and THIERET J.W., 1968: The duckweeds of Minnesota. *The Michigan Botanist* **7**, 67-76.
- CLARK J.R., VAN HASSEL J.H., NICHOLSON R.B., CHERRY D.S. and CAIRNS J., Jr., 1981: Accumulation and depuration of metals by duckweed (*Lemna perpusilla*). *Ecotoxicol.Environ.Saf.* **5**, 87-96.
- CLARK N.A., 1925: The rate of reproduction of *Lemna major* as a function of intensity and duration of light. *J.Phys.Chem.* **29**, 935-941.

- CLARK N.A., 1926: Plant growth promoting substances, hydrogenic concentration and the reproduction of Lemna. *Plant Physiol.* **1**, 273-279.
- CLARK N.A., 1930: "Auximones" and the stimulation of Lemna by organic matter. *Science* **71**, 268-269.
- CLARK N.A., 1932: Technique for the growth of Lemna under sterile conditions with controlled temperature and light. *Iowa State Coll.J.Sci.* **7**, 13-16.
- CLARK N.A., 1933: Manganese and the growth of Lemna. *Plant Physiol.* **8**, 157-163.
- CLARK N.A. and FLY C.L., 1930: The role of manganese in nutrition of Lemna. *Plant Physiol.* **5**, 241-248.
- CLARK N.A. and FRAHM E.E., 1940a: Influence of auxins on reproduction of Lemna major. *Plant Physiol.* **15**, 735-741.
- CLARK N.A. and FRAHM E.E., 1940b: The effect of various growth promoting substances on the reproduction of Lemna. *Proc.Iowa Acad.Sci.* **47**, 239-247.
- CLARK N.A. and ROLLER E.M., 1931: The stimulation of Lemna major by organic matter under sterile and nonsterile conditions. *Soil Sci.* **31**, 299-309.
- CLARK N.A., THOMAS B.A., 1934: Microorganisms and vitamin production in green plants. *Science* **79**, 571-572.
- CLARK N.A., THOMAS B.A. and FRAHM E.E., 1938: The formation of vitamins A, B<sub>1</sub> and C in Lemna grown in the absence of organic matter. *Iowa State Coll.J.Sci.* **13**, 9-16.
- CLATWORTHY J.N. and HARPER J.L., 1962: The comparative biology of closely related species living in the same area. 5. Inter- and intraspecific interference within cultures of Lemna ssp. and Salvinia natans. *J.Exp.Bot.* **13**, 307-324.
- CLAUS W.D., 1972: Lifespan and budding potential of Lemna as a function of age of the parent - a genealogic study. *New Phytol.* **71**, 1081-1095.
- CLAVAUD A., 1878: Sur une particularité du Lemna trisulca L. *Actes Soc. Linn.Bordeaux* **31**, 309-311.
- CLELAND C.F., 1967: The physiology of flowering of Lemna gibba L. strain G3. Ph.D.Thesis, Stanford Univ., USA.
- CLELAND C.F., 1970: The use of aphids in the search for the hormonal factors controlling flowering. *Plant Physiol.* **46**(suppl.), 26.
- CLELAND C.F., 1971: Influence of cytokinins on flowering and growth in the long-day plant Lemna gibba G3. *Plant Physiol.* **47**(suppl.), 13.
- CLELAND C.F., 1972a: Investigation into the hormonal control of flowering through the use of aphids. *Plant Physiol.* **49**(suppl.), 62.
- CLELAND C.F., 1972b: The use of aphids in the search for the hormonal factors controlling flowering. In: CARR D.J. (ed.), *Plant growth substances*. Proc.Symp., Canberra. 753-757.
- CLELAND C.F., 1974a: Isolation of salicylic acid from aphid honeydew and its effect on flowering. *Plant Growth Subst., Proc.Int.Conf.* 8th, 1973, Hirokawa, Tokyo. 119-125.
- CLELAND C.F., 1974b: Isolation of flower-inducing and flower-inhibitory factors from aphid honeydew. *Plant Physiol.* **54**, 899-903.
- CLELAND C.F., 1974c: The influence of salicylic acid on flowering and growth in the long-day plant Lemna gibba G3. In: BIELESKI R.L., FERGUSON A.R. and CRESSWELL M.M. (eds.), *Mechanisms of regulation of plant growth*. The Royal Soc. of New Zealand, Wellington. Bull. **12**, 553-557.
- CLELAND C.F., 1976: Synergistic interaction of red light and cytokinin in promotion of growth in Lemna gibba. *Plant Physiol.* **57**(5 suppl.), 75.

- CLELAND C.F., 1977: Influence of photoperiod on induction of flowering by salicylic acid in *Lemna*. *Plant Physiol.* **59**(suppl.), 47.
- CLELAND C.F., 1978: The flowering enigma. *BioScience* **28**, 265-269.
- CLELAND C.F., 1979: Comparison of the flowering behavior of the long-day plant *Lemna gibba* G3 from different laboratories. *Plant Cell Physiol.* **20**, 1263-1271.
- CLELAND C.F., 1982: The chemical control of flowering - a status report. In: WAREING P.F. (ed.), *Plant growth substances*. Acad.Press. 635-644.
- CLELAND C.F., 1985: Chemical control of flowering in the long-day plant *Lemna gibba* G3. *Biol.Plant* **27**(4-5), 392-397.
- CLELAND C.F., 1986: Inhibition of flowering in the long-day plant *Lemna gibba* G3 by Hutner's medium and its reversal by medium modification. *Plant Cell Physiol.* **27**(6), 1153-1158.
- CLELAND C.F. and AJAMI A., 1974: Identification of the flower-inducing factor isolated from aphid honeydew as being salicylic acid. *Plant Physiol.* **54**, 904-906.
- CLELAND C.F. and BEN-TAL Y., 1982: Influence of giving salicylic acid for different time periods on flowering and growth in the long-day plant *Lemna gibba* G3. *Plant Physiol.* **70**(1), 287-290.
- CLELAND C.F. and BEN-TAL Y., 1983: Hormonal regulation of flowering and sex expression. *Beltsville Symp.Agric.Res.* **6**, 157-180.
- CLELAND C.F. and BRIGGS W.R., 1967: Flowering responses of the long-day plant *Lemna gibba* G3. *Plant Physiol.* **42**, 1553-1561.
- CLELAND C.F. and BRIGGS W.R., 1968: Effects of low-intensity red and far-red light and high-intensity white light on the flowering response of the long-day plant *Lemna gibba* G3. *Plant Physiol.* **43**, 157-162.
- CLELAND C.F. and BRIGGS W.S., 1969: Gibberellin and CCC effects on flowering and growth in the long-day plant *Lemna gibba* G3. *Plant Physiol.* **44**(4), 503-507.
- CLELAND C.F. and KANG B.G., 1985: Comparison of salicylic acid, benzoic acid, and p-hydroxy-benzoic acid for their ability to induce flowering in *Lemna gibba* G3 and for their uptake and metabolism by *Lemna gibba* G3. 12th Int.Conf.Plant Growth Substances, Heidelberg, FRG. Abstr., 96.
- CLELAND C.F. and TANAKA O., 1979: Effect of day-length on the ability of salicylic acid to induce flowering in the long-day plant *Lemna gibba* G3 and the short-day plant *Lemna paucicostata* 6746. *Plant Physiol.* **64**, 421-424.
- CLELAND C.F. and TANAKA O., 1980: Comparison of the ability of salicylic acid and ferricyanide to induce flowering in the long-day plant *Lemna gibba* G3. *Plant Physiol.* **65**(suppl.6), 95.
- CLELAND C.F. and TANAKA O., 1986: Inhibition of flowering in the long-day plant *Lemna gibba* G3 by Hutner's medium and its reversal by medium modification. *Plant Cell Physiol.* **27**(6), 1153-1158.
- CLELAND C.F. and ZEEVAART J.A.D., 1970: The use of aphids in a search for the flowering stimulus. *Mich.State Univ.MSU/AEC,Plant.Res.Lab. Annu.Rep.* 65-66.
- CLELAND C.F., TANAKA O. and FELDMAN L.J., 1982: Influence of plant growth substances and salicylic acid on flowering and growth in the Lemnaceae (duckweeds). *Aquat.Bot.* **13**(1), 3-20.
- CLENDENNING K.A. and GORHAM P.R., 1950: Photochemical activity of isolated chloroplasts in relation to their source and previous history. *Can.J.Res. C* **28**, 114-139.
- COATES J.B. and DAVIES D.D., 1983: The isolation and examination of protein samples of known age for the study of selectivity of protein de-

- gradation in *Lemna minor*. *J.Exp.Bot.* **34(146)**, 1155-1167.
- COCHRAN L.C. and NELSON R., 1933: Observations on the distribution and flowering of certain Lemnaceae in Michigan. *Pap.Michig.Acad.Sci.* **17**, 67-68.
- COCUCCI A.E., 1966: Embriologia de *Synandropadix vermitoxicus* (Ara-  
ceae). *Kurtziana* **3**, 157-181.
- CODY W.J., 1980: *Wolffia columbiana* (Lemnaceae), water-meal, new to  
Manitoba. *Can.Field-Nat.* **94(2)**, 193-194.
- COHEN J.D., SLOVIN J.P. and BIALEK K., 1985: Approaches to unraveling  
the mysteries of how plants regulate endogenous levels of indole-3-  
acetic acid. *Current Topics in Plant Biochemistry and Physiology* **4**,  
75-82.
- COHEN J.D., BALDI B.G. and SLOVIN J.P., 1986:  $^{13}\text{C}_6$ -(benzene ring)-  
indole-3-acetic acid. A new internal standard for quantitative mass  
spectral analysis of indole-3-acetic acid in plants. *Plant Physiol.*  
**80(1)**, 14-19.
- COHN F., 1872: Ueber parasitische Algen. *Beitr.Biol.Pflanzen* **1(2)**, 87-  
106.
- COLBAUGH P.F., 1981: Pathogenicity of *Pythium aphanidermatum* on duckweed  
and water meal. *Phytopathology* **71(8)**, 867-868.
- COLER R.A. and GUNNER H.B., 1969: The rhizosphere of an aquatic plant  
(*Lemna minor*). *Can.J.Mikrob.* **15**, 964-969.
- COLER R.A. and GUNNER H.B., 1971: The response of a specialized aquatic  
ecosystem, the duckweed rhizosphere, to selected environmental influ-  
ences. *Water Res.* **5**, 329-333.
- COLLIER E., LEROITH D., ROTH J. and CLELAND C.F., 1986: Plants contain  
material that resembles vertebrate somatostatin. *Plant Physiol.* **80**  
(suppl.4), 114.
- COLLIER E., WATKINSON A., CLELAND C.F. and ROTH J., 1987: Partial puri-  
fication and characterization of an insulin-like material from spi-  
nach and *Lemna gibba* G3. *J.Biol.Chem.* **262(13)**, 6238-6247.
- COLMEIRO D.M., 1889: Enumeracion y Revision de las Plantas de la Peninsu-  
la Hispano-Lusitana **5**, 7-9. Madrid.
- COLT L.C., Jr., HELLOQUIST C.B. and ZUBRIN W.J.L., 1971: An interesting  
association of rare aquatic plants from New Hampshire. *Rhodora* **73**,  
296-299.
- CONGDON R.A. and McCOMB A.J., 1976: The nutrients and plants of Lake  
Joondalup, a mildly eutrophic lake experiencing large seasonal chan-  
ges in volume. *J.R.Soc.Western Austr.* **59**, 14-23.
- CONN W.M. and LANGWORTHY A.C., 1984: Practical operation of a small  
scale aquaculture. *Proc.Water Reuse Symp.III,AWWA Res.Found.,Denver,*  
*Col.* **2**, 703-712.
- CONRAD K., 1975: Evidence for the origin of zeatin riboside-like cytoki-  
nin in grated kohlrabi tissue by several bioassays. *Biochem.Physiol.*  
*Pflanzen* **168(1-4)**, 341-347.
- COOK A.R., 1968: Urea as sole source of nitrogen for plant growth. II.  
Urease and the metabolism of urea in *Spirodela oligorrhiza*. *Planta*  
**83**, 13-19.
- COOK A.R. and BIELESKI R.L., 1969: Fractionation of plant extracts by  
thin layer electrophoretic and chromatographic procedures. *Anal.Bio-  
chem.* **28(1-3)**, 428-435.
- COOKE R.J. and DAVIES D.D., 1980: General characteristics of normal and  
stress-enhanced protein degradation in *Lemna minor* (duckweed). *Bio-  
chem.J.* **192**, 499-506.
- COOKE R.J., GREGO S., OLIVER J. and DAVIES D.D., 1979a: The effect of  
deuterium oxide on protein turnover in *Lemna minor*. *Planta* **146**, 229-  
236.

- COOKE R.J., OLIVER J. and DAVIES D.D., 1979b: Stress and protein turnover in *Lemna minor*. *Plant Physiol.* **64**, 1109-1113.
- COOKE R.J., ROBERTS K. and DAVIES D.D., 1980a: Model for stress-induced protein degradation in *Lemna minor*. *Plant Physiol.* **66**, 1119-1122.
- COOKE R.J., GREGO S., ROBERTS K. and DAVIES D.D., 1980b: The mechanism of deuterium oxide-induced protein degradation in *Lemna minor*. *Planta* **148**, 374-380.
- COOLEY W.E. and FOY C.L., 1986: Effects of SC-0224 and glyphosate on inflated duckweed (*Lemna gibba*) growth and EPSP-synthase activity from *Klebsiella pneumoniae*. *Pestic.Biochem.Physiol.* **26(3)**, 365-374.
- COPE B.T., BOSE S., CRESPI H.L. and KATZ J.J., 1965: Growth of *Lemna* in H<sub>2</sub>O-D<sub>2</sub>O mixtures: Enhancement by kinetin. *Bot.Gaz.* **126**, 214-221.
- COPELLI M., GHETTI P.F. and CORRADI M., 1982: Rimozione di azoto e fosforo de acque reflue di allevamenti suini mediante fitodepurazione. *Quad.Ist.Ric.Acque* **60(4)**, 1-34.
- CORBET R.L., MUIR D.C.G. and WEBSTER G.R.B., 1983: Fate of 1,3,6,8-T4CDD in an outdoor aquatic system. *Chemosphere* **12(4-5)**, 523-527.
- CORDES H., 1980: Bericht über die Tagung der Floristisch-soziologischen Arbeitsgemeinschaft in Bremen vom 30.6.-3.7.1978. *Mitt.Florist.-Soz. Arbg.* **22**, 169-173.
- CORDO H.A., DELOACH C.J. and FERRER R., 1981: Biological studies on two weevils, *Ochetina bruchi* and *Onychylis cretatus*, collected from *Pistia* and other aquatic plants in Argentina. *Ann.Entomol.Soc.Am.* **74(4)**, 363-368.
- CORRADI M., COPELLI M. and GHETTI P.F., 1981: Colture di *Lemna* su scari-chi zootecnici. *Inquinamento* **23(10)**, 49-54.
- CORRADI M., GHETTI P.F. and COPELLI M., 1982: Colture di Lemnaceae su reflui zootecnici parzialmente trattati. Atti del convegno internazionale "Fitodepurazione et produzione di biomasse". Parma, 15-16 May, 1981. Lorenzini, Bologna.
- CORRADI M., REALINI M. and BASSI M., 1987: Morphological alterations induced by Cr<sup>6+</sup> in freshwater plants. 14th Int.Bot.Congr.Berlin, Abstr., 407.
- CORRELL D. and CORRELL H., 1975: Aquatic and wetland plants of Southwestern United States. Stanford Univ.Press, California, USA. **1**, 563-578.
- COUCH R.W. and GANGSTAD E.O., 1974: The response of duckweed to CO<sub>2</sub>-laser radiation. *Hyacinth Control J.* **12**, 25-26.
- COUNTRYMAN W.D., 1968: *Wolffia* in New Hampshire. *Rhodora* **70(784)**, 491.
- COUTINHO A.X.P. 1939: *Flora de Portugal*. (2nd ed.). Bertrand, Lissabon. 134-135.
- COVEY S.N. and GRIERSON D., 1976: The measurement of plant polyadenylic acid by hybridisation with radioactive polyuridylic acid. *Planta* **131(1)**, 75-79.
- COWGILL U.M., 1970: The hydrochemistry of Linsley Pond, North Branford, Connecticut. I. Introduction, field work and chemistry by X-ray emission spectroscopy. *Arch.Hydrobiol.* **68**, 1-95.
- COX P.A., 1983: Search theory, random motion, and the convergent evolution of pollen and spore morphology in aquatic plants. *Am.Nat.* **121(1)**, 9-31.
- CRAKER L.E., 1971: Effects of mineral nutrients on ozone susceptibility of *Lemna minor*. *Can.J.Bot.* **49**, 1411-1414.
- CRAKER L.E., 1972: Influence of ozone on RNA and protein content of *Lemna minor* L. *Environ.Pollut.* **3**, 319-323.
- CRESPI H.L., STEWART M.L., KLINE J.R. and KATZ J.J., 1972: Discrimination against tritium by fully deuterated algae. *Health Phys.* **23**, 111-112.

- CROIZAT L., 1971: Gigantomachie botanique: La "théorie du Durian" contre la "théorie de la Lentille d'Eau". *Adansonia* **11(1)**, 47-76.
- CRONQUIST A., HOLMGREN A.H., HOLMGREN N.L., REVEAL J.L. and HOLMGREN P.K., 1977: Intermountain Flora. Vascular Plants of Intermountain West, USA. Columbia Univ. Press, New York. **6**, 474-475.
- CROWDER A.A., BRISTOW J.M., KING M.R. and VANDERKLOET S., 1977a: Distribution, seasonality, and biomass of aquatic macrophytes in Lake Opinicon (Eastern Ontario). *Naturaliste Can.* **104**, 441-456.
- CROWDER A.A., BRISTOW J.M., KING M.R. and VANDERKLOET S., 1977b: The aquatic macrophytes of some lakes in Southeastern Ontario. *Naturaliste Can.* **104**, 457-464.
- CRUM G.H. and BACHMANN R.W., 1973: Submersed aquatic macrophytes of the Iowa Great Lakes region. *Iowa State J.Res.* **48**, 147-173.
- CSEH E., BOEDDI B., BUJTAS C. and LAKATOS B., 1984: Uptake and utilization of iron by chlorotic and green plants. In: CRAM W.J. et al. (eds.), *Membrane transport in plants*. 389.
- CUFODONTIS G., 1971: List of plants of Ethiopia: Spermatophyta. *Bull. Jard.Bot.Nat.Belge* **41(3)**, 1483-1578.
- CULLEY D.D., Jr. and EPPS A.E., 1973: Use of duckweed for waste treatment and animal feed. *J.Water Pollut.Contr.Fed.* **45**, 337-347.
- CULLEY D.D., Jr. and MYERS R.W., 1980: Effect of harvest rate on duckweed yield and nutrient extraction in dairy waste lagoon. Baton Rouge. 6 pp. (Polycopy).
- CULLEY D.D., Jr., GHOLSON J.H., CHISHOLM T.S., STANDIFER L.C. and EPPS E.A., 1978: Water quality renovation of animal waste lagoons utilizing aquatic plants. U.S.Enviro.n.Prot.Agency, Ada, Oklahoma. 166 pp.
- CULLEY D.D., Jr., REJMANKOVA E., KVET J. and FRYE J.B., 1981: Production, chemical quality and use of duckweeds (Lemnaceae) in aquaculture, waste management, and animal feeds. *J.World Maric.Soc.* **12(2)**, 27-49.
- CURTIS H.L., 1971: A study of endogenously produced factors affecting growth and flowering in three species of Lemna. Ph.D.Thesis Ohio State Univ. 103 pp. *Diss.Abstr.Int. B* **32**, 117.
- CURTIS H.L. and BENDIXEN L.E., 1974: Promotion and inhibition of flowering in Lemna. *ASB Bull.* **21(2)**, 50.
- CUSICK A.W., 1986: Significant additions to the vascular flora of western Maryland. *Castanea* **51(2)**, 129-136.
- CZERWINSKI W., GANCARZ R., PRZYBYLKA E. and WIECZOREK J.S., 1982: Preliminary estimation of physiological activity of 9-amino-9-fluorene-phosphonic acid derivatives. (In Polish). *Acta Agrobot.* **34(2)**, 253a-260.
- CZERWINSKI W. and WEGRZYN T., 1975: The effect of interaction of Venzar and bacteria on photosynthesis of plants. (In Polish). *Roczniki Gleboznawcze* **26(2)**, 73-77.
- CZOPEK M., 1959a: Cultivation of Polish Lemnaceae species in laboratory conditions. *Acta Biol.Cracov.Ser.Bot.* **2**, 14-22.
- CZOPEK M., 1959b: Researches on the physiology of formation and germination of turions in *Spirodela polyrrhiza* (L.) Schleiden. *Acta Biol. Cracov. Ser.Bot.* **2**, 75-90.
- CZOPEK M., 1962: The oligodynamic action of light on the germination of turions of *Spirodela polyrrhiza* (L.) Schleiden. *Acta Soc.Bot.Pol.* **31**, 703-722.
- CZOPEK M., 1963a: Studies on the external factors inducing the formation of turions in *Spirodela polyrrhiza* (L.) Schleiden. *Acta Soc.Bot.Pol.* **32**, 199-211.
- CZOPEK M., 1963b: Methods of Lemnaceae culture. (In Polish). *Wiadomosci Bot.* **7**, 153-164.

- CZOPEK M., 1964a: The action of kinetin, gibberellic acid and red light on the germination of turions of *Spirodela polyrrhiza*. Bull.Acad. Pol.Sci.,II, **12**, 177-182.
- CZOPEK M., 1964b: The course of photosynthesis and respiration in germinating turions of *Spirodela polyrrhiza*. Bull.Acad.Pol.Sci.,II, **12**, 463-469.
- CZOPEK M., 1964c: The oligodynamic action of light in the germination of turions of *Spirodela polyrrhiza*. Int.Symp.Physiol.Ecology and Biochem. of Germination,Greifswald,1963. Abstract.
- CZOPEK M., 1967: Photosynthesis and respiration of turions and vegetative fronds of *Spirodela polyrrhiza*. Acta Soc.Bot.Pol. **36**, 87-96.
- CZYGAN F.-C., 1962: Blütenbildung bei *Lemna minor* nach Zusatz von Oestrogenen. Naturwissenschaften **49(12)**, 285-286.
- DAFNI A. and AGAMI M., 1976: Extinct plants of Israel. Biol.Conserv. **10**, 49-52.
- DAHLGREN R.M.T., CLIFFORD H.T. and YEO P.F., 1985: The families of the Monocotyledons. Springer, Berlin. 520 pp.
- DAIE J., SEELEY S.D. and CAMPBELL W.F., 1977: Effects of temperature on endogenous ABA levels in *Lemna minor*. 58th Ann.Meet.Pc.Div.AAAS.
- DALE H.M. and GILLESPIE T., 1976: The influence of floating vascular plants on the diurnal fluctuations of temperature near the water surface in early spring. Hydrobiologia **49**, 245-256.
- DALE H.M. and MILLER G.E., 1978: Changes in the aquatic macrophyte flora of Whitewater Lake near Sudbury, Ontario from 1947 to 1977. Can. Field-Nat. **92**, 264-270.
- DALEO G.R. and KINDEL P.K., 1979: A lipid derivative of galacturonic acid - a possible intermediate in pectic acid biosynthesis. Fed.Proc. **38(3/1)**, 790.
- DALGLIESH J.G., 1926a: Observations on the British Lemnaceae. J.Bot. (London) **64**, 48-50.
- DALGLIESH J.G., 1926b: Notes on duckweeds. J.Bot.(London) **64**, 272-274.
- DALRYMPLE R.L., 1971: Experiences with diuron for aquatic weed control. Proc. 24th Ann.Meet.South.Weed Sci.Soc. 333-337.
- DALY J.M. and BROWN A.H., 1954: The in vivo demonstration of cytochrome oxidase in leaves of higher plants. Arch.Biochem.Biophys. **52**, 380-387.
- DAMANAKIS M., 1970: A bioassay for the determination of low concentrations of paraquat. Weed Res. **10(1)**, 77-80.
- DAMANAKIS M., 1972: A bioassay on *Lemna polyrrhiza* L. for determination of herbicide residues in soils and aqueous solutions. Ann.Inst.Phytopathol.Benaki N.S., **10(3)**, 248-255.
- DAMANAKIS M., 1976: Behaviour of glyphosphate in the soil (adsorption, leaching, degradation). Ann.Inst.Phytopathol.Benaki N.S. **11**, 153-167.
- DAMANAKIS M., DRENNAN D.S.H., FRYER J.D. and HOLLY K., 1970: The adsorption and mobility of paraquat on different soils and soil constituents. Weed Res. **10**, 264-277.
- DANN W., 1982: Vergleich von Klonen verschiedener Herkunft in ihrem Verhalten gegenüber Stickstoffkonzentrationen und Stickstoffformen am Beispiel von *Lemna gibba*. Diploma Thesis. Geobot.Inst.ETH,Stiftung Rübél,Zürich. 56 pp. (Polycopy).
- DARVILL A., McNEIL M. and ALBERSHEIM P., 1977: Structure of plant cell walls: fractionation and characterization of the pectic polymers. Plant Physiol. **59(6 suppl.)**, 17.
- DAS P., KUMAR D. and GUHA R.M.K., 1975: National demonstration on composite fish culture in West Bengal, India. J.Inl.Fish.Soc.India **7**, 112-115.

- DAS R.R., 1965: Sprouting behaviour of turions of *Spirodela polyrhiza* (L.) Schleid. P.L. (India), Ann.Rep. **480**, 70-80.
- DAS R.R., 1966: Growth behaviour of *Spirodela polyrhiza* (L.) Schleid. under three temperature conditions. P.L.(India), Ann.Rep. **480**, 165-168.
- DAS R.R., 1967a: Distribution of *Spirodela polyrhiza* (L.) Schleid. P.L. (India), Ann.Rep. **480**, 197-202.
- DAS R.R., 1967b: Multiplication of *Spirodela polyrhiza* (L.) Schleid. fronds. P.L.(India), Ann.Rep. **480**, 203-206.
- DAS R.R., 1967c: The effect of photoperiod on dry matter production by *Spirodela polyrrhiza* (L.) Schleid. P.L.(India), Ann.Rep. **480**, 207-212.
- DAS R.R., 1968: Growth and distribution of *Eichhornia crassipes* (Mart.) Solms. and *Spirodela polyrhiza* (L.) Schleid. Ph.D.Thesis. Banaras Hindu Univ., Varanasi.
- DAS R.R., 1971: Productivity of *Spirodela polyrhiza* (L.) Schleid. Int. Symp.Trop.Ecology Emphasizing Productivity. 177-184.
- DAS R.R. and GOPAL B., 1969: Vegetative propagation in *Spirodela polyrhiza*. Trop.Ecol. **10**, 270-277.
- DASSANAYAKE M.D. and FOSBERG F.R., 1981: A revised handbook to the flora of Ceylon. Balkema, Rotterdam. **2**, 511 pp.
- DATKO A.H. and MUDD S.H., 1980: Methionine biosynthesis in *Lemna*: Inhibitor studies. Plant Physiol. **65**(6 suppl.), 16.
- DATKO A.H. and MUDD S.H., 1982: Methionine biosynthesis in *Lemna*: Inhibitor studies. Plant Physiol. **69**(5), 1070-1076.
- DATKO A.H. and MUDD S.H., 1983: Sulfate uptake and regulation in *Lemna paucicostata* Hegelm. 6746. Plant Physiol. **72**(1 suppl.), 152.
- DATKO A.H. and MUDD S.H., 1984a: Sulfate uptake and its regulation in *Lemna paucicostata* Hegelm. 6746. Plant Physiol. **75**(2), 466-473.
- DATKO A.H. and MUDD S.H., 1984b: Responses of sulfur-containing compounds in *Lemna paucicostata* Hegelm. 6746 to changes in availability of sulfur sources. Plant Physiol. **75**(2), 474-479.
- DATKO A.H. and MUDD S.H., 1985: Uptake of amino acids and other organic compounds by *Lemna paucicostata* Hegelm. 6746. Plant Physiol. **77**(3), 770-778.
- DATKO A.H. and MUDD S.H., 1986: Uptake of choline and ethanolamine by *Lemna paucicostata*. Plant Physiol. **81**(1), 285-288.
- DATKO A.H., MUDD S.H. and GIOVANELLI J., 1977: Homocysteine biosynthesis in green plants. Studies of the homocysteine forming sulfhydrylase. J.Biol.Chem. **252**(10), 3436-3445.
- DATKO A.H., MUDD S.H., MACNICOL P.K. and GIOVANELLI J., 1978a: Phytostat for the growth of *Lemna* in semicontinuous culture with low sulfate. Plant Physiol. **62**, 622-628.
- DATKO A.H., MUDD S.H., GIOVANELLI J. and MACNICOL P.K., 1978b: Sulfur containing compounds in *Lemna perpusilla* 6746 grown at a range of sulfate concentrations. Plant Physiol. **62**, 629-635.
- DATKO A.H., MUDD S.H. and GIOVANELLI J., 1980a: *Lemna paucicostata* Hegelm. 6746. Development of standardized growth conditions suitable for biochemical experimentation. Plant Physiol. **65**, 906-912.
- DATKO A.H., MUDD S.H. and GIOVANELLI J., 1980b: *Lemna paucicostata* Hegelm. 6746. Life cycle and characterization of the colony types in a population. Plant Physiol. **65**, 913-923.
- DAUBS E.H., 1962: The occurrence of *Spirodela oligorhiza* (Kurz) Hegelm. in the United States. Rhodora **64**, 83-85.
- DAUBS E.H., 1965: A monograph of Lemnaceae. Univ.of Illinois Press, Urbana. Illinois Biol.Monogr. **34**, 118 pp.
- DAVENPORT L.J. and HAYNES R.R., 1981: Aquatic and marsh plants of Alabama. II. Arecidae. Castanea **46**(4), 291-299.

- DAVIDSON D., 1979: Aspects morphologiques et enzymatiques de l'adaptation et de l'acclimatation au stress thermique des populations écotypiques de *Spirodela polyrrhiza* (L.) Schleid. (Lemnaceae). M.S. Thesis. Univ. Montreal.
- DAVIDSON D. and SIMON J.P., 1981a: Thermal adaptation and acclimation of ecotypic populations of *Spirodela polyrrhiza* (Lemnaceae): thermostability and apparent activation energy of NAD malate dehydrogenase. *Can.J.Bot.* **59(6)**, 1061-1068.
- DAVIDSON D. and SIMON J.P., 1981b: Thermal adaptation and acclimation of ecotypic populations of *Spirodela polyrrhiza* (L.) Schleid. (Lemnaceae): Morphology and growth rates. *J.Therm.Biol.* **6(3)**, 121-128.
- DAVIDSON D. and SIMON J.P., 1983: Thermal adaptation and acclimation of ecotypic populations of *Spirodela polyrrhiza* (L.) Schleid. (Lemnaceae). Temperature dependency of  $K_m$  of NAD malate dehydrogenase. *J. Therm.Biol.* **8(3)**, 289-296.
- DAVIES D.D., 1978: The effect of stress on protein degradation in plants. In: SCHUETTE H.R. and GROSS D. (eds.), *Regul.Dev.Processes Plants, Proc.Conf. 1977*. Fischer, Jena. 13-35.
- DAVIES D.D., 1979: Factors affecting protein turnover in plants. In: HEWITT E.J. and CUTTING C.V. (eds.), *Nitrogen assimilation of plants*. Acad.Press, New York.
- DAVIES D.D. and HUMPHREY T.J., 1978: Amino acid recycling in relation to protein turnover. *Plant Physiol.* **61**, 54-58.
- DAVIS J.A., 1981: Comparison of static replacement and flow-through bioassays using duckweed, *Lemna gibba* G3. Final report. Gov.Rep.Announce.Index (US) **81(18)**, 3790. 106 pp.
- DE BEAUVOIS P., 1816: Mémoire sur les Lemna ou lentille d'eau, sur leur fructification et sur la germination de leur grain. *J.Phys.Chim.Hist. Nat.* **82**, 101-115.
- DE BOLOS O. and MASCLANS F., 1955: La vegetacion de los arrozales en la region mediterranea. *Collectanea Botanica* **4(3,32)**, 415-434.
- DEBUSK T.A., 1980: Evapotranspiration of some emergent freshwater plants. In: RYTHER J.H. (ed.), *Cultivation of macroscopic marine algae and freshwater aquatic weeds*. Progress report for the period May 1, 1979 - December 15, 1979. Woodshole Oceanic Institution, Woodshole, Mass., USA. 63-68.
- DEBUSK T.A., RYTHER J.H., HANISAK M.D. and WILLIAMS L.D., 1981: Effects of seasonality and plant density on the productivity of some freshwater macrophytes. *Aquat.Bot.* **10(2)**, 133-142.
- DEBUSK T.A., RYTHER J.H. and WILLIAMS L.D., 1983: Evapotranspiration of *Eichhornia crassipes* (Mart.) Solms and *Lemna minor* L. in Central Florida: Relation to canopy structure and season. *Aquat.Bot.* **16(1)**, 31-39.
- DECLEIRE M. and DE CAT W., 1977: Détection de traces d'herbicides dans l'eau par biotests. Etude de divers procédés d'extraction. *Rev. Agric.* **30(3)**, 589-594.
- DECLEIRE M., DE CAT W. and BASTIN R., 1976: Détection rapide de divers herbicides dans l'eau par la mesure in vivo de l'activité de la nitratre réductase de *Lemna minor* L. *Z.Pflanzenphysiol.* **77**, 315-322.
- DEGANI N., 1981: DNA repair synthesis in carrot root tissue irradiated with UV light. *Proc.Int.Bot.Congr.* **13**, 83.
- DEGANI N., BEN-HUR E. and RIKLIS E., 1980: DNA damage and repair: induction and removal of thymine dimers in ultraviolet light irradiated intact water plants. *Photochem.Photobiol.* **31(1)**, 31-36.
- DEGEN A.A., 1987: Responses of two Negev Desert Israel phasianids: the chukar, *Alectoris chukar*, and the sand partridge, *Ammoperdix heyi*,

- to diets of different water content. *J.Arid.Environ.* **12(2)**, 169-174.
- DEGHI G.S. and EWEL K.C., 1984: Simulated effect of wastewater application on phosphorus distribution in cypress domes. In: EWEL K.C. and ODUM H.T. (eds.), *Cypress swamps*. Univ.Press, Florida. 102-111.
- DE HEIJ H.T. and GROOT G.S.P., 1981: *Spirodela oligorhiza* chloroplast DNA codes for ATPase subunits  $\alpha$  and  $\beta$ . Immunological evidence from a coupled transcription-translation system. *FEBS Lett.* **134(1)**, 6-10.
- DE HEIJ H.T., LUSTIG H., MOESKOPS D.-J., BOVENBERG W.A., BISANZ C. and GROOT G.S.P., 1983: Chloroplast DNAs of *Spinacia*, *Petunia* and *Spirodela* have a similar gene organization. *Curr.Genet.* **7(1)**, 1-6.
- DE HEIJ H.T., JOCHEMSEN A.G., WILLEMSSEN P.T.J. and GROOT G.S.P., 1984: Protein synthesis during chloroplast development in *Spirodela oligorhiza*. Coordinated synthesis of chloroplast-encoded and nuclear-encoded subunits of ATPase and ribulose-1,5-bisphosphate carboxylase. *Eur.J.Biochem.* **138(1)**, 161-168.
- DE HEIJ H.T., LUSTIG H., VAN EE J.H., VOS Y.J. and GROOT G.S.P., 1985: Repeated sequences on mitochondrial DNA of *Spirodela oligorhiza*. *Plant Mol.Biol.* **4(4)**, 219-224.
- DEKOCK P.C. and HALL A., 1981: Hormonal control of calcium uptake. *J. Sci.Food Agric.* **32**, 989-996.
- DEKOCK P.C. and INNES A.M., 1970: The effect of amitrole on duckweed. *Can.J.Bot.* **48**, 1285-1288.
- DEKOCK P.C., OHTA Y., INKSON R.H.E. and KNIGHT A.H., 1973: The effect of oxalate and ethylenediaminetetraacetic acid on the absorption of calcium into *Lemna*. *Physiol.Plant.* **28**, 379-382.
- DEKOCK P.C., GRABOWSKA F.B. and INNES A.M., 1974: The effect of salicylic acid on the growth of *Lemna gibba*. *Ann.Bot.* **38**, 903-908.
- DEKOCK P.C., VAUGHAN D. and HALL A., 1978: Effect of abscisic acid and benzyl adenine on the inorganic and organic composition of the duckweed, *Lemna gibba* L. *New Phytol.* **81**, 505-511.
- DEKOCK P.C., CHESHIRE M.V., MUNDIE C.M. and INKSON R.H.E., 1979: The effect of galactose on the growth of *Lemna*. *New Phytol.* **82**, 679-685.
- DE LA CRUZ A.A. and YARBROUGH J.D., 1982: Role of aquatic weeds in maintaining surface water quality. *Rep.Mississippi State Univ. Gov.Rep. Announce.Index(US)* **83(10)**, 2137. 64 pp.
- DE LANGE L., 1972: An ecological study of ditch vegetation in the Netherlands. Ph.D.Thesis. Amsterdam. 112 pp.
- DE LANGE L., 1974: Translocation experiments in the field with the *Lemna gibba* - *Lemna minor* complex. *Acta Bot.Neerl.* **23**, 109-112.
- DE LANGE L., 1975: Gibbosity in the complex *Lemna gibba*/*Lemna minor*: Literature survey and ecological aspects. *Aquat.Bot.* **1**, 327-332.
- DE LANGE L. and PIETERSE A.H., 1973: A comparative study of the morphology of *Lemna gibba* L. and *Lemna minor* L. *Acta Bot.Neerl.* **22(5)**, 510-517.
- DE LANGE L. and REVIER J.M., 1982: An investigation into the status of *Spirodela polyrhiza* (L.) Schleid. var. *masonii* Daubs. In: SYMOENS S., HOOPER S.S. and COMPERE P. (eds.), *Studies on aquatic vascular plants*. R.Soc.Bot.Belg. 82-87.
- DE LANGE L. and SEGAL S., 1968: Ecological differences between *Lemna minor* and *Lemna gibba*. (In Dutch). *Gorteria* **4**, 5-12.
- DE LANGE L. and WESTINGA E., 1979: The distinction between *Lemna gibba* L. and *Lemna minor* L. on the basis of vegetative characters. *Acta Bot.Neerl.* **28(2/3)**, 169-176.
- DE LANGE L., PIETERSE A.H. and VAN BAARSEN-BECKERS I., 1981: The occurrence of mixed populations of different genotypes of the *Lemna gibba*-*Lemna minor* complex. *Acta Bot.Neerl.* **30(3)**, 191-197.

- DE LANGE L., PIETERSE A.H. and WETSTEYN L.P.M.J., 1984: On the occurrence of the flat form of *Lemna gibba* L. in nature. *Acta Bot.Neerl.* **33(4)**, 469-474.
- DELAY C., 1947: Recherches sur la structure des noyaux quiescents chez les phanérogames. *Rev.Cytol.Cytophysiol.Vég.* **9**, 129-223; **10**, 103-229.
- DELILE A., 1813: Flore d'Egypte. Paris. 75.
- DELPINO F., 1882: Rivista di Botanica dell'anno 1881. Milano. 33 pp.
- DE MARTONNE E., 1927: Traité de Géographie physique. I. Notions générales. Hydrographie. Colin, Paris. 495 pp.
- DEMARTY M., AYADI A., MONNIER A., MORVAN C. and THELLIER M., 1977: Electrochemical properties of isolated cell walls of *Lemna minor* L. In: THELLIER M. et al. (eds.), Transmembrane ionic exchanges in plants. CNRS et Univ. Rouen, Paris et Mont Saint Aignan. 61-73.
- DEMARTY M., MORVAN C. and THELLIER M., 1978: Exchange properties of isolated cell walls of *Lemna minor* L. *Plant Physiol.* **62**, 477-481.
- DEMARTY M., RIPOLL C. and THELLIER M., 1980: Ion exchange in plant cell walls (*Lemna minor*). *Developments in plant biology* **4**. Elsevier, North-Holland Biomed.Press. 33-47.
- DEN HARTOG C., 1968: The flat form of *Lemna gibba*, still a problem. (In Dutch). *Gorteria* **4**, 90-92.
- DEN HARTOG C., 1969: Proposal to conserve the generic name 976 *Wolffia* Horkel ex Schleiden (1844) (Lemnaceae) versus *Wolffia* Schreber (Flacourtiaceae), and by retypification against *Wolffia* Horkel ex Schleiden (1839) (Lemnaceae). *Taxon* **18**, 591-592.
- DEN HARTOG C., 1970: Proposal of the conservation of the generic name *Spirodela* Schleiden versus *Lenticularia* Seguiet (Lemnaceae). *Taxon* **19(4)**, 647-648.
- DEN HARTOG C., 1975: Thoughts about the taxonomical relationships within the Lemnaceae. *Aquat.Bot.* **1**, 407-416.
- DEN HARTOG C., 1978: Subjective phytosociology of aquatic plants. *Aquat. Bot.* **4**, 96-98.
- DEN HARTOG C. and SEGAL S., 1964: A new classification of the water-plant communities. *Acta Bot.Neerl.* **13**, 367-393.
- DEN HARTOG C. and VAN DER PLAS F., 1970: A synopsis of the Lemnaceae. *Blumea* **18**, 355-368.
- DEN HARTOG C. and VAN DER PLAS F., 1972: The Australian species of *Wolffia* (Lemnaceae). *Blumea* **20**, 151-153.
- DENNY P., HARMAN J., ABRAHAMSSON J. and BRYCESON I., 1978: Limnochemical and phytoplankton studies on Nyumba ya Munga reservoir. Tanzania. *Biol.J.Linn.Soc.* **10**, 24-48.
- DENTON J.B., 1966: Relationship between the chemical composition of aquatic plants and water quality. M.S.Thesis. Auburn Univ., Auburn. 14 pp.
- DE SLOOVER J.-L., 1961: Note sur le pollen de *Lemna minor* L. *Pollen et Spores* **3**, 5-10.
- DE SLOOVER J.-L., 1964: Sur la floraison des Lemnacées. *Nat.Mosana* **17**, 73-81.
- DE SLOOVER J.-L., 1966: La fronde, la graine et la germination d'une *Lemna*. *Nat.Belg.* **47**, 443-456.
- DE SLOOVER J.-L., 1963: Lemnaceae du Rwanda. *Bull.Jard.Bot.Nat.Belg.* **43**, 361-368.
- DEUTCH B. and RASMUSSEN O., 1974: Growth chamber illumination and photomorphogenetic efficacy. I. Physiological action of infrared radiation beyond 750 nm. *Physiol.Plant.* **30**, 64-71.
- DEVARAJ K.V., RAO D.S.K. and KESHAVAPPA G.Y., 1981: Utilization of duckweed *Lemna minor* and waste cabbage leaves in the formulation of fish feed. *Mysore J.Agric.Sci.* **15(1)**, 132-135.

- DEVI S.L. and MAHESHWARI S.C., 1979: Diurnal fluctuations in the activity of the enzyme nitrate reductase in *Lemna paucicostata*. *Physiol. Plant.* **45**, 467-469.
- DEVIDE Z., 1956: A new locality of *Wolffia arrhiza* (L.) Wimm. in Croatia. *Acta Bot. Zagreb* **14/15**, 184-186.
- DEYL M., 1955: The evolution of the plants and the taxonomy of the monocotyledons. *Acta Mus.Nat.Prag.* **11B(6)**, 143 pp.
- DEYSSON G., 1959: Action de la kinétine et de la thiokinétine sur la croissance de la lentille d'eau (*Lemna minor* L.). *C.R.Acad.Sci.Paris*, **248**, 841-843.
- D'HARLINGUE A., 1976: Stérols, acides gras, lipochromes et nucléotides pyridiniques et adényliques des frondes de *Spirodela* cultivées en présence d'acide gibbérélique. *Physiol.Vég.* **14(4)**, 713-723.
- D'HARLINGUE A., LECHEVALLIER D. and MONEGER R., 1976: Nucléotides pyridiniques, chlorophylles et stérols des frondes de *Spirodela* cultivées en présence de saccharose. *Physiol.Vég.* **14(2)**, 367-376.
- DICHT M., KOPP A., FELLER U. and ERISMANN K.H., 1976: Einfluss von Ammonium und Nitrat auf den Proteingehalt von *Lemna minor* L. unter Photosynthesebedingungen. *Biochem.Physiol.Pflanz.* **170**, 531-534.
- DICKSON H., 1938a: The occurrence of long and short cycles in growth measurements of *Lemna minor*. *Ann.Bot.N.S.* **2**, 97-106.
- DICKSON H., 1938b: Sampling as the cause of the apparent growth cycles of *Lemna minor*. *Ann.Bot.N.S.* **2**, 793-806.
- DIEKJOBST H., 1983a: Ein vorübergehendes Vorkommen von *Wolffia arrhiza* in Westfalen. *Natur und Heimat* **43(3)**, 65-73.
- DIEKJOBST H., 1983b: Zur gegenwärtigen Verbreitung von *Lemna minuscula* Herter in der Unteren Erft. *Gött.Flor.Rundbr.* **17**, 168-173.
- DIEKJOBST H., 1984: *Pistia stratiotes* L. und *Lemna aequinoctialis* Welwitsch vorübergehend im Gebiet der unteren Erft. *Gött.Flor.Rundbr.* **18**, 90-95.
- DIJKMAN M.J., BOSS M.L. and RUSSELL E.R., 1964: Extension of life span of *Lemna perpusilla* clone 6746 by ultraviolet irradiation. *Radiat. Res.* **22**, 662-667.
- DINGES R., 1973: Ecology of *Daphnia* in stabilization ponds. *Texas Dept. Health,Austin,Texas* **1**, 143 pp.
- DINGES R., 1976a: A proposed integrated biological wastewater treatment system. In: TOURBIER J. and PIERSON R.W. (eds.), *Biological control of water pollution*. Univ.Pennsylvania Press,Philadelphia,PA. 225-230.
- DINGES R., 1976b: Who says sewage treatment plants have to be ugly? *Water and Wastes Engineering* **13(4)**, 20-23.
- DINGES R., 1976c: Water hyacinth culture for wastewater treatment. *Texas Dept.Health,Austin,Texas.* 143 pp.
- DINGES R., 1981: Natural systems for water pollution control. *Van Nost-rand,Wokingham,UK.* 102-110.
- DINGES R., 1982: Aquatic plant systems - an unconventional approach to removal of toxic materials. 10th Water Resources Sympos., "Toxic Materials - Methods of Control",Austin,Texas. 23 pp. (Polycopy).
- DOCAUER D.M., 1983: A nutrient basis for the distribution of the Lemnaceae. Ph.D.Thesis. Univ.Michigan. 223 pp.
- DOCAUER D.M., 1984: Problems in differentiating *Lemna turionifera* (Landolt) from *Lemna minor* (Hegelm.). *Am.J.Bot.* **71(5/2)**, 164.
- DOHERTY H.M., SELVENDRAN R.R. and BOWLES D.J., 1984: The role of oligosaccharides in cell-signalling events in plants. Poster 2-109-1 at the 14th Int.Bot.Congr.,Berlin.
- DOLBERG F., SAADULLAH M. and HAQUE M., 1981: A short review of the feeding value of water plants. *Trop.Animal Prod.* **6(4)**, 322-326.
- DORE W.G., 1957: *Wolffia* in Canada. *Can.Field-Nat.* **71**, 10-16.

- DORMAN-PRZYBYL D., STRITTMATTER G. and KOSSEL H., 1986: The region distal to the rRNA operon from chloroplasts of maize contains genes coding for tRNA<sup>Arg</sup>(ACG) and tRNA<sup>Asn</sup>(GUU). *Plant Mol. Biol.* **7**(6), 419-431.
- DOROFEEV P.I., 1963: The tertiary floras of Western Siberia. (In Russian). *Bot. Inst. Komarov, Akad. Nauk SSSR.* 129-130.
- DOSS R.P., 1973: Inhibition of flowering in *Lemna* by non-flowering fronds. *Plant Physiol.* **51**(suppl.), 29.
- DOSS R.P., 1974: Factors which influence the flowering of *Lemna perpusilla* Torr., strain 6746. Ph.D. Thesis. Univ. Calif., Davis. 112 pp. *Int. Diss. Abstr. Int. B* **35**, 1525.
- DOSS R.P., 1975a: Influence of temperature on the flowering of *Lemna perpusilla* 6746 grown under skeleton photoperiods. *Plant Physiol.* **55**, 108-109.
- DOSS R.P., 1975b: Influence of timing and number of consecutive inductive photoperiodic cycles on the flowering of *Lemna*. *Plant Physiol.* **55**, 110-111.
- DOSS R.P., 1975c: Reversal of the effects of a night interruption in *Lemna* by inhibitors of ribonucleic acid synthesis. *Plant Physiol.* **55**, 112-113.
- DOSS R.P., 1975d: Influence of short term inhibitor treatment on the flowering of *Lemna perpusilla* 6746. *Plant Physiol.* **56**, 360-363.
- DOSS R.P., 1978: Handedness in duckweed: Double flowering fronds produce right- and left-handed lineages. *Science* **199**, 1465-1466.
- DOUGALL D.K., 1977: Current problems in the regulation of nitrogen metabolism in plant cell cultures. In: BARZ W., REINHARD E. and ZENK M.H. (eds.), *Proceedings in Life Science. Plant tissue culture and its biotechnological application.* Springer, New York/Berlin. 76-84.
- DRAGENDORFF G., 1898: *Die Heilpflanzen der verschiedenen Völker und Zeiten.* Enke, Stuttgart. 108.
- DRIVER E.A. and PEDEN D.G., 1977: The chemistry of surface water in prairie ponds. *Hydrobiologia* **53**(1), 33-48.
- DROTAR A., PHELPS P. and FALL R., 1985: Evidence for glutathione peroxidase activities in cultured plant cells. *Plant Sci.* **42**(1), 35-40.
- DUBYNA D.V. and PROTOPOPOVA V.V., 1983: *Lemna minuscula* new record for the USSR flora. (In Ukrain.). *Ukr. Bot. Zh.* **40**(5), 28-31.
- DUDLEY J.L., 1983: Responses of some *Lemna* strains to different environmental conditions. M.S. Thesis. Univ. Pittsburgh, 78 pp.
- DUDLEY J.L., 1987: Turion formation in strains of *Lemna minor* (6591) and *Lemna turionifera* (6573,A). *Aquat. Bot.* **27**(2), 207-215.
- DUFF R.B., 1965: The occurrence of apiose in *Lemna* (duckweed) and other angiosperms. *Biochem. J.* **94**, 768-772.
- DUFF R.B. and KNIGHT A.H., 1963: The occurrence of apiose in *Lemna* (duckweed) and other angiosperms. *Biochem. J.* **88**, 33P-34P.
- DUFFIELD A.N., 1981: The impact of *Lemna* on the oxygen resources of channels of potential value as fisheries. *Natl. Veget. Res. Sta., Wellesbourne, Warwick, UK; Assoc. Applied Biologists* 257-264.
- DUFFIELD A.N. and EDWARDS R.W., 1981: Predicting the distribution of *Lemna* spp. in a complex system of drainage channels. *Natl. Veget. Res. Sta., Wellesbourne, Warwick, UK; Assoc. Applied Biologists* 59-65.
- DUHOVA E., 1970: Contribution to the production ecology of duckweeds. (In Czech.). Diploma Thesis. Prace Karlovy Univ.
- DUKE S.H., 1975: Glutamate dehydrogenase: studies of the enzyme in *Pisum* and *Pastinaca* roots, *Lemna* clones and *Glycine* root nodules in relation to distribution, red and far-red illuminations, oscillations in activity, urea utilization and carbohydrate metabolism. Ph.D. Thesis. Univ. Minnesota. 144 pp. *Int. Diss. Abstr. B* **36**, 3196.
- DUKE S.H. and KOUKKARI W.L., 1977: Glutamate dehydrogenase activity in

- Lemna perpusilla* 6746: The effects of sucrose, glucose and fructose addition to growth media. *Physiol.Plant.* **39**, 67-72.
- DUKE S.H., WENZLER H.C. and KOUKKARI W.L., 1975: The effects of sucrose on glutamate dehydrogenase activity in *Lemna perpusilla* 6746. *Plant Physiol.* **56**(2 suppl.), 66.
- DUONG T.P. and TIEDJE J.M., 1985: Nitrogen fixation by naturally occurring duckweed-cyanobacterial associations. *Can.J.Microbiol.* **31**(4), 327-330.
- DUTAILLY G., 1878: Sur la nature réelle de la fronde et du cotylédon des *Lemna*. *Bull.Mens.Soc.Linn. Paris* **19**, 147.
- DUTHU G.S. and KILGEN R.H., 1975: Aquarium studies in the selectivity of 16 aquatic plants as food by fingerling hybrids of the cross between *Ctenopharyngodon idella* ♂ (grass carp) and female *Cyprinus carpio* ♀. *J.Fish Biology* **7**, 203-208.
- DUVAL Y., THELLIER M., HEURTEAUX C. and WISSOCQ J.C., 1980: Detection of stable isotopes with a (n,α) nuclear reaction: Application to the measurement of unidirectional fluxes of borate in a plant. *J.Radioanal.Chem.* **55**, 297-306.
- DVORAKOVA-HLADKA J., 1964: Respiration of intact and damaged plants of *Spirodela oligorhiza* Schl. *Biol.Plant.(Praha)* **6**, 198-201.
- DYAR M.T., 1953: Studies on the reduction of a tetrazolium salt by green plant tissue. *Am.J.Bot.* **40**, 20-25.
- DYER T.A., 1982: Isolation of low molecular weight RNAs from chloroplasts. In: EDELMAN M., HALLICK R.B. and CHUA N.-H. (eds.), *Methods Chloroplast Mol.Biol.* Elsevier, North-Holland Biomed.Press. 359-368.
- DYER T.A. and BOWMAN C.M., 1976 : A sequence analysis of low-molecular-weight rRNA from chloroplasts of flowering plants. In: BUECHER Th. et al. (eds.), *Genetics and biogenesis of chloroplasts and mitochondria.* Elsevier, North-Holland Biomed.Press. 645-651.
- DYER T.A. and BOWMAN C.M., 1979: Nucleotide sequences of chloroplast 5S ribosomal ribonucleic acid in flowering plants. *Biochem.J.* **183**, 595-604.
- DYKYJOVA D., 1979: Selective uptake of mineral ions and their concentration factors in aquatic higher plants. *Folia Geobot.Phytotax.* **14**, 267-325.
- DYKYJOVA D. and KVET J., 1978: Growth, production and nutrient uptake of duckweeds in fishponds and in experimental cultures. In: *Pond littoral ecosystems.* *Ecol.Stud.No. 28.* Springer, Berlin. 278-285.
- DYKYJOVA D. and KVET J., 1982: Mineral nutrient economy in wetlands of the Trebon Basin Biosphere Reserve, Czechoslovakia. In: GOPAL B. et al. (eds.), *Wetlands ecology and management.* *Nat.Inst.Ecol.Int.Sci. Publ.,Jaipur(India)* 335-355.
- DYLIK J., LEZNICKA B., MAJEWSKA J., PIECUCH I., PRZADKA W. and WIDLICKA B., 1979: Feeding of *Aythya ferina* L. and *platyrhynchos* L. in seminatural conditions and their mineral metabolism. *Acta Physiol.Pol.* **30** (1), 63.
- EAMES C. and POSNER H.B., 1974: Abnormal flowering responses and a lack of photosynthesis in a mutant of *Lemna perpusilla*. *Plant Physiol.* **54** (suppl.), 3.
- EATON R.J., 1939: *Wolffia columbiana* in Concord, Massachusetts. *Rhodora* **41**, 42-43.
- EATON R.J., 1947: *Lemna minor* as an aggressive weed in the Sudbury River. *Rhodora* **49**, 165-171.
- EBERLE G., 1933: *Wasserlinsen.* *Natur und Museum* **63**, 209-211.
- ECHLIN P., 1981: The analysis of organic surfaces. *Scanning Electron Microsc.* **1981**(1), 1-20.

- ECHLIN P., 1982: Low-temperature X-ray microanalysis of solid biological samples: prospects and problems. *Proc.Meet.Electron Microsc.Soc.America*, **40**, 380-383.
- ECHLIN P. and BURGESS A., 1977: Cryofracturing and low-temperature scanning electron microscopy of plant material. In: JOHARI O.M. (ed.), *Scanning Electron Microsc.* **1977(1)**, 491-500.
- ECHLIN P. and HAYES T.L., 1986: The distribution of elements in developing roots of *Lemna minor* L. *Microbeam Anal.* **21**, 245-247.
- ECHLIN P., PAWLEY J.B. and HAYES T.L., 1979a: Freeze-fracture scanning electron microscopy of *Lemna minor* L. (duckweed). *Scann.Electron Microsc.* **1979(5)**, 69-76.
- ECHLIN P., SAUBERMANN A., SKAER H. and FRANKS F., 1979b: The use of polymeric cryoprotectants in low-temperature X-ray microanalysis of biological specimens. *Cryobiology* **16(6)**, 591-592.
- ECHLIN P., FRANKS F., SAUBERMANN A., LAI C.E. and SKAER H., 1980a: The use of high molecular weight polymers in the cryofixation of cells and tissues for ultrastructural and analytical studies. *Electron Microsc., Proc.Eur.Congr. 7th*, **2**, 714-715.
- ECHLIN P., HAYES T., LAI C. and HOOK G., 1980b: Elemental analysis of phloem tissue in *Lemna minor* root tips. *Proc.Ann.Meet.Electron Microsc.Soc.America* **38**, 798-799.
- ECHLIN P., LAI C.E., HAYES T.L. and HOOK G., 1980c: Elemental analysis of frozen-hydrated differentiating phloem parenchyma in roots of *Lemna minor* L. *Scanning Electron Microsc.* **1980(2)**, 383-394.
- ECHLIN P., LAI C.E., HAYES T.L. and SAUBERMANN A., 1980d: Cryofixation of *Lemna minor* roots for morphological and analytical studies. *Cryo Lett.* **1**, 289-298.
- ECHLIN P., LAI C.E., SAUBERMANN A., HAYES T.L., SKAER H. and FRANKS F., 1980e: Cryofixation of plant material for ultrastructural and analytical studies (*Lemna minor*). *Proc.Meet.Electron Microsc.Soc.America* **38**, 796-797.
- ECHLIN P., SAUBERMANN A., HAYES T.L. and LAI C.E., 1980f: Elemental analysis of differentiating phloem tissue in the root-tips of *Lemna minor*. *Electron Microsc., Proc.Eur.Congr. 7th*, **3**, 124-125.
- ECHLIN P., LAI C.E. and HAYES T.L., 1981: The distribution and relative concentration of potassium in the root-tips of *Lemna minor* L. analyzed by-low temperature X-ray microanalysis. *Scanning Electron Microsc.* **1981(2)**, 489-498.
- ECHLIN P., LAI C.E. and HAYES T.L., 1982a: Low-temperature X-ray microanalysis of the differentiating vascular tissue in root tips of *Lemna minor* L. *J.Microsc.* **126(3)**, 285-306.
- ECHLIN P., LAI C.E. and HAYES T.L., 1982b: The uptake and distribution of potassium in roots of duckweed (*Lemna minor* L.) as measured using low temperature X-ray microanalysis. *Proc.Meet.Electron Microsc.Soc.America* **40**, 408-409.
- ECHLIN P., LAI C.E. and HAYES T.L., 1982c: Uptake and distribution of rubidium into root tips of *Lemna minor* measured using low temperature X-ray microanalysis. *Proc.10th Int.Congr.Electron Microsc.,Hamburg.* 401-402.
- ECHLIN P., HAYES T.L. and MCKOON M., 1983: Analytical procedures for bulk frozen-hydrated biological tissues. *Microbeam.Anal.* **18**, 243-246.
- ECHLIN P., GEE W. and CHAPMAN B., 1985: Very low voltage sputter coating. *J.Microsc.* **137(2)**, 155-170.
- EDELMANN M., MARDER J.B. and MATTOO A.K., 1983: A compendium of characteristics for the rapidly metabolized 32 kD protein of the chloro-

- plast membrane (*Spirodela oligorrhiza*). NATO Adv.Study Inst.Ser.A **63**, 187-192.
- EDELMAN M., MATTOO A.K. and MARDER J.B., 1984: Three hats of the rapidly metabolized 32-kD protein of thylakoids. In: ELLIS R.J. (ed.), Chloroplast biogenesis. Soc.Exp.Biol.Sem.Ser. **21**, 283-302.
- EDELMANN M. and REISFELD A., 1978: Characterization, translation and control of the 32,000 dalton chloroplast membrane protein in *Spirodela*. In: AKOYUNOGLU G. and ARGYROUDI-AKOYUNOGLU J.H. (eds.), Chloroplast development. Elsevier North-Holland, Amsterdam. 641-652.
- EDELMAN M. and REISFELD A., 1980: Synthesis, processing and functional probing of P-32000, the major membrane protein translated within the chloroplast. In: LEAVER C.J. (ed.), Genome organization and expression in plants. Plenum, New York. 353-362.
- EDMONDSON Y.H. and THIMANN K.V., 1950: The biogenesis of the anthocyanins. II. Evidence for the mediation of copper in anthocyanin synthesis. Arch.Biochem. **25**, 79-90.
- EDWARDS D.J., 1974: Weed preference and growth of young grass carp in New Zealand. New Zealand J. Marine and Freshwater Res. **8(2)**, 341-350.
- EDWARDS D.J., 1975: Taking a bite at the waterweed problem. New Zealand J.Agric. **130(1)**, 33-36.
- EDWARDS J. and FLETCHER J., 1978: Influence of light on amino acid and protein synthesis in *Lemna minor*. Plant Physiol. **61(4 suppl.)**, 20.
- EDWARDS J.L., 1932: *Wolffiella floridana* in northern New Jersey. Torreyia **32**, 100.
- EDWARDS P., 1980: Food potential of aquatic macrophytes. ICLARM, Manila, Philippines. 51 pp.
- EFRAT Y., ARZEE T. and PORATH D., 1975: Duckweeds (Lemnaceae) in culture, a morphogenetic system for studying the leaf-root relationship. Isr.J.Bot. **24(1)**, 50.
- EFRAT Y., PIETERSE A.H. and BOUMAN F., 1977: A comparative study of developing air chambers in flat and gibbous fronds of *Lemna gibba* L. Acta Bot.Neerl. **26**, 343-347.
- EGGERS G., 1985: Zum natürlichen Standort von *Wolffiella welwitschii* in Senegambia. Aqua Planta **10(3)**, 6.
- EHMKE A. and HARTMANN T., 1976: Properties of glutamate dehydrogenase from *Lemna minor*. Phytochem. **15**, 1611-1617.
- EHMKE A. and HARTMANN T., 1978: Control of glutamate dehydrogenase from *Lemna minor* by divalent metal ions. Phytochem. **17**, 637-641.
- EHMKE A., FLOSSDORF J., HABICHT W., SCHIEBEL H.M. and SCHULTEN H.R., 1980: A new technique for determining the hydride transfer stereospecificity and NAD linked oxido reductases electron impact and field desorption mass spectrometry. Anal.Biochem. **101(2)**, 413-420.
- EHRENBERG L., 1945: Chromosome numbers of some vascular plants. (In Swed.). Bot.Not. **1954(4)**, 430-437.
- EHRHART F., 1779: Wiedergefundene Blüte der dicken Wasserlinse (*Lemna gibba* L.). Hannoverisch.Magazin **17**, 1057-1068; reprinted in EHRHART F., Beitr.Naturk. **1**, 43-51 (1787).
- EHRlich S., 1966: Two experiments in the biological clarification of stabilization-pond effluents. Hydrobiologia **27**, 70-80.
- EICHENBERGER W., 1975: Ueber den Steringehalt pflanzlicher Mikrosomen. Chimia **29(3)**, 132-133.
- EICHHORN M., 1983: Zur Aktivität der Glucose-6-phosphat-Dehydrogenase im Chemostat lichtlimitierter *Wolffia arrhiza*-Populationen. Wiss.Z. Ernst-Moritz-Arndt Univ. Greifsw. Math.-Natw. Reihe **32(3-4)**, 34-36.
- EICHHORN M., 1984: Untersuchungen zur Populationsdynamik und zur Regulation einiger Stoffwechselfparameter bei Chemostat-Kulturen von *Wolffia*

- arrhiza unter besonderer Berücksichtigung des Lichtfaktors. Diss.B. Friedrich-Schiller-Univ. Jena.
- EICHHORN M., 1986: Untersuchungen zur Populationsdynamik und zur Regulation einiger Stoffwechselformparameter bei Chemostat-Kulturen von *Wolffia arrhiza* unter besonderer Berücksichtigung des Lichtfaktors. Biol. Rundsch. **24**, 71-73.
- EICHHORN M., 1987: Zur Populationsdynamik der Wasserlinse *Wolffia arrhiza*. Biol. Rundsch. **25**, 1-4.
- EICHHORN M. and AUGSTEN H., 1969: Continuous cultivation of *Wolffia arrhiza* in a chemostat. Flora A **160(6)**, 576-580.
- EICHHORN M. and AUGSTEN H., 1974: Der Einfluss des Bors auf verschiedenalttrige Populationen von *Wolffia arrhiza* (L.) Wimm. in Chemostatenkultur. Biochem. Physiol. Pflanzen **165(4)**, 371-385.
- EICHHORN M. and AUGSTEN H., 1977a: Der Einfluss löslicher Kohlenhydrate auf die Aktivität der Glucose-6-phosphat-Dehydrogenase verschiedenalttriger *Wolffia*-Populationen unter Berücksichtigung von energy charge, O<sub>2</sub>-Austausch und Pyruvat-Gehalt. Z. Pflanzenphysiol. **84(1)**, 37-48.
- EICHHORN M. and AUGSTEN H., 1977b: Die Wirkung von Blau- und Rotlicht auf die Aktivität der Glucose-6-phosphat-Dehydrogenase und das Adenylsystem bei *Wolffia arrhiza* unter steady state Bedingungen. Z. Pflanzenphysiol. **85**, 147-152.
- EICHHORN M. and AUGSTEN H., 1980: Einfluss verschiedener Lichtqualitäten auf das endogene Zytokinin-Spektrum bei Lemnaceen-Populationen in Abhängigkeit von der Wachstumsrate. Wiss.Z. Ernst-Moritz-Arndt Univ. Greifsw., Math.-Natw. Reihe **29(1-2)**, 51-53.
- EICHHORN M. and AUGSTEN H., 1983a: Hill reaction activity in isolated chloroplasts from *Wolffia arrhiza* cultivated under white, blue or red radiation under different chemostat steady states. Photosynthetica **17(1)**, 28-33.
- EICHHORN M. and AUGSTEN H., 1983b: Changes in the polyadenylated RNA from *Wolffia arrhiza* continuously illuminated with white, blue or red light. Biochem. Physiol. Pflanzen **178(2-3)**, 183-192.
- EICHHORN M. and AUGSTEN H., 1984: Untersuchungen an isolierten Lemnaceen-Chloroplasten. Coll. Pflanzenphysiol. Humboldt-Univ., Berlin, **7**, 149-152.
- EICHHORN M. and AUGSTEN H., 1986: Photoregulated RNA metabolism aspects of the mRNA processing in *Wolffia arrhiza*. (In German). Wiss.Z. Ernst-Moritz-Arndt-Univ. Greifsw., Math.-Natw. Reihe **35(5)**, 577-590.
- EICHLER A.W., 1875: Blütendiagramme I. Leipzig. 73-80.
- EINHELLIG F.A., LEATHER G.R. and HOBBS L.L., 1985: Use of *Lemna minor* L. as a bioassay in allelopathy. J. Chem. Ecol. **11(1)**, 65-72.
- EINOR L.O., 1984: Characteristics of the formation of oxygen status and pH of natural water in presence of submerged vegetation under conditions in the Ivankovo Reservoir. (In Russian). Vodn. Resur. **2**, 122-131.
- EISENMEIER S. and SPILLER H., 1973: Verhinderung der Nitrat-Reductase-Inaktivierung bei *Lemna minor* im Verlaufe der Anreicherung. Hoppe Seyler's Z. Physiol. Chem. **354(10-11)**, 1184.
- ELAMZON R., 1977: Clarosan 1G for control of submerged vegetation. Swed. Weed. Conf. **18(1)**, K1-K3.
- EL-DIN M.N.A., 1982: Biofertilizers - requirements and application. FAO Soils Bull. **45**, 164-174.
- EL-DIN M.N.A., FAWAZ K., ABDEL-GHAFFAR A.S. and HASHIM F., 1978: Nitrogenase activity under some water plants in Egypt. 1. *Lemna gibba* and *Eichhornia crassipes* (cited in El-DIN 1982 as in press).
- EL-FAWARIS A.H., 1985: Bioaccumulation of stable chromium by duckweed

- plants in stream microcosm. In: LEKKAS T.D. (ed.), Heavy Met. Environ., Proc. 5th Int. Conf., Tripoli. CEP Consult., Edinburgh. 2, 268-270.
- EL-GHAZAL R.A.K. and RIEMER D.N., 1986: Germination suppression by extracts of aquatic plants. J. Aquat. Plant Manage. 24, 76-79.
- EL-HINNAWI E. 1983: Energy farms: future prospects. Mazingira 7(3), 4-13.
- ELLIOT D.C., 1977: Induction by EDTA of anthocyanin synthesis in *Spirodela oligorrhiza*. Austral. J. Plant Physiol. 4, 39-49.
- ELLIS L., 1955: Preliminary notes on the correlation between alkalinity and the distribution of some free-floating and submerged aquatic plants. Ecology 36(4), 763-764.
- ELLIS P.C. and DAVIS G.J., 1980: Analysis of phytoplankton and algal species diversity of municipal wastewater following treatment with alligatorweed and duckweed communities. J. Elisha Mitchell Sci. Soc. 96(1), 250.
- ELLIS R.J., 1969: Sulfate activation in higher plants. Planta 88(1), 34-42.
- EL-SHINAWY R.M.K. and ABDEL-MALIK W.E.Y., 1980: Retention of radionuclides by some aquatic freshwater plants. Hydrobiologia 69(1-2), 125-129.
- ELZENGA J.T.M., DE LANGE L. and PIETERSE A.H., 1980: Further indications that ethylene is the gibbosity regulator of the *Lemna gibba*/*Lemna minor* complex in natural waters. Acta Bot. Neerl. 29, 225-229.
- EMES M.J. and ERISMANN K.H., 1981: Effect of nitrogen nutrition on the structure and activity of glycolate oxidase from *Lemna minor*. Plant Physiol. 67(4 suppl.), 85.
- EMES M.J. and ERISMANN K.H., 1982: The influence of nitrogen supply on the structure and activity of glycolate oxidase in *Lemna minor*. Plant Sci. Lett. 27(1), 103-109.
- EMES M.J. and ERISMANN H.K., 1984: Purification and properties of glycolate oxidase from *Lemna minor*. Int. J. Biochem. 16(12), 1373-1378.
- ENGELMANN G., 1870: *Spirodela*. Bull. Torr. Club 1, 42-43.
- ENGELMANN G., 1871a: Anthers of *Lemna*. Bull. Torr. Club 2, 10-11.
- ENGELMANN G., 1871b: Note. Bull. Torr. Club 2, 34-35.
- ENGELMANN G., 1871c: *Spirodela polyrrhiza*. Bull. Torr. Club 2, 46-47.
- ENGLANDE A.J. and KAIGATE B., 1981: Removal of persistent heavy metals by vascular aquatic plant systems. Ann. Meet. Am. Inst. Chem. Energ., New Orleans.
- ENGLER A., 1877: Vergleichende Untersuchungen über die morphologischen Verhältnisse der Araceae. Nova Acta K. Leop.-Carol. Deutsch. Akad. Natf. 39, 135-224.
- ENGLER A., 1889: Lemnaceen. In: ENGLER A. and PRANTL K. (eds.), Natürliche Pflanzenfamilien II. 3, 154-164.
- ENGLER A., 1920: Araceae-Pistioideae. In: ENGLER A., Das Pflanzenreich IV. Engelmann, Leipzig. 23 F, 250-262.
- ENTZEROTH M., MEAD D.J., PATTERSON G.M.L. and MOORE R.E., 1985: A herbicidal fatty acid produced by *Lyngbya aestuarii*. Phytochem. 24(12), 2875-2876.
- ENU-KWESI L. and DUMBROFF E.B., 1978: Changes in abscisic acid in the embryo and covering structures of *Acer saccharum* during stratification. Z. Pflanzenphysiol. 86, 371-377.
- EPSTEIN E. and BENTAL Y., 1985: Involvement of indoleacetic acid in the promotion of flowering of *Lemna gibba* G3. Abstr. 12th Int. Conf. Plant Growth Substances, Heidelberg, 7.
- ERDTMAN G., 1952: Pollen morphology and plant taxonomy: I. Angiosperms. Almquist and Wiksells. 539 pp.

- ERICKSON L.C. and WEDDING R.T., 1956: Effects of ozonated hexene on photosynthesis and respiration of *Lemna minor*. *Am.J.Bot.* **43**, 32-36.
- ERICSSON T., LARSSON C.M. and TILLBERG E., 1982: Growth responses of *Lemna* to different levels of nitrogen limitation. *Z.Pflanzenphysiol.* **105**(4), 331-340.
- ERISMANN K.H., 1972: Untersuchungen zur Analyse des CO<sub>2</sub>-Outburst bei der Photorespiration von *Lemna minor*. *Verh.Schweiz.Naturf.Ges.* **152**, 151-153.
- ERISMANN K.H. and BRUNOLD C., 1967: Die Probeentnahme in kinetischen Stoffwechseluntersuchungen mit Wasserlinsen *Lemna minor* L. (Lemnaceen). *Experientia* **23**, 235.
- ERISMANN K.H. and BRUNOLD C., 1973: Die Verwendung einer neuen *Lemna*-Kulturanlage in Wachstums- und Stoffwechseluntersuchungen mit gelösten und gasförmigen Schwefelverbindungen. *Ber.Schweiz.Bot.Ges.* **83**, 213-222.
- ERISMANN K.H. and FANKHAUSER M., 1967: Die Veränderung des Stärke-, Protein- und RNS-Gehaltes von *Lemna minor* unter dem Einfluss von Kinetin (6-Furfurylaminopurin). *Experientia* **23**, 621-622.
- ERISMANN K.H. and FINGER A., 1968: Lemnaceen in kontinuierlicher Kultur. *Ber.Schweiz.Bot.Ges.* **78**, 5-15.
- ERISMANN K.H. and KIRK M.R., 1967: Kinetische Untersuchungen zur Aminosäure- und Proteinsynthese durch *Lemna minor* L. im Licht unter Steady-state-Bedingungen. *Verh.Schweiz.Naturf.Ges.* **147**, 141-143.
- ERISMANN K.H. and KIRK M.R., 1969: The influence of nitrogen source on metabolic intermediates in steady-state photosynthesis by *Lemna minor* L. In: METZNER H. (ed.), *Progress Photosynth.Res.*, Tübingen **3**, 1538-1545.
- ERISMANN K.H. and MARTI J., 1986: Untersuchung zur Unterdrückung der Photorespiration bei der Wasserlinse *Lemna minor* L. *Schweiz.Bot.Ges.*, *Beil.Bull.* **4**, 8-9.
- ERISMANN K.H., MARTI J. and RUTTER J.C., 1986: Nitrogen nutrition and photorespiration in the C<sub>3</sub>-plant *Lemna minor*. *Schweiz.Bot.Ges.*, *Beil.Bull.* **4**, 7-8.
- ERISMANN K.H., STRASSER R. and BRAENDLE R., 1967: Untersuchungen zur photosyntheseabhängigen Sulfidoxydation durch Algen und höhere Pflanzen, insbesondere durch *Lemna minor* L. *Verh.Schweiz.Naturf.Ges.* **147**, 139-141.
- ERISMANN K.H. and WEGNER F., 1967: Der Einfluss einer wachstumshemmenden Kinetinkonzentration auf Chlorophyllgehalt, Photosyntheserate und Stärkeproduktion von *Lemna minor* L. *Flora A* **158**, 433-442.
- ERNST W.H.O. and MARQUENIE-VAN DER WERFF M., 1978: Aquatic angiosperms as indicators of copper contamination. *Arch.Hydrobiol.* **83**(3), 356-366.
- ESASHI Y. and ODA Y., 1964: Effect of light intensity and sucrose on the flowering of *Lemna perpusilla*. *Plant Cell.Physiol.* **5**, 513-516.
- ESASHI Y. and ODA Y., 1966: Two light reactions in the photoperiodic control of flowering of *Lemna perpusilla* and *L. gibba*. *Plant Cell Physiol.* **7**, 59-74.
- ESASHI Y., SHIBASAKI T. and SAITO K., 1972: Flowering responses of *Lemna perpusilla* and *L. gibba* in relation to nitrate concentration in the culture medium. *Plant Cell Physiol.* **13**, 623-631.
- ESHEL A. and BEER S., 1986: Inorganic carbon assimilation by *Spirodela polyrrhiza*. *Hydrobiologia* **131**(2), 149-153.
- ESKUCHE U., 1986: Bericht über die 17. Internationale Pflanzengeographische Exkursion durch Nordargentinien (1983). *Veröff.Geobot.Inst.ETH, Stiftung Rübel, Zürich* **91**, 12-117.

