MYCOLOGIA HELVETICA

Vol. 2 No 1 pp. 87—92 1986

(Manuscript received on 18th April 1986)

GRELETIA MARCHICA SPEC. NOV., A NEW DISCOMYCETE (PEZIZALES) FROM GDR

Dieter Benkert
Bereich Botanik und Arboretum des Museums für
Naturkunde der Humboldt-Universität Berlin,
Späthstraße 80/81, DDR-1195,
Berlin, DDR

and

Jiří Moravec
Sadová 21/5, č. 336, 679 04 Adamov u Brna,
Czechoslovakia

SUMMARY: *Greletia marchica* spec. nov.- a new species of operculate Discomycetes (*Pezizales*,fam. *Pyronemataceae*, subfam. *Ascodesmidoideae*) is described according to three collections from GDR. The type material of the related species *Greletia verrucispora* (Donadini) Donadini and *Greletia reticulosperma* Donadini et Riousset was examined and compared with the new species. The taxonomic position of the genus *Greletia* Donad. including its relationship to the genus *Smardaea* Svrček is discussed. Ascospore ornamentation of *G. marchica* is illustrated by line drawings and SEM photomicrographs.

ZUSAMMENFASSUNG: *Greletia marchica* spec. nov. (*Pezizales*, fam. *Pyronemataceae* , subfam. *Ascodesmidoideae*) wird beschrieben anhand von 3 Kollektionen aus der DDR (Bezirk Potsdam). Die nahestehenden *Greletia verrucispora* (Donadini) Donadini und *G. reticulosperma* Donadini et Riousset sind, wie die Untersuchung des Typusmaterials ergab, von der neuen Art deutlich verschieden. Die taxonomische Stellung der Gattung *Greletia* Donad. und ihre Beziehung zu *Smardaea* Svrček werden kurz diskutiert. Die charakteristische Sporenornamentation von *G. marchica* wird durch Zeichnungen und SEM-Aufnahmen dargestellt.

Greletia marchica D.Benkert et J.Moravec *spec. nov.*
Apothecia 4-14 mm diam., primum leniter patellaria, dein discoidea et applanata, extus nigra et marginemque subtiliter floccosa; thecio violaceo-fusco, usque nigro. Ectoexcipulum textura globulosa angularis, endoexcipulum textura intricata, exoexcipulum (pars externa floccosa) e textura globulosa, marginemque parte superiori apothecii cum hyphis externis brevis, clavatis. Asci octospori, 150-225 X 12-15 µm, cylindracei, operculati, non amyloidei. Ascosporae globosae, 13- 14 µm diam. vel saepe globoso-ellipsoideae, (12)-13-14.25-(15) X (10.5)-12-12.75-(13.5) µm (sine ornamento), cum guttula unica magna, crasse-verrucosae; verrucae 1-1.5-3-4.5 µm crassae et 0.5-1-1.5 µm altae, irregulariter distributae, multiformes, saepe cum costis stellato-radiato formatis coniunctae et reticulum irregularem formatibus. Paraphyses filiformes, simplices, rectae, 3 µm crassae, apice irregulariter clavato incrassatae (4-7-11 µm), pigmento rubro-violaceo impletae. Pigmentum rubro-violaceum in omnibus partibus fungi (excipulum, asci, sporae, paraphyses).
Habitat: Ad terram arenosam in Pineto, DDR, prope Göhlsdorf, 28. VIII. 1977 leg. Dieter Benkert. = Holotypus in BHU, duplicatum in herbario privato J. Moravecii asservantur.
Apothecia 4-5 mm diam., first shallowly cupulate, soon flattened, thecium dark violaceous brownish to almost black, outer surface blackish; the margin minutely floccose with short hypha-like hairs. Excipulum red-purplish or vinaceous, coloured by the pigment like potassium permanganate; ectoexcipulum of textura globulosa angularis consisting mostly of globose or globose-ellipsoid cells, 7.5-22.5-30 µm diam.; endoexcipulum of textura intricata made up of interwoven septate,slightly inflated hyphae 3-7.5 µm thick; exoexcipulum (= clothing of the outer surface) of textura globulosa, towards the margin the cells growing into short, clavate hypha-like hairs 3-7.5- (10.5) µm thick. Asci eight-spored, inamyloid, cylindric, 150-225 x 12-15 µm, operculate. Paraphyses filiform, 3-4.5 µm thick, apex regularly or irregularly enlarged to 4-7 µm (in the collection from Jüterbog up to 11 µm and conspicuously pyriform), main part deeply purplish coloured (in the case of the collection from Töpchin the paraphyses are sometimes agglutinated by a purplish excreted matter). Ascospores uniseriate, often pale purplish coloured, globose, 13-14 µm diam., or globose-ellipsoid, (12)-13-14.25-(15) x (10.5)-12-12.75-(13.5) µm (measured without the ornamentation) with one oil drop, coarsely warted, warts 1-1.5-3-4.5 µm wide and 0.5-1.5 µm high, irregular and irregularly distributed, often connected by fine low ridges (usually arranged as stellate crests around the main warts and ridges) resulting in an irregular reticulum. (See