- ESKUCHE U. and ROMERO FONSECA L., 1982: Contribucion a la biologia de Wolfffiella lingulata (Lemnaceae). Bol.Soc.Argent.Bot. **21**, 259-268.
- EVANS D.M., 1978: Aquatic weed control with the isopropylamine salt of N-phosphonomethyl glycine. Proc.European Weed Res.Soc.Symp.Aquatic Weeds **5**, 171-178.
- EVANS G.C., 1972: The quantitative analysis of plant growth. Blackwell, Oxford. 186-254.
- EVANS L.T., 1969: The induction of flowering, some case histories. McMillan Co., South Melbourne. 488 pp.
- EVANS O.D., 1970: Some observations on the Lemnaceae or "Duckweeds" of New South Wales. Contrib.N.S.Wales Nat.Herb. **4**, 87-94.
- EVANS S. and WALKER J.R.L., 1978: Effect of quaternary ammonium compounds on some aquatic plants. Marine Pollut.Bull. **9(5)**, 136-137.
- EVERARD M. and DENNY P., 1985: Flux of lead in submerged plants and its relevance to a freshwater system. Aquat.Bot. **21**, 181-193.
- EVERSULL H., ACHACOSO A.S. and SORBET R.H., Jr., 1980: Ensiling duckweed with high dry matter corn crop. Dairy Sci. **65(suppl.1)**, 140.
- EWEL K.C., 1984: Effects of fire and wastewater on understory vegetation in cypress domes. In: EWEL K.C. and ODUM H.T. (eds.), Cypress swamps. Univ.Press Florida. 119-126.
- EWEL K.C. and ODUM H.T., 1978: Cypress swamps for nutrient removal and wastewater recycling. In: WANIELISTA M.P. and ECKENFELDER W.W., Jr. (eds.), Advances in water and wastewater treatment: Biological nutrient removal. Ann Arbor Sci.Publishers. 181-198.
- EYSTER C., 1966: Optimization of the physiological activity (growth rate) of the giant duckweed, Spirodela polyrhiza. Final Report. Monsanto Res.Corp.Dayton Lab.,Dayton,Ohio. 200 pp. (Polycopy).
- EYSTER C., 1978: Nutrient concentration requirements for Chlorella sorokiniana. Ohio J.Sci. **78**, 79-81.
- EYSTER C., 1981: Mineral nutrient requirements for the growth of the giant duckweed, Spirodela polyrhiza. Proc.Int.Bot.Congr. **13**, 168.
- EYSTER C., BROWN T.E., TANNER H.A. and HOOD S.L., 1958: Manganese requirement with respect to growth, Hill reaction and photosynthesis. Plant Physiol. **33**, 235-241.
- FAERBER E., 1984: Die Dichte der Pflanzendecke als Faktor für den Aethylenhaushalt bei Lemna. Mitt.band Botaniker-Tagung Wien 42 (0405).
- FAERBER E., KOENIGSHOFER H. and KANDELER R., 1986: Ethylene production and overcrowding in Lemnaceae. J.Plant Physiol. **124(3-4)**, 379-384.
- FAGERLIND F. and MASSALSKI A., 1974: The development of cell walls and intercellulares in the root of Lemna minor L. Sven.Bot.Tidskr. **68**, 64-93.
- FALTER C.M. et al., 1974: Aquatic macrophytes of the Columbia and Snake River drainages (US). U.S.Army Corps of Engrs., Walla Walla Distr.
- FANKHAUSER H., 1975: Untersuchung von Auswirkungen subtoxischer Schwefeldioxid-Konzentrationen auf Wachstum und Stoffproduktion bei Lemna minor L. unter Standardbedingungen. Lic., Univ. Berne. (Polycopy).
- FANKHAUSER H., BRUNOLD C. and ERISMANN K.H., 1974: Der Einfluss von SO<sub>2</sub> im Bereich der Grenzkonzentration auf die Netto-Stoffproduktion bei Lemna minor L. Verh.Schweiz.Naturf.Ges. **154**, 198-199.
- FANKHAUSER H., BRUNOLD C. and ERISMANN K.H., 1976: The influence of sublethal concentrations of sulfur dioxide on morphology, growth and production yield of the duckweed Lemna minor L. Oecologia **23**, 201-209.
- FANKHAUSER M. and ERISMANN K.H., 1967: Durch Kinetin induzierte Veränderungen im Protein- und Nukleinsäure-Stoffwechsel von Lemna minor L. Verh.Schweiz.Naturf.Ges. **147**, 141.

- FANKHAUSER M. and ERISMANN K.H., 1969a: Ueber den Einfluss des Kinetins (6-Furfuryl-Amino-Purin) auf den Zuckergehalt von Lemna minor L. Flora A **160**, 342-349.
- FANKHAUSER M. and ERISMANN K.H., 1969b: Ueber die Wirkung kurzfristiger Kinetingaben auf Protein, Aminosäuren und RNS bei Lemna minor. Planta **88(4)**, 332-343.
- FARAGO M.E. and PARSONS P.J., 1985: The recovery of platinum metals by the water hyacinth. Environ.Techn.Lett. **6**, 165-174.
- FASSETT C.N., 1972: A manual of aquatic plants. 6th ed. Univ.Wisc.Press Madison. 405 pp.
- FEDER W.A. and SULLIVAN F., 1969: Ozone: depression of frond multiplication and floral production in duckweed. Science **165(3900)**, 1373-1374.
- FEDER W.A., MIKA J.S., VARDARO P. and PERKINS I., 1980: The biological activity of the O<sub>3</sub> protectant, DPX. Phytopathology **70(5)**, 462.
- FEKETE A., 1973: The release of phosphorus from pond sediments and its availability to Lemna minor L. New Brunswick, N.J., Rutgers Univ., Springfield, Va. 94 pp.
- FEKETE A. and RIEMER D.N., 1973: Effects of varying phosphorus concentration on Lemna minor L. Coll.Agric.Environ.Sci.,Rutgers Univ., New Brunswick, N.J., **27**, 109-114
- FEKETE A., RIEMER D.N. and MOTTO H.L., 1976: A bioassay using common duckweed to evaluate the release of available phosphorus from pond sediments. J.Aquat.Plant Manage. **14**, 19-25.
- FELDMANN A., 1968: Beiträge zur Strahlenstimulation. I. Versuche zu einer Reproduktion von Stimulationserscheinungen bei Lemna minor L. Radiat.Bot. **8**, 425-437.
- FELDMANN A., 1969: Beiträge zur Strahlenstimulation. II. Ueber den Einfluss der Tageslänge auf die strahleninduzierte Wachstumsförderung bei Lemna minor L. Radiat.Bot. **9**, 459-471.
- FELDMANN A., 1971: Beiträge zur Strahlenstimulation. III. Einfluss der Temperatur auf die strahleninduzierte Wachstumsförderung bei Lemna minor L. Radiat.Bot. **11**, 59-65.
- FELDMANN A., 1975: Beiträge zur Strahlenstimulation. V. Der Einfluss von Licht- und Temperaturänderungen sowie des Bestrahlungszeitpunktes auf die strahleninduzierte Wachstumsförderung bei Lemna minor L. Radiat. Bot. **15**, 49-58.
- FELLE H. and BERTEL A., 1986: The fabrication of proton-selective liquid-membrane micro-electrodes for use in plant cells. J.Exp.Bot. **37(182)**, 1416-1428.
- FELLER U., 1975: Untersuchungen zur Ermittlung von Angriffspunkten der Stoffwechselregulation durch Ammonium und Nitrat bei Lemna minor L. Diss.Univ. Bern. (Polycopy).
- FELLER U. and ERISMANN K.H., 1971: Einfluss der Beleuchtungsstärke auf die Ammonium- und Nitrataufnahme bei Lemna minor. Verh.Schweiz. Naturf.Ges. **151**, 96-99.
- FELLER U. and ERISMANN K.H., 1973: Wechselwirkungen zwischen Stickstoffquelle und Ionenhaushalt bei Lemna minor L. unter Photosynthesebedingungen. Verh.Schweiz.Naturf.Ges. **153**, 75-79.
- FELLER U. and ERISMANN K.H., 1976: Einfluss der Aminosäuren Ornithin, Citrullin und Arginin auf das Wachstum von Lemna minor bei gleichzeitigem Angebot von Ammonium oder Nitrat. Ber.Schweiz.Bot.Ges. **86**, 129-135.
- FELZINES J.C., 1977: Analyse des relations entre la minéralisation des eaux douces stagnantes et la distribution des végétaux qui les peuplent. Ann.Sci.Nat.,Bot.Biol.Vég.,Paris,12e sér. **18**, 221-249.

- FEOLI E. and GERDOL R., 1982: Evaluation of syntaxonomic schemes of aquatic plant communities by cluster analysis. *Vegetatio* **49**, 21-27.
- FERGUSON A.R., 1966: Responses of *Spirodela oligorrhiza* to changes in its nutrient environment. M.S.Thesis. Univ.Auckland, N.Z. (Polycopy).
- FERGUSON A.R., 1969a: The nitrogen metabolism of *Spirodela oligorrhiza*. II. Control of the enzymes of nitrate assimilation. *Planta* **88**, 353-363.
- FERGUSON A.R., 1969b: Control of nitrate utilization in a higher plant. Abstr. XI Int.Bot.Congr. and Int.Wood Chemistry Symposium, Seattle. 59.
- FERGUSON A.R., 1970: Nitrogen metabolism of *Spirodela oligorrhiza*. III. Amino acids and the utilization of nitrate. *Planta* **90**, 365-369.
- FERGUSON A.R. and BOLLARD E.G., 1969: Nitrogen metabolism of *Spirodela oligorrhiza*. I. Utilization of ammonium, nitrate and nitrite. *Planta* **88**, 344-352.
- FERGUSON A.R. and KNYPL J.S., 1974: Specificity of induction of nitrate reductase in plants. In: WEHRMANN J. (ed.), Plant analysis and fertilizer problems. Proc.7th Int.Coll.Plant Analysis and Plant Fertilizer Problems, Hannover. **1**, 101-109.
- FERGUSON I., TURNER N. and BOLLARD E.G., 1980: Problems in fractionating calcium in plant tissue. *J.Sci.Food Agric.* **31**, 7-14.
- FERNALD M.L., 1941: Another century of additions to the Flora of Virginia. *Rhodora* **43**, 547.
- FERNANDEZ D.B. and BALDOS S.C., 1981: On water pollution: I. Absorption of nitrates by four aquatic plants. *WSSP Newsletter* **9(2)**, 5.
- FERNANDEZ D.B., BALDOS S.C. and BELTRAN M.M., 1983: Absorption of inorganic pollutants by four aquatic plants. *NRCP Res.Bull.* **38(1)**, 1-37.
- FERNANDEZ N.A. and ATHIAS-BINCHE F., 1986: Analyse démographique d'une population d'*Hydrozetes lemnae* Coggi, Acarien Oribate inféodé à la lentille d'eau *Lemna gibba* en Argentine. 1. Méthodes et techniques, démographie d'*H. lemnae* et comparaison avec d'autres Oribates. *Zool. Jb.Syst.* **113(2)**, 213-228.
- FERNANDEZ O.A. and MUJICA B., 1973: Effects of some environmental factors on the differentiation of stomata in *Spirodela intermedia* W. Koch. *Bot.Gaz.* **134**, 117-121.
- FERNANDEZ O.A., ORDONEZ M.E., CURVETTO N., FERNANDEZ L.M. and RIGATO M., 1972: Absorción del ácido 2.4-diclorofenoxiacético por *Spirodela intermedia* W.Koch. *Phyton(Argentina)* **29**, 105-117.
- FERRARA L., FORGIONE P., SCHETTINO O. and RULLO V., 1985: Utilizzazione di piante acquatiche nella correzione dell'inquinamento idrico da agenti chimici. Assorbimento di zirconio e cadmio. *Boll.Soc.Ital. Biol.Sper.* **61(9)**, 1343-1348.
- FERREIRA R.B. and DAVIES D.D., 1986: Is protein degradation correlated with either the charge or size of *Lemna* proteins? *Planta* **169(2)**, 278-288.
- FERREIRA R.B. and DAVIES D.D., 1987a: Protein degradation in *Lemna* with particular reference to ribulose biphosphate carboxylase I. The effect of light and dark. *Plant Physiol.* **83(4)**, 869-877.
- FERREIRA R.B. and DAVIES D.D., 1987b: Protein degradation in *Lemna* with particular reference to ribulose biphosphate carboxylase II. The effect of nutrient starvation. *Plant Physiol.* **83(4)**, 878-883.
- FILBIN G.J. and HOUGH R.A., 1979: The effects of excess copper sulfate on the metabolism of the duckweed *Lemna minor*. *Aquat.Bot.* **7**, 79-86.
- FILBIN G.J. and HOUGH R.A., 1984: Extraction of <sup>14</sup>C-labeled photosynthase from aquatic plants with dimethyl sulfoxide (DMSO). *Limnol.Oceanogr.* **29(2)**, 426-428.

- FILBIN G.J. and HOUGH R.A., 1985: Photosynthesis, photorespiration, and productivity in *Lemna minor* L. *Limnol.Oceanogr.* **30(2)**, 322-334.
- FILNER P., 1966: Regulation of nitrate reductase in cultured tobacco cells. *Biochim.Biophys.Acta* **118**, 299-310.
- FINKE L.R. and SEELEY H.W., 1978: Nitrogen fixation (acetylene reduction) by epiphytes of freshwater macrophytes. *Appl.Environ.Microbiol.* **36**, 129-138.
- FINLAYSON M., CHICK A., VAN OERTZEN I. and MITCHELL D., 1987: Treatment of piggery effluent by an aquatic plant filter. *Biol.Wastes* **19(3)**, 179-196.
- FINTHA I., 1979: Revision of the home distribution of *Wolffia arrhiza* (L.). *Tiscia* **14**, 71-79.
- FISCHER E. and LUETTGE U., 1980: Membrane potential changes related to active transport of glycine in *Lemna gibba* Gl. *Plant Physiol.* **65**, 1004-1008.
- FISCHER E. and NOVACKY A., 1980: Effect of PCMS and DCCD on membrane potential of *Lemna gibba* Gl. *Dev.Plant Biol.* **4**, 553-554.
- FISCHER G.W., 1953: Manual of North American smut fungi. Ronald Press, New York. 343 pp.
- FISCHER H., 1949: Plasmolyseform und Mineralsalzgehalt in alternden Blättern. II. Untersuchungen an Land- und Schwimmpflanzen. *Planta* **37**, 244-292.
- FISCHER S., 1981: Rapid toxicological test using the duckweed *Lemna minor*. (In Swedish). *Inst.Vatten-Luftvaardsforsk. IVL B-641*, 27 pp.
- FISCHER W., 1957: Unsere einheimischen Wasserlinsen. *Märkische Heimat* **2**. Potsdam.
- FISCHER Z., 1968: Food selection in grass carp *Ctenopharyngodon idella* under experimental conditions. *Pol.Arch.Hydrobiol.* **15(1)**, 1-8.
- FITZGERALD G.P., 1968: Detection of limiting or surplus nitrogen in algae and aquatic weeds. *J.Phycol.* **4(2)**, 121-126.
- FITZGERALD G.P., 1969: Some factors in the competition of antagonism among bacteria, algae, and aquatic weeds. *J.Phycol.* **5(4)**, 351-359.
- FITZGERALD G.P., 1971: Comparative rates of phosphorus sorption and utilization by algae and aquatic weeds. *J.Phycol.* **7(suppl.)**, 11.
- FITZGERALD V.W., 1918: The botany of the Kimberleys, North-west Australia. *J.Proc.R.Soc. West-Australia* **3**, 102-224.
- FIUSSELLO N., 1973: Lead pollution effects on chlorophyll. *Inf.Bot. Ital.* **5(1)**, 107-108.
- FLETCHER F. and ARNOTT H.J., 1963: The venation of *Lemna minor* in sterile culture. *Am.J.Bot.* **50**, 621.
- FLETCHER F. and ARNOTT H.J., 1964: Statistical analysis of *Lemna minor* venation. *Am.J.Bot.* **51**, 675.
- FLETCHER N.F., 1965: An experimental study of the venation of *Lemna minor* L. *Diss.Abstr.* **25(11)**, 6178.
- FLORES A.Q., 1981 s. QUIROZ F.A., 1981
- FLORES H.E. and GALSTON A.W., 1981: Polyamines in plants. Determination of microquantities by thin-layer chromatography and high performance liquid chromatography. *Plant Physiol.* **67(4 suppl.)**, 111.
- FLORES H.E. and GALSTON A.W., 1982: Analysis of polyamines in higher plants by high performance liquid chromatography. *Plant Physiol.* **69(3)**, 701-706.
- FLORES S. and TOBIN E.M., 1985: Cytokinin-modulated regulation of mRNA levels for the chlorophyll a/b protein in *Lemna*. *J.Cell Biochem.* (suppl. **9** part C), 253.
- FLORES S. and TOBIN E.M., 1986a: Post-transcriptional regulation of LHCP gene expression by benzyladenine. *J.Cell Biochem.*, (suppl. **10** part B), 21.

- FLORES S. and TOBIN E.M., 1986b: Benzyladenine modulation of the expression of two genes for nuclear-encoded chloroplast proteins in *Lemna gibba*: Apparent post-transcriptional regulation. *Planta* **168**(3), 340-349.
- FLUHR R., KUHLEMEIER C., NAGY F. and CHUA N.-H., 1986: Organ-specific and light-induced expression of plant genes. *Science* **232**(4754), 1106-1112.
- FLY C.L., 1935: Organic iron and hydrogen-ion concentration as associated factors affecting the rate of reproduction of *Lemna major*. *Oklahoma Acad.Sci.Proc.* **15**, 77-80.
- FOCHT J., 1972: Additions to the flora of Rockland County, New York. *Bull.Torrey Bot.Club* **99**(5), 249-250.
- FONTAINE S., ALIBERT G. and BOUDET A.M., 1978: Antagonisme métabolisme protéique - métabolisme phénolique chez les végétaux supérieurs. *Bull.Liaison, Groupe Polyphenols* **8**, 91-105.
- FOOTE R.H. and COOK D.R., 1959: Mosquitoes of medical importance. US Dept.Agric., Washington DC, *Agric.Handbook* **152**, 158 pp.
- FORSLUND M. and RUNDLOEF S., 1986: *Lemna minor* new record and *Schoenus ferrugineus* new record in Asele, Lappland, Northern Sweden. (In Swedish). *Sven.Bot.Tidskr.* **80**(3), 185.
- FOSBERG F.R. and FALANRUW M.V.C., 1980: Noteworthy micronesian plants. 4. *Micronesica* **16**(2), 201-210.
- FOURST G.G., 1968: Anatomy and structure of some aquatic plants. (In Russian). *Bull.Bot.Zh.(USSR)* **71**, 67-74.
- FOWLER M.C., 1985: The results of introducing grass carp, *Ctenopharyngodon idella* Val., into small lakes. *Aquacult.Fish.Manage.* **16**, 189-202.
- FOX R.L. and ALBRECHT W.A., 1958: Calcium-boron interactions - demonstrated by *Lemna minor* on clay suspensions. *Univ.Missouri Agr.Expt. Sta.Res.Bull.* **663**, 15 pp.
- FOY C.L. and COOLEY W.E., 1987: Studies on comparative modes(s) of herbicidal action of SC-0224 and glyphosate. 14th Int.Bot.Congr.Berlin, Abstr., 71.
- FRAHM E.E., 1938: Plant promoting substances on vitamin content and reproduction of *Lemna*. *Iowa State Coll.* **13**, 63-66.
- FRANCESCHI V.R., 1985: Pathways for formation of oxalate in *Lemna minor*. *Plant Physiol.* **77**(4 suppl.), 25.
- FRANCESCHI V.R., 1987: Calcium oxalate formation in *Lemna minor* is a rapid and reversible process. *Plant Physiol.* **83**(4 suppl.), 42.
- FRANCESCHI V.R. and SCHUEREN A.M., 1986: Incorporation of strontium into plant calcium oxalate crystals. *Protoplasma* **130**(2-3), 199-205.
- FRANCHET A., 1864: Note sur le mode de reproduction de la *Bruniera vivipara* (*Lemna arrhiza* L.). *Billotia* **1**, 25-31.
- FRANK P.A., 1975: Competitive interactions among aquatic plants. In: BREZONIK P.L. and FOX J.L. (eds.), *Proc.Symp.Water Quality Management through biological Control*. Rept.No. ENV-07-75-1, 24-27.
- FRASER G.G., 1974: Sulfur nutrition in duckweed, *Spirodela oligorrhiza*. *Mauri Ora* **2**, 147-156.
- FREDERICK S.E., GRUBER P.J. and TOLBERT N.E., 1973: The occurrence of glycolate dehydrogenase and glycolate oxidase in green plants. An evolutionary survey. *Plant Physiol.* **52**, 318-323.
- FREFMAN T.E., 1975: Rhizoctoniosis of aquatic plants. In: MCGRAW (ed.), *Hill Encyclopedia. Sci.Technol.Yearbook.* 7-28.
- FREY M., RALL S., ROTH A. and HEMLEBEN V., 1980: Evidence for uptake of plasmid DNA into intact plants (*Lemna perpusilla*) proved by an *E. coli* transformation assay. *Z.Naturforsch. C* **35**, 1104-1106.

- FRICK H., 1972: A study of inhibitor-induced bleaching in *Lemna minor*. Diss.Abstr.Int. B **33**, 4670.
- FRICK H., 1975: Phytochrome control of the lag phase of chlorophyll accumulation in *Lemna minor*. Can.J.Bot. **53**, 2405-2410.
- FRICK H., 1978: Pyrimidine metabolism in *Lemna minor*. 1. Functional compartmentation of chloroplast pyrimidine metabolism in a higher plant. Plant Physiol. **61**, 989-992.
- FRICK H., 1985a: Boron tolerance and accumulation in the duckweed, *Lemna minor*. J.Plant Nutrition **8(12)**, 1123-1129.
- FRICK H., 1985b: Micronutrient tolerance and accumulation in the duckweed, *Lemna*. J.Plant Nutrition **8(12)**, 1131-1145.
- FRICK H. and JONES R.F., 1975: Inhibition of chlorophyll synthesis in *Lemna minor* by nalidixic acid. Can.J.Bot. **53**, 2319-2324.
- FRICK H. and JONES R.F., 1976: Physiology and plastid fine structure of deetioliating *Lemna minor*. Can.J.Bot. **54**, 1819-1826.
- FRICK H. and MOHR H., 1973: Phytochrome-mediated growth responses in green and etiolated *Lemna minor*. Planta **109**, 281-292.
- FRIIS E.M., 1985: Angiosperm fruits and seeds from the middle miocene of Jutland (Denmark). Biol.Skr.Dan.Vid.Selsk. **24**, 165 pp.
- FROEMMING E., 1952: Ueber das Verhalten unserer Wasserschnecken gegenüber Lemnaceen. Arch.Molluskenkunde **81**, 45-48.
- FROMM F., 1943: Growth stimulation by ammonium sulfamate in low concentration. Science **98**, 391-392.
- FROMM F., 1946: El empleo de *Lemna minor* L. en ensayos rapidos de toxicidad. Ciencia(Mex.) **7**, 214-218.
- FROMM F., 1948(1949): La accion del acido furilacrilico sobre *Spirodela polyrrhiza*. Ciencia(Mex.) **9**, 40-42.
- FROMM F., 1951: A quantitative evaluation of the *Lemna* test for herbicides. Bot.Gaz. **113**, 86-90.
- FROMM F., 1955: La accion de acidos acrilicos substituidos sobre *Lemna minor*. Acta Cienc. Venezolana **6**, 121-124.
- FROMM F., 1958: The toxicity of some amines for duckweed, *Lemna minor*. Ohio J.Sci. **58**, 354-356.
- FROMM F., 1960: A modification of the *Lemna* test for phytotoxicity. J. Agric.Univ. Puerto Rico **44**, 93-102.
- FROMM F. and O'DONNELL M.L., 1951: The action of  $-SO_2NH_2$  derivates on duckweed. Proc.Pennsylv.Acad.Sci. **25**, 85-88.
- FROMM F. and O'DONNELL M.L., 1952: The influence of p-aminobenzoic acid on the growth of duckweed (*Lemna minor*). Proc.Pennsylv.Acad.Sci. **26**, 50-53.
- FROMM F. and O'DONNELL M.L., 1953: Accion simultanea del acido p-amino-benzoico y derivados del group  $SO_2NH_2$  sobre lentejas de agua (*Lemna minor*). Acta Cienc. Venezolana **4**, 66-67.
- FROMM F. and O'DONNELL M.L., 1955: The action of tauramide, 2-acetyl-amino-1,3,4-thiodiazole-5-sulfonamide, and N-substituted sulfanilamides on duckweed, *Lemna minor*. Proc.Pennsylv.Acad.Sci. **29**, 135-140.
- FROMM F. and PACE A., 1957: The phytotoxicity of 2-amino-1,3,4-thiadiazole-5-sulfonamide. Bol.Col.Quim. Puerto Rico **14(1)**.
- FROMM F., VIDAL I.M. and COLEMAN J., 1949: The action of herbicides on Lemnaceae. Proc.Pennsylv.Acad.Sci. **23**, 85-90.
- FROMM H., DEVIC M., FLUHR R. and EDELMAN M., 1985: Control of PSB-A gene expression in mature *Spirodela oligorrhiza* chloroplasts. Light regulation of 32-kilodalton protein synthesis is independent of transcript level. EMBO J. **4(2)**, 291-296.
- FRYE J.B. and CULLEY D.D., 1980: A feasibility study of the conversion of animal feedlot wastes to useful energy in Louisiana. Final Report 1978-1980. Baton Rouge. 11 pp. (Polycopy).

- FUHRER J., 1983: Light-inhibition of dark respiration in *Lemna minor*. *Bot.Helv.* **93**(1), 67-75.
- FUHRER J., 1984: The effect of CO<sub>2</sub> on the conversion of 1-aminocyclopropane-1-carboxylic acid (ACC) in *Lemna minor* L. *Plant Physiol.* **75** (1 suppl.), 127.
- FUHRER J., 1985: Production and release of ethylene from 1-aminocyclopropane-1-carboxylic acid in *Lemna minor* L. in the dark and at different carbon dioxide compensation concentrations. *J.Plant Physiol.* **117**(4), 307-317.
- FUHRER J. and ERISMANN K.H., 1983: Net CO<sub>2</sub> assimilation and dry weight accumulation in *Lemna minor* L. *Plant Physiol.* **72**(1 suppl.), 10.
- FUHRER J. and ERISMANN K.H., 1984: Steady-state carbon flow in photosynthesis and photorespiration in *Lemna minor* L.: The effect of temperature and ammonium nitrogen. *Photosynthetica* **18**(1), 74-83.
- FUJIKAWA R. and KYO S., 1973: Efficacy of chlomethoxylin in rice. *Proc. 4th Asian Pacific Weed Science Soc. Conf., Rotorua.* 130-133.
- FUJIOKA S., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S. and TAKIMOTO A., 1983a: Flowering and endogenous levels of benzoic acid in *Lemna* species. *Plant Cell Physiol.* **24**(2), 235-239.
- FUJIOKA S., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S. and TAKIMOTO A., 1983b: The role of plant hormones and benzoic acid in flowering of *Lemna paucicostata* 151 and 381. *Plant Cell Physiol.* **24** (2), 241-246.
- FUJIOKA S., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S., TAKIMOTO A. and CLELAND C.F., 1985: The role of benzoic acid and plant hormones in flowering of *Lemna gibba* G3. *Plant Cell Physiol.* **26**(4), 655-659.
- FUJIOKA S., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S., TAKIMOTO A. and CLELAND C.F., 1986a: Isolation and identification of nicotinic acid as a flower-inducing factor in *Lemna*. *Plant Cell Physiol.* **27**(1), 103-108.
- FUJIOKA S., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S., TAKIMOTO A. and CLELAND C.F., 1986b: The influence of nicotinic acid and plant hormones on flowering in *Lemna*. *Plant Cell Physiol.* **27**(1), 109-116.
- FUJIOKA S., SAKURAI A., SUGIMOTO N., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S. and TAKIMOTO A., 1986c: Isolation and identification of lutein from *Lemna paucicostata* 381 as an inhibitor of benzoic acid-induced flowering in *Lemna paucicostata* 151. *Agric.Biol.Chem.* **50** (8), 2053-2059.
- FUJIOKA S., SAKURAI A., YAMAGUCHI I., MUROFUSHI N., TAKAHASHI N., KAIHARA S., TAKIMOTO A. and CLELAND C.F., 1986d: Flowering and endogenous levels of plant hormones in *Lemna* species. *Plant Cell Physiol.* **27**(7), 1297-1307.
- FULLER G. and STUMPF P.K., 1984: Lipid biosynthesis in *Lemna minor*. *Plant Physiol.* **75**(1 suppl.), 101.
- FULLER G. and STUMPF P.K., 1987: Fatty acids in plants: a model system. *ACS Symp.Ser.* **325**, 44-52.
- FULLER R.C., ANDERSON I.C. and NATHAN H.A., 1958a: Pteridines in photosynthesis. *Proc.Natl.Acad.Sci.US* **44**, 239-244.
- FULLER R.C., ANDERSON I.C. and NATHAN H.A., 1958b: Pteridines in photosynthesis. An artifact of paper chromatography. *Proc.Natl.Acad.Sci.US* **44**, 518-519.
- FUNDERBURN H.H. and LAWRENCE J.M., 1963: A sensitive method for the determination of low concentrations of diquat and paraquat. *Nature* **199**, 1011-1012.

- FURLOW B.M. and HAYS K.L., 1972: Some influences of aquatic vegetation on the species and number of Culicidae (Diptera) in small pools of water. *Mosquito News* **32**(4), 595-599.
- FURST G.G., 1968: The anatomical structure of some aquatic plants. (In Russian). *Byull.Gl.Bot.Sada* **71**, 67-74.
- FURUYA M. and THIMANN K.V., 1963: Effects of gibberellic acid on anthocyanin synthesis and growth in *Spirodela*. *Plant Physiol.* **38** (suppl.), 44.
- FURUYA M. and THIMANN K.V., 1964: The biogenesis of anthocyanins. XI. Effects of gibberellic acid in two species of *Spirodela*. *Arch.Biochem.Biophys.* **108**, 109-116.
- GABA V., MARDER J.B., GREENBERG B.M., MATTOO A.K. and EDELMAN M., 1987: Degradation of the 32-kDa herbicide binding protein in far red light. *Plant Physiol.* **84**(2), 348-352.
- GABALDON A., ULLOA G. and PULIDO J., 1981: Distribucion geografica, ecologia y etologia de *Aedeomyia squamipennis*, importante vector natural de malaria aviaria en Venezuela. *Bol.Direc.Malariologia y Saneamiento Ambiental* **21**(2), 103-113.
- GABALDON et al. 1983 see 1981
- GABRYS H., 1978: The application of the interference microscopy for the refractive index determination of the cell wall and cytoplasm in plant cells. *Microsc.Acta* **80**(3), 215-218.
- GABRYS H., WALCZAK T. and ZURZYCKI J., 1981: Chloroplast translocations induced by light pulses. Effects of single light pulses. *Planta* **152**(6), 553-556.
- GABRYS-MIZERA H., 1976a: Refractive index determination of the cell wall and cytoplasm by interference microscopy. *Bull.Acad.Pol.Sci.Biol.* **24**, 181-184.
- GABRYS-MIZERA H., 1976b: Model considerations of the light conditions in non-cylindrical plant cells. *Photochem.Photobiol.* **24**, 453-461.
- GAEVSKAYA N.S., 1969: The role of higher aquatic plants in the nutrition of the animals of freshwater basins. (In Russian, translated by MUELLER G.M.). *Natl.Lending Library Sci.Technol.* 3 vols. 629 pp.
- GAIGHER I.G., PORATH D. and GRANOTH G., 1984: Evaluation of duckweed (*Lemna gibba*) as feed for *Tilapia* (*Oreochromis niloticus* x *O. aureus*) in a recirculating unit. *Aquaculture* **41**(3), 235-244.
- GALKINA N.V., ABDULLAEV D.A. and ZACHAROVA V.L., 1965: Biological and feed features of duckweeds. (In Russian). *Uzb.Biol.Zh.* **3**, 44-47.
- GANCARZ R., WIELKOPOLSKI W., JASKULSKA E., KAFARSKI P., LEJCZAK B., MASTALERZ P. and WIECZOREK J.S., 1985: Phosphonic analogs of morphactins 4. 9-aminofluoren-9-ylphosphine oxides. *Pestic.Sci.* **16**(3), 234-238.
- GANGSTAD E.O., SEAMAN D.E. and NELSON M.L., 1972: Potential growth of aquatic plants of the Lower Mekong River Basin, Laos, Thailand. *Hyalacinth Control J.* **10**, 4-13.
- GANNING B. and WULFF F., 1970: Measurements of community metabolism in some Baltish brackish water rockpools by means of dial oxygen curves. *Oikos* **21**, 292-298.
- GAPONENKO V.I. and STAZHETSKII V., 1969: Change in the rate of photosynthesis and chlorophyll content in duckweed in connection with age and conditions of illumination. *Sov.Plant.Physiol.* **16**(6), 825-832.
- GARANOV S.A., 1965: Lemnaceae; Vermehrung in Massenkulturen. (In Russian). *VNIRO* **10**.
- GASPARRINI G., 1856: Osservazioni morfologiche sopra taluni organi della *Lemna minor*. Napoli.
- GAUDINET A., RIPOLL C., THELLIER M. and KRAMER D., 1984: Morphometric

- study of *Lemna gibba* in relation to the use of compartmental analysis and the flux-ratio equation in higher plant cells. *Physiol.Plant.* **60** (4), 493-501.
- GAULT J. and VAULOT O., 1977: Récupération de déchets par l'aquaculture. Centre Technique du Génie Rural des Eaux et des Forêts, Gazinet (France). 49 pp.
- GAUSMAN H.W., 1977: Reflectance of leaf components. *Remote Sens.Environ.* **6**, 1-9.
- GAUTIER B., 1980: Les limites phytogéographiques du Saint-Laurent. *Provancheria* **11**, 103 pp.
- GEARHEART R.A., FINNEY B.A., WILBUR S. and HULL D., 1984: The use of wetland treatment processes in water Reuse. *Proc.Water Reuse Symp. III.AWWA Res.Found., Denver, Col.* **2**, 617-638.
- GEBER G., 1984: Karyosystematische Untersuchung der Gattungen *Spirodela* und *Lemna* (Lemnaceae). *Mitt.bd.Bot.-Tag. Wien*, **9** (0106).
- GEISSERT F., SIMON M. and WOLFF P., 1985: Investigations floristiques et faunistiques dans le nord de l'Alsace et quelques secteurs limitrophes. *Bull.Assoc.Philom.Alsace Lorr.* **21**, 111-127.
- GEISSMAN T.A. and JURD L., 1955: The anthocyanin of *Spirodela oligorrhiza*. *Arch.Biochem.Biophys.* **56**, 259-263.
- GELLINI R., and PICCARDI E.B., 1981: Sulla possibilita di assorbimento di metalli pesanti da parte di alcune piante acquatiche. *Inquinamento* **23**(2), 45-46.
- GERGEL J., HARTVICH P. and HOREJSI J., 1985: The use of duckweed in the nutrition of ducks. (In Czech.). *SB Prov.Econ.Fak Cesk.Bude.Zootech. Rada* **2**(1), 79-88.
- GERVAIS , 1982: Adaptation et productivité de la lentille d'eau (*L. minor*). Application à la valorisation du lisier de porc. *Mém.fin d'études Esap.* 162 pp. (cited from HUBAC et al. 1984).
- GESSNER F., 1955: *Hydrobotanik. 1. Energiehaushalt.* Deutsch.Verl.d. Wiss.,Berlin. 517 pp.
- GHATNEKAR S.D., PANDEY R.P., KULKARNI U.B., UDAY B. and IYER S.P., 1980: Biomangement of malathion effluent in Excel Industries Limited (India). *Indian Chem.Manuf.Annu.* **12**, 17 pp.
- GHETTI P.F., CORRADI M. and COPELLI M., 1982: Culture de Lemnaceae pendant huit mois sur des déchets zootechniques partiellement traités. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), *Studies on aquatic vascular plants.* 370-374.
- GIANFAGNA T. and FOY C.L., 1975: The effect of glyphosate on the growth of *Lemna perpusilla*. *Va.J.Sci.* **26**(2), 63.
- GIARDELLI M.L., 1935: Las flores de *Wolffiella oblonga*. *Rev.Argentina Agron.* **2**, 17-20.
- GIARDELLI M.L., 1937: Una nueva especie de Lemnacea de la Flora Argentina. *Notas del Museo de la Plata* **2**, *Botanica* **12**, 97-100.
- GIARDELLI M.L., 1939 see 1939a
- GIARDELLI M.L., 1939a: El Florecimiento de *Spirodela intermedia* W.Koch. *Notas del Museo de la Plata* **4**, *Botanica* **26**, 317-322.
- GIARDELLI M.L., 1939b: Nuevas especies de Lemnaceas para la Flora Argentina. *Physis* **15**, 323-329.
- GIARDELLI M.L., 1941: *Lemna disperma*, especie nueva para la Flora Argentina. *Darwiniana* **5**, 190-193.
- GIARDELLI M.L., 1947: Nota sobre una Lemnacea tropical poco conocida: *Wolffia Welwitschii* Hegelm. *Darwiniana* **7**, 552-556.
- GIARDELLI M.L., 1959: *Lemna aequinoctialis* Welwitsch nueva para la flora de America y de las Islas Filipinas. *Darwiniana* **11**, 584-590.
- GIARDELLI M.L., 1970: Lemnaceae. In "Flora Patagonica" INTA - Coleccion Cientifica **8/2**, 93-101.

- GIARDELLI M.L., 1972: *Wolffia brasiliensis*, especie de Lemnaceas nueva para la flora argentina. *Darwiniana* **17**, 596-597.
- GICKLHORN J., 1958: Wasserlinsen. *Universum, Natur und Technik* **13**, 24-27.
- GILBERT H.C., 1937: Lemnaceae in flower. *Science* **86**, 308.
- GILLMAN H., 1871a: *L. trisulca* in flower. *Am.Naturalist* **5**, 651-652.
- GILLMAN H., 1871b: *L. polyrrhiza* in flower. *Am.Naturalist* **5**, 652-653.
- GILLMAN H., 1881: *L. polyrrhiza* again discovered in flower on Detroit River. *Am.Natur.* **15**, 896-897.
- GIOVANELLI J., 1981: Homocysteine and methionine metabolism. *Proc.Int. Bot.Congr.* **13**, 18.
- GIOVANELLI J., DATKO A.H., MUDD S.H. and THOMPSON G.A., 1983: In vivo metabolism of 5'-methylthioadenosine in *Lemna*. *Plant Physiol.* **71(2)**, 319-326.
- GIOVANELLI J. and MUDD S.H., 1985: Radioactive methionine determination and distribution of radioactivity in the sulfur methyl and 4-carbon moieties. *J.Biochem.Biophys.Methods* **11(1)**, 1-12.
- GIOVANELLI J., MUDD S.H. and DATKO A.H., 1980a: Homocysteine biosynthesis in plants. In: CAVALLINI D.G., GAULL G.E. and ZAPPIA V. (eds.), *Natural sulfur compounds: Novel biochemical and structural aspects*. Plenum Press, New York/London. 81-92.
- GIOVANELLI J., MUDD S.H. and DATKO A.H., 1980b: Sulfur amino acids in plants. In: STUMPF P.K. and CONN E.E. (eds.), *The biochemistry of plants*. Acad.Press, New York. **5**, 453-505.
- GIOVANELLI J., MUDD S.H. and DATKO A.H., 1981: Recycling of methionine sulfur in a higher plant by two pathways characterized by either loss or retention of the 4-carbon moiety. *Biochem.Biophys.Res.Comm.* **100(2)**, 831-839.
- GIOVANELLI J., VELUTHAMBI K., THOMPSON G.A., MUDD S.H. and DATKO A.H., 1984: Threonine synthase of *Lemna paucicostata* Hegelm. 6746. *Plant Physiol.* **76(2)**, 285-292.
- GIOVANELLI J., MUDD S.H. and DATKO A.H., 1985a: In vivo regulation of de novo methionine biosynthesis in a higher plant (*Lemna*). *Plant Physiol.* **77(2)**, 450-455.
- GIOVANELLI J., MUDD S.H. and DATKO A.H., 1985b: Quantitative analysis of pathways of methionine metabolism and their regulation in *Lemna*. *Plant Physiol.* **78(3)**, 555-560.
- GIOVANELLI J., MUDD S.H., DATKO A.H. and THOMPSON G.A., 1986: Effects of orthophosphate and adenosine 5'-phosphate on threonine synthase and cystathionine  $\gamma$ -synthase of *Lemna paucicostata* Hegelm. 6746. *Plant Physiol.* **81(2)**, 577-583.
- GIUGA G., 1973: *Vita segreta di Lemnacee. Lemna symmeter* G. Giuga - species nova. Blario, Napoli. 19 pp.
- GLEASON F.K. and CASE D.E., 1986: Activity of the natural algicide cyanobacterin on angiosperms. *Plant Physiol.* **80(4)**, 834-837.
- GLANDON R.P. and McNABB C.D., 1978: The uptake of boron by *Lemna minor*. *Aquat.Bot.* **4**, 53-64.
- GLICKMAN L.T., 1966: Some factors affecting the dark processes in the germination of seeds of *Lemna perpusilla* 6746. M.S.Thesis. State Univ. of New York at Binghamton, N.Y.
- GLICKMAN L.T. and POSNER H.B., 1966: Some factors affecting the dark processes in the germination of seeds of *Lemna perpusilla* 6746. *Plant Physiol.* **41(suppl.)**, 31.
- GODEANU S., GODEANU M., OLTEAN M., DIACONU M.O.I. and GITYA V., 1978: Biocenoses installation in the pools of biological epuration naturally inseeded or planted with aquatic macrophytes. *Trav.Mus.Hist. Nat. "Grigore Antipa"* **19**, 125-129.

- GODFREY R.K. and WOOTEN J.W., 1979: Aquatic and wetland plants of South-eastern United States. The Univ. of Georgia Press, Athens.
- GODFRIAUX B.L., VALKENBURG H.J., VAN RIPER A., GUERRA C.R., EBLE A.F. and CAMPBELL P., 1975: Power plant heated water use in aquaculture. In: LANGWORTHY V.W. (ed.), Proc.3rd Ann.Poll.Contr.Conf.of the Water and Wastewater Equipment Manuf.Assoc.. Ann Arbor Sci.Publ. 233-250.
- GODWIN H., 1923: Dispersal of pond floras. J.Ecol. **11**, 160-164.
- GODZIEMBA-CZYŻ J., 1969: Characteristic of vegetative and resting forms of *Wolffia arrhiza* (L.) Wimm. 1. Growth and dynamics of their mutual transformations. Acta Soc.Bot.Pol. **38**, 437-452.
- GODZIEMBA-CZYŻ J., 1970: Vegetative and resting forms of *Wolffia arrhiza*. 2. Anatomy, physical and physiological properties. Acta Soc.Bot. Pol. **39**, 421-443.
- GODZIEMBA-CZYŻ J., 1973: Certain aspects of the chemotaxis reaction of chloroplasts in *Funaria hygrometria*. Acta Soc.Bot.Pol. **42**, 453-459.
- GODZIK S., 1964: The action of crotonic aldehyde, 'sulfapol' and 'nekal' on the respiration intensity of *Lemna minor*, *Riccia fluitans* and *Cladophora glomerata*. Acta Biol.Crac.,ser.Bot. **7**, 37-54.
- GOEBEL K., 1921: Zur Organographie der Lemnaceen. Flora **114**, 278-305.
- GOEBEL K., 1928-1933: Organographie der Pflanzen. (3rd ed.). Jena.
- GOLDBACH H. and MICHAEL G., 1976: Abscisic acid content of barley grains during ripening as affected by temperature and variety. Crop Sci. **16** (6), 797-799.
- GOLDSBOROUGH L.G. and ROBINSON G.G.C., 1985: Seasonal succession of diatom epiphyton and dense mats of *Lemna minor*. Can.J.Bot. **63**(12), 2332-2339.
- GOLLE B. and LUETTGE U., 1983: Inhibition of the glucose and amino acid carriers of *Lemna gibba* by pretreatment with HgCl<sub>2</sub>. Physiol. Plant **57**(1), 62-66.
- GOLLIN D.J., DARVILL A.G. and ALBERSHEIM P., 1984: Plant cell wall fragments inhibit flowering and promote vegetative growth in *Lemna gibba* G3. Biol.Cell **51**, 275-280.
- GOLUBINSKY I.N., GAPON S.V. and SIKACH N.A., 1987: The case of the mass flowering of *Lemna minor* (Lemnaceae) in the Poltava region. (In Russian). Bot.Zh. **72**(6), 780-781.
- GOLUEKE C.G., 1979: Aquaculture in resource recovery. Compost Sci. **20** (3), 16-23.
- GOODMAN B.A. and DEKOCK P.C., 1982: Moessbauer studies of plant materials. I. Duckweed, stocks, soyabean and pea. J.Plant Nutr. **5**(4-7), 345-353.
- GOODMAN B.A., DEKOCK P.C. and RUSH J.D., 1982: Moessbauer studies of plant materials. II. Spectra of <sup>57</sup>Fe-enriched duckweed at low temperatures. J.Plant Nutr. **5**(4-7), 355-362.
- GOODWIN T.W. and MERCER E.I., 1972: Introduction to plant biochemistry. Pergamon Press, Oxford, UK. 359 pp.
- GORDON W.R., 1977: An investigation of phenylalanine ammonia-lyase during growth and development in members of the Lemnaceae under varying conditions of axenic culture. Univ.Microfilms Int., Ann Arbor, Order No. 77-18,991; 174 pp. Diss.Abstr.Int. B, **38**, 989.
- GORDON W.R. and KOUKKARI W.L., 1977: A circadian rhythm in the activity of L-phenylalanine ammonia-lyase. Chronobiologia **4**(2), 112.
- GORDON W.R. and KOUKKARI W.L., 1978: Circadian rhythmicity in the activities of phenylalanine ammonia-lyase from *Lemna perpusilla* and *Spirodela polyrrhiza*. Plant Physiol. **62**, 612-615.
- GORDON W.R., SCHWEMMER S.S. and HILLMANN W.S., 1978: Nickel and the metabolism of urea by *Lemna paucicostata* Hegelm. 6746. Planta **140**, 265-268.

- GORHAM P.R., 1941: Measurements of the response of Lemna to growth promoting substances. *Am.J.Bot.* **28**, 98-101.
- GORHAM P.R., 1945: Growth factor studies with *Spirodela polyrrhiza* (L.) Schleid. *Am.J.Bot.* **32**, 496-505.
- GORHAM P.R., 1950: Heterotrophic nutrition of seed plants with particular reference to *Lemna minor* L. *Can.J.Research C* **28**, 356-381.
- GOTO K., 1978: Mutually inverse rhythmic and sigmoidal changes in activity of cytoplasmic and chloroplast glyceraldehyde 3-phosphate dehydrogenase in *Lemna gibba* G3. *Plant Cell Physiol.* **19**, 749-758.
- GOTO K., 1979a: Modes of control by the circadian oscillator and the hourglass mechanism of the activities of cytoplasmic and chloroplast glyceraldehyde 3-phosphate dehydrogenases in *Lemna gibba* G3. *Plant Cell Physiol.* **20**, 513-521.
- GOTO K., 1979b: Mechanism of control by a circadian oscillator of chloroplast NADP-linked glyceraldehyde 3-phosphate dehydrogenase in *Lemna gibba* G3. *Plant Cell Physiol.* **20**, 523-532.
- GOTO K., 1983: A model for the circadian oscillator in *Lemna gibba* G3. *Plant Physiol.* **72**(1 suppl.), 86.
- GOTO K., 1984: Causal relationships among metabolic circadian rhythms in *Lemna gibba*. *Z.Naturforsch.* **39C**(1-2), 73-84.
- GOWER R.A. and POSNER H.B., 1979: Effects of light and 3-(3,4-dichlorophenyl)-1,1-dimethylurea on levels of ATP in *Lemna paucicostata* 6746 and a photosynthetic mutant with abnormal flowering responses. *Plant Physiol.* **63**, 548-551.
- GRAF B., 1987: Nährwert der Wasserlinse als Komponente von Geflügelfutter. Semesterarbeit. Institut f.Nutztierwissensch.ETHZ. 17 pp. (Polycopy).
- GRAVIS A., 1935: Observations anatomiques et éthologiques sur les Cactacées et les Lemnacées. *Acad.R.Belg.Cl.Sci.,Mém.* **8/14**, fasc. 6. 70 pp.
- GRAY A., 1868: Manual of the Botany of the Northern United States. (5th ed.). Lemnaceae. Ivison, Phinney, Blakeman Co., New York. 478-480.
- GRBOVIC M., RADENOVIC C. and DAMJANOVIC Z., 1975: Bioelectric potential of the root of *Lemna minor*. *Acta Bot.Croat.* **34**, 182-183.
- GREENBERG B.M, MATTOO A.K., GABA V. and EDELMAN M., 1986: In vivo breakdown products of the 32-kDa thylakoid herbicide binding protein. *Plant Physiol.* **80**(4 suppl.), 47.
- GREENBERG G.M., GABA V., MATTOO A.K. and EDELMAN M., 1987: Effect of spectral light quality on turnover of the 32 kDa PSII reaction center protein. *Plant Physiol.* **83**(4 suppl.), 27.
- GREENHAM C.G., 1986: Influence of pH on toxicity of the non-electrolytes coumarin and ethyl-N-phenylcarbamate to *Spirodela polyrrhiza*. *Plant Prot.Q.* **1**(3), 111-114.
- GREENWOOD D.J. and NELDER J.A., 1964: The effect of drugs on the growth of *Lemna minor* C. *Ann.Bot.* **28**(112), 711-715.
- GRENIER G. and BEAUMONT G., 1983: Effets physiologiques de l'atrazine à doses sublétales sur *Lemna minor*. VII. Incorporation d'acétate-1,2-<sup>14</sup>C dans les groupes de lipides et leurs acides gras. *Physiol. Plant.* **57**, 477-484.
- GRENIER G., MARIER J.P. and BEAUMONT G., 1979: Effets physiologiques de l'atrazine à doses sublétales sur *Lemna minor* L. IV. Influence sur la composition lipidique. *Can.J.Bot.* **57**, 1015-1020.
- GRENIER G., MARIER J.P. and BEAUMONT G., 1982: Effets physiologiques de l'atrazine à doses sublétales sur *Lemna minor* L. VI. Influence sur les classes importantes de phospholipides. *Physiol.Végétale* **20**(2), 179-185.

- GRESSEL J., 1978: Light requirements for the enhanced synthesis of a plastid mRNA during *Spirodela* greening. *Photochem. Photobiol.* **27**, 167-169.
- GRESSEL J., 1982a: Triazine herbicide interaction with 32000 MW thylakoid protein-alternative possibilities. *Plant Sci. Lett.* **25(1)**, 99-106.
- GRESSEL J., 1982b: Is the site of triazine herbicide action really kilodalton thylakoid protein? *Photoparasitica* **10(4)**, 250.
- GRESSEL J. and COHEN N., 1977: Effects of dikegulac, a new growth regulator, on RNA synthesis in *Spirodela*. *Plant. Cell. Physiol.* **18(1)**, 255-259.
- GRESSEL J., ROSNER A. and COHEN N., 1975: Temperature of acrylamide polymerization and electrophoretic mobilities of nucleic acids. *Anal. Biochem.* **69(1)**, 84-91.
- GRIFFITH W., 1851: *Notulae ad plantas asiaticas* **3**, 216, 220, 221, 229. *Icones plantarum asiaticarum* **3**, plate 264, fig. 13, 16. Bishop College Press, Calcutta.
- GRISEBACH A.H.R., 1864: *Flora of the British West Indian Islands*. London. p. 512.
- GRISEBACH H., 1967: *Biosynthetic pattern in microorganisms and higher plants*. Wiley, New York.
- GRISEBACH H., 1980: Branched-chain sugars: Occurrence and biosynthesis. In: STUMPF P.K. and CONN E.E. (eds.), *The biochemistry of plants*. Acad. Press, New York. **3**, 171-197.
- GRISEBACH H., BARON D., KELLEHER W.J. and WELLMANN E., 1972a: Biosynthesis of D-apiose and D-xylose in parsley and *Lemna minor* and their regulation by light. *Hoppe-Seyler's Z. Physiol. Chem.* **353**, 1519-1520.
- GRISEBACH H., BARON D., SANDERMANN H. and WELLMANN E., 1972b: Formation of UDP-apiose from UDP-glucuronic acid. In: GINSBURG V. (ed.), *Methods in enzymology. Complex carbohydrates, Part B*. Acad. Press, New York/London. **28**, 439-446.
- GRITSENKO N.V. and DYMINA G.D., 1976: Species of flora new for the Amur Oblast. (In Russian). *Bot. Zh. (Leningr.)* **61(2)**, 239-242.
- GROB E.C. and EICHENBERGER W., 1969: Ueber die Galactolipide und Fettsäuren in normalen und glucosestimulierten Kulturen von *Spirodela oligorrhiza*. *FEBS Lett.* **5(5)**, 335-337.
- GROB E.C. and EICHENBERGER W., 1973: Beiträge zum Stickstoffmetabolismus in grünen Pflanzen. I. Die reversible Plastidenumwandlung in glucosestimulierten Kulturen von *Spirodela oligorrhiza*, eine Folge von Stickstoffmangel. *Experientia* **29(4)**, 398-400.
- GROB E.C., HODLER M. and EICHENBERGER W., 1973: Beiträge zum Stickstoffmetabolismus grüner Pflanzen. II. Der Einfluss exogener Glucose auf die Aufnahme von Nitrat und Ammonium aus der Nährlösung und auf den Proteingehalt von *Spirodela oligorrhiza*. *Experientia* **29(4)**, 401-402.
- GROB E.C. and RUFENER J., 1969: Influence of sugar containing nutrients on ultrastructure and photosynthesis activity of *Spirodela oligorrhiza* chloroplasts. In: METZNER H. (ed.), *Progress in photosynthesis research*. Tübingen. **1**, 55-62.
- GROOT G.S.P. and VAN HARTEN-LOOSBROEK N., 1981: Physical mapping of 4S RNA genes on chloroplast DNA of *Spirodela oligorrhiza*. *Curr. Genet.* **4(3)**, 187-190.
- GRUNTZEL S., 1982: Die Wirkung unterschiedlicher Stickstoffernährung auf den Cytokinin-Gehalt von *Lemna aequinoctialis* 6746. Diploma thesis. Institute of Pharmacognosy, Univ. Vienna, Austria. 62 pp.
- GUDKOVA E.V., MITROFANOV Y.A. and SHAVEL ZON R.A., 1970: Cytogenetic effect of 2,6-diaminopurine. (In Russian). *Izv. Akad. Nauk SSSR. Ser. Biol.* **4**, 508-514.

- GUERN J., 1960: Mise en évidence de phénomènes de corrélation au cours de la croissance des frondes de *Lemna trisulca* L. C.R.Acad.Sci.Paris, **251**, 894-896.
- GUERN J., 1962: Observations sur la production de frondes axillaires par les frondes de *Lemna trisulca* L. C.R.Acad.Sci.Paris, **254**, 343-345.
- GUERN J., 1963a: Caractéristiques de la croissance des frondes de *Lemna trisulca* L. C.R.Acad.Sci.Paris, **256**, 2220-2222.
- GUERN J., 1963b: Modifications expérimentales de l'intensité de la dominance entre frondes de *Lemna trisulca*. C.R.Acad.Sci.Paris, **256**, 2686-2688.
- GUERN J., 1963c: Remarques à propos de l'action de la kinétine sur le mode de germination des turions de *Spirodela polyrrhiza* Schleid. C.R. Acad.Sci.Paris, **257**, 3464-3467.
- GUERN J., 1965: Corrélations de croissance entre frondes chez Lemnacées. Ann.Sc.Nat.Bot., Paris, 12e Sér. **6**, 1-156.
- GUERN J., GUERN N. and TRAPY F., 1964: Action de quelques purines substituées sur la levée de dominance entre frondes filles formées au cours de la germination des turions de *Spirodela polyrrhiza* Schleid. C.R.Acad.Sci.Paris, **258**, 4329-4332.
- GULATI D.K., CHAMBERS C.L., ROSENTHAL G.A., and SABHARWAL P.S., 1981: Comparative toxicity of some naturally occurring and synthetic non-protein amino acids. Environ.Exp.Bot. **21**(2), 225-230.
- GULATI D.K., ROSENTHAL G.A. and SABHARWAL P.S., 1977: Effect of canaline-urea cycle amino acids on macromolecular synthesis by *Lemna minor* L. Plant Physiol. **59**(suppl.), 70.
- GULATI D.K., ROSENTHAL G.A. and SABHARWAL P.S., 1978: Rapid analysis of macromolecular metabolism in *Lemna minor*. Plant Physiol. **61**(4 suppl.), 20.
- GULATI D.K., ROSENTHAL G.A. and SABHARWAL P.S., 1979: An improved method for estimating macromolecular synthesis. J.Exp.Bot. **30**(118), 919-924.
- GULLIVER, 1867: *Wolffia* has no raphides in contrast to *Lemna*. (In Dutch). J.Bot. **5**, 22.
- GUMINSKI S., MIAZGA T. and NOWAK J., 1978: The effects of sodium humate and detergent DBSS and their joint effect on cultures of *Spirodela polyrrhiza* (L.) Schleiden. Ekol.Pol. **26**, 231-240.
- GUNIA W.J., 1987: -amylase in *L. minor*: characterization, intracellular distribution and its role in glucosyl-metabolism. 14th Int.Bot.Congr. Berlin, Abstr., 57.
- GUNKEL G., 1983: Untersuchungen zur ökotoxikologischen Wirkung eines Herbizids in einem aquatischen Modellökosystem. I. Subletale und letale Effekte. Arch.Hydrobiol., suppl. **65**(2-3), 235-267.
- GUNKEL G., 1984: Untersuchungen zur ökotoxikologischen Wirkung eines Herbizids in einem aquatischen Modellökosystem. II. Nahrungskettenprobleme und Schadstoffbilanzierung. Arch.Hydrobiol., suppl. **69**(1), 130-168.
- GUNNER H.B. and COLER R.A., 1971: A microbiotic ecoassay for environmental pollutants. In: WESTLEY B. (ed.), Identification and measurement of environmental pollutants. Nat.Res.Council, Canada. 314-319.
- GUPPY H.B., 1894: On the habits of *Lemna minor*, *L. gibba* and *L. polyrrhiza*. J.Linn.Soc. (London) **30**, 323-330.
- GUPPY H.B., 1906: Observations of a naturalist in the Pacific. McMillan, London. **2**, 407-408.
- GUPTA B.L., 1935: Studies on the development of the pollen grain and embryo sac of *Wolffia arrhiza*. Curr.Sci. **4**, 104-105.
- GUPTA S. and MAHESHWARI S.C., 1969: Induction of flowering by cytokinins in a short-day plant, *Lemna paucicostata*. Plant Cell Physiol. **10**, 231-233.

- GUPTA S. and MAHESHWARI S.C., 1970a: Growth and flowering of *Lemna paucicostata*. I. General aspects and role of chelating agents in flowering. *Plant Cell Physiol.* **11**, 83-95.
- GUPTA S. and MAHESHWARI S.C., 1970b: Growth and flowering of *Lemna paucicostata*. II. Role of growth regulators. *Plant Cell Physiol.* **11**, 97-106.
- GUSKOVA V.N., BRAGINA A.N., ZASEDATELEV A.A., ILYIN B.N., KUPRIYANOVA V.M., MASHNEVA N.I., RODIONOVA L.F., SUKALSKAYA S.Y. and TIKHONOVA A.I., 1970: Effects of uranium mixture fusion products on sanitary conditions and hydrobionts of weakly mineralized freshwater basins. (In Russian). *Gidrobiol.Zh.* **6(4)**, 5-11.
- GUSTINE D.L., 1969: Biosynthesis of D-apiose by an enzyme system isolated from *Lemna minor* L. Ph.D.Thesis. Michigan State Univ. 106 pp.
- GUSTINE D.L. and KINDEL P.K., 1969: Biosynthesis of D-apiose in a cell-free system from *Lemna minor* L. *J.Biol.Chem.* **244(5)**, 1382-1385.
- GUSTINE D.L., YUAN D.H.F. and KINDEL P.K., 1975: Uridine diphosphate D-glucuronic acid cyclase and uridine diphosphate D-glucuronic acid carboxy-lyase I from *Lemna minor*; purification, characterization, and separation from uridine diphosphate D-glucuronic acid carboxy-lyase II. *Arch.Biochem.Biophys.* **170**, 82-91.
- GUTHRIE R.K. and CHERRY D.S., 1976: Pollutant removal from coal ash basin effluent. *Water Resour.Bull.* **12(5)**, 889-902.
- GUTHRIE R.K. and CHERRY D.S., 1979a: The uptake of chemical elements from coal ash and settling basin effluent by primary producers. I. Relative concentrations in predominant plants. *Sci.Total Environ.* **12**, 217-222.
- GUTHRIE R.K. and CHERRY D.S., 1979b: Trophic level accumulation of heavy metals in a coal ash basin drainage system. *Water Resour.Bull.* **15(1)**, 244-248.
- HAAG R.W., 1983: Emergence of seedlings of aquatic macrophytes from lake sediments. *Can.J.Bot.* **61(1)**, 148-156.
- HABECK D.H., 1983: The potential of *Parapoynx stratiotata* L. as a biological control agent for Eurasian watermilfoil. *J.Aquat.Plant Manage.* **21**, 26-29.
- HABERLANDT G., 1887: Zur Kenntnis des Spaltöffnungsapparates. *Flora* **70**, 97-110.
- HAERTEL O., 1972: Die Zwerglinse, *Wolffia arrhiza* (L.) Wimm. auch noch 1971 wieder im Curauer und Malkendorfer Moor. *Kieler Notizen zur Pfl.kunde in Schleswig-Holstein* **4**, 10-11.
- HAJRA A. and TRIPATHI S.D., 1985: Nutritive value of aquatic weed, *Spirodela polyrhiza* (Linn.) in grass carp. *Indian J.Anim.Sci.* **55(8)**, 702-705.
- HAKONSON T.E. and WHICKER F.W., 1975: Cesium kinetics in a montane lake ecosystem. *Health Phys.* **28**, 699-706.
- HALABAN R., 1972: Mitotic index and cell cycle of *Lemna perpusilla* under different photoperiods. *Plant Physiol.* **50**, 308-310.
- HALABAN R. and HILLMAN W.S., 1970a: Response of *Lemna perpusilla* to periodic transfer to distilled water. *Plant Physiol.* **46**, 641-644.
- HALABAN R. and HILLMAN W.S., 1970b: Rhythmic response of *Lemna perpusilla* to periodic transfer to distilled water. *Plant Physiol.* **46** (suppl.), 26.
- HALABAN R. and HILLMAN W.S., 1971: Factors affecting the water-sensitive phase of flowering in the short-day plant *Lemna perpusilla*. *Plant Physiol.* **48**, 760-764.
- HALABAN R. and HILLMAN W.S., 1974: Photoperiodic time measurement of

- flowering in a short-day plant: effects of the external medium. In: SCHEVING L.E. et al. (eds.), Chronobiology. 666-670.
- HALAKSY E. see VON HALACSY E.
- HALLER W.T., SUTTON D.L. and BARLOWE W.C., 1974: Effects of salinity on growth of several aquatic macrophytes. Ecology 55, 891-894.
- HAMASHIMA S., 1971: Lemna minor found in Aichi prefecture, Japan. (In Japan.). J.Geobot. 19(1-2), 28.
- HAMASHIMA S., 1974: A new naturalized duckweed, Lemna gibba L. (In Japan.). J.Jap.Bot. 49, 359.
- HAMASHIMA S., 1978a: Seed germination of three Lemna species. (In Japan.). J.Jap. Bot. 53, 28-31.
- HAMASHIMA S., 1978b: On the flower of Wolffia arrhiza. (In Japan.). J. Jap. Bot. 53, 62.
- HAMASHIMA S., 1983: Relationship between some environmental conditions and the distribution of aquatic weeds in the irrigation canals of the Nobi Plain. (In Japan.) Weed Res.,Japan 28(4), 266-270.
- HAMBRIC R.N., 1968: Control of duckweed and Azolla with diuron. Weed Sci.Soc.Am.Meet.Abstr., 65-66.
- HAMNER K.C. and HODSON H.K., 1969: The relationship of floral inducing extracts to flowering gibberellins and inhibitors. XI Intern.Bot. Congr. Abstr., 83.
- HANES G., 1971: Wolffia II. Trail and Landscape 5, 100-106.
- HANNA R.B. and MENDICINO J., 1969: Synthesis of isomers and nucleoside diphosphate derivatives of D-apio-furanosyl-1 phosphate. Fed.Proc. 28(2), 856.
- HANNA R.B., PICKEN M. and MENDICINO J., 1973: Purification of a specific D-apitol dehydrogenase from a Micrococcus isolated from the surface of germinating parsley seeds. Biochim.Biophys.Acta 315(2), 259-271.
- HANSTEEN B., 1896: Beiträge zur Kenntnis der Eiweissbildung und der Bedingungen der Realisierung dieses Processes im phanerogamen Pflanzenkörper. Ber.Deutsch.Bot.Ges. 14, 362-371.
- HANSTEEN B., 1899: Ueber Eiweissynthese in grünen Phanerogamen. Jb. wiss.Bot. 33, 417-486.
- HANTKE R., 1954: Die fossilen Floren der obermiozänen Fundstelle Schrotzberg (Schienerberg, Südbaden). Denkschr.Schweiz.Naturf.Ges. 80, 30-118.
- HARA H., 1976: Comments on the East Asiatic plants. (3). (In Japan.). J.Jap.Bot. 52(8), 225-229.
- HARBORNE J.B., 1986: The natural distribution in angiosperms of anthocyanins acylated with aliphatic dicarboxylic acids. Phytochemistry 25(8), 1887-1894.
- HARBORNE J.B. and TURNER B.L., 1984: Plant chemosystematics. Acad. Press, London. 562 pp.
- HARGROVE C.L., 1976: Operation duckweed. Weeds,Tress and Turf 15(6), 30-34.
- HARRIS S.K. and BEAN R.C., 1951: Wolffia columbiana in Methuen, Massachusetts. Rhodora 53, 272.
- HARRISON D.E., 1964: The taxonomic significance of the effect of nutrient media, photoperiod, and light intensity on the morphological features of the genus Spirodela Schleid. M.S.Thesis. North Carolina State Univ., Raleigh.
- HARRISON D.E. and BEAL E.O., 1963 see 1964
- HARRISON D.E. and BEAL E.O., 1964: The Lemnaceae (duckweeds) of North Carolina. J.Elisha Mitchell Sci.Soc. 80, 12-18.
- HART D.A., 1969: Apiogalacturonans from the cell wall of Lemna minor. Univ. Microfilms Int., Ann Arbor, Order No. 70-15,048; 136 pp. Diss. Abstr.Int. B, 31, 507.

- HART D.A. and KINDEL P.K., 1970a: A novel reaction involved in the degradation of apiogalacturonans from *Lemna minor* and the isolation of apibiose as a product. *Biochemistry* **9**, 2190-2196.
- HART D.A. and KINDEL P.K., 1970b: Isolation and partial characterization of apiogalacturonans from the cell wall of *Lemna minor*. *Biochem.J.* **116**, 569-579.
- HARTMAN P., KRAL V. and TISCHLER O., 1982: Device and methods for biological treatment of wastewater especially from agricultural large-scale production. (In Czech.). Patent CS 196593 B. 6 pp.
- HARTMAN R.T., 1960: Algae and metabolites of natural waters. In: TRYON C.A. and HARTMAN R.T. (eds.), *The ecology of algae. The Pygmatuning Symposia in Ecology*, Univ.Pittsburgh. **2**, 28-55.
- HARTMAN R.T. and ENGLISH S.M., 1959: *Wolffiella floridana* in Western Pennsylvania. *Castanea* **24**, 45-47.
- HARTMAN W.A. and MARTIN D.B., 1984: Effect of suspended bentonite clay on the acute toxicity of glyphosate to *Daphnia pulex* and *Lemna minor*. *Bull. Environ. Contam. Toxicol.* **33(3)**, 355-361.
- HARTMAN W.A. and MARTIN D.B., 1985: Effect of four agricultural pesticides on *Daphnia pulex*, *Lemna minor*, and *Potamogeton pectinatus*. *Bull. Environ. Contam. Toxicol.* **35(5)**, 646-651.
- HARTMANN A., BIELENSKI U., LUETTGE U., GARREC J.P., THOIRON A. and THELLIER M., 1983: Measurements of unidirectional fluxes of lithium: application to the study of lithium ion/proton interactions with the transmembrane exchanges of *Lemna gibba* Gl. *Stud. Phys. Theor. Chem.* **24**, 591-597.
- HARTMANN T. and EHMKE A., 1976 see EHMKE A. and HARMANN T., 1976
- HARTUNG W. and KANDELER R., 1976: Die Wirkung abendlicher Dunkelrotbestrahlung auf die Aufnahme und Verteilung markierter Phytohormone in kurztagkultivierten *Lemna gibba* Gl-Pflanzen. *Z. Pflanzenphysiol.* **79**, 360-367.
- HARTUNG W. and WITT J., 1968: Ueber den Einfluss der Bodenfeuchtigkeit auf den Wuchsstoffgehalt von *Anastatica hierochuntica* und *Helianthus annuus*. *Flora B* **157**, 603-614.
- HARTUNG W., ULLRICH-EBERIUS C.I., LUETTGE U., BOECHER M. and NOVACKY A., 1980: Effect of abscisic acid on membrane potential and transport of glucose and glycine in *Lemna gibba* Gl. *Planta* **148**, 256-261.
- HARTZ P., ROCHLING Y. and MARIOUW-SMIT F., 1972: 2-dichloroacetamido-3-chlor-1.4-naphtaquinon - ein neues Algizid für den Einsatz in Reis und anderen Kulturen. *Medel. Fak. Landbouwwetenschappen Gent* **37(2)**, 699-704.
- HARVEY R.M. and FOX J.L., 1973: Nutrient removal using *Lemna minor*. *J. Water Poll. Control Fed.* **45**, 1928-1938.
- HASHMI R.Y. and OMER S., 1986: Lemnaceae. In: NASIR E. and ALI S.I. (eds.), *Flora of Pakistan*. **173**. 11 pp.
- HASUNUMA K., 1986: Cyclic nucleotides in *Lemna paucicostata*. (In Japan.). *IDEN* **40(8)**, 35-40.
- HASUNUMA K. and FUNADERA K., 1987: GTP-binding proteins in green plant, *Lemna paucicostata*. *Biochem. Biophys. Res. Commun.* **143(3)**, 908-912.
- HASUNUMA K., SHINOHARA Y., FUNADERA K. and FURUKAWA K., 1987: Circadian rhythmicity in the oscillations of cAMP and cGMP concentrations in *Neurospora* and *Lemna*. 14th Int. Bot. Congr. Berlin, Abstr., 142.
- HATANAKA A., SEKIYA J. and KAJIWARA T., 1978: Distribution of an enzyme system producing cis-3-hexenal and n-hexenal from linolenic and linoleic acids in some plants. *Phytochemistry* **17(5)**, 869-872.
- HAUPT W., 1982: Light mediated movement of chloroplasts. *Ann. Rev. Plant Physiol.* **33**, 205-233.

- HAUPT W. and WEISENSEEL M., 1966: Die Temperaturabhängigkeit der Chloroplastenbewegungen bei *Lemna trisulca*. *Naturwiss.* **53**, 411-412.
- HAUPT W. and WEISENSEEL M., 1967: Chloroplastenbewegung bei *Lemna trisulca* in polarisiertem Licht. *Naturwiss.* **54**, 48-49.
- HAUSER L.A., 1977: The Lemnaceae collection of C.H. Thompson in the University of Kansas Herbarium. *Rep.State Biol.Surv. Kansas* **10**, 12 pp.
- HAYEK A. see VON HAYEK A.
- HAYES T.L., 1980: Biophysical aspects of scanning electron microscopy. *Scann.Electron.Microsc.* **1980(1)**, 1-10.
- HEALY W.B. and McCOLL R.H.S., 1974a: Clay particles as sources of phosphorus for *Lemna* and their role in eutrophication. (In Hung.). *Agrokem.Talajtan* **23**, 407-417.
- HEALY W.B. and McCOLL R.H.S., 1974b: Clay particles as sources of phosphorus for *Lemna* and their role in eutrophication. *New Zealand.J. Sci.* **17**, 409-420.
- HECKMAN C.W., 1984: Erstfund von *Lemna turionifera* Landolt 1975, in Europa: Haseldorfer Marsch. *Kieler Notiz.Pflk.Schl.-Holst.* **16(1/2)**, 1-3.
- HECKMANN R.A., WINGET R.N., INFANGER R.C., MICKELSEN R.W. and HENDERSEN J.M., 1984: Warm water aquaculture using waste heat and water from zero discharge power plants in the Great Basin. *Great Basin Nat.* **44(1)**, 75-82.
- HEDTKE S.F., WEST C.W., ALLEN K.N., NOSBERG-KING T.J. and MOUNT D.I., 1986: Toxicity of pentachlorophenol to aquatic organisms under naturally varying and controlled environmental conditions. *Environ.Toxicol.Chem.* **5(6)**, 531-542.
- HECKMANN 1984 see HECKMAN 1984
- HEGELMAIER F., 1865: *Welwitschii iter angolense* IV. *Lemnacearum a cl. Fr. Welwitsch in Africae aequinoctialis territorio angolensi collectarum descriptio.* *J.Bot.* **3**, 110-115.
- HEGELMAIER F., 1868: Die Lemnaceen. Eine monographische Untersuchung. Engelmann, Leipzig. 169 pp.
- HEGELMAIER F., 1871: Ueber die Fruktifikationstheile von *Spirodela*. *Bot.Z.* **29(38)**, 621-630; 645-666.
- HEGELMAIER F., 1878: Lemnaceae. In: *Martius Flora Brasiliensis* **3/2**, 1-23.
- HEGELMAIER F., 1885: *Wolffia microscopica*. *Bot.Z.* **43(16)**, 241-249.
- HEGELMAIER F., 1895: Systematische Uebersicht der Lemnaceen. *Bot.Jb.* **21**, 268-305.
- HEGNAUER R., 1963: Chemotaxonomie der Pflanzen. *Monocotyledonae.* Birkhäuser, Basel/Stuttgart. **2**, 73-79, 267-269, 483.
- HEGNAUER R., 1986: Chemotaxonomie der Pflanzen. (Nachtr. Bd.1 und 2). Birkhäuser, Basel/Boston/Stuttgart. **7**, 681-685.
- HEJNY S., 1960: Oekologische Charakteristik der Wasser- und Sumpfpflanzen in den slowakischen Tiefebene (Donau- und Theissgebiet). *Slow. Akad.Wiss.Bratislava.* 487 pp.
- HEJNY S., 1967: Wintering of plants in water tanks. (In Czech.). *Ziva* **15(5)**, 162-164.
- HEJNY S., 1968: Bemerkungen zur Klassifikation einiger Makrophytengesellschaften der stehenden Gewässer. In: TUEXEN R. (ed.), *Pflanzensoziologische Systematik.* Junk, The Hague. 230-238.
- HEJNY S. and HROUDOVA Z., 1984: Plant adaptations to shallow water habitats. 14 pp. (Polycopy).
- HEJNY S. and HUSAK S., 1978: Higher plant communities. In: DYKYJOVA D. and KVET J. (eds.), *Pond littoral ecosystems.* Berlin. 23-64.
- HEJNY S., KVET J. and DYKYJOVA D., 1981: Survey of biomass and net pro-

- duction of higher plant communities in fishponds. *Folia Geobot. Phytotax.* **16**, 73-94.
- HELDWEIN R. and KANDELER R., 1981: Adaptation to end-of-day far red and malate accumulation in *Lemna*. *Z. Pflanzenphysiol.* **102**(2), 141-146.
- HELLMUND D., METZLAFF M. and SERFLING E., 1984: A transfer RNA<sup>AAArg</sup> gene of *Pelargonium* chloroplasts, not a 5S RNA gene, is efficiently transcribed after injection into *Xenopus* oocyte nuclei. *Nucleic Acids Res.* **12**(21), 8253-8268.
- HELLQUIST C.B., 1972: Range extensions of vascular aquatic plants in New England. *Rhodora* **74**(797), 131-141.
- HELLQUIST C.B. and CROW G.E., 1982: Aquatic vascular plants of New England. V. Araceae, Lemnaceae, Xyridaceae, Eriocaulaceae and Pontederiaceae. *Station Bull.* **523**, 46 pp.
- HEMLEBEN V., 1972: Untersuchungen zur Biosynthese und Funktion von Nucleinsäuren in höheren Pflanzen. Thesis for Habilitation. Univ. Tübingen. 99 pp.
- HEMMERLING J. and MEUSEL W., 1968: *Wolffia arrhiza*, die kleinste Blütenpflanze. *Monatsschr. Ornithol. Vivarienk.* B **15**(4), 124.
- HENDERSON J.M., HECKMANN R.A. and WINGET R.N., 1984: Multiple use systems for aquaculture. *Great Basin Nat.* **44**(3), 471-481.
- HENEGBRY M.S., CAIRNS J., SCHWINTZER C.R. and YOUNGUE W.H., 1981: A comparison of vascular vegetation and protozoan communities in some freshwater wetlands of northern Lower Michigan. *Hydrobiologia* **83**, 353-375.
- HENNINGS P., 1891: *Lemna trisulca* var. *pygmaea*. *Verh. Bot. Ver. Prov. Brandenburg* **33**, 8-9.
- HENSLOW G., 1911: The origin of Monocotyledons from Dicotyledons through self-adaptation to a moist or aquatic habitat. *Ann. Bot.* **25**, 717-744.
- HENSSEN A., 1954: Die Dauerorgane von *Spirodela polyrrhiza* (L.) Schleid. in physiologischer Betrachtung. *Flora* **141**, 523-566.
- HEPHER B. and PRUGININ Y., 1979: Guide to fish culture in Israel. 4. Fertilization, manuring and feeding. Foreign Training Dept., Israel. 61 pp.
- HEPPER F.N., 1968: Lemnaceae. In: HUTCHINSON J. and DALZIEL J.M. (eds.), *Flora of West Tropical Africa*. (2nd ed.). Crown Agents, London. 127-129.
- HEPPER F.N., 1973: Lemnaceae. In: POLLHILL R.M. (ed.), *Flora of Tropical East Africa*. East African Community, Arusa, Tanzania. 9 pp.
- HEPPER F.N., 1981: Lemnaceae. In: DASSANAYAKE M.D. and FOSBERG F.R. (eds.), *A revised handbook to the flora of Ceylon*. Balkema, Rotterdam. **2**, 397-402.
- HEPPER F.N., LAUNERT E., VERDCOURT B., BALLY P.R.O., RADCLIFFE-SMITH A. and NEWTON L.E., 1973: Tropical African plants. Part 33. *Kew Bull.* **28**(2), 319-326.
- HERBST R.P. and HARTMAN R.T., 1981: Phytoplankton distribution of a duckweed covered pond. *J. Freshwater Ecol.* **1**(1), 97-112.
- HERTEL W., 1986: Morphologische und chemische Charakterisierung der Licht- und Dunkelturionen von *Spirodela polyrhiza* (L.) Schleiden. *Wiss. Z. Friedrich-Schiller-Univ. Jena., Naturw. R.* **35**(5), 591-598.
- HERTER W.G., 1954: Flora del Uruguay. 1. Lemnaceae. *Rev. Sudam. Bot.* **9**, 184-186.
- HESS A.D. and HALL T.F., 1945: The relation of plants to malaria control on impounded waters with a suggested classification. *J. Nat. Malar. Soc.* **4**, 20-46.
- HESS W.J., 1986: *Wolffia papulifera* Thompson (Lemnaceae), new to Michigan. *Sida* **11**(4), 407-411.

- HESSENLAND M. and FROMM F., 1932: Die Wirkung von Natriumchlorat auf Wasserpflanzen. *Chem.Z.* **56**, 326.
- HESSENLAND M., FROMM F. and SAALMAN L., 1933: Die Wirkung von Chlorat, Bromat und Jodat auf Pflanzenwuchs. *Ang.Chemie* **46**, 577-579.
- HEVLY R.H., 1961: Notes on aquatic flowering plants with four additions to the Arizona flora. *Plateau* **33**, 115-119.
- HICKS L.E., 1930: Physiological experiments with the Lemnaceae. *Proc. Ohio Acad.Sci.* **8**, 393-394.
- HICKS L.E., 1932a: Flower production in the Lemnaceae. *Ohio J.Sci.* **32**, 115-127.
- HICKS L.E., 1932b: Ranges of pH tolerance of the Lemnaceae. *Ohio J.Sci.* **32**, 237-244.
- HICKS L.E., 1937: The Lemnaceae of Indiana. *Am.Midl.Nat.* **18**, 774-789.
- HICKS P., 1934: Interaction of factors in the growth of Lemna. V. Some preliminary observations upon the interaction of temperature and light on the growth of Lemna. *Ann.Bot.* **48**, 515-523.
- HIDAKA S. and SHIBA H., 1983: The chemical characters of the aqueous environment in the rice fields with polluted water. Effect of Lemna and algae on the nitrogen compounds in the irrigation water. (In Japan.) *Jap.J.Soil Sci.Plant Nutr.* **54(5)**, 429-433.
- HIGHAM B.M. and SMITH H., 1969: The induction of flowering by abscisic acid in Lemna perpusilla 6746. *Life Sci.* **8(20/2)**, 1061-1065.
- HILBIG W., 1971: Uebersicht über die Pflanzengesellschaften des südlichen Teiles der DDR. I. Die Wasserpflanzengesellschaften. *Hercynia N.F.* **8**, 4-33.
- HILD J. and REHNELT K., 1965: Oeko-soziologische Untersuchungen an einigen niederrheinischen Kolken. *Ber.Deutsch.Bot.Ges.* **78**, 289-304.
- HILDEBRAND S.F., 1925: A study of the top minnow *Gambusia holbrooki* in its relation to mosquito control. *Publ.Health Bull.* **156**, 98-103.
- HILLMAN W.S., 1954: On the mechanism of action of benzimidazole on Lemna minor. Ph.D.Thesis. Yale Univ.
- HILLMAN W.S., 1955: The action of benzimidazole on Lemna minor. *Plant Physiol.* **30**, 535-542.
- HILLMAN W.S., 1957: Nonphotosynthetic light requirement in Lemna minor and its partial satisfaction by kinetin. *Science* **126**, 165-166.
- HILLMAN W.S., 1958: Photoperiodic control of flowering in Lemna perpusilla. *Nature* **181**, 1275.
- HILLMAN W.S., 1959a: Experimental control of flowering in Lemna. I. General methods. Photoperiodism in L. perpusilla 6746. *Am.J.Bot.* **46**, 466-473.
- HILLMAN W.S., 1959b: Experimental control of flowering in Lemna. II. Some effects of medium composition, chelating agents and high temperatures on flowering in L. perpusilla 6746. *Am.J.Bot.* **46**, 489-495.
- HILLMAN W.S., 1960a: Growth promotion by kinetin of *Wolffia columbiana* grown in excessively concentrated medium. *Phyton(Argentina)* **14**, 43-46.
- HILLMAN W.S., 1960b: Effects of gibberellic acid on flowering, frond size and multiplication rate of Lemna perpusilla. *Phyton(Argentina)* **14**, 49-54.
- HILLMAN W.S., 1961 see 1961a
- HILLMAN W.S., 1961a: The Lemnaceae, or duckweeds. A review of the descriptive and experimental literature. *Bot.Rev.* **27**, 221-287.
- HILLMAN W.S., 1961b: Photoperiodism, chelating agents, and flowering of Lemna perpusilla and L. gibba in aseptic culture. In: McELROY W.D. and GLASS B. (eds.), A symposium on light and life. John Hopkin's Press, Baltimore. 673-686.

- HILLMAN W.S., 1961c: Experimental control of flowering in Lemna. 3. A relationship between medium composition and the opposite photoperiodic responses of *L. perpusilla* 6746 and *L. gibba* G3. *Am.J.Bot.* **48**, 413-419.
- HILLMAN W.S., 1961d: Test-tube studies on flowering: experiments with the Lemnaceae, or duckweeds. *Bull.Torr.Bot.Club* **88**, 327-336.
- HILLMAN W.S., 1961e: Heavy metals and the photoperiodic control of flowering in Lemna. *Plant Physiol.* **36**(suppl.), 53.
- HILLMAN W.S., 1962: Experimental control of flowering in Lemna. 4. Inhibition of photoperiodic sensitivity by copper. *Am.J.Bot.* **49**, 892-897.
- HILLMAN W.S., 1963: Photoperiodism: an effect of darkness during the light period on critical night length. *Science* **140**, 1397-1398.
- HILLMAN W.S., 1964: Endogenous circadian rhythms and the response of *Lemna perpusilla* to skeleton photoperiods. *Am.Natur.* **98**, 323-328.
- HILLMAN W.S., 1965: Red light, blue light, and copper ion in the photoperiodic control of flowering in *Lemna perpusilla* 6746. *Plant Cell Physiol.* **6**, 499-506.
- HILLMAN W.S., 1966: Photoperiodism in Lemna: reversal of night-interruption depends on color of the main photoperiod. *Science* **154**, 1360-1362.
- HILLMAN W.S., 1967: Blue light, phytochrome and the flowering of *Lemna perpusilla* 6746. *Plant Cell Physiol.* **8**, 467-473.
- HILLMAN W.S., 1969 see 1969c
- HILLMAN W.S., 1969a: Analysis of photoperiodic timing by the use of a rhythmic component in the carbon dioxide evolution of *Lemna perpusilla*. *Plant Physiol.* **44**(suppl.), 14.
- HILLMAN W.S., 1969b: Analysis of photoperiodic timing by the use of a rhythmic component in the carbon dioxide evolution of Lemna. 11th *Int.Bot.Congr. Abstr.*, 91.
- HILLMAN W.S., 1969c: *Lemna perpusilla* Torr., strain 6746. In: EVANS L.T. (ed.), *The induction of flowering*. Mac Millan of Australia. 186-204.
- HILLMAN W.S., 1969d: Experimental control of flowering in Lemna II. Some effects of medium composition, chelating agents and high temperatures on flowering in *Lemna perpusilla*. *Am.J.Bot.* **46**, 489-495.
- HILLMAN W.S., 1970a: Carbon dioxide output as an index of circadian timing in Lemna photoperiodism. *Plant Physiol.* **45**, 273-279.
- HILLMAN W.S., 1970b: Effects of the medium on the entrainment of *Lemna perpusilla* carbon dioxide output by 24 hr light dark cycles. *Plant Physiol.* **46**(suppl.), 26.
- HILLMAN W.S., 1971a: Nitrate and the course of *Lemna perpusilla* carbondioxide output under daily photoperiodic cycles. *Plant Physiol.* **47**, 431-434.
- HILLMAN W.S., 1971b: Entrainment of Lemna CO<sub>2</sub> output through phytochrome. *Plant Physiol.* **47**(suppl.), 13.
- HILLMAN W.S., 1971c: Entrainment of Lemna CO<sub>2</sub> output through phytochrome. *Plant Physiol.* **48**, 770-774.
- HILLMAN W.S., 1972a: Photoperiodic entrainment patterns in the CO<sub>2</sub> output of *Lemna perpusilla* 6746 and of several other Lemnaceae. *Plant Physiol.* **49**, 907-911.
- HILLMAN W.S., 1972b: Interaction of light and rhythms. *Book of Abstracts, 6th Int.Photobiol.Congr., Bochum, FRG.* 027.
- HILLMAN W.S., 1974: Towards a real-time analysis of photoperiodism: effects of nitrogen source on timing and phytochrome response in Lemna carbon dioxide output. *Am.J.Bot.* **61**(suppl.), 28.
- HILLMAN W.S., 1975a: Photoperiodism in seedling strains of *Lemna perpu-*

- silla: juvenility without obvious morphological correlates? *Am.J.Bot.* **62**, 537-540.
- HILLMAN W.S., 1975b: Effects of inorganic nitrogen on the response of Lemna carbon dioxide output to light quality and timing. *Photochem. Photobiol.* **21**, 39-47.
- HILLMAN W.S., 1975c: Light timer interactions in photoperiodism and carbon dioxide output. *Plant Physiol.* **56**(2 suppl.), 74.
- HILLMAN W.S., 1976a: Calibrating duckweeds: light, clocks, metabolism, flowering. Special characteristics of Lemnaceae may offer unique insights into plant development. *Science* **193**, 453-458.
- HILLMAN W.S., 1976b: A metabolic indicator of photoperiodic timing. *Proc.Nat.Acad.Sci. USA* **73**, 501-504.
- HILLMAN W.S., 1976c: Light/timer interactions in photoperiodism and carbon dioxide output patterns: towards a real-time analysis of photoperiodism. In: Smith H. (ed.), *Light and plant development*. Butterworth, London/Boston. 383-397.
- HILLMAN W.S., 1977a: The effects of light and nitrogen sources on the carbon dioxide output patterns of heterotrophic Lemna are paralleled in oxygen uptake as measured by intermittent flow. *Plant Physiol.* **59** (6 suppl.), 92.
- HILLMAN W.S., 1977b: The control of chronobiological patterns in plant respiration. *Chronobiologia* **4**(2), 119.
- HILLMAN W.S., 1977c: Control of plant respiration through non-photosynthetic light action. *Nature* **266**, 833-835.
- HILLMAN W.S., 1979a: Temporal compartmentation in Lemna paucicostata: Photoperiodism, respiration, nitrogen nutrition and heterotrophic growth of different strains. *Am.J.Bot.* **66**, 1021-1028.
- HILLMAN W.S., 1979b: Temperature sensitivity of daily respiratory patterns entrained through phytochrome action in Lemna paucicostata strain 6746. *Physiol.Plant.* **47**, 56-60.
- HILLMAN W.S. and CULLEY D.D., 1978a: The uses of duckweed. *Am.Sci.* **66**, 442-451.
- HILLMAN W.S. and CULLEY D.D., 1978b: Cultivating duckweeds. 32 pp. (Polycopy).
- HILLMAN W.S. and LAMM S.S., 1981: Occurrence and reversal in Lemna paucicostata 6612 of a condition that prevents nitrate utilization. *Plant Sci.Lett.* **20**, 325-331.
- HILLMAN W.S. and POSNER H.B., 1971: Ammonium ion and the flowering of Lemna perpusilla. *Plant Physiol.* **47**, 586-587.
- HILTIBRAN R.C., 1973: Duckweed control. *Ill.Nat.Hist.Surv., Aquatic Biol., Urbana.* 2 pp.
- HILTIBRAN R.C., 1978: The chemical control of some aquatic plants. *Ill. Nat.Hist.Surv., Aquatic Biol., Urbana* **12**(suppl.), 11 pp.
- HILTON-BIGGS R. and KOSSUTH S.V., 1980: Developmental effects of Sandoz 6706 and UV-B radiation on Spirodela punctata and Lemna minor. *Plant Physiol.* **65**(6 suppl.), 83.
- HIMES C.L., HERBERT M., BROWN W. and FEESE W., 1967: A limnological study of a shallow alkaline pond. *Proc.PA.Acad.Sci.* **41**, 49-53.
- HINDS H.R., 1983: The rare vascular plants of New Brunswick. *Syllogues* **50**, 38 pp.
- HOAGLAND R.E., 1978: The effects of N-(phosphonomethyl)glycine on selected enzymes in Lemna gibba L. *Proc. 31st Ann.Meet.Southern Weed Sci.Soc., Abstr.* 285.
- HOAGLAND R.E. and DUKE S.O., 1982: Biochemical effects of glyphosate (N-[phosphonomethyl]glycine). *ACS Symp.Ser.* **181**, 175-205.

- HOAGLAND R.E. and PAUL R., 1978: Ultrastructural effects of glyphosate on *Lemna gibba* L. Meet. Weed Sci. Soc. America, Abstr. 78.
- HODGSON G.L., 1970: Effects of temperature on the growth and development of *Lemna minor*, under conditions of natural daylight. *Ann. Bot.* **34**, 365-381.
- HODSON H.K. and HAMNER K.C., 1970: Floral inducing extract from *Xanthium*. *Science* **167(3917)**, 384-385.
- HODSON H.K. and HAMNER K.C., 1971: A comparison of the effects of autoclaved and non-autoclaved gibberellic acid on *Lemna perpusilla* 6746. *Plant Physiol.* **47**, 726-728.
- HOESEL W., FREY G., TEUFEL E. and BARZ W., 1972: Ueber Vorkommen und Lokalisation eines flavonolumwandelnden Enzyms in Pflanzen. *Planta* **103**, 74-86.
- HOFFMAN-FALK H., MATTOO A.K., MARDER J.B., EDELMAN M. and ELLIS R.J., 1982: General occurrence and structural similarity of the rapidly synthesized, 32000-dalton protein of the chloroplast membrane. *J. Biol. Chem.* **257(8)**, 4583-4587.
- HOFFMANN J.F., 1840a: Beiträge zur näheren Kenntnis von *Lemna arrhiza* nebst einigen Bemerkungen über *L. polyrrhiza*, *L. gibba*, *L. minor* und *L. trisulca*. *Wiegmanns Arch. Naturgeschichte (Berlin)* **6**, 138-163.
- HOFFMANN J.F., 1840b: Matériaux pour servir à la connaissance du *Lemna arrhiza*, avec quelques observations sur les autres espèces de ce genre. *Ann. Sci. Nat.*, 2e sér., **14**, 223-242.
- HOFFMANN-OSTENHOF O., PITTNER F. and KOLLER F., 1978: Some enzymes of inositol metabolism, their purification and their mechanism of action. In: WELLS W.W. and EISENBERG F., Jr. (eds.), *Cyclitols and phosphoinositides*. Proc. Symp. East Lansing, Mich., USA. Acad. Press, New York. 233-247.
- HOFMEISTER W., 1861: Neue Beiträge zur Kenntnis der Embryobildung der Phanerogamen. 2. Monokotyledonen. *Abh. Math.-Phys. Cl. K. Sächs. Ges. Wiss.* **5**, 716 pp.
- HOGEWEG P. and BRENKERT A.L., 1969: Structure of aquatic vegetation: A comparison of aquatic vegetation in India, the Netherlands and Czechoslovakia. *Trop. Ecol.* **10**, 139-162.
- HOILAND K., 1983: Extracts of *Cortinarius speciosissimus* affecting the photosynthetic apparatus of *Lemna minor*. *Trans. Br. Mycol. Soc.* **81(3)**, 633-635.
- HOLMQUIST C., 1971: Northerly localities for three aquatic plants, *Lemna trisulca* L., *Ceratophyllum demersum* L., and *Myriophyllum spicatum* L. *Bot. Not.* **124**, 335-342.
- HOLST R.W. and YOPP J.H., 1979: Comparative utilization of inorganic and organic compounds as sole nitrogen sources by the submergent duckweed, *Lemna trisulca* L. *Biol. Plant.* **21**, 245-252.
- HOMES M.V., 1963: The method of systematic variations. *Soil Sci.* **96**, 380-386.
- HONDA S.I., 1983a: Cyclic AMP and cyclic GMP effects on chloroplasts. *Plant Physiol.* **72(1 suppl.)**, 55.
- HONDA S.I., 1983b: Some effects of cyclic nucleotide treatment on chloroplast growth and replication in *Wolffia arrhiza* 7014. *J. Cell Biol.* **97(5/2)**, 363a.
- HONDA Y., KOGA T., MORISHIMA H., SATO Y., KITAWAKI S. and NISHIWAKI Y., 1971: Uptake and loss of radioactive ruthenium by freshwater organisms. (In Japan.). *Radioisotopes* **20(8)**, 376-382.
- HOOGERS B.J. and VAN DER WEIJ H.G., 1971: Time tables as a method to determine the dynamic nature of ditch vegetation. Wageningen. (In Dutch). 12 pp. From *Excerpta Bot. B* **14**, 41. (Polycopy).

- HOPKINS D.W., GOLDBERG G. and KLEIN W.H., 1978: Simulation of UV-B expected at various atmospheric ozone levels and its effect on growth of plants. *Plant Physiol.* **61**(4 suppl.), 74.
- HOPKINS E.F., 1931: Manganese and the growth of *Lemna minor*. *Science* **74**, 551-552.
- HOPKINS E.F., 1934: Manganese an essential element for green plants. *Cornell Univ. Agr. Exp. Stat. Mem.* **151**, 3-40.
- HORN AF RANTZIEN H., 1951: Certain aquatic plants collected by Dr. J.T. Baldwin Jr. in Liberia and the Gold Coast. *Bot. Not.* **1919**, 368-398.
- HORST K., 1978: Die Zwerg-Wasserlinse (*Wolffia arrhiza*) - kleinste Blütenpflanze der Welt im Maujahn bei Dannenberg. *Hannov. Wendland* **7**, 9-18.
- HORWITZ B.A. and SAMISH Y.B., 1975: Light-stimulated bioelectric response in *Spirodela oligorrhiza* and its relation to photosynthesis. *Z. Pflanzenphysiol.* **76**(2), 182-189.
- HOSETTI B.B. and PATIL H.S., 1986: Impact of *Lemna minor* on the effluent quality of sewage stabilization pond. *Geobios (Jodhpur)* **13**(6), 244-247.
- HOSHINO T., 1979: Simulation of acetylcholine action by -indole acetic acid in inducing diurnal change of floral response to chilling under continuous light in *Lemna gibba* G3. *Plant Cell Physiol.* **20**(1), 43-50.
- HOSHINO T. and OOTA Y., 1978: The occurrence of acetylcholine in *Lemna gibba* G3. *Plant Cell Physiol.* **19**(5), 769-776.
- HOSSELL J.C. and BAKER J.H., 1976: The distribution and characterization of bacteria on the surfaces of some river macrophytes. *J. Appl. Bacteriol.* **41**(3), 14-15.
- HOSSELL J.C. and BAKER J.H., 1979a: Estimation of the growth rates of epiphytic bacteria and *Lemna minor* in a river. *Freshw. Biol.* **9**, 319-327.
- HOSSELL J.C. and BAKER J.H., 1979b: A note on the enumeration of epiphytic bacteria by microscopic methods with particular reference to two freshwater plants. *J. Appl. Bacteriol.* **46**(1), 87-92.
- HOUGH R.A. and WETZEL R.G., 1977: Photosynthetic pathways of some aquatic plants. *Aquat. Bot.* **3**, 297-313.
- HOWARD R.A., 1979a: Nomenclatural notes on some lesser Antillean monocotyledones. *J. Arnold Arbor.* **60**, 290-301.
- HOWARD R.A., 1979b: Flora of the lesser Antilles 3. Monocotyledonae. *Arnold Arbor. Harvard Univ., Jamaica Plain.* 401-403.
- HOWARD-WILLIAMS C., 1977: A check-list of the vascular plants of Lake Chilwa, Malawi, with special reference to the influence of environmental factors in the distribution of taxa. *Kirkia* **10**, 563-580.
- HOWARD-WILLIAMS C., 1979: The distribution of aquatic macrophytes in Lake Chilwa: Annual and long-term environmental fluctuations. In: KALLIK M., McLACHLAN A.J., HOWARD-WILLIAMS C. (eds.), *Lake Chilwa, studies of change in a tropical ecosystem. Monogr. Biol.* **35**, 105-122.
- HUBAC J.-M., BEUFFE H., BLAKE G., CORRADI M., DUTARTRE A., VAUCOULOUX M. and VUILLOT M., 1984: Les plantes aquatiques utiles: Les Lentilles d'Eau (*Lemnacées*), utilisation en phyto-épuration et valorisation. *Assoc. Fr. Etude des Eaux, Paris.* 115 pp.
- HUBALD M., 1975: Das Wachstum und die Entwicklung der Wasserlinse (*Lemna gibba* L. Gl) unter besonderer Berücksichtigung des Einflusses verschiedener Zucker und Stickstoffverbindungen. *Ph.D. Thesis. Jena.*
- HUBALD M. and AUGSTEN H., 1977a: Einfluss verschiedener Zucker und Stickstoffverbindungen auf Wachstum und Entwicklung von *Lemna gibba* L. *Beitr. Biol. Pflanz.* **53**, 91-102.

- HUBALD M. and AUGSTEN H., 1977b: The ultrastructure of duckweed chloroplasts (*Lemna gibba* L. Gl) influenced by glycine and deficiency conditions. *Acta Biol.Med.Exp.* **2**, 61-64.
- HUBALD M. and AUGSTEN H., 1979: Die Beziehungen zwischen Licht-Dunkel-Wechsel und Nitratreduktaseaktivität bei *Wolffia arrhiza* (L.) Wimm. *Biochem.Physiol.Pflanzen* **174(7)**, 555-561.
- HUBALD M., AUGSTEN H. and FEIST H., 1979: Einfluss von Aminosäuren auf den Aminosäure- und Proteingehalt bei *Lemna gibba* L. *Biol.Rundschau* **17**, 196-199.
- HUBER W., 1982: Ueber die Wirkungen eines Salzstress auf die Stickstoffassimilation von *Lemna minor* L. *Biochem.Physiol.Pflanzen* **177(3)**, 259-265.
- HUBER W., 1985: Xanthoxin - ein neues "Stresshormon" in Pflanzen? *Verh. Ges.Oekol.* **13**, 499-503.
- HUBER W. and SANKHLA N., 1979: Effect of sodium chloride on photosynthesis of *Lemna minor* L. *Z.Pflanzenphysiol.* **91**, 147-156.
- HUBER W. and SANKHLA N., 1981 see 1979
- HUBER W., SCHUBERT V. and SAUTTER C., 1982: Effects of pentachlorophenol on the metabolism of the aquatic macrophyte *Lemna minor* L. *Environ. Pollut. A* **29(3)**, 215-224.
- HUEGEL B., 1974: In vitro-Kultur der Blütenstandsanlagen von *Lemna gibba* und *Lemna paucicostata*. Vergleichende Untersuchungen des Hormonbedarfs für Entwicklung und Geschlechtsausprägung beider Arten. *Diss. Würzburg.* 80 pp.
- HUEGEL B., 1976a: Gegensätzliche Geschlechtsausprägung von Blütenstandsanlagen der Langtagpflanze *Lemna gibba* und der Kurztagpflanze *Lemna paucicostata* in vitro. *Z.Pflanzenphysiol.* **77**, 395-405.
- HUEGEL B., 1976b: Wirkung von Gibberellin-A<sub>3</sub>, CCC, Ethrel und Indol-3-pyruvatsäure auf die Geschlechtsausprägung isolierter Blütenstandsanlagen von Lemnaceen. *Z.Pflanzenphysiol.* **80**, 283-297.
- HUEGEL B., 1976c: Wirkung von Kinetin und Abscisinsäure auf die Entwicklung von Lemnaceen-Blütenstandsanlagen in vitro. *Z.Pflanzenphysiol.* **80**, 298-305.
- HUEGEL B. and KANDELER R., 1974: Hormonbedarf in vitro bei Blütenanlagen einer Kurztagpflanze (*Lemna paucicostata* 6746) und einer Langtagpflanze (*Lemna gibba* Gl). *Zusammenfass.Vorträge Deutsch.Bot.Ges. u. Verein Angew.Bot., Tagung Würzburg.* 17-18.
- HUEGEL B., ROTTENBURG T. and KANDELER R., 1979: Phytochromsteuerung der Turionenbildung und anderer Entwicklungsprozesse bei *Lemna perpusilla* P 146. *Biochem.Physiol.Pflanzen* **174**, 761-771.
- HUFFMAN D.C., 1980: Economic feasibility of methane generation and production of duckweed for feed on dairy farms in Southeast United States. *Baton Rouge.* 37 pp. (Polycopy).
- HUFFMAN E.W.D., Jr. and ALLAWAY W.H., 1973: Growth of plants in solution culture containing low levels of chromium. *Plant Physiol.* **52(1)**, 72-75.
- HULTEN E., 1927: *Flora of Kamtchatka and the adjacent islands* 1. *Almqvist and Wiksells, Stockholm.* 331.
- HULTEN E., 1968: *Flora of Alaska and neighboring territories.* *Stanford Univ.Press., Stanford.* 282.
- HULTEN E., 1971: *Atlas of the distribution of vascular plants in Northwestern Europe.* (2nd ed.). (In Swed.). *Stockholm.* 531 pp.
- HUMBOLDT see VON HUMBOLDT
- HUMPHREY T.J. and DAVIES D.D., 1974: A new method for the measurement of protein turnover. *Biochem.J.* **148**, 119-128.
- HUMPHREY T.J. and DAVIES D.D., 1976: A sensitive method for measuring

- protein turnover based on the measurement of two tritium labeled amino acids in protein. *Biochem.J.* **156**(3), 561-568.
- HUMPHREY T.J., SARAWEK S. and DAVIES D.D., 1977: The effect of nitrogen deficiency on the growth and metabolism of *Lemna minor* L. *Planta* **137**, 259-264.
- HUNT R., 1978: Plant growth analysis. *Studies in biology* **96**. Edward Arnold. ISBN 0-7171-2696-5
- HUNTER R.D., 1976: Changes in carbon and nitrogen content during decomposition of three macrophytes in freshwater and marine environments. *Hydrobiol.* **51**, 119-128.
- HUNYADI K., 1973: The biotest method for determining bipyridyl herbicides. *Keszthelyi Mezogasdásagtudományi Kar Közleményei* **15**(4), 12 pp.
- HUPPATZ J.L. and PHILLIPS J.N., 1981: Cyanoacrylate herbicides. *CSIRO Div.Pl.Ind.* **1**, 85.
- HUSAK S. and OTAHELOVA H., 1982: *Wolffia arrhiza* (L.) Horkel ex Wimmer in Slovakia. (In Slovak.). *Biologia (Bratislava)* **37**(9), 933-935.
- HUTCHINSON J., 1934: The families of flowering plants. (2nd ed.). Vol. 2. Monocotyledons. Clarendon Press, Oxford.
- HUTCHINSON T.C., 1974: Heavy metal toxicity and synergism to floating aquatics. In: MARSHALL K.E. (ed.), 19th Congr.Int.Assoc.Limnology, Winnipeg, Canada. 91.
- HUTCHINSON T.C. and CZYRSKA H., 1975: Heavy metal toxicity and synergism to floating aquatic weeds. *Verh.Int.Ver.Limnol.* **19**, 2102-2111.
- HUTNER S.H., 1953: Comparative physiology of heterotrophic growth. In: LOOMIS W.E. (ed.), Growth and differentiation in plants. Iowa State Coll.Press, 417-446.
- HUTNER S.H., PROVASOLI L., SCHATZ A. and HASKINS C.P., 1950: Some approaches to the study of the role of metals in the metabolism of microorganisms. *Proc.Am.Phil.Soc.* **94**, 150-170.
- IAKOVLEVA N.V., 1980: Sensitivity of plants to sulfur dioxide. (In Russian). *Gaz.Rast.* **18**, 153-154.
- IBRAHIM A.R. and JUNGNICHEL F., 1980: Utilization of nitrate in *Lemna minor* under autotrophic and mixotrophic conditions. *Acta Biol.Med. Exp.* **5**, 11-17.
- ICE J. and COUCH R., 1987: Nutrient absorption by duckweed. *J.Aquat. Plant Manage.* **25**, 30-31.
- IKUSIMA I., 1955: Growth of duckweed populations as related to frond density. (In Japan.). *Physiol.Ecol.Jap.* **6**, 69-81.
- IKUSIMA I., 1962: Biology of duckweeds with special reference to their growth. I. (In Japan.). *Physiol.Ecol.Jap.* **10**, 130-164.
- IKUSIMA I., 1963a,b: Biology of duckweeds with special reference to their growth. II and III. (In Japan.). *Physiol.Ecol.Jap.* **11**, 84-102; **11**, 120-137.
- IKUSIMA I. and KIRA T., 1958: Effect of light intensity and concentration of culture solution on the frond multiplication of *Lemna minor* L. (In Japan.). *Physiol.Ecol.Jap.* **8**, 50-60.
- IKUSIMA I., SHINOZAKI K. and KIRA T., 1955: Intraspecific competition among higher plants. III. Growth of duckweed, with a theoretical consideration on the C-D effect. *J.Inst.Polytech. Osaka City Univ. D*, **6**, 107-119.
- IMANAKA M., HINO S., KENMOCHI K., MATSUNAGA K. and ISHIDA T., 1986: Studies on toxicants in food. 10. Bioaccumulation of oxadiazon in the aquatic environment. (In Japan.). *Okayama-ken Kankyo Hoken Senta Nenpo* **10**, 122-124.

- INGEMARSSON B., 1986: Patterns of N uptake, accumulation and assimilation in *Lemna gibba* when grown with exponentially increasing daily doses of N. In: LAMBERS H., NEETESON J.J. and STULEN I. (eds.), Fundamental, ecological and agricultural aspects of nitrogen metabolism in higher plants. Nijhoff Publishers, Dordrecht, Netherlands. 65-69.
- INGEMARSSON B., JOHANSSON L. and LARSSON C.-M., 1983: N utilization, photosynthesis and growth in N-limited cultures of *Lemna*. In: CRAM W.J. et al. (eds.), Membrane transport in plants. Wiley, New York. 402-403.
- INGEMARSSON B., JOHANSSON L. and LARSSON C.-M., 1984: Photosynthesis and nitrogen utilization in exponentially growing nitrogen-limited cultures of *Lemna gibba*. *Physiol.Plant.* **62**(3), 363-369.
- INGEMARSSON B., OSCARSON P. and LARSSON C.-M., 1985: Intracellular compartmentation of  $\text{NO}_3^-$  in *Lemna*; effects on  $\text{NO}_3^-$  uptake and assimilation. *Physiol.Plant.* **64**(2), 17A.
- INHUELSEN D. and NIEMEYER R., 1975: Kondensierte Phosphate in *Lemna minor* L. und ihre Beziehungen zu den Nucleinsäuren. *Planta* **124**, 159-167.
- INHUELSEN D. and NIEMEYER R., 1978: Inosit-Phosphate aus *Lemna minor* L. *Z.Pflanzenphys.* **88**, 103-116.
- INOUE Y. and SHIBATA K., 1973: Light induced chloroplast rearrangements and their action spectra as measured by absorption spectrophotometry. *Planta* **114**(4), 341-358.
- IRBE I.K. and VORONINA O.Y., 1983: Action of 2,4-D herbicide on the photosynthetic apparatus of higher aquatic plants. (In Russian). *Mezhvuz.Sb.Nauchn.Tr.* **204**, 48-52.
- IRBE I.K. and VORONINA O.Y., 1986: Effect of 2,4-D on pigment system of duckweed in relation to pH of aquatic environment. (In Russian). *Ref. Zh.,Biologiya*, 14-22.
- ISENSEE A.R. and JONES G.E., 1975a: Distribution of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) in aquatic model ecosystem. *Environ.Sci.Techn.* **9**(7), 668-672.
- ISENSEE A.R. and KEARNEY P.C., 1975b: Distribution of carbaryl and 3,5-xyllylmethylcarbamate in an aquatic model ecosystem. *J.Agric.Food Chem.* **23**(4), 760-763.
- ISHIGURI Y. and ODA Y., 1972: The relationship between red and far-red light on flowering of the long-day plant, *Lemna gibba*. *Plant Cell Physiol.* **13**, 131-138.
- ISHIGURI Y. and ODA Y., 1974: Flowering of the long-day plant, *Lemna gibba*, under short-day schedules composed of red and far-red light. *Plant Cell Physiol.* **15**, 287-293.
- ISHIGURI Y. and ODA Y., 1976: Photoreversibility of flower initiation in *Lemna perpusilla* as affected by the light quality of the main light period. *Plant Cell Physiol.* **17**(2), 255-264.
- ISHIGURI Y. and ODA Y., 1979: Diurnal changes of red and far-red reversible reaction inducing flowering of a long-day plant, *Lemna gibba*. *Rep.Inst.Agric.Res., Tohoku Daigaku*, **30**, 13-19.
- ISHIGURI Y., ODA Y. and INADA K., 1975: Spectral dependences of flowering in *Lemna perpusilla* and *L. gibba*. *Plant Cell Physiol.* **16**, 521-523.
- IUNUSOV I. and KELDIBEKOV S., 1972: On the mass culture of *Wolffia arrhiza* Wimmer in open pools of water. (In Russian). *Kult.Vod.Vyss. Vod.Rast.Uzb.* 116-119.
- IVANOVA I.E., 1970: Certain characteristic features of flowering and pollination in duckweeds (*Lemnaceae* S. Gray). (In Russian). *Bot.Zh. (USSR)* **55**, 649-659.

- IVANOVA I.E., 1973: On the taxonomy of Lemnaceae S. Gray. (In Russian). Bot.Zh.(USSR) **58**, 1413-1423.
- IVERSEN J., 1929: Studien über die pH-Verhältnisse dänischer Gewässer und ihren Einfluss auf die Hydrophytenvegetation. Bot.Tidskr. **40**, 277-333.
- IVERSEN J. and OLSON S., 1946: Die Verbreitung der Wasserpflanzen in Relation zur Chemie des Wassers. Bot.Tidskr. **46**, 136-145.
- IVES J.M. and POSNER H.B., 1982: Epinephrine, propranolol, and the sucrose ammonium inhibition of flowering in *Lemna paucicostata* 6746. Plant Physiol. **70**(1), 311-312.
- JACOBS D.L., 1947: An ecological life history of *Spirodela polyrrhiza* (greater duckweed) with emphasis on the turion phase. Ecol.Monogr. **17**, 437-469.
- JACOBS D.L., 1949: *Wolffia papulifera* in Florida. Am.Midl.Nat. **42**, 110-111.
- JACOBS D.L., 1950: Ecological and taxonomical status of Georgia duckweeds. J.Tenn.Acad.Sci. **25**, 228.
- JACQUET J. and BOUTIBONNES P., 1970: Effets des flavacoumarines sur quelques animaux et végétaux. C.R.Soc.Biol. **164**(11), 2239-2244.
- JACQUET J., BOUTIBONNES P. and SAINT S., 1971: Effets biologiques des flavacoumarines d'*Aspergillus parasiticus* ATCC 15517. II. Végétaux. Rev.Immunol. **35**(4-5), 159-186.
- JAEGER E., 1964: Zur Deutung des Arealbildes von *Wolffia arrhiza* (L.) Wimm. und einiger anderer ornithochorer Wasserpflanzen. Ber.Deutsch. Bot.Ges. **77**, 101-111.
- JAEGER E., 1965: *Wolffia arrhiza* (L.) Wimmer, gefunden im Herbst 1963 bei Hartmannsdorf, Kreis Lübben/Spreewald. Niederlaus.Florist.Mitt. **1**, 40.
- JANAS K.M., 1980: The growth retarding effect of daminozide in *Spirodela oligorrhiza* and its reversal by gibberellin. Acta Soc.Bot.Pol. **49**(4), 471-476.
- JANAUER G.A., 1977: Amino acids in aquatic macrophytes. Z.Pflanzenphysiol. **82**, 45-50.
- JANAUER G.A., 1982: The organic and mineral composition of some aquatic plants. In: SYMOENS S., HOOPER S.S. and COMPERE P. (eds.), Studies on aquatic vascular plants. R.Soc.Bot.Belg., Bruxelles. 136-142.
- JANES G.A., 1975: Controlled release copper herbicides. Creative Biol. Lab.Inc., Barberton, Ohio, USA, 326-333.
- JARCZYK L., REUTLINGER G. and ULLRICH W.R., 1984: Nitrataufnahme und Aktivität der Nitratreduktase bei *Lemna gibba* unter verschiedener Begasung. Mitt.bd.Bot.-Tag.Wien, 55(0514).
- JAWORSKI E.G., 1971: Gamma methylthiobutyric acid, a growth stimulant. Life Sci., II (Biochem.Gen.Mol.Biol.) **10**(11), 613-616.
- JAWORSKI E.G., 1972: Mode of action of N-phosphonomethylglycine: inhibition of aromatic amino acid biosynthesis. J.Agric.Food Chem. **20**(6), 1195-1198.
- JEFFERIES R.L., LAYCOCK D., STEWART G.R. and SIMS A.P., 1969a: The properties of mechanisms involved in the uptake and utilization of calcium and potassium by plants in relation to an understanding of plant distribution. In: RORISON I.H. (ed.), Ecological aspects of the mineral nutrition of plants. Blackwell, Oxford. 281-307.
- JEFFERIES R.L., SIMS A.P. and YOUNG M., 1969b: Regulation of potassium transport in *Lemna minor*. 11th Int.Bot.Congr., Abstr., 102.
- JENKINS D.W., 1964: Pathogens, parasites and predators of medically important arthropods. Bull.WHO **30**(suppl.). 150 pp.

- JENSEN S., 1979: Classification of lakes in southern Sweden on the basis of their macrophyte composition by means of multivariate methods. *Vegetatio* **39(3)**, 129-146.
- JENTSCH H., 1979: Vorkommen und Vergesellschaftung von *Wolffia arrhiza* (L.) Horkel ex Wimmer im Spreewald. *Gleditschia* **7**, 251-254.
- JEREMIE J. and RAYNAL-ROQUES A., 1981: Dynamique de la végétation des mares de dolines aux Petites Antilles. *Adansonia* **3**, 259-280.
- JERVIS R.A., 1969: Primary production in the freshwater marsh ecosystem of Troy Meadows, New Jersey. *Bull.Torr.Bot.Club* **96**, 209-231.
- JOENSSON B., 1880: On developing embryo sacs of the Angiosperms. (In Swed.). *Lunds.Univ.Arsskr.* **16(5)**, 86 pp.
- JOHANSEN D.A., 1950: Plant embryology. *Chronica Botanica*. Waltham, Mass.
- JOHANSSON L. and LARSSON C.-M., 1985: Carbon and nitrogen metabolism in *Lemna* as affected by methionine sulfoximine (MSO). *Plant Physiol.* **64** (suppl.2), 17a.
- JOHANSSON L. and LARSSON C.-M., 1986a: Relationship between inhibition of CO<sub>2</sub> fixation and glutamine synthetase inactivation in *Lemna gibba* L. treated with L-methionine-D,L-sulfoximine (MSO). *J.Exp.Bot.* **37(175)**, 221-229.
- JOHANSSON L. and LARSSON C.-M., 1986b: Effects of the glutamine synthetase inhibitor methionine sulfoximine on CO<sub>2</sub> fixation in *Lemna gibba*. *Plant Soil* **91(3)**, 373-376.
- JOHANSSON L., ANDERSSON B. and ERIKSSON T., 1982: Improvement of anther culture technique: Activated charcoal bound in agar medium in combination with liquid medium and elevated CO<sub>2</sub> concentration. *Physiol.Plant.* **54(1)**, 24-30.
- JOHNSON E.L., 1941: Effect of x-radiation upon the growth of *Lemna minor* L. *Colorado Univ.Stud., D, Phys.Biol.* **1**, 165-175.
- JOHNSON H.P., 1902: A study of certain mosquitoes in New Jersey and a statement of the mosquito-malaria-theory. *Ann.Rept.N.J.Agr.Exp.Sta.*
- JOHRI T.S. and SHARMA P.N., 1980: Studies on utilization of dried duckweed (*Lemna minor*) in chicks. *Indian Poult.Gaz.* **64(1)**, 24-27.
- JONES C.N., 1963: *Flora of Illinois*. (2nd ed.). Notre Dame Univ.Press. 91-92.
- JORDE D.G., KRAPU G.L. and CRAWFORD R.D., 1983: Feeding ecology of mallards wintering in Nebraska USA. *J.Wildl.Manage.* **47(4)**, 1044-1053.
- JOUKOVSKY A.V., 1935: La floraison de *Lemna*. *Beih.Bot.Zentralblatt Abt. A* **53**, 620-626.
- JOVET P. and JOVET-AST S., 1966: *Lemna valdiviana* Philippi, espèce signalée pour la première fois en Europe. *Bull.Centre Etud.Rech.Sci., Biarritz* **6**, 57-64.
- JOVET P. and JOVET-AST S., 1967: Floraison, fructification, germination du *Lemna valdiviana* au Lac Marion (B.P.). *Bull.Cent.Etud.Rech.Sci. Biarritz* **6**, 729-734.
- JOVET-AST S., 1968: Contribution à l'étude des eaux douces de l'Ennedi. 2. Lemnaceae. *Bull.Inst.Fondam.Afr.Noire* **30(3)**, 830-847.
- JOY K.W., 1968: Enzymes of nitrate assimilation in *Lemna*. *Plant Physiol.* **43**, 8.
- JOY K.W., 1969a: Nitrogen metabolism of *Lemna minor*. I. Growth, nitrogen sources, and amino acid inhibition. II. Enzymes of nitrate assimilation and some aspects of their regulation. *Plant Physiol.* **44**, 845-848, 849-853.
- JOY K.W., 1969b: Glutamate dehydrogenases in higher plants. 11th Int. Bot.Congr., Abstr., 105.
- JOY K.W., 1971: Glutamate dehydrogenase changes in *Lemna* not due to enzyme induction. *Plant Physiol.* **47**, 445-446.

- JOYNER B.G. and FREEMAN T.E., 1973: Pathogenicity of *Rhizoctonia solani* to aquatic plants. *Phytopathology* **63**, 681-685.
- JUDD G.J.R. and BORDEN J.H., 1980: Oviposition deterrents for *Aedes aegypti* in extracts of *Lemna minor*. *J.Entomol.Soc.B.C.* **77**, 30-33.
- JUESON M., 1976: Studies on inhibition factors and the role of phytochrome in the floral induction in short-day plants. *Korean J.Bot.* **19** (1), 14-18.
- JUNG K.D. and LUETTGE U., 1980: Amino acid uptake by *Lemna gibba* by a mechanism with affinity to neutral L- and D-amino acids. *Planta* **150**, 230-235.
- JUNG K.D. and LUETTGE U., 1982a: Mechanisms of amino-acid transport in *Lemna gibba* L. *Dev.Plant Biol.* **7**, 21-28.
- JUNG K.D. and LUETTGE U., 1982b: Inhibition of the amino-acid co-transport carrier of *Lemna gibba* by incorporation of p-fluorophenylalanine. *Plant Physiol.* **55**(2), 231-235.
- JUNG K.D., LUETTGE U. and FISCHER E., 1982: Uptake of neutral and acidic amino acids by *Lemna gibba* correlated with the  $H^+$ -electrochemical gradient at the plasmalemma. *Plant Physiol.* **55**(3), 351-355.
- JUNGNICKEL F., 1978: Phosphatbedarf und Mangelsymptome bei einigen axenisch kultivierten Lemnaceen. *Limnologica* **11**, 469-478.
- JUNGNICKEL F., 1981: Regulative properties of surface located hydrolases in *Candida utilis* and in some Lemnaceae. *Abh.Akad.Wiss.DDR, Abt. Math., Natw., Techn.* **N3**, 421-426.
- JUNGNICKEL F., 1984: Zur Manganwirkung bei einigen Lemnaceen. *Biol. Rundsch.* **22**(4), 255-257.
- JUNGNICKEL F., 1986a: Turion formation and behaviour in *Spirodela polyrhiza* at two levels of phosphate supply. *Biol.Plant.* **28**(3), 168-173.
- JUNGNICKEL F., 1986b: Zur Beziehung zwischen Modell- und Praxisobjekten bei der axenischen Mikrovermehrung von Blütenpflanzen. *Wiss.Z.Friedrich-Schiller-Univ.Jena, Natw.R.* **35**(5), 599-611.
- JUNGNICKEL F. and ANDREAS W., 1987: Clonal differences of biomass and turion production in *Spirodela polyrhiza* (L.) Schleiden as influenced by phosphate. *Acta Biol.Med.Exp. (Pristina)*, in press.
- JUNGNICKEL F. and AUGSTEN H., 1984: Biotechnical use of immobile cormophyte enzymes and multienzyme/cofactor complexes in fixed bed enzyme reactors. 16th Meeting Fed.European Biochem.Soc. Abstr., 30.
- JUNGNICKEL F. and AUGSTEN H., 1986: *Spirodela polyrhiza* - ein Biotest-System zur Erfassung phytoaktiver Substanzen. *Wiss.Z.Friedrich-Schiller-Univ.Jena, Natw.R.* **35**(5), 613-629.
- JUNGNICKEL F. and GEBHARD A., 1986: Zur Manganwirkung bei *Lemna minuscula* unter autotrophen und mixotrophen Ernährungsbedingungen. *Beitr. Biol.Pflanzen* **61**, 179-189.
- JUNGNICKEL F. and IBRAHIM A.R., 1983: Limitation der Biomasse-Bildung bei autotrophen und mixotrophen Kulturen von *Lemna minor* L. und *L. minor* F. leptophylla Domin. *Wiss.Z.Ernst-Moritz-Arndt Univ. Greifswald, Math.-Natw.R.* **32**(3-4), 42-44.
- JUNGNICKEL F. and VOELKSCH B., 1979: Multiple forms of orthophosphoric monoester phosphohydrolase in phosphate starved *Wolffia arrhiza*. *Biochem.Physiol.Pflanz.* **174**(1), 44-50.
- JUNGNICKEL F. and AUGSTEN H. and MICHEL D., 1982: Verfahren zur Stoffwandlung durch immobile Biokatalysatoren. Patent DD 158040, Int.Cl.C 12N 11/16 and C 12N 11/18.
- JUNK W.J., 1982: Zur Entwicklung aquatischer Makrophyten in Curua-Una, dem ersten Stausee in Zentralamazonien. *Arch.Hydrobiol.* **95**, 169-180.
- JURD L., GEISSMAN T.A. and SEIKEL M.K., 1957: The flavonoid constituents of *Spirodela oligorrhiza*. II. The flavone constituents. *Arch.Biochem. Biophys.* **67**, 284-297.

- KADONO Y., 1982: Occurrence of aquatic macrophytes in relation to pH, alkalinity, Ca<sup>++</sup>, Cl<sup>-</sup> and conductivity. *Jap.J.Ecol.* **32**(1), 39-44.
- KAFARSKI P., LEJCZAK B., GANCARZ R., JAKULSKA E., MASTALERZ P., WIECZOREK J.S. and ZBYRYT I., 1985: Phosphonic analogs of morphactins 5. Peptides containing 9-aminofluoren-9-ylphosphine oxides. *Pestic.Sci.* **16**(3), 239-243.
- KAIHARA S. and TAKIMOTO A., 1985a: Flower-inducing activity of vitamin K in *Lemna paucicostata*. *Plant Cell Physiol.* **26**(1), 89-98.
- KAIHARA S. and TAKIMOTO A., 1985b: Induction of flowering in *Lemna paucicostata* by dicoumarol and 4-hydroxycoumarin. *Plant Cell Physiol.* **26**(8), 1465-1472.
- KAIHARA S., WATANABE K. and TAKIMOTO A., 1981: Flower-inducing effect of benzoic and salicylic acids in various strains of *Lemna paucicostata* and *L. minor*. *Plant Cell Physiol.* **22**(5), 819-825.
- KAJFOSZ J., WALCZAK T. and ZURZYCKI J., 1983: Chloroplast translocations in *Lemna trisulca* induced by two successive blue light pulses. *Physiol.Veg.* **21**(3), 519-526.
- KAK A.M., 1986: Family Lemnaceae in the Kashmir Himalayas. *J.Bombay Nat. Hist.Soc.* **83**(1), 279-281.
- KAK A.M., BAKAYA U. and JAVEID G.N., 1978: *Wolffia papulifera* Thoms. and *Wolffia columbiana* Karsten - two new plant records for India. *Indian For.* **104**(4), 282-285.
- KALBERLAH A., 1895: Das Blühen der Wasserlinsen. *Z.Natw.* **68**, 136-138.
- KAMEOKA H., YAMAMOTO H. and MIYAZAWA M., 1985: Studies on removal of the pollutants from wastewater by aquatic plants from rivers (IV). Removal of metal elements. (In Japan.). *Kankyo Kagaku Kenkyusho Kenkyu Hokoku* **13**, 25-30.
- KAMSHILOV M.M., 1977: Some results of studies on the cycle of substances and biological self-purification of bodies of water. (In Russian). *Gidrobiol.Zh.* **13**, 5-13.
- KANAZAWA J., ISENSEE A.R. and KEARNEY P.C., 1975: Distribution of carbaryl and 3,5-xyllyl methylcarbamate in an aquatic model ecosystem. *J.Agric. Food Chem.* **23**, 760-763.
- KANDELER R., 1955: Ueber die Blütenbildung bei *Lemna gibba* L. I. Kulturbedingungen und Tageslängenabhängigkeit. *Z.Bot.* **43**, 61-71.
- KANDELER R., 1956: Ueber die Blütenbildung bei *Lemna gibba* L. II. Das Wirkungsspektrum von blühhörderndem Schwachlicht. *Z.Bot.* **44**, 153-174.
- KANDELER R., 1961: Lemnaceen als Forschungsobjekt. *Ber.Phys.Med.Ges. Würzburg* **70**, 81-86.
- KANDELER R., 1962: Die Aufhebung der photoperiodischen Steuerung bei *Lemna gibba*. *Ber.Deutsch.Bot.Ges.* **75**, 431-442.
- KANDELER R., 1963: Phytochrom-Wirkung auf die vegetative Entwicklung von *Lemna gibba*. *Naturwiss.* **50**, 551-552.
- KANDELER R., 1964a: Wirkungen des Kohlendioxyds auf die Blütenbildung von *Lemna gibba*. *Naturwiss.* **51**, 561-562.
- KANDELER R., 1964b: Zweifache Wirkung von Bikarbonat auf die Lichtsteuerung der Blütenbildung von *Lemna gibba*. *Ber.Deutsch.Bot.Ges.* **77**, 140-142.
- KANDELER R., 1966: Trennung zweier Dunkelrotwirkungen bei der Lichtsteuerung der Sprossvermehrung von *Lemna gibba*. *Z.Pflanzenphysiol.* **54**, 161-173.
- KANDELER R., 1967: The role of photophosphorylation in flower initiation of the long-day plant *Lemna gibba*. *European Photobiology Symp. Hvar, YU. Book of Abstracts*, 45.
- KANDELER R., 1968: Blühinduktion bei Lemnaceen. *Biol.Rundschau* **6**, 49-57.
- KANDELER R., 1969a: Hemmung der Blütenbildung von *Lemna gibba* durch Ammonium. *Planta* **84**, 279-291.

- KANDELER R., 1969b: Förderung der Blütenbildung von *Lemna gibba* durch DCMU und ADP. *Z.Pflanzenphysiol.* **61**, 20-28.
- KANDELER R., 1970: Die Wirkung von Lithium und ADP auf die Phytochromsteuerung der Blütenbildung. *Planta* **90**, 203-207.
- KANDELER R., 1971a: Die Wirkung von Ascorbinsäure, NADH und NADPH auf die Blütenbildung von *Lemna perpusilla* 6746 im Dauerlicht. *Z.Pflanzenphysiol.* **64**, 278-280.
- KANDELER R., 1971b: Die Bedeutung des Photosynthese für die Blütenbildung. *Umsch.Wiss.Tech.* **71(3)**, 88.
- KANDELER R., 1972: Die Wirkung von Acetylcholin auf die photoperiodische Steuerung der Blütenbildung bei Lemnaceen. *Z.Pflanzenphysiol.* **67**, 86-92.
- KANDELER R., 1973: Lemnaceae. Vervielfältigtes Manuskript für G. HEGI: *Illustrierte Flora von Mitteleuropa*. (3rd ed.). **2/1**, 22 pp.
- KANDELER, 1974 see KANDELER et al., 1974
- KANDELER R., 1975: Species delimitation in the genus *Lemna*. *Aquat.Bot.* **1**, 365-376.
- KANDELER R., 1979: Familie: Lemnaceae. S.F. Gray 1821, *Natur.Arrangm.Br. Fl. 2: 729* ("Lemnaceae"). *Wasserlinsengewächse*. In: HEGI G. (ed.), *Illustrierte Flora von Mitteleuropa*. Parey, Berlin/Hamburg. **2/1**, (Lief. 5), 335-346.
- KANDELER R., 1983 see 1985
- KANDELER R., 1984: Flowering in the *Lemna* system. *Phyton (Austria)* **24(1)**, 113-124.
- KANDELER R., 1985: Lemnaceae. In: HALEVY A.H. (ed.), *Handbook of flowering*. CRC Press, Boca Raton, FL, USA. **3**, 251-279.
- KANDELER R. and FAERBER E., 1987: Short plant contact as stimulus for ethylene evolution in Lemnaceae. *14th Int.Bot.Congr.Berlin, Abstr.*, 126.
- KANDELER R. and HELDWEIN R., 1979: Significance of photosynthesis, N-deficiency, ABA and pH for synthesis of malate in *Lemna*. In: MARCELLE R., CLIJSTERS R. and VAN POUCKE M. (eds.), *Photosynthesis and plant development*. Junk, The Hague. 103-110.
- KANDELER R. and HUEGEL B., 1973: Blütenbildung bei *Lemna paucicostata* 6746 durch kombinierte Anwendung von Abscisinsäure und CCC. *Plant Cell Physiol.* **14**, 515-520.
- KANDELER R. and HUEGEL B., 1974 see 1974a
- KANDELER R. and HUEGEL B., 1974a: Wiederentdeckung der echten *Lemna perpusilla* Torr. und Vergleich mit *L. paucicostata* Hegelm. *Plant Syst. Evol.* **123**, 83-96.
- KANDELER R. and HUEGEL B., 1974b: Development in vitro of flower primordia of Lemnaceae. *3rd Int.Congr.Plant Tissues and Cell Culture, Leicester. Abstr.*, 160.
- KANDELER R., HUEGEL B. and ROTTENBURG T., 1974: Gegensätzliche Wirkung der Sprossalterung auf die Blütenbildung bei *Lemna paucicostata* und *Lemna gibba*. *Biochem.Physiol.Pflanzen* **165**, 331-336.
- KANDELER R., HUEGEL B. and ROTTENBURG T., 1975: Relations between photosynthesis and flowering in Lemnaceae. In: MARCELLE R. (ed.), *Environ.Biol.Contr.Photosynth.* Junk, The Hague. 161-169.
- \*KANDELER R., LOEPPERT H., ROTTENBURG T. and SCHARFETTER E., 1980: Early effects of phytochrome in *Lemna*. In: DE GREEF J. (ed.), *Photoreceptors and Plant Development*, Proc. Ann. Europ. Symp. Plant Photomorphogenesis, Antwerpen. Antwerpen Univ. Press. 485-492.
- KANG B.C. and CLELAND C.F., 1985: Investigation of senescence in *Lemna gibba* G3. A determinate growth system. *Plant Physiol.* **77(4 suppl.)**, 126.

- KANNAIYAN S., THANGARAJU M. and OBLISAMI G., 1984a: Azolla - a potential biofertilizer for rice production. Practical application of Azolla for rice production. Junk, Den Hague. 119-122.
- KANNAIYAN S., THANGARAJU M. and OBLISAMI G., 1984b: Effect of Azolla application on grain yield of rice. Agric.Res.J.Kerala **22(2)**, 183-185.
- KAR B.K., 1947: Methaxone as eradicator of waterhyacinth and other aquatics. Sci.Cult. **12**, 545-550.
- KARELS L.A. and LEMBI C.A., 1973: Studies on the life history and control of watermeal (*Wolffia* sp.). Proc.North Central Weed Contr.Conf. **28**, 107.
- KARLIN-NEUMANN G.A., KOHORN B.D., THORNER J.P. and TOBIN E.M., 1985: A chlorophyll a/b-protein encoded by a gene containing an intron with characteristics of transposable element. J.Mol.Appl.Genet. **3(1)**, 45-61.
- KARLIN-NEUMANN G.A. and TOBIN E.M., 1985: Transit peptides of nuclear-encoded chloroplast proteins share a common amino-acid framework. EMBO **5(1)**, 9-14.
- KARPATI I., KARPATI V. and VOLF F., 1985: Role of water and wetland macrophytes in protection of water quality. Sborn.Vys.Skoly Zem.Praze, Fak.Agronomicka A **42**, 25-45.
- KARPATI V. and POMOGYI P., 1979: Accumulation and release of nutrients by aquatic macrophytes. Symp.Biol.Hung. **19**, 33-42.
- KARSTEN H., 1865: Ueber die Geschlechtstätigkeit der Pflanzen. Bot. Untersuch.Phys.Lab. Berlin **1**, 84-112.
- KARZEL R., 1926: Ueber die Nachwirkungen der Plasmolyse. Jb.Wiss.Bot. **65**, 551-591.
- KASINOV V.B., 1966: Corymb inversion in irradiated colonies of the duckweed *Lemna minor*. (In Russian). Dokl.Akad.Nauk (USSR) **167**, 201-204.
- KASINOV V.B., 1968a: Study of individual configurations in hereditarily persistent left-handed and right-handed clones of *Spirodela polyrrhiza*. (In Russian). Biofizika **13(6)**, 1092-1096.
- KASINOV V.B., 1968b: Interaction of mother and daughter fronds during the growth process of *Lemna minor* colonies. (In Russian). Bot.Zh. **53(11)**, 1558-1568.
- KASINOV V.B., 1968c: On the inheritance of the left- and right-handedness in Lemnaceae. (In Russian). Genetika (USSR) **4**, N11, 11-21.
- KASINOV V.B., 1969: On the inheritance of the left- and right-handedness in Lemnaceae and other organisms. (In Russian). Genetika (USSR) **5**, N2, 22-29.
- KASINOV V.B., 1972: Concept of generation and the problem of variability within one generation in organisms reproducing by budding. (In Russian). Ontogenez. (USSR) **3**, 360-370.
- KASINOV V.B., 1973: Handedness in Lemnaceae. On the determination of left and right types of development in *Lemna* clones and on its alteration by means of external influences. Beitr.Biol.Pflanz. **49**, 321-337.
- KASINOV V.B., 1978: Genetical and morphogenetical effect of repeated 2,4-dichlorophenoxyacetic acid treatment in *Lemna minor*. (In Russian). Bot.Zh. (USSR) **63**, 986-990.
- KASINOV V.B., 1980: The action of arginine, asparagine and atebriane stereoisomers upon the left and right *Lemna minor* plants. Biol.Plant **22**, 321-326.
- KASINOV V.B., 1981: Influence of premature removal of daughter individuals upon the lifetime of maternal individual of *Lemna minor*. (In Russian). Bot.Zh. (USSR) **66(11)**, 1606-1613.

- KASINOV V.B. and KASINOVA G.V., 1971a: Retention of radiation-induced deformations in vegetative offspring of *Lemna gibba*. Dokl.Biol.Sci. **199**(1-6), 476-478.
- KASINOV V.B. and KASINOVA G.V., 1971b: Dynamics of radiation damage to the plant organism based on the example of common duckweed (*Lemna minor*). (In Russian). Radiobiol. **11**, 580-586.
- KASINOV V.B. and KASINOVA G.V., 1971c: Permanent polymorphic strains of duckweed as a model for studying some problems of developmental biology. (In Russian). Ontogenez. **2**, 555-564.
- KASINOV V.B. and KASINOVA G.V., 1974: The reproduction rhythm in Lemnaceae: A possible link with right and left handedness. Int.J.Chronobiol. **2**, 47-52.
- KASINOV V.B. and PAVLOVA L.E., 1970: The interaction of sister fronds in a duckweed (*Lemna minor* L.) colony with a special reference to the right- and lefthandedness. (In Russian). Bot.Zh. (USSR) **55**, 1748-1763.
- KASINOV V.B. and PAVLOVA L.E., 1975: Hereditary reversion of chirality in duckweed under the effect of the herbicide 2,4-D: Condition of competent embryos. (In Russian). Tezisy Dokl.Vses.Soveshch.Embriol. **5**, 78-79.
- KASINOV V.B. and PAVLOVA L.E., 1977: Dependence of morphogenetic reactions of *Lemna* frond primordia at the action of 2,4-dichlorophenoxyacetic acid on the age of primordium and its position in the plant. To the problem of ontogenetic control of heredity. (In Russian). Bot. Zh. (USSR) **62**, 625-634.
- KATANSKAJA W.M., 1979: Flora of cooling water reservoirs of the USSR. (In Russian). Nauka, Leningrad. 278 pp.
- KATO A., 1979a: Effect of interruption of the nyctiperiod with a red to far-red-mixture of various ratios of red and far-red light on flowering in *Lemna gibba* G3. Plant Cell Physiol. **20**, 1273-1283.
- KATO A., 1979b: Maintenance of high Pfr-level in the dark period in relation to flowering in *Lemna gibba* G3. Plant Cell Physiol. **20**, 1285-1293.
- KATO A., 1982: Kinetic studies of growth and flowering of *Lemna gibba* G3 under continuous light: effects of night interruptions with red and far-red light. Plant Sci.Lett. **27**(2), 203-212.
- KATO A. and NAKASHIMA H., 1979: The effects on RNA synthesis in a long-day duckweed, *Lemna gibba* G3, of irradiation with different ratios of red and far red light during the prolonged dark period. Z. Pflanzenphysiol. **91**, 109-117.
- KATO A. and NAKASHIMA H., 1980: The effect of temperature and dinitrophenol on the change of proportion of far-red absorbing phytochrome controlling RNA synthesis in *Lemna gibba* G3. Z.Pflanzenphysiol. **98**, 177-182.
- KATO R. and FUJII T., 1985: Some characteristics of membrane-associated protein kinase in *Lemna paucicostata*. Plant Cell Physiol. **26**(7), 1379-1386.
- KATO R., UNO I., ISHIKAWA T. and FUJII T., 1983: Effects of cyclic AMP on the activity of soluble protein kinases in *Lemna paucicostata*. Plant Cell Physiol. **24**(5), 841-848.
- KATO R., UNO I., ISHIWAKA T. and FUJII T., 1984: Some characteristics of protein kinases in *Lemna paucicostata*. Plant Cell Physiol. **25**(5), 691-696.
- KAUFMANN N., 1867: Ueber die aufsteigenden Axen einiger Lemnaceae. (In Russian). Papers of a Meeting of Russian Botanists, St. Petersburg.
- KAUFMANN N., 1868: Entwicklungsgeschichtliche Untersuchungen über die Lemnaceen. Bot.Z. **26**, 382-384.

- KAUL R.B., 1976: Anatomical observations on floating leaves. *Aquat.Bot.* **2(3)**, 215-234.
- KAUL V. and BAKAYA U., 1973: The noxious floating, Lemnid-Salvinia aquatic weed complex in Kashmir (India). In: VARSHNEY C.K. and RZOSKA J. (eds.), *Aquatic weeds in South East Asia. Proc.Region.Seminar Noxious Aquatic Vegetation*, Dew Delhi. Junk, The Hague. 183-192.
- KAUL V. and ZUTSHI D.P., 1963: *Lemna trisulca* L. A new record for Kashmir. *Trop.Ecol.* **4**, 95-96.
- KAVANAGH F., 1941: New photoelectric fluorimeter and some applications. *Industr.Engin.Chem. Ann.* **13**, 108-111.
- KAWABATA Z., TATSUKAWA R. and SATO K., 1986: Growth of duckweed and nutrient removal in a paddy field irrigated with sewage effluent. *Int.J.Environment.Studies* **27(3/4)**, 227-285.
- KAWAMATU S., 1967: Electron microscope observation of plastids in the root cells of some hydrophytes. *Cytologia* **32(2)**, 157-164.
- KEARNY T.H. and PEEBLES R.H., 1973: *Arizona Flora*. (4th.ed.). Univ. California Press, Berkeley. 165-166.
- KEATES R.A.B. and TREWAVAS A.J., 1973: Protein kinase activity associated with ribosomes. *Plant Physiol.* **51(suppl.)**, 65.
- KEATES R.A.B. and TREWAVAS A.J., 1974: Protein kinase activity associated with isolated ribosomes from peas and *Lemna*. *Plant Physiol.* **54**, 95-99.
- KEDDY P.A., 1976: Lakes as islands: The distributional ecology of two aquatic plants, *Lemna minor* L. and *L. trisulca* L. *Ecology* **57(2)**, 353-359.
- KELLEHER W.J. and GRISEBACH H., 1971: Hydride transfer in the biosynthesis of uridine diphospho-apiose from uridine diphospho-D-glucuronic acid with an enzyme preparation of *Lemna minor*. *Eur.J.Biochem.* **23**, 136-142.
- KELLY D.G., 1980: Toxic algae in dairy lagoons. In: FRYE J.B. and CULLEY D.D. (eds.), U.S. Dept. Energy Final Report. Louisiana State Univ., Baton Rouge, LA. 4 pp. (Polycopy).
- KELLY D.G. and MYERS R.W., 1980: Decomposition of dairy lagoon sludge. In: FRYE J.B. and CULLEY D.D. (eds.), U.S. Dept. Energy Final Report. Louisiana State Univ., Baton Rouge, LA. 3 pp. (Polycopy).
- KELLY D.G., GOUGH R.H., GHOLSON J.H., BONEY S.E. and MYERS R.W., 1978: Effect of duckweed growth on nutrient utilization from dairy farm waste lagoons. *J.Dairy Sci.* **61(1)**, 206-207.
- KEMPERS-VEENSTRA A.E., VAN HEERIKHUIZEN H., MUSTERS W., KLOOTWIJK J. and PLANTA R.J., 1984: Transcription of an artificial ribosomal RNA gene in yeast. *EMBO J.* **3(6)**, 1377-1382.
- KENNEY-WALLACE G. and BLACKMAN G.E., 1972: The uptake of growth substances. XIV. Patterns of uptake by *Lemna minor* of phenoxyacetic and benzoic acids following progressive chlorination. *J.Exp.Bot.* **23**, 114-127.
- KENNARD C.P., 1973: Control of weeds in direct seeded rice with some of the newer herbicides. *Internat.Rice Comm.Newsletter* **22(1)**, 15-21.
- KEPCZYNSKI K., 1960: New localities of *Wolffia arrhiza* (L.) Wimm. in the district Lipno. (In Polish). *Zesz.Nauk.Uniw.Torun.Biol.* **5**, 115-124.
- KEPCZYNSKI K., 1968: New localities of *Wolffia arrhiza* (L.) Wimm. in the district Wabro. (In Polish). *Zesz.Nauk.Uniw.Torun.Biol.* **11**, 269-272.
- KEPCZYNSKI K., 1972: Further localities of *Wolffia arrhiza* (L.) Wimm. on the Dobrzyn diluvial plateau (Poland) in different plant communities. (In Polish). *Zesz.Nauk.Uniw.Torun.Biol.* **15**, 11-18.
- KEPCZYNSKI K. and FABISZAK S., 1972: *Salvinia natans* (L.) All. and *Spirodela-Salvinietum* Slavnic 1956 in the district Bydgoszcz. (In Polish). *Zesz.Nauk.Uniw.Torun.Biol.* **15**, 33-40.

- KEPCZYNSKI K. and FABISZAK S., 1974: New localities for the rootless *Wolffia arrhiza*; new record in the Chelmno District. (In Polish). *Acta Univ. Nicolai Copernici Biol.* **16**, 95-98.
- KERBABAIEV E.B., SHCHERBAN Z.P., NAZAMOV N.D. and NAGIEV G., 1985: A non-mechanical method of reservoir treatment to control the larvae of blood-sucking mosquitoes. (In Russian). *Uzb.Biol.Zh.* **5**, 65-66.
- KERN H. and NAEF-ROTH S., 1975: Zur Bildung von Auxinen und Cytokininen durch *Taphrina*-Arten. *Phytopath.Z.* **83**, 193-222.
- KESER M., 1955: Papierchromatographische Untersuchungen über das Auftreten freier und gebundener Aminosäuren in höheren Pflanzen. *Planta* **45**, 273-288.
- KESSLER B. and STEINBERG N., 1973: Cyclic mononucleotide-gibberellin interactions in the flowering and proliferation of the long-day plant *Lemna gibba* G3. *Physiol.Plant.* **28**, 548-553.
- KEUS R.J.A., DEKKER A.F., VAN ROON M.A. and GROOT G.S.P., 1983a: The nucleotide sequences of the regions flanking the genes coding for 23S, 16S and 4.5S ribosomal RNA on chloroplast DNA from *Spirodela oligorrhiza*. *Nucleic Acids Res.* **11(18)**, 6465-6474.
- KEUS R.J.A., ROOVERS D.J., DEKKER A.F. and GROOT G.S.P., 1983b: The nucleotide sequence of the 4.5S and 5S rRNA genes and flanking regions from *Spirodela oligorrhiza* chloroplasts. *Nucleic Acids Res.* **11(10)**, 3405-3410.
- KEUS R.J.A., ROOVERS D.J., VAN HEERIKHUIZEN H. and GROOT G.S.P., 1983c: Molecular cloning and characterization of the chloroplast ribosomal RNA genes from *Spirodela oligorrhiza*. *Curr.Genet.* **7(1)**, 7-12.
- KEUS R.J.A., DEKKER A.F., KREUK K.C.J. and GROOT G.S.P., 1984a: Transcription of ribosomal DNA in chloroplasts of *Spirodela oligorrhiza*. *Curr.Genet.* **9(1)**, 91-97.
- KEUS R.J.A., STAM N.J., ZWIERS T., DE HEIJ H.T. and GROOT G.S.P., 1984b: The nucleotide sequences of the genes coding for tRNA<sup>Arg</sup> UCU, tRNA<sup>Arg</sup> ACG and tRNA<sup>Asn</sup> GUU on *Spirodela oligorrhiza* chloroplast DNA. *Nucleic Acids Res.* **12(14)**, 5639-5646.
- KHAKIMOVA V.K. and GALKINA N.V., 1973: Extraction of copper from solutions by the common duckweed. (In Russian). *Akad.Nauk Usbek.Viniti* **73** (5390), 5 pp.
- KHAKIMOVA V.K., GALKINA N.V. and TAUBAEV T.T., 1971: *Lemna minor* absorption of cobalt from ammophos. (In Russian). *Khim Sel.Khoz* **9(10)**, 67-68.
- KHARE L.J., 1977: Effect of four herbicides on some aquatic weeds. *Geobios* **4(6)**, 271-272.
- KHARE L.K., 1979: Effect of four commercial herbicides on some aquatic weeds. *Geobios* **6(2)**, 75-77.
- KHUDAIRI A.K. and HEMBERG T., 1974: Serine involvement in the flowering of *Lemna* during photoperiodic induction. *J.Exp.Bot.* **25**, 740-744.
- KHUDAIRI A.K. and MAENG J., 1973: Studies on the flowering mechanism in *Lemna*. II. The dark reaction of the short-day plant *Lemna perpusilla*. *Physiol.Plant.* **28**, 271-277.
- KHURANA J.P., 1982: In vitro control of flowering in duckweeds. Ph.D. Thesis. Univ. of Delhi, Delhi.
- KHURANA J.P. and MAHESHWARI S.C., 1978: Induction of flowering in *Lemna paucicostata* by salicylic acid. *Plant.Sci.Lett.* **12**, 127-131.
- KHURANA J.P. and MAHESHWARI S.C., 1980: Some effects of salicylic acid on growth and flowering in *Spirodela polyrrhiza* SP<sub>20</sub>. *Plant Cell Physiol.* **21**, 923-927.
- KHURANA J.P. and MAHESHWARI S.C., 1983a: Floral induction in *Wolffia microscopica* by salicylic acid and related compounds under non-inductive long days. *Plant Cell Physiol.* **24(5)**, 907-912.