the line drawing fig. 1 and SEM figs.2-6). The vinaceous to purplish pigment present in the whole fungus tends to concentrate in damaged parts as well as in anomalously developed or aborted asci, ascospores or paraphyses.

Habitat: On sandy soil in poor pine forests at places with poorly developed vegetation (road sides), in one case on burnt soil but obviously not anthracophilous. Etymology: marchicus = "märkisch", after the "Mark" = landscape around Berlin.

Collections examined:

Three collections from GDR, district of Potsdam:

1. Potsdam, a poor pine forest south-east of Göhlsdorf, on sandy soil at a road side, 28. VIII. 1977 leg. D. Benkert = Holotype BHU, isotype herb. J. Moravec.
2. Jüterbog, in a pine forest near Malterhausen on burnt soil 18. IX. 1977 leg. P. Sammler (BHU, J.Moravec).
3. Königs Wusterhausen, in a deserted clay-pit near Töpchin, 18. IX. 1972 leg. D. Benkert (BHU).

The SEM photographs were made in "Zentralinstitut für Electronphysik" in Berlin (fig. 2) and the figs. 3-6 were made by an electron microscope Tesla BS 300 in the University of Agriculture Brno.

We consider the new species a natural member of the genus *Greletia* Donad. introduced by Donadini (1979) as a segregate from *Pulparia* Karst. (= *Marcelleina* Brumm.,Korf et Rifai). In our opinion, *Marcelleina* is the proper name for the separated genus with the type species *Marcelleina persoonii* (Crouan) Brumm. because of the non sufficient knowledge of a fungus *Pulparia arctica* Karst. (the type species of *Pulparia*) which can hardly be considered congeneric with *M.persoonii*. We consider the genus *Greletia* well separated from *Marcelleina* especially for its purplish pigment. The new species is related to *Greletia verrucispora*(Donadini) Donadini (1976) and to *Greletia reticulosperma* Donadini et Riousset (1986) which was mentioned and illustrated also in Donadini (1984). The type material of these two species was examined by the second author of the present paper. *G. marchica* differs from *G. verrucispora* clearly by its outstanding ascospore ornamentation. *G. reticulosperma* has, moreover, much smaller ascospores with a much more regular, delicate and low reticulum which easily loosens in lactic acid. The conspicuous purple-red pigment present in the whole fungus has been found also in apothecia of the two examined species and, in our opinion, represents an important feature which well differentiates the genus *Greletia* from the genus *Marcelleina*. The pigment is soluble in water as in the genus *Smardaea* Svrček (1969). We have considered the genus *Greletia* related to the genus *Smardaea* with the type

S. amethystina (= *Jafneadelphus amethystinus* (Phill.) Brummelen(1969)). Donadini (1985, 1986) discussed the relationship of *Greletia* with *Jafneadelphus amethystinus* but he did not mention the taxonomic value of the genus *Smardaea*. The difference between *Smardaea* and *Jafneadelphus* is similar to the difference between *Greletia* and *Marcelleina*: the presence or absence of the purplish pigment, and we have considered the genus *Smardaea* well separated from *Jafneadelphus* Rifai too. The taxonomic position of *Smardaea* was also discussed by Benkert (1980). However, further examinations are necessary.

ACKNOWLEDGEMENTS

We are greatly obliged to Prof.J.C.Donadini (Marseille) for the kind loan of the type material of *Greletia verrucispora* and *G. reticulosperma* from his herbarium. We also give thanks to Mr.J.Lhotecký (The University of Agriculture, Brno) for the SEM photographs of ascospores.

REFERENCES

Benkert, D., 1980: Bemerkenswerte Ascomyceten der DDR. III. Die monotypischen Pezizales-Gattungen Arpinia, Kotlabaea, Miladina und Smardaea in der DDR. Boletus 4:1-8.

Donadini,J.C., 1976: Le genre Pulparia Karsten en France. Rev. de Mycol. 40: 255-272.

Donadini,J.C.,1979: Un genre nouveau: Greletia nov. gen. (ex Pulparia Karsten emend Korf pro parte. Pezizales). Bull. Soc. Mycol. Fr. 95:181-184.