- KHURANA J.P. and MAHESHWARI S.C., 1983b: Promotion of flowering in *Lemna paucicostata* 6746 (a short-day duckweed) by cytokinins. *Plant Cell Physiol.* **24(5)**, 913-918.
- KHURANA J.P. and MAHESHWARI S.C., 1983c: Effect of 8-hydroxyquinoline on flowering and endogenous levels of iron and copper in *Lemna paucicostata* strain LP-6. *Plant Cell Physiol.* **24(7)**, 1251-1254.
- KHURANA J.P. and MAHESHWARI S.C., 1984: Floral induction in short-day *Lemna paucicostata* 6746 by 8-hydroxyquinoline, under long days. *Plant Cell Physiol.* **25(1)**, 77-83.
- KHURANA J.P. and MAHESHWARI S.C., 1986a: Induction of flowering in the duckweed *Lemna paucicostata* under non-inductive photoperiods by tannic acid. *Plant Physiol.* **66(3)**, 447-450.
- KHURANA J.P. and MAHESHWARI S.C., 1986b: A comparison of the effects of chelates, salicylic acid and benzoic acid on growth and flowering of *Spirodela polyrrhiza*. *Plant Cell Physiol.* **27(5)**, 919-924.
- KHURANA J.P. and MAHESHWARI S.C., 1986c: Floral induction in a photoperiodically neutral duckweed, *Lemna paucicostata* strain LP<sub>6</sub>: role of chelating agents and iron. *Plant Cell Physiol.* **27(7)**, 1217<sup>6</sup>-1224.
- KHURANA J.P. and MAHESHWARI S.C., 1986d: Floral induction in a photoperiodically neutral duckweed, *Lemna paucicostata* LP<sub>6</sub>: interaction of iron, EDTA and cytokinins. *Biochem. Physiol. Pflanzen* **181(8)**, 559-564.
- KHURANA J.P., TAMOT B.K. and MAHESHWARI S.C., 1986: Induction of flowering in a duckweed, *Wolffia microscopica*, under non-inductive long days, by 8-hydroxyquinoline. *Plant Cell Physiol.* **27(2)**, 373-376.
- KICKUTH R. and TITZLER T., 1974: Makrophyten limnischer Standorte und ihr Verhalten gegenüber p-Toluolsulfonsäure im Substrat. I. Ueber die Toleranz von Sumpf- und Wasserpflanzen gegenüber p-Toluolsulfonsäure. *Angew. Bot.* **48(3-4)**, 185-194.
- KIENER W.B., 1944: Duckweed in relation to wildfowl in Nebraska. *Proc. Nebraska Acad. Sci.* 54th Ann. Meet., 11.
- KIKUCHI E. and KURIHARA Y., 1981: Effects of tubificids on the biological and chemical characteristics of submerged rice field ecosystems. *Verh. Int. Ver. Limnol.* **21(2)**, 1194.
- KIKUCHI E. and KURIHARA Y., 1982: The effects of the oligochaete *Branchiura sowerbyi* Beddard (Tubificidae) on the biological and chemical characteristics of overlying water and soil in a submerged ricefield soil system. *Hydrobiologia* **97(3)**, 203-208.
- KIM I.B. and KHANG S., 1982: Growth of *Tilapia* in a closed water recirculating system without filter bed. (In Korean). *Bull. Korean Fish Soc.* **15(1)**, 47-51.
- KINDEL P.K., 1973: Occurrence and metabolism of D-apiose in *Lemna minor*. *Biogenesis Plant Cell Wall Polysaccharides*, Proc. Symp. 1972, 85-94.
- KINDEL P.K. and WATSON R.R., 1973: Synthesis, characterization and properties of uridine 5'-( $\alpha$ -D-apio-D-furanosyl pyrophosphate). *Biochem. J.* **133**, 227-241.
- KINDEL P.K., GUSTINE D.L. and WATSON R.R., 1970: Enzymatic synthesis of UDP-D-Apiose <sup>14</sup>C. *Plant Physiol.* **46(suppl.)**, 27.
- KING J.M. and COLEY K.S., 1985: Toxicity of aqueous extracts of natural and synthetic oils to three species of *Lemna*. In: BAHNER R.C. and HANSEN D.J. (eds.), *Aquatic toxicology and hazard assessment*. ASTM **891**, 302-309.
- KINSER P.D. and NEUNZIG H.H., 1981: Description of the immature stages and biology of *Synclita tinealis*. *J. Lepid. Soc.* **35(2)**, 137-146.
- KINZEL H., 1982: *Pflanzenökologie und Mineralstoffwechsel*. Ulmer, Stuttgart. 534 pp.
- KIRKLAND L.L., 1974: A study of photoperiodic inhibition of flower de-

- velopment in *Lemna perpusilla* 6746. Ph.D.Thesis. State Univ. Binghamton, N.Y. 170 pp. Diss.Abstr.B **35**, 1525-1526.
- KIRKLAND L. and POSNER H.B., 1974: The role of light in the photoperiodic inhibition of flower development in *Lemna perpusilla* 6746. *Plant Physiol.* **53**(suppl.), 3.
- KIRPENKO N.I., 1986: Phytopathic properties of toxin in blue-green algae. (In Russian). *Gidrobiol.Zh.* **22**(1), 48-50.
- KLAINÉ S.J., 1985: Toxicity of coal gasifier solid waste to the aquatic plants *Selenastrum capricornutum* and *Spirodela oligorhiza*. *Bull.Environ.Contam.Toxicol.* **35**(4), 551-555.
- KLASS D.L. and GOSH S., 1984: Methane production from and beneficiation of anaerobic digestion of aquatic plant material. Patent US 4424064. 5 pp.
- KLEBS G., 1893: In: *ARTARIA: Chlorosarcina consociata* (Klebs) Smith (= *Chlorosphaera consociata*) endophytic in thalli of *Lemna* collected at Pacific grove. *Bull.Soc.Imp.Nat.Moscou* NS6, 222-262.
- KLEINSCHMIDT H.E., 1969: Effect of granular 2,4-D on some water-weeds and its persistence. *Queensl.J.Agr.Anim.Sci.* **26**, 587-592.
- KLICH M.G., 1986: Un estudio sobre la lemneacea *Spirodela intermedia* W.Koch y la accion de algunos reguladores vegetales sobre su crecimiento y diferenciacion estomatica. M.S.Thesis. Univ.Nac.del Sur, Bahia Blanca. 150 pp.
- KLICH M.G. and MUJICA M.B., 1985: Cleistanthery in *Spirodela intermedia* W.Koch. *Plant Cell Incompatibility Newslett.* **17**, 20-23.
- KLICH M.G., MUJICA M.B. and FERNANDEZ O.A., 1985: The effect of gibberellic acid on the buoyancy of *Spirodela intermedia* W.Koch. *Aquat. Bot.* **21**, 63-69.
- KLICH M.G., MUJICA M.B. and FERNANDEZ O.A., 1986: Stomatal morphology and ontogeny in *Spirodela intermedia* W.Koch. *Aquat.Bot.* **21**(1-2), 155-164.
- KLICH M.G., FERNANDEZ O.A. and MUJICA M.B., 1987a: Influencia de algunas sustancias reguladores sobre el crecimiento de *Spirodela intermedia* W.Koch. I. Efectos del acido abscisico. *Phyton (Argentina)* **47**(1/2), 1-7.
- KLICH M.G., FERNANDEZ O.A. and MUJICA M.B., 1987b: Influencia de algunas sustancias reguladores sobre el crecimiento de *Spirodela intermedia* W.Koch. II. Efectos de dos auxinas y una antiauxina. *Phyton (Argentina)* **47**(1/2), 9-16.
- KLICH M.G., FERNANDEZ O.A. and MUJICA M.B., 1987c: Influencia de algunas sustancias reguladores sobre el crecimiento de *Spirodela intermedia* W.Koch. III. Efectos de dos citocininas. *Phyton (Argentina)* **47**(1/2), 17-24.
- KLICH M.G., FERNANDEZ O.A. and MUJICA M.B., 1987d: The effect of exogenous gibberellic acid on stomatal differentiation in *Spirodela intermedia* W.Koch. *Aquat.Bot.* **28**(3-4), 393-396.
- KLINÉ L. and McCUNE B., 1987: Factors influencing the distribution of *Wolffia columbiana* and *Wolffia punctata* (Lemnaceae). *Northwest Sci.* **61**(1), 41-43.
- KLOSE H., 1963: Zur Limnologie von Lemna-Gewässern. *Wiss.Z.Univ. Leipzig, Math.-Nat.Reihe* **12**, 233-259.
- KLOSE H., 1964 see 1963
- KNAPP R. and STOFFERS A.L., 1962: Ueber die Vegetation von Gewässern und Ufern im mittleren Hessen und Untersuchungen über den Einfluss von Pflanzen auf Sauerstoffgehalt, Wasserstoff-Ionen-Konzentration und die Lebensmöglichkeit anderer Gewächse. *Ber.Oberhess.Ges.Nat.-Heilkunde, Giessen*, **32**, 90-141.

- KNIGHT R.L., WINCHESTER B.H. and HIGMAN J.C., 1985: Ecology, hydrology, and advanced wastewater treatment potential of an artificial wetland in north-central Florida. *Wetlands* **5**, 167-180.
- KNOBLOCH E., 1981: New paleobotanical studies in the pannonian and pontian of the Moravian Czechoslovakia part of the Vienna Basin. (In German). *SB.Nar.Muz.Praze.Rada.B.Prir.Vedy* **37(3-4)**7, 205-228.
- KNOBLOCH K., 1966: Photosynthetische Sulfid-Oxydation grüner Pflanzen. I. Mitteilung. *Planta* **70**, 73-86.
- KNUDSON V., 1968: Comparative effects of aquatic herbicides on duckweed. *Abstr.Meet.Weed Sci.Soc.Am.*, 66.
- KNUTH P., 1909: Handbook of flower pollination 3, order 121: Lemnaceae (translat.by J.R.A. Davis), Clarendon Press, Oxford.
- KNYPL J.S., 1976: Culture of *Spirodela oligorrhiza* in ammonium-media buffered with calcium carbonate or calcium phosphate. *Biochem.Physiol.Pflanzen* **170**, 243-252.
- KNYPL J.S., 1977a: The growth-retarding effect of alden in *Spirodela oligorrhiza*. *Experientia* **33(6)**, 725-726.
- KNYPL J.S., 1977b: Induction of ribonuclease activity by N,N-dimethylmorpholinium chloride and CCC in *Spirodela*. *Biochem.Physiol.Pflanzen* **171(4)**, 289-298.
- KNYPL J.S., 1978: Reversal of the symptoms of phosphate deficiency in *Spirodela* by RNA and adenosine monophosphates. *Z.Pflanzenphysiol.* **90(3)**, 265-277.
- KNYPL J.S., 1979a: Molecular forms of phosphatase and ribonuclease in phosphate deficient and N,N-dimethylmorpholinium chloride treated *Spirodela oligorrhiza* (Lemnaceae). *Acta Soc.Bot.Pol.* **48(1)**, 65-85.
- KNYPL J.S., 1979b: Time-course of phosphatase activity in phosphate deficient *Spirodela*. *Bull.Acad.Pol.Sci, Biol.* **27(2)**, 149-153.
- KNYPL J.S., 1980: Mutual exchange of phosphate amongst phosphate-deficient *Spirodela oligorrhiza* plantlets. *Z.Pflanzenphysiol.* **96**, 49-57.
- KNYPL J.S., 1982: Enzymatic adaptation of *Spirodela oligorrhiza* to phosphate deficiency. 9th Int.Plant Nutrition Colloq., Warwick Univ., England. *Abstr.*, 294.
- KNYPL J.S. and JANAS K.M., 1980: Stimulatory effect of fusicochin on growth and ribonuclease activity in *Spirodela oligorrhiza*. *Plant Sci. Lett.* **19**, 43-46.
- KNYPL J.S. and JANAS K.M., 1986: Physiological activity of 1-amino-2-phenylethylphosphonic acid, a substrate analogue of phenylalanine. *Biol.Plant.* **28(2)**, 91-94.
- KNYPL J.S. and KABZINSKA E., 1977: Growth, phosphatase and ribonuclease activity in phosphate-deficient *Spirodela oligorrhiza* cultures. *Biochem.Physiol.Pflanzen* **171(4)**, 279-287.
- KNYPL J.S. and OSWIECIMSKA M., 1986: Growth regulation activity of N-dodecyloxymethylene-N-methylpiperidinium and N-dodecyloxymethylene-N-methylmorpholinium chlorides in *Lactuca sativa* and *Spirodela oligorrhiza*. *J.Plant Physiol.* **123(2)**, 127-133.
- KNYPL J.S. and SOBOLEWSKA J., 1978: Age dependent changes of phosphatase activity in phosphate supplied and phosphate deficient *Spirodela*. *Physiol.Vég.* **16(4)**, 773-784.
- KNYPL J.S., WITEK S. and OSWIECIMSKA M., 1976: Growth-retarding effect of N,N-dimethylmorpholinium chloride and CCC chlorocholine chloride in *Spirodela oligorrhiza*. *Z.Pflanzenphysiol.* **79(1)**, 53-61.
- KNYPL J.S., WITEK S. and OSWIECIMSKA M., 1977: Growth-retarding effect and induction of ribonuclease activity by N,N-dimethylmorpholinium chloride in *Spirodela oligorrhiza*. *Proc.Int.Symp. Plant Growth Regul.*, 411-416.

- KNYPL J.S., JANAS K.M. and WOLSKA M., 1986: Rhythmicity of L-phenylalanine ammonia-lyase activity in *Spirodela oligorrhiza*. Effects of darkening, abscisic acid and 1-amino-2-phenylethylphosphonic acid. *Physiol.Plant.* **66(3)**, 543-549.
- KOBAYASHI M., FURUTA T., ITAGAKI H. and KOMORI K., 1977: Studies on the hydraulic characteristics of the orifice type screen for weeding *Lemna* in irrigation canal. (In Japan.). *Res.Bull.Fac.Agric.,Gifu Univ.* **40**, 117-123.
- KOBUSZEWSKA D.M., 1973: Experimentally increased fish stock in the pond type Lake Warniak. 13. Distribution and biomass of the Lemnaceae and the fauna associated with them. *Ekol.Pol.* **21(39)**, 611-629.
- KOCH W., 1932: Beitrag zur Lemnaceen-Flora Mittel- und Südamerikas. *Ber. Schweiz.Bot.Ges.* **41**, 113-118.
- KOCH W., 1933: *Spirodela biperforata*, eine neue Teichlinse aus Surinam. *Ber.Schweiz.Bot.Ges.* **42**, 186-189.
- KOCH W., 1934 see 1932
- KOCH W., 1952: Zur Flora der oberitalienischen Reisfelder. *Ber.Schweiz. Bot.Ges.* **62**, 628-663.
- KOCH W., 1954: Pflanzensoziologische Skizzen aus den Reisfeldgebieten des Piemont (Po-Ebene). *Vegetatio* **5-6**, 487-493.
- KOHLER A. and ZELTNER G.-H., 1974: Verbreitung und Oekologie von Makrophyten in Weichwasserflüssen des Oberpfälzer Waldes. *Hoppea* **33**, 171-232.
- KOHORN B.D. and TOBIN E.M., 1986a: Mutational analysis of light harvesting chlorophyll-protein. The major chlorophyll-protein component of the antenna of photosystem. *Photochem.Photobiol.* **43(suppl.)**, 113 pp.
- KOHORN B.D. and TOBIN E.M., 1986b: Chloroplast import of light-harvesting chlorophyll a/b proteins with different amino termini and transit peptides. *Plant Physiol.* **82(4)**, 1172-1174.
- KOHORN B.D., HAREL E., CHITNIS P.R., THORNER J.P. and TOBIN E.M., 1986: Functional and mutational analysis of the light-harvesting chlorophyll a/b protein of thylakoid membranes. *J.Cell Biol.* **102(3)**, 972-981.
- KOIE A. and KOIE M., 1939: Distribution of Geraniaceae, Araceae, Lemnaceae and Droseraceae in Denmark. (In Danish). *Bot.Tidskr.* **45**, 73-96.
- KOLES S.M., 1986: Modeling of duckweed (family Lemnaceae). Biomass production and water quality improvement. M.E.Thesis. Univ.Florida, Gainesville. 135 pp.
- KOLES S.M., PETRELL R.J. and BAGNALL L.O., 1986: Duckweed culture for removal of  $\text{NH}_4$  and for reduction of TSS from algal rich waters. Proc. 26th Ann.Meet.<sup>4</sup> Aquat.Plant Manage.Soc., Sarasota, Florida. July 13-16. Abstr.
- KOLKWITZ R., 1933: Zur Oekologie der Pflanzenwelt Brasiliens. *Ber. Deutsch. Bot.Ges.* **51**, 396-406.
- KONDO T., 1978: Diurnal change in leakage of electrolytes from a long-day duckweed *Lemna gibba* G3, under osmotic stress induced by water treatment. *Plant Cell Physiol.* **19**, 985-995.
- KONDO T., 1982a: Persistence of the potassium uptake rhythm in the presence of exogenous sucrose in *Lemna gibba* G3. *Plant Cell Physiol.* **23(3)**, 467-472.
- KONDO T., 1982b: Uptake and leakage of some ions in relation to potassium uptake rhythm in *Lemna gibba* G3. *Plant Cell Physiol.* **23(5)**, 901-908.
- KONDO T., 1982c: Correlation between potassium uptake rhythm and nitrate uptake rhythm in *Lemna gibba* G3. *Plant Cell Physiol.* **23(5)**, 909-915.
- KONDO T., 1982d: Phase control of the potassium uptake rhythm by the

- light signals in *Lemna gibba* G3. *Z.Pflanzenphysiol.* **107(5)**, 395-407.
- KONDO T., 1983a: Phase shift in the potassium uptake rhythm of the duckweed *Lemna gibba* G3 caused by an azide pulse. *Plant Physiol.* **73(3)**, 605-808.
- KONDO T., 1983b: Phase shifts of potassium uptake rhythm in *Lemna gibba* G3 due to light, dark or temperature pulses. *Plant Cell Physiol.* **24(4)**, 659-665.
- KONDO T., 1984a: Removal by a trace of sodium of the period lengthening of the potassium uptake rhythm due to lithium in *Lemna gibba* G3. *Plant Physiol.* **75(4)**, 1071-1074.
- KONDO T., 1984b: The period of circadian rhythm in *Lemna gibba* G3 is influenced by the substitution of rubidium for potassium. *Plant Cell Physiol.* **25(7)**, 1313-1317.
- KONDO T. and NAKASHIMA H., 1979: Content of adenosine phosphate compounds in a long-day duckweed, *Lemna gibba* G3, under different light and nutritional conditions. *Physiol.Plant.* **45**, 357-362.
- KONDO T. and TSUDZUKI T., 1978: Rhythm in potassium uptake by a duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **19**, 1465-1473.
- KONDO T. and TSUDZUKI T., 1980a: Phase progress under low temperature treatment of the potassium uptake rhythm in a duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **21**, 95-103.
- KONDO T. and TSUDZUKI T., 1980b: Energy supply for potassium uptake rhythm in a duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **21**, 433-443.
- KONDO T. and TSUDZUKI T., 1980c: Participation of a membrane system in the potassium uptake rhythm in a duckweed *Lemna gibba* G3. *Plant Cell Physiol.* **21**, 627-635.
- KOPP A., FELLER U. and ERISMANN K.H., 1974a: Hat bei *Lemna minor* L. die Stickstoffquelle (Ammonium/Nitrat) einen Einfluss auf den Gehalt der Stärke und der freien Zucker? *Verh.Schweiz.Naturf.Ges.* **154**, 196-198.
- KOPP A., FELLER U. and ERISMANN K.H., 1974b: Untersuchungen zur Regulation der Stickstoffassimilation von *Lemna minor* im Uebergang von Ammonium- auf Nitrat- bzw. Nitrat- auf Ammoniumernährung unter Photosynthesebedingungen. *Z.Pflanzenphysiol.* **73**, 456-460.
- KORDAKOW J., 1970: New localities of *Limnanthemum nymphoides* (L.) Link, *Salvinia natans* (L.) All., *Lemna gibba* L. and *Wolffia arrhiza* (L.) Wimm. in the valley of Wisla. (In Polish). *Bad.Fizjogr.Pol.Zach.Ser. B* **23**, 243-250.
- KORDUS-WALANKIEWICZ B., 1978: The new stands of *Wolffia arrhiza* (L.) Wimm. on Wysoczyzna Siedlecka. *Fragm.Flor.Geobot.* **24**, 273-275.
- KORSAK N.B. and MYAKUSHKO V.K., 1980: Vegetation of Tuzdinsk Reservoir (Kazakh-SSR, USSR) and its production. (In Russian). *Gidrobiol.Zh.* **16(1)**, 31-37.
- KORSAK N.B. and MYAKUSHKO V.K., 1981: Formation of water quality in shallows of the Yuzhny Reservoir (Dnjepr Krivoi Rog Canal, Ukrainian-SSR, USSR). under the effect of higher aquatic plant overgrowth. (In Russian). *Gidrobiol.Zh.* **17(1)**, 48-54.
- KOSTYTSCHEW S. and BERG V., 1929: Die Form der Calciumverbindung in lebenden Pflanzengeweben. *Planta E* **8**, 55-67.
- KOUKKARI W.L. and DUKE S.H., 1973: Regulating growth of an aquatic plant: *Lemna perpusilla*. *J.Minn.Acad.Sci.* **39**, 12-14.
- KOVACS M., NYARY I. and TOTH L., 1984: The microelement content of some submerged and floating aquatic plants. *Acta Bot.Hung.* **30(1-2)**, 173-185.
- KRAJNCIC B., 1972: Photoperiodic relations in Lemnaceae of north-eastern Slovenia. (In Slov.). M.S.Thesis. Univ. Zagreb. 106 pp.

- KRAJNCIC B., 1974a: Study of photoperiodic reactions in Lemnaceae of Slovenia. (In Slov.). 4th Biol.Congr.Yugoslavia, Sarajewo, Abstr., 84.
- KRAJNCIC B., 1974b: Photoperiodic responses of Lemnaceae from Northeastern Slovenia. Acta Bot.Croat. **33**, 81-88.
- KRAJNCIC B., 1974c: Contribution to the knowledge of Lemnaceae from northeastern Slovenia. (In Slov.). Biol.Vestn. **22**, 21-28.
- KRAJNCIC B., 1975: The mechanisms of floral induction in Lemnaceae from Slovenia. Acta Bot.Croat. **34**, 189.
- KRAJNCIC B., 1976 see 1976b
- KRAJNCIC B., 1976a: The mechanism of floral induction in Lemnaceae from Slovenia. (In Serbo-croat.). Ph.D.Thesis. Univ. Zagreb. 192 pp.
- KRAJNCIC B., 1976b: Lemnaceae in the region of Slovenia. (In Slov.). Biol.Vestn. **24**, 133-144.
- KRAJNCIC B., 1982: Effects of kinetin on floral induction and floral development in the species Lemna minor and Spirodela polyrrhiza. Biol. Vest. **30(1)**, 85-104.
- KRAJNCIC B., 1983: The effects of cytokinins on flowering in the long-short-day plant Wolffia arrhiza (L.) Wimm. Z.Pflanzenphysiol. **112(3)**, 281-286.
- KRAJNCIC B., 1985: Regulation of the floral induction with ABA and EDDHA. (In Slov.). Biol.Vestn. **33(2)**, 39-52.
- KRAJNCIC B. and BAVEC F., 1986: Research of abscisic acid effects on flower morphogenesis in the species Lemna minor. (In Slov.). Biol. Vestn. **34(1)**, 61-68.
- KRAJNCIC B. and DEVIDE Z., 1977: The morphogenesis of flowers in Lemnaceae from the territory of Slovenia, Yugoslavia. Biol.Vest. **25(2)**, 180.
- KRAJNCIC B. and DEVIDE Z., 1979: Flower development in Spirodela polyrrhiza (Lemnaceae). Plant.Syst.Evol. **132**, 305-312.
- KRAJNCIC B. and DEVIDE Z., 1980: Report on photoperiodic responses in Lemnaceae from Slovenia. Ber.Geobot.Inst.ETH,Stiftung Rübel,Zürich **47**, 75-86.
- KRAJNCIC B. and DEVIDE Z., 1982 see 1982c
- KRAJNCIC B. and DEVIDE Z., 1982a: Photoperiodic responses in Lemnaceae from North Croatia. Acta Bot.Croat. **41**, 57-63.
- KRAJNCIC B. and DEVIDE Z., 1982b: The action of amino acids on floral induction in species Lemna minor and Spirodela polyrrhiza. (In Serbo-Croat.). Bio.Vest. **30(1)**, 105-120.
- KRAJNCIC B. and DEVIDE Z., 1982c: Distribution of Lemnaceae in North Croatia. (In Serbo-Croat.). Acta Bot.Croat. **41**, 175-180.
- KRAUSE A., 1979: Zur Kenntnis des Wasserpflanzenbesatzes der westdeutschen Mittelgebirgsflüsse Fulda, Ahr, Sieg und Saar. Dechenia **132**, 15-28.
- KRAUSE J., 1978: Die Zimtsäurederivate von Spirodela polyrrhiza (L.) Schleiden. Z.Pflanzenphysiol. **88**, 465-470.
- KRAUSE J. and STRACK D., 1979a: Malonyl cyanidin 3-monoglucoside in Spirodela polyrrhiza (L.) Schleiden. Z.Pflanzenphysiol. **95**, 183-187.
- KRAUSE J. and STRACK D., 1979b: High performance liquid chromatographic separation of glucose esters and quinic-acid esters of hydroxy cinnamic acids. J.Chromatogr. **176(3)**, 465-469.
- KRAUSS F., 1845: Pflanzen des Cap- und Natallandes. Flora **28**, 344.
- KREMER B.P., 1983: Die kleinste Blütenpflanze der Welt. Mikrok. **72(1)**, 5-8.
- KRIVOKAPIC K. and ERIC Z., 1984: The influence of dinitro-ortho-cresol (DNOC) on some cytological and physiological changes in plants. (In Macedon.). Godisnjak **37**, 51-59.

- KRONBERGER W., 1983: pH-dependency of fluorine uptake by different plants. *Aquilo Ser.Bot.* **19(2)**, 304.
- KRSNIK-RASOL M. and RENDIC L., 1975: Effects of some herbicides on the growth of *Lemna gibba* and *Spirodela polyrrhiza*. (In Croat.). *Acta Bot.Croat.* **34**, 190.
- KRSNIK-RASOL M. and RENDIC L., 1977: The effect of some triazine derivatives on the growth and development of duckweeds. (In Croat.). *Acta Bot.Croat.* **36**, 75-82.
- KRUGMANN-RANDOLF I., 1978: Forschung für die Landwirtschaft der Entwicklungsländer. Wasserpflanzen als Futter nutzen, statt chemisch vernichten. *Entwicklung und Zusammenarbeit* **11**, 13-14.
- KRULL J.N., 1969: Factors affecting plant die-offs in shallow water areas. *Am.Midland Natur.* **69(82)**, 293-295.
- KRZECZOWSKA M. and ZIMNA J., 1972: Effect of kinetin and  $\beta$ -indolylacetic acid on the content of nitrogen compounds in *Lemna minor* cultures. (In Polish). *Zesz.Nauk. Uniw.Lodz., Ser. 2*, **47**, 95-100.
- KRZECZOWSKA M., ZIMNA J., BYTNIIEWSKA K. and MACIEJEWSKA-POTAPCZYK W., 1975: Attempts at establishing the culture conditions for *Lemna minor* L. (In Polish). *Acta Soc.Bot.Pol.* **44(2)**, 243-254.
- KRZEMINSKI S.F., BRACKETT C.K. and FISHER J.D., 1975: Fate of microbicide 3-isothiazolone compounds in the environment: modes and rates of dissipation. *J.Agric.Food Chem.* **23(6)**, 1060-1068.
- KUCHAR K.W., 1954: Bakteriologische und limnologische Untersuchungen an einem Lemnagewässer. *Arch.Hydrobiol.* **49**, 329-334.
- KUECHLER L., 1986: Analyse der Wasserpflanzenentwicklung in Grabensystemen zur Grundwasserregulierung. *Acta Hydrochim.Hydrobiol.* **14**, 47-57.
- KUESEL H., 1955: Die Entenlinse (*Wolffia arrhiza* Wimm.), eine neue Pflanze der nordwestdeutschen Flora. *Küsel, Lahausen, Mitt.* **1**, 10-11.
- KUHN D.J., 1969: The duckweed. *Am.Biol.Teacher* **31(5)**, 328-329.
- KULAKOVA I.A. and ANDREEV V.Y., 1981: Effect of phytohormones on ion transport into plant cells. (In Russian). *Rost.Rast.Puti.Ego.Regul.* 35-43.
- KULIKOV N.V., CHEBOTINA M.Y. and LYUBIMOVA S.A., 1980: Mobility of strontium-90 and cesium-137 in water-freshwater plant and water-soil systems. (In Russian). *Radiobiologiya* **20(1)**, 146-148.
- KULSHRESHTHA M. and GOPAL B., 1983: Allelopathic influence of *Hydrilla verticillata* (L.F.) Royle on the distribution of *Ceratophyllum* species. *Aquat.Bot.* **16**, 207-209.
- KUMAR T.S., VASUDEVAN P. and PATWARDHAN S.V., 1983: Growth studies of *Azolla pinnata* in a permanent pond. *Int.J.Enviro.Stud.* **21(3-4)**, 297-300.
- KUNII H., 1984: Seasonal changes in water quality and surface cover of aquatic plants in pond Ojaga-ike, Chiba, 1978-1980. *Mem.Fac.Sci., Shimane Univ., Matsue, Japan* **18**, 59-68.
- KUNII H., TSUCHIYA T., MATSUI K. and IKUSIMA I., 1985: Present state of aquatic plants in Lake Biwa, Japan, and its surrounding water bodies. *Jap.J.Limnol.* **46(3)**, 215-218.
- KUNTH K.C.S., 1841: *Enumeratio Plantarum omnium hucusque cognitarum*, **3**, 2-7. Stuttgart and Tübingen.
- KUPRIYANOVA L.A. and TARASEVICH V.F., 1984: The ultrastructure of the surface of the pollen grain wall in some genera of the family Lemnaceae and the related genera of the family Araceae. (In Russian). *Bot. Zh.* **69(12)**, 1656-1662.
- KURIMO U., 1970: Effect of pollution on the aquatic macroflora of the Varkans area, Finnish Lake District. *Ann.Bot.Fenn.* **7**, 213-254.
- KURZ H. and CROWSON D., 1949: The flowers of *Wolffiella floridana* (J.D. Sm.) Thompson. *Quart.J.Florida Acad.Sci.* **11**, 87-98.

- KURZ S., 1866: Enumeration of Indian Lemnaceae. *J.Linn.Soc.Bot.* **9**, 264-268.
- KURZ S., 1867: Enumeration of Australian Lemnaceae. *J.Bot.* **5**, 115.
- KURZ S., 1871: On some new or imperfectly known Indian plants. 109. *Lemna tenera*. *J.As.Soc.Bengal* **40(2)**, 78.
- KUTLJACHMEDOV Y.A., SOKURKA G.S. and GROBZINSKY D.M., 1978: Investigations of the influence of cosmonautic factors on the anabiotic stage of turions of *Spirodela polyrrhiza*. (In Russian). *Cosmic Invest.in Ukraine,Kijev.* 49-54.
- KVET J., 1978: Growth analysis of fish pond littoral communities. In: DYKYJOVA D. and KVET J. (eds.), *Ecological studies, analysis and synthesis*. Springer, New York/Berlin. **28**, 198-206.
- KVET J., REJMANKOVA E. and REJMANEK M., 1979: Higher aquatic plants and biological wastewater treatment. The outline of possibilities. *Proc. Aktiv Jihoceskych Vodoh.Conf.* 9 pp.
- LACHAVANNE J.-B., CROZET B., JUGE R., NOETZLIN A. and PERFETTA J., 1984: *Etude des macrophytes du Vierwaldstaettersee*. Unité de Biol.Aquat., Genève. 230 pp.
- LACOR M.A.M., 1968: Flowering of *Spirodela polyrrhiza* (L.) Schleiden. *Acta Bot. Neerl.* **17**, 357-359.
- LACOR M.A.M., 1969: On the influence of gibberellic acid and kinetin on the germination of turions of *Spirodela polyrrhiza* (L.) Schleiden. *Acta Bot. Neerl.* **18**, 550-557.
- LACOR M.A.M., 1970: Some physiological and morphogenetic aspects of flowering of *Spirodela polyrrhiza* (L.) Schleiden. *Acta Bot.Neerl.* **19**, 53-60.
- LAGERBERG T., 1947: Wild plants in the North. 1. Lemnaceae. (In Swed.). *Natur och Kultur, Stockholm.* 302-309.
- LAGMAN L.H., NELSON F.P. and RICHARDSON G.E., 1980: Water quality and aquatic vegetation in the Back River Reservoir, Berkeley Co., South Carolina. Columbia, SC, Water Res.Comm.Rept.No. **130**, 62 pp.
- LAI C.E. and HAYES T.L., 1980: Calibration of SEM frozen-hydrated analyses using standard salt solutions and peak to background measurements. *Proc. Ann.Meet. Electr. Microsc. Soc. America* **38**, 800-801.
- LAIRD M., 1956: Studies of mosquitoes and freshwater ecology in the South Pacific. *Bull.R.Soc. New Zealand* **6**. 213 pp.
- LAKATOS E., 1978: *Wolffia arrhiza* in northern Hungary. (In Hung.). *Botanikai Kozlemenyek* **65(3)**, 177-179.
- LAM E. and MALKIN R., 1985: Characterization of a photosynthetic mutant of *Lemna* lacking the cytochrome  $b_6$ -f complex. *Acta Biochim.Biophys.* **810(1)**, 106-109.
- LANCIANI C.A., 1987: Rearing immature *Mesovelia mulsanti* (Hemiptera mesoveliidae) on a substratum of duckweed. *Fla.Entomol.* **70(2)**, 286-288.
- LANCASTER T.L., 1930: On the occurrence of *Lemna oligorrhiza* Kurz in New Zealand. *Trans.Proc. New Zealand Inst.* **60**, 563-564.
- LANDNER L. and JERNELOV A., 1969: Cadmium in aquatic systems. Metals and ecology, Symposium. *Ecol.Res.Comm.Bull.* **5**, 47-54.
- LANDOLT E., 1955: Ueber das Wachstum in der Dunkelheit bei einigen Lemnaceen. *Verh.Schweiz.Natf.Ges.* **135**, 135-136.
- LANDOLT E., 1957: Physiologische und ökologische Untersuchungen an Lemnaceen. *Ber.Schweiz.Bot.Ges.* **67**, 271-410.
- LANDOLT E., 1975: Morphological differentiation and geographical distribution of the *Lemna gibba* - *Lemna minor* group. *Aquat.Bot.* **1**, 345-363.
- LANDOLT E., 1977 see 1957

- LANDOLT E., 1979: *Lemna minuscula* Herter (= *L. minima* Phil.), eine in Europa neu eingebürgerte amerikanische Wasserpflanze. Ber.Geobot. Inst.ETH,Stiftung Rübel,Zürich **46**, 86-89.
- LANDOLT E. (ed.), 1980a: Biosystematische Untersuchungen in der Familie der Wasserlinsen (Lemnaceae). Veröff.Geobot.Inst.ETH,Stiftung Rübel, Zürich **70**, 247 pp.
- LANDOLT E., 1980b: Key to the determination of taxa within the family of Lemnaceae. Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich **70**, 13-21.
- LANDOLT E., 1980c: Description of six new species of Lemnaceae. Veröff. Geobot.Inst.ETH,Stiftung Rübel,Zürich **70**, 22-29.
- LANDOLT E., 1980d: Bibliographie der Familie der Lemnaceae. Veröff. Geobot.Inst.ETH,Stiftung Rübel,Zürich **70**, 142-204.
- LANDOLT E., 1981: Distribution pattern of the family Lemnaceae in North Carolina. Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich **77**, 112-148.
- LANDOLT E., 1982a: Distribution pattern and ecophysiological characteristics of the European species of the Lemnaceae. Ber.Geobot.Inst.ETH,Stiftung Rübel,Zürich **49**, 127-145.
- LANDOLT E., 1982b: Distribution patterns within the family Lemnaceae. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), Studies on aquatic plants. Abstr., 313.
- LANDOLT E., 1984 see 1984a
- LANDOLT E., 1984a: Flowers and fruits in the genus *Wolffiella* (Lemnaceae). Ber.Geobot.Inst.ETH,Stiftung Rübel,Zürich **51**, 164-172.
- LANDOLT E., 1984b: Verbreitungsmuster in der Familie der Lemnaceae und ihre ökologische Deutung. Verh.Ges.Oekol.(Bern 1982) **12**, 241-253.
- LANDOLT E., 1986: The family of Lemnaceae - a monographic study (vol. 1). Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich **71**, 566 pp.
- LANDOLT E., 1987: Eco-geographical differentiation in some aquatic plants: the Lemnaceae. In: URBANSKA K. (ed.), Differentiation patterns in higher plants. Acad.Press, London. 201-215.
- LANDOLT E. and DANN W., 1983: Vergleich von 10 Klonen von *Lemna gibba* bei verschiedenen Stickstoffkonzentrationen. Ber.Geobot.Inst.ETH, Stiftung Rübel,Zürich **50**, 86-97.
- LANDOLT E. and KANDELER R., 1987: The family of Lemnaceae - a monographic study (vol. 2). Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich **95**, 638 pp.
- LANDOLT E. and URBANSKA-WORYTKIEWICZ K., 1980: List of the studied Lemnaceae samples: origin and chromosome numbers. Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich **70**, 205-247.
- LANDOLT E. and WILDI O., 1977: Oekologische Felduntersuchungen bei Wasserlinsen (Lemnaceae) in den südwestlichen Staaten der USA. Ber.Geobot.Inst.ETH,Stiftung Rübel,Zürich **44**, 104-146.
- LANGE see DE LANGE
- LAPHAM V.T., 1967: A new technique for duckweed control. Proc.S.Weed Conf. **20**, 339-341.
- LASS B. and ULLRICH-EBERIUS C.I., 1984a: Evidence for proton/sulfate cotransport and its kinetics in *Lemna gibba* Gl. *Planta* **161**(1), 53-60.
- LASS B. and ULLRICH-EBERIUS C.I., 1984b: Mechanism of sulfate uptake in *Lemna gibba* Gl:  $3\text{ H}^+$ /sulfate cotransport and its biphasic kinetics. In: CRAM W.J. et al. (eds.), Membrane transport in plants. Symp. Abstr., 412.
- LASS B., THIEL G. and ULLRICH-EBERIUS C.I., 1986: Electron transport across the plasmalemma of *Lemna gibba* Gl. *Planta* **169**(2), 251-259.
- LASSALLES J.P., AYADI A., MONNIER A., STELZ T. and THELLIER M., 1973: Application des relations et de la loi d'Onsager à la formulation d'interactions compétitives lors de l'absorption d'ions alcalins par la *Lemna minor*. C.R.Acad.Sci.Paris, D **276**, 1053-1056.

- LASSOCINSKI W., 1982: Substrate specificity of ribonucleases of phosphate-supplied and phosphate-deficient *Spirodela*. *Biochem. Physiol. Pflanzen* **177**(2), 125-136.
- LAUBE H.R. and WOHLER J.R., 1973: Studies on the decomposition of a duckweed (*Lemnaceae*) community. *Bull. Torr. Bot. Club* **100**, 238-240.
- LAUTNER V. and MUELLER Z., 1954: Feeding value of some water plants I. (In Czech.). *Sbornik Cesk. Akad. Zemedl. Ved* **27A**, 333-354.
- LAWALREE A., 1943: La multiplication végétative des *Lemnaceae* en particulier chez *Wolffia arrhiza*. *Cellule* **49**, 337-382.
- LAWALREE A., 1945: La position systématique des *Lemnaceae* et leur classification. *Bull. Soc. Roy. Bot. Belg.* **77**, 27-38.
- LAWALREE A., 1952 see 1952a
- LAWALREE A., 1952a: L'embryologie des *Lemnaceae*. Observations sur *Lemna minor* L. *Cellule* **54**, 305-326.
- LAWALREE A., 1952b: *Compositae*, *Leaceae*, *Lemnaceae* et *Vitaceae*. Exploration hydrobiologique du lac Tanganyika. *Inst. Roy. Sci. Nat. Belg., Résultat Sci.* **4**, 53-82.
- LAWALREE A., 1961: La pollinisation de *Lemna minor* L. *Natural. Belg.* **42**, 164-165.
- LAWALREE A., 1980: *Lemnaceae*. In: TUTIN T.G., HEYWOOD V.H., BURGESS N.A., MOORE D.M., VALENTINE D.H., WALTERS S.M. and WEBB D.A. (eds.), *Flora Europaea*. Cambridge Univ. Press. **5**, 273.
- LAWALREE A., 1984: *Lemna minuscula* Herter, nouveau pour la flore belge. *Dumortiera* **28**, 5-7.
- LAWSON T.B., 1973: Methods of drying duckweed. M.S. Thesis. Louisiana State Univ., Shreveport, LA.
- LAWSON T.B., BRAUD H.J. and WRATTEN F.T., 1974: Methods of drying duckweed, *Lemnaceae*. *Am. Soc. Agr. Eng.*, Winter Meeting, Chicago. 12 pp.
- LEATHER G.R. and EINHELLIG F.A., 1985: Mechanisms of allelopathic action in bioassay. The chemistry of allelopathy. *Biochemical interactions among plants*. *Amer. Chem. Soc.* 197-205.
- LEATHER G.R. and EINHELLIG F.A., 1986: Bioassays in the study of allelopathy. In: PUTMAN A.R. and TANG C.S. (eds.), *The science of allelopathy*. Wiley, New York. 133-145.
- LEBEDEVA G.D. and KUZNETSOVA G.A., 1968: Accumulation and excretion of manganese-54 by freshwater fish and other hydrobiants. (In Russian). *Biol. Nauk* **11**(10), 42-44.
- LECHEVALLIER D., 1966: Les lipides des *Lemnaceae*: Analyse des acides gras des lipides des frondes de *Spirodela polyrrhiza*. *C.R. Acad. Sci. Paris, D* **263**, 1849-1852.
- LECHEVALLIER D., 1967: Analyse des lipides polaires des frondes de *Spirodela polyrrhiza*. *C.R. Acad. Sci. Paris, D* **264**, 2110-2113.
- LECHEVALLIER D., 1969: Sur les paraffines des frondes de *Spirodela polyrrhiza* Schleid. et de *Lemna trisulca* L. *C.R. Acad. Sci. Paris, D* **268**(2), 314-317.
- LECHEVALLIER D., 1970: Sur les stérols des frondes de *Spirodela polyrrhiza* Schleid. et de *Lemna trisulca* L. *C.R. Acad. Sci. Paris, D* **271**, 591-594.
- LECHEVALLIER D., 1977a: Lipides, nucléotides pyridiniques et nucléotides adényliques de tissus et de plastes isolés de *Spirodèles* cultivées sur milieu enrichi en calcium. *Physiol. Vég.* **15**(1), 95-119.
- LECHEVALLIER D., 1977b: Effets du polyéthylène glycol sur les lipides et les lipochromes des colonies de *Spirodèle*. *Physiol. Vég.* **15**(3), 387-402.
- LECHEVALLIER D., BAHL J. and MONEGER R., 1971: Lipid components of chloroplasts isolated from *Spirodela polyrrhiza* light-cultivated on su-

- crose-containing media. In: FORTI F., AVRON M. and MELANDRI A. (eds.), Photosynthesis. Proc. 2nd Int. Congr. Photosynth. Res., 1647-1652.
- LECHEVALLIER D., BAHL J. and MONEGER R., 1976: Qualité spectrale de la lumière et lipides plastideaux du blé et de la Spirodèle. In: JACQUES R. (ed.), Etudes de biologie végétales, hommage au Professeur Pierre Chouard. Impr. Louis-Jean, Paris. 521-535.
- LECHEVALLIER D., VERMEERSCH J. and MONEGER R., 1977: Micro-analyse du NADP et du NAD réduits et oxydés dans les tissus foliaires et dans les plastes isolés de Spirodèle et de blé. 2. Méthode d'analyse des nucléotides pyridiniques de tissus végétaux. Application à l'étude des effets du saccharose, de la lumière rouge et de l'obscurité. *Physiol. Vég.* **15(1)**, 63-93.
- LEDBETTER M. and PORTER K., 1970: Introduction to the fine structure of plant cells. Springer, Berlin/Heidelberg/New York. 148-150.
- LEDL G., JANAUER G.A. and HORAK O., 1981: Die Anreicherung von Schwermetallen in Wasserpflanzen aus einigen Oesterreichischen Fließgewässern. *Acta Hydrochim. Hydrobiol.* **9(6)**, 651-663.
- LEGGETT W.H., 1870a: Lemna. *Bull. Torr. Bot. Club* **1**, 29.
- LEGGETT W.H., 1870b: Spirodela. *Bull. Torr. Bot. Club* **1**, 37-38.
- LEHMAN P.W., SILK W.K. and KNIGHT A.W., 1981: Protein and nitrate content of Lemna sp. as a function of developmental stage and incubation temperature. *Plant Physiol.* **68(1)**, 127-132.
- LEINBACH E.D., 1975: Characterization of a particulate UDP-galacturonate: acceptor D-galacturonosyltransferase from Lemna minor and studies on the physical properties of the product. Ph.D. thesis, Michigan State Univ. 109 pp. Diss. Abstr. Int. B **36**, 6134.
- LEINERTE M.P., 1968: Experiments involving the exposure of Lemna minor to gamma-rays and fast neutrons. (In Russian). *Radiobiologiya* **8(1)**, 156-157.
- LEINERTE M.P., 1969: Influence of external  $\gamma$ -irradiation of higher aquatic plants on their accumulation of  $^{90}\text{Sr}$ ,  $^{137}\text{Cs}$ , and  $^{144}\text{Ce}$ . *Radiobiologiya* **9(3)**, 427-432. Translation UDC 577.391, 131-138.
- LEMBI C.A., 1976: Aquatic weed control results in Indiana in 1975. *Proc. North Central Weed Contr. Conf.* **30**, 169.
- LEMBI C.A., 1978: Results of 1978 aquatic herbicide trials in Indiana. *Proc. North Central Weed Contr. Conf.* **33**, 102-103.
- LEONARD S.W., 1972: New records and notes on the flora of the Carolinas. *J. Elisha Mitchell Sci. Soc.* **88**, 265-266.
- LE PABIC C., 1972: Ultrastructure et différenciation des chloroplastes de Spirodela polyrrhiza. *C.R. Acad. Sci. Paris, D* **275(21)**, 2339-2342.
- LE PABIC C., 1976a: Modifications de la croissance et de la pigmentation de Spirodela polyrrhiza (Schleid.) induites par une cytokinine, la 6-benzylaminopurine. *Physiol. Vég.* **14(1)**, 77-88.
- LE PABIC C., 1976b: Modifications de la pigmentation et de l'ultrastructure des chloroplastes de Spirodela polyrrhiza. *J. Microsc. Biol. Cell* **25**, 181-186.
- LE PABIC C., 1980: Composition en lipides polaires et analyse des acides gras des frondes de Spirodèle traitées par la 6-benzylaminopurine. *Plant Sci. Lett.* **17**, 303-310.
- LE PABIC C., 1982b see 1972
- LEPAGE E., 1976: Additions and extension of distribution in the genera Eriophorum, Spirodela, Atriplex and Hieracium in Quebec, Canada. *Natur. Can.* **103(3)**, 235-238.
- LEPAGE E., 1978 see 1976
- LEPPARD G.G. and LEAN D.R.S., 1976: Ion exchange fibrils in inland wa-

- ters, their production and environmental significance. Proc.Can.Fed. Biol.Soc. **19**, 86.
- LEROITH D., PICKENS W., WILSON G.L., MILLER B., BERELOWITZ M., VINIK A.I., COLLIER E. and CLELAND C.F., 1985: Somatostatin-like material is present in flowering plants. *Endocrinology* **117**(5), 2093-2097.
- LESCH S. and ULLRICH W., 1984: Ammonium-Aufnahme bei *Lemna gibba* Gl: Carriertransport und/oder Diffusion von  $\text{NH}_4^+$  oder  $\text{NH}_3$ ? Mitt.bd. Bot.-Tag.Wien, 52 (0508).
- LESLIE A.C. and WALTERS S.M., 1983: The occurrence of *Lemna minuscula* Herter in the British Isles. *Watsonia* **14**(3), 243-248.
- LETHAM D.S., 1967: Regulators of cell division in plant tissues. V. A comparison of the activities of zeatin and other cytokinins in five bioassays. *Planta* **74**, 228-242.
- LEUCHTMANN A., 1979: Physiologische Differenzierungen in der Familie der Lemnaceen. Diploma Thesis. Geobot.Inst.ETH,Stiftung Rübel,Zürich. 86 pp. (Polycopy).
- LEUTE G.H. and MUELLER I.E., 1979: *Potamogeton acutifolius* Link und *Lemna trisulca* L., zwei verschollen geglaubte Vertreter der Hydrophytenflora in Kärnten wiederentdeckt. *Carinthia* **2**(169/89), 137-142.
- LEUTWILER L.S. and TOBIN E.M., 1985: Characterization of the multigene family encoding the light-harvesting chlorophyll a/b-protein in *Arabidopsis thaliana*. *J.Cell.Biochem.* (suppl. **9** part C), 236.
- LEWCOWICZ see LEWKOWICZ
- LEWIN E., 1977: Effects of phenytoin on the release of  $^{14}\text{C}$  adenine derivatives. *Epilepsia* **18**(3), 349-356.
- LEWIN R.A., 1984: Culture and taxonomic status of *Chlorochytrium lemnae*, green algae endophyte. *Br.Phycol.J.* **19**(2), 107-116.
- LEWINSOHN E. and GRESSEL J., 1983: The determination of chlorophylls a and b together with  $^{14}\text{CO}_2$  dioxide fixation in the same plant tissue samples. *Anal.Biochem.* **135**(2), 438-442.
- LEWINSOHN E. and GRESSEL J., 1984a: Benzyl viologen suppression of diquat and paraquat phytotoxicities. *Plant Physiol.* **75**(1 suppl.), 51.
- LEWINSOHN E. and GRESSEL J., 1984b: Benzyl viologen-mediated counteraction of diquat and paraquat phytotoxicities. *Plant Physiol.* **76**(1), 125-130.
- LEWINSOHN E. and GRESSEL J., 1985: Protection against paraquat and diquat damage by benzyl viologen in a plant model system. *Phytoparasitica* **13**(3/4), 233.
- LEWIS D.H., 1984: Storage carbohydrates in vascular plants. Distribution, physiology and metabolism. Cambridge Univ. Press. 284 pp.
- LEWIS W.M. and BENDER M., 1961: Effect of a cover of duckweeds and the alga *Phitophora* upon the dissolved oxygen and free carbon dioxide of small ponds. *Ecology* **42**, 602-603.
- LEWKOWICZ M. and LEWKOWICZ S., 1977: Restoration of a pond after a five year period of fertilization with beet sugar factory wastes. Chemical factors and zooplankton. *Acta Hydrobiol.* **19**(4), 315-333.
- LI H.-L., LIU T., HUANG T., KOYAMA T. and DE VOL C.E., 1978: Flora of Taiwan. Epoch Publ.Co., Taipei, Taiwan. **5**, 816-818.
- LI Z., HUANG G. and NI J., 1985: The stabilizing factor of the nitrate reductase activity from the leaves of higher plants. (In Chinese). *Zhiwu Shengli Xuebao* **11**(1), 1-8.
- LID J., 1952: Flora of Norway. (In Norw.). *Norske Samlaget*, Oslo. 180.
- LIEBERT H.-P., 1977: Einfluss von Abscisinsäure auf Wachstum und Mineralstoffgehalt bei *Lemna gibba* L. *Biol.Rundsch.* **15**, 180-182.
- LIEBERT H.P., 1980a: Zur Kontrolle des lichtinduzierten Wurzelwachstums bei Heterotrophkulturen von *Lemna gibba* L. durch Phytohormone. *Biol. Rundsch.* **18**(3), 169-171.

- LIEBERT H.P., 1980b: Der Kalium-, Calcium- und Magnesiumgehalt verschieden alter Sprosse von *Lemna gibba* L. *Biol.Rundsch.* **18**, 229-232.
- LIEBERT H.P., 1986a: Der Einfluss von Schwermetallen auf das Wurzelwachstum heterotroph vorkultivierter *Lemna gibba* L. *Biol.Rundsch.* **24**, 59-60.
- LIEBERT H.P., 1986b: Einfluss von Kalium und Licht auf den Mineralstoffgehalt im Dunkeln vorkultivierter Pflanzen von *Lemna gibba* L. *Wiss.Z. Friedrich-Schiller-Univ.Jena, Natw.R.* **35(5)**, 639-645.
- LIEBERT H.P. und AUGSTEN H., 1986: Der Einfluss von Licht auf die Nitratreduktase-Aktivität bei *Lemna gibba* L. und *Wolffia arrhiza* (L.) Wimm. in Abhängigkeit von Kulturbedingungen. *Wiss.Z.Friedrich-Schiller-Univ. Jena, Natw.R.* **35(5)**, 647-652.
- LIEDTKE M.P. and OHMANN E., 1969: Synthese und Inaktivierung von alkalischer Phosphatase in *Lemna minor*. *Flora A* **160(4)**, 378-390.
- LIEN B.C., COLE A.L.J., WALKER J.R.L. and PETERS J.A., 1979: Effect of sodium fluoroacetate ("Compound 1080") on the soil microflora. *Soil Biology and Biochemistry* **11(1)**, 13-18.
- LIEN B.C., COLE A.L.J., WALKER J.R.L. and PETERS J.A., 1981: The effect of fluoroacetate ("Compound 1080") and fluoride on duckweeds. *New Zealand Sci.* **23**, 179-184.
- LIN A. and MATHES M.C., 1973: The in-vitro secretion of growth regulators by isolated callus tissue. *Am.J.Bot.* **60(1)**, 34-41.
- LINDEMAN W., 1951: The influence of phosphate on the photosynthesis of *Lemna minor* L. *Proc.Kon.Ned.Acad.Wetensch. C* **54**, 287-295.
- LINDEMAN W., 1952: The influence of phosphate on the photosynthesis of *Lemna minor* L. (In Dutch). Ph.D.Thesis. Univ. Amsterdam.
- LINDEMAN W., 1972: Reactivation of photosynthesis in dependence on wavelength in phosphate deficient *Lemna minor*. *Acta Bot.Neerl.* **21**, 86-94.
- LINDEMAN W., 1973: Emerson enhancement effect and the reactivation of photosynthesis in phosphate deficient *Lemna minor*. *Acta Bot.Neerl.* **22**, 553-568.
- LINDEMAN W., 1979: Inhibition of photosynthesis in *Lemna minor* by illumination during chilling in the presence of oxygen. *Photosynthetica* **13**, 175-185.
- LINN J.G., GOODRICH R.D., MEISKE J.C. and STABA E.J., 1973: Aquatic plants from Minnesota. Part IV. Nutrient comparison. *Univ.Minn.Water Resources Res.Center Bull.* **56**, 22 pp.
- LINNE C.S. see VON LINNE
- LIPKIN Y., 1973: *Wolffia arrhiza* (L.) Hork. ex Wimmer on the Golan Plateau. *Israel J.Bot.* **22**, 175-177.
- LIPSER H. and DOBERAUER G., 1958: Ein zweiter reicher Bestand der Zwergwasserlinse (*Wolffia arrhiza* [L.] Wimm.) im Offenbacher Gebiet. *Hess. Flor.Br.* **7**, 3-4.
- LITTLE C.S., 1979: Handbook of utilization of aquatic plants. *FAO Fisheries Techn.Paper* **187**, 176 pp.
- LIU L.C. and CEDENO-MALDONADO A., 1974: Effects of fluometron, prometryne, ametryne, and diuron on growth of two *Lemna* species. *J.Agric. Univ. Puerto Rico* **58**, 483-488.
- LIU L.C. and CEDENO MALDONADO A., 1979: A bioassay method for detecting herbicide concentrations in water. *J.Agric.Univ.Puerto Rico* **63(1)**, 80-83.
- LOATS K.V., NOBLE R. and TAKEMOTO B., 1981: Photosynthesis under low level SO<sub>2</sub> and CO<sub>2</sub> enhancement conditions in three duckweed species. *Bot.Gaz.* **142(3)**, 305-310.
- LOCK J.M., 1973: The aquatic vegetation of Lake George, Uganda. *Phyto-coenol.* **1**, 250-262.

- LOCKHART W.L. and BLOUW A.P., 1979: Phytotoxicity tests using the duckweed *Lemna minor*. *Can.Spec.Publ.Fish.Aquat.Sci.* **44**, 112-118.
- LOCKHART W.L., BILLECK B.N., DE MARCH B.G.E. and MUIR D.C.G., 1983: Uptake and toxicity of organic compounds: studies with an aquatic macrophyte (*Lemna minor*). *ASTM Spec.Tech.Publ.* **802**, 460-468.
- LOCKHART W.L., BILLECK B.N. and BUCHKO G.W., 1985: Phytotoxicity testing with common duckweed (*Lemna minor*). *Can.Tech.Rep.Fish.Aquat.Sci.* **1368**, 297-298.
- LODKINA M.M., 1976: Peculiar features of pollen sac development in some species of *Najadaceae* Juss. and *Lemnaceae* S. Gray. (In Russian). *Bot. Zh.(USSR)* **61**, 1536-1546.
- LOEFFELHARDT W. and KINDL H., 1979: Conversion of 4-hydroxyphenylpyruvic acid into homogentisic acid at the thylakoid membrane of *Lemna gibba*. *FEBS Lett.* **104**, 332-334.
- LOEPPERT H., 1979: Evidence for electrogenic proton extrusion by sub-epidermal cells of *Lemna paucicostata* 6746. *Planta* **144(4)**, 311-315.
- LOEPPERT H., 1981: Energy coupling for membrane hyperpolarization in *Lemna*: evidence against an ATP-fueled electrogenic pump as the exclusive mechanism. *Planta* **151**, 293-297.
- LOEPPERT H., 1983: Energy coupling for membrane hyperpolarization in *Lemna*: respiration rate, ATP level and membrane potential at low oxygen concentrations. *Planta* **159(4)**, 329-335.
- LOEPPERT H. and KOENIGSHOFER H., 1984: Die Energetik elektrogener Transportprozesse bei *Lemna*-Protoplasten. *Mitt.bd.Bot.-Tag.Wien*, 50 (0504).
- LOEPPERT H. and KRONBERGER W., 1979: Control of nitrate uptake by photosynthesis in *Lemna paucicostata* 6746. In: MARCELLE R., CLIJSTERS H. and VAN POUCKE M. (eds.), *Photosynthesis and Plant Development*, Proc. Conf.1978. Junk, The Hague. 301-308.
- LOEPPERT H. and TROMBALLA H.W., 1984: K<sup>+</sup> transport and membrane potential in *Lemna*. In: CRAM W.J. et al. (eds.), *Membrane transport in plants*. Symp.Abstr., 218-219.
- LOEPPERT H., KRONBERGER W. and KANDELER R., 1977: Correlation between nitrate uptake and alkalinisation by *Lemna paucicostata* 6746. In: THELLIER M. et al. (eds.), *Transmembrane ionic exchanges in plants*. Edit. CNRS et Univ. Rouen, Paris et Mont Saint Aignan. 283-288.
- LOEPPERT H., KRONBERGER W. and KANDELER R., 1978: Phytochrome-mediated changes in the membrane potential of subepidermal cells of *Lemna paucicostata* 6746. *Planta* **138**, 133-136.
- LOETSCH B. and KINZEL H., 1971: Zum Calciumbedarf von Oxalatpflanzen. *Biochem.Physiol.Pflanzen* **162(3)**, 209-219.
- LOEVE A., 1978: IOPB chromosome report LXI. *Taxon* **27**, 375-392.
- LOEWENGART G., 1984: Aquatic toxicity and environmental fate studies - caprolactam. *Proc.Symp.Ind.Approach Chem.Risk Assess.Conf.Proc.* 36-52.
- LOEWUS F. and LOEWUS M.W., 1971: Isolation of glucose-6 phosphate cycloaldolase from cell cultures of *Acer pseudoplatanus* and evidence for histidine at the active center of this enzyme. *Plant Physiol.* **47** (suppl.), 5.
- LOHAMMAR G., 1938: Wasserchemie und höhere Vegetation schwedischer Seen. *Symb.Bot.Ups.* **3/1**, 252 pp.
- LOHAMMAR G., 1940: Die Verbreitung von *Lemna trisulca* in Fennoskandinavien und Dänemark. *Verh.Int.Ver.Theor.Angew.Limnologie* **9**, 204-209.
- LOOMAN J., 1983: Water meal, *Wolffia arrhiza* (*Lemnaceae*) in Saskatchewan. *Can.Field.Nat.* **97(2)**, 220-222.
- LOOMAN J., 1985: The vegetation of the Canadian Prairie Provinces. III.

- Aquatic and semi-aquatic vegetation., part 3. Aquatic plant communities. *Phytocoenologia* **14**, 19-54.
- LOOS S. and LUETTGE U., 1984: Effects of HgCl<sub>2</sub> on membranes of *Lemna gibba* in the energized and non-energized state. *Physiol.Veg.* **22(2)**, 171-179.
- LOOS W., 1962: Einfluss der Gibberellinsäure auf die vegetative Vermehrung und das Wurzelwachstum von *Lemna minor* L. *Phyton(Argentina)* **18**, 133-136.
- LOT A., NOVELO A. and QUIROZ A., 1979: The Chinampa: an agricultural system that utilizes aquatic plants. *J.Aquat.Plant Manage.* **17**, 74-75.
- LOVVORN J.R. and KIRKPATRICK C.M., 1982: Analysis of freshwater wetland vegetation with large-scale color infrared aerial photography. *J. Wildl.Manage.* **46**, 61-70.
- LUDWIG F., 1909: Lemnaceen. In: VON KIRCHNER O., LOEW E. and SCHROETER C., *Lebensgeschichte der Blütenpflanzen Mitteleuropas*. Ulmer, Stuttgart. **1(3)**, 57-80.
- LUEOEND A., 1978: Unterschiedliche Nährstoffansprüche nahverwandter Arten und ihre ökologische Bedeutung. Diploma Thesis. Geobot.Inst.ETH, Stiftung Rübél,Zürich. 84 pp. (Polycopy).
- LUEOEND A., 1980: Effects of nitrogen and phosphorus upon the growth of some Lemnaceae. *Veröff.Geobot.Inst.ETH,Stiftung Rübél,Zürich* **70**, 118-141.
- LUEOEND A., 1982: Effects of nitrogen and phosphorus upon the growth of some Lemnaceae. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), *Studies on aquatic plants. Symp.Abstr.*, 143.
- LUEOEND A., 1983: Das Wachstum von Wasserlinsen (Lemnaceae) in Abhängigkeit des Nährstoffangebots, insbesondere Phosphor und Stickstoff. *Veröff.Geobot.Inst.ETH,Stiftung Rübél,Zürich* **80**. 116 pp.
- LUETTGE U., JUNG K.D. and ULLRICH-EBERIUS C.I., 1981: Evidence for amino acid-H<sup>+</sup> cotransport in *Lemna gibba* given by effects of fusicoccin. *Z.Pflanzenphysiol.* **102(2)**, 117-125.
- LUKINA G.A., 1977: Flowering of the Lemnaceae. (In Russian). *Byull.Inst. Biol.Vnutr.Vod Akad.Nauk SSR* **35**, 29-31.
- LUKINA G.A., 1983a: Effect of UV irradiation on some representatives of the family Lemnaceae S.Gray. (In Russian). *Gidrobiol.Zh.* **19(1)**, 66-69.
- LUKINA G.A., 1983b: The effect of ultraviolet radiation on some representatives of the family Lemnaceae S.Gray. *Hydrobiol.* **19(1)**, 68-71.
- LUKINA G.A., 1984: Duckweeds under natural and laboratory conditions. (In Russian). *Bot.Zh.* **69**, 81-83.
- LUTHER H., 1948: Die Funde von blühenden Lemnaceen in Finnland. *Mem.Soc. Fauna Flora Fenn.* **24**, 161-170.
- LUTHER H., 1949: Vorschlag zu einer ökologischen Grundeinteilung der Hydrophyten. *Acta Bot.Fenn.* **44**, 3-15.
- LUTHER H., 1951: Verbreitung höherer Wasserpflanzen im brackisch Wasser Finnlands. *Acta Bot.Fenn.* **50**, 1-370.
- LYSENKO N.I. and GROZDZINSKII D.M., 1974: Effect of small doses of previous irradiation on radio resistance of *Spiridela polyrrhiza*. (In Russian). *Fiziol.Biokhim.Kul't.Rast.* **6(4)**, 371-375.
- LYSENKO N.I., 1981: Effect of monofunctional alkylating mutagens on the radiation resistance of *Spirodela polyrrhiza* (L.) Schleid. and *Pisum sativum*. (In Russian). *Nauk Dumka (Kiew)* **1981**, 43-46.
- MABRY T.J., MARKHAM K.R. and THOMAS M.B., 1970: The systematic identification of flavonoids. *Books* **1970**, 354.
- MACDONALD I.R., 1975: Effect of vacuum infiltration on photosynthetic gas exchange in leaf tissue. *Plant Physiol.* **56**, 109-112.

- MACEINA M.J. and SHIREMAN J.V., 1980: Effects of salinity on vegetation consumption and growth in grass carp *Ctenopharyngodon idella*. *Prog. Fish-Cult.* **42(1)**, 50-53.
- MACGINITIE H.D., LEOPOLD E.B. and ROHRER W.L., 1974: An early middle Eocene flora from the Yellowstone-Absaroka volcanic province, north-western wind river basin, Wyoming. *Univ. Calif. Publ. Geol. Sci.* **108**, 94.
- MACIEJEWSKA-POTAPCZYK W., KONOPSKA L. and NARZYMSKA E., 1970: Proteins in duckweed (*Lemna minor* L.). *Acta Soc. Bot. Pol.* **39**, 251-255.
- MACIEJEWSKA-POTAPCZYK W., KONOPSKA L. and OLECHNOWICZ K., 1975: Protein in *Lemna minor* L. *Biochem. Physiol. Pflanzen* **167**, 105-108.
- MACIEJEWSKA-POTAPCZYK W., KONOPSKA L. and RESZKA J., 1976: Influence of IAA and kinetin on *Lemna minor* L. proteins. *Acta Univ. Nicolai Copernici Nauk. Mat.-Przyr.* **37**, 183-186.
- MACKENTHUN K.M., INGRAM W.M. and PORGES R., 1964: Limnological aspects of recreation lakes. *Pub. Health Serv., Publ. No.* 1167.
- MACNICOL P.K., DATKO A.H., GIOVANELLI J. and MUDD S.H., 1981: Homocysteine biosynthesis in green plants: physiological importance of the transsulfuration pathway in *Lemna paucicostata*. *Plant Physiol.* **68(3)**, 619-625.
- MADONI P. and VIAROLI P., 1985: Microfauna distribution in shallow macrophyte-covered basins. *Verh. Int. Verein. Limnol.* **22**, 2353-2355.
- MADSEN J.D. and ADAMS M.S., 1985: The aquatic macrophyte communities of two streams in Wisconsin. *Wis. Acad. Sci., Arts Lett.* **73**, 198-216.
- MAENG J., 1973: Biochemical and physiological studies on the flowering mechanism of two species of *Lemna*. *Northeastern Univ. Diss. Abstr.* Int. B **34**, 2496-2497.
- MAENG J., 1976: Studies on inhibition factors and the role of phytochrome in the floral induction in short-day plants. (In Korean). *Korean J. Bot.* **19**, 14-18.
- MAENG J., 1977: Studies on the effect of 2-chloroethylphosphoric acid [etephon] on the floral induction to photoperiodic plants: I. Inhibition of flowering in *Lemna perpusilla* 6746 by etephon. (In Korean). *Korean J. Bot.* **20**, 77-82.
- MAENG J. and BAE J.M., 1984: Influence of salicylic acid and dimethylsulfoxide on flowering *Lemna gibba* G3. *Korean J. Bot.* **27(4)**, 215-222.
- MAENG J. and KHUDAIRI A.K., 1973: Studies on the flowering mechanism in *Lemna*. I. Amino acid changes during flower induction. *Physiol. Plant.* **28**, 264-270.
- MAEENPAEAE P. and ARO E.M., 1986: Chlorophyll-protein complexes, chlorophyll a/b ratio and chloroplast ultrastructure in *Lemna minor* L. grown under different light conditions. *J. Plant Physiol.* **123(2)**, 161-168.
- MAGONE I.G. and GRODZINSKII D.M., 1973: Abscisic acid as a modifier of plant radiation damage. (In Russian). *Fiziol. Biokhim. Kul't. Rast.* **5(4)**, 427-430.
- MAGONE I.G. and TEIVANS A., 1985: Bioindication of emission products from a cement mill. (In Russian). *Zagryaz. Prir. Sredy Kal'siisoderzh. Pyl'yu* 90-95.
- MAHANTY H.K., 1975: A study on the effects of polychlorinated biphenyl (Aroclor 1242) on an aquatic plant *Spirodela oligorrhiza* (Kurz) Hegelm. *Bull. Environ. Contam. Toxicol.* **14(5)**, 558-561.
- MAHANTY H.K. and FINERAN B.A., 1976: Effects of a polychlorinated biphenyl (Aroclor 1242) on the ultrastructure of frond cells in the aquatic plant *Spirodela oligorrhiza* (Kurz) Hegelm. *New Zealand J. Bot.* **14(1)**, 13-18.
- MAHANTY H.K. and McWHA J.A. 1976: Sensitivity of *Spirodela oligorrhiza*

- (Kurz) Hegelm. to a polychlorinated biphenyl (Aroclor 1242). New Zealand J. Bot. **14**(1), 9-12.
- MAHAR H., 1974: The combined effects of <sup>60</sup>Co irradiation and selected herbicides on Spirodela polyrrhiza. Int.Diss.Abstr. B **35**(5), 2489.
- MAHESHWARI J.K., 1960: The vegetation of marshes, swamps and riverside in Khandwa district (Madhya Pradesh). J.Bombay Nat.Hist.Soc. **57**, 271-307.
- MAHESHWARI S.C., 1954: The embryology of Wolffia. Phytomorphology **4**, 355-365.
- MAHESHWARI S.C., 1956a: Endosperm and seed of Wolffia. Nature **178**, 925-926.
- MAHESHWARI S.C., 1956b: The endosperm and embryo of Lemna and systematic position of the Lemnaceae. Phytomorphology **6**, 51-55.
- MAHESHWARI S.C., 1958a: The Lemnaceae. A contribution to their biology, morphology and systematics. Ph.D.Thesis. Univ. Delhi.
- MAHESHWARI S.C., 1958b: Spirodela polyrrhiza: The link between the aroids and the duckweeds. Nature **181**, 1745-1746.
- MAHESHWARI S.C., 1959: Systematic position of the family Lemnaceae. Abstr.Int.Bot.Congr.Montreal **2**, 246-247.
- MAHESHWARI S.C., 1963 see MAHESHWARI S.C. and CHAUHAN O.S., 1963
- MAHESHWARI S.C. and CHAUHAN O.S., 1963: In vitro control of flowering in Wolffia microscopica. Nature **198**, 99-100.
- MAHESHWARI S.C. and GUPTA S., 1967: Induction of flowering in Lemna paucicostata, a short-day plant, by chelating agents and iron. Planta **77**, 95-98.
- MAHESHWARI S.C. and KAPIL R.N., 1963a: Morphological and embryological studies on the Lemnaceae. I. The floral structure and gametophytes of Lemna paucicostata. Am.J.Bot. **50**, 677-686.
- MAHESHWARI S.C. and KAPIL R.N., 1963b: Morphological and embryological studies on the Lemnaceae. II. The endosperm and embryo of Lemna paucicostata. Am.J.Bot. **50**, 907-914.
- MAHESHWARI S.C. and KAPIL R.N., 1964: Morphological and embryological studies on the Lemnaceae. III. The seed and seedling of Lemna paucicostata. J.Ind.Bot.Soc. **43**, 270-277.
- MAHESHWARI S.C. and KHURANA J.P., 1978: Floral induction in duckweeds by salicylic acid. In: SEN D.N and BANSAL R.P. (eds.), Environ.Physiol. Ecol.Plants. B. and M.P. Singh Publ., Dehra Dun, India. 5-13.
- MAHESHWARI S.C. and MAHESHWARI N., 1963: The female gametophyte, endosperm and embryo of Spirodela polyrrhiza. Beitr.Biol.Pflanzen **39**, 179-188.
- MAHESHWARI S.C. and SETH P.N., 1966a: Induction of flowering in Wolffia microscopica by the iron salt of ethylenediamine-di-o-hydroxyphenyl-acetic acid (Fe-EDDHA). Z.Pflanzenphysiol. **55**, 89-91.
- MAHESHWARI S.C. and SETH P.N., 1966b: Photoperiodic control of flowering in Wolffia papulifera. Plant Cell Physiol. **7**, 163-165.
- MAHESHWARI S.C. and SETH P.N., 1967 see MAHESHWARI S.C. et al. ,1967
- MAHESHWARI S.C. and VENKATARAMAN R., 1966: Induction of flowering in a duckweed - Wolffia microscopica - by a new kinin, zeatin. Planta **70**, 304-306.
- MAHESHWARI S.C., VENKATARAMAN R. and SETH P.N., 1967: Effects of kinins and an iron chelate on the growth and flowering of Wolffia microscopica. Proc.Int.Conf.Plant Growth Substances,Rostock. Wiss.Z.Univ.Rostock,Math.-Natw.R. **16**, 655.
- MAHLOCH J.L. and McGRUFF E.C., Jr., 1974: Agricultural wastes. J.Water Poll.Control Fed. **46**(6), 1280-1283.
- MAI D.H. and WALTHER H., 1978: Die Floren der Haselbacher Serie im Weis-

- selster-Becken (Bez. Leipzig, DDR). Abh.Staatl.Mus.Min.Geol. Dresden **28**, 149.
- MAINWARING G.T., 1972: Scanning electron microscope observations of the inflorescence of *Lemna perpusilla*. Am.J.Bot. **59**, 679.
- MAIRE R., 1957: Flore de l'Afrique du Nord. Lechevalier, Paris. **4**, 249-254.
- MAJID F.Z. and AKHTAR N., 1982: Aquatic weeds as source of protein in Bangladesh. 1st Int.Conf. Leaf Protein, Marathwada Univ., Aurangabad, India. 9 pp.
- MAJID F.Z. and JAHAN M.A.A., 1984: Study on the effects of some aquatic weed extract solutions on seed germination and primary seedling vigour of some economic crops. Proc.4th Nat.Bot.Conv., Bangladesh. 12 pp.
- MAKAROVA Z.Y., 1968: The biomass of common duckweed in Kaliningrad waters and the dynamics of it during the growing period. (In Russian). Tr.Kaliningrad.Tekh.Inst.Rybn.Prom.Khoz. **20**, 170-174.
- MALECHA S.R., BUCK D.H., BAUR R.J. and ONIZUKA D.R., 1981: Polyculture of the freshwater prawn, *Macrobrachium rosenbergii*, Chinese and common carps in ponds enriched with swine manure. I. Initial trials. Aquaculture **25**(2-3), 101-116.
- MALEK L., 1981: The effect of drying on *Spirodela polyrrhiza* turion germination. Can.J.Bot. **59**(1), 104-105.
- MALEK L. and COSSINS E.A., 1982: Aspartate pathway activity in N- and S-deficient duckweed. Plant Physiol. **69**(4 suppl.), 111.
- MALEK L. and COSSINS E.A., 1983 see 1983a
- MALEK L. and COSSINS E.A., 1983a: Senescence, turion development, and turion germination in nitrate- and sulfate-deficient *Spirodela polyrrhiza*. Relationships between nutrient availability and exogenous cytokinins. Can.J.Bot. **61**(7), 1887-1897.
- MALEK L. and COSSINS E.A., 1983b: Aminoacylation of tRNA and protein turnover in nitrate- and sulphate-deficient *Spirodela polyrrhiza*. Plant Cell Physiol. **24**(8), 1353-1359.
- MALEK L. and ODA Y., 1979: Effect of red and blue light on turion production. Plant Physiol. **63**(5 suppl.), 156.
- MALEK L. and ODA Y., 1980: Germination of *Spirodela polyrrhiza* turions: the role of culture conditions during turion development. Plant Cell Physiol. **21**(2), 357-361.
- MALENDE B., 1957: Die Zwerglinse, *Wolffia arrhiza* (L.) Wimmer, bei Steinheim a.Main. Hess.Florist.Br. **6**, 1-2.
- MALIS G.P. and MUIR D.C.G., 1984: Fate of fenitrothion in shaded and unshaded ponds. ACS Symp.Ser. **238**, 277-295.
- MALKIN R. and POSNER H.B., 1978: On the site of function of the Rieske iron-sulfur center in the chloroplast electron transport chain. Biochim.Biophys.Acta **501**, 552-554.
- MANCINELLI A.L., 1977: Photocontrol of anthocyanin synthesis in *Spirodela polyrrhiza*. Plant Physiol. **59**(6 suppl.), 49.
- MANCINELLI A.L., 1980: Photoreceptors of the high irradiance responses of plant photomorphogenesis. Photochem.Photobiol. **32**(6), 853-858.
- MANCINELLI A., 1984: Photoregulation of anthocyanin synthesis. VIII. Effect of light pretreatments. Plant Physiol. **75**(2), 447-453.
- MANCINELLI A.L. and RABINO I., 1984: Photoregulation of anthocyanin synthesis. X. Dependence on photosynthesis of high irradiance response anthocyanin synthesis in *Brassica oleracea* leaf disks and *Spirodela polyrrhiza*. Plant Cell Physiol. **25**(7), 1153-1160.
- MANGI J., SCHMIDT K., PANKOW J., GAINES L. and TURNER P., 1978: Effects of chromium on some aquatic plants. Environ.Pollut. **16**(4), 285-291.
- MANISSERY J.K., KRISHNA R.D.S. and DEVARAJ K.V., 1981: Observations on

- the feeding of the duckweed (*Lemna minor*) by an ostracod (*Cypris* sp.). *Curr.Res., Univ.Agric.Sci., Bangalore* **10(3)**, 52-53.
- MANN H., 1967: The utilization of food by *Tilapia melanopleura* Dum. *FAO Fish.Rep.* **44(3)**, 408-410.
- MANSOR M. and AHMAD M., 1986: The dominant aquatic weeds in peninsular Malaysia. *Proc.7th Int.Symp.Aquatic Weeds. European Weed Res.Soc., Wageningen.* 207-212.
- MARCIULIONIENE E.-D.P., 1980: Interactions of radionuclides and pollutants with phytocoenoses in fresh-water ecosystems. *Agrochem.Residue-Biota Interact.Soil Aquat. Ecosyst., Proc.Rep.Comb.Advis.Group Meet. Res.* 113-124.
- MARCIULIONIENE E.-D.P., DUSAUSKIENE-DUZ R.G., CIBIRAITI N.A., NENINSKIE-NE V., SULIENE R. and TRAINAUSKAITE I., 1979: Absorption of some radionuclides of metals by freshwater plants. (In Russian). *Vzqimod. Vod.Zhiv.Vesh.* **1**, 90-97.
- MARDER J.B., MATTOO A.K. and EDELMAN M., 1982: Photosynthesis and the rapidly-metabolised 32-kilodalton chloroplast membrane protein. *Prog. Clin.Biol.Res.* **102B**, 91-100.
- MARDER J.B., GOLOUBINOFF P. and EDELMAN M., 1984: Molecular architecture of the rapidly metabolized 32 kilodalton protein of photosystem. II. Indications for carboxyl terminal processing of a chloroplast membrane polypeptide. *J.Biol.Chem.* **259(6)**, 3900-3908.
- MARIE-VICTORIN Frère, 1931: Les Spadiciflores du Québec (Aracées, Lemnaceés). *Contr.Lab.Bot.Univ. Montréal* **19**, 60 pp.
- MARKLUND F., 1936: Vergleichende Permeabilitätsstudien an pflanzlichen Protoplasten. *Acta Bot.Fenn.* **18**, 1-110.
- MARKS G.C., 1968: The flowering of *Lemna minor* and the establishment of *Centaurium pulchellum* in Northwestern Indiana. *Proc.Indiana Acad. Sci.* **78**, 414-416.
- MARQUES I.A. and ERISMANN K.H., 1984: Metabolism of glycolate by *Lemna minor* L. grown on different inorganic nitrogen sources. *Plant Physiol.* **75**(1 suppl.), 156.
- MARQUES I.A., OBERHOLZER M.J. and ERISMANN K.H., 1985: Metabolism of glycolate by *Lemna minor* L. grown on nitrate or ammonium as nitrogen source. *J.Exp.Bot.* **36(172)**, 1685-1697.
- MARTI J., TROESCH L. and ERISMANN K.H., 1986: Gaswechsel-Test mit der Wasserlinse *Lemna minor* L. zur Untersuchung allelopathisch wirksamer Stoffe. *Schweiz.Bot.Ges., Bull.* **4(suppl.)**, 9-10.
- MARTIN G., 1955: Action antitoxique des ions  $Mg^{++}$  à l'égard des ions  $Zn^{++}$  chez *Lemna minor*. *C.R.Soc.Biol.* **149**, 2099-2102.
- MARTIN G., 1963a: Différences spécifiques entre les besoins quantitatifs en chlore de *Lemna minor*, *L. perpusilla* et *Spirodela polyrrhiza*. *Plant and Soil* **18**, 258-266.
- MARTIN G., 1963b: Nécessité du chlore dans la nutrition de *Spirodela polyrrhiza* cultivé en conditions partiellement hétérotrophes. *C.R. Acad.Sci., Paris* **257**, 294-296.
- MARTIN G., 1964: Effets de la L-cystine sur la croissance de *Spirodela polyrrhiza* en conditions hétérotrophes. *C.R.Acad.Sci., Paris* **258**, 5757-5759.
- MARTIN G., 1965: Nécessité du chlore dans la nutrition de *Spirodela polyrrhiza* cultivé en conditions hétérotrophes. *C.R.Acad.Sci., Paris* **260**, 5928-5930.
- MARTIN G. and LAVOLLAY J., 1958a: Le chlore, oligo-élément indispensable pour *Lemna minor*. *Experientia* **14**, 333-334.
- MARTIN G. and LAVOLLAY J., 1958b: Sur la spécificité de la carence en chlore chez *Lemna minor*. *C.R.Soc.Biol.* **152(2)**, 241-244.

- MARTIN G. and LAVOLLAY J., 1959: Sur la spécificité de la carence en chlore chez *Lemna minor*. Recherches sur l'utilité de l'iode. C.R.Soc. Biol. **153**, 1130-1133.
- MARTIN J.F., CAUDRON G., JAN E. and KOFMAN E., 1978: Le lagunage en traitement tertiaire. Expérimentation à partir de plantes aquatiques supérieures. Le cresson et les lentilles d'eau. I-III. Tech.Eau Assainissement **376**, 23-34; **377**, 21-37; **378/379**, 19-25.
- MARTINSSON K., 1984: The flowering of *Lemna minor*. (In Swedish). Svensk. Bot.Tidskr. **78(1)**, 9-15.
- MARTONNE E. see DE MARTONNE E.
- MASCARO L.J., Jr., 1975: Characterization of apio-galacturonans formed by a cell-free system from *Lemna minor*. Ph.D.Thesis. Univ.Microfilms Int., Ann Arbor, Mich., Order No. 75-27,298; 190 pp. Diss.Abstr.Int. B **36**, 2777-2778.
- MASCARO L.J., Jr. and KINDEL P.K., 1973: Biosynthesis of cell wall apio-galacturonans by a cell-free system from *Lemna minor*. Fed.Proc. **32(3 part 2)**, 1257.
- MASCARO L.J., Jr. and KINDEL P.K., 1974: Biosynthesis of cell wall apio-galacturonans by a cell-free system from *Lemna minor*. Fed.Proc. **33(5 part 2)**, 1445.
- MASCARO L.J., Jr. and KINDEL P.K., 1977: Characterization of (<sup>14</sup>C) apio-galacturonans synthesized in a cell-free system from *Lemna minor*. Arch.Biochem.Biophys. **183**, 139-148.
- MASON H.L., 1938: The flowering of *Wolffiella lingulata* (Hegelm.) Hegelm. Madroño **4(8)**, 241-251.
- MASON H.L., 1957: A flora of the Marshes of California. Lemnaceae. duckweed family. Univ.California Press, Berkeley/Los Angeles. 327-343.
- MASON R., 1950: Water plants of New Zealand. Hutchinson et al., Wellington.
- MATHESON R., 1930: The utilization of aquatic plants as aids in mosquito control. Am.Nat. **64**, 56-86.
- MATHESON R. and HINMAN E.H., 1929: Further studies on *Chara* spp. and other aquatic plants in relation to mosquito breeding. Am.J.Trop.Med. **9**, 249-266.
- MATHEZ J., 1973: Nouveaux matériaux pour la flore du Maroc. II. Contribution à l'étude de la flore de la région d'Ifni. (Polycopy).
- MATHIS B.J., CUMMINGS T.F., GOWER M., TAYLOR M. and KING C., 1977: Dynamics of manganese, cadmium and lead in experimental power plant ponds. Res.Rep. Univ.Ill., Urbana-Champaign, Water Resour.Centre. **125**, 62 pp.
- MATHIS B.J., CUMMINGS T.F., GOWER M., TAYLOR M. and KING C., 1980: Dynamics of manganese, cadmium and lead in experimental power plant ponds. Hydrobiologia **67(3)**, 197-206.
- MATHUR S.N. and YADAVA S.R., 1974: Hill-reactivity and some other metabolic processes of *Spirodela polyrrhiza* as affected by maleic hydrazide. In: PURI V., MURTY Y.S., GUPTA P.K. and BANERJI D. (eds.), Biology of the Land Plants. Symposium, Meerut Univ. 173-178.
- MATHUR S.N. and YADAV S.R., 1975: Effect of maleic hydrazide on the growth of *Spirodela polyrrhiza*: interaction with some purine and pyrimidine bases. Indian J.Plant Physiol. **18(1)**, 8-11.
- MATSUMOTO S., 1981: Absorption of nutritional salts by *Spirodela polyrrhiza* and its application to ecological salt control. (In Japan.). Kagatu to Seibutsu (Chemistry and Biology) **19(9)**, 594-600.
- MATSUURA R., NAGAOKA K., KUSABE K. and NAKATANI S., 1979: p-n-alkylbenzoic acid. (In Japan.). Ger.Offen.800807 Patent:Applic.No. 79/982526. 26 pp.

- MATTOO A.K. and CONLON C.A., 1985: Protein metabolism in higher plants: Enhanced breakdown of soluble and membrane proteins in *Spirodela oligorrhiza* supplemented with copper sulphate. *Plant Physiol.* **77**(4 suppl.), 131.
- MATTOO A.K. and EDELMAN M., 1985: Photoregulation and metabolism of a thylakoidal herbicide-receptor protein. In: ST.JOHN J.B., BERLIN E. and JACKSON P.C. (eds.), *Symp.Agric.Res., Frontiers of membrane research in agriculture*, Beltsville. 23-34.
- MATTOO A.K. and EDELMAN M., 1987: Intramembrane translocation and post-translational palmitoylation of the chloroplast 32-kDa herbicide-binding protein. *Proc.Natl.Acad.Sci.USA* **84**(6), 1497-1501.
- MATTOO A.K., EDELMAN M. and GRESSEL J., 1980: Dependence on light and differentiated thylakoids for synthesis and processing of 33.5 kd plastid membrane protein in *Spirodela*. *Plant Physiol.* **65**(6 suppl.), 21.
- MATTOO A.K., PICK U., HOFFMAN-FALK H. and EDELMAN M., 1981: The rapidly metabolized 32,000-dalton polypeptide of the chloroplast is the "proteinaceous shield" regulating photosystem II electron transport and mediating diuron herbicide sensitivity. *Proc.Natl.Acad.Sci.USA.* **78**(3), 1572-1576.
- MATTOO A.K., MARDER J.B., GRESSEL J. and EDELMAN M., 1982: Presence of the rapidly-labelled 32,000-dalton chloroplast membrane protein in triazine resistant biotypes. *FEBS Lett.* **140**(1), 36-40.
- MATTOO A.K., ST.JOHN J.B. and WERGIN W.P., 1983a: Is turnover of the 32,000-dalton thylakoid protein a signal for adaptation of the chloroplast to triazine herbicides and to light conditions. *J.Cell Biochem.* (suppl. 7 part B), 319.
- MATTOO A.K., WERGIN W.P. and ST.JOHN J.B., 1983b: Adaptive reorganization of thylakoid components of *Spirodela oligorrhiza* cultured on sublethal doses of atrazine. *Plant Physiol.* **72**(suppl.1), 56.
- MATTOO A.K., BAKER J.E. and LIEBERMAN M., 1983c: Copper induced ethylene production by *Spirodela oligorrhiza* is a consequence of singlet oxygen mediated membrane damage. *Plant Physiol.* **72**(suppl.1), 39.
- MATTOO A.K., MARDER J.B., ST.JOHN J.B., WERGIN W.P. and EDELMAN M., 1984a: D-threo-chloramphenicol-induced depletion of the 32 kDa protein in *Spirodela*: photosynthetic reactions, lipids and morphology. *Plant Physiol.* **75**(1 suppl.), 22.
- MATTOO A.K., ST.JOHN J.B. and WERGIN W.P., 1984b: Adaptive reorganization of protein and lipid components in chloroplast membranes as associated with herbicide binding. *J.Cell Biochem.* **24**(2), 163-176.
- MATTOO A.K., HOFFMAN-FALK H., MARDER J.B. and EDELMAN M., 1984c: Regulation of protein metabolism: coupling of photosynthetic electron transport to in-vivo degradation of the rapidly metabolized 32-kDa protein of the chloroplast membranes. *Proc.Natl.Acad.Sci.USA* **81**(5), 1380-1384.
- MATTOO A.K., BAKER J.E. and MOLINE H.E., 1984d: Different mechanisms in *Spirodela* and *Nicotiana* of copper-induced ethylene production. *Plant Physiol.* **75**(suppl.1), 185.
- MATTOO A.K., BAKER J.E. and MOLINE H.E., 1986a: Induction by copper ions of ethylene production in *Spirodela oligorrhiza*: evidence for a pathway independent of l-aminocyclopropane-l-carboxylic acid. *Plant Physiol.* **123**(3), 193-202.
- MATTOO A.K., MARDER J.B., GABA V. and EDELMAN M., 1986b: Control of 32-kDa thylakoid protein degradation as a consequence of herbicide binding to its receptor. *Plant Biol.* **2**, 607-613.
- MATTOO A.K., MEHTA R.A., CONLON C.A. and PORATH D., 1987: Turnover of

- ribulose-1,5-biphosphate carboxylase-oxygenase involves its membrane association during copper-induced senescence of *Spirodela oligorrhiza*. *Plant Physiol.* **83**(4 suppl.), 26.
- MATVEEV V.I., 1963: Blooming in *Lemna gibba* L. (In Russian). *Bot.Zh. (USSR)* **48**, 272.
- MATVEEV V.I., 1977: On the flowering of duckweeds [Lemnaceae] in water-bodies of Trans-Volga territories. (In Russian). *Bot.Zh. (USSR)* **62**, 1498-1500.
- MAUVE A.A., 1966: Flowering aquatic plants in South Africa. *Fauna and Flora* **17**, 19-31.
- MAZUR B.J. and CHUI C.-F., 1985: Sequence of a genomic DNA clone for the small subunit of ribulose bis-phosphate carboxylase-oxygenase from tobacco. *Nucleic Acids Res.* **13**(7), 2373-2386.
- MCCALLA T.M. and PLUCKNETT D.L., 1981: Collecting, transporting, and processing organic fertilizers (in China). In: *Vegetable farming systems in China*. Westview Press, Boulder. 19-37.
- MCCANN C., 1942: Observations on Indian duckweeds, Lemnaceae. *J. Bomb. Nat. Hist. Soc.* **43**(2), 148-162.
- MCCLURE J.W., 1964: Taxonomic significance of the flavonoid chemistry and the morphology of Lemnaceae in axenic culture. Ph.D. Thesis. Univ. Texas, Austin. 255 pp. *Diss. Abstr.* **25**, 4928-4929.
- MCCLURE J.W., 1967a: Flavonoid variation in *Lemna perpusilla* from different laboratories. *Plant Cell Physiol.* **8**, 523-526.
- MCCLURE J.W., 1967b: Effects of light on the synthesis of flavonoids in *Spirodela intermedia*. *Plant Physiol.* **42**(suppl. 44).
- MCCLURE J.W., 1968: Photocontrol of *Spirodela intermedia* flavonoids. *Plant Physiol.* **43**, 193-200.
- MCCLURE J.W., 1969: Environmental control of flavonoid glycoflavone synthesis. 11th Int. Bot. Congr., Abstr., 134.
- MCCLURE J.W., 1970: Secondary constituents of aquatic angiosperms. In: HARBORNE J.B. (ed.), *Phytochemical Phylogeny*, Proc. Phytochem. Soc. Symp., Bristol. Acad. Press, New York/London. 233-268.
- MCCLURE J.W., 1973: Regulation of growth and flavonoid accumulation in *Spirodela intermedia* by light, partial satisfaction by growth substances, and complications introduced by substances accumulating in the culture medium. *Am. J. Bot.* **60**(4 suppl.), 28-29.
- MCCLURE J.W., 1975: The applicability of polyphenolic data to systematic problems in the Lemnaceae. *Aquat. Bot.* **1**, 395-405.
- MCCLURE J.W. and ALSTON R.E., 1963: Chromatographic pattern of phenolic constituents in 18 duckweed spp. (Lemnaceae). *Am. J. Bot.* **50**, 636.
- MCCLURE J.W. and ALSTON R.E., 1964a: Patterns of selected chemical components of *Spirodela oligorrhiza* formed under various conditions of axenic culture. *Nature* **201**(4916), 311-313.
- MCCLURE J.W. and ALSTON R.E., 1964b: Glycoflavonoids of *Spirodela* species and their taxonomic implications. *Am. J. Bot.* **51**, 685-686.
- MCCLURE J.W. and ALSTON R.E., 1966: A chemotaxonomic study of Lemnaceae. *Am. J. Bot.* **53**, 849-860.
- MCCOMBS P.J.A. and RALPH R.K., 1972a: Protein, nucleic acid and starch metabolism in the duckweed, *Spirodela oligorrhiza*, treated with cytokinins. *Biochem. J.* **129**, 403-417.
- MCCOMBS J.P.A. and RALPH R.K., 1972b: Cytokinin control of growth of *Spirodela oligorrhiza* in darkness. *Planta* **107**(2), 97-109.
- MCCOWEN M.C. et al., 1979: Flurisone, a new herbicide for aquatic plant management. *J. Aquat. Plant Manage.* **17**, 27-30.
- MCCRADY J.W., WENTZ W.A. and LINDER R.L., 1986: Plants and invertebrates in a prairie wetland during duck brood-rearing. *Prairie Nat.* **18**(1), 23-32.

- McDONALD I.R., 1975: Effect of vacuum infiltration on photosynthesis gas exchange in leaf tissue. *Plant Physiol.* **56**, 109-112.
- McHARGUE J.S. and COLFUE R.K., 1932: Manganese essential for growth of *Lemna major*. *Plant Physiol.* **7**, 697-703.
- McLAREN J.S. and SMITH H., 1976: The effect of abscisic acid on growth, photosynthetic rate and carbohydrate metabolism in *Lemna minor* L. *New Phytol.* **76**, 11-20.
- McLAREN J.S. and SMITH H., 1977: Effect of abscisic acid on photosynthetic products of *Lemna minor*. *Phytochemistry* **16**, 219-221.
- McLAY C.L., 1973: Wind-blown dust as a source of nutrients for aquatic plants. *Environ.Pollut.* **5**, 173-180.
- McLAY C.L., 1974: The distribution of duckweed *Lemna perpusilla* in a small southern Californian lake: An experimental approach. *Ecology* **55**, 262-276.
- McLAY C.L., 1976: The effect of pH on the population growth of three species of duckweed: *Spirodela oligorrhiza*, *Lemna minor* and *Wolffia arrhiza*. *Freshwater Biol.* **6**, 125-136.
- McMINN A., 1895: Structure of the vegetative shoots of *Spirodela polyrrhiza*. *Univ. Wisconsin.*
- McNEIL M., DARVILL A.G., FRY S.C. and ALBERSHEIM P., 1984: Structure and function of the primary cell walls of plants. *Ann.Rev.Biochem.* **53**, 625-633.
- McVAUGH R., 1972: Nomenclature report of the committee for spermatophyta conservation of generic names. Part 15. *Taxon* **21(4)**, 531-535.
- McWHA J.A. and JACKSON D.L., 1976: Some growth promotive effects of abscisic acid. *J.Exp.Bot.* **27(100)**, 1004-1008.
- MEIJER L. and SUTTON D.L., 1987: Influence of plant position on growth of duckweed. *J.Aquat.Plant Manage.* **25**, 28-30.
- MELARAGNO J.E., 1974: Anatomical studies on the duckweed *Lemna minor* L. A light and electron microscope investigation with emphasis on ultrastructural details of sieve-element ontogeny. Ph.D.Thesis. Univ. of Pittsburgh, PA.
- MELARAGNO J.E. and WALSH M.A., 1974: Ultrastructural features of developing sieve elements in *Lemna minor*: the protoplast. *Am.J.Bot.* **61(5 suppl.)**, 60.
- MELARAGNO J.E. and WALSH M.A., 1976: Ultrastructural features of developing sieve elements in *Lemna minor*: The protoplast. *Am.J.Bot.* **63**, 1145-1157.
- MELZER A., 1980: Oekophysiologische Aspekte der N-Ernährung submerser Wasserpflanzen. *Verh.Ges.Oekologie* **7**, 357-362.
- MELZER A. and EXLER D., 1982: Nitrate- and nitrite-reductase activities in aquatic macrophytes. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), *Studies on aquatic vascular plants*. *R.Soc.Bot.Belg.* 128-135.
- MELZER A. and MUELLER M., 1984: In vivo-nitrate reductase activities of different species of Lemnaceae and comparison with endogenous nitrate depletion. *Proc.Int.Symp. Aquatic Macrophytes 1983*, Nijmegen, 139-144.
- MENDICINO J. and ABOU-ISSA H., 1974: Conversion of UDP-D-glucuronic acid to UDP-D-apiose and UDP-D-xylose by an enzyme isolated from *Lemna minor*. *Biochim.Biophys.Acta* **364**, 159-172.
- MENDICINO J. and HANNA R., 1970: The synthesis of isomers of D-apiofuranosyl 1-phosphate. *J.Biol.Chem.* **245(22)**, 6113-6124.
- MENDICINO J. and PICKEN J.M., 1965: Biosynthesis of the branched chain sugar-D-apiose in *Lemna* and parsley. *J.Biol.Chem.* **240**, 2797-2805.
- MENDIOLA N.B., 1919: Variation and selection within clonal lines of *Lemna minor*. *Genetics* **4**, 151-182.

- MENSCHICK R., 1970: Untersuchungen über den durch die Stickstoffquelle beeinflussbaren Flavonoidhaushalt der Sommerglieder und Winterknospen von *Spirodela polyrrhiza* (L.) Schleid. Ph.D.Thesis. Math.-Nat.Fak. Univ. Münster. 110 pp.
- MERIAUX J.-L., 1978: Etude analytique et comparative de la végétation aquatique d'étangs et marais du Nord de la France (Vallée de la Sensée et Bassin Houiller du Nord-Pas de Calais). Doc.Phytosoc.N.S. 3, 1-244.
- MERIAUX J.L. and GEHU J.M., 1978: De l'analyse symphytosociologique des complexes de végétation à celles des végétations complexes. In: TUEXEN R. (ed.), Assoziationskomplexe (Sigmäten). Ber.Int.Symp., Rinteln. 97-115.
- MERTEN O.W., 1979: Nachweis von Abscisinsäure im Zusammenhang mit der Bildung von Reservestoffen in Pflanzen. Diploma Thesis. Univ.Agric., Vienna, Austria. 120 pp.
- MESTAYER C.R., 1980: A study on the solar energy conversion efficiency and growth aspects of duckweed, *Spirodela oligorrhiza*. M.S.Thesis. Louisiana State Univ., Baton Rouge. 57 pp.
- MESTAYER C.R., CULLEY D.D., jr., STANDIFER L.C. and KOONCE K.L., 1984: Solar energy conversion efficiency and growth aspects of the duckweed, *Spirodela punctata* (G.F.W.Mey.) Thompson. Aquat.Bot. 19(1-2), 157-170.
- MEUSEL H., 1951: Die Bedeutung der Wuchsform für die Entwicklung des natürlichen Systems der Pflanzen. Feddes Rep. 54, 137-172.
- MEYER F.A., 1964: Aquatic plant control. Dept. of Fish and Game, Sacramento, CA. Inland Fish.Adm.Rep.No. 642.
- MEYER G.F.W., 1818: Primitiae Florae Essequiboensis adjectis descriptionibus centum circiter stirpium novarum, observationibusque criticis. H. Dieterich, Göttingen. 262.
- MICHELI P.A., 1729: Nova plantarum genera. Florentiae.
- MICHEWICZ J.E., SUTTON D.L. and BLACKBURN R.D., 1972: Water quality of small enclosures stocked with white amur. Hyacinth Contr.J. 10, 22-25.
- MIEMITZ G., 1956: Die Wasserlinsen auf Teichen. Allg.Fischereizeitung 81, 112.
- MIFLIN B.J. and LEA P.J., 1980: Ammonia assimilation. In: STUMPF P.K. and CONN E.E. (eds.), The biochemistry of plants. Acad.Press, New York. 5, 169-202.
- MIKI S., 1934: On fresh water plants new to Japan. Bot.Mag. 48(569), 326-337.
- MIKRIAKOVA T.F., 1980: Effect of cadmium on the growth of *Lemna minor*. (In Russian). Biol.Vnutr.Vod. 48, 22-25.
- MIKRIAKOVA T.F., 1983: Effect of salts of heavy metals on the growth and accumulative ability of *Lemna minor*. (In Russian). Trud.Akad.Nauk SSSR, Inst.Biol.Vnotr.Vod. 48, 31-37.
- MILDE C.A., 1853: *Wolffia Michellii* Hork. (*Lemna arrhiza* L.). Bot.Z. 11, 896-897.
- MILLER A.T., 1978: Plant seeds in biological research in outer space. (In Russian). Latv.Psr.Zinat.Akad.Vestis. 7, 82-89.
- MILLER D.L., COMBATTI N., WAGNER G.J. and HILLMAN W.S., 1977: Protoplast isolation from *Lemna perpusilla* and *Lemna gibba*. Plant Physiol. 59(6 suppl.), 114.
- MILLERS A. and MAGONE I., 1978: Relation of the combined effect of vibration and ionizing radiation to the physiological state of the plant. (In Russian). Fiziol.Biokhim.Issled.Rast. 135-140.
- MIQUEL F.A.W., 1853: Preliminary report on a new *Wolffia*. (In Dutch). Ned.Kruidk.Arch. 3, 425-429.

- MIRASHI M.V., 1954: Studies in the hydrophytes of Nagpur. J.Indian Bot. Soc. **33**, 299-398.
- MIRASHI M.V., 1957: Studies in the hydrophytes of Umred. J.Indian Bot. Soc. **36**, 396-407.
- MISRA G. and DAS N., 1969: Studies on the control of aquatic weeds of orissa-response of *Pistia stratiotes* L., *Spirodela polyrrhiza* Schleid. and *Ipomoea aquatica* Forsk to hormone herbicides. Hyacinth Contr.J. **8(1)**, 40-41.
- MITCHELL D.S., 1969: The ecology of vascular hydrophytes on Lake Kariba. Hydrobiol. **34(3-4)**, 448-464.
- MITCHELL D.S., 1978: Aquatic weeds in Australian inland waters. Austral. Govt.Publ.Serv., Canberra. 189 pp.
- MITRA E. and BANERJEE A.C., 1976: Utilization of higher aquatic plants in fishery waters. Proc.Reg.Sem. Noxious Aquat.Veg. 375-381.
- MIYABE K. and KUDO Y., 1932: Flora of Hokkaido and Saghalien II. Hokkaido Imp.Univ., Sapporo.
- MIYATA H., 1970: Endogenous light-on rhythm in respiration of a long-day duckweed, *Lemna gibba* G3. Plant Cell Physiol. **11**, 293-301.
- MIYATA H., 1971a: Endogenous light-on rhythm in respiration of a long-day duckweed, *Lemna gibba* G3. II. On basic and rhythmic components of the rhythm. Plant Cell Physiol. **12**, 517-524.
- MIYATA H., 1971b: Endogenous light-on rhythm in respiration of a long-day duckweed, *Lemna gibba* G3. III. Relationship to frond production. Plant Cell Physiol. **12**, 969-977.
- MIYATA H. and YAMAMOTO Y., 1969: Rhythms in respiratory metabolism of *Lemna gibba* G3 under continuous illumination. Plant Cell Physiol. **10**, 875-889.
- MIYAWAKI A. and TUEXEN J., 1960: Ueber Lemnetae-Gesellschaften in Europa und Japan. Mitt.Florist.-Soz.Arb.gem. Stolzenau/Weser **8**, 127-135.
- MOCKERIDGE F.A., 1920: The occurrence and nature of the plant growth producing substances in various organic material composts. Biochem J. **14**, 432-450.
- MOCKERIDGE F.A., 1924: The formation of plant growth promoting substances by microorganisms. Ann.Bot. **38**, 23-34.
- MODONI P. and VIAROLI P., 1985: Microfauna distribution in shallow macrophyte-covered basins. Verh.Int.Verein.Limnol. **22**, 2353-2355.
- MOFFITT S. and BLACKMAN G.E., 1972: The uptake of growth substances. Part 15. The differential effects of progressive chlorination of phenoxy acetic acid on entry into the epidermal and cut surfaces of stem segments. J.Exp.Bot. **23(74)**, 128-140.
- MOLINARI E. and HOFFMANN-OSTENHOF O., 1968: Untersuchungen über die Biosynthese der Cyclite, XXI. Ueber ein Enzymsystem, das myo-Inosit zu Phytinsäure phosphorylieren kann. Hoppe Seyler's Z.Physiol.Chem. **349(12)**, 1797-1799.
- MONACO P. and PREVITERA L., 1987: Studies on aquatic plants distributed in Italy. Part 5. Oxygenated fatty acids from *Lemna trisulca*. Phytochemistry **26(3)**, 745-748.
- MONEGER R., 1968a: Un mécanisme possible d'action de la lumière sur les biosynthèses de caroténoïdes chez les végétaux supérieurs chlorophylliens. Bull.Soc.Fr.Physiol.Vég. **14(4)**, 473-497.
- MONEGER R., 1968b: Sur la réalisation d'un dispositif ultrasensible permettant de séparer et de doser les caroténoïdes de petits échantillons de frondes étiolées de *Spirodela polyrrhiza* Schleid. C.R.Acad. Sci., Paris D **266(7)**, 672-675.
- MONEGER R., 1968c: Influence de la durée d'éclairement préalable de frondes étiolées de *Spirodela polyrrhiza* Schleid. sur les radio-acti-

- vités incorporées à l'obscurité dans leurs caroténoïdes, à partir d'acétate 2-<sup>14</sup>C de sodium. C.R.Acad.Sci., Paris D **267(7)**, 733-736.
- MONEGER R., 1968d: Contribution à l'étude de l'influence exercée par la lumière sur la biosynthèse des caroténoïdes chez la Spirodela polyrrhiza (L.) Schleiden. *Physiol.Vég.* **6(2)**, 165-202.
- MONEGER R., 1968e: Mise au point d'une méthode de micro-analyse pour l'étude des caroténoïdes de petits échantillons de végétaux étiolés. *Physiol.Vég.* **6(4)**, 367-402.
- MONEGER R., 1968f: Incorporations de radio-activité, à partir de bicarbonate <sup>14</sup>C et d'acétate 2-<sup>14</sup>C de sodium, dans les caroténoïdes de frondes étiolées de Spirodela polyrrhiza Schleid. exposées à des radiations oligochromatiques. C.R.Acad.Sci., Paris D **267**, 605-608.
- MONEGER R. and JACQUES R., 1968: Action de radiations oligochromatiques sur les teneurs en caroténoïdes des frondes étiolées de Spirodela polyrrhiza Schleid. C.R.Acad.Sci., Paris D **267(3)**, 313-316.
- MONEGER R., VERMEERSCH J., LECHEVALLIER D. and RICHARD C., 1977: Micro-analyse du NADP et du NAD réduits et oxydés dans les tissus foliaires et dans les plastes isolés de Sprodele et de Blé. I. Problèmes posés par le dosage séparé du NADP et du NAD réduits et oxydés des extraits végétaux. *Physiol.Vég.* **15(1)**, 29-62.
- MONETTI P.G. and BASTELLI R., 1983: Caratteristiche chimiche e prove di conservabilità di piante acquatiche coltivate su reflui zootecnici. In: GHETTI P.F. (ed.), *Fitodepur. Impieghi Biomasse Prod., Atti Conv. Int.* 171-179.
- MONNIER A., 1971: Electrokinetic formulation of competitive interactions in cellular absorption processes. *Physiol.Vég.* **9(1)**, 107.
- MONNIER A. and THELLIER M., 1970: Interprétation électrocinétique des interactions ioniques phosphate-arsénate lors de l'absorption par la Lemna minor. C.R.Acad.Sci., Paris D **270(18)**, 2178-2181.
- MONOD T., 1949: Sur une Lemnacee africaine: Wolffiella Welwitschii (Hegelmaier 1865) comb. nov. *Mém.Soc.Hist.Nat.Afr.Nord* **2**, 229-242.
- MONSELISE E.B.-I., PORATH D. and TAL M., 1984: Unusual 'tubular clusters' in the plastids of a duckweed (Lemna paucicostata) mutant incapable of photosynthesis and ammonium ion uptake. *New Phytol.* **98**, 249-257.
- MONSELISE E.B.-I., PORATH D., TAL M. and ARZEE T., 1986: Partial recovery in plastids of Lemna aequinoctialis Welwitsch 1073 treated with L-methionine or L-cystine. *New Phytol.* **103**, 283-291.
- MONTSELVE see MONSELISE
- MOODY R.P., GREENHALGH R., LOCKHART L. and WEINBERGER P., 1978: The fate of fenitrothion in an aquatic ecosystem. *Bull.Environ.Contam.Toxicol.* **19(1)**, 8-14.
- MOORE J.R., 1962: The effect of a duckweed cover on the phyto-community structure of a pond. M.S.Thesis. Univ. of Pittsburgh, PA.
- MOORE J.R., 1965: Productivity and standing crop of vascular hydrophytes. Ph.D.Thesis. Univ. of Pittsburgh, PA.
- MOORE L.B. and EDGAR E., 1970: Flora of New Zealand. Shearer, Wellington, N.Z. **2**, 53-55.
- MOORE P.D., 1983: Alien duckweed hiding quietly beside the Cam. *Nature* **302**, 384.
- MORET L., 1943: Manuel de paléontologie végétale. Masson, Paris.
- MORI H., 1979a: Kinetics of induction and production of flowers in a short-day duckweed, Lemna paucicostata 6746, in darkness. *Plant Cell Physiol.* **20**, 615-621.
- MORI H., 1979b: Effect of red light pulse on induction and production of flowers in a short-day duckweed, Lemna paucicostata 6746, in darkness. *Plant Cell Physiol.* **20**, 623-630.

- MORI H., 1979c: Effect of temperature on induction and production of flowers in *Lemna paucicostata* 6746 in uninterrupted and interrupted darkness. *Plant Cell Physiol.* **20**, 631-638.
- MORI H., 1979d: Effect of far-red light pulse on induction and production of flowers in *Lemna paucicostata* 6746 in darkness. *Plant Cell Physiol.* **20**, 639-648.
- MORI H., 1984a: Induction and reproduction of flowers in a short-day duckweed, *Lemna paucicostata* 6746, in diluted Hutner's medium in uninterrupted and interrupted darkness. *Plant Cell Physiol.* **25(6)**, 923-928.
- MORI H., 1984b: Effects of ferrous and phosphate ions on flowering in *Lemna paucicostata* 6746 in diluted Hutner's medium. *Plant Cell Physiol.* **25(6)**, 929-933.
- MORRIS P.F. and BARKER W.G., 1977: Oxygen transport rates through mats of *Lemna minor* and *Wolffia* sp. and oxygen tension within and below the mat. *Can.J.Bot.* **55**, 1926-1932.
- MORRIS R.O. and MacDONALD E.M.S., 1986: Immunoaffinity purification of plant hormones as an analytical tool. *J.Cell Biochem.* (suppl. 10 part B), 30.
- MORVAN C., DEMARTY M. and THELLIER M., 1979: Titration of isolated cell walls of *Lemna minor* L. *Plant Physiol.* **63**, 1117-1122.
- MORVAN C., DEMARTY M., MONNIER A., MUQBIL R. and THELLIER M., 1980: Titration of isolated cell walls of *Lemna minor* L. In: SPANSWICK R.M., LUCAS W.J. and DAINTY J. (eds.), *Plant membrane transport: Current conceptual issues.* Elsevier, North-Holland. Biomed.Press. 423-424.
- MORVAN C., MORVAN H., DEMARTY M. and THELLIER M., 1983: Réponses électriques des lentilles d'eau à différentes conditions expérimentales. *C.R.Soc.Biol.(Rouen)* **177(5/6)**, 679-688.
- MORVAN C., DEMARTY M. and THELLIER M., 1984: Influence des charges négatives des acides pectiques sur les propriétés d'échange d'ions des parois végétales. *C.R.Soc.Biol.(Rouen)* **178(6)**, 712-721.
- MORVAN C., DEMARTY M. and THELLIER M., 1985: Propriétés physicochimiques des parois de *Lemna minor*: échanges entre les ions calcium et lithium. *Physiol.Vég.* **23(4)**, 444-344.
- MOSS E.A., 1959: *Flora of Alberta.* Univ.Toronto Press. 546 pp.
- MOUSTERDE P., 1966: *Nouvelle Flore du Liban et de la Syrie.* Beyrouth. **1**, 194-196.
- MOYLE J.B., 1945: Some chemical factors influencing the distribution of aquatic plants in Minnesota. *Am.Midl.Nat.* **34(2)**, 402-420.
- MOYLE J.B. and HOTCHKINS N., 1945: The aquatic and marsh vegetation of Minnesota and its value to waterfowl. *Minn.Dept.of Conserv., Game and Fish Tech.Bull.* **3**, 1-22.
- MUDD S.H. and DATKO A., 1986a: Methionine methyl group metabolism in *Lemna*. *Plant Physiol.* **81(1)**, 103-114.
- MUDD S.H. and DATKO A., 1986b: Phosphoethanolamine bases as intermediates in phosphatidylcholine synthesis by *Lemna*. *Plant Physiol.* **82(1)**, 126-135.
- MUDD S.H. and DATKO A., 1987: Patterns of methylation in phosphatidylcholine synthesis. *Plant Physiol.* **83(4 suppl.)**, 113.
- MUDROCH A. and CAPOBIANCO J.A., 1979: Effects of treated effluent on a natural marsh. *J.Water Pollut.Contr.Fed.* **51(9)**, 2243-2256.
- MUEHL H. and LOEFFELHARDT W., 1982: 4-Hydroxyphenylpyruvate dioxygenase is bound to the thylakoid membranes from the cyanobacterium *Anacystis nidulans*. *FEMS Microbiol.Lett.* **13(1)**, 9-12.
- MUELLER B. and ZIEGLER H., 1969: Die lichtinduzierte Aktivitätssteigerung der NADP<sup>+</sup>-abhängigen Glycerinaldehyd-3-phosphat-Dehydrogenase.

- IX. Die Reaktion in isolierten Chloroplasten. *Planta* **85**(1), 96-104.
- MUELLER E., 1973: Cyclic AMP as a signal carrier in biological systems. II. Is there a signal carrier function of cyclic AMP in higher plants. *Biol.Rundsch.* **11**(6), 352-361.
- MUELLER M., 1983: Oekophysiologische Untersuchungen zum Stickstoffumsatz verschiedener Lemnaceen. Diploma Thesis. TU München. 118 pp.
- MUELLER P., 1975: Der Einfluss verschiedener CO<sub>2</sub>-Konzentrationen auf das Wachstum und den Gehalt einiger Produkte des photosyntheseabhängigen Stoffwechsels von *Lemna minor* L. bei Nitrat- und Ammoniumernährung. Lic.Thesis. Univ. Bern.
- MUELLER P., FELLER U. and ERISMANN K.H., 1977: Einfluss verschiedener CO<sub>2</sub>-Konzentrationen auf Wachstum und stoffliche Zusammensetzung von *Lemna minor* L. bei Nitrat- und Ammoniumernährung. *Z.Pflanzenphysiol.* **85**, 233-241.
- MUELLER T., 1977: Klasse: Lemnetae. In: OBERDORFER E. (ed.), *Süddeutsche Pflanzengesellschaften.* (2nd ed.). Fischer, Stuttgart/New York. **1**, 67-77.
- MUELLER T. and GOERS S., 1960: Pflanzengesellschaften stehender Gewässer in Baden-Württemberg. *Beitr.Naturk.Forsch.SW-Deutschl.,Karlsruhe*, **19**, 60-100.
- MUELLER Z. and LAUTNER V., 1954: Feeding value of some water plants. II. (In Czech.). *Sbospnik Cesk.Akad.Zemedl.Ved.* **27A**, 451-472.
- MUENSCHER W.C., 1944: *Aquatic plants of the United States.* Comstock Publ., Ithaka.
- MUHONEN M., SHOWMAN J. and COUCH R., 1983: Nutrient absorption by *Spirodela polyrrhiza*. *J.Aquat.Plant Manage.* **21**(2), 107-109.
- MUIR D.C.G. and GRIFT N.P., 1978: Disappearance of the experimental aquatic herbicide fluridone (EL-171) in small ponds. *PEST* **58**.
- MUIR D.C.G., GRIFT N.P., BLOUW A.P. and LOCKHART W.L., 1980: Persistence of fluridone in small ponds. *J.Environ.Qual.* **9**, 151-156.
- MUIR D.C.G., PITZE M., BLOUW A.P. and LOCKHART W.L., 1981: Fate of terbutryne in macrophyte-free and macrophyte-containing farm ponds. *Weed Res.* **21**(2), 59-70.
- MUIR D.C.G., GRIFT N.P. and LOCKHART W.L., 1982: Comparison of laboratory and field results for prediction of the environmental behaviour of phosphate esters. *Environ.Toxicol.Chem.* **1**(2), 113-119.
- MUIR D.C.G., RAWN G.P. and GRIFT N.P., 1985: Fate of the pyrethroid insecticide deltamethrin in small ponds: a mass balance study. *J.Agric. Food Chem.* **33**, 603-609.
- MUKHOPADHYAY S.K., 1982: Noxious aquatic vegetation in West Bengal. *Vishva-Bharati Coll., Sriniketan, India. Abstr.Ann.Conf.Ind.Soc.Weed Sci.* **47**.
- MUKHOPADHYAY S.K., 1986: Aquatic weed control in India. *Pesticides (Bombay)* **20**(11), 15-22.
- MULLENDERS W., 1967: *Flore de la Belgique, du Nord de la France et des Régions voisines.* Desoer, Liège. 505-506.
- MURATA G., BEPPU T. and NOBUCHI T., 1981: On *Mijinkoukikusa* (water meal). (In Japan.). *Acta Phytotax.Geobot.* **32**, 197.
- MURKOWSKI A., GRABIKOWSKI E., BRZOSTOWICZ A. and PROKOSKI Z., 1982: Luminescence method for bioindication of phytotoxic environmental pollutants. (In Polish). *Postepy Fiz.Med.* **17**(3-4), 85-91.
- MUROMTSEV G.S., ZOL'NIKOVA N.V. and BOROVKOV A.V., 1977: Duckweed as a test-object for the evaluation of phytotoxic activity of soil microorganisms. (In Russian). *S-Kh.Biol.* **12**, 227-230.
- MURPHY K.J. and EATON J.W., 1983: Effects of pleasure-boat traffic on macrophyte growth in canals. *J.Appl.Ecol.* **20**(3), 713-729.

- MURPHY K.J., HANBURY R.G. and EATON J.W., 1981: The ecological effects of 2-methylthiotriazine herbicides used for aquatic weed control in navigable canals. I. Effects on aquatic flora and water chemistry. *Arch.Hydrobiol.* **91(3)**, 294-331.
- MUSIL C.F., 1973: Water plants of Natal. *Wildlife Protect.Conserv.Soc. South Africa.* 62 pp.
- MUSIL C.F., GRUNOW J.O. and BORMAN C.H., 1973: Classification and ordination of aquatic macrophytes in the Pongolo River Pans, Natal. *Bothalia* **11(1/2)**, 181-190.
- MUSTIN M., 1983: Dans les marais Poitevin: l'exemple des lentilles d'eau. *Biomasse Actual.* **3**, 55.
- MUZAFFAROV A.M., TAUBAEV T.T. and ABDIEV M., 1968: Use of lesser duckweed (*Lemna minor*) in poultry feeding. (In Russian). *Uzb.Biol.Zh.* **12(3)**, 44-46.
- MUZAFFAROV A.M., TAUBAEV T.T. and ABDIEV M., 1971: Lesser duckweeds (*Lemna minor* L.) as an animal food and methods of its mass cultivation in the basins under the open sky. (In Russian). *Kult.Vod.Vyssh.Vodn. Rast.Uzbekistane* **1971**, 117-130.
- MUZTAR A.J., SLINGER S.J. and BURTON J.H., 1976: Nutritive value of aquatic plants for chicks. *Poult.Sci.* **55(5)**, 1917-1922.
- MUZTAR A.J., SLINGER S.J. and BURTON J.H., 1977: Metabolizable energy content of freshwater plants in chicken and ducks. *Poult.Sci.* **56(6)**, 1893-1899.
- MUZTAR A.J., SLINGER S.J. and BURTON J.H., 1978: Chemical composition of aquatic macrophytes. I. Investigation of organic constituents and nutritional potential. II. Amino acid composition of the protein and nonprotein fractions. III. Mineral composition of freshwater macrophytes and their potential for mineral nutrient removal from lake water. *Can.J.Plant Sci.* **58(3)**, 829-862.
- MUZTAR A.J., SLINGER S.J. and BURTON J.H., 1979: Chemical composition of aquatic macrophytes. IV. Carotenoids, soluble sugars and starch in relation to their pigmentation, and ensiling potential. *Can.J.Plant Sci.* **59**, 1093-1098.
- MYERS R.W., 1977: A comparative study of nutrient composition and growth of selected duckweeds, Lemnaceae, on dairy waste lagoons. M.S. Thesis. Louisiana State Univ., Baton Rouge. 75 pp.
- NAKAMURA H., 1960: A study of *Wolffia* as a new food. *Rep.Microalgal Inst., Japan*, **1**, 7-13.
- NAKASHIMA H., 1964: Effects of exogenous amino acids on the flower and frond production in duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **5**, 217-225.
- NAKASHIMA H., 1965: Further studies on the action of free amino acids on flowering of duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **6**, 441-452.
- NAKASHIMA H., 1966: The rhythmical change in sensitivity of a long-day duckweed, *Lemna gibba* G3, to dark-break. *Plant Cell Physiol.* **7**, 11-24.
- NAKASHIMA H., 1967: Change in sensitivity to dark break and its relation to floral induction in long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **8**, 637-645.
- NAKASHIMA H., 1968: On the rhythm of sensitivity to light interruption in a long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **9**, 247-257.
- NAKASHIMA H., 1969: Effect of inhibitors of nucleic acid and protein synthesis on the reappearance of light interruption rhythm in a long-

- day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **10**(2), 259-270.
- NAKASHIMA H., 1973a: Reversal of the dark inhibition of flowering in a long-day duckweed, *Lemna gibba* G3, by thymidine and related nucleosides. *Plant Cell Physiol.* **14**, 893-899.
- NAKASHIMA H., 1973b: Effect of light on the metabolism of thymidine in the long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **14**, 901-910.
- NAKASHIMA H., 1975: Diurnal change of light-dependent uridine incorporation into RNA in a long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **16**, 27-39.
- NAKASHIMA H., 1976: Diurnal rhythm of uridine incorporation into RNA regulated by two light-perceiving systems in a long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **17**, 209-217.
- NAKASHIMA H., 1978: Further studies on the diurnal rhythm of uridine incorporation into RNA in the long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **19**(3), 375-383.
- NAKASHIMA H., 1979a: Diurnal rhythm of nuclear RNA polymerase I activity in a duckweed, *Lemna gibba* G3, under continuous light conditions. *Plant Cell Physiol.* **20**(1), 165-176.
- NAKASHIMA H., 1979b: Effects of incubation of nuclei from a long-day duckweed, *Lemna gibba* G3, under different ionic conditions on the activity of RNA synthesis. *Plant Cell Physiol.* **20**, 715-724.
- NAKASHIMA H. and MORI H., 1970: DNA synthesis as related to the appearance of 'light interruption rhythm' in a long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **11**, 805-816.
- NAKASHIMA H. and TSUDZUKI T., 1976: Uptake of uridine by a long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **17**, 701-711.
- NAKASHIMA H. and TSUDZUKI T., 1977: The effects of calcium withdrawal on the uridine uptake process in a long-day duckweed, *Lemna gibba* G3. *Z.Pflanzenphysiol.* **84**, 399-405.
- NAKAYAMA T., 1986: Treatment of sulfuric acid-containing wastewater by aquaculture. (In Japan.). Patent: Jp 86197098; Japan Kokai Tokyo Koho. 14 pp.
- NAPHADE M.S. and MITHUJI G.F., 1969-1970: Duckweed as a poultry food. B.A.(Bansilal Amritlal), *Agric.Coll.Mag.* **22**, 73-77.
- NARMUKHAMEDOV K. and VASIGOV T., 1972: Mass culture of *Lemna minor* L. in the southwestern Kyzyl-Kum area. (In Russian). *Kult.Vod.Vyssh.Vodn. Rast.Uzbekistane* **1972**, 136-140.
- NASKAR K., BANERJEE A.C., CHAKRABORTY N.M. and GHOSH A., 1986: Yield of *Wolffia arrhiza* from cement cisterns with different sewage concentrations and its efficacy as a carp feed. *Aquaculture* **51**(3-4), 211-216.
- NASU Y., 1983: Basic studies of environmental monitoring using *Lemna paucicostata*. Heavy metal absorption and action. (In Japan.) *Nippon Eiseigaku Zasshi* **38**(5), 839-852.
- NASU Y. and KUGIMOTO M., 1981: *Lemna* (duckweed) as an indicator of water pollution. I. The sensitivity of *Lemna paucicostata* to heavy metals. *Arch. Environ. Contam. Toxicol.* **10**, 159-169.
- NASU Y. and KUGIMOTO M., 1986: Absorption of heavy metals by *Lemna paucicostata*. (In Japan.). *Iden* **40**(8), 41-47.
- NASU Y., KUGIMOTO M., TANAKA O. and TAKIMOTO A., 1983: Comparative studies on the absorption of cadmium and copper in *Lemna paucicostata*. *Environ. Pollut. A* **32**(3), 201-209.
- NASU Y., KUGIMOTO M., TANAKA O., YANASE D. and TAKIMOTO A., 1984: Effects of cadmium and copper co-existing in the medium on the growth and flowering of *Lemna paucicostata* in relation to their absorption. *Environ. Pollut. A* **33**(3), 267-274.

- NASU A., KUGIMOTO M., TANAKA O. and TAKIMOTO A., 1985: Lemna as an indicator of water pollution and the absorption of heavy metals by Lemna. In: PASCOE D. and EDWARDS R.W. (eds.), Freshwater biological monitoring. Pergamon Press, New York. 113-120.
- NAUMANN H., 1964: Kleintierleben im Wasserlinsenteppich. I. Aqu.Terr.Z. **17**, 377-379.
- NAUMANN H., 1965: Kleintierleben im Wasserlinsenteppich. II. Aqu.Terr.Z. **18**, 346-348.
- NAVARRO ANDRES F., SANCHEZ ANTA M.A. and GALLEGO M.F., 1984: El aparato vascular de Lemnaceas como resultado de un proceso de hidromorfosis. Stud.Bot. **3**, 331.
- NAZARENKO S.I. and LUTKOVA I.N., 1974: Advances in medicinal plants. (In Russian). Vliy.Fiz.-Khim.Fakt.Rast.Org. **1974**, 110-118.
- NECHUSHTAI R., NELSON N., MATTOO A.K. and EDELMAN M., 1981: Site of synthesis of subunits to photosystem I reaction center and the proton-ATPase in Spirodela. FEBS Lett. **125(1)**, 115-119.
- NECHUSHTAI R., PETERSON C.C. and THORNER J.P., 1987a: Photosystem I complex of higher plants: purification and characterization of its two chlorophyll-protein complexes. In: BIGGINS J. (ed.), Prog.Photosynth.Res., Proc.7th Int.Congr.Photosynth. Nijhoff, Dordrecht, Netherlands. **2**, 41-44.
- NECHUSHTAI R., PETERSON C.C., PETER G.F. and THORNER J.P., 1987b: Purification and characterization of a light-harvesting chlorophyll-a/b-protein of photosystem I of Lemna gibba. Eur.J.Biochem. **164**, 345-350.
- NEEL P.L. and SUTTON D.L., 1977: Growth of four species of plants as influenced by composted sewage sludge and duckweed (Lemna gibba L.) grown in sewage effluent. Proc.SNA Res.Conf.Annu.Rep. (South Nursery-men's Assoc.) **22**, 41-43.
- NEGBI M., SHIRIHAI E.D., BITHAN N. and PORATH D., 1972: Ethylene induced separation of daughter plants in Spirodela polyrrhiza. Isr.J.Bot. **21**, 108-111.
- NEIFF J.J. and MARCHESI E., 1978: Caracterizacion sinoptica de la vegetacion acuatica anfibia en el area del futuro embalse de Salto Grande. Estimacion del riesgo potencial del desarrollo de hidrofitos en el embalse. Proc. V Reunion sobre Aspectos de Desarrollo Ambiental, 6-10 November 1978, Centro de Ecologia Aplicada del Litoral, Argentina. 35 pp.
- NEIFF A.P. and NEIFF J.J., 1984: Dynamics of aquatic floating plants and related fauna in rain pools in Chaco, Argentina. Physis (Buenos Aires) B **42**, 53-67.
- NEIL J.H., 1976: The harvest of biological production as a means of improving effluents from sewage lagoons. Res.Rep., Res.Program Abatement Munic.Pollut.Provis., Canada, Ontario. Agreement Great Lakes Water Qual. **38**, 35 pp.
- NELLES S. and PARTHIER B., 1969: Protein synthesis in sterile chloroplasts from Lemna minor L.: A contribution to the role of bacterial contamination. Exp.Cell Res. **58**, 225-233.
- NELSON B., 1981: Duckweeds - nature's smallest flowering plants. Aquatics **3(1)**, 4-16.
- NEUFAHRT A., HARTZ P. and KNAUF W., 1979: Significance of detergents in sewage for model organisms from natural ecosystems. J.Com.Esp.Deterg. **10th**, 125-140.
- NEWBOLD A. and HOLT R.J., 1986: Additions to the checklist of the flora of Montgomery County, Pennsylvania, USA, IV. Biol.Abstr.RRM. Bartonica (suppl.52), 78.
- NEWTON R.J., 1972a: Effects of abscisic acid on the root of Lemna minor. Tex.J.Sci. **24(3)**, 388.

- NEWTON R.J., 1972b: Effects of abscisic acid on growth and metabolism of protein and ribonucleic acid in *Lemna minor* L. Ph.D.Thesis, Univ. Ann Arbor, Michigan. 82 pp.
- NEWTON R.J., 1974a: Abscisic acid effects on growth and metabolism in the roots of *Lemna minor*. *Physiol.Plant.* **30**, 108-112.
- NEWTON R.J., 1974b: Dual pattern of DL-leucine absorption by duckweed root tips. *Plant Cell Physiol.* **15**, 249-254.
- NEWTON R.J., 1977: Abscisic acid effects on fronds and roots of *Lemna minor*. *Am.J.Bot.* **64(1)**, 45-49.
- NEWTON R.J. and DUFFEY J., 1975: Turion induction in *Spirodela polyrrhiza*. *Plant Physiol.* **56(suppl.)**, 85.
- NEWTON R.J., SHELTON D.R., DISHARON S. and DUFFEY J.E., 1978: Turion formation and germination in *Spirodela polyrrhiza*. *Am.J.Bot.* **65(4)**, 421-428.
- NEWTON S.H., MARTIN J.M., FERGUSON J.N. and GRAY D.L., 1979: Grass carp aid removal of weeds in irrigation canals and reservoirs. *Arkansas Farm Res.* **28(4)**, 12.
- NEY L.F., 1960: Gas exchange by the duckweed family. ONR Contract No. 2887, Stanford Res.Inst.
- NG Y.L. and THIMANN K.V., 1962: Studies on the biogenesis of anthocyanins. VIII. Identification of the anthocyanin of *Spirodela*. *Arch.Biochem.Biophys.* **96**, 336-339.
- NG Y.L., THIMANN K.V. and GORDON S.A., 1961: The action spectrum of anthocyanin formation in *Spirodela oligorrhiza*. *Plant Physiol.* **36(suppl.)**, 46.
- NG Y.L., THIMANN K.V. and GORDON S.A., 1964: The biogenesis of anthocyanins. X. The action spectrum for anthocyanin formation in *Spirodela oligorrhiza*. *Arch.Biochem.Biophys.* **107**, 550-558.
- NGUYEN T.L., 1978: Studies of the biology of the trematode *Fasciolopsis buski* in Vietnam. (In Russian). *Med.Parazitol.Parazit.Bolezni* **47(2)**, 81-84.
- NICKELL L.G., 1955: Effects of antigrowth substances in normal and atypical plant growth. *Antimetabolites and cancer. Symp.Am.Ass.Adv.Sci.* 129-151.
- NICKELL L.G., 1956: Aseptic studies on metabolism of nitrogenous compounds in plants. *Bull.Torr.Bot.Club* **83(6)**, 421-427.
- NICKELL L.G., 1962: Some simple substituted pyrimidines and their effect on the growth of *Lemna minor*. *Phyton (Argentina)* **18**, 59-63.
- NICKELL L.G. and FINLAY A.C., 1954: Antibiotics and their effects on plant growth. *Agr.Food Chem.* **2**, 178-182.
- NIELSON E.S., 1944: Dependence of freshwater plants on quantity of carbon dioxide and hydrogen ion concentration. *Botan.Ark.* **11(8)**, 1-25.
- NIEMEYER R., 1975: Poly- und Metaphosphate in höheren Pflanzen (*Lemna-ceae*). *Planta* **122**, 303-305.
- NIKANOROV A.M. and ZHULIDOV. A.V., 1986: Background levels of mercury in tissues of aquatic organisms in the eastern European subarctic. (In Russian). *Monit.Fonovogo Zagryaz.Prir.Sred* **3**, 186-190.
- NIKITIN V.V. and SEIFULIN E.M., 1976: New species for the flora of the Turkmenistan. (In Russian). *Izv.Akad.Nauk Turkmen SSR, Ser.Biol.Nauk* **5**, 89.
- NIKOLAEVA A.M., 1956: Duckweeds as a feedstuff for water birds. (In Russian). *Pticevodstvo* **6**, 24-29.
- NIKOLSKIJ G.V. and VERIGIN B.V., 1966: The basic biological characteristic of white amur and bighead and their acclimatization in the water reservoirs of our country. (In Russian). *Piscevaja Promyslennost (Moskva)*, 30-40.

- NILSEN S. and DANIELSEN S., 1984: Photoinhibition of photosynthesis in *Lemna gibba*: The effect of O<sub>2</sub>, CO<sub>2</sub> and the selective inhibition of photosystem II. *J.Plant Physiol.* **115**, 39-48.
- NILSEN S. and DANIELSEN S., 1985: Photoinhibition in vivo. Does cultivation in high CO<sub>2</sub> protect plants against photoinhibition? *Plant Physiol.* **64**(2), 11a.
- NINNEMANN H., 1979: Photoreceptors for circadian rhythms. *Photomed.Photobiol.Rev.* **1979**, 207-266.
- NISHIOKA H., NASU Y., KUGIMOTO M., KAIHARA S. and TAKIMOTO A., 1986: Flower-promoting effects of iron and EDDHA in *Lemna paucicostata* 151. *Plant Cell Physiol.* **27**(7), 1369-1376.
- NISHIUUCHI Y., 1974: Control effect of a pesticide to duckweeds. (In Japan.). *Noyaku Kensasho Hokoku* **14**, 69-72.
- NISHIUUCHI K., 1975: Effects of herbicides on *Lemna paucicostata*. (In Japan.). *Noyaku Tsushin* **93**, 38-39.
- NISSEN P. and BENSON A.A., 1982: Arsenic metabolism in freshwater and terrestrial plants. *Physiol.Plant.* **54**(4), 446-450.
- NOIRFALISE A. and DETHIOUX M., 1977: Synopsis des végétations aquatiques d'eau douce en Belgique. *Comm.Centre Ecol.For.Rur.N.S.* **14**, 1-25.
- NOVACKY A. and ULLRICH-EBERIUS C.I., 1982: Evidence for dual uptake mechanism in the plasmalemma from H<sup>+</sup>/phosphate cotransport in *Lemna gibba*. *Plant Physiol.* **69**(4 suppl.), 93.
- NOVACKY A. and ULLRICH-EBERIUS C.I., 1983: Proton/solute cotransport in higher plants case history: *Lemna gibba* G1. *Curr.Top.Plant Biochem. Physiol., Proc. Inaug. Plant Biochem. Physiol. Symp.* **1**, 136-144.
- NOVACKY A., FISCHER E., ULLRICH-EBERIUS C.I., LUETTGE U. and ULLRICH W. R., 1978a: Membrane potential changes during transport of glycine as a neutral amino acid and nitrate in *Lemna gibba* G3. *FEBS Lett.* **88**(2), 264-267.
- NOVACKY A., ULLRICH-EBERIUS C.I., and LUETTGE U., 1978b: Membrane potential changes during transport of hexoses in *Lemna gibba* G1. *Planta* **138**, 263-270.
- NOVACKY A., ULLRICH-EBERIUS C.L. and LUETTGE U., 1980: pH and membrane potential changes during glucose uptake in *Lemna gibba* G1 and their response to light. *Planta* **149**, 321-326.
- NOWINSKA M., 1972: Edible duckweed. (In Polish). *Wszechwiat* **5**, 123-124.
- NUSS R.F. and LOEWUS F.A., 1978: Further studies on oxalic acid biosynthesis in oxalate-accumulating plants. *Plant Physiol.* **61**, 590-592.
- NYBERGH T., 1933: A new locality of *Lemna gibba*. *Mem.Soc.Faun.Flor.Fenn.* **8**, 196-197.
- OBERDORFER E., 1960: Pflanzensoziologische Studien in Chile. Ein Vergleich mit Europa. *Flora et Vegetatio Mundi* **2**. 208 pp.
- OBERDORFER E., 1970: Pflanzensoziologische Exkursionsflora für Süddeutschland. (3rd ed.). Fischer, Stuttgart. 987 pp.
- OBERDORFER E., 1977: Süddeutsche Pflanzengesellschaften. Pflanzensoziologie X. Fischer, Stuttgart. **1**, 67-77.
- OBERMEYER-MAUVE A.A., 1966: A note on two rarely seen minute flowering plants, *Wolffiella denticulata* and *W. Welwitschii* (Lemnaceae). *South Afr.J.Sci.* **62**, 277-278.
- O'BRIEN M.C., 1985: The effect of herbicides on cell membrane permeability in *Lemna minor* L.; the influence of certain ions and hormones on herbicide activity. *Diss.Abstr.Int. C* **46**(3), 656.
- O'BRIEN M.C. and PRENDEVILLE G.N., 1978: A rapid sensitive bioassay for determination of paraquat and diquat in water. *Weed Res.* **18**, 301-303.
- O'BRIEN M.C. and PRENDEVILLE G.N., 1979: Effect of herbicides on cell membrane permeability in *Lemna minor*. *Weed Res.* **19**, 331-334.

- O'BRIEN W.J., 1981: Use of aquatic macrophytes for wastewater treatment. *J. Environ. Eng. Div. (Am. Soc. Civ. Eng.)* **197**, 681-698.
- ODA Y., 1962: Effect of light quality on flowering of *Lemna perpusilla* 6746. *Plant Cell Physiol.* **3**, 415-417.
- ODA Y., 1969: The action of skeleton photoperiods on flowering in *Lemna perpusilla*. *Plant Cell Physiol.* **10(2)**, 399-409.
- ODEI M.A., 1973: Observations on some weeds of malacological importance in the Volta Lake. *Bull. Inst. Fond. Afrique Noire A* **35(1)**, 57-66.
- OEGREN E. and OEQUIST G., 1984a: Photoinhibition of photosynthesis in *Lemna gibba* as induced by the interaction between light and temperature. II. Photosynthetic electron transport. *Physiol. Plant.* **62(2)**, 187-192.
- OEGREN E. and OEQUIST G., 1984b: Photoinhibition of photosynthesis in *Lemna gibba* as induced by the interaction between light and temperature. III. Chlorophyll fluorescence at 77 K. *Physiol. Plant.* **62(2)**, 193-200.
- OEGREN E., OEQUIST G. and HAELLGREN J.E., 1984: Photoinhibition of photosynthesis in *Lemna gibba* as induced by the interaction between light and temperature. I. Photosynthesis in vivo. *Physiol. Plant.* **62(2)**, 181-186.
- OERENCIK S., KARATUEFENKCI M. and GUERESCI L.U., 1982: The effects of some pollutants on *Lemna gibba*. (In Turkish). *Oezel Sayi* **1**, 461-467.
- OFFORD H.R., 1946: Rapid estimation of the phytocidal action of chemicals. *Science* **103**, 474-476.
- OGAWA H., 1977: Modelling of the Heron pond ecosystem. *WRC Res. Rep. Ill. Univ. Water Resour. Cent.* **132**, 218-222.
- OGUNYEMI E.O., PITNER F. and HOFFMANN-OSTENHOF O., 1978: Studies on the biosynthesis of cyclitols XXXVI. Purification of myo-inositol-1-phosphate synthase of the duckweed, *Lemna gibba*, to homogeneity by affinity chromatography on NAD sepharose: Molecular and catalytic properties of the enzyme. *Hoppe-Seyler's Z. Physiol. Chem.* **359**, 613-616.
- OHTA Y. and TACHIBANA Y., 1978: Effect of oxalate on the growth of *Lemna* and metabolic utilization of oxalate by *Lemna*. (In Japan.). *Nippon Dojo-Hiryogaku Zasshi.* **49**, 16-20.
- OHTANI T. and ISHIGURI Y., 1979: Inhibitory action of blue and far-red light in the flowering of *Lemna paucicostata*. *Physiol. Plant.* **47**, 255-259.
- OHTANI T. and KUMAGAI T., 1980a: Spectral sensitivity of the flowering response in green and etiolated *Lemna paucicostata* T-101. *Plant Cell Physiol.* **21**, 1335-1338.
- OHTANI T. and KUMAGAI T., 1980b: Action spectra for the light inhibition of flowering and its reversal in *Lemna paucicostata* T-101. *Planta* **149**, 332-335.
- OHTANI T. and KUMAGAI T., 1981: Phytochrome mediated effects of near UV radiation in the induction of flowering in etiolated *Lemna paucicostata* T-101, a short day-plant. *Planta* **153(6)**, 543-546.
- OHWI J., 1965: Flora of Japan. Lemnaceae. *Smithsonian Inst.*, Washington D.C., 264-265.
- OKTYABR'SKAYA T.A. and SHISHKOV I.G., 1972: Experience in using herbicide simazine for controlling plants in water bodies. (In Russian). *Med. Parazit. Parazit. Bolezn.* **41(1)**, 64-66.
- OKUDA S., 1978: Pflanzensoziologische Untersuchungen über die Auenvegetation der Kanto-Ebene. *Bull. Inst. Environ. Sci. Tech. Yokohama Nat. Univ.*, **4**, 43-112.
- OLACZEK R., 1959: New locality of *Wolffia arrhiza* (L.) Wimm. in Mazowszu. (In Polish). *Zesz. Nauk. Ul. Ser.* **2**, 5, 89-90.

- OLACZEK R. and KRZYWANSKI D., 1970: *Wolffia arrhiza* and the *Wolffietum arrhizae* in Poland. (In Polish). *Zesz.Nauk.Ul.Ser.* **2**, **36**, 39-51.
- OLSEN C., 1930: On the influence of humus substances on the growth of green plants in water culture. *C.R.Trav.Lab. Carlsberg* **18**, 1-16.
- OLSEN C., 1934a: The absorption of manganese by plants. *C.R.Trav.Lab. Carlsberg* **20**, 1-34.
- OLSEN C., 1934b: Ueber die Manganaufnahme der Pflanzen. *Biochem.Z.* **269**, 329-348.
- OLSEN C., 1936: Absorption of manganese by plants. II. Toxicity of manganese to various plant species. *C.R.Trav.Lab.Carlsberg* **21**, 139-145.
- OLSEN C., 1950: Aquatic plants and hydrospheric factors. I. Aquatic plants in SW-Jutland. II. The hydrospheric types. *Svensk Bot.Tidskr.* **44**, 1-34 and 332-374.
- ONO H., 1952a: The effect of growth substances and some physiological factors on the growth of roots of lemnaeous plants. *Sieboldia (Fukuoka)* **1**, 39-50.
- ONO H., 1952b: The effects of 2,4-dichlorophenoxyacetic acid upon the growth of roots. *Bot.Mag.(Tokyo)* **65**, 224-227.
- OOTA Y., 1965: Effects of growth substances on frond and flower production in *Lemna gibba* G3. *Plant Cell Physiol.* **6**, 547-559.
- OOTA Y., 1966: Light- and dark-growth in long-day duckweed, *Lemna gibba* G3, as affected by kinetin. *Plant Cell Physiol.* **7**, 631-641.
- OOTA Y., 1969: Frond and flower production in *Lemna gibba* G3 in presence of respiratory inhibitors. *Plant Cell Physiol.* **10(3)**, 621-633.
- OOTA Y., 1970: Periodical growth response of *Lemna gibba* G3 to light-break. *Plant Cell Physiol.* **11**, 417-425.
- OOTA Y., 1971: Disappearance of rhythmicity in growth response to dark- and light-breaks in *Lemna gibba* G3 due to iron deficiency. *Plant Cell Physiol.* **12**, 255-266.
- OOTA Y., 1972a: A possible mechanism for sugar inhibition of duckweed flowering. *Plant Cell Physiol.* **13**, 195-199.
- OOTA Y., 1972b: The response of *Lemna gibba* G3 to a single long day in the presence of EDTA. *Plant Cell Physiol.* **13**, 575-580.
- OOTA Y., 1973: The length of the induction period vs. the minimum number of long-day cycles needed for floral induction in *Lemna gibba* G3. *Plant Cell Physiol.* **14**, 307-317.
- OOTA Y., 1974: Removal of the sugar inhibition of flowering in *Lemna gibba* G3 by catecholamines. *Plant Cell Physiol.* **15**, 63-68.
- OOTA Y., 1975a: Time measurement in photoperiodic floral induction in duckweeds. *Curr.Adv.Plant Sci.* **6**, 665-674.
- OOTA Y., 1975b: Photoperiodic requirements for flowering of the long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **16**, 885-894.
- OOTA Y., 1975c: Short-day flowering of *Lemna gibba* G3 induced by salicylic acid. *Plant Cell Physiol.* **16**, 1131-1135.
- OOTA Y., 1976: Time measurement in photoperiodic floral induction in duckweeds. In: SMITH H. (ed.), *Commentaries in plant science*. Pergamon Press, Oxford. 199-208.
- OOTA Y., 1977a: Removal by chemicals of photoperiodic light requirements of *Lemna gibba* G3. *Plant Cell Physiol.* **18**, 95-105.
- OOTA Y., 1977b: Replacement by ionophores of the photoperiodic light requirement in *Lemna gibba* G3. *Plant Cell Physiol.* **18**, 1363-1367.
- OOTA Y., 1981: Bimodal floral response of *Lemna gibba* G3 to night interruption: photoperiodic time measurement. *Plant Cell Physiol.* **22(1)**, 99-113.
- OOTA Y., 1983a: Floral inhibition in *Lemna paucicostata* 6746 due to night interruption. *Plant Cell Physiol.* **24(3)**, 327-332.

- OOTA Y., 1983b: Physiological structure of the critical photoperiod of *Lemna paucicostata* 6746. *Plant Cell Physiol.* **24**(8), 1503-1510.
- OOTA Y., 1984: Physiological function of night interruption in *Lemna paucicostata* 6746: action of light as a phase on the photoperiodic clock. *Plant Cell Physiol.* **25**(2), 323-331.
- OOTA Y., 1985: Measurement of the critical nyctiperiod by *Lemna paucicostata* 6746 grown in continuous light. *Plant Cell Physiol.* **26**, 923-929.
- OOTA Y. and HOSHINO T., 1974: Diurnal change in temperature sensitivity of *Lemna gibba* G3 induced by acetylcholine in continuous light. *Plant Cell Physiol.* **15**, 1063-1072.
- OOTA Y. and HOSHINO T., 1979: Spectral dependence of the critical photoperiod in the long-day duckweed *Lemna gibba* G3. *Plant Cell Physiol.* **20**, 1531-1536.
- OOTA Y. and KONDO T., 1974: Removal by cyclic AMP of the inhibition of duckweed flowering due to ammonium and water treatment. *Plant Cell Physiol.* **15**, 403-411.
- OOTA Y. and NAKASHIMA H., 1978: Photoperiodic flowering in *Lemna gibba* G3: time measurement. *Bot.Mag.(Tokyo),Spec.Issue 1*, 177-198.
- OOTA Y. and TSUDZUKI T., 1971: Resemblance of growth substances to metal chelators with respect to their actions on duckweed growth. *Plant Cell Physiol.* **12**, 619-631.
- OOTA Y. and TSUDZUKI T., 1979: Evidence against involvement of circadian floral rhythm in the critical daylength measurement in *Lemna gibba* G3. *Plant Cell Physiol.* **20**, 725-732.
- OPUSZYNSKI K., 1972: Use of phytophagous fish to control aquatic plants. *Aquaculture* **5**(1), 61-73.
- OREBAMJO T.O., 1973: Regulation of nitrate reductase in *Lemna minor*. Ph.D.Thesis. Univ. Manchester.
- OREBAMJO T.O. and STEWART G.R., 1974: Some characteristics of nitrate reductase induction in *Lemna minor* L. *Planta* **117**, 1-10.
- OREBAMJO T.O. and STEWART G.R., 1975a: Ammonium repression of nitrate reductase formation in *Lemna minor* L. *Planta* **122**, 27-36.
- OREBAMJO T.O. and STEWART G.R., 1975b: Ammonium inactivation of nitrate reductase in *Lemna minor* L. *Planta* **122**, 37-44.
- ORLANDO J.A. and NEILANDS J.B., 1982: Ferrichrome compounds as a source of iron for higher plants. In: KEHL H. (ed.), *Chem.Biol.Hydroxamic Acids; (Proc.Int.Symp.)*. Karger, Basle. 123-129.
- ORNES W.H., 1979: Effects of cadmium (II) on *Azolla caroliniana* Willd., *Salvinia rotundifolia* Willd., *Spirodela polyrhiza* (L.) Schleid., *Ceratophyllum demersum* L., and *Myriophyllum spicatum* L. var. *exalbescens* (Fernald) Jepson grown in 10 or 50% Hoagland solution. Ph.D. Thesis. Iowa State Univ., Ames, IA. 199 pp. *Diss.Abstr.Int. B* **39**(10), 4712.
- ORNES W.H. and WILDMAN R.B., 1979: Effects of cadmium (II) on aquatic vascular plants. *Trace Subst.Environ.Health* **13**, 304-312.
- ORON G. and PORATH D., 1981: Ammonia stripping of fish influent by duckweed in a circulating system. *Proc.Water Reuse Symp. II*, **2**, 1638-1647.
- ORON G. et al., 1984 see 1985
- ORON G., WILDSCHUT L.R. and PORATH D., 1985: Wastewater recycling by duckweed for protein production and effluent renovation. *Water Sci. Tech.* **17**(4-5), 803-817.
- ORON G., PORATH D. and WILDSCHUT L.R., 1986: Wastewater treatment and renovation by different duckweed species. *J.Environ.Eng.* **112**(2), 247-263.