Donadini,J.C., 1984: Etude cytologique des discomycètes (1) Les genres Greletia et Pulparia (Pezizales). Bull. Soc. Linn. Provence ,Marseille, 35:139-151.

Donadini,J.C.,1985: Discomycètes (2) Cytologie, taxonomie et phylogenie (Applications à Hypotarzetta g.nov., H. insignis c. nov., Humariaceae et Pyronemataceae. Doc. Mycol. 15 (60):47-57.

Donadini,J.C., 1986: Scanning des asques et cytologie Greletia reticulosperma n. sp. . Doc. Mycol. 16 (62):53-65.

Svrček, M., 1969: Nové rody operkulátních discomycetů (Pezizales). Čes. Mykol. 23:83-96.

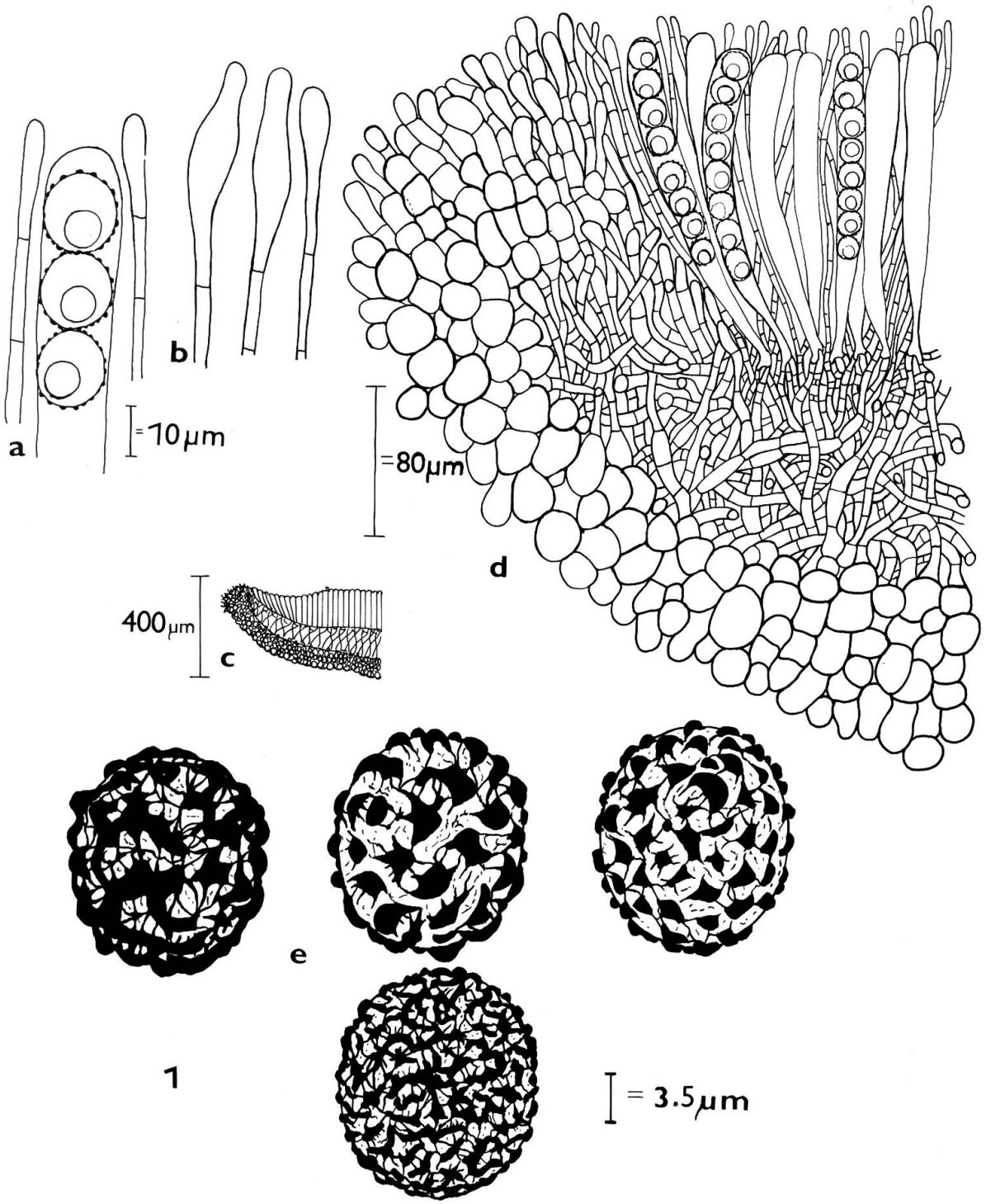