- ORON G., PORATH D. and JANSEN H., 1987a: Performance of the duckweed species *Lemna gibba* on municipal wastewater for effluent renovation and protein production. *Biotechn.Bioengine.* **29(2)**, 258-268.
- ORON G., DE-VEGT A. and PORATH D., 1987b: The role of the operation regime in wastewater treatment with duckweed. *Water Sci.Technol.* **19(1-2)**, 97-106.
- OSTROW J.P., 1968: The effect of photoperiod on vegetative reproduction and senescence in *Spirodela oligorrhiza*. (Lemnaceae). M.S.Thesis. Univ. Miami.
- OSTROW J.P. and DIJKMAN M.J., 1969: Photo-related aging in *Spirodela oligorrhiza* (Lemnaceae). *Quart.J.Fla.Acad.Sci.* **32(2)**, 119-126.
- OSTROW-SCHWEBEL J.P., 1973: Hormonal control of growth and development in *Lemna minor* with special emphasis on the role of abscisic acid (ABA). Ph.D.Thesis. College of A and M Univ., Texas. 143 pp. Diss. Abstr. B **34**, 997.
- OSTROW-SCHWEBEL J.P., 1979: An abscisic acid-induced separation layer in *Lemna minor* (L.). *Fla.Sci.* **42**, 172-176.
- OTAKI M., 1974: Distribution and description of Lemnaceae. (In Japan.). *Heredity* **28(8)**, 50-54.
- OTAKI S., 1978: Illustrated Japanese water plants. (In Japan.). Hokuryukan, Tokyo.
- OZIMEK T., 1983: The role of duckweeds in cycling of heavy metals in ponds supplied with post-sewage water. *Proc.Int.Symp. Aquatic Macrophytes*, September 18-23, Nijmegen, Netherlands, 172-176.
- OZIMEK T., 1985: Heavy metal content in macrophyte from ponds supplied with post-sewage water. In: SALANKI J. (ed.), *Symp.Biol.Hung.*, Heavy metals in water organisms. **29**, 41-50.
- PALAVAN N., GOREN R. and GALSTON A.W., 1984: Effects of some growth regulators on polyamine biosynthetic enzymes in etiolated pea seedlings. *Plant Cell Physiol.* **25**, 541-546.
- PAMPANINI R. and PROVASI T., 1921: La fioritura della *Lemna minor* L. nell' Orto Botanico di Firenze. *Bull.Soc.Bot.Ital.* **1921**, 53.
- PAN S.-M. and CHEN S.S.C., 1976: Scanning electron microscopy of chloroplasts from duckweed cells. *Taiwania* **21**, 248-250.
- PAN S.M. and CHEN S.S.C., 1979: The morphology of *Wolffia arrhiza* - a scanning electron microscopy study. *Bot.Bull.Acad.Sin.* **20(2)**, 89-96.
- PAN Y.T., 1974: Characterization of a particulate UDP-D-apiose acceptor D-apiosyltransferase from *Lemna minor*. *Fed.Proc.* **33(5 part 2)**, 1445.
- PAN Y.T. and KINDEL P.K., 1977: Characterization of particulate D-apiosyl- and D-xylosyltransferases from *Lemna minor*. *Arch.Biochem.Biophys.* **183**, 131-138.
- PANCHO J.V., 1976: Philippine aquatic weeds. *Kalikasan* **5(1)**, 37-91.
- PANDIT A.K., KAUL V. and FOTEDAR D., 1978: A preliminary study of duckweed ecology and its natural control. *Int.J.Ecol.Enviro.Sci.* **4(1-3)**, 107-115.
- PANICKER K.N., SRINIVASAN R., VISWAM K. and RAJAGOPALAN P.K., 1985: Larvivorous potential of some cypriniformes fishes. *Ind.J.Med.Res.* **82(6)**, 517-520.
- PANKEY R.D., DRAUDT H.N. and DESROSIER N.W., 1965: Characterization of the starch of *Spirodela polyrrhiza*. *J.Food Sci.* **30**, 627-631.
- PANKNIN W., 1945: Zur Oekologie und Soziologie der *Lemna*-Standorte. *Arch.Hydrobiol.* **41**, 225-232.
- PARDY R.L. and GLIDER W.V., 1984: The photic environment of the symbiotic hydroid, *Hydra viridis*. *Am.Midl.Nat.* **112(1)**, 196-197.
- PARK K.H., HAHN K.-W. and KANG B.G., 1987: Senescence in *Lemna gibba* G3:

- evidence against stomatal involvement in the regulation of frond senescence. 14th Int.Bot.Congr.Berlin, Abstr., 111.
- PARK W.C. and YATAZAWA M., 1979: Nitrogen fixation by Lemna-blue green algae association. (In Korean). J.Korean Soc. Soil Sci.Fert. **12(1)**, 47-49.
- PARKS C.R., SANDHU S.S. and MONTGOMERY K.R., 1972: Floral pigmentation studies in the genus *Gossypium*. IV. Effects of different growing environments on flavonoid pigmentation. Am.J.Bot. **59(2)**, 158-164.
- PASSARGE H., 1957: Ueber Wasserpflanzen- und Kleinröhrichtgesellschaften des Oberspreewaldes. Abh.Ber.Naturkd.Mus.Görlitz, Leipzig, **35**, 143-152.
- PASSARGE H., 1978: Zur Syntaxonomie mitteleuropäischer Lemnetae-Gesellschaften. Folia Geobot.Phytotax. **13**, 1-17.
- PATIENCE R.L., STERRY P.R. and THOMAS J.D., 1983: Changes in chemical composition of a decomposing aquatic macrophyte, *Lemna paucicostata*. J.Chem.Ecol. **9(7)**, 889-911.
- PATNAIK S., 1976: Control of some aquatic vegetation in fish ponds at Cuttack. J.Inl.Fish Soc.India **8**, 221-226.
- PAUTOVA V.N. and GALIMULIN M.G., 1980: New findings of the rare higher aquatic plants in the East Siberia. (In Russian). Bot.Zh. **65**, 1020-1022.
- PAWLOWICZ P. and SIEWINSKI A., 1987: Biotransformations. Part 20. Enantioselective hydrolysis of esters and the oxidation of aromatic-aliphatic alcohols obtained therefrom by *Spirodela oligorrhiza*. Phytochemistry **26(4)**, 1001-1004.
- PEARSALL W.H., 1921: A suggestion as to factors influencing the distribution of free floating vegetation. J.Ecol. **9**, 241-253.
- PECHENYUK E.V., 1982: Rare aquatic plants in the Khoperski State Reserve.. (In Russian). Bot.Zh. **67(5)**, 647-651.
- PECHENYUK E.V., 1984: *Lemna gibba* (Lemnaceae) in Khoperski State Reserve. (In Russian). Bot.Zh. **69**, 1101.
- PECHENYUK E.V., 1985: Flowering of Lemnaceae in the Khoperski State Reserve. (In Russian). Bot.Zh. **70(8)**, 1066-1070..
- PEDKOVA see PETKOVA
- PEDROTTI F., 1979: L'association Ricciocarpetum natantis (Segal 1965) Tx. 1972 dans le marais de Colfiorito (Italie Centrale). Doc.Phytosoc. N.S. **4**, 795-802.
- PEKIC S., 1977: Endogenous hormones in *Lemna perpusilla*. Biol.Vestn. **25(2)**, 187.
- PEKIC S. and NESKOVIC H., 1982: Influence of phytochrome on the content of endogenous hormones in *Lemna aequinoctialis* during the long night period. Bull.Inst.Jard.Bot.Univ.Beograd (13), **15(1-3)**, 21-28.
- PENFOUND W.T., 1956: Primary production of vascular aquatic plants. Limnol.Oceanogr. **1(2)**, 92-101.
- PERLMAN D. and SEMAR J.B., 1967: Inhibition by purines of the production of fronds in *Lemna perpusilla*. Nature **215**, 760-761.
- PERRING F.H. and WALTERS S.M., 1962: Atlas of the British Flora. Nelson, London/Edinburgh, 343-344.
- PERRY T.O., 1963: Differences in protein constituents in dormant and vegetative plant tissue (*Spirodela polyrrhiza* and *Pinus thunbergii*). AIBS Bull. **13(5)**, 73-75.
- PERRY T.O., 1968: Dormancy, turion formation and germination by different clones of *Spirodela polyrrhiza*. Plant Physiol. **43**, 1866-1869.
- PERRY T.O. and BYRNE O.R., 1969: Turion induction in *Spirodela polyrrhiza* by abscisic acid. Plant Physiol. **44**, 784-785.
- PESTEMER W., 1979: Biological determination of photosynthetic inhibitors

- in soils and water and application in bioassays to herbicide investigations. *Z.Naturforsch.* **34c**, 964-964.
- PETER G. and THORNBURGER J.P., 1984: Use of *Lemna gibba* to study light stress effects on higher plant photosynthetic apparatus. *J.Cell.Biochem.* (suppl.8 part B), 232.
- PETKOVA L.M. and LUBJANOV I.P., 1969: Concentration of some microelements in macrophytes in the basins of the steppe zones of the Ukraine. (In Ukrainian). *Ukr.Bot.Zh.* **26**, 90-96.
- PETROVA L.R., 1980: Review of the research in the anatomy of reproductive organs of angiosperms in USSR for the last ten years. (In Russian). *Bot.Zh.* **65(12)**, 1681-1695.
- PEVERLY J.H., 1985: Element accumulation and release by macrophytes in a wetland stream. *J.Environ.Qual.* **14**, 137-143.
- PFEFFER W., 1886: Ueber die Aufnahme von Anilinfarben in lebenden Zellen. *Untersuch.Bot.Inst.Tübingen* **2**, 179-329.
- PHILIPPI G., 1969: Laichkraut- und Wasserlinsengesellschaften des Oberrheingebietes zwischen Strassburg und Mannheim. *Veröff.Landesst.Naturforsch.Landsch.pfl. Baden-Württemberg* **37**, 102-172.
- PHILIPPI G., 1971: Beiträge zur Flora der nordbadischen Rheinebene und der angrenzenden Gebiete. *Beitr.Naturk.Forsch.Südw.Deutschl.* **30**, 9-47.
- PHILIPPI G., 1978: Veränderungen der Wasser- und Uferflora im Badischen Oberrheingebiet. *Beitr.Veröff.Naturforsch.Landsch.pfl. Baden-Württemberg* **11**, 99-134.
- PHILIPPI R.A., 1857: *Plantarum novarum Chilensium, centuria quarta. Linnaea* **29**, 1-47.
- PHILIPPI R.A., 1864: *Plantarum novarum Chilensium. Linnaea* **33**, 239.
- PICCOLI F. and GERDOL R., 1981: Rice-field weed communities in Ferrara Province (Northern Italy). *Aquat.Bot.* **10**, 317-328.
- PICKEN J.M. and MENDICINO J., 1967: The biosynthesis of D-apiose in *Lemna minor*. *J.Biol.Chem.* **242(7)**, 1629-1634.
- PIETERSE A.H., 1972: Studies on flowering and turion formation in Lemnaceae. Thesis. Univ.of Kentucky, Lexington. 124 pp.
- PIETERSE A.H., 1974a: On the morphology of *Lemna minor* in South Finland. *Ann.Bot.Fenn.* **11**, 271-274.
- PIETERSE A.H., 1974b: Gibberellin-EDDHA interaction in flowering and gibbosity of *Lemna gibba* G3. *Plant Cell Physiol.* **15**, 1125-1127.
- PIETERSE A.H., 1975a: Physiological, morphological and anatomical aspects of gibbosity in *Lemna gibba*. *Aquat.Bot.* **1**, 333-344.
- PIETERSE A.H., 1975b: Induction of flowering in *Lemna gibba* G3 under short-day conditions by a combined treatment of EDDHA and BA. *Proc. 12th Int.Bot.Congress, Leningrad*, 308.
- PIETERSE A.H., 1976: Specific interactions in the physiology of flowering and gibbosity of *Lemna gibba* G3. *Plant Cell Physiol.* **17**, 713-720.
- PIETERSE A.H., 1977: Control of tropical aquatic weeds. *Bull.Dept.Agric. Res.Roy.Trop.Inst.* **300**, 20 pp.
- PIETERSE A.H., 1978a: Experimental control of flowering in *Pistia stratiotes* L. *Plant Cell Physiol.* **19**, 1091-1093.
- PIETERSE A.H., 1978b: Interaction of naphthol with EDDHA/salicylic acid in flowering and gibbosity of *Lemna gibba* G3. *Plant Cell Physiol.* **19(7)**, 1307-1310.
- PIETERSE A.H., 1980: Specific interactions in the physiology of flowering in *Lemna gibba* G3 and *Pistia stratiotes*. *Symp.Weed Sci.Soc.Toronto*, 13 pp.
- PIETERSE A.H., 1981: Specific interactions in the physiology of flowering in *Lemna gibba* G3 and *Pistia stratiotes*. *Int.Coll.Aquat.Vascular Plants, Brussels, Belgium. Abstr.*, 44.

- PIETERSE A.H., 1982: A review of chemically induced flowering in *Lemna gibba* G3 and *Pistia stratiotes*. *Aquat.Bot.* **13(1)**, 21-28.
- PIETERSE A.H. and MUELLER L.J., 1977: Induction of flowering in *Lemna gibba* G3 under short-day conditions. *Plant Cell Physiol.* **18**, 45-53.
- PIETERSE A.H. and SABHARWAL P.S., 1969: Physiological studies with *Wolffiella* under aseptic conditions. 11th Int.Bot.Congr., Abstr., 170.
- PIETERSE A.H., BHALLA P.R. and SABHARWAL P.S., 1970a: Induction of flowering in *Lemna gibba* G3 by Fe-EDDHA. *Plant Cell Physiol.* **11**, 675-676.
- PIETERSE A.H., BHALLA P.R. and SABHARWAL P.S., 1970b: Investigations on the effects of metal ions and chelating agents on growth and flowering of *Lemna gibba* G3. *Plant Cell Physiol.* **11**, 879-889.
- PIETERSE A.H., BHALLA P.R. and SABHARWAL P.S., 1970c: Control of gibbosity in *Lemna gibba* G3 by ethylenediamine-di-o-hydroxyphenylacetic acid (EDDHA). *Acta Bot.Neerl.* **19(4)**, 521-524.
- PIETERSE A.H., BHALLA P.R. and SABHARWAL P.S., 1970d: Chemical induction of turions in *Wolffiella floridana* (J.D. Smith) Thompson. *Acta Bot. Neerl.* **19(6)**, 901-905.
- PIETERSE A.H., BHALLA P.R. and SABHARWAL P.S., 1971a: Endogenous gibberellins in floating plants and turions of *Wolffiella floridana*. *Physiol.Plant.* **24**, 512-516.
- PIETERSE A.H., BHALLA P.R. and SABHARWAL P.S., 1971b: In vitro studies on turions of *Wolffiella floridana*. *Am.J.Bot.* **58(5 part 2)**, 455.
- PIETSCH W., 1972: Ausgewählte Beispiele für Indikatoreigenschaften höherer Wasserpflanzen. *Arch.Naturgesch.u.Landschaftsforsch.* **12**, 121-151.
- PIGNATTI S., 1957: La vegetazione delle risaie pavese (studio fitosociologico). *Arch.Bot.Biogeogr.Ital.* **33**, 4a Ser., **2**, 1-68.
- PIISPANEN R. and LAEHDESMAEKI P., 1983: Effect of vanadium on some water plants. *Geol.Foeren.Stockholm Foerh.* **105(1)**, 23-27.
- PIP E., 1979: Survey of the ecology of submerged aquatic macrophytes in central Canada. *Aquat.Bot.* **7**, 339-357.
- PIP E. and SIMMONS K., 1986: Aquatic angiosperms at unusual depths in Shoal Lake. *Can.Field-Nat.* **100(3)**, 354-358.
- PIRSON A. and GOELLNER E., 1953: Zellphysiologische Untersuchungen an der *Lemna*-Wurzel bei verminderter Nitrat- und Phosphatversorgung. *Z. Bot.* **41**, 147-176.
- PIRSON A. and GOELLNER E., 1954: Beobachtungen zur Entwicklungsphysiologie der *Lemna minor* L. *Flora* **140**, 485-498.
- PIRSON A. and SCHAEFER G., 1957: Osmotischer Wasserentzug und Plasmolyse mit Polyäthylenoxyd. *Protoplasma* **48**, 215-220.
- PIRSON A. and SEIDEL F., 1950: Zell- und stoffwechselfysiologische Untersuchungen an der Wurzel von *Lemna minor* L. unter besonderer Berücksichtigung von Kalium- und Kalziummangel. *Planta* **38**, 431-473.
- PITTENDRIGH C.S., 1966: The circadian oscillation in *Drosophila pseudoobscura* pupae: A model for the photoperiodic clock. *Z.Pflanzenphysiol.* **54**, 275-307.
- PIZZOLATO T.D. and FRICK H., 1979: Pyrimidine metabolism in *Lemna minor*. II. Specific inhibition of plastid replication in a higher plant by cytidine deoxyriboside. *Plant Physiol.* **63**, 979-983.
- PODBIELKOWSKI Z., 1967: Rather rare species of vascular plants of the Warsaw Voivodship, Poland. *Fragmenta Florist.Geobot.* **13(3)** 323-325.
- POIJAERVI L.A.P., 1928: Ueber die Basenpermeabilität pflanzlicher Zellen. *Acta Bot.Fenn.* **4**, 1-102.
- POKORNY J. and REJMANKOVA E., 1983: Oxygen regime in a fish pond with duckweeds (*Lemnaceae*) and *Ceratophyllum*. *Aquat.Bot.* **17(2)**, 125-137.
- POLAR E. and KUECUEKCEZZAR R., 1986: Influence of some metal chelators and light regimes on bioaccumulation and toxicity of Cd<sup>2+</sup> in duckweed (*Lemna gibba*). *Physiol.Plant.* **66**, 87-93.

- POPPLUS B., 1901: *Lemna trisulca*. Med.Soc.Fauna Flora Fenn. **27**, 45.
- PORATH D., 1973: Cultured duckweeds (Lemnaceae) as a model for studying effects of environmental conditions on the vegetative phase of higher plants. Ph.D.Thesis. Univ. Tel Aviv.
- PORATH D., 1979: Pathways of plastide differentiation in *Spirodela oligorrhiza*. New Phytol. **82**, 733-737.
- PORATH D. and AGAMI M., 1986: An alternative approach to study the avoidance of duckweed (*Lemna gibba* L. - *Lemna minor* L. complex) from arid zones. Arch.Hydrobiol. **108(1)**, 45-53.
- PORATH D. and BEN-SHAUL Y., 1971: Structural and physiological changes during heat bleaching in *Spirodela oligorrhiza*. Isr.J.Bot. **20(3)**, 157-168.
- PORATH D. and BEN-SHAUL Y., 1973: Growth, greening and phytochrome in etiolated *Spirodela* (Lemnaceae). Plant Physiol. **51(3)**, 474-477.
- PORATH D. and KOTON A., 1977: Enhancement of protein production in fish ponds with duckweed (Lemnaceae). Isr.J.Bot. **26(1)**, 51.
- PORATH D. and POLLOCK J., 1982: Ammonia stripping by duckweed *Lemna gibba* and its feasibility in circulating aquaculture. Aquat.Bot. **13(2)**, 125-132.
- PORATH D., HEPHER B. and KOTON A., 1979: Duckweed as an aquatic crop: Evaluation of clones for aquaculture. Aquat.Bot. **7**, 273-278.
- PORATH D., EFRAT Y. and ARZEE T., 1980: Morphological patterns and heterogeneity in populations of duckweeds. Aquat.Bot. **9(2)**, 159-168.
- PORATH D., ORON G. and GRANOTH G., 1986: Duckweed as an aquatic crop: Edible protein recovery, production and utilization. Proc.5th Int. Symp.Agric.Wastes,Chicago,1985. Am.Soc.Agric.Engineers,St.Joseph,Michigan. 680-687.
- POSNER H.B., 1961: Effects of x-irradiation on "handedness" of frond production in *Lemna perpusilla* 6746. Plant Physiol. **36(suppl.)**, 22.
- POSNER H.B., 1962a: Permanent and temporary effects of X-rays on the reproduction and aging of *Lemna perpusilla*. Ph.D.Thesis. Yale Univ.
- POSNER H.B., 1962b: Characteristics of X-ray-induced aberrants of *Lemna perpusilla* 6746. Plant Cell Physiol. **3**, 275-284.
- POSNER H.B., 1966: Some effects of copper and EDTA on flowering in *Lemna perpusilla*, aberrant strain 1073. Proc.Annu.Meetings, Am.Soc.Plant Physiol. **29**.
- POSNER H.B., 1967a: Aquatic vascular plants. In: WILT F. and WESSELS N. (eds.), Methods in developmental biology. Crowell, New York. 301-317.
- POSNER H.B., 1967b: Inhibitory effect of sucrose on flowering in *Lemna perpusilla* 6746 and mutant strain 1073. Plant Cell Physiol. **8**, 535-539.
- POSNER H.B., 1969a: Inhibitory effect of carbohydrate on flowering in *Lemna perpusilla*. I. Interaction of sucrose with calcium and phosphate ions. Plant Physiol. **44**, 562-566.
- POSNER H.B., 1969b: Further studies on the inhibitory effect of carbohydrates on flowering in *Lemna perpusilla* 6746. Plant Physiol. **44** (suppl.), 19-20.
- POSNER H.B., 1970: Inhibitory effect of carbohydrate on flowering in *Lemna perpusilla*. 2. Reversal by glycine and L-aspartate: Correlation with reduced levels of beta-carotene and chlorophyll. Plant Physiol. **45**, 687-690.
- POSNER H.B., 1971: Inhibitory effect of carbohydrate on flowering in *Lemna perpusilla*. 3. Effects of respiratory intermediates, amino acids, and CO<sub>2</sub>. Glucose 6-phosphate dehydrogenase activity. Plant Physiol. **48**, 361-365.
- POSNER H.B., 1973a: Reversal of sucrose inhibition of *Lemna* flowering by adenine derivatives. Plant Cell Physiol. **14**, 1199-1200.

- POSNER H.B., 1973b: Lack of flowering responses to DCMU in a mutant of *Lemna perpusilla* 6746. *Plant Cell Physiol.* **14**, 1031-1033.
- POSNER H.B. and HILLMAN W.S., 1960: Effects of X irradiation on *Lemna perpusilla*. *Am.J.Bot.* **47**, 506-511.
- POSNER H.B. and HILLMAN W.S., 1962: Aseptic production, collection and germination of seeds of *Lemna perpusilla* 6746. *Physiol.Plant.* **15**, 700-708.
- POSNER H.B. and HILLMAN W.S., 1970: Sucrose ammonium interaction on the flowering *Lemna perpusilla*. *Plant Physiol.* **46**(suppl.), 25.
- POSNER H.B. and ROSNER A., 1975: Effects of chloramphenicol on RNA synthesis in *Spirodela* chloroplasts. *Plant Cell Physiol.* **16**, 361-365.
- POSNER H.B., GRESSEL J. and ROSNER A., 1974: Direct evidence for the lack of methylation of two pulse labeled plant RNAs. *Plant Cell Physiol.* **15**, 807-811.
- POSNER H.B., POSNER R.S. and GOWER R.A., 1977: Effects of DCMU on long-day flowering of *Lemna perpusilla* 6746 and photosynthetic mutant strain 1073. *Plant Cell Physiol.* **18**, 1301-1307.
- POSNO M., TORENVLIET D.J., LUSTIG H., VAN NOORT M. and GROOT G.S.P., 1985: Localization of three chloroplast ribosomal protein genes at the left junction of the large single copy region and the inverted repeat of *Spirodela oligorhiza* chloroplast DNA. *Curr.Genet.* **9**(3), 211-219.
- POSNO M., VAN VLIET A. and GROOT G.S.P., 1986a: Localization of chloroplast ribosomal protein genes on *Spirodela oligorhiza* chloroplast DNA. *Curr.Genet.* **10**(12), 923-930.
- POSNO M., VAN VLIET A. and GROOT G.S.P., 1986b: The gene for *Spirodela oligorhiza* chloroplast ribosomal protein homologous to *E. coli* ribosomal protein L16 is split by a large intron near its 5' end: structure and expression. *Nucleic Acids Res.* **14**(8), 3181-3195.
- POSNO M., VERWEIJ W.R., DEKKER I.C., DE WARD P.M. and GROOT G.S.P., 1986c: The genes encoding chloroplast ribosomal proteins S-7 and S-12 are located in the inverted repeat of *Spirodela oligorhiza* chloroplast DNA. *Curr.Genet.* **11**(1), 25-34.
- POST G.E., 1933: *Flora of Syria, Palestine and Sinai*. American Press, Beirut. 547-549.
- POTT R., 1980: Die Wasser- und Sumpfvvegetation eutropher Gewässer in der westfälischen Bucht - Pflanzensoziologische und hydrochemische Untersuchungen. *Abh.Landesmus.Naturk. Münster* **42**(2), 156 pp.
- POTT R., 1981: Oekologie und Indikatorwert von Wasserpflanzengesellschaften. *Mitt.Landesanst.Oekologie,Landschaftsentw.,Forstplanung Nordrhein-Westf., Sonderheft Landestagungen 1980*, 57-64.
- POTT R. and WITTIG R., 1985: Die Lemnetaea - Gesellschaften niederrheinischer Gewässer und deren Veränderungen in den letzten Jahren. *Tuexenia* **5**, 21-30.
- POURRIOT R., 1972: Etude hydrobiologique de deux petits étangs de prairie: Observations sur la distribution de la température et du plancton et l'influence d'un couvert végétal à *Lemna minor*. *Ann.Hydrobiol.* **3**(1), 33-46.
- PRASAD R., 1981: Management of aquatic weeds with chemicals impact of nonylphenol on macrophytes. *Proc.Int.Bot.Congr.* **13**, 179.
- PRASAD R., 1984: Impact of glyphosate on macrophytes. *Plant Physiol.* **75** (1 suppl.), 139.
- PREVITERA L. and MONACO P., 1983: Fatty acid composition in *Lemna minor* - Characterization of a novel hydroxy C<sub>16</sub> acid. *Phytochem.* **22**(6), 1445-1446.
- PREVITERA L. and MONACO P., 1984: A linear diterpene diol from *Lemna minor*. *Phytochem.* **23**(1), 194-195.

- PRICE D.N. and WAIN R.L., 1976: Studies on plant growth-regulating substances. XLI. Structure-activity relationships and metabolism of a group of nitrophenols capable of inhibiting chloroplast development. *Ann.Appl.Biol.* **83**, 115-124.
- PRIDHAM J.B., 1964: The phenol glucosylation reaction in the plant kingdom. *Phytochem.* **3**, 493-497.
- PRINTZ H. 1921: The vegetation of the Siberian-Mongolian frontiers. Trondhejm. 175 pp.
- PRISHCHEPOV G.P., 1974: Selectivity in the feeding of grass carp and the nutritive value to the fish of some plant species of Belorussian lakes. (In Russian). *Trudy Belorusskogo Nauchno-Issledovatel'skogo Inst. Rybnogo Khozyaistva* **10**, 196-200.
- PRISZTER S., 1961: Wolffia, an adventitious plant. (In Hung.). *Bot.Közlem.* **49**, 118-121.
- PROCTOR G.R., 1982: More additions to the flora of Jamaica. *J.Arnold Arboretum* **63**, 207-210.
- PROSVIROVA L.V. and LEVANIDOV L.Y., 1979: Manganophilia in aquatic plants. (In Russian). *Khim.Biokhim.Okislenie Sist., Soderzh.d-Elem.* 7-10.
- PRYCE R.J., 1973a: Decomposition of aqueous solutions of gibberellic acid on autoclaving (*Lemna perpusilla*). *Phytochem.* **12(3)**, 507-514.
- PRYCE R.J., 1973b: Allogibberic acid: An inhibitor of flowering in *Lemna perpusilla*. *Phytochem.* **12**, 1745-1754.
- PRYCE R.J., 1974: Inhibition of flowering by hexahydrofluorene-9-carboxylic acids related to allogibberic acid. *Phytochem.* **13**, 2377-2382.
- PRYCE R.J., 1978: From natural to synthetic plant growth regulators. *Monogr.Br.Crop Prot.Counc.* **21**, 181-186.
- PURVES W.K., 1961: Dark reactions in the flowering of *Lemna perpusilla* 6746. *Planta* **56**, 684-690.
- QIAN K.C., 1982: A preliminary study on biology of *Tipula aino* Alexander. (In Chinese). *Insect Knowl.* **19(5)**, 9-11.
- QUIROZ F.A., 1981: Papel de algunas hidrofitas en la fertilidad del sistema chinampero. *Biotica* **5(4)**, 169-179.
- QUIROZ F.A., MIRANDA M.G. and HELGUERAS A.L., 1982: Uso potencial de algunas hidrofitas como abono verde en la zona chinampera de Xochimilco. *Biotica* **7(4)**, 631-633.
- RAABE E.-W., 1970: *Wolffia arrhiza* in Schleswig-Holstein. *Kieler Notizen Pflk.Schl.-Holst.* **5**, 13.
- RAABE U., 1984: *Lemna minuscula* Herter auch in Westfalen. *Gött.Florist. Rundbr.* **18(1-2)**, 42.
- RADENOVIC C., GRBOVIC M., VUCINIC Z. and DAMJANOVIC Z., 1980: A report on excitability phenomena of intact roots registered with microelectrodes. In: SPANSWICK R.M. et al. (eds.), *Plant membrane transport*. Elsevier, North-Holland. *Biomed.Press. Dev.Plant Biol.* **4**, 617-618.
- RADNER B.S. and THIMANN K.V., 1963: The biogenesis of anthocyanins. IX. The effect of ribonuclease on anthocyanin formation in *Spirodela oligorrhiza*. *Arch.Biochem.Biophys.* **102**, 92-95.
- RAFINESQUE SCHMALTZ C.S., 1808: Prospectus of two intended works on North-American Botany. *Medical Repository, New York* **II/5**, 350-356.
- RAGHAVENDRA A.S. and DAS V.S.R., 1976: Distribution of the C<sub>4</sub> dicarboxylic acid pathway of photosynthesis in local monocotyledonous plants and its taxonomic significance. *New Phytol.* **76(2)**, 301-305.
- RAGY H., PICKEN M. and MENDICINO J., 1973: Purification of a specific

- D-apiitol dehydrogenase from a *Micrococcus* isolated from the surface of germinating parsley seeds. *Biochim.Biophys.Acta* **315**, 259-271.
- RAHMAN A. and COX T.I., 1975: Bioassay techniques for the determination of herbicide residues. Proc. 28th NZ Weed and Pest Conf. Soil Field Res.Org., Ruakura Agric.Res.Centre, Hamilton, New Zealand, 96-100.
- RAKHIMOV A. and ABDIEV M., 1972: On the chemical composition of *Lemna* grown in various nutrient media. (In Russian). *Kult.Vod.Vyssh.Vodn. Rast.Uzbekistane* **1972**, 112-115.
- RAKHIMOV A. and RAKHIMOVA S., 1975: Study of the biochemical characteristics of small duckweed (content of carotene and ascorbic acid in a small duckweed culture biomass). (In Russian). *Vod.Griby Sredn.Azii*. 208-213.
- RAKHIMOV A. and RAKHIMOVA S., 1982: Effect of sewage from the swinery complex "Sergeli" and poultry farm "Uzbekistan" on the productivity and chemical composition of *Lemna minor* and *Spirodela*. (In Russian). *Uzb.Biol.Zh.* **1982(3)**, 18-20.
- RAKHIMOV A. and RAKHIMOVA S., 1983: On the possibility of growing aquatic macrophytes on certain sewage waters. (In Russian). *Uzb.Biol.Zh.* **1983(1)**, 21-24.
- RAKHIMOV A., RAKHIMOVA S. and ISMAILKHODZHAEV B., 1981: Effect of municipal sewage on the accumulation of organic substances, proteins and various fractions of carbohydrates in common duckweed biomass. (In Russian). *Uzb. Biol.Zh.* **1981(6)**, 14-17.
- RAMAYYA N. and RAJAGOPAL T., 1975: *Pseudowolffia hyalina* (Del.) Hart. and Plas (Lemnaceae) - A new record for Asia from Hyderabad (India). *Aquat.Bot.* **1**, 71-73.
- RAMIREZ C. and BECK S.G., 1981: Makrophytische Vegetation und Flora in Gewässern der Umgebung von La Paz, Bolivien. *Arch.Hydrobiol.* **91(1)**, 82-100.
- RAMIREZ C., ROMERO M. and RIVEROS M., 1979: Habit, habitat, origin and geographical distribution of Chilean vascular hydrophytes. *Aquat.Bot.* **7(3)**, 241-253.
- RANE D.A. and TUKEY L.D., 1972: A rapid technique for comparing the effectiveness of various growth regulants. *Hortscience* **7(3)**, 329.
- RANJEVA R., GRAZIANA A., RANTY B., CAVALIE G. and BOUDET A.M., 1984: Phosphorylation of proteins in plants: a step in the integration of extra- and intracellular stimuli? *Physiol.Vég.* **22(3)**, 365-376.
- RAO A.S. and VERMA D.M., 1979: Materials towards a monocot flora of Assam, India 5, Lemnaceae. *Bull.Bot.Surv.India* **18**, 30-36.
- RAO C.B., 1953: On the distribution of algae in a group of six small ponds. *J.Ecol.* **41**, 62-71.
- RAO D.S.K., MANISSERY J.K., DEVARAJ K.V. and MURTHY G.N., 1982: Culture of *Lemna minor* in cement cisterns using different organic and inorganic manures. *Mysore J.Agric.Sci.* **16(4)**, 462-468.
- RAO K.V.N., RAO S.S.R., RAO K.N. and SRIMANNARAYANA G., 1980: Effect of some proanthocyanidins and catechins on the growth of *Lemna paucicostata* Hegelm. *Proc.Indian Acad.Sci.(Plant Sci.)* **89**, 73-77.
- RAO R., 1969: Ultrastructure of *Spirodela polyrrhiza* (L.) Schleiden with specific reference to chloroplast development during turion germination. Ph.D.Thesis. NCSU, Raleigh. 121 pp.
- RAO R. 1982 see RAO R., 1969
- RAO S.S.R. and RAO K.V.N., 1984: Effect of certain proanthocyanidins and catechins on the nucleic acid and nitrogen contents of *Lemna paucicostata* Hegelm. *Proc.Indian Acad.Sci.(Plant Sci.)* **93(1)**, 1-5.
- RAO S.S.R. and RAO K.V.N., 1985a: Effect of certain proanthocyanidins on the chlorophyll content of *Lemna paucicostata* Hegelm. *Curr.Sci.* **54(18)**, 945-947.

- RAO S.S.R. and RAO K.V.N., 1985b: Mangiferin - a phenolic growth inhibitor. *Curr.Sci.* **54(20)**, 1075-1076.
- RAO S.V.R., 1984: Anaerobic digestion of two aquatic weeds for energy generation. *Resour.Manage.Optim.* **3(4)**, 343-352.
- RASOL M.K. and RENDIC L., 1977: The effect of some triazine derivatives on the growth and development of duckweeds. (In Serbo-Croat.). *Acta Bot.Croat.* **36**, 75-82.
- RATHJE W., 1952: Zur Physiologie des Kaliums. I. Mitt.: Parallelität von Kaliumgehalt und Säuregehalt lebender Zellen. *Z.Pflanzenernährung* **57**, 151-163.
- RAU W. and SCHROTT E.L., 1979: Light mediated biosynthesis in plants. *Photochem.Photobiol.* **30(6)**, 755-765.
- RAVEN J.A., 1970: Exogenous inorganic carbon sources in plant photosynthesis. *Biol.Rev.* **45**, 167-221.
- RAVEN J.A., 1981: Nutritional strategies of submerged benthic plants: the acquisition of C, N and P by rhizophytes and haptophytes. *New Phytol.* **88**, 1-30.
- RAWN G.P., WEBSTER G.R.B. and MUIR D.C.G., 1980: Analysis and fate of <sup>14</sup>C permethrin in an aquatic ecosystem. *Can.Plains Proc.* **9**, 25-33.
- RAWN G.P., WEBSTER G.R.B. and MUIR D.C.G., 1982: Fate of permethrin in model outdoor ponds. *J.Environ.Sci.Health B* **17(5)**, 463-486.
- RAWN G.P., MUIR D.C.G. and WEBSTER G.R.B., 1983: Uptake and persistence of permethrin by fish, vegetation and hydrosoil. *Can.Tech.Rep.Fish Aquat.Sci.* **1151**, 195-196.
- RAYNAL-ROQUES A., 1978: Les plantes aquatiques alimentaires. *Adansonia*, ser. 2, **18(3)**, 327-343.
- REAY P.F., 1972: The accumulation of arsenic from arsenic-rich natural water by aquatic plants. *J.Appl.Ecol.* **9**, 557-565.
- RECHINGER K.H., 1943: *Flora Aegaea*. Springer, Wien. 846 pp.
- REDDY K.R., 1984a: Nutrient removal potential of aquatic plants. *Aquatics* **6(1)**, 15-16.
- REDDY K.R., 1984b: Nutrient transformations in aquatic macrophyte filters used for water purification. *Proc. Water Reuse Symp.* **2**, 660-678.
- REDDY K.R. and DEBUSK W.F., 1985a: Nutrient removal potential of selected aquatic macrophytes. *J.Environ.Qual.* **14(4)**, 459-462.
- REDDY K.R. and DEBUSK W.F., 1985b: Growth characteristics of aquatic macrophytes cultured in nutrient-enriched water. II. *Azolla*, duckweed and *Salvinia*. *Econ.Bot.* **39(2)**, 200-208.
- REDDY K.R., SUTTON D.L. and BOWES G., 1983: Freshwater aquatic plant biomass production in Florida. *Proc.Soil Crop Sci.Soc.Florida* **42**, 28-48.
- REGNAULT F., 1910: La culture des lentilles d'eau dans la lutte contre le paludisme. *Bull.Soc.Path.Exot.* **12**, 735-736.
- REHMEL J.B., 1974: A habitat-distribution study of the planarian flatworm (*Dugesia* sp.) in Dewart Lake, Indiana. *J.Sci.Lab.Denison Univ.* **55(4-7)**, 85-94.
- REID M.S., 1968: Response of *Spirodela* to phosphorus deficiency. Ph.D. Thesis. Univ. of Auckland.
- REID M.S. and BIELESKI R.L., 1970a: Response of *Spirodela oligorrhiza* to phosphorus deficiency. *Plant Physiol.* **46**, 609-613.
- REID M.S. and BIELESKI R.L., 1970b: Changes in phosphatase activity in phosphorus-deficient *Spirodela oligorrhiza*. *Planta* **94(4)**, 273-281.
- REISFELD A. and EDELMAN M., 1979: In vitro translation and control of membrane protein synthesis in *Spirodela* chloroplasts. *Isr.J.Med.Sci.* **15(1)**, 109.
- REISFELD A., JAKOB K.M., GRESSEL J. and EDELMAN M., 1977: Two *Spirodela*

- chloroplast mRNAs and their discrete polypeptid products. *Isr.J.Bot.* **26(1)**, 49.
- REISFELD A., GRESSEL J., JAKOB K.M. and EDELMAN M., 1978a: Characterization of the 32,000 dalton membrane protein. I. Early synthesis during photoinduced plastid development of *Spirodela*. *Photochem.Photobiol.* **27**, 161-165.
- REISFELD A., JAKOB K.M. and EDELMAN M., 1978b: Characterization of the 32000 dalton chloroplast membrane protein. II. The molecular weight of chloroplast messenger RNAs translating the precursor to P-32000 and full-size RUDP carboxylase large subunit. In: AKOYUNOGLU G. and ARGYROUDI-AKOYUNOGLU J.H. (eds.), *Chloroplast development*. Elsevier, North-Holland. Biomed.Press. 669-674.
- REISFELD A., JAKOB K.M. and EDELMAN M., 1978c: Molecular weight of chloroplast messenger RNA translating full-size RUDP carboxylase large subunit. *Plant Physiol.* **61(4 suppl.)**, 104.
- REISFELD A., JAKOB K.M. and EDELMAN M., 1978d: Characterization of the main membrane protein synthesized within the chloroplast of *Spirodela*. *Isr.J.Bot.* **27(1)**, 39.
- REISFELD A., MATTOO A.K. and EDELMAN M., 1982: Processing of a chloroplast-translated membrane protein in vivo. Analysis of the rapidly synthesized 32,000 dalton shield protein and its precursor in *Spirodela oligorrhiza*. *Eur.J.Biochem.* **124(1)**, 125-129.
- REJMANKOVA E., 1971: The influence of temperature and irradiance on the growth and production of duckweeds (*Lemna gibba* L., *Lemna minor* L. and *Spirodela polyrrhiza* [L.] Schleiden). (In Czech.). Thesis. Charles Univ., Praha. 100 pp.
- REJMANKOVA E., 1973a: Biomass, production and growth rate of duckweeds (*Lemna gibba* and *L. minor*). In: HEJNY S. (ed.), *Ecosystem study on wetland biome in Czechoslovakia*. Trebon. 101-106.
- REJMANKOVA E., 1973b: Seasonal changes in the growth rate of duckweeds (*Lemna gibba* L.) in the littoral of the Nesyt fishpond. In: KVET J. (ed.), *Littoral of the Nesyt fishpond*. *Ekol.Stud.Czech.Akad.Praha* **15**, 103-106.
- REJMANKOVA E., 1973c: Seasonal changes in the growth rate of duckweed community (*Lemnetum gibbae*). *Folia Geobot.Phytotax.* **8**, 1-13.
- REJMANKOVA E., 1973d: Biomass of submerged macrophytes growing in the Nesyt fishpond. In: KVET J. (ed.), *Littoral of the Nesyt fishpond*. *Ecol.Stud.Czech.Akad.Praha* **15**, 107-110.
- REJMANKOVA E., 1975a: The growth of *Lemna* ssp. under natural and semi-natural conditions. *Abstr.12th Int.Bot.Congr., Leningrad.* 164.
- REJMANKOVA E., 1975b: Comparison of *Lemna gibba* and *Lemna minor* from the production ecological viewpoint. *Aquat.Bot.* **1**, 423-428.
- REJMANKOVA E., 1975c: Biology of duckweeds in a Pannonian fishpond. *Symp.Biol.Hung.* **15**, 125-131.
- REJMANKOVA E., 1976: Germination of seeds of *Lemna gibba*. *Folia Geobot. Phytotax.* **11**, 261-267.
- REJMANKOVA E., 1978: Growth, production and nutrient uptake of duckweeds in fishponds and in experimental cultures. In: DYKYOVA D. and KVET E. (ed.), *Pond littoral ecosystems. Ecol.Studies, Analysis and Synthesis*. Springer, Berlin/Heidelberg. **28**, 278-291.
- REJMANKOVA E., 1979: The role of duckweeds in fishpond ecosystems. (In Czech.). Ph.D.Thesis. Univ. Pruhonice. 166 pp.
- REJMANKOVA E., 1981: On the production ecology of duckweeds. *Intern. Workshop on Aquatic Macrophytes, Illmitz, Austria.* 7 pp.
- REJMANKOVA E., 1982: The role of duckweeds (*Lemnaceae*) in small wetland water bodies of Czechoslovakia. In: GOPAL B. et al. (eds.), *Wetlands:*

- ecology and management. Proc.1st Intern.Wetlands Conf.(New Delhi 1980). 397-403.
- REJMANKOVA E., 1986: Relationship between competitive strength and fungal resistance in Lemnaceae. 8 pp. (Polycopy).
- REJMANKOVA E., KVET J. and REJMANEK M., 1979: The possibilities of the use of floating aquatic plants for biological water treatment. (In Czech.). 5th Conf.Limnology, Dum techniky CSVTS, Pardubice. 304-309.
- REJMANKOVA E., CULLEY D.D., KVET J. and REJMANEK M., 1983: Maximizing duckweed production by optimal strategy. 14 pp. (Polycopy).
- REJMANKOVA E., BLACKWELL M. and CULLEY D.D., 1986: Dynamics of fungal infection in duckweeds (Lemnaceae). Veröff.Geobot.Inst.ETH,Stiftung Rübél,Zürich **87**, 178-189.
- REUTER L., 1948: Die Protoplasmatik der Schliesszellen von Schwimmpflanzen. I. Die Schliesszellen von Lemna minor. Phyton(Austria) **1**, 76-79.
- REUVENY Z., 1974: ATP sulfurylase assay based on differential solubility of sulfate and adenosine phosphosulfate. Fed.Proc. **33(5/2)**, 1446.
- REVIER J.M., 1979: Ecological distribution of Spirodela polyrrhiza var. masonii in W. Nederland. (In Dutch). Mimeogr.Rep.Hugo de Vries Lab. **76**.
- REZNIK H. and MENSCHICK R., 1969: Flavonoide in Sommergliedern und Winterknospen von Spirodela polyrrhiza (L.) Schleid. Z.Pflanzenphysiol. **61**, 348-349.
- REZNIK H. and NEUHAEUSEL R., 1959: Farblose Anthocyanine bei submersen Wasserpflanzen. Z.Bot. **47**, 471-489.
- RHO J. and TAYLOR M., 1981: Composition, characterization and significance of phyllosphere and rhizosphere microflora of duckweed (Lemna sp.). Abstr.Annu.Meet.Am.Soc.Microbiol. **81**, 180.
- RHODES D., 1976: The regulation of ammonia assimilation in Lemna minor L. Ph.D.Thesis. Univ. Manchester.
- RHODES D. and STEWART G.R., 1974: A procedure for the in-vivo determination of enzyme activity in higher plant tissue. Planta **118(2)**, 133-144.
- RHODES D., RENDON G.A. and STEWART G.R., 1975: The control of glutamine synthetase level in Lemna minor L. Planta **125**, 201-211.
- RHODES D., RENDON G.A. and STEWART G.R., 1976: The regulation of ammonia assimilating enzymes in Lemna minor. Planta **129**, 203-210.
- RHODES D., SIMS A.P. and STEWART G.R., 1979: Glutamine synthetase and the control of nitrogen assimilation in Lemna minor. In: HEWITT E.J. and CUTTING C.V. (eds.), Nitrogen assimilation of plants. Long Ashton Symp.(Proc.)1977. Acad.Press,London. **6**, 501-520.
- RHODES D., SIMS A.P. and FOLKES B.F., 1980: Pathway of ammonia assimilation in illuminated Lemna minor. Phytochem. **19**, 357-365.
- RHODES D., MYERS A.C. and JAMIESON G., 1981a: A rapid method for the determination of the <sup>15</sup>N abundance of amino acids using electron impact gas chromatography mass spectrometry. Plant Physiol. **67(4 suppl.)**, 7.
- RHODES D., MYERS A.C. and JAMIESON G., 1981b: Gas chromatography mass spectrometry of N-heptafluorobutyl isobutyl esters of amino acids in the analysis of the kinetics of <sup>15</sup>N labeled ammonium assimilation. Plant Physiol. **68(5)**, 1197-1205.
- RHODES D., DEAL L., HAWORTH P., JAMIESON G.C., REUTER C.C. and ERICSON M.C., 1986: Amino acid metabolism of Lemna minor L. 1. Responses to methionine sulfoximine. Plant Physiol. **82(4)**, 1057-1062.
- RHODES L.W., 1968: The duckweeds: their use in the High School Laboratory. Am.Biol.Teacher **30(7)**, 548-551.
- RICHARD A., 1833a: Reliquiae Richardianae ad analysin botanicam spectantes Nayadeae. Arch.Bot. **1**, 200-210.

- RICHARD A., 1833b: Observations sur le genre Lemna. Arch.Bot. 1, 210-212.
- RICHARD E.P., Jr., MILLER T.C. and BOWMAN D.H., 1980: Bifenox as an herbicide for the control of barnyardgrass in rice. MAFES Res.Highlights 43(4), 8.
- RICHARD J.M., RAVANEL P. and CANTIN D., 1987: Phytotoxicity of orellanine (a mushroom toxin). Toxicon 25(3), 350-354.
- RICHARDSON L.V., 1975: Water level manipulation: a tool for aquatic weed control. Hyacinth Control J. 1975, 8-11.
- RICHARDSON W.G., 1985: Bioassays for glyphosate. In: GROSSBARD E. and ATKINSON D. (eds.), The herbicide glyphosate. Butterworths, London. 286-298.
- RIDLEY H.N., 1930: The dispersal of plants throughout the world. Reeve, Ashford. 744 pp.
- RIEDL H., 1976: Lemnaceae. In: RECHINGER K.H. (ed.), Flora Iranica 119, 8 pp.
- RIEMER D.N. and TOTH S.J., 1968: A survey of the chemical composition of aquatic plants in New Jersey. New Jersey Agric.Exp.Stat.Bull. 820, 14.
- RIFAI S.A., 1979: The use of aquatic plants as feed for Tilapia nilotica in floating cages. Asian Aquaculture 2(6), 4-5.
- RIMES C.A. and GOULDER R., 1985: A note on the attachment rate of suspended bacteria to submerged aquatic plants in a calcareous stream. J.Appl.Bacteriol. 59(4), 389-392.
- RIMON D., 1964: Bud initiation in Spirodela oligorrhiza. Isr.J.Bot. 13, 24-29.
- RIMON D. and GALUN E., 1965 see 1968a
- RIMON D. and GALUN E., 1967: Morphogenesis in Spirodela oligorrhiza: Effects of pyrimidine base analogues on initiation, elongation and differentiation of fronds. Plant Cell Physiol. 8, 283-291.
- RIMON D. and GALUN E., 1968a: Morphogenesis of Spirodela oligorrhiza: ontogenesis of fronds. Bot.Gaz. 129, 138-144.
- RIMON D. and GALUN E., 1968b: Morphogenesis of Wolffia microscopica: frond and flower development. Phytomorphology 18, 364-372.
- RIMON D., GRESSEL J. and GALUN E., 1969: Pyrimidine analogues and nucleic acid synthesis in Spirodela. Isr.J.Bot. 18(3), 113-121.
- RIPL W., 1976: Processing lakes with damaged ecosystems. Vierteljahr-schr.Natf.Ges.Zürich 121(4), 301-308.
- RIVAS-MARTINEZ S., 1982: Vegetatio Matritensis. I. Datos sobre la vegetacion flotante dulcacuicola de la clase Lemnetae minoris. Lazaroa 4, 149-154.
- ROBERTS M.L., 1972: Wolffia in the bladders of Utricularia: an "herbivorous" plant? Mich.Bot. 11, 67-69.
- ROBERTS R.M. and LOEWUS F., 1968: Inositol metabolism in plants. VI. Conversion of myo-inositol to phytic acid in Wolffiella floridana. Plant Physiol. 43, 1710-1716.
- ROBERTS R.M., SHAH R.H. and LOEWUS F., 1967: Inositol metabolism in plants. IV. Biosynthesis of apiose in Lemna and Petroselinum. Plant Physiol. 42(5), 659-666.
- ROBERTS R.M., CONNOR A.B. and CETORELLI J.J., 1971: The formation of glycoproteins in tissues of higher plants: Specific labelling with D-(1-<sup>14</sup>C) glucosamine. Biochem.J. 125, 999-1008.
- ROBERTSON-CUNNINGHAME R.C. and BLACKMAN G.E., 1952: Effects of preliminary treatment on the subsequent variation in the resistance of Lemna minor to the phytotoxic action of 2,4-dichlorophenoxyacetic acid. Nature 170, 459.

- ROBINETTE R., 1980a: Use of duckweeds in catfish diets. M.S.Thesis. Dept.Wildlife Manage.,Mississippi State Univ.,State College.
- ROBINETTE H.R., BRUNSON M.W. and DAY E.J., 1980: Use of duckweed in diets of channel catfish. Proc.13th Annu.Conf.SE Assoc.Fish Wildlife Age. 108-114.
- RODGERS J.H., Jr. and CHERRY D.S., 1975: Ash basin effluent impact on the aquatic flora of a stream and swamp drainage system. ASB Bull. **22(2)**, 76.
- RODGERS J.H. Jr., CHERRY D.S. and GUTHRIE R.K., 1978: Cycling of elements in duckweed (*Lemna perpusilla*) in an ash settling basin and swamp drainage system. Water Res. **12**, 765-770.
- ROELOFS J.G.M., 1983: Impact of acidification and eutrophication on macrophyte communities in soft waters in the Netherlands. I. Field observations. Aquat.Bot. **17(2)**, 139-155.
- ROHWEDER H., 1937: Versuch zur Erfassung der mengenmässigen Bedeckung der Darss und Zingst mit polyploiden Pflanzen. Ein Beitrag zur Bedeutung der Polyploidie bei der Eroberung neuer Lebensräume. Planta **27**, 501-549.
- ROLA J., GABINSKA K. and GOJDEN B., 1975: Evaluation of biotests for determining herbicide effectiveness. (In Russian). Nauchn.Tsentr.Biol. Issl.,Pushchino(USSR) **75(1)**, 205-211.
- ROMBACH J., 1961: Growth of *Lemna minor* as influenced by light and kinetin. In: CHRISTENSEN B.C. and BUCHMANN B. (eds.), Progress in photobiology. Elsevier, Amsterdam. 379-380.
- ROMBACH J., 1965: The influence of the phytochrome reaction on the growth of *Lemna minor* L. Meded.Landbouwhogeschool Wageningen **65(14)**, 1-11.
- ROMBACH J., 1966: The phytochrome reaction in *Lemna minor* L. Photochem. Photobiol. **5**, 383-384.
- ROMBACH J., 1971: On the interaction of kinetin and phytochrome in *Lemna minor* growing in the dark. Acta Bot.Neerl. **20**, 636-645.
- ROMBACH J., 1974a: Thiamine requirement and phytochrome in *Lemna minor* L. In: DE GREEF J.A. (ed.), Proc.Ann.Europ.Symp.Plant Morphogenesis, Antwerpen. 83-85.
- ROMBACH J., 1974b: Growth stimulation by cytokinins, thiamine and phytochrome in *Lemna minor* L. in darkness and in light. Acta Bot.Neerl. **23(3)**, 348.
- ROMBACH J., 1976: Effects of light and phytochrome in heterotrophic growth of *Lemna minor* L. Meded.Landbouwhogeschool Wageningen **76(1)**, 1-114.
- ROMBACH J., 1978: Phytochrome variation and reversion in *Lemna minor*, *L. gibba* G3 and *L. paucicostata* 6746. Photochem.Photobiol. **27**, 781-786.
- ROMBACH J. and SPRUIT C.J.P., 1968: On phytochrome in *Lemna minor* and other Lemnaceae. Acta Bot.Neerl. **17**, 445-454.
- ROSENTHAL G.A., GULATI D.K. and SABHARWAL P.S., 1975: Studies on the growth effects of the canaline-urea cycle amino acids with *Lemna minor* L. Plant Physiol. **56**, 420-424.
- ROSENTHAL G.A., GULATI D.K. and SABHARWAL P.S., 1976: Additive and synergistic growth-inhibiting properties of the canaline-urea cycle amino acid. Plant Physiol. **57**, 493-496.
- ROSNER A., POSNER H.B. and GRESSEL J., 1973: Synthesis and processing of RNA in *Lemna*. Characterization by gel electrophoresis. Plant Cell Physiol. **14**, 555-564.
- ROSNER A., PORATH D. and GRESSEL J., 1974a: The distribution of plastid ribosomes and the integrity of plastid ribosomal RNA during the

- greening and maturation of Spirodela fronds. *Plant Cell Physiol.* **15**, 891-902.
- ROSNER A., EDELMAN M. and GRESSEL J., 1974b: Thermal denaturation of nucleic acids in polyacrylamide gels. *Anal.Biochem.* **58(2)**, 602-608.
- ROSNER A., JAKOB K.M., GRESSEL J. and SAGHER D., 1975a: The early synthesis and possible function of a  $0.5 \times 10^6$  M<sup>r</sup> RNA after transfer of dark-grown Spirodela plants to light. *Biochem.Biophys.Res.Comm.* **67**, 383-391.
- ROSNER A., POSNER H.B. and GRESSEL J., 1975b: Synthesis and processing of RNA in Lemna. *Isr.J.Bot.* **24(1)**, 46.
- ROSNER A., JAKOB K.M., GRESSEL J., SAGHER D. and EDELMAN M., 1976: Early synthesis and possible function of a 500000 molecular weight RNA after transfer of dark grown Spirodela plants to light. *Isr.J.Bot.* **25(1-2)**, 98.
- ROSNER A., GRESSEL J. and JAKOB K.M., 1977a: Discoordination of ribosomal RNA metabolism during metabolic shifts of Spirodela plants. *Biochim.Biophys.Acta* **474**, 386-397.
- ROSNER A., HELLER D. and EDELMAN M., 1977b: Polyacrylamide gel as a medium for DNA dissociation and reassociation. *Mol.Biol.Rep.* **3(3)**, 207-212.
- ROSNER A., REISFELD A., JAKOB K.M., GRESSEL J. and EDELMAN M., 1977c: Shifts in the RNA and protein metabolisms of Spirodela (duckweed). In: BOGORAD I.L. and WEIL J. (eds.), *Coll.Int.CNRS* **261**, 561-568.
- ROSS J.H., 1979: Structure-activity relationships in the toxicology of 4,4'-bipyridylum salts in the rat (*Rattus norvegicus*) and the duckweed (*Spirodela oligorrhiza*). *Diss.Abstr.Int.B* **40(2)**, 699.
- ROSS J.H., KRIEGER R.I. and LIM L.O., 1979a: Herbicidal potency of paraquat homologues as a function of their physicochemical constants in duckweed. *Toxicol.Appl.Pharmacol.* **48(1/2)**, A194.
- ROSS J.H., LIM L.O. and KRIEGER R.I., 1979b: Herbicidal potency of 1,1'-alkyl-4,4'-bipyridylum salts as a function of their physicochemical constants in duckweed. *Drug Chem.Toxicol.* **2**, 193-205.
- ROSS S.L., DOUGHTY C.R. and MURPHY K.J., 1986: Cause, effects and environmental management of a Lemna problem in a Scottish canal. *Proc.7th Intern.Symp.Aquatic Weeds.* 277-283.
- ROSSI J.B., 1969: La germinacion de semillas de Spirodela intermedia W. Koch. *Soc.Argent.Bot.Bol.* **11(4)**, 235-238.
- ROSTOVTZEVA Z.P., 1967: The organogenesis and the characteristic structural features of *Wolffia arrhiza* (L.) Wimm. during the vegetative period of life. (In Russian). *Bot.Zh.(USSR)* **52**, 1177-1184.
- ROSTOWZEW S.I., 1901: On the flowering of duckweeds in the region of Moskwa. (In Russian). *Ann.Inst.Agron.Moscou* **7**, 63-70.
- ROSTOWZEW S.I., 1905: On the biology and morphology of duckweeds. (In Russian). *Ann.Inst.Agron.Moscou* **11**, 222-329.
- ROTH G., 1982: Vergleichende Untersuchungen über die Wirkung von Pentachlorphenol auf die Aktivitäten von Nitratreduktase und Nitritreduktase verschiedener Lemnaceen. Diploma Thesis. TU, München. (Polycopy).
- ROTTENBURG T., SCHARFETTER E. and KANDELER R., 1981: Short period oscillation of starch levels in Lemna under light and darkness. *Photosynth.Res.* **1(4)**, 251-258.
- ROTTMANN R., 1977: Management of weedy lakes and ponds with grass carp. *Fisheries* **2(5)**, 8-14.
- ROULET M.G., 1975: Wasserlinsen (*Lemna minor* L.) als Testpflanzen von Klärschlamm. *Schweiz.Landwirtsch.Forsch.* **14(1)**, 79-82.
- ROUSSEAU J., 1945: Le folklore botanique de Caughnawaga et le folklore

- botanique de l'Ile aux Coudres. Contrib.Inst.Bot.Univ.Montreal **55**, 7-111.
- ROUY G., 1912: Flore de France. Deyrolle, Paris. **13**, 283-287.
- ROWE E.L., ZIOBRO R.J., WANG C.J.K. and DENCE C.W., 1982: The use of an alga *Chlorella pyrenoidosa* and a duckweed *Lemna perpusilla* as test organisms for toxicity bioassays of spent bleaching liquors and their components. Environ.Pollut. A **27(4)**, 289-296.
- ROWECK H., 1981: Die Gefäßpflanzen von Schwedisch Lappland. Flora Veget.Mundi **8**. Cramer, Vaduz. 639.
- ROXBURGH W., 1832: Flora Indica. Mission Press, Calcutta. **3**, 565-566.
- ROY R.P. and DUTT B., 1967: Cytology of *Wolffia microscopica* Kurz. Cytologia **32**, 270-272.
- RUIZ-LEAL A., 1951: La floracion de *Lemna gibba* L. y *Lemna Parodiana* Giard. (Lemnaceas) en Mendoza. Rev.Fac.Cienc.Agr. **3(1)**, 1-8.
- RUNGE F., 1972: Die Flora Westfalens. (2nd ed.). Münster.
- RUNGE F., 1979: Neue Beiträge zur Flora Westfalens. Natur und Heimat **39**, 69-103.
- RUSKIN F.R. and SHIPLEY D.W. (eds.), 1976: Making aquatic weeds useful: Some perspectives for developing countries. Appendix A: Duckweeds and their uses. Natl.Acad.Sci., Washington, D.C. 148-154.
- RUSOFF L.L., GANTT D.T., WILLIAMS D.M. and GHOLSON J.H., 1977: Duckweed - a potential feedstuff for cattle. J.Dairy Sci. **60(suppl.1)**, 161.
- RUSOFF L.L., ZERINGUE S.P., ACHACOSO A.S. and CULLEY D.D., 1978: Feeding value of duckweed (an aquatic plant, family Lemnaceae) for ruminants. J.Dairy Sci. **61(suppl.1)**, 186.
- RUSOFF et al., 1980 see 1980b
- RUSOFF L.L., ACHACOSO A.S. and GHOLSON J.H., 1980a: Nutritional studies with duckweeds. In: CRYE J.B. and CULLEY D.D. (eds.), U.S.Dept.Energy Final Report. Louisiana State Univ., Baton Rouge. 2 pp. (Polycopy).
- RUSOFF L.L., BLAKENEY E.W. and CULLEY D.D., 1980b: Duckweeds (Lemnaceae family) - a potential source of protein and amino acids. J.Agric.Food Chem. **28**, 848-850.
- RUTTER J.C. and ERISMANN K.H., 1985: Influence of nitrogen availability on aminotranferases in *Lemna minor* L. J.Exp.Bot. **36(165)**, 583-589.
- RUTTNER F., 1947: Zur Frage der Karbonatassimilation der Wasserpflanzen. I. Die beiden Haupttypen der Kohlenstoffaufnahme. Oesterr.Bot.Z. **94**, 265-284.
- RUTTNER F., 1948: Zur Frage der Kohlenstoffassimilation der Wasserpflanzen. II. Das Verhalten von *Elodea canadensis* und *Fontinalis antipyretica* in Lösungen von Natrium- bzw. Kaliumkarbonat. Oesterr.Bot.Z. **95**, 208-238.
- RYANG H.S., KIM M.K. and JEON J.C., 1976: Control of perennial weeds in paddy rice in Korea. Proc.5th Asian-Pac.Weed Sci.Soc.Conf.(Tokyo). 293-297.
- RYAZANOVA A.V. and LYSENKO N.L., 1985: Dynamics of 2,4-DNA concentration in an aquatic environment and duckweed tissues in relation to pH. (In Russian). Yaroslav.Univ., 28-33. Ref.Biol.Zh. (1986), 10G296.
- RYTHER J.H., ANDREWS D.A., DEBUSK T.A., FALKNER B.E., HANISAK M.D., STENBERG R.W., TUCKER C.S. and WILLIAMS L.D., 1980: Studies on biomass and biogas production by aquatic macrophytes. Proc.Bio-Energy (Washington D.C.), 130-133.
- RYTHER J.H., WILLIAMS L.D., HANISAK M.D., STENBERG R.W. and DeBUSK T.A., 1979: Biomass production by marine and freshwater plants. Proc.Bio-Energy, Golden, Colo, 13-23.

- SABAT S.C. and SAHA S., 1986: Photosynthetic metabolism of dark fixed carbon in some aquatic angiosperms. *Ind.J.Exp.Biol.* **24**(8), 517-519.
- SABHARWAL P.S. and BHALLA P.R., 1973: Biological effects of tobacco smoke and its constituents on cells, tissues and chromosomes of plants. *Kentucky Univ.Tob.Health Res.Inst.Conf.Rep.* **4**, 632-651.
- SABULARSE D.C. and ANDERSON R.L., 1982: Purification, properties and distribution of D-fructose-2,6-bisphosphate-activated inorganic pyrophosphate:D-fructose-6-phosphate 1-phosphotransferase. *Plant Physiol.* **69**(4 suppl.), 128.
- SAEGER A., 1925: The growth of duckweeds in mineral nutrient solutions with and without organic extracts. *J.Gen.Physiol.* **7**, 517-526.
- SAEGER A., 1929: The flowering of the Lemnaceae. *Bull.Torr.Bot.Club* **56**, 351-358.
- SAEGER A., 1930: A method of obtaining pure cultures of *Spirodela polyrrhiza*. *Bull.Torr.Bot.Club* **57**, 117-121.
- SAEGER A., 1932 see 1934
- SAEGER A., 1933a: Manganese and the growth of Lemnaceae. *Am.J.Bot.* **20**, 234-245.
- SAEGER A., 1933b: Gas injury to pure cultures of *Spirodela*. *Plant Physiol.* **8**, 479-480.
- SAEGER A., 1934: *Spirodela oligorrhiza* collected in Missouri. *Bull.Torr.Bot.Club* **61**, 233-236.
- SAEGER A., 1937: The concentration of copper in nutrient solutions for *Spirodela polyrrhiza*. *Am.J.Bot.* **24**, 640-643.
- SAGGESE E.J., FOGLIA T.A., LEATHER G., THOMPSON M.P., BILLS D.D. and HOAGLAND P.D., 1985: Fractionation of allelochemicals from oilseed sunflowers and Jerusalem artichokes. In: *The chemistry of allelopathy*. *Am.Chem.Soc.(Washington D.C.)*. 99-112.
- SAHAI R. and ROY P.S., 1977: Report of two natural enemies of *Spirodela polyrrhiza* (L.) Schleid. *Curr.Sci.* **46**(23), 825.
- SAHAI R. and SINHA A.B., 1970: Contribution to the ecology of Indian aquatics. II. Studies on the growth rate of 'duck-weeds' (*Lemna minor* Linn. and *Spirodela polyrrhiza* [Linn.] Schleid.) under laboratory conditions. *Proc.Nat.Acad.Sci.India B* **39**(1969), 143-144.
- SAHAI R., ROY P.S. and KAUR G., 1977a: A comparative study of the toxicity of synthetic detergents on two common duckweeds at Gorakhpur. *Indian J.Ecol.* **4**, 242-245.
- SAHAI R., SINGH S.P. and GANGULEE K., 1977b: Role of synthetic detergent on the growth behaviour of *Spirodela polyrrhiza* (L.) Schleid. *Curr.Sci.* **46**(19), 676-677.
- SAHAI R., ROY P.S. and WAJIH S.A., 1980: Effect of certain herbicides on the growth performance of *Spirodela polyrrhiza*. *Indian J.Weed Sci.* **12**(1), 87-92.
- SAID M.Z.B.M., 1978: Growth of duckweed *Spirodela polyrrhiza* in a system utilizing dairy cattle manure. M.S.Thesis. Louisiana State Univ., Baton Rouge. 48 pp.
- SAID M.Z.M., CULLEY D.D. Jr., STANDIFER L.C., EPPS E.A., MYERS R.W., and BONEY S.A., 1979: Effect of harvest rate waste loading, and stocking density on the yield of duckweeds. *Proc.World Maricul.Soc.* **10**, 769-780.
- SAJI H., FURUYA M. and TAKIMOTO A., 1982: Spectral dependence of night break effect on photoperiodic floral induction in *Lemna paucicostata* 441. *Plant Cell Physiol.* **23**(4), 623-629.
- SAJI H., NAGATANI A., YAMAMOTO K.T., FURUYA M., FUKUMOTO T. and YAMASHITA A., 1984: Cross-reactivity of monoclonal antibodies against rye and pea phytochrome with phytochromes extracted from 8 different plant species. *Plant Sci.Lett.* **37**(1-2), 57-62.

- SAKAI W.S., SHIROMA S.S. and NAGAO M.A., 1984: A study of raphide microstructure in relation to irritation. *Scann.Electr.Microsc.* **2**, 979-986.
- SAKS Y., ILAN I. and NEGBI M., 1975: Production and release of abscisic acid in cultures of *Spirodela polyrrhiza* and its possible role in the regulation of morphogenetic events. *Plant Physiol.* **56**(2 suppl.), 85.
- SAKS Y., NEGBI M. and ILAN I., 1980: Involvement of native abscisic acid in the regulation of onset of dormancy in *Spirodela polyrrhiza*. *Austr.J.Plant Physiol.* **7**, 73-79.
- SAMPFORD M.R., 1952: Studies in the principles of phytotoxicity. II. Experimental designs and techniques of statistical analysis. *J. Exp.Bot.* **3**, 28-46.
- SAMUELSSON G., 1934: Die Verbreitung der höheren Wasserpflanzen in Nord-europa (Fennoskandien und Dänemark). *Acta Phytogeogr. Suecica* **6**, 211 pp.
- SANCHEZ ANTA A., NAVARRO ANDRES F. and ELENA-ROSELLO J.A., 1984: Adquisicion de caracteres de adaptacion de las Lemnaceas a la vida dulcea-cuicola. *Studia Bot.* **3**, 281-286.
- SANDERMANN H., Jr., 1969: Specific and rapid determination of D-apiose. *Phytochem.* **8**(8), 1571-1575.
- SANDERMANN H., Jr. and GRISEBACH H., 1970: Biosynthesis of D-apiose. V. NAD<sup>+</sup>-dependent biosynthesis of UDP-apiose and UDP-xylose from UDP-D-glucuronic acid with an enzyme preparation from *Lemna minor* L. *Biochim.Biophys. Acta* **208**, 173-180.
- SANDERMANN H., Jr., TISUE G.T. and GRISEBACH H., 1968: Biosynthesis of D-apiose. IV. Formation of UDP-apiose from UDP-D-glucuronic acid in cell-free extracts of parsley (*Apium petroselinum* L.) and *Lemna minor*. *Biochim.Biophys.Acta* **165**, 550-552.
- SANKARAN U.K., 1972: Seasonal variation in chemical constituents of some aquatic plants. *J.Bombay Nat.Hist.Soc.* **69**, 242-246.
- SANKHLA N. and HUBER W., 1979: Effect of abscisic acid on enzyme induction in *Lemna minor* L. *Z.Pflanzenphysiol.* **91**, 7-15.
- SARAWEK S., 1977: The effect of pyridoxal phosphate on the activity of aldolase from *Lemna minor*. *J.Sci.Fac.Chiangmai Univ.* **4**, 62-87.
- SARAWEK S. and DAVIES D.D., 1977a: The effect of pyridoxal phosphate on the activity of aldolase from *Lemna minor* L. *Planta* **137**, 265-270.
- SARAWEK S. and DAVIES D.D., 1977b: The control of aldolase in *Lemna minor* L. in relation to nitrogen deficiency. *Planta* **137**, 271-277.
- SARGENT J.A., 1957: Factors determining the pattern of vascular tissue in *Lemna minor* L. Ph.D.Thesis. Univ. London.
- SARGENT J.A. and WANGERMANN E., 1959: The effect of some growth regulators on the vascular system of *Lemna minor*. *New Phytol.* **58**, 345-363.
- SAROSIEK J. and WOZAKOWSKA-NATKANIEC H., 1980: The populations of *Lemna minor* L. and *Spirodela polyrrhiza* (L.) Schleiden as bioindicators of heavy metals water pollutions in extent of foundry emission. *Proc. 3rd Int.Conf.Bioindic.Deterior.Reg.(Praha)*. 25-31.
- SAROSIEK J. and WOZAKOWSKA-NATKANIEC H., 1984: The effect of calcium and magnesium on the radiosensitivity of *Wolffia arrhiza* (L.) Wimm. *Acta Soc.Bot.Pol.* **53**(3), 399-410.
- SAROSIEK J., WOZAKOWSKA-NATKANIEC H. and NIEMIEC C., 1982: The influence of heavy metals on the dynamics of the *Lemna minor* population. (In Polish). *Acta Univ.Wratisl.* **530**, *Prace Bot.* **25**, 11-39.
- SASTROUTOMO S.S., 1982: Summer biomass of aquatic macrophytes in relation to sediment characteristics in Lake Aino-Numa, Miyaki. *Jap.J. Ecol.* **32**(1), 45-55.
- SASTROUTOMO S.S., 1984: Classification and ordination of aquatic vegetation in Lake Aino-Numa, Miyaki. *Ecol.Rev.* **20**(3), 205-222.

- SATAKE K. and SHIMURA S., 1983: Carbon dioxide assimilation from air and water by duckweed *Spirodela polyrrhiza* (L.) Schleid. *Hydrobiol.* **107** (1), 51-55.
- SATAKE K. and UEHIRO T., 1984: Selection of indicator plants for detection of heavy metal pollution. (In Japan.) *Kok.Kog.Kenkyusho Kenkyu Hokoku* **58**, 11-20.
- SATO T. and ODA Y., 1977: Significance of timing and number of short-day cycles for initiation and subsequent development of floral buds in *Lemna perpusilla* 6746. *Plant Cell Physiol.* **18**, 1041-1046.
- SATO T. and ODA Y., 1978: Effects of culture conditions on development in continuous light of floral buds in *Lemna perpusilla* 6746. *Plant Cell Physiol.* **19**(4), 537-543.
- SAUNDERS G.W., 1957: Interrelations of dissolved organic matter and phytoplankton. *Bot.Rev.* **23**, 389-409.
- SAUNDERS J.A. and McCLURE J.W., 1976: The distribution of flavonoids in chloroplasts of twenty five species of vascular plants. *Phytochem.* **15**(5), 809-810.
- SAUZE F., 1982: Cultures en alimentation subcontinue. Influence et optimisation de certains paramètres. *Tech.Eau Assainiss.* **422**, 27-39.
- SAVAGE K.E., TRUELOVE B. and WIESE A.F., 1978: Herbicide movement from application sites and effects on non-target species. *South.Coop.Ser. Bull.* **234**, 16 pp.
- SAVAGE S., 1945: A catalogue of the Linnaean Herbarium. *Linn.Soc., London.* 225 pp.
- SAVULESCU T., 1972: *Flora Rep.Soc. Rom. Acad.Rep.Soc. Rom.* **12**, 780-787.
- SBURLINO G., SCOPPOLA A. and MARCHIORI S., 1986: Contributo alla conoscenza degli ambienti umidi della Pianura Padana orientale: la Classe *Lemnetea minoris* R.Tx. 1955 em. Schw. et R.Tx. 1981. *Not.Soc.Ital. Fitosoc.* **21**, 61-70.
- SCHAEFER G., 1954: Beziehungen zwischen Stoffwechsel und Plasmazustand in der Wurzel von *Lemna minor* L. Ph.D.Thesis. Marburg.
- SCHAEFER G., 1955: Ein Versuch zur quantitativen Auswertung der Plasmolyseform und -zeitmethode. *Protoplasma* **44**, 422-436.
- SCHAEFER G., 1956: Ueber die Wirkung von Stoffwechselfaktoren auf den Plasma-Wand-Kontakt in der Wurzel von *Lemna minor* L. *Flora* **143**, 327-355.
- SCHAEFER G., 1958: Ueber Veränderungen des mechanischen und biologischen Kontaktes von Plasma und Zellwand in subplasmolytischen Konzentrationen von Anelektrolyten. *Planta* **51**, 414-439.
- SCHAERER M., 1974: Der Einfluss des Schwefeldioxids (SO<sub>2</sub>) auf die Sulfataufnahme durch *Lemna minor* L. unter standardisierten Bedingungen. *Lic.Thesis. Univ. Bern.*
- SCHAERER M., BRUNOLD C. and ERISMANN K.H., 1975: Hemmung der Sulfataufnahme durch *Lemna minor* L. durch SO<sub>2</sub> in subletalen Konzentrationen. *Experientia* **31**, 1414-1415.
- SCHAFFNER M., 1905: Free-floating plants of Ohio. *Ohio Natur.* **6**, 420-421.
- SCHARFETTER E., ROTTENBURG T. and KANDELER R., 1978: Die Wirkung von EDDHA und Salicylsäure auf Blütenbildung und vegetative Entwicklung von *Spirodela punctata*. *Z.Pflanzenphysiol.* **87**, 445-454.
- SCHARFETTER E., BECK E. and KANDELER R., 1981: End-of-day far-red effect on short-period oscillations of starch content in *Lemna*. *Europ. Symp., Light mediated plant development. Book of Abstracts* **7**, 14.
- SCHARFETTER E., FAERBER E. and KANDELER R., 1984: Blühinduktion und Aethylenhaushalt bei *Lemna*. *Mitt.bd.Bot.-Tag.Wien*, **42** (0406).
- SCHARFETTER E., FAERBER E. and KANDELER R., 1986: Involvement of ethy-

- lene in the effect of EDDHA on flowering and vegetative development in *Spirodela punctata*. Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich **87**, 168-177.
- SCHARFETTER E., LESEMANN Ch. and KANDELER R., 1987: Ethylene as a flower-promoting agent in *Lemna*. *Phyton*(Austria), in press.
- SCHARPENSEEL H.W., MENKE K.H., GOETZ D., MEYER-SPASCHE H. and DOERFFLING K., 1982: Anzucht, Analyse und Nutzung des Stickstoff sammelnden Systems *Azolla-anabaena*, sp. *Filiculoides* in Nährlösungen und Klärbrühen. *Landw.Forsch.* **35(3-4)**, 200-213.
- SCHAUMANN L., GALLE P., ULLRICH W. and THELLIER M., 1986: Application de la microscopie ionique analytique à l'utilisation des isotopes stables  $^{14}\text{N}$  et  $^{15}\text{N}$  comme traceurs, et pour faire l'image de la distribution de l'azote chez *Lemna gibba* L. *C.R.Acad.Sci.Paris*, III, **302(3)**, 109-115.
- SCHAEFFER F., RATHJE W. and SCHAFMAYER H., 1952: Zum Mechanismus der Stoffaufnahme pflanzlicher Zellen. (Ein Beitrag zur Kalium- und Natriumaufnahme lebender Zellen). *Z.Pflanzenernährung* **56**, 139-151.
- SCHEID H.W., EHMKE A. und HARTMANN T., 1980: Plant NAD-dependent glutamate dehydrogenase. Purification, molecular properties and metal ion activation of the enzymes from *Lemna minor* and *Pisum sativum*. *Z.Naturforsch.* **35C**, 213-221.
- SCHNEIDER O., 1976: Zur biologischen Phosphorylierung von myo-Inosit und L-myo-Inosit-1-phosphat. Ph.D.Thesis. Univ. Vienna.
- SCHNEIDER O., PITTLNER F., BOLLMANN O. and KANDELER R., 1978: Die Wirkung von Stickstoffmangel und anderen Faktoren auf die Phytinsäurespeicherung in *Lemna gibba* Gl. *Z.Pflanzenphysiol.* **88**, 295-303.
- SCHENCK H., 1886: Vergleichende Anatomie der submersen Gewächse. *Bibl. Bot.* **1(1)**, 1-67.
- SCHER S. and AARONSON S., 1958: Nutritional factors in apochlorosis: comparative studies with algae and higher plants. In: The photochemical apparatus. Brookhaven Symp. in Biology **11**, 343-347.
- SCHIFF J.A., 1980: Pathways of assimilatory sulphate reduction in plants and microorganisms. In: *Excerpta medica, sulphur in biology*. CIBA Foundation Symposium **72**, 49-69.
- SCHLEIDEN M.J., 1839: *Prodromus Monographiae Lemnacearum oder Conspectus generum atque specierum*. *Linnaea* **13**, 385-392.
- SCHLEIDEN M.J., 1844: *Beiträge zur Botanik*. Leipzig. 242 pp.
- SCHMIDT A., 1975: Distribution of APS-sulfotransferase activity among higher plants. *Plant Sci.Lett.* **5**, 407-415.
- SCHMIDT A., 1984: Occurrence of mercaptopyruvate sulfotransferase activity in photosynthetic organisms. *Z.Naturforsch.* **39C(9-10)**, 916-921.
- SCHMIDT D., 1981: Pflanzensoziologische und ökologische Untersuchungen der Gewässer um Güstrow. *Natur u. Naturschutz Mecklenburg* **17**, 130 pp.
- SCHMIDT-CLAUSEN H.J. and ZIEGLER J., 1969: The influence of light quality on the activation of NADP<sup>+</sup>-dependent glyceraldehyde-3-phosphate dehydrogenase. In: METZNER A. (ed.), *Progress in photosynthesis research*, Tübingen, **3**, 1646-1652.
- SCHMIDT-CLAUSEN H.J., ZIEGLER I. and ZIEGLER H., 1969: Die lichtinduzierte Aktivitätssteigerung der NADP<sup>+</sup>-abhängigen Glycerinaldehyd-3-phosphat-Dehydrogenase. XI. Die Kinetik der reversiblen Reaktion bei *Lemna gibba*. *Planta* **86(3)**, 272-285.
- SCHMUTZ D. and BRUNOLD C., 1982: Rapid and simple measurement of ATP sulfurylase activity in crude plant extracts using an ATP-meter for bioluminescence determination. *Anal.Biochem.* **121(1)**, 151-155.
- SCHNYDER J., ROTTENBERG M. and ERISMANN K.H., 1975: The synthesis of threonine and thiothreonine from o-phospho-homoserine by extracts

- prepared from higher plants. *Biochem. Physiol. Pflanzen* **167**, 605-608.
- SCHOLES J.D., KERR R.I. and NUTTALL P.M., 1986: Treatment of wastewater by aquaculture systems. AWRC Res. Proj. No. 80/139, Australia. 104 pp.
- SCHOLZ G., 1962: Versuche mit Bor an Lemnaceen: Die Wirkung des Bors auf den Kohlenhydratgehalt von *Lemna minor* L. Kulturpflanze **10**, 63-71.
- SCHOLZE U., 1986: *Lemnetea* in Vorarlberg. Diploma Thesis. Univ. Innsbruck. 146 pp. (Polycopy).
- SCHOTT C.D. and WORTHLEY E.G., 1973: Effects of CS and its breakdown products on the growth of duckweeds. Edgewood Arsenal, Aberdeen Proving Ground, Maryland Rep. No. EB-TR-73045. 26 pp.
- SCHREINEMAKERS W.A.C., 1984: Effects of metal ions on growth of and on ion absorption by *Spirodela polyrhiza* (L.) Schleiden. Effects of iron, magnesium and zinc. *Z. Pflanzenphysiol.* **114**(2), 123-129.
- SCHREINEMAKERS W.A.C., 1986: The interaction between Cd-absorption and Cd-compartmentation in *Wolffiella gladiata*. *Acta Bot. Neerl.* **35**(1), 23-34.
- SCHREINEMAKERS W.A.C. and DORHOUT R., 1985: Effects of copper ions on growth and ion absorption by *Spirodela polyrhiza* (L.) Schleiden. *J. Plant Physiol.* **121**(4), 343-351.
- SCHROEDER F., 1977: Die Mollusken der Pflanzengesellschaften in den Gewässern des Bremer Raumes. 1. Gastropoden der *Lemnetea* im Bremer Blockland. *Abh. Naturw. Verein Bremen* **38**, 423-430.
- SCHULZ B., 1962: Wasserlinsen. Die neue Brehm-Bücherei, Ziemsen, Wittenberg. 95 pp.
- SCHUSTER M., 1968: Die Bedeutung von Starklicht und Kupfer für die phytochromgesteuerte Morphogenese von *Lemna perpusilla*. Ph.D. Thesis. Univ. Würzburg. 102 pp.
- SCHUSTER M. and KANDELER R., 1970: Die Bedeutung der Photosynthese für die Langtag-Blüte der Kurztagpflanze *Lemna perpusilla* 6746. *Z. Pflanzenphysiol.* **63**(4), 308-315.
- SCHUTH C.K., ISENSEE A.R., WOOLSON E.A. and KEARNEY P.C., 1974: Distribution of  $^{14}\text{C}$  and arsenic derived from ( $^{14}\text{C}$ ) cacodylic acid in an aquatic ecosystem. *J. Agric. Food Chem.* **22**(6), 999-1003.
- SCHWABE-BRAUN A. and TUEXEN R., 1981a: Zur Synsystematik der Klasse *Lemnetea minoris* in Europa. *Ber. Int. Symp. Int. Ver. Vegk., Rinteln 1980*, 181-205.
- SCHWABE-BRAUN A. and TUEXEN R., 1981b: *Lemnetea minoris*. *Prodromus der europäischen Pflanzengesellschaften* **4**. Cramer, Vaduz. 141 pp.
- SCHWARCZ R., FRIED W., PITTNER F. and HOFFMANN-OSTENHOF O., 1974: Untersuchungen über die Biosynthese der Cyclite. 32. Mitt. Anwendung der Affinitätschromatographie an NAD-Sepharose zum Nachweis und zur Reinigung von myo-Inosit-1-phosphat-Synthase in Erythrocyten von Hühnern und in *Lemna gibba*. *Monatshefte Chem.* **105**, 445-451.
- SCHWEBEL J.O., 1973: Hormonal control of growth and development in *Lemna minor* L., with special emphasis on the role of abscisic acid (ABA). Ph.D. Thesis. College Station, Texas. Univ. Microfilms Int., Ann Arbor, Mich., Order No. 73-19, 682; 129 + 14 pp. *Diss. Abstr. Int. B* **34**, 1015.
- SCHWEBEL J.O. and ANDERSON K., 1982: The effect of lead acetate and lead nitrate on the growth of *Lemna minor* L. *Florida Sci.* **45**(suppl.1), 31.
- SCHWEIGER G., GOLLE B., LOOS S. and RYGOL J., 1984: Effects of  $\text{HgCl}_2$  and pentachlorophenol on passive and active membrane properties in tissue discs and intact duckweeds (*Lemna gibba*). In: CRAM W.J. et al. (eds.), *Membrane transport in plants*. *Symp. Abstr. (Praha)*. 427-428.
- SCHWIER H., 1953: Wasserlinsentrift in der Weser. *Natur und Heimat* **2**, 1.
- SCHWOERBEL J. and TILLMANN G.C., 1972: Ammonium-Adaptation bei submersen Phanerogamen in situ. *Arch. Hydrobiol.* **42**(suppl.1), 139-141.

- SCOGGAN H.J., 1978: The Flora of Canada. Nat.Mus.Sci.,Canada, **7(2)**, 456-457.
- SCOPPOLA A., 1982: Considérations nouvelles sur végétations des Lemnetae minoris (R.Tx.1955) em. A.Schwabe et R.Tx.1981 et contribution à l'étude de cette classe en Italie centrale. Doc.Phytosoc. **6**, 1-130.
- SCOPPOLA A., 1983: Synthèse des Lemnetae minoris en Europe. Coll.Phytosoc.(Lille) **10**, 513-520.
- SCOTLAND M.B., 1934: The animals of the Lemna association. Ecology **15**, 290-294.
- SCOTLAND M.B., 1940: Review and summary of studies of insects associated with Lemna minor. J.New York Ent.Soc. **48**, 319-333.
- SCULTHORPE C.D., 1967: The biology of aquatic vascular plants. Arnold, London. 610 pp.
- SEAMAN D.E., 1964: Action spectrum PF paraquat toxicity in duckweed. Abstr.Weed Soc.Am. **1964**, 102.
- SEBACHER D.I., HARRISS R.C. and BARTLETT K.B., 1985: Methane emissions to the atmosphere through aquatic plants. J.Environ.Qual. **14(1)**, 40-46.
- SEEWALDT E. and STACKEBRANDT E., 1982: Partial sequence of 16 S ribosomal RNA and the phylogeny of Prochloron. Nature **295**, 618-620.
- SEGAL S., 1966: Ecology of higher aquatic plants. (In Dutch). Vakbl. Biol. **46**, 138-149.
- SEKINE I., 1979: Alcohol and methane from Lemnaceae. (In Japan.). Jap. Kokai Tokyo Koho. Patent No. 56-78594.
- SELISKAR A., 1983: A contribution to the knowledge of the classes Lemnetae and Potamogetonetea in Slovenia. (In Serbo-Croat.). Biol.Vestn. **31(1)**, 25-34.
- SEMENIKHINA K.A., 1979: New sites of rare aquatic species in water bodies of the Desna River flood plains, USSR. (In Russian). Ukr.Bot. Zh. **36**, 214-218.
- SETH P.N., VENKATARAMAN R. and MAHESHWARI S.C., 1970: Studies on the growth and flowering of a short-day plant, Wolffia microscopica. II. Role of metal ions and chelates. Planta **90**, 349-359.
- SETO M., TAKAHASHI Y., USHIJIMA T. and TAZAKI T., 1979: Chlorotic death of Lemna gibba by cadmium in different concentrations of nutritional minerals. (In Japan.). Jap.J.Limnol. **40(2)**, 61-65.
- SEVERI A. and BARONI FORNASIERO R., 1982: Preliminary SEM observations of stomatal apparatus in Spirodela oligorrhiza (Kurz) Hegelm. in darkness and in light. Caryologia **35**, 400-401.
- SEVERI A. and BARONI FORNASIERO R., 1983a: Morphological variations in Lemna minor L. and possible relationships with abscisic acid. Caryologia **36(1)**, 57-64.
- SEVERI A. and BARONI FORNASIERO R., 1983b: Effects of metabolic inhibitors and ionophores on the stomatal apparatus in Spirodela oligorrhiza (Kurz.) Hegelm. and in Lemna minor L. Z.Pflanzenphysiol. **113(1)**, 39-46.
- SEVERI A. and BARONI FORNASIERO R., 1983c: Stomatal responses in Spirodela oligorrhiza and in Lemna minor after treatments with some inhibitors and ionophores. G.Bot.Ital. **117(3-4)**, 178-179.
- SEYMOUR F., 1969: The Flora of New England. C.E. Tuttle Co., Rutland, Vermont. 169-170.
- SHAH K.L. and TYAGI B.C., 1985: A note on the role of Kachuga tectum Gray (Reptilia: Chelonia) in controlling aquatic weeds. Hydrobiologia **122**, 243-245.
- SHAHAK Y., POSNER H.B. and AVRON M., 1976: Evidence for a block between plastoquinone and cytochrome f in a photosynthetic mutant of Lemna with abnormal flowering behavior. Plant Physiol. **57**, 577-579.

- SHALAR V.M., MOGYLDYA V.M., KUMPENE A.G., RUDIK V.F. and OBUKH P.A., 1983: Cultivation of the higher aquatic plants and algae in media containing the waste water of livestock breeding complexes. (In Russian). *Izv.Akad.Nauk Mold.SSR.Ser.Biol.Khim.Nauk* **1983(6)**, 9-13.
- SHAMBHU M.B., DIGENIS G.A., GULATI D.K., BOWMAN K. and SABHARWAL P.S., 1976: Chemical combinations of 2,4-dichlorophenoxyacetic acid (2,4-D) and polystyrene: Preparation and application for the control of duckweed. *J.Agric.Food Chem.* **24**, 666-668.
- SHANNON E.L., 1953: The production of root hairs by aquatic plants. *Am. Midland Naturalist* **50**, 474-479.
- SHAPIRO J., 1957: Chemical and biological studies on the yellow organic acids of lake water. *Limnol.Oceanogr.* **2(3)**, 161-179.
- SHAPIRO J., 1958: Yellow acid-cation complexes in lake water. *Science* **127(3300)**, 702-704.
- SHAPIRO J., 1964: Effect of yellow organic acids on iron and other metals in water. *J.Amer.Water Works Assoc.* **56(8)**, 1062-1082.
- SHARITZ R.R. and LUVALL J.C., 1978: Growth of duckweed under constant and variable temperatures. In: THORP J.H. and GIBBONS J.W. (eds.), *Energy and environmental stress in aquatic systems. DOE Symp.Ser. (CONF-771114)*, **48**, 410-419.
- SHARMA K.P., 1979: An efficient device of harvesting fish in weed infested waters in Rajasthan. *J.Inl.Fish Soc.India* **11(1)**, 138-139.
- SHARP M., 1978: Study of effects of certain ammonium test solutions on Lemna minor, duckweed. *J.Tenn.Acad.Sci.* **53(4)**, 155.
- SHCHERBAKOV A.V., 1987: Lemna gibba L. in Moscow region. (In Russian). *Biol.Mosk.Ispitat.Prir.Otd.Biol.* **92(3)**, 90-92.
- SHEPARD D.V. and THURMAN D.A., 1973: Effect of nitrogen sources upon the activity of L-glutamate dehydrogenase of Lemna gibba. *Phytochem.* **12**, 1937-1946.
- SHELTON D.R., 1979 see NEWTON et al. 1978
- SHIBATA O. and TAKIMOTO A., 1975: Flowering response of Lemna perpusilla 6746 to a single dark period. *Plant Cell Physiol.* **16**, 513-519.
- SHIBAYAMA H. and MIYAHARA M., 1978: Aquatic weeds in creeks of the paddy area on the lower region of Chikugo River. IV. Yearly and seasonal changes of cover degrees of weeds. (In Japan.). *Weed Res.,Japan*, **23(3)**, 109-115.
- SHIH C.Y., 1979: SEM studies of the flowering of duckweed, Lemna perpusilla, 6746. *SEM* **1979(3)**, 479-486.
- SHIMOMURA H., SASHIDA Y. and NAKATA H., 1981: Plant growth regulating activities of crude drugs and medicinal plants. *Shoyakugaku Zasshi* **35(3)**, 173-179.
- SHIMOMURA H., SASHIDA Y., NAKATA H. and IMAMURA M., 1982: Plant growth inhibitors from methanol extracts of Gallae rhois. *Shoyakugaku Zasshi* **36(2)**, 132-133.
- SHIMURA Y. and VOGEL H.J., 1966: Diaminopimelate decarboxylase of Lemna perpusilla: Partial purification and some properties. *Biochim.Biophys.Acta* **118**, 396-404.
- SHINOZAKI M. and TAKIMOTO A., 1983: Effects of some growth regulators and benzoic acid derivatives on flower initiation and root elongation of *Pharbitis nil* cultivar Kidachi. *Plant Cell Physiol.* **24(3)**, 433-440.
- SHINOZAKI M., HIKICHI M., YOSHIDA K., WATANABE K. and TAKIMOTO A., 1982: Effect of high-intensity light given prior to low-temperature treatment on the long-day flowering of *Pharbitis nil*. *Plant Cell Physiol.* **23(3)**, 473-477.
- SHIREMAN J.V., COLLE D.E. and ROTTMANN R.W., 1977: Intensive culture of

- grass carp *Ctenopharyngodon idella* in circular tanks. *J.Fish.Biol.* **11**, 267-272.
- SHIREMAN J.V., COLLE D.E. and ROTTMANN R.W., 1978: Growth of grass carp fed natural and prepared diets under intensive culture. *J.Fish.Biol.* **12(5)**, 457-464.
- SHIREMAN J.V., ROTTMANN R.W. and ALDRIDGE F.J., 1983: Consumption and growth of hybrid grass carp fed four vegetation diets and trout chow in circular tanks. *J.Fish.Biol.* **22(6)**, 685-694.
- SHIROISHI T. and SHIMIZU R., 1984: Sensitivity of duckweed to  $Cr^{6+}$ . (In Japan.). *Toyama-ken Eisei Kensei Kenkyusho Nenpo* **7**, 264-266.
- SHISHKIN B.K., 1964: Lemnaceae. In: KOMAROV L. (ed.), *Flora SSSR* **3**, 389-391.
- SHOAR-GHAFARI A., 1983: Etudes ultrastructurales de cellules oxalifères en vie latente ou en vie active dans deux plantes aquatiques (*Spirodela polyrrhiza* L. et *Lemna minor* L.). D.E.A.Univ.Paris VI.(P. and M. Curie). (Polycopy).
- SHREVE F. and WIGGINS I.L., 1964: Vegetation and flora of the Sonora Desert. Stanford Univ.Press, Stanford. **1**, 327-329.
- SHUKLA A.C. and AWASTHI A.K., 1985: Influence of auxin-photoperiodic interrelationships of *Wolffia arrhiza*. *Natl.Acad.Sci.Lett.(India)* **8(3)**, 65-66.
- SHUKLA A.C. and PANDE S.N., 1975a: Correlative studies on auxin photoperiodic growth and moisture relationships of *Spirodela polyrrhiza* (Linn.) Schleid. *Assoc.Adv.Plant Sci.,Kalyani,India*, 47-48.
- SHUKLA A.C. and PANDE S.N., 1975b: Changes in ascorbic acid accompanying auxin photoperiodic inductions in *Spirodela polyrrhiza*. *Indian Sci. Congr.Assoc.Proc.* **62**, 104.
- SHUKLA A.C. and PANDE S.N., 1976: Correlative studies on auxin photoperiodic growth and moisture relationships of *Spirodela polyrrhiza* (Linn.) Schleid. *Botanique(Nagpur)* **7(1)**, 51-54.
- SHUKLA A.C., PANDE S.N. and SHUKLA P., 1972: Studies on hormonal photoperiodic interrelationships of *Spirodela polyrrhiza*. *Indian Sci.Congr. Assoc.Proc.* **59(3)**, 378-379.
- SHUKLA A.C., PANDE S.N. and SHUKLA P., 1973: Studies on hormonal photoperiodic interrelationships of *Spirodela polyrrhiza* (Linn.) Schleid. *Plant Sci.* **5**, 60-63.
- SIBASAKI T. and ODA Y., 1979: Heterogeneity of dormancy in the turions of *Spirodela polyrrhiza*. *Plant Cell Physiol.* **20(3)**, 563-571.
- SIDOROFF S., 1910: La floraison de *Lemna* (une grande rareté).
- SIEFERMANN D., 1971: Ueber den Zusammenhang von Xanthophyllcyclus und Photosynthese bei *Lemna gibba* L. Ph.D.Thesis. Univ. Tübingen. 83 pp.
- SIEFERMANN D., 1972: Kinetic studies on the xanthophyll cycle of *Lemna gibba* L. - Influence of photosynthetic oxygen and supplied reductor. *Proc.2nd Int.Congr.Photosynth.* 1971, **1**, 629-635.
- SIEGEL S.M., 1961: Effect of reduced oxygen tension on vascular plants. *Physiol.Plant.* **14**, 554-557.
- SIELING D.H., 1937: The influence of the phosphate-calcium ratio and of humates on chlorosis in *Lemna*. *Iowa State Coll.J.Sci.* **12**, 151-154.
- SIIK W.K., 1980: Growth and mineral uptake in the Lemnaceae. CSRS Calb Proj.No.Ca-D\*-LAW-3639-H.Rep. 0075135.
- SILVERTHORNE J. and TOBIN E.M., 1984: Demonstration of transcriptional regulation of specific genes by phytochrome action. *Proc.Natl.Acad. Sci.USA* **81(4)**, 1112-1116.
- SILVERTHORNE J., WIMPEE C.F. and TOBIN E.M., 1985: Phytochrome regulation at the level of transcription. *Photochem.Photobiol.* **41(suppl.)**, 48 pp.

- SILVEY W.D., 1967: Occurrence of selected minor elements in the waters of California. U.S.Gov.Print.Off., Washington DC. Geolog.Surv.Water-Supply **1535L**, 1-25.
- SIMON E.W. and BLACKMAN G.E., 1953: Studies in the principles of phytotoxicity. 4. The effects of the degree of nitration on the toxicity of phenol and other substituted benzenes. *J.Exp.Bot.* **4**, 235-250.
- SIMON E.W., ROBERTS H.A. and BLACKMAN G.E., 1952: Studies on the principles of phytotoxicity. 3. The pH factor and the toxicity of 3,5-dinitro-o-cresol, a weak acid. *J.Exp.Bot.* **3**, 99-109.
- SIMS A.P., FOLKES B.F. and BUSSEY A.H., 1968: Mechanisms involved in the regulation of nitrogen assimilation in micro-organisms and plants. In: HEWITT E.J. and CUTTING C.V. (eds.), *Recent aspects of nitrogen metabolism in plants*. Acad.Press, London. 91-114.
- SINCLAIR L.R. and FORBES R.B., 1980: Nutrient removal from drainage waters with systems containing aquatic macrophytes. *Trans.Am.Soc.Agric. Engrs.* **23**, 1189-1194.
- SINGH R.P. and SHARMA V.K., 1975: Caloric values of hydrophytes at different vertical stratification. *Geobios* **2(1)**, 26.
- SINGH J.S. and SINGH K.P., 1967: Contribution to the ecology of ten noxious weeds. *J.Indian Bot.Soc.* **46(4)**, 440-451.
- SINHA A.B. and SAHAI R., 1975: Effect of two herbicides on the control of duck-weeds. *Sci.Cult.* **41(6)**, 289-291.
- SIPKO L.L. and DIMITIEVA S.A., 1971: Higher water vegetation and its fauna of Krotowaya Laga and Kuskan lakes (North Kulanda). (In Russian). *Izv. Sib.Otd.Akad.Nauk SSSR Ser.Biol.Med.Nauk* **3**, 59-62.
- SJOGREN R.D., 1968: Experimental use of Lemna to prevent mosquito breeding in organically polluted waters. *Proc.Pap.Annu.Conf.Calif.Mosquito Contr.Ass.Inc.* **36**, 31-33.
- SKAER H.B., FRANKS F. and ECHLIN P., 1979: Freeze-fracture studies of ice recrystallization in tissue quenched in aqueous solutions of polyvinylpyrrolidone. *Cryo.Lett.* **1971(1)**, 61-70.
- SKENDER A. and BERTIC B., 1986: A study on the role of submersed and floating macrophytes in the self-purification process of canals. (In Serbo-Croat.). *Jug.Drust.Provc.Subz.Korava.* 247-253.
- SKLAR F.H., 1980: A preliminary comparison of the uptake of chromium-51 and zinc-65 by three species of aquatic plants from Louisiana. *Proc. La.Acad.Sci.* **43**, 46-51.
- SKLAR F.H., 1985: Seasonality and community structure of the backswamp invertebrates in a Louisiana cypress-tupelo wetland. *Wetlands* **5**, 69-86.
- SKOGEN D., CHATURVEDI R., WEIDEMANN F. and NILSEN S., 1986: Photoinhibition of photosynthesis: effect of light quality and quantity on recovery from photoinhibition in *Lemna gibba*. *J.Plant.Physiol.* **126(2-3)**, 195-205.
- SKOOG F. and THIMANN K.V., 1940: Enzymatic liberation of auxin from plant tissues. *Science* **92**, 64.
- SLOOFF W. and CANTON J.H., 1983: Comparison of the susceptibility of 11 freshwater species to 8 chemical compounds. II. (Semi)chronic toxicity tests. *Aquat.Toxicol.* **4(3)**, 271-282.
- SLOVIN J.P., 1987: Characterization of a chlorophyll b-less mutant of *Lemna gibba* G3. *Plant Physiol.* **83(4 suppl.)**, 136.
- SLOVIN J.P. and COHEN J.D., 1985a: Selection of mutants in IAA conjugate hydrolysis. *J.Cell Biochem. (suppl.9 part C)*, 222.
- SLOVIN J.P. and COHEN J.D., 1985b: Analysis of indole-3-acetic acid levels in *Lemna gibba* G-3 by GC/MS using  $^{13}\text{C}_6$ -IAA as an internal standard. *Plant Physiol.* **77(4 suppl.)**, 81.

- SLOVIN J.P. and COHEN J.D., 1985c: Generation of variant lines of *Lemna gibba* G-3 via tissue culture, for use in selecting auxin metabolism mutants. *Plant Physiol.* **77**(4 suppl.), 11.
- SLOVIN J.P. and COHEN J.D., 1986: Production and mutant lines of *Lemna gibba* G-3 by cell culture and whole plant mutagenesis. *Plant Physiol.* **80**(4 suppl.), 38.
- SLOVIN J.P. and COHEN J.D., 1987: Production of mutant lines of *Lemna gibba* G-3 by cell culture and whole plant mutagenesis. *J.Cell Biochem.* (suppl.11 part B), 24.
- SLOVIN J.P. and TOBIN E.M., 1980: Effects of glyphosine on synthesis of chloroplast proteins in *Lemna gibba* L. G-3. *Plant Physiol.* **65**(6 suppl.), 67.
- SLOVIN J.P. and TOBIN E.M., 1981: Glyphosine, a plant growth regulator, affects chloroplast membrane proteins. *Biochim.Biophys.Acta* **637**(1), 177-184.
- SLOVIN J.P. and TOBIN E.M., 1982: Synthesis and turnover of the light-harvesting chlorophyll a/b-protein in *Lemna gibba* grown with intermittent red light: possible translational control. *Planta* **154**(5), 465-472.
- SLOVIN J.P., BALDI B.G. and COHEN J.D., 1984: Hydrolysis on IAA-conjugates in *Lemna gibba* G-3. *Plant Physiol.* **75**(1 suppl.), 107.
- SMART C.C. and ESSER R.P., 1968: *Aphelenchoides Fragariae* in aquatic plants. *Plant Disease Reporter* **52**(6), 455.
- SMART C.C. and TREWAVAS A.J., 1983a: Abscisic-acid-induced turion formation in *Spirodela polyrrhiza* L. I. Production and development of the turion. *Plant Cell Environ.* **6**(6), 507-514.
- SMART C.C. and TREWAVAS A.J., 1983b: Abscisic-acid-induced turion formation in *Spirodela polyrrhiza* L. II. Ultrastructure of the turion, a stereological analysis. *Plant Cell Environ.* **6**(6), 515-522.
- SMART C.C. and TREWAVAS A.J., 1984a: Abscisic-acid-induced turion formation in *Spirodela polyrrhiza* L. III. Specific changes in protein synthesis and translatable RNA during turion development. *Plant Cell Environ.* **7**(2), 121-132.
- SMART C.C. and TREWAVAS A.J., 1984b: Abscisic-acid-induced turion formation in *Spirodela polyrrhiza* L. IV. Comparative ion flux characteristics of the turion and the vegetative frond and the effect of ABA during early turion development. *Plant Cell Environ.* **7**(7), 521-530.
- SMIRNOVA N.N., 1975a: Effect of exogenous amino acids on the productivity of some higher aquatic plants. (In Russian). *Gidrobiol.Zh.* **11**(4), 47-53.
- SMIRNOVA N.N., 1975b: Effect of exogenous amino acids on the productivity of some higher aquatic plants. *Hydrobiol.J.* **11**(4), 33-39.
- SMIRNOVA N.N., 1976: Amino acids as factors of the nutrition of some higher aquatic plants. (In Russian). *Form.Kontrol Kach.Poverkhn.Vod.* **2**, 143-148.
- SMIRNOVA N.N., 1981: Role of the higher aquatic plants in the cycles of organic substances of the water. (In Russian). *Gidrobiol.Zh.* **17**(1), 100-101.
- SMITH D.H. and CASTLE J.E., 1960: Production of auxotrophs in a duckweed, *Spirodela polyrrhiza*. *Plant Physiol.* **35**, 809-815.
- SMITH F.A. and WALTER N.A., 1980: Photosynthesis by aquatic plants. *New Phytol.* **86**, 245-260.
- SMITH J.D., 1880: *Wolffia* (*Wolffiella*) *gladiata*, var. *Floridana*. *Bull. Torr.Bot.Club* **7**, 64-65.
- SMITH N.A., JANSSEN J. and RIPPINGALE R.J., 1983: Tertiary treatment of wastewater using aquatic plants. *Tech.Pap.Fed.Conv.,Conf.Proc.Aust. Water Wastewater Assoc., Sydney*, **27**, 1-9.

- SMITH R. and NIELSEN P.T., 1978: Hormonal effects on the growth and potassium content of *Lemna perpusilla*. *Va.J.Sci.* **29(2)**, 76.
- SMITH W.L., Jr., and ENNS W.R., 1967: Laboratory and field investigations of mosquito populations associated with oxidation lagoons in Missouri. *Mosq.News* **27(4)**, 462-466.
- SNELL K., 1907: Untersuchungen über die Nahrungsaufnahme der Wasserpflanzen. *Flora* **98**, 213-249.
- SOLSKI A., 1978: Biological evaluation of the toxicity of Gilow Reservoir waters. (In Polish). *Cuprum* **5(5)**, 27-29.
- SOLSKI A., WERNIKOWSKA-UKLEJA A. and MULTAN B., 1979: Toxicity of flotation reagents to aquatic organisms and their permissible concentration in surface waters. (In Polish). *Cuprum* **6**, 32-35.
- SOUEGES R., 1959: Embryogénie des Lemnacées. Développement de l'embryon chez le *Lemna minor* L. *C.R.Acad.Sci.Paris*, **248**, 1896-1900.
- SOULEN T.K. and KOUKKARI W.L., 1977: Ammonium ion inhibition of flowering in *Lemna perpusilla*, a pH effect. *Plant Physiol.* **59(6 suppl.)**, 48.
- SPENCER-JONES D.H., 1981: Preliminary studies with PH40:62 - an experimental aligicide. *Proc.Conf.Aquatic Weeds and their Control. Nat.Veg. Res.Sta., Wellesbourne, Warwick, UK; Assoc. of Applied Biologists.* 177-182.
- SPILLER H., EISENMEIER S. and AHMED J., 1973: Activities of nitrate reductase and peroxidase in normal and iron deficient cultures of *Lemna minor*. *Hoppe-Seyler's Z.Physiol.Chem.* **354**, 1245.
- SPOHR E., 1926: Ueber das Vorkommen von *Sium erectum* Huds. und *Lemna gibba* L. in Estland und über deren nordöstliche Verbreitungsgrenzen in Europa. *Acta Horti Bot.Univ.Tartuens.* **1(1)**, 22 pp.
- SPOONER W.E., 1967: Local population variation in *Spirodela polyrrhiza* (L.) Schleid. (Lemnaceae). M.S.Thesis. North Carolina State Univ., Raleigh. 32 pp. (Polycopy).
- SPRANKEL H., 1954: Blühende Wasserlinsen. *Kosmos* **6**, 278-279.
- SRINIVASAN J., SOPORY S.K. and MUKHERJEE S., 1975: Photoregulation of nitrate reductase in *Lemna paucicostata*. In: MOTIAL V.S. (ed.), Seminar on recent advances in plant sciences. Kalyani, India. Abstr., 38.
- SRINIVASAN R. and VISWAM K., 1986: Laboratory studies on the biology of *Mansonia annulifera* Theobald (1901). *Ind.J.Med.Res.* **83(4)**, 384-386.
- SRIVASTAVA V.C., 1978: Caloric values of floating plant community of Chilwa lake. *Geobios* **5(4)**, 174-175.
- STACKEBRANDT E. and WOESE C.R., 1981: The evolution of procaryotes. In: *Molecular and cellular aspects of microbial evolution.* Cambridge Univ.Press. 1-31.
- STAFFORD H.A., 1964: Comparison of lignin-like products found naturally or induced in tissues of *Phleum*, *Elodea*, and *Coleus*, and in a paper peroxidase system. *Plant Physiol.* **39**, 350-360.
- STAFFORD H.A., 1965: Factors controlling the synthesis of natural and induced lignins in *Phleum* and *Elodea*. *Plant Physiol.* **40**, 844-851.
- STAHL E., 1883 see 1888
- STAHL E., 1888: Pflanzen und Schnecken. *Jenaische Z.Natw. Med.* **22**, N.F. **15**, 126 pp.
- STAKE E., 1968: Higher vegetation and phosphorus in a small stream in Central Sweden. *Schweiz.Z.Hydrol.* **30**, 353-373.
- STANGENBERG M., 1967: Bacteriostatic effects of some Algae and *Lemna minor* extracts. *Hydrobiol.* **32**, 88-96.
- STANIEWSKA-ZATEK W., 1964: New localities of *Wolffia arrhiza* Wimmer in the valley of the Sarna river near Poznan. (In Polish). *Przyr.Polski Zach.* **8**, 86-89.

- STANLEY R.A., 1980: Methods of biological recycling of nutrients from livestock wastes: a literature review and systems analysis. Tennessee Valley Authority, National Fertilizer Development Center, 1-45. (Polycopy).
- STANLEY R.A. and MADEWELL C.E., 1975: Optimum dilution of swine wastes for growth of *Lemna minor* and *Euglena* sp. In: Managing Livestock wastes. Am.Soc.Agric.Engineers, St. Joseph, Michigan. 321-323.
- STANLEY R.A. and MADEWELL C.E., 1976a: Chemical tolerance of *Lemna minor* L. Tenn. Valley Authority, Muscle Shoals, Al. 17 pp. (Polycopy).
- STANLEY R.A. and MADEWELL C.E., 1976b: Thermal tolerance of *Lemna minor* L. Tenn. Valley Authority, Muscle Shoals, Al. 16 pp. (Polycopy).
- STANLEY T.D., 1979: Aquatic plants of Queensland part 3. The duckweeds of Queensland. Queensland Agric. J. **105(6)**, 570-572.
- STARFINGER U., 1983: Die Pleustophytenvegetation der Berliner Pfuhle in Beziehung zum Chemismus der Gewässer. Diploma Thesis. Freie Univ. Berlin, Fachbereich Biologie. 104 pp. (Polycopy).
- STARFINGER U., 1985: Die flache Form von *Lemna gibba*. Verh. Berl. Bot. Ver. **4**, 67-77.
- STATSENKO L.P., 1978: Control of mosquito hatching using the herbicide simazine. (In Russian). Med. Parazit. Parazit. Bolezni **47**, 93-95.
- STAVES R.P., 1980: Chromium uptake and its effects on the growth of duckweeds. M.S. Thesis. Louisiana State Univ., Baton Rouge. 101 pp. (Polycopy).
- STAVES R.P. and KNAUS R.M., 1985: Chromium removal from water by three species of duckweeds. Aquat. Bot. **23(3)**, 261-273.
- STEEMANN NIELSEN E., 1944: Dependence of freshwater plants on quality of carbon dioxide and hydrogen ion concentration. Dansk Bot. Ark. **11(8)**, 25 pp.
- STEEMANN NIELSEN E., 1947: Photosynthesis of aquatic plants with special reference to the carbon sources. Dansk Bot. Ark. **12(8)**, 71 pp.
- STEEMANN NIELSEN E., 1954: On the reference of some freshwater plants in Finland for brackish water. Bot. Tidskr. **51**, 242-247.
- STEINBACK K. and WATSON J., 1981: In vivo chloroplast thylakoid protein phosphorylation. Plant Research. Ann. Rep., Michigan State Univ., MSU/DOE. Plant Res. Lab. '81, 32-33.
- STEINBACK K.E. and WATSON J., 1982: In vivo control of thylakoid protein phosphorylation. Plant Physiol. **69(4 suppl.)**, 29.
- STEINBERG R.A., 1941: Use of *Lemna* for nutrient studies on green plants. J. Agric. Res. **62**, 423-430.
- STEINBERG R.A., 1943: Use of *Lemna* as a test organism. Chronica Botanica **7**, 420.
- STEINBERG R.A., 1946: Mineral requirements of *Lemna minor*. Plant Physiol. **21**, 42-48.
- STELZ T. and THELLIER M., 1971: Formulation électrocinétique de l'absorption du calcium par des végétaux calcicoles et calcifuges. C.R. Acad. Sci. Paris, D **272**, 1101-1104.
- STELZ T., AYADI A., MONNIER A., DEMARTY M. and THELLIER M., 1975: Echange de calcium dans les espaces libres cellulaires de végétaux. C.R. Soc. Biol. Rouen **169**, 1072-1076.
- STELZIG V. and BERNING A., 1984: Ein neues Vorkommen der Zwerglinse (*Wofffia arrhiza* [L.] Wimm.) im südlichen Emsland. Natur und Heimat **44(2)**, 54-55.
- STEPHANOVA V.S., 1928: Influence of *Lemna* covering on a water basin. (In Russian). Trav. Soc. Nat. Leningrad **58**, 63-82.
- STEPHANOVA V.S., 1932: Die Geschwindigkeit des vegetativen Wachstums der Gattung *Lemna*. (In Russian). Bot. Zh. (USSR) **17**, 524-529.

- STEPHENSON M., TURNER G., POPE P., COLT J., KNIGHT A. and TCHOBANOGLOUS G., 1980: The use and potential of aquatic species for wastewater treatment. Appendix A. The Environmental requirements of aquatic plants. California State Water Resources Control Board, **65**, 291-440.
- STEPHENSON R.R. and KANE D.F., 1984: Persistence and effects of chemicals in small enclosures in ponds. Arch. Environ. Contam. Toxicol. **13**, 313-326.
- STERKI V., 1910: Winter-buds of *Spirodela polyrrhiza* (L.). Ohio Naturalist **10(8)**, 181-182.
- STERN H.L., ARMSTRONG D.A., KNIGHT A.W. and CHIPPENDALE D.J., 1976: Survival and growth of juveniles of the giant Malaysian prawn, *Macrobrachium rosenbergii*, fed natural plant diets. Proc. 7th Annu. Meet. World Maricul. Soc. **1976**, 667.
- STERRY P.R., THOMAS J.D. and PATIENCE R.L., 1983: Behavioral responses of *Biomphalaria glabrata* to chemical factors from aquatic macrophytes including decaying *Lemna paucicostata*. Freshwater Biol. **13(5)**, 465-476.
- STERRY P.R., THOMAS J.D. and PATIENCE R.L., 1985: Changes in the concentrations of short-chain carboxylic acids and gases during decomposition of the aquatic macrophytes, *Lemna paucicostata* and *Ceratophyllum demersum*. Freshwater Biol. **15(2)**, 139-153.
- STUEBING L., RAMIREZ C. and ALBERDI M., 1980: Energy content of water- and bog-plant associations in the region of Valdivia (Chile). Vegetatio **43**, 153-161.
- STEWART G.R., 1968: The effect of cycloheximide on the induction of nitrate and nitrite reductase in *Lemna minor* L. Phytochem. **7**, 1139-1142.
- STEWART G.R., 1969: Abscisic acid and morphogenesis in *Lemna polyrrhiza* L. Nature **221**, 61-62.
- STEWART G.R., 1972a: End-product repression of nitrate reductase in *Lemna minor* L. In: FARKAS G.L. (ed.), Nucleic acids and proteins in higher plants. Akad. Kiadó, Budapest. Symp. Biol. Hung. **13**, 127-135.
- STEWART G.R., 1972b: The regulation of nitrite reductase level in *Lemna minor* L. J. Exp. Bot. **23**, 171-183.
- STEWART G.R. and RHODES D., 1976: Evidence for the assimilation of ammonia via the glutamine pathway in nitrate-grown *Lemna minor* L. FEBS Lett. **64**, 296-299.
- STEWART G.R. and RHODES D., 1977a: A comparison of the characteristics of glutamine synthetase and glutamate dehydrogenase from *Lemna minor* L. New Phytol. **79**, 257-268.
- STEWART G.R. and RHODES D., 1977b: Control of enzyme levels in the regulation of nitrogen assimilation. In: SMITH H. (ed.), Regulation of enzyme synthesis and activity in higher plants. Acad. Press, London/ New York. 1-22.
- STEWART G.R. and SIMS A.P., 1967: Adaptive response of the enzyme malic dehydrogenase from cells of *Lemna minor* grown on different levels of calcium ions. SERAVAC.
- STEWART G.R. and SMITH H., 1972: Effects of abscisic acid on nucleic acid synthesis and the induction of nitrate reductase in *Lemna polyrrhiza*. J. Exp. Bot. **23**, 875-885.
- STEWART G.R., LEE J.A., OREBAMJO T.O. and HAVILL D.C., 1974: Ecological aspects of nitrogen metabolism. In: BIELESKI R.L., FERGUSON A.L. and CRESSWELL M.M. (eds.), Mechanisms of regulation of plant growth. R. Soc. New Zealand, Wellington. Bull. **12**, 41-47.
- STEWART R.R., 1972: Flora of West Pakistan. Fakhri Print. Press, Karachi, Pakistan. 36.

- STEWART W.C. and SERFLING S.A., 1979: The solar aquacell for primary, secondary or advanced treatment of wastewaters. Aquaculture systems for wastewater treatment. U.S. Environ. Prot. Agency, Publ. MCD-67 (EPA 430/9-80-006).
- STEYERMARK J., 1975: Flora of Missouri. (4th ed.). The Iowa State Univ. Press, Ames. 1, 386-391.
- STICKNEY R.R., ROWLAND L.O. and HESBY J.H., 1977: Water quality - *Tilapia aurea* interactions in ponds receiving swine and poultry wastes. Proc. 8th Annu. Meet. World Maricult. Soc. 1977, 55-71.
- STIEKEMA W.J., WIMPEE C.F., SILVERTHORNE J. and TOBIN E.M., 1983a: Phytochrome control of the expression of two nuclear genes encoding chloroplast proteins in *Lemna gibba* L. G-3. Plant Physiol. **72**(3), 717-724.
- STIEKEMA W.J., WIMPEE C.F. and TOBIN E.M., 1983b: Nucleotide sequence encoding the precursor of the small subunit of ribulose 1.5-diphosphate carboxylase from *Lemna gibba* L. G-3. Nucleic Acids Res. **11**(22), 8051-8061.
- STOECKLI B., BRAENDLE R. and ERISMANN K.H., 1975: Mitoseaktivität und Zellzyklus unter Begasung mit subletalen SO<sub>2</sub>-Konzentrationen bei der Wasserlinse (*Lemna minor* L.). Experientia **31**, 795-796.
- STOIANOFF N. and STEFANOFF B., 1924: Flora of Bulgaria. (In Bulgar.). Sofia. 204-206.
- STOM D.I. and ROTH R., 1981: Some effects of polyphenols on aquatic plants. I. Toxicity of phenols in aquatic plants. Bull. Environ. Contam. Toxicol. **27**(3), 332-337.
- STOM D.I., GIL T.A. and BALAYAN A.E., 1986: Effect of individual phenolic compounds and of their mixtures on luminous bacteria. Part 3. Combined action of phenolic compounds on aquatic organisms. Acta Hydrochim. Hydrobiol. **14**(5), 539-549.
- STONE W., 1911: The plants of southern New Jersey with a special reference to the flora of the Pine Barrens. Ann. Rep. New Jersey State Mus. **25**, 310-319.
- STRACK D. and KRAUSE J., 1978: Reversed phase high performance liquid chromatographic separation of naturally occurring mixtures of flavone derivatives. J. Chromatogr. **156**(2), 359-361.
- STRANSBAUGH P.D. and CORE E.L., 1952: Flora of West Virginia 1. West Virginia Univ. Bull. **52**, 208-209.
- STRASBURGER E., NOLL F., SCHENCK H. and SCHIMPER A.F.W., 1978: Lehrbuch der Botanik. (31st ed.). Fischer, Stuttgart. 1178 pp.
- STRASBURGER K., 1981: Wasserpflanzengesellschaften im unteren Allertal. Ph.D. Thesis. Univ. Hannover. 207 pp.
- STRASBURGER K. and HOMANN J., 1982: Gesellschaften der Lemnetales im Meissendorfer Fischteichgebiet westlich von Celle. Tuexenia **2**, 27-29.
- STRASSER R.J., 1971: Eine einfache Anlage zur kontinuierlichen Kultivierung von Lemnaceen mit automatischer Probeentnahme. Photosynthetica **5**, 76-78.
- STRASSER R.J., 1974: Studies on the oxygen evolving system in flashed leaves. In: AVRON M. (ed.), Proc. 3rd Int. Congr. Photosynthesis (Rehovot, Israel). Elsevier, Amsterdam. **1**, 497-503.
- STRASSER R.J., ERISMANN K.H. and METZNER H., 1970: Die Photooxidation von Sulfid durch Grana. Verh. Schweiz. Naturf. Ges. **150**, 235-238.
- STRAUSS R., 1973: Influence de la concentration en alcalino-terreux du milieu de culture sur la croissance et le métabolisme de *Lemna minor* L. C.R. Soc. Biol. (Rouen) **167**, 827-830.
- STRAUSS R., 1976: Effet de divers sels alcalins sur la croissance et la

- nutrition minérale de *Lemna minor* L. *Int.Rev.Ges.Hydrobiol.* **61(5)**, 673-676.
- STRAWINSKAJA E.A. (ed.), 1984: Conservation of aquatic ecosystems in the urbanized landscape. (In Russian). Nauka, Leningrad. 144 pp.
- STROTHER S., 1979: Hydrolysis of  $\alpha$ -D-glucuronate-1-phosphate by extracts from *Lemna minor* L. *Phytochemistry* **18**, 486.
- STROTHER S., 1981: Toxic effects of exogenous sorbose on *Lemna minor* and some other angiosperms. *Ann.Bot.* **47(4)**, 531-533.
- STROTHER S., 1984: Control of phosphatase activities of duckweed by senescence and phosphorus deficiency. *Biol.Plant.* **26(4)**, 309-311.
- STRUGGER S., 1934: Beiträge zur Physiologie des Wachstums. I. Zur protoplasmatisch-physiologischen Kausalanalyse des Streckungswachstums. *Jb.Wiss.Bot.* **79**, 406-471.
- STUCKEY R.L., 1973: Bibliography of aquatic flowering plants of Ohio. *Ohio Biol.Surv.Inform.Circ.* **2**, 11 pp.
- STUCKEY R.L., 1976: Aquatic vascular plants of the Sandusky River Basin. In: BAKER D.B., JACKSON W.B. and PRATER B.L. (eds.), *Proc.Sandusky River Basin Int.Symp. Reference group Great Lakes pollution from land use activities*. U.S.Gov.Printing Office. 295-333.
- STUCKEY R.L. and ROBERTS M.L., 1976: Rare and endangered vascular plants of Ohio. *Sida* **7(1)**, 32.
- SU K.L. and STABA E.J., 1972: Aquatic plants from Minnesota. I. Chemical survey. *Univ.Minn.Water Res.Center Bull.* **46**, 50 pp.
- SU K.L. and STABA E.J., 1973: Toxicity, antineoplastic and coagulation effects of aquatic plants from Minnesota. *Lloydia* **36(1)**, 99-102.
- SU K.L., STABA E.J. and ABUL-HAJJ Y., 1973a: Preliminary chemical studies of aquatic plants from Minnesota. *Lloydia* **36**, 72-79.
- SU K.L., ABUL-HAJJ Y. and STABA E.J., 1973b: Antimicrobial effects of aquatic plants from Minnesota. *Lloydia* **36**, 80-87.
- SU M.T. and ASHBY E., 1929: The interaction of factors in the growth of *Lemna*. II. Technique for the estimation of dry weight. *Ann.Bot.* **43**, 329-332.
- SUCKCHAROEN S., 1980: Mercury contamination of terrestrial vegetation near a caustic soda factory in Thailand. *Bull.Environ.Contam.Toxicol.* **24(3)**, 463-466.
- SUDZUKI M., WATANABE K., SUZUKI K. and NARITA K., 1983: Occurrence of Rotifera in the field under natural and intentionally changed conditions. *Hydrobiologia* **104**, 341-347.
- SUN S., WANG H., LI Q., 1985: Preliminary studies on physiological changes and injury mechanism in aquatic vascular plants treated with cadmium. (In Chinese). *Zhiwu Shengli Xuebao* **11(2)**, 113-121.
- SUNESON S., 1959: *Lemna gibba* in Bohuslän. (In Swed.). *Svensk.Bot. Tidskr.* **53**, 287-292.
- SUPNIEWSKA J.H., 1963: Observations on the action of trimethyl- $\beta$ -chloroethyl-ammonium chloride on plants. I. *Lemna minor* L., *Chlorella pyrenoidosa* Prings., *Riccia fluitans* L. *Bull.Acad.Pol.Sci.Ser.Sci.Biol.* **11**, 149-154.
- SUTANTO L., WIDYANTO L.S. and SOERJANI M., 1976: Tropical pest biology. 1. The effect of ametryne and cyanatryne on water hyacinth control. *Biotrop Newslett.* **15**, 13.
- SUTER M., LAVANCHY P., VON ARB C. and BRUNOLD C., 1986: Regulation of sulfate assimilation by amino-acids in *Lemna minor*. *Plant Sci.* **44(2)**, 125-132.
- SUTHERLAND J.C. and BEVIS F.B., 1979: Reuse of municipal wastewater by volunteer freshwater wetlands. *Rep.prep.Nat.Sci.Found., Washington.* (Polycopy).

- SUTTON D.L., 1976: Utilization of duckweed by the white amur. In: FREEMAN T.E. (ed.), Proc.4th Int.Symp.Biol.Control Weeds, 257-260.
- SUTTON D.L., 1981a: Who needs aquatic weeds? Weeds Today 1981, 6-7.
- SUTTON D.L., 1981b: Azolla. Aquatics 3(2), 4-5.
- SUTTON D.L. and ORNES W.H., 1975: Phosphorus removal from static sewage effluent using duckweed. J.Environ.Qual. 4, 367-370.
- SUTTON D.L. and ORNES W.H., 1977: Growth of Spirodela polyrhiza in static sewage effluent. Aquat.Bot. 3, 231-237.
- SUTTON D.L., DURHAM A.D., BINGHAM S.W. and FOY C.L., 1969: Influence of simazine on apparent photosynthesis of aquatic plants and herbicide residue removal from water. Weed Sci. 17(1), 56-59.
- SUTTON D.L., BLACKBURN R.D. and STEWARD K.K., 1976: Control of aquatic plant growth. Annu.Res.Report IFAS, Fort Lauderdale, FL, USA, 365.
- SUTTON D.L., STEWARD K.K., PERKINS B.D. and VANDIVER V.V., 1977: Control of aquatic plant growth. Annu.Res.Rep.IFAS, Fort Lauderdale, FL, USA, 324-325.
- SUZUKI Y., YAMAGUCHI I and TAKAHASHI N., 1985: Isolation and characterization of a flower inducing substance from Pharbitis purpurea. Abstr.12th Int.Conf.Plant Growth Substances, Heidelberg, FRG. 96.
- SWADER J.A., 1970: Nitrate uptake and reduction in Wolffia arrhiza. Ph. D.Thesis, Univ. Ann Arbor, Michigan. 92 pp.
- SWADER J.A. and STOCKING C.R., 1971: Nitrate and nitrite reduction by Wolffia arrhiza. Plant Physiol. 47, 189-191.
- SWADER J.A., STOCKING C.R. and LIN C.H., 1975: Light-stimulated absorption of nitrate by Wolffia arrhiza. Physiol.Plant. 34, 335-341.
- SYMOENS J.J., HOPPER S.S. and COMPERE P. (eds.), 1982: Studies on aquatic vascular plants. R.Bot.Soc.Belgium, Brussels. 424 pp.
- SYTNYK K.M. and KORDYUM Y.L., 1980: Space botanical research. (In Russian). Ukr.Bot.Zh. 37(1), 1-10.
- SZABADOS M., HORVATH A. and CSEH E., 1983: Application of Lemna minor L. to testing the arsenic content of the soil. (In Hung.). Bot.Koezl. 70 (3-4), 171-177.
- SZALMA E. and BODROGKOEZY G., 1985: Phytocenology of Wolffietum arrhizae Miyaw. et J.Tx.60. Element content of its species components as well as sediment- and water-samples. Tiscia 20, 45-53.
- SZUMAN J. and SKRZYDLEWSKI A., 1980: Land- und Wasserpflanzen in der Sumpfbibernahrung. Deutsch.Pelztierzüchter 54(7), 107-111.
- TACHIMOTO M., KOBAYASHI M. and TAKAHASHI E., 1986: Bioassay of decomposed products of rapeseed cake using Lemna paucicostata 6746. Soil Sci.Plant Nutr. 32(2), 223-231.
- TAECKHOLM V., 1974: Students' Flora of Egypt. Lemnaceae. Cairo Univ., Beirut. 768-769.
- TAI-HSING H. et al., 1975: The growing of green manure. (In Chinese). Chiang-su jen min chiu pan she. 15 pp.
- TAKAOKI T., 1969: Measurement of osmotic quantities in higher plants. J.Sci.Hiroshima Univ., Ser.B, Div.2, 12, 199-210.
- TAKEMOTO B.K., 1986: Differential sensitivity of duckweeds to sulfite enrichment. Physiological and growth responses. Ph.D.Thesis. Bowling Green State Univ. 85 pp. Diss.Abstr.Int.B 47(2), 480.
- TAKEMOTO B.K. and NOBLE R.D., 1984: Differential sensitivity to sulfite enrichment by three species of duckweed (Lemnaceae). Plant Physiol. 75(1 suppl.), 38.
- TAKEMOTO B.K. and NOBLE R.D., 1986: Differential sensitivity of duckweeds (Lemnaceae) to sulphite. I. Carbon assimilation and frond replication rate as factors influencing sulphite phytotoxicity under low and high irradiance. New Phytol. 103(3), 525-539.

- TAKEMOTO B.K., NOBLE R.D. and HARRINGTON H.M., 1986: Differential sensitivity of duckweeds (Lemnaceae) to sulphite. II. Thiol production and hydrogen sulphide emission as factors influencing sulphite phytotoxicity under low and high irradiance. *New Phytol.* **103**, 541-548.
- TAKIMOTO A., 1973: Flower initiation of *Lemna perpusilla* under continuous low-intensity light. *Plant Cell Physiol.* **14**, 1217-1219.
- TAKIMOTO A., 1981: Duckweeds as system to investigate flowering. *Proc. Int.Bot.Congr.* **13**, 50.
- TAKIMOTO A., 1987: Comparative studies on the photoperiodic and chemical induction of flowering in *Lemna*. 14th Int.Bot.Congr.Berlin, Abstr., 105.
- TAKIMOTO A. and KAIHARA S., 1986: The mode of action of benzoic acid and some related compounds on flowering in *Lemna paucicostata*. *Plant Cell Physiol.* **27(7)**, 1309-1316.
- TAKIMOTO A. and TANAKA O., 1973: Effects of some SH-inhibitors and EDTA on flowering in *Lemna perpusilla* 6746. *Plant Cell Physiol.* **14**, 1133-1141.
- TAKIMOTO A. and TANAKA O., 1974: Effects of some sulfhydryl inhibitors on floral initiation under various light conditions in *Lemna perpusilla*. In: *Plant growth substances, 1973*. Hirokawa Publ., Tokyo. 953-959.
- TAKIMOTO A. and TANAKA O., 1976: Long-day flowering of *Lemna perpusilla* 6746 in Mo-deficient medium. *Plant Cell Physiol.* **17**, 299-303.
- TAKIMOTO A., KAIHARA S. and NISHIOKA H., 1987: A comparative study on the short-day and the benzoic acid-induced flowering in *Lemna paucicostata*. *Plant Cell Physiol.* **28(3)**, 503-508.
- TAMOT B.K. and MAHESHWARI S.C., 1987: Photoperiodic and chemical control of flowering in *Wolffiella hyalina*, 7378. 14th Int.Bot.Congr.Berlin, Abstr., 130.
- TAMOT B.K., KHURANA J.P. and MAHESHWARI S.C., 1987: Obligate requirement of salicylic acid for short-day induction of flowering in a new duckweed, *Wolffiella hyalina* 7378. *Plant Cell Physiol.* **28(2)**, 349-353.
- TAL S. and ZIV I., 1978: Culture of exotic species in Israel. *Bamidgeh* **30**, 3-11.
- TAN Y.T., 1970: Composition and nutritive value of some grasses, plants and aquatic weeds tested as diets. *J.Fish.Biol.* **2**, 253-257.
- TANAKA H., 1966: Response of *Lemna paucicostata* to boron as affected by light intensity. *Plant and Soil* **25**, 425-434.
- TANAKA O., 1986: Flower induction by nitrogen deficiency in *Lemna paucicostata* 6746. *Plant Cell Physiol.* **27(5)**, 875-880.
- TANAKA O. and ASAGAMI K., 1986: Ferricyanide induces flowering by suppression of nitrate assimilation in *Lemna paucicostata* 6746. *Plant Cell Physiol.* **27(6)**, 1063-1068.
- TANAKA O. and CLELAND C.F., 1978: Influence of ferricyanide on flowering in *Lemna*. *Plant Physiol.* **61(4 suppl.)**, 52.
- TANAKA O. and CLELAND C.F., 1980: Comparison of the ability of salicylic acid and ferricyanide to induce flowering in the long-day plant, *Lemna gibba* G3. *Plant Physiol.* **65**, 1058-1061.
- TANAKA O. and CLELAND C.F., 1981: Influence of ammonium on the ability of salicylic acid to induce flowering in the short-day plant *Lemna paucicostata* 6746. *Plant Cell Physiol.* **22(4)**, 597-602.
- TANAKA O. and TAKIMOTO A., 1975: Suppression of long-day flowering by nitrogenous compounds in *Lemna perpusilla* 6746. *Plant Cell Physiol.* **16**, 603-610.
- TANAKA O. and TAKIMOTO A., 1977: Flower-promoting effect of some amino acids and amides in *Lemna paucicostata* 6746. *Plant Cell Physiol.* **18**, 27-34.

- TANAKA O. and TAKIMOTO A., 1978: Effect of nitrate concentration in the medium on the flowering of *Lemna paucicostata* 6746. *Plant Cell Physiol.* **19**, 701-704.
- TANAKA O., CLELAND C.F. and HILLMAN W.S., 1979a: Inhibition of flowering in the long-day plant *Lemna gibba* G3 by Hutner's medium and its reversal by salicylic acid. *Plant Cell Physiol.* **20**, 839-846.
- TANAKA O., TAKIMOTO A. and CLELAND C.F., 1979b: Enhancement of long-day flowering by Mo-deficiency and application of some amino acids and asparagine in the short-day plant *Lemna paucicostata* 6746. *Plant Cell Physiol.* **20**, 267-270.
- TANAKA O., NASU Y., TAKIMOTO A. and KUGIMOTO M., 1982a: Absorption of copper by *Lemna* as influenced by some factors which nullify the copper effect on flowering and growth. *Plant Cell Physiol.* **23(7)**, 1291-1296.
- TANAKA O., NASU Y., YANASE D., TAKIMOTO A. and KUGIMOTO M., 1982b: pH dependence of the copper effect on flowering, growth and chlorophyll content in *Lemna paucicostata* 6746. *Plant Cell Physiol.* **23(8)**, 1479-1482.
- TANAKA O., CLELAND C.F. and BEN-TAL Y., 1983: Effect of ferricyanide, ferrocyanide and KCN on growth and flowering in the short-day plant *Lemna paucicostata* 6746. *Plant Cell Physiol.* **24(4)**, 705-711.
- TANAKA O., HORIKAWA W., NISHIMURA H. and NASU Y., 1986a: Flower induction by suppression of nitrate assimilation in *Lemna paucicostata* 6746. *Plant Cell Physiol.* **27(1)**, 127-133.
- TANAKA O., YOKOYAMA T., KONO Y. and NASU U., 1986b: Measurement of endogenous phosphorus levels in relation to flowering in the long-day plant *Lemna gibba* G3. *Plant Cell Physiol.* **27(7)**, 1277-1283
- TANAKA O., NASU Y., SONOYAMA A., MAEHARA Y., KOBAYASHI T., NAWAFUNE H. and KUGIMOTO M., 1987: Effects of exogenous amino acids on iron uptake in relation to their effects on photoperiodic flowering in *Lemna paucicostata* 6746. *Plant Cell Physiol.* **27(7)**, 1277-1283
- TARNAVSCHI I.T. and NEDELICU G.A., 1971: Concerning the dynamics of lake vegetation. *Comun.Bot.* **12**, 289-295.
- TARVER D.P. et al., 1978: Aquatic and wetland plants of Florida. Tallahassee, FL: Florida Dept. Natural Resources. 127 pp.
- TASSERON-DE JONG J.G., 1968: Investigations on cytokinins. Effects of 6-benzylaminopurine on *Lemna minor* L. Thesis. Univ. Leiden.
- TASSERON-DE JONG J.G. and VELDSTRA J.H., 1971a: Investigations on cytokinins. 1. Effect of 6-benzylaminopurine on growth and starch content of *Lemna minor*. *Physiol.Plant.* **24**, 235-238.
- TASSERON-DE JONG J.G. and VELDSTRA J.H., 1971b: Investigations on cytokinins. 2. Interaction of light and cytokinins as studied in *Lemna minor*. *Physiol.Plant.* **24**, 239-241.
- TATKOWSKA E. and BUCZEK J., 1983: Effect of ammonium nutrition on the nitrate utilization, nitrate reductase activity and growth of *Spirodela polyrrhiza*. *Acta Soc.Bot.Pol.* **52(3-4)**, 241-252.
- TATKOWSKA E. and KOBYLANSKA D., 1978: The effect of sodium humate on cultures of *Spirodela polyrrhiza* (L.) Schleiden under aseptic conditions. *Ekol.Pol.* **26**, 213-220.
- TATKOWSKA E. and TOPOROWSKA E., 1978: The effects of detergents on cultures of *Spirodela polyrrhiza* (L.) Schleiden under aseptic conditions. *Ekol.Pol.* **26**, 221-229.
- TAUBAEV T.T. and ABDIEV M., 1971: The research on duckweeds under natural and cultivation conditions. (In Russian). *Kultiv.Vodor.Vyshh. Vodn.Rast.Uzbekistane*, 92-98.
- TAUBAEV T. and ABDIEV M., 1973: Duckweeds of water reservoirs in Uzb-

- kistan and their use in agriculture. (In Russian). Fan, Taskent. 87 pp.
- TAUBAEV T.T., ABDIEV M. and KELDIBEKOV C., 1971a: The biological productivity of lesser duckweed (*Lemna minor* L.) in natural water bodies and in culture. (In Russian). *Kultiv.Vodor.Vyshh.Vodn.Rast.Uzbekistane*, 98-101.
- TAUBAEV T.T., NESKUBO P.M., ABDIEV M. and NORMUCHAMEDOV C., 1971b: Use of *Lemna minor* as fodder for small cattle. (In Russian). In: TKACENKO I.P. (ed.), *Cultivation of algae and water macrophytes in Uzbekistan*. Taskent. 136-138.
- TAUBAEV T.T., RAKHIMOV L. and RAKHIMOVA S., 1982: Biological characteristics of cultured *Spirodela polyrrhiza* and *Lemna minor*. (In Russian). *Sist.Ekol.Vodor.Gribov.Sred.Azii*, Tashkent, 49-57.
- TAYLOR J.S. and DUMBROFF E.B., 1975: Bud, root, and growth-regulator activity in *Acer saccharum* during the dormant season. *Can.J.Bot.* **53**, 321-231.
- TEIXEIRA A.R.N. and DAVIES D.D., 1974: The control of plant glutamate dehydrogenase by pyridoxal-5'-phosphate. *Phytochem.* **13**, 2071-2080.
- THANIKAIMONI G., 1969: Esquisse palynologique des Aracées. *Trav.Sect. Sci.Tech.Inst.Fr.Pondichery* **5(5)**, 31 pp.
- THAYER D.D. and HALLER W.T., 1985: Effect of herbicides on floating aquatic plants. *J.Aquat.Plant Manage.* **23**, 94-95.
- THELLIER M., 1970: An electrokinetic interpretation of the functioning of biological systems and its application to the study of mineral salts absorption. *Ann.Bot.* **34**, 983-1009.
- THELLIER M., 1973: Electrokinetic formulation of ionic absorption by plant samples. In: ANDERSON W.P. (ed.), *Ion transport in plants*. Acad.Press, London/New York. 47-63.
- THELLIER M. and AYADI A., 1967: Contribution à l'étude d'interactions ioniques phosphate-borate lors de l'absorption par la *Lemna minor* L. *C.R.Acad.Sci.Paris, D* **265**, 1940-1943.
- THELLIER M. and AYADI A., 1968: Interprétation électrocinétique de l'absorption du phosphate par la *Lemna minor*. *C.R.Acad.Sci.Paris, D* **267(22)**, 1839-1842.
- THELLIER M. and AYADI A., 1971: Application of the electrokinetic formalism to the interpretation of the regulation of overall cellular exchanges of potassium by calcium. In: BRODA E. et al. (eds.), *First European Biophysics Congress, 14th to 17th September, 1971, Baden near Vienna, Austria*. 211-215.
- THELLIER M. and LE GUIEL J., 1967a: Etude, grâce à l'isotope stable  $^{10}\text{B}$ , de l'absorption du borate par la *Lemna minor* L. *C.R.Acad.Sci.Paris, D* **264**, 292-295.
- THELLIER M. and LE GUIEL J., 1967b: Influence de la nutrition en bore sur l'incorporation de la leucine dans les protéines chez la *Lemna minor* L. *C.R.Acad.Sci.Paris, D* **264**, 1848-1851.
- THELLIER M. and TROMEUR C., 1968: Contribution à l'étude d'interactions ioniques sulfate-borate lors de l'absorption par la *Lemna minor* L. *C.R.Acad.Sci.Paris, D* **266(2)**, 99-101.
- THELLIER M., AYADI A. and TROMEUR C., 1967: Contribution à l'étude d'interactions ioniques chlorure-borate et iodure-borate lors de l'absorption par la *Lemna minor* L. *C.R.Acad.Sci.Paris, D* **265(22)**, 1687-1690.
- THELLIER M., STELZ Th. and AYADI A., 1971a: Application des relations et de la loi d'Onsager à l'interprétation d'interactions entre processus cellulaires globaux. *C.R.Acad.Sci.Paris, D* **273**, 2346-2349.
- THELLIER M., THOIRON B. and THOIRON A., 1971b: Electrokinetic formula-

- tion of overall kinetics of in vivo processes. *Physiol.Vég.* **9(1)**, 65-82.
- THELLIER M., DUVAL Y. and DEMARTY M., 1979: Borate exchanges of *Lemna minor* L. as studied with the help of the enriched stable isotopes and of a (n,  $\alpha$ ) nuclear reaction. *Plant Physiol.* **63**, 283-288.
- THELLIER M., RIPOLL C., DEMARTY M. and LASSALLES J.-P., 1981: Thermodynamic model of ion transport: flux/force relationships and biological implications. 6th School on Biophys.Membr.Transp., Proc. **2**, 31-57.
- THERIOT R.F. and SANDERS D.R., Sr., 1975: Food preferences of yearling hybrid carp. *Hyacinth Control J.* **13**, 51-53.
- THIMANN K.V. and EDMONDSON Y.H., 1949: The biogenesis of the anthocyanins. I. General nutritional conditions leading to anthocyanin formation. *Arch.Biochem.* **22**, 33-53.
- THIMANN K.V. and RADNER B.S., 1955a: The biogenesis of anthocyanins. IV. The inhibitory effect of methionine and other sulfur-containing compounds on anthocyanin formation. *Arch.Biochem.Biophys.* **58**, 484-497.
- THIMANN K.V. and RADNER B.S., 1955b: The biogenesis of anthocyanins. V. Evidence for the mediation of pyrimidines in anthocyanin synthesis. *Arch.Biochem.Biophys.* **59**, 511-525.
- THIMANN K.V. and RADNER B.S., 1958: The biogenesis of anthocyanins. VI. The role of riboflavine. *Arch.Biochem.Biophys.* **74**, 209-223.
- THIMANN K.V. and RADNER B.S., 1960: Control of anthocyanin formation by purines and pyrimidines. *Plant Physiol.* **25(suppl.)**, 17.
- THIMANN K.V. and RADNER B.S., 1962: The biogenesis of anthocyanins. VII. The requirement for both purines and pyrimidines. *Arch.Biochem.* **96**, 270-279.
- THIMANN K.V. and SKOOG F., 1940: The extraction of auxin from plant tissues. *Am.J.Bot.* **27**, 951-960.
- THIMANN K.V., SKOOG F. and BYER A.C., 1942: The extraction of auxin from plant tissues II. *Am.J.Bot.* **29**, 598-606.
- THIMANN K.V., EDMONDSON Y.H. and RADNER B.S., 1951: The biogenesis of anthocyanins. III. The role of sugars in anthocyanin formation. *Arch. Biochem.* **34**, 305-323.
- THOIRON A., THOIRON B., DEMARTY M. and THELLIER M., 1981: Compartmental analysis of sulfate transport in *Lemna minor* L. taking plant growth and sulfate metabolization into consideration. *Biochim.Biophys.Acta* **644 (1)**, 24-35.
- THOIRON B., THOIRON A. and THELLIER M., 1969: Influence de la température sur l'absorption du sulfate par la *Lemna minor* L. *C.R.Acad.Sci. Paris, D* **269(21)**, 2103-2106.
- THOMAS J.D., GREALY B. and FENNELL C.F., 1983: The effects of varying the quantity and quality of various plants on feeding and growth of *Biomphalaria glabrata* (Gastropoda). *Oikos* **41(1)**, 77-90.
- THOMAS J.D., STERRY P.R. and PATIENCE R.L., 1984: Uptake and assimilation of short carboxylic acids by *Biomphalaria glabrata* (Say), the freshwater pulmonate snail host of *Schistosoma mansoni* (Sambon). *Proc.R.Soc.Lond. B* **222**, 447-476.
- THOMPSON C.H., 1896: The ligulate Wolffias of the United States. *Ann. Rep.Miss.Bot.Gard.* **7**, 101-111.
- THOMPSON C.H., 1898: A Revision of the American Lemnaceae occurring North of Mexico. *Ann.Rep.Miss.Bot.Gard.* **9**, 21-42.
- THOMPSON G.A., MUDD S.H., DATKO A.H. and GIOVANELLI J., 1980: Regulation of cystathionine  $\gamma$ -synthase and O-phosphohomoserine sulphydrylase in *Lemna*. *Plant Physiol.* **65(6 suppl.)**, 16.
- THOMPSON G.A., DATKO A.H., MUDD S.H. and GIOVANELLI J., 1982a: Methionine biosynthesis in *Lemna*. Studies on the regulation of cysta-

- thionine- $\gamma$ -synthase, O-phosphohomoserine sulfhydrylase, and O-acetylserine sulfhydrylase. *Plant Physiol.* **69(5)**, 1077-1083.
- THOMPSON G.A., DATKO A.H. and MUDD S.H., 1982b: Methionine synthesis in *Lemna*. Inhibition of cystathionine  $\gamma$ -synthase by propargylglycine. *Plant Physiol.* **70(5)**, 1347-1352.
- THOMPSON G.A., DATKO A.H. and MUDD S.H., 1983: Adaptation of *Lemna paucicostata* to sublethal methionine deprivation. *Plant Physiol.* **71(2)** 241-247.
- THOMSON S., 1970: *Wolffia*. *Trail and Landscape* **4**, 127-129.
- THORNER J.P., PETER G.F., NECHUSHTAI R., CHITNIS P.R., HUNTER F.A. and TOBIN E.M., 1986: Electrophoretic separation of chlorophyll-protein complexes and their apoproteins. *Plant Biol.* **2**, 249-258.
- THORNLEY J.H.M., 1977: Root:shoot interactions. In: JENNINGS D.A. (ed.), *Integration of activity in the higher plants*. Symp.Soc.Experimental Biology. Cambridge Univ. Press. **31**, 367-389.
- THORSTEINSSON B., TILLBERG E. and TILLBERG J.-E., 1985: The effect of different growth limitations on assimilate partitioning in *Lemna gibba*. *Plant Physiol.* **64(2)**, 16A.
- TIKHONOV O.I., 1966: Flavonoids of *L. minor*. (In Ukrain.). *Farm.Zh. (Kiev)* **21(1)**, 52-55.
- TIKHONOV O.I., KRIVENCHUK P.E. and LITVINENKO V.I., 1965: Flavonoids of the lesser duckweed (*Lemna minor*). I. Preliminary studies. (In Ukrain.). *Farm.Zh. (Kiev)* **20**, 63-65.
- TIKHONOV O.I., KRIVENCHUK P.E., LITVINENKO V.I. and KOVALOV I.P., 1965: Flavonoids of *Lemna minor* II. (In Ukrain.). *Farm.Zh. (Kiev)* **20**, 53-55.
- TIKHONOV O.I. et al., 1966: The flavonoids of common duckweed. (In Ukrain.). *Farm.Zh. (Kiev)* **21(3)**, 40-44.
- TILLBERG E., 1975: An abscisic acid-like substance in dry and soaked *Phaseolus vulgaris* seeds determined by the *Lemna* growth bioassay. *Physiol.Plant.* **34(3)**, 192-195.
- TILLBERG E., 1980: Glycolate and glyoxylate stimulation of growth in *Lemna gibba*. *Physiol.Plant.* **50**, 158-160.
- TILLBERG E. and ELIASSON L., 1976: Indoleacetic acid enhancement of the inhibition of *Lemna* growth caused by abscisic acid. *Planta* **130**, 53-55.
- TILLBERG E., HOLMVALL M. and ERICSSON T., 1979: Growth cycles in *Lemna gibba* cultures and their effects on growth rate and ultrastructure. *Physiol.Plant.* **46**, 5-12.
- TILLBERG E., ELIASSON L. and ERICSSON T., 1980: Time course of uptake of <sup>14</sup>C-abscisic acid by *Lemna gibba* in relation to growth. *Physiol. Plant.* **48**, 584-587.
- TILLBERG E., DONS C., HAUGSTAD M. and NILSEN S., 1981: Effect of abscisic acid on CO<sub>2</sub> exchange in *Lemna gibba*. *Physiol.Plant.* **52(4)**, 401-406.
- TILLICH H.-J., 1985: Keimlingsbau und verwandtschaftliche Beziehungen der Araceae. *Gleditschia* **13**, 63-73.
- TIMOFEEVA S.S. and KRAEVA V.Z., 1983:  $\beta$ -cyanoalanine synthase of hydrophytes and its significance in detoxication of cyanide-containing waters. (In Russian). *Viniti(Irkutsk)* 5439-83. 35 pp.
- TIMOFEEVA S.S. and MEN'SHIKOVA O.A., 1983: Development of biotechnology for hydrobotanical removal of thiocyanates from water by the multi-factor experiment method. (In Russian). *Viniti(Irkutsk)* 2453-83. 34 pp.
- TIMOFEEVA S.S. and MEN'SHIKOVA O.A., 1986: Use of macrophytes to improve biological treatment of thiocyanate-containing wastewater. (In Russian). *Vodn.Resur.(Irkutsk)* **6**, 80-85.

- TISCHLER G., 1935: Die Bedeutung der Polyploidie für die Verbreitung der Angiospermen, erläutert an den Arten Schleswig-Holsteins mit Ausblicken auf andere Florengebiete. Bot.Jb. **67**, 1-37.
- TITOVA A.A., 1978a: Concentration of the herbicide 2,4-D (2,4-dichlorophenoxyacetic acid) by some higher water plants. Hydrobiol.J. **14(4)**, 96-97.
- TITOVA A.A., 1978b: Accumulation of the herbicide 2,4-D by some higher aquatic plants. (In Russian). Gidrobiol.Zh. **14**, 110-111.
- TLOMAK E., CZERWINSKI W. and SIEWINSKI A., 1984: Biotransformation of testosterone to androstenedione and 5 $\alpha$ -androstane-3,17-dione by Lemnaceae. (In Polish). Patent: PL 126902 B2. 3 pp.
- TLOMAK E., PAWLOWICZ P., CZERWINSKI W. and SIEWINSKI A., 1986: Transformation of androstane derivatives by *Spirodela oligorrhiza*. Phytochem. **25(1)**, 61-64.
- TOBIN E.M., 1977: Polyadenylic-acid- plus RNA populations in *Lemna gibba* G3. Plant Physiol. **59(6 suppl.)**, 22.
- TOBIN E.M., 1978: Light regulation of specific mRNA species in *Lemna gibba* L. G3. Proc.Natl.Acad.Sci. USA **75**, 4749-4753.
- TOBIN E.M., 1981a: Light regulation of the synthesis of two major nuclear-coded chloroplast polypeptides in *Lemna gibba*. In: AKOYUNOGLU G. (ed.), Photosynthesis. Balaban Int.Sci.Serv., Philadelphia. **5**, 949-959.
- TOBIN E.M., 1981b: Phytochrome-mediated regulation of messenger RNAs for the small subunit of ribulose 1,5-bisphosphate carboxylase and the light-harvesting chlorophyll a/b-protein in *Lemna gibba*. Plant Mol. Biol. **1(1)**, 35-51.
- TOBIN E.M., 1981c: White light effects on the mRNA for the light-harvesting chlorophyll a/b-protein in *Lemna gibba* G3. Plant Physiol. **67(6)**, 1078-1083.
- TOBIN E.M. and KLEIN A.O., 1974: Purification and translation of plant mRNA. Plant Physiol. **53(suppl.)**, 37.
- TOBIN E.M. and KLEIN A.O., 1975: Isolation and translation of plant messenger RNA. Plant Physiol. **56(1)**, 88-92.
- TOBIN E. and SILVERTHORNE J., 1984: Environmental regulation of gene expression in higher plants: light, temperature and the anaerobic response. In: CRESS D. (ed.), Plant genetic engineering. Dekker, New York.
- TOBIN E. and SILVERTHORNE J., 1985: Light regulation of gene expression in higher plants. Ann.Rev.Plant Physiol. **36**, 569-593.
- TOBIN E.M. and SUTTIE L., 1980: Light effects on the synthesis of ribulose-1,5-bisphosphate carboxylase in *Lemna gibba* G-3. Plant Physiol. **65**, 641-647.
- TOBIN E.M. and TURKALY E., 1982: Kinetin affects rates of degradation of mRNAs encoding two major chloroplast proteins in *Lemna gibba* L. G3. J.Plant Growth Regul. **1(1)**, 3-13.
- TOBIN E.M., STIEKEMA W.J., WIMPEE C.F. and SILVERTHORNE J., 1983: Light regulation of nuclear coded genes for chloroplast proteins ribulose-1,5-bisphosphate carboxylase small subunit and chlorophyll a/b-protein. J.Cell Biochem. (suppl.7 part B), 296.
- TOBIN E. and SILVERTHORNE J., STIEKEMA W.J. and WIMPEE C.F., 1984a: Phytochrome regulation of the synthesis of two nuclear-coded chloroplast proteins. Sem.-Ser., Soc.Exp.Biol. **21**, 321-335.
- TOBIN E., WIMPEE C.F., SILVERTHORNE J., STIEKEMA W.J., NEUMANN G.A. and THORNER J.P., 1984b: Phytochrome regulation of the expression of two nuclear-coded chloroplast proteins. In: THORNER J.P., STAEHELIN L.A. and HALLICK R.B. (eds.), Biosynthesis of the photosynthetic appara-

- tus. Molecular biology, development and regulation. UCLA Symp.Mol. Cell Biol. **14**, 325-334.
- TOBIN E., WIMPEE C.F., KARLIN-NEUMANN G.A., SILVERTHORNE J. and KOHORN B.D., 1985: Phytochrome regulation of nuclear gene expression. In: STEINBACK K.E. et al. (eds.), Molecular biology of the photosynthetic apparatus. NATO Adv.Res.Workshop, Cold Spring Harbor, N.Y. 373-380.
- TODD G.W., MIDDLETON J.T. and BREWER R.F., 1956: Effects of air pollutants. Calif.Agr. **10**, 7-8 and 14.
- TOIVONEN H., 1985: Changes in the pleustic macrophyte flora of 54 small Finnish lakes in 30 years. Ann.Bot.Fenn. **22(1)**, 37-44.
- TOMASZEWICZ H., 1977: Aquatic and bog vegetation in the reservoirs of the Ciechornice and Skrwa drainage area on the Gostynin Lakeland. (In Polish). Monogr.Bot. **52**, 144 pp.
- TOMIYAMA T., YONE Y. and ISHIO S., 1951: Biochemical studies on the liquefaction of fish body. II. On the effectiveness of "solubilized fish" to the growth of a plant, *Lemna paucicostata* Hegelm. (In Japan.). Sci.Bull.Fac.Agr.Kyushu Univ. **13**, 306-312.
- TOMLISON P.B., 1982: Helobiae (Alismatidae). In: METCALFE C.R. (ed.), Anatomy of the monocotyledons VII. Clarendon Press, Oxford.
- TONAPI G.T. and VARGHESE G., 1983: Preliminary observations on the bioecology of the ectoproct-*Pectinatella burmanica* Annadale. Curr.Sci. **52(13)**, 646-647.
- TORREY J., 1843: A flora of the state of New York. Albany. **2**, 245.
- TOTH L., 1962: On some chemical properties of *Wolffia arrhiza* (L.) Wimm. Annal.Biol.Tihany **29**, 275-282.
- TRAPEZNIKOV A.V. and TRAPEZNIKOVA V.N., 1979: <sup>60</sup>Co accumulation by freshwater plants under natural conditions. (In Russian). Ekologiya (Sverdlovsk) **2**, 104-106.
- TREICHEL S., 1974a: Einfluss von Morphaktinen auf den Stoffwechsel höherer Pflanzen. I. Die Wirkung auf die Atmung und auf einige glykolytische Enzyme. Biochem.Physiol.Pflanzen **166(5-6)**, 481-493.
- TREICHEL S., 1974b: Einfluss von Morphaktinen auf den Stoffwechsel höherer Pflanzen. II. Die Wirkung auf die Photosynthese und den Gehalt an Stärke, ATP und Chlorophyll. Biochem.Physiol.Pflanzen **166(5-6)**, 495-509.
- TRELEASE W., 1882: On the structure which favor cross-fertilization in several plants. Proc.Boston Soc.Nat.Hist. **21**, 410-440.
- TRENT L. and McARTHUR B., 1974: Results of testing Clean-Flo Lake cleanser in Florida lakes. Hyacinth Control J. **12**, 44-45.
- TREWAVAS A., 1970: The turnover of nucleic acids in *Lemna minor*. Plant Physiol. **45**, 742-751.
- TREWAVAS A., 1972a: Determination of the rates of protein synthesis and degradation in *Lemna minor*. Plant Physiol. **49**, 40-46.
- TREWAVAS A., 1972b: Control of protein turnover rates in *Lemna minor*. Plant Physiol. **49**, 47-51.
- TREWAVAS A., 1973: The phosphorylation of ribosomal protein in *Lemna minor*. Plant Physiol. **51**, 760-767.
- TREWAVAS A.J., 1979: The dynamics of the meristem control by growth substances. Monogr.Brit.Plant Growth Regul.Group No. **3**, 39-53.
- TRIDECH S. and ENGLANDE A.J., Jr., 1980: Trace contaminant removal from secondary domestic effluent by vascular aquatic plants. Argonne Natl. Lab., Energy Environ.Syst., Tech.Rep. **96(2)**, 321-430.
- TRIDECH S., ENGLANDE A.J., Jr., HEBERT M.J. and WILKINSON R.F., 1981: Tertiary wastewater treatment by the application of vascular aquatic plants. Chem.Water Reuse **2**, 521-539.
- TRIVEDI B.S. and VERMA C.L., 1972: Spore and pollen assemblages of the Tertiary coal beds of Malaya. J.Palynol. **8**, 27-36.

- TROGISCH G. and ULLRICH W., 1984: Der Einfluss von 6-Methylpurin auf die Nitrataufnahme bei *Lemna gibba* Gl. Mitt.bd.Bot.-Tag.Wien, 55 (9513).
- TRUAX R.E., CULLEY D.D., GRIFFITH M., JOHNSON W.A. and WOOD J.P., 1972: Duckweed for chick feed? Louisiana Agriculture **16(1)**, 8-9.
- TSAO T.H. and YIN L.M., 1985: Effects of polyamines (PA) and their biosynthesizing inhibitor MGBG on flowering of *Lemna paucicostata* 6746. Abstr.12th Int.Conf.Plant Growth Substances,Heidelberg,FRG. 130.
- TSAO T.H., ZHONG H.W., JIAO S.P. and TAN Z.Y., 1985: Changes of endogenous ABA and GA contents during floral induction of *Lemna paucicostata* 6746. Abstr.12th Int.Conf.Plant Growth Substances,Heidelberg,FRG. 96.
- TSAO T.H., ZHONG H.W., JIAO S.P. and TAN Z.Y., 1986: Changes of endogenous ABA and GA contents during floral induction of *Lemna aequinoctialis*. Acta Bot.Neerl. **35(4)**, 443-448.
- TSUCHIYA M., 1979: Control of aquatic weeds by grass carp (*Ctenopharyngodon idella* Val.). (In Russian). Jarq. **13(3)**, 200-203.
- TSUDZUKI T. and KONDO T., 1979: Further studies on potassium uptake rhythm in the long-day duckweed *Lemna gibba* G3 with special reference to vegetative growth. Plant Cell Physiol. **20**, 1079-1086.
- TUCKER C.S., 1981: Relationships between culture density and the composition of 3 floating aquatic macrophytes. Hydrobiologia **85(1)**, 73-76.
- TUEXEN R., 1971: Lemnetae. In: TUEXEN R., Bibliographia phytosociologica syntaxonomica. **2**. Cramer, Lehre.
- TUEXEN R., 1974: Die Pflanzengesellschaften Nordwestdeutschlands. (2nd ed.). Lemnetae minoris. J. Cramer, Lehre. 35-83.
- TULGANOV A., 1972: Amino acid composition of protein isolated from *Lemna minor* (common duckweed). (In Russian). Dokl.Akad.Nauk Uzb. **29(7)**, 56-57.
- TURNER B.L., 1967: Plant chemosystematics and phylogeny. J.Pure Appl. Chem. **14**, 189-213.
- TURNER P., SCHMIDT K., GAINES L., MANGI J. and PANKOW J., 1978: Effects of chromium on some aquatic plants. Environ.Pollut. **16(4)**, 285-291.
- TYKHONOV I.O. see TIKHONOV
- UBAIDULLAEV A.U., ABDIEV M. and NIEZOV B., 1971: Morphological and anatomical characteristics of lesser duckweed (*Lemna minor* L.). (In Russian). Kultiv.Vodor.Vyssh.Vodn.Rast.Uzb. **1971**, 102-106.
- ULLMANN I. and VAETH R., 1978: Wasser- und Sumpfpflanzengesellschaften der verschiedenen Gewässertypen im Schweinfurter Raum (östliches Maindreieck). Ber.Bayer.Bot.Ges. **49**, 137-163.
- ULLRICH W.R., 1979: Die Nitrataufnahme bei Grünalgen und ihre Regulation durch äussere Faktoren. Ber.Deutsch.Bot.Ges. **92**, 273-284.
- ULLRICH W.R., 1987: Nitrate and ammonium uptake in green algae and higher plants: mechanisms and relationship with nitrate metabolism. In: Inorganic nitrogen metabolism. Springer, Berlin. In press.
- ULLRICH W.R. and NOVACKY A., 1981: Nitrate-dependent membrane potential changes and their induction in *Lemna gibba* Gl. Plant Sci.Lett. **22(3)**, 211-217.
- ULLRICH-EBERIUS C.I. and NOVACKY A., 1984: H<sup>+</sup>/phosphate cotransport and its interaction with arsenate and vanadate in transport and metabolism in *Lemna gibba* Gl. In: CRAM W.J. et al. (eds.), Membrane transport in plants. Symp.Abstr., 433.
- ULLRICH W.R., SCHMITT H.-D. and ARNTZ E., 1981: Regulation of nitrate uptake in green algae and duckweeds. Effect of starvation and induction. In: BOTHE H. and TREBST A. (eds.), Biology of inorganic nitrogen and sulfur. Springer, Berlin/Heidelberg/New York. 244-251.

- ULLRICH W.R., LARSSON M., LARSSON C.-M., LESCH S. and NOVACKY A., 1984a: Ammonium-induced membrane depolarization and inhibition of nitrate and phosphate uptake in *Lemna gibba* Gl. In: CRAM W.J. et al. (eds.), Membrane transport in plants. Symp.Abstr., 432.
- ULLRICH W.R., LARSSON M., LARSSON C.-M., LESCH S. and NOVACKY A., 1984b: Ammonium uptake in *Lemna gibba* Gl, related membrane potential changes, and inhibition of anion uptake. *Physiol.Plant* **61(3)**, 369-376.
- ULLRICH-EBERIUS C.I., NOVACKY A. and LUETTGE U., 1978: Active hexose uptake in *Lemna gibba* Gl. *Planta* **139**, 149-153.
- ULLRICH-EBERIUS C.I., NOVACKY A. and LUETTGE U., 1980: Extracellular pH changes during glucose uptake in *Lemna gibba*. In: SPANSWICK R.M., LUCAS W.J. and DAINTY J. (eds.), Plant membrane transport: Current conceptual issues. Elsevier, North-Holland. Biomed.Press. 551-552.
- ULLRICH-EBERIUS C.I., NOVACKY A., FISCHER E. and LUETTGE U., 1981: Relationship between energy-dependent phosphate uptake and the electrical membrane potential in *Lemna gibba* Gl. *Plant Physiol.* **67(4)**, 797-801.
- ULLRICH-EBERIUS C.I., NOVACKY A. and BALL E., 1983: Effect of cyanide in dark and light on the membrane potential and the ATP level of young and mature green tissues of higher plants. *Plant Physiol.* **72(1)**, 7-15.
- ULLRICH-EBERIUS C.I., NOVACKY A. and VAN BEL A.J.E., 1984: Phosphate uptake in *Lemna gibba* Gl: Energetics and kinetics. *Planta* **161(1)**, 46-52.
- UMEMOTO T., 1971: Effect of chlorogenic acid on flower production in long-day duckweed, *Lemna gibba* G3. *Plant Cell Physiol.* **12**, 165-169.
- UMEMURA K. and OOTA Y., 1965a: Effects of nucleic acid and protein-antimetabolites on frond and flower production in *Lemna gibba* G3. *Plant Cell Physiol.* **6**, 73-85.
- UMEMURA K. and OOTA Y., 1965b: Flowering in *Lemna paucicostata* as compared with that in *Lemna perpusilla* 6746. *Plant Cell Physiol.* **6**, 793-798.
- UMEMURA K., INOKUCHI H. and OOTA Y., 1963: Flowering in *Lemna gibba*. *Plant Cell Physiol.* **4**, 289-292.
- UNDERWOOD J.L., HESTAND R.S. and THOMPSON B.Z., 1986: Utilization of triploid grass carp for control of floating vegetation in wastewater retention ponds. Proc.26th Ann.Meet.Aquat.Plant Manage.Soc., Sarasota, Florida, 13-16.
- UNNI K.S., 1970: Seasonal variation in chemical constituents of some aquatic plants. *J.Bombay Nat.Hist.Soc.* **69(1)**, 242-246.
- UOTILA P. et al., 1983 see 1984
- UOTILA P., BAYTOP A. and LANDOLT E., 1984: Duckweeds (Lemnaceae) in Turkey. *Webbia* **38**, 839-844.
- URBAN E., 1983: Energy balance and nitrogen changes of grass carp *Ctenopharyngodon idella* larvae and fry under different food conditions. *Ekol.Pol.* **30(3-4)**, 327-392.
- URBANSKA see URBANSKA-WORYTKIEWICZ
- URBANSKA-WORYTKIEWICZ K., 1975: Cytological variation within *Lemna* L. *Aquat.Bot.* **1**, 377-394.
- URBANSKA-WORYTKIEWICZ K., 1980: Cytological variation within the family of Lemnaceae. *Veröff.Geobot.Inst.ETH,Stiftung Rübel,Zürich* **70**, 30-101.
- URBANSKA-WORYTKIEWICZ K., 1982: Cytological variation within the family Lemnaceae. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), Studies on aquatic vascular plants. *R.Bot.Soc.Belgium, Brussels.* 1-15.
- USTYMENKO P.M., 1984: Floristic findings on the territory of the planned Mezin Natural National Park. (In Ukrain.). *Ukr.Bot.Zh.* **41(4)**, 64-67.

- UYGUNLAR S., GUERESCI L.U. and BUETUEN G., 1981: Farkli kirleticilerin Lemna gibba da radioaktiv etkiketti CO<sub>2</sub> alinimina etkisi. (In Turk.; not translated). Atom Enerji Kom.Yay., Baskida.
- VAILLANT F., 1982: Sur une cohabitation entre des Lépidoptères et des Trichoptères comprise par des Mollusques. Entomologiste **38(2)**, 58-64.
- VALLENTYNE J.R. and WHITTAKER J.R., 1956: On the presence of free sugars in filtered lake water. Science **124**, 1026-1027.
- VALLISNERI A., 1710: De arcans Lenticulae palustris, semine ac admiranda vegetatione, in Prima raccolta d'osservazione e d'esperienze. Padova.
- VAN BEUSEKOM C.F., 1967: Ueber einige Apiose-Vorkommnisse bei den Helobiae. Phytochem. **6**, 573-576.
- VAN BRUGGEN T., 1976: The vascular plants of South Dakota. Iowa State Univ.Press, Ames, USA. 123.
- VAN COILLIE R., THELLEN C. and DOL J.C., 1981: Detection of retarded toxicity in water pollution. Water Pollut.Res.J.Can. **15(3)**, 203-216.
- VANDEBERGHE A., CHEN M.-W., DAMS E., DE BAERE R., DE ROECK E., HUYSMANS E. and DE WACHTER R., 1984: The corrected nucleotide sequences of 5S RNAs from six angiosperms. With some notes on 5S RNA secondary structure and molecular evolution. FEBS Lett. **171(1)**, 17-23.
- VAN DER PLAS F., 1971: Flora Malesiana Ser. I. Spermatophyta **7**, 219-237.
- VAN DER VALK A.G. and DAVIS C.B., 1978: The role of seed banks in the vegetation dynamics of prairie glacial marshes. Ecology **59**, 322-335.
- VAN DER VELDE G., 1979: Nymphoides peltata (Gmel.) O.Kuntze (Menyanthaceae) as a food plant for Catalysta lemnata (L.) (Lepidoptera, Pyralidae). Aquat.Bot. **7(3)**, 301-304.
- VAN DER WERFF M., 1981: Ecotoxicity of heavy metals in aquatic and terrestrial higher plants. Ph.D.Thesis. Vrije Univ. Amsterdam. Elinkwijk BV, Utrecht. 126 pp.
- VAN DER WERFF M. and PRUYT M.J., 1982: Long-term effects of heavy metals on aquatic plants. Chemosphere **11(8)**, 727-739.
- VAN DONSELAAR J., 1968: Water and marsh plants in the artificial Brokopondo Lake (Surinam, South America) during the first three years of its existence. Acta Bot.Neerl. **17(3)**, 183-194.
- VAN DYKE G.D., 1965: Incorporation of <sup>14</sup>C-aromatic amino acids into C-glycosyl flavones of Lemna perpusilla. M.S.Thesis. Univ. of Texas, Austin.
- VAN DYKE J.M., 1973: Nutritional study of the white amur (Ctenopharyngodon idella Val.) fed on duckweed (Lemna minor L.). M.S.Thesis. Univ. of Florida. 34 pp.
- VAN DYKE J.M. and SUTTON D.L., 1977: Digestion of duckweed (Lemna spp.) by the grass carp (Ctenopharyngodon idella). J.Fish.Biol. **11**, 273-278.
- VAN EE J.H. and PLANTA R.J., 1982: Isolation and characterization of polyribosomes and non-ribosomal ribonucleoprotein particles from the duckweed Spirodela oligorrhiza. Plant Sci.Lett. **25(3)**, 337-344.
- VAN EE J.H., MAN IN'T VELD W.A. and PLANTA R.J., 1980a: Isolation and characterization of chloroplast DNA from the duckweed Spirodela oligorrhiza. Plant Physiol. **66**, 572-575.
- VAN EE J.H., VOS Y.J. and PLANTA R.J., 1980b: Physical map of chloroplast DNA of Spirodela oligorrhiza; analysis by the restriction endonucleases PstI, XhoI and SacI. Gene **12(3-4)**, 191-200.
- VAN EE J.H., VOS Y.J., BOHNERT H.J. and PLANTA R.J., 1982: Mapping of genes on the chloroplast DNA of Spirodela oligorrhiza. Plant Mol. Biol. **1(2)**, 117-131.

- VAN EYK J., 1963: Investigation on the mode of action of kinetin with *Lemna minor* L. Ph.D.Thesis. Univ. Leiden.
- VAN EYK J. and VELDSTRA H., 1966: A comparative investigation of kinetin (6-furfurylamino-purine) and some similarly substituted purines and pyrimidines with *Lemna minor* (L.). *Phytochem.* **5**, 457-462.
- VAN HOREN F., 1869: Observations sur la physiologie des Lemnacées. *Bull. Soc.R.Bot.Belg.* **8**, 15-88.
- VAN HOREN F., 1870: On the hibernation of Lemnaceae. *J.Bot.* **8**, 36-40.
- VAN LOON L.C., TREWAVAS A. and CHAPMAN K.S.R., 1975: Phosphorylation of chromatin-associated proteins in *Lemna* and *Hordeum*. *Plant Physiol.* **55**, 288-292.
- VAN MAZIJK M.E., 1975: An inverse relation between the multiplication rate and the starch content of the fronds of *Spirodela polyrrhiza* (L.) Schleiden cultivated in the presence or absence of branched chain amino acids. *Acta Bot.Neerl.* **24(2)**, 241-242.
- VAN OVERBEEK J., LOEFFLER J.E. and MASON M.I.R., 1968: Mode of action of abscisic acid. In: WIGHTMAN F. and SETTERFIELD G. (eds.), *Biochemistry and physiology of plant growth substances*. Runge Press, Ottawa. 1593-1607.
- VAN OVERBEEK J. and MASON M.I.R., 1968: Dormin and cytokinin: growth regulation of *Lemna*. *Acta Bot.Neerl.* **17**, 441-444.
- VAN STADEN J. and BORNMANN C.H., 1969: Inhibition and promotion by abscisic acid of growth in *Spirodela*. *Planta* **85**, 157-159.
- VAN STADEN J. and BORNMANN C.H., 1970a: *Spirodela* growth test. A possible bioassay for abscisic acid. *J.S.Afr.Bot.* **36(1)**, 9-12.
- VAN STADEN J. and BORNMANN C.H., 1970b: Cytokinin and gibberellin effects on abscisic acid induced inhibition of growth in *Spirodela*. *J. S.Afr.Bot.* **36**, 207-213.
- VAN VIERSSEN W. and VERHOEVEN J.T.A., 1983: Plant and animal communities in brackish supra-littoral pools ('dobben') in the northern part of the Netherlands. *Hydrobiologia* **98(3)**, 203-221.
- VARELA M.E., CORRALES M.A., TELL G., NEIFF A.P. and NEIFF J.J., 1978: Limnological studies in the Riachuelo River Basin (Corrientes, Argentina). V. Aquatic Biota of the floating islands in La Brava pond in relation to its environment. *Ecosur* **5(9)**, 97-118.
- VARELY see VARELA
- VARENKO N.I. and CHUIKO V.T., 1971: Role of higher aquatic plants in the migration of manganese, zinc, copper and cobalt in the Dneprodzerzhinsk Reservoir. *Hydrobiol.J.* **7(3)**, 45-48.
- VARENKO N.I. and LUBJANOV I.P., 1973: On accumulation of trace elements by some hydrophytes of the Dneprodzerzhinsk and Zapozozhiye reservoirs. (In Ukrainian). *Ukr.Bot.Zh.* **30**, 165-170.
- VARFOLOMEEVA T.A., 1976: The major plant formations of the Izhevsk Reservoir (USSR) and their productivity. (In Russian). *Bot.Zh.* **61(6)**, 896-900.
- VARGHESE T.J., DEVARAJ K.V. and SHANTHARAM B., 1976: Relative growth of the grass carp *Ctenopharyngodon idella* fed on *Utricularia* and a mixture of *Azolla* and *Lemna*. *J.Inl.Fish.Soc.India* **8**, 206-211.
- VARSHNEY C.K. and SINGH K.P., 1976: A survey of aquatic weed problem in India. In: VARSHNEY C.K. and RZOSKA J. (eds.), *Aquatic weeds in Southeast Asia*. Junk, The Hague. 31-41.
- VAUGHAN D. and ORD B.G., 1982: An in vitro effect of soil organic matter fractions and synthetic humic acids on the generation of superoxide radicals. *Plant Soil* **66(1)**, 113-116.
- VAUGHAN D., DEKOCK P.C. and ORD B.G., 1982: The nature and localization of superoxide dismutase in fronds of *Lemna gibba* and the effect of

- copper and zinc deficiency on its activity. *Physiol.Plant.* **54(3)**, 253-257.
- VAUGHAN D., DEKOCK P.C. and ORD B.G., 1983: Effects of benzyladenine and abscisic acid on superoxide dismutase in fronds of the duckweed *Lemna gibba*. *Physiol.Plant.* **58(2)**, 239-242.
- VAVRUSKA A., 1966: Determination of nutrients in the most widely spread aquatic, littoral and swamp plants with regard to their utilization for composting. (In Czech.). *Prace Vyzk.Ust.Ryb.Hydrob.* **6**, 41-68.
- VEDENINA Y.A. and ZAVARZIN G.A., 1977: Biological elimination of nitrous oxide under oxidative conditions. (In Russian). *Mikrobiologiya* **46(5)**, 898-903.
- VEEN J., 1975: Preliminary studies of the flavonoid pattern of *Lemna gibba* L. and *Lemna minor* L. *Aquat.Bot.* **1**, 417-421.
- VELENOVSKY J., 1907: *Vergleichende Morphologie der Pflanzen.* Prag. **2**, 340.
- VELUTHAMBI K., MAHADEVAN S. and MAHESHWARI R., 1981: Trehalose toxicity in *Cuscuta reflexa*. Correlation with low trehalase activity. *Plant Physiol.* **68(6)**, 1369-1374.
- VELUTHAMBI K., GIOVANELLI J., THOMPSON G.A., MUDD S.H. and DATKO A.H., 1983: Regulation of threonine synthase of *Lemna paucicostata* 6746. *Plant Physiol.* **72(1 suppl.)**, 33.
- VENKATARAMAN R., SETH P.N. and MAHESHWARI S.C., 1970: Studies on the growth and flowering of a short-day plant, *Wolffia microscopica*. I. General aspects and induction of flowering by cytokinins. *Z.Pflanzenphysiol.* **62**, 316-327.
- VERIGIN B.V., 1962: Foreign experiments on cultivation, acclimatization and distribution of white amur and bighead. (In Russian). *Piscevaja Promyslennost (Moskva)*.
- VERMAAK J.F., SWANEPOEL J.H. and SCHOONBEE H.J., 1976: Absorption and accumulation of phosphorus-32 by *Oedogonium* and some aquatic macrophytes. *Water SA* **2(1)**, 7-12.
- VERMEERSCH J., 1976: Mise au point d'une méthode de microanalyse des nucléotides pyridiniques dans les cellules de *Spirodèle* et de Blé. Application à l'étude des effets du saccharose et de l'obscurité. Ph.D. Thesis. Univ. P. et M. Curie, Paris.
- VERMEERSCH J., LECHEVALLIER D. and MONEGER R., 1977a: Sur les nucléotides pyridiniques du Blé et de la *Spirodèle* cultivés dans diverses conditions (obscurité, lumière rouge de faible puissance, dichlorophényl-diméthylurée). *C.R.Acad.Sci.Paris, D* **284(18)**, 1785-1787.
- VERMEERSCH J., MONEGER R. and LECHEVALLIER D., 1977b: Sur le microdosage séparé des nucléotides pyridiniques réduits et oxydés dans les feuilles et les plastes de Blé et de *Spirodèle*. *C.R.Acad.Sci.Paris, D* **284(15)**, 1529-1531.
- VERNADSKY W. and VINOGRADOFF A., 1931: Sur la composition chimique des *Lemna* comme caractéristique des espèces. *C.R.Acad.Sci.Paris*, **193**, 560-561.
- VESTER H., 1940: Die Areale und Arealtypen der Angiospermen-Familien. 2. Teil. *Bot.Arch.* **41**, 295-356.
- VICKERY R., 1983: *Lemna minor* and Jenny Greenteeth. *Folklore* **94**, 247-250.
- VIERSSEN see VAN VIERSSEN
- VIJAYARAGHAVAN S.J., GUPTA A., GUHA-MUKHERJEE S. and SOPORY S.K., 1982: Stimulation of nitrate reductase by light and ammonium in *Spirodela oligorrhiza*. *J.Exp.Bot.* **33(135)**, 705-716.
- VINCENT G.A. and BERGERON Y., 1983: La caractérisation d'herbiers aquatiques du lac des Deux-Montagnes (Québec) à partir de paramètres physiques de l'eau. *Can.J.Bot.* **61**, 400-411.

- VINCE-PRUE D., 1976: Phytochrome and photoperiodism. In: SMITH H. (ed.), Light and plant development. Proc.22nd Univ.Nottingham Easter School in Agricultural Science, Sutton, England. 347-369.
- VINCE-PRUE D., 1981: Daylight and photoperiodism. In: SMITH H. (ed.), Plants and the daylight spectrum. Acad.Press, London. 223-242.
- VINCE-PRUCE D., 1983: Photomorphogenesis and flowering. In: SHROPSHIRE W., Jr. and MOHR H. (eds.), Encyclopedia of plant physiology. Photomorphogenesis. Springer, Berlin. N.S. **16B**, 457-490.
- VINTEJOUX C., 1958: Recherches sur la racine de *Lemna minor* L. (Lemnacées). Ann.Sci.Nat.Bot. 11e sér., **19**, 211-261.
- VINTEJOUX C., 1969: Sur le mode de formation asymétrique des jeunes frondes de *Spirodela polyrrhiza*. C.R.Acad.Sci.Paris, D **269(1)**, 44-47.
- VINTEJOUX C., 1978: Répartition à l'échelle ultrastructurale de composés phénoliques dans les cellules différenciées des turions de *Spirodela polyrrhiza* L. (Lemnacées). Actes Soc.Sav. **1**, 257-268.
- VINTEJOUX C., 1982a: Particularités physiologiques, cytologiques et cytochimiques des hibernacles de quelques plantes aquatiques. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), Studies on aquatic plants. R.Bot.Soc.Belg.,Brussels. 17-18.
- VINTEJOUX C., 1982b: Caractères du réticulum, des dictyosomes et de l'appareil vacuolaire dans les cellules des turions d'*Utricularia neglecta* L. (Lentibulariacées) et de *Spirodela polyrrhiza* (L.) Schleid. (Lemnacées), en rapport avec l'évolution saisonnière. In: SYMOENS J.J., HOOPER S.S. and COMPERE P. (eds.), Studies on aquatic vascular plants. R.Bot.Soc.Belg.,Brussels. 29-34.
- VINTEJOUX C. and SHOAR-GHAFARI A., 1985: Répartition et ultrastructure comparées des cellules oxalifères en vie latente et en vie active de *Spirodela polyrrhiza* L. (Lemnacées). Bull.Soc.Bot.Fr.Lett.Bot. **1**, 25-39.
- VINTSUKEVICH N.V. and TOMILIN Y.A., 1984: Indication of radioactive contamination of water systems by the radionuclide content in immersed macrophytes. (In Russian). Gig.Sanit.(Moskow) **5**, 87-89.
- VISSER S.A., 1971: Investigations on the nitrogen flow in a model ecosystem. Proc.4th Intern.Coll.Soil Zoology,Dijon. Ann.Zoologie: Ecologie Animale (hors serie), 119-129.
- VOGEL H.J., 1959 : On biochemical evolution: lysine formation in higher plants. Proc.Nat.Acad.Sci. **45**, 1717-1721.
- VOGEL H.J. and HIRVONEN A.P., 1971: Diaminopimelate decarboxylase (*Spirodela oligorrhiza*). In: TABOR H. and WHITE-TABOR C. (eds.), Methods in enzymology. Metabolism of amino acids and amines. Acad.Press, London. **17B**, 146-150.
- VOGEL R.L. and EBINGER J.E., 1979: Frequency of aquatic macrophytes in East Central Illinois, USA. Trans.Ill.State Acad.Sci. **72(1)**, 37-41.
- VOLKER R. and SMITH S.G., 1965: Changes in aquatic vascular flora of Lake East Okoboji in historic times. Iowa Acad.Sci. **72**, 65-72.
- VON ARB C. and BRUNOLD C., 1980: Analysis of the regulation of adenosine 5'-phosphosulfate sulfotransferase activity in *Lemna minor* L. using <sup>15</sup>N-density labeling. Planta **149**, 355-360.
- VON ARB C., SUTER M. and BRUNOLD C., 1985: Regulation of adenosine 5'-phosphosulfate sulfotransferase activity by amino acids in *Lemna minor* L. Plant Physiol. **77(4 suppl.)**, 160.
- VON HALACSY E., 1904: Conspectus Florae Graecae III. Engelmann, Leipzig. 295.
- VON HALACSY E., 1908: Conspectus Florae Graecae Supplementum. Engelmann, Leipzig. 107.
- VON HAYEK A., 1933: Prodr.Fl.Pen.Balc. **3**, Lemnaceae. Rep.Spec.Nov.Regn. Veg.Beih. **30(3)**, 424-425.

- VON HUMBOLDT A., BONPLAND A. and KUNTH C.S., 1816: Nova genera et species plantarum. Lutetiae Parisiorum. **1**, 371-372.
- VON LINNE C., 1753: Species plantarum Stockholm. **2**, 970.
- VON LINNE C., 1771: Mantissa Plantarum Stockholm. **2**, 294.
- VON LOON see VAN LOON
- VOSKRESENSKAYA N.P., 1979: Effect of light quality on carbon metabolism. In: GIBBS M. and LATZKO E. (eds.), Photosynthesis II. Encycl. Plant Physiol., N.S. Springer, Berlin/Heidelberg/New York. **6**, 174-180.
- VOVK P.S., 1976: The use of white amur as a biocontrol agent for canals and industrial reservoirs. (In Russian). Kiew, Ukrainian SSR, Nauk Dumka, 183-206.
- VRHOVEC B. and WRISCHER M., 1970: The effect of amitrole on the fine structure of developing chloroplasts. Acta Bot. Croat. **29**, 43-49.
- VROCHINSKIY K.K., GRIB I.V. and GRIB A.V., 1970: Content of chlororganic pesticides in water plants. (In Russian). Gidrobiol. Zh. **6(6)**, 107-109.
- VROCHINSKIY K.K., GRIB I.V. and GRIB A.V., 1971: The content of organochlorine insecticides in aquatic plants. Hydrobiol. J. **6(6)**, 91-93.
- VUILLOT M., BARBE J. and STEINER B., 1983: Conditions de production de biomasse dans les lagunes d'épuration. Biomasse Actualité, No. Spéc. **3** (Les végétaux aquatiques), 44-46.
- VUYCK L., 1895a: The flowering of Lemna. (In Dutch) Bot. Jaarboek **7**, 60-72.
- VUYCK L., 1895b: Sur la floraison de quelques espèces de Lemna. Nederl. Kruidk. Arch. **2/6**, 755-756.
- VYAS L.N., 1964: A study of hydrophytes and marsh plants of Alwar and environs. J. Indian Bot. Soc. **43**, 17-30.
- WAGNER D.T., 1969: A monocentric holocarpic fungus in Lemna minor L. (Ressia amoeboides). Nova Hedwigia **18(1)**, 203-208.
- WALBRIDGE C.T., 1977: A flow-through testing procedure with duckweed (Lemna minor L.). US Environ. Prot. Agency, Environ. Res. Lab. Duluth, Minnesota. EPA-600/3-77-108. 19 pp.
- WALKER E.H., 1976: Flora of Okinawa and the southern Ryukyu Islands. Smithsonian Inst. Press, Washington. 290-291.
- WALKER J.R.L. and EVANS S., 1978: Effect of quaternary ammonium compounds on some aquatic plants. Mar. Pollut. Bull. **9(5)**, 136-137.
- WALLACE J.W., Jr., 1967: Investigations of flavone biosynthesis in the Lemnaceae. Ph.D. Thesis. Univ. of Texas, Austin. 118 pp.
- WALLACE J.W., 1969: Evidence against an in vivo equilibrium between 6-carbon and 8-carbon glycosylflavones. Abstr. 11th Int. Bot. Congr. Seattle. 231.
- WALLACE J.W., 1973: Aspects of flavone and C-glycosylflavone B-ring biosynthesis. Am. J. Bot. **60(4 suppl.)**, 29.
- WALLACE J.W., 1975: Biosynthetic studies on flavones and C-glycosylflavones: B-ring oxidation patterns. Phytochem. **14(8)**, 1765-1768.
- WALLACE J.W. and ALSTON R.E., 1966a: Incorporation and utilization of flavonoid aglycones in Spirodela polyrhiza. Plant Physiol. **41** (suppl.), 73.
- WALLACE J.W. and ALSTON R.E., 1966b: C-Glycosylation of flavonoids. Plant Cell Physiol. **7**, 699-700.
- WALLACE J.W. and GRISEBACH H., 1973: The in vivo incorporation of a flavone into C-glycosylflavones. Biochim. Biophys. Acta **304(3)**, 837-841.
- WALLACE J.W. and MABRY T.J., 1970: The conversion of the 8-C-glycosylflavone vitexin to the 6-isomer, isovitexin, in Lemna minor. Phytochem. **9**, 2133-2135.

- WALLACE J.W., MABRY T.J. and ALSTON R.E., 1969: On the biogenesis of flavone O-glycosides and C-glycosides in the Lemnaceae. *Phytochem.* **8** (1), 93-99.
- WALLSTEN M., 1981: Changes of lakes in Uppland Central Sweden during 40 years. *Acta Univ.Ups., Symb.Bot.Ups.* **23**(3), 88 pp.
- WALSH G.E., 1965a: Studies on dissolved carbohydrate in Cape Cod waters. I. General survey. *Limnol.Oceanogr.* **10**(4), 570-576.
- WALSH G.E., 1965b: Studies on dissolved carbohydrate in Cape Cod waters. II. Diurnal fluctuations in Oyster Pond. *Limnol.Oceanogr.* **10**(4), 577-582.
- WALSH M.A. and MELARAGNO J.E., 1974: Ultrastructural features of developing sieve elements in *Lemna minor* L.: The sieve plate and lateral walls. *Am.J.Bot.* **61**(5 suppl.), 67.
- WALSH M.A. and MELARAGNO J.E., 1976: Ultrastructural features of developing sieve elements in *Lemna minor* L.: Sieve plate and lateral sieve areas. *Am.J.Bot.* **63**, 1174-1183.
- WALSH M.A. and MELARAGNO J.E., 1981: Structural evidence for plastid inclusions as a possible sealing mechanism in the phloem of monocotyledons. *J.Exp.Bot.* **32**(127), 311-320.
- WALSH M.A. and PALMER J.M., 1979: Duckweed (*Lemna minor*) not just for the birds. *Utah Sci.Agric.Exp.Sta.* **40**(3), 82-85.
- WALTER H. and BRECKLE S.W., 1983: *Oekologie der Erde. Oekologische Grundlagen in globaler Sicht.* UTB. Fischer, Stuttgart. **1**, 238 pp.
- WALTER H. and LIETH H., 1967: *Klimadiagramm-Weltatlas.* Fischer, Jena.
- WALTER H., HARNICKEL E. and MUELLER-DOMBOIS O., 1975: *Klimadiagramm-Karten der einzelnen Kontinente und die ökologische Klimagliederung der Erde. Vegetationsmonographie der einzelnen Grossräume.* Fischer, Stuttgart. **10** (9 maps with text).
- WALTERS M.B., 1950: *Wolffia papulifera* und *Lemna minima* in Ohio. *Ohio J. Sci.* **50**, 266.
- WANG H., SUN S., KUANG P. and LIU Z., 1984: Uptake, distribution, accumulation and effect of cadmium on aquatic vascular plants. (In Chinese). *Huanjing Kexue Xuebao* **4**(3), 248-257.
- WANG W., 1986a: Toxicity tests of aquatic pollutants by using common duckweed. *Environ.Pollut.B* **11**(1), 1-14.
- WANG W., 1986b: The effect of river water on phytotoxicity of Ba, Cd and Cr. *Environ.Pollut.B* **11**(3), 193-204.
- WANGERMANN E., 1952: Studies in the morphogenesis of leaves. 8. A note on the effects of length of day and of removing daughter fronds on ageing of *Lemna minor*. *New Phytol.* **51**, 355-358.
- WANGERMANN E., 1965: Longevity and ageing in plants and plant organs. In: RUHLAND W. (ed.), *Encyclopedia of plant physiology XV*, 2. Springer, Berlin/Heidelberg/New York. 1026-1057.
- WANGERMANN E. and ASHBY E., 1950: Morphogenesis in *Lemna minor*. *Proc. Linn.Soc.London* **162**, 10-13.
- WANGERMANN E. and ASHBY E., 1951: Studies in the morphogenesis of leaves. VII, 1. Effects of light intensity and temperature on the cycle of ageing and rejuvenation in the vegetative history of *Lemna minor*. *New Phytol.* **50**, 186-199.
- WANGERMANN E. and LACEY H.J., 1952: Some effects of ultra-violet radiation on *Lemna minor*. *Nature* **170**, 126-127.
- WANGERMANN E. and LACEY H.J., 1953: Studies in the morphogenesis of leaves. IX. Experiments on *Lemna minor* with adenine, triiodobenzoic acid and ultra violet radiation. *New Phytol.* **52**, 298-311.
- WANGERMANN E. and LACEY H.J., 1955: Studies in the morphogenesis of leaves. X. Preliminary experiments on the relation between nitrogen

- nutrition, rate of respiration and rate of ageing in fronds of *Lemna minor*. *New Phytol.* **54**, 182-198.
- WARD C.H., WILKS S.S. and CRAFT H.L., 1963: Use of algae and other plants in the development of life support systems. *Am.Biol.Teach.* **25** (7), 512-521.
- WARD C.H., WILKS S.S. and CRAFT H.L., 1970: Effects of prolonged near weightlessness on growth and gas exchange of photosynthetic plants. In: CORUM C.J. (ed.), *Developments in industrial microbiology*. *Am. Inst.of Biol.Sci.* **11**, 276-295.
- WARD C.H., KLAINE S.J. and GRANT G.J., 1981: Toxicity bioassays with aquatic plants. *Proc.13th Int.Bot.Congr., Abstr.* 179.
- WARKENTIN M.J., 1968: Observations on the behavior and ecology of the nutria in Louisiana. *Tulane Studies in Zoology and Botany* **15**(1), 10-17.
- WARNSTORF C., 1896: Blütenbiologische Beobachtungen bei Neu Ruppin im Jahre 1896. *Z.Natw.Ver.Harz, Werningerode* **11**, 9-20.
- WATANABE K. and TAKIMOTO A., 1977: Effects of some metabolic inhibitors on flowering of *Lemna gibba* G3, a long-day duckweed. *Plant Cell Physiol.* **18**, 1369-1372.
- WATANABE K. and TAKIMOTO A., 1979: Flower-inducing effects of benzoic acid and some related compounds in *Lemna paucicostata* 151. *Plant Cell Physiol.* **20**, 847-850.
- WATANABE K., FUJITA T. and TAKIMOTO A., 1981: Relationship between structure and flower inducing activity of benzoic acid derivatives in *Lemna paucicostata* 151. *Plant Cell Physiol.* **22**(8), 1469-1479.
- WATANABE K., TAKIMOTO A., IWAMURA H. and FUJITA T., 1983: Flower inducing activity of benzoic acid derivatives for *Lemna minor*. *Plant Cell Physiol.* **24**(5), 889-897.
- WATSON R.R. and ORENSTEIN N.S., 1975: Chemistry and biochemistry of apiose. *Adv.Carbohydr.Chem.Biochem.* **31**, 135-184.
- WATT J.M. and BREYER-BRANDWIJK M.G., 1962: Medicinal and poisonous plants of Southern and eastern Africa. Livingstone, Edinburgh/London. 669.
- WATTENDORFF J., 1985: Calcium oxalate crystals in plants (Spermatophyta): Occurrence and formation. *Conf.Crystal Deposition and Dissolution in Tissues*. Lugrin. 6 pp.
- WATZEL R., 1933: Die Wasserlinsen. *Blätter Aqu.Terr.k.* **43**, 90-94.
- WAYMAN C.W., BARELT G.E. and ALBERTS J.J., 1977: Distribution of <sup>238</sup>Pu and <sup>239+240</sup>Pu in aquatic macrophytes from midwestern watershed. In: WHITE M.G. and DUNAWAY P.B. (eds.), *Transuranics in natural environments*. Nevada Applied Ecology Group Symp.Gatlinburg, Tennessee. 505-516.
- WCISLO H., 1963: Some observations on clones of *Lemna trisulca* L. grown under aseptic conditions. *Acta Biol.Crac.,Ser.Bot.* **6**, 161-176.
- WCISLO H., 1970: Karyological studies in Polish representatives of *Spadiciflorae*. *Acta Biol.Crac.Ser.Bot.* **13**, 79-88.
- WEAVER C.I. and WETZEL R.G., 1980: Carbonic anhydrase levels and internal lacunar CO<sub>2</sub> concentrations in aquatic macrophytes. *Aquat.Bot.* **8** (2), 173-186.
- WEBER-OLDECOP D.W., 1969: Die Wasserpflanzengesellschaften im östlichen Niedersachsen. Ph.D.Thesis. Univ. Hannover.
- WEBER-OLDECOP D.W., 1971: Wasserpflanzengesellschaften im östlichen Niedersachsen (I and II.). *Int.Rev.Gesamten Hydrobiol.* **55**, 913-967.
- WEBER-OLDECOP D.W., 1973: Anmerkung zur Entdeckungsgeschichte von *Wolffia arrhiza* in Niedersachsen. *Gött.Flor.Rundbr.* **7**, 29-30.
- WEDDELL H.A., 1849: Observations sur une espèce nouvelle du genre *Wolffia*. *Ann.Sci.Nat.* **12**, 155-173.

- WEDDELL H.A., 1854: Note sur le *Wolffia Michellii* Schleiden. Bull.Soc. Bot.Fr. **1**, 54.
- WEDGE R. and BURRIS J.E., 1979: Effects of temperature and light intensity on photosynthesis in *Lemna minor* and *Spirodela oligorrhiza*. Plant Physiol. **63**(5 suppl.) 64.
- WEDGE R.M. and BURRIS J.E., 1982: Effects of light and temperature on duckweed photosynthesis. Aquat.Bot. **12**(2), 133-140.
- WEGLER R., 1977: Chemie der Pflanzenschutz- und Schädlingsbekämpfungsmittel. Herbizide. Springer, Berlin. 5.
- WEGOREK W., 1983: Pesticide cycle in the agrocenosis. (In Russian). Agrokimiya **1**, 93-101.
- WEGOREK W. and LIPA J.J. (eds.), 1980: The circulation of pesticides in the agrocoenosis. Proc.19th Conf.Sci.Inst.Plant Protection, Poznan, Poland. 185-204.
- WEIK K.L. and MOHLENBROCK R.H., 1968: Contributions to a flora of Illinois. 3. Lemnaceae. Trans.Ill. State Acad.Sci. **61**, 382-399.
- WEIMER W.C. and ARMSTRONG D.E., 1979: Naturally occurring organic phosphorus compounds in aquatic plants. Environ.Sci.Technol. **13**, 826-829.
- WEINBAUM S.A., GRESSEL J., REISFELD A. and EDELMAN M., 1979a: Characterization of the 32,000 d chloroplast membrane protein. III. Probing its biological function in *Spirodela*. Plant Physiol. **64**, 828-832.
- WEINBAUM S.A., GRESSEL J., REISFELD A. and EDELMAN M., 1979b: Specific depletion of the 32000 d protein from thylakoids by chloramphenicol. Plant Physiol. **63**(5 suppl.), 99.
- WEINBERGER P. and CAUX P.Y., 1985: Effect of the solvent carrier downanol on some growth parameters of the aquatic angiosperm *Lemna minor* L. Can.Tech.Rep.Fish.Aquat.Sci. **1368**, 265-287.
- WEINBERGER P. and IYENGAR S., 1983: Effects of aminocarb, fuel oil 585 and nonylphenol on the growth and development of *Lemna minor* L. In: SHUVAL H.I. (ed.), Dev.Ecol.Environ.Qual. Proc.Int.Meet.Isr.Ecol. Soc., 595-607.
- WEINBERGER P. and GREENHALGH R., 1983: Review of ecotoxicity of metacil in freshwater environment: chemical and phytobiological impact studies. In: NRIAGU J.O. (ed.), Aquatic toxicology. Wiley, New York. 438-448.
- WEISENSEEL M., 1968a: Vergleichende Untersuchungen zum Einfluss der Temperatur auf lichtinduzierte Chloroplastenverlagerungen. I. Die Wirkung verschiedener Lichtintensitäten auf die Chloroplastenanordnung und ihre Abhängigkeit von der Temperatur. Z.Pflanzenphysiol. **59**, 56-69.
- WEISENSEEL M., 1968b: Vergleichende Untersuchungen zum Einfluss der Temperatur auf lichtinduzierte Chloroplastenverlagerungen. II. Die statistische Bewegungsgeschwindigkeit der Chloroplasten und ihre Abhängigkeit von der Temperatur. Z.Pflanzenphysiol. **59**(2), 153-171.
- WEISENSEEL M.H., 1987: Ionic currents at the surface of growing leaves of *Lemna trisulca*. 14th Int.Bot.Congr.Berlin, Abstr., 95.
- WEJNAR R. and MICHEL D., 1983: Untersuchungen zum Einfluss des Nitrofens auf die Chloroplastenstruktur von *Lemna gibba* L. Beitr.Biol.Pflanzen **58**, 435-441.
- WEJNAR R. and TAIS S., 1983: Untersuchungen zum Einfluss des Nitrofens auf Wachstum und Pigmentgehalt von *Lemna gibba* L. Beitr.Biol.Pflanzen **58**, 427-434.
- WELLBORN T.L., Jr., 1979: Water hyacinth. Information sheet, Coop.Extension Serv., Mississippi State Univ. 2 pp.
- WELLMANN E. and GRISEBACH H., 1971: Purification and properties of an enzyme preparation for *Lemna minor* L. catalyzing the synthesis of

- UDP-apiose and UDP-D-xylose from UDP-D-glucuronic acid. *Biochim.Biophys.Acta* **235**, 389-397.
- WELSH R.P.H. and DENNY P., 1978: The vegetation of Nyumba ya Mungu reservoir, Tanzania. *Biol.J.Linn.Soc.* **10**, 67-92.
- WELSH R.P.H. and DENNY P., 1980: The uptake of lead and copper by submerged aquatic macrophytes in two English lakes. *J.Ecol.* **68**, 443-455.
- WELWITSCH F., 1859: Apontam. *Phytogeogr. sobre a flora da prov. de Angola.* *Annaes Conselho Ultram.* **55**, 578.
- WENTSEL R.S. and BERRY J.W., 1975: Cadmium and lead levels in Palestine Lake, Palestine, Indiana. *Proc.Indiana Acad.Sci.* **84**, 481-490.
- WERNER D., 1967: Untersuchungen über die Rolle der Kieselsäure in der Entwicklung höherer Pflanzen. *Planta* **76**, 25-36.
- WETSTEYN L.P.M.J., 1983: The distribution of flat forms of *Lemna gibba* L. in the Netherlands. (In Dutch). *Int.Rapp.Hugo de Vries Lab., Univ. Amsterdam.* 81 pp.
- WETSTEYN L.P.M.J., DE LANGE L. and PIETERSE A.H., 1984: The influence of mould-infection of the nutrient medium on the dimensions of *Lemna gibba* L. *Acta Bot.Neerl.* **33(4)**, 559-560.
- WETZEL R.G., 1969: Factors influencing photosynthesis and excretion of dissolved organic matter by aquatic macrophytes in hardwater lakes. *Ver.Int.Ver.Limnol.* **17**, 72-85.
- WETZEL R.G. and MANNY B.A., 1972: Secretion of dissolved organic carbon and nitrogen by aquatic macrophytes. *Verh.Int.Ver.Limnol.* **18**, 162-170.
- WHITE H.L., 1936a: The interaction of factors in the growth of *Lemna*. VII. The effect of potassium on growth and multiplication. *Ann.Bot.* **50**, 175-196.
- WHITE H.L., 1936b: The interaction of factors in the growth of *Lemna*. VIII. The effect of nitrogen on growth and multiplication. *Ann.Bot.* **50**, 403-417.
- WHITE H.L., 1936c: The interaction of factors in the growth of *Lemna*. IX. Further observations on the effect of light intensity on growth and multiplication. *Ann.Bot.* **50**, 827-848.
- WHITE H.L., 1937a: The interaction of factors in the growth of *Lemna*. XI. The interaction of nitrogen and light intensity in relation to growth and assimilation. *Ann.Bot.(n.s.)* **1**, 623-648.
- WHITE H.L., 1937b: The interaction of factors in the growth of *Lemna*. XII. The interaction of nitrogen and light intensity in relation to root length. *Ann.Bot.(n.s.)* **1**, 649-654.
- WHITE H.L., 1938: The interaction of factors in the growth of *Lemna*. XIII. The interactions of potassium and light intensity in relation to root length. *Ann.Bot.(n.s.)* **2**, 911-917.
- WHITE H.L., 1939: The interaction of factors in the growth of *Lemna*. XIV. The interaction of potassium and light intensity in relation to growth and assimilation. *Ann.Bot.(n.s.)* **3**, 619-648.
- WHITE H.L., 1940: The interaction of factors in the growth of *Lemna*. XV. On a rhythmic growth cycle of *Lemna* colonies associated with transference to a potassium free nutrient solution. *Ann.Bot.(n.s.)* **4**, 495-504.
- WHITE H.L. and TEMPLEMAN W.G., 1937: The interaction of factors in the growth of *Lemna*. X. The interaction of nitrogen and light intensity in relation to respiration. *Ann.Bot.(n.s.)* **1**, 191-204.
- WHYTE R.J. and SILVY N.J., 1981: Effect of cattle on duck food plants in Southern Texas (USA). *J.Wild Manage.* **45(2)**, 512-515.
- WIEGLEB G., 1976: Untersuchungen über den Zusammenhang zwischen Chemismus und Makrophytenvegetation stehender Gewässer in Niedersachsen. *Ph.D.Thesis. Univ. Göttingen.* 113 pp.

- WIEGLEB G., 1978a: Der soziologische Konnex der 47 häufigsten Makrophyten der Gewässer Mitteleuropas. *Vegetatio* **38(3)**, 165-174.
- WIEGLEB G., 1978b: Untersuchungen über den Zusammenhang zwischen hydrochemischen Umweltfaktoren und Makrophytenvegetation in stehenden Gewässern. *Arch.Hydrobiol.* **83(4)**, 443-484.
- WIEGLEB G., 1978c: Vergleich ökologischer und soziologischer Artengruppen und Makrophyten des Süßwassers. *Verh.Ges.Oekol.*, Kiel 1977, 243-249.
- WIEWIORKA Z. and SAROSIEK J., 1986: Effect of aluminium, lithium and strontium on the ecological populations of *Lemna minor* and *Spirodela polyrhiza*. *Proc.7th Int.Symp.Aquatic Weeds*, Wroclaw, Poland. 401-406.
- WIGGERS F.H., 1780: *Primitiae florae Holsaticae. Kiliae.*
- WIGHTMAN F. and SETTERFIELD G., 1968: *Biochemistry and physiology of plant growth substances.* Ottawa. 1593-1607.
- WIKOFF S.D., 1949: *Lemna trisulca*, a southward extension of range on the Atlantic coastal plain. *Bartonia* **25**, 72-73.
- WILKINSON R.E., 1963: Effects of light intensity and temperature on the growth of waterstargrass, coontail and duckweed. *Weeds* **11**, 287-290.
- WILKINSON R.E., 1964: Effects of red-light intensity on the growth of waterstargrass, coontail and duckweed. *Weeds* **12(4)**, 312-313.
- WILKS S.S., 1962: Preliminary report on the photosynthetic gas exchange potentialities of the family Lemnaceae (duckweeds). *Biologistics for space-systems. Symp.AMRL-TDR-62-116*, 265-278.
- WILLEY R.G., DOSKOCIL M.J. and LEMBI C.A., 1974: Potential of the white amur (*Ctenopharyngodon idella* Val.) as a biological control for aquatic weeds in Indiana. *Proc.Indiana Acad.Sci.* **83**, 173-178.
- WILLIAMS M., 1978: A study of the effects of a diet supplement of Lemnaceae on growth, egg production and chemical content by *Gallus domesticus*. Louisiana State Univ., Fish.Sect. (Polycopy).
- WILLIS J.H., 1962: *A handbook to plants in Victoria.* Melbourne Univ. Press. **1**, 268-271.
- WILLOMITZER J., LUCKY Z. and KOLAR Z., 1972: Molluscicidal effectiveness of fluorinated derivatives of salicylic acid. *Acta Vet.Brno* **41**, 31-37.
- WILSON W., 1830: *Lemna gibba*. Remarks on the structure and germination. *Hooker Bot.Miscellany* **1**, 145-149.
- WILSON A.J. and ROBARDS A.W., 1982: Experience in the use of a polymeric cryoprotectant in the freezing of plant tissue. *J.Microsc.* **125(3)**, 287-298.
- WILSON L.G. and KANG J., 1972: Sulfurylase activity in *Lemna*. *Plant Research, Ann.Rep.MSU/AEC Plant Res.Lab., Michigan State Univ.* 87-88.
- WILSON L.G. and KANG J., 1973: Sulfurylase activity in *Lemna gibba* and other higher plants. *Plant Research, Ann.Rep.MSU/AEC Plant Res.Lab., Michigan State Univ.* 113-115.
- WIMPEE C.F., 1984: Organization and expression of light-regulated genes in *Lemna gibba* L. G-3. Ph.D.Thesis. UCLA. 184 pp.
- WIMPEE C.F. and TOBIN E.M., 1982: Cloning and characterization of two light regulated nuclear genes encoding chloroplast proteins. *Plant Physiol.* **69(4 suppl.)**, 139.
- WIMPEE C.F. and TOBIN E.M., 1983: Characterization of light regulated nuclear genes in *Lemna gibba*. *J.Cell Biochem. (suppl.7 part B)*, 276.
- WIMPEE C.F. and TOBIN E.M., 1986: Cloning and expression of genes for the small subunit of ribulose biphosphate carboxylase. *Methods Enzymol., Plant Mol.Biol.* **118**, 396-409.
- WIMPEE C.F., STIEKEMA W.J. and TOBIN E.M., 1983: Sequence heterogeneity in the RuBP carboxylase small subunit gene family of *Lemna gibba*. *Plant Mol.Biol.* **12**, 391-401.

- WINTER E.J., 1937: Growth of *Lemna minor*. *Nature* **139**, 1070.
- WISE D.L., AUGENSTEIN D.C. and RYTHER J.H., 1979: Methane fermentation of aquatic biomass. *Resour.Recovery Conserv.* **4**, 217-238.
- WISTRAND G. and LUNDQVIST J., 1977: New plant localities in Pite (Lappmark, Sweden) and adjacent areas. *Sven.Bot.Tidskr.* **71(3)**, 225-238.
- WITTE K.E., 1985: Zur Kultur von *Wolffiella welwitschii* Monod. *Aqua-Planta* **10(3)**, 7.
- WITZTUM A., 1966: A descriptive and experimental study of symmetry in *Lemna*. Ph.D.Thesis, Cornell Univ., Ithaca, N.Y. 104 pp.
- WITZTUM A., 1974a: Ultraviolet irradiation and pigment cell idioblasts in *Spirodela oligorhiza* (Lemnaceae). *Am.J.Bot.* **61(7)**, 713-716.
- WITZTUM A., 1974b: Abscission and the axillary frond in *Spirodela oligorhiza* (Lemnaceae). *Am.J.Bot.* **61(8)**, 805-808.
- WITZTUM A., 1977: An ecological niche for *Lemna gibba* L. that depends on seed formation. *Israel J.Bot.* **26**, 36-38.
- WITZTUM A., 1979: Morphogenesis of asymmetry and symmetry in *Lemna perpusilla* Torr. *Ann.Bot.* **43**, 423-430.
- WITZTUM A. and KEREN O., 1978a: Factors affecting abscission in *Spirodela oligorhiza* (Lemnaceae). I. Ultraviolet radiation. *New Phytol.* **80(1)**, 107-110.
- WITZTUM A. and KEREN O., 1978b: Factors affecting abscission in *Spirodela oligorhiza* (Lemnaceae). 2. Sucrose. *New Phytol.* **80(1)**, 111-115.
- WITZTUM A. and SHAPIRA Z., 1977: Exudation and chloroplast fragmentation as a result of ultraviolet irradiation in *Spirodela oligorhiza*. *Israel J.Bot.* **26(3)**, 109-114.
- WITZTUM A., KEREN O. and EVEN-CHEN Z., 1978: The effect of ultraviolet radiation and sucrose on IAA levels in *Spirodela oligorhiza*. *Ann. Bot.* **42(179)**, 595-598.
- WITZTUM A., POSNER H.B. and GOWER R.A., 1979: Phototactic chloroplast displacement in the photosynthetic mutant, *Lemna paucicostata* strain 1073. *Ann.Bot.* **44**, 1-4.
- WOHLER J.R., 1966: Productivity of the duckweeds. M.S.Thesis. Univ. Pittsburgh, Pa. 69 pp.
- WOHLER J.R., WOHLER I.M. and HARTMAN R.T., 1965: The occurrence of *Spirodela oligorhiza* in Western Pennsylvania. *Castanea* **30**, 230-231.
- WOIKE S., 1968: *Wolffia arrhiza* (L.) Wimm., die Zwerglinse, auch heute noch am Niederrhein. *Niederrhein.Jb.* **10**, 35-38.
- WOIKE S., 1969: Die kleinste Blütenpflanze Europas (*Wolffia arrhiza*). *Mikrokosmos* **58(7)**, 193-194.
- WOLEK J., 1974a: Kritische Uebersicht der Pleustongesellschaften Polens (Klasse Lemnetae). *Fragm.Florist.Geobot.* **20(3)**, 365-379.
- WOLEK J., 1974b: A preliminary investigation in interactions (competition, allelopathy) between some species of *Lemna*, *Spirodela*, and *Wolffia*. *Ber.Geobot.Inst.ETH,Stiftung Rübél,Zürich* **42**, 140-162.
- WOLEK J., 1974c: Experimental control of flowering in *Spirodela polyrrhiza* (L.) Schleid., strain 7401 - a preliminary report. *Ber.Geobot. Inst.ETH,Stiftung Rübél,Zürich* **42**, 163-170.
- WOLEK J., 1979: Experimental investigations on competition and allelopathy between *Spirodela polyrrhiza* (L.) Schleid. and *Wolffia arrhiza* (L.) Wimm. *Fragm.Flor.Geobot.* **25(2)**, 281-350.
- WOLEK J., 1981: Assessment of the possibility of exoornithochory of duckweeds (Lemnaceae) in the light of researches into the resistance of these plants to desiccation. *Ekol.Pol.* **29(3)**, 405-419.
- WOLEK J., 1983: Determinants of community structure for the pleustonic plants (the Lemnetae class). *Ekol.Pol.* **31(1)**, 173-200.
- WOLEK J., 1984: Intraspecific variation and the competitive abilities of *Spirodela polyrrhiza* (L.) Schleiden. *Ekol.Pol.* **32(4)**, 637-649.

- WOLF-BLUMER M., 1983: Wasserlinsen-Blüten. Br.Bot.Garten Zürich **17(3)**, 4 pp.
- WOLFE H.S., 1926: The auximon question. Bot.Gaz. **81(2)**, 228-231.
- WOLFF J.F., 1801: Commentatio de Lemna. Altdorfii et Norimbergae. 32 pp.
- WOLFF J.F., 1804: Extrait d'une dissertation sur les lenticules. Bull. Sci.Soc.Philomat.,Paris **3(13)**, 142-143.
- WOLVERTON B.C., 1979: Engineering design data for small vascular aquatic plant wastewater treatment systems. Seminar on aquaculture systems for wastewater treatment, Davis, Ca. EPA 430/9-80006, 179-192.
- WOLVERTON B.C., 1984: A review of aquaculture wastewater treatment systems. Workshop Low-Cost Water. Treatm.Syst.Comm.Municip.Albuquerque, Baton Rouge and Dallas, August 1984. 28 pp.
- WOLVERTON B.C. and McDONALD R.C., 1979: Upgrading facultative wastewater lagoons with vascular aquatic plants. J.Water Pollut.Contr.Fed. **51(2)**, 305-313.
- WOLVERTON B.C. and McDONALD R.C., 1980: Energy from aquatic plant wastewater treatment systems. Sci.Tech.Aerosp.Rep. **18(8)**, Abstr.No.N80-17545.
- WOLVERTON B.C. and McDONALD R.C., 1981: Energy from vascular plant wastewater treatment systems. Econ.Bot. **35(2)**, 224-232.
- WONG K.F. and COSSINS E.A., 1976: Control of methionine synthesis by lysine in Lemna minor. Phytochem. **15**, 921-925.
- WONG K.F. and DENNIS D.T., 1973: Aspartokinase in Lemna minor L.: Studies on the in vivo and in vitro regulation of the enzyme. Plant Physiol. **51**, 327-331.
- WOODFORD E.K., 1950: Assessment of relative toxicity and evaluation of selective herbicides. Proc.Int.Bot.Congr.Stockholm **7**, 186-190.
- WORTHLEY E.G. and SCHOTT C.D., 1971: The comparative effects of CS and various pollutants on freshwater phytoplankton colonies of Wolffia papulifera Thompson. Edgewood Arsenal DM. Techn.Rep.EATR 4594. 17 pp.
- WOZAKOWSKA-NATKANIEC H., 1977a: Ecological radiosensitivity of Lemna minor L. and Spirodela polyrrhiza (L.) Schleiden. Monogr.Bot. **55**, 53-106.
- WOZAKOWSKA-NATKANIEC H., 1977b: Ecological differentiation of Lemna minor L. and Spirodela polyrrhiza (L.) Schleiden populations. Acta Soc. Bot.Pol. **46**, 201-229.
- WRIGHT C.H., 1909: Wolffia denticulata Hegelm. Kew Bull. **1909**, 394.
- WRIGHT D.M., 1973: The Fly-fisher's plants. Their value in trout waters. David and Charles, Newton Abbot, England.
- WROBLEWSKI R., 1973: A fine structural investigation of the chloroplasts from the root of Lemna minor L. J.Submicrosc.Cytol. **5**, 97-105.
- WROBLEWSKI R., 1976: Identification of raphide and tannin idioblasts in Lemna minor L. root cells by means of analytical electron microscopy. J.Ultrastruct.Res. **57(2)**, 234-235.
- WUESTLING W. and BOEHM H., 1979: Der Vertikaltest - ein Versuch des parallelen Einsatzes von Organismen verschiedener Organisationshöhe beim Test von Phytoeffektoren. Wiss.Beitr.Martin-Luther-Univ.,Halle-Wittenberg,DDR **79(4)**, 45-50.
- WUESTLING W. and BOEHM H., 1980: Die Submerskultur der Lemnacee Wolffia arrhiza (L.) Horkel et Wimmer im Unterwasserlicht-Fermenter. Abh. Akad.Wiss.DDR,Math.Natw.Tech. **79(3N)**, 199-204.
- WUNDER W., 1947: Verschiedenartige Nutzung von Karpfenteichen. Allg.Fischereiztg. **72**, 300-306.
- WYLIE G.D. and JONES J.R., 1986: Limnology of a wetland complex in the Mississippi alluvial valley of southeast Missouri, USA. Arch.Hydrobiol.Suppl. **74(3)**, 288-314.
- WYNNE-EDWARDS V.C., 1941: Wolffia punctata Griseb. in Quebec. Can.Field-Nat. **55**, 110.

- YAKOVLEVA N.V., 1980: Sensitivity of plants to ammonia and sulfur dioxide. (In Russian). *Gaz.Rast.* **80**, 153-154.
- YAMANI K.A.O., SALIB A.G., NOWAR M.S., MABROUK N.S. and ABOU EL NAGA K.M., 1978: Biological value of water lentil plants and microscopic algae as rich protein sources in poultry rations. *Egypt.J.Anim.Prod.* **18(2)**, 177-185.
- YAMASHITA S. and GOTO Y., 1968: Aseptic culture of Lemna and its application to the analysis of the flowering process in higher plants. *Books*, 400-409.
- YANG C.C., 1978: Preparation of aseptic culture of local species (*Spirodela*, *Lemna paucicostata*, *Wolffia arrhiza*) of Lemnaceae in Taiwan. *Bull.Inst.Chem.Acad.Sin.* **25**, 13-17.
- YANG Y.P., 1978: Lemnaceae of Taiwan. In: LI H.L. et al. (eds.), *Flora of Taiwan. V. Angiospermae. Epoch.Publ.,Taipei.* 816-818.
- YATAZAWA M.H., SUSILO H. and PARK W.C., 1979: Nitrogen fixing capacity in tropical aquatic plants. *Biotrop,Bogor,Indonesia.* 19 pp.
- YOKOTA R. and SHIMADA J., 1958: Physiological action of kojic acid on green plants. A growth-promoting action on *Spirodela polyrrhiza*. (In Japan.). *Kagaku(Tokyo)* **28(10)**, 531.
- YONE Y. and TOMIYAMA T., 1952: Studies on antianaemic ingredients of the liver. VI. The growth promoting effect of liver extract and its purified fractions upon *Lemna paucicostata* Hegelm. VII. The growth promoting effect of several antianaemic substances upon *Lemna paucicostata* Hegelm. (In Japan.). *Bull.Jap.Soc.Sci.Fish.* **17**, 659-668.
- YONG K.L. and THO Y.L., 1976: Cardiac glycoside-like substance in Malaysia oleander and *Lemna minor* plant extracts. *J.Sains Farm.Malays.* **1(1)**, 12-13.
- YOON J.S. and NOBLE R.D., 1982: Genetic effects of sulfur dioxide in *Lemna minor*. *Bot.Soc.Am.Meet.*, Abstr.
- YOON J.S., BULLION P., MASTERS S. and NOBLE R.D., 1981: Cytogenetic effects of sulfur dioxide. *Genetics* **97(1 suppl.)**, 117.
- YORK H.H., 1905: The hibernacula of Ohio water plants. *Ohio Naturalist* **5**, 291-293.
- YOSHIOKA Y., OSE Y., GOTO M. and HIKINO H., 1987: Relations between the test methods for ecotoxicity. (In Japan.). *Eisei Kagaku* **33(1)**, 11-19.
- YOSHIMURA F., 1941: On the minimum concentration of manganese necessary for the growth of Lemnaceae plants. (In Japan.). *Bot.Mag.(Tokyo)* **55**, 163-175.
- YOSHIMURA F., 1943: The significance of molybdenum for the growth of Lemnaceae plants. (In Japan.). *Bot.Mag.(Tokyo)* **57**, 371-386.
- YOSHIMURA F., 1944: Heterotrophic culture of some lemnaceous plants with sugars. (In Japan.). *Bot.Mag.(Tokyo)* **58**, 15-26.
- YOSHIMURA F., 1950: Physiological studies in lemnaceous plants. III-VI. (In Japan.). *Bot.Mag.(Tokyo)* **63(743-744)**, 63-69.
- YOSHIMURA F., 1952: Influence of the light on the consumption of nitrate and ammonia in lemnaceous plants. (In Japan.). *Bot.Mag.(Tokyo)* **65(769-770)**, 176-185.
- YOUNG M., 1970: The regulation of potassium uptake in *Lemna minor* L. Ph.D.Thesis. Univ. East Anglia, Norwich.
- YOUNG M. and SIMS A.P., 1972: The potassium relations of *Lemna minor* L. I. Potassium uptake and plant growth. *J.Exp.Bot.* **23**, 958-969.
- YOUNG M. and SIMS A.P., 1973: The potassium relations of *Lemna minor* L. II. The mechanism of potassium uptake. *J.Exp.Bot.* **24(79)**, 317-327.
- YOUNG M., JEFFERIES R.L. and SIMS A.P., 1970: The regulation of potassium uptake in *Lemna minor* L. *Abh.Deutsch.Akad.Wiss.,Berlin,Med.* 67-82.

- YOUNG et al., 1978 see YANG Y.P., 1978
- YUI S., 1956: Duckweeds in rice fields and their removal in an easy manner). (In Japan.). *Nogyo Oyobi Engei* **31**, 1113-1116.
- YUI S. and KOIKE F., 1955: Studies on P.C.O. (Pentachlorophenol). I. Test of removal of duckweeds in rice fields. (In Japan.). *Nogyo Oyobi Engei* **30**, 1107-1108.
- YUKAWA I. and TAKIMOTO A., 1976: Flowering response of *Lemna paucicostata* in Japan. *Bot.Mag.(Tokyo)* **89**, 241-250.
- YUSUF R. and OMER S., 1986: Lemnaceae. In: ALI S.I. (ed.), *Flora of Pakistan*. 17 pp. (Polycopy).
- ZAWADZKI B., 1971: Comparison of the prometryn absorption in marshy and in humus-rich soils using the biotests with *Spirodela polyrrhiza* Schleiden and *Wolffia arrhiza* (L.) Wimm. (In Dutch). Report Proefstation voor de Groenteteelt in de Vollegrond. Alkmaar, Netherlands.
- ZAWADZKI B., 1974: *Wolffia arrhiza* (L.) Wimm. as a biotest for determination of prometryne residues in the soil. In: ANTOSZEWSKI R., HARRISON L. and ZYCH C.C. (eds.), *Proc.19th Int.Horticult.Congr.,Warsaw*, 240.
- ZAWADZKI B., 1975: Biological test for trace amounts of prometryne in water using an aquatic plant *Wolffia arrhiza* (L.) Wimm. (In Polish). *Acta Agrobot.* **28(1)**, 57-66.
- ZAWADZKI B., 1976: Absorption of prometryne by humic-alluvial soil and peat soil. *Biul.Warczyw.* **19**, 251-267.
- ZAWADZKI B. and REJMAN S., 1978: Evaluation of the serviceableness of *Wolffia arrhiza* (L.) Wimm. for quantitative determinations of herbicides. *Biul.Warzyw.* **21**, 193-200.
- ZENNIE T.M. and McCCLURE J.W., 1977: The flavonoid chemistry of *Pistia stratiotes* L. and the origin of the Lemnaceae. *Aquat.Bot.* **3**, 49-54.
- ZERINGUE H.R., Jr., 1987: A possible relationship between phytoalexin production in the cotton leaf and a phytotoxic response. *Phytochem.* **26(4)**, 975-978.
- ZEYNALOV Y., 1978: How many photosystems take part in green plant photosynthesis? (In Bulg.). *Fiziol.Rast.(Sofia)* **4(2)**, 90-97.
- ZIEGLER H. and ZIEGLER I., 1965: Der Einfluss der Belichtung auf die NADP<sup>+</sup>-abhängige Glycerinaldehyd-3-phosphat-Dehydrogenase. *Planta* **65**, 369-380.
- ZIEGLER H. and ZIEGLER I., 1966: Die lichtinduzierte Synthese der NADP<sup>+</sup>-abhängigen Glycerinaldehyd-3-phosphat-Dehydrogenase. III. Die Bedeutung des Chlorophylls und der Einfluss von Stoffwechsellinhibitoren. *Planta* **69**, 111-123.
- ZIEGLER H., ZIEGLER I. and SCHMIDT-CLAUSEN H.J., 1968: The light induced increase in the activity of NADP dependent glycerinaldehyde-3-phosphate dehydrogenase. VIII. The dependence of the enzyme activity in *Lemna* on the intensity and the length of illumination. *Planta* **81(2)**, 181-192.
- ZIEGLER H., ZIEGLER I., SCHMIDT-CLAUSEN H.J., MUELLER B. and DOERR I., 1969: Activation of NADP<sup>+</sup>-dependent glycerinaldehyde-3-phosphate dehydrogenase in relation to photosynthetic electron transport. In: METZNER H. (ed.), *Progress in photosynthesis research*. Tübingen. **3**, 1636-1645.
- ZIMMERMANN M.-A., 1980: Der Einfluss von Calcium und Magnesium auf das Wachstum von mitteleuropäischen Lemnaceen-Arten. Diploma Thesis. *Geobot.Inst.ETH,Stiftung Rübel,Zürich*. 92 pp. (Polycopy).
- ZIMMERMANN M.-A., 1981: Einfluss von Calcium und Magnesium auf das Wachstum von mitteleuropäischen Lemnaceen-Arten. *Ber.Geobot.Inst.ETH, Stiftung Rübel,Zürich* **48**, 120-160.

- ZOGG H., 1985: Brandpilze Mitteleuropas. *Cryptogamica Helv.* **16**, 277 pp.
- ZOLLINGER J., 1956: *Lemna minor*, die kleine Wasserlinse. *Leben und Umwelt* **12(8)**.
- ZUBERER D.A., 1981: Nitrogen fixation ( $C_2H_2$ ) associated with duckweed mats in Texas and Florida. *Abstr. Ann. Meet. Am. Soc. Microbiol.* 1981, 179.
- ZUBERER D.A., 1982: Nitrogen fixation (acetylene reduction) associated with duckweed (Lemnaceae) mats. *Appl. Environ. Microbiol.* **43(4)**, 823-828.
- ZUBERER D.A., 1984: Microbial colonization of some duckweeds (Lemnaceae): Examination by scanning and transmission electron and light microscopy. *Aquat. Bot.* **18(3)**, 275-285.
- ZUKOWSKI E., ECKSTEIN Z. and DOMANSKA H., 1967: Recherches sur l'extension de l'activité biologique des dérivés d'acide 6-aminopénicillanique (6-APA). *Meded. Rijksfac. Landbouwwet. Gent* **32(3/4)**, 1050-1061.
- ZURZYCKA A., 1951: The influence of the wave length of light on the movements of chloroplasts in *Lemna trisulca*. *Acta Soc. Bot. Pol.* **21**, 17-37.
- ZURZYCKA A. and ZURZYCKI J., 1950: The influence of temperature on phototactic movements of chloroplasts. I. *Acta Soc. Bot. Pol.* **20**, 665-680.
- ZURZYCKA A. and ZURZYCKI J., 1951: The influence of some metallic ions on the phototactic movements of chloroplasts. *Acta Soc. Bot. Pol.* **21**, 113-124.
- ZURZYCKA A. and ZURZYCKI J., 1953: Studies on the phototactic movements of chloroplasts. I. *Acta Soc. Bot. Pol.* **22**, 667-678.
- ZURZYCKA A. and ZURZYCKI J., 1957: Cinematographic studies on phototactic movements of chloroplasts. *Acta Soc. Bot. Pol.* **26**, 177-206.
- ZURZYCKI J., 1953: Arrangements of chloroplasts and light absorption in plant cell. *Acta Soc. Bot. Pol.* **22**, 299-320.
- ZURZYCKI J., 1955a: Chloroplast arrangement as a factor in photosynthesis. *Acta Soc. Bot. Pol.* **24**, 27-63.
- ZURZYCKI J., 1955b: Photosynthesis in polarized light. *Acta Soc. Bot. Pol.* **24**, 539-547.
- ZURZYCKI J., 1955c: The dependence of photosynthesis on the arrangement of chloroplasts. *Experientia* **11**, 263.
- ZURZYCKI J., 1957a: The destructive effect of intense light on the photosynthetic apparatus. *Acta Soc. Bot. Pol.* **26**, 157-175.
- ZURZYCKI J., 1957b: Formative effects of various spectral regions of light on *Lemna trisulca* L. *Med. Landbouwhog. Wageningen* **57**, 1-14.
- ZURZYCKI J., 1960: Studies on the centrifugation of chloroplasts in *Lemna trisulca*. *Acta Soc. Bot. Pol.* **29**, 385-393.
- ZURZYCKI J., 1961: The influence of chloroplast displacements on the optical properties of leaves. *Acta Soc. Bot. Pol.* **30**, 503-527.
- ZURZYCKI J., 1962: The action spectrum for the light depended movements of chloroplasts in *Lemna trisulca* L. *Acta Soc. Bot. Pol.* **31**, 489-538.
- ZURZYCKI J., 1964: The effects of simultaneous action of short and long wave parts of spectrum on the movements of chloroplasts. *Acta Soc. Bot. Pol.* **33**, 133-139.
- ZURZYCKI J., 1965: The energy of chloroplast movements in *Lemna trisulca*. *Acta Soc. Bot. Pol.* **34**, 637-666.
- ZURZYCKI J., 1969: Experimental modification of the reaction pattern of *Lemna* leaf cells to polarized light. *Protoplasma* **68**, 193-207.
- ZURZYCKI J., 1970: Light respiration of *Lemna trisulca*. *Acta Soc. Bot. Pol.* **39**, 485-495.
- ZURZYCKI J., 1971: Effect of linear polarized light on the  $O_2$  uptake in leaves. *Biochem. Physiol. Pflanz.* **162**, 310-317.

- ZURZYCKI J., 1972: Primary reactions in the chloroplast rearrangements. Acta Protozool. **11**, 189-200.
- ZURZYCKI J. and LELATKO Z., 1969: Action dichroism in the chloroplast rearrangements in various plant species. Acta Soc.Bot.Pol. **38**, 493-506.
- ZURZYCKI J. and ZURZYCKA A., 1953: Kinematographic method of chloroplast movements analysis. Acta Soc.Bot.Pol. **22**, 679-687.
- ZURZYCKI J. and ZURZYCKA A., 1955: Influence of some catalyst poisons on phototactic movements of chloroplasts. Acta Soc.Bot.Pol. **24**, 663-674.
- ZURZYCKI J., WALCZAK T., GABRYS H., KAJFOSZ J., 1983: Chloroplast translocations in *Lemna trisulca* L. induced by continuous irradiation and by light pulses. Kinetic analysis. *Planta* **157(6)**, 502-510.
- ZUTSHI D.P. and KAUL V., 1963: *Lemna trisulca* L. - a new record for Kashmir. *Trop.Ecol.* **4**, 95-96.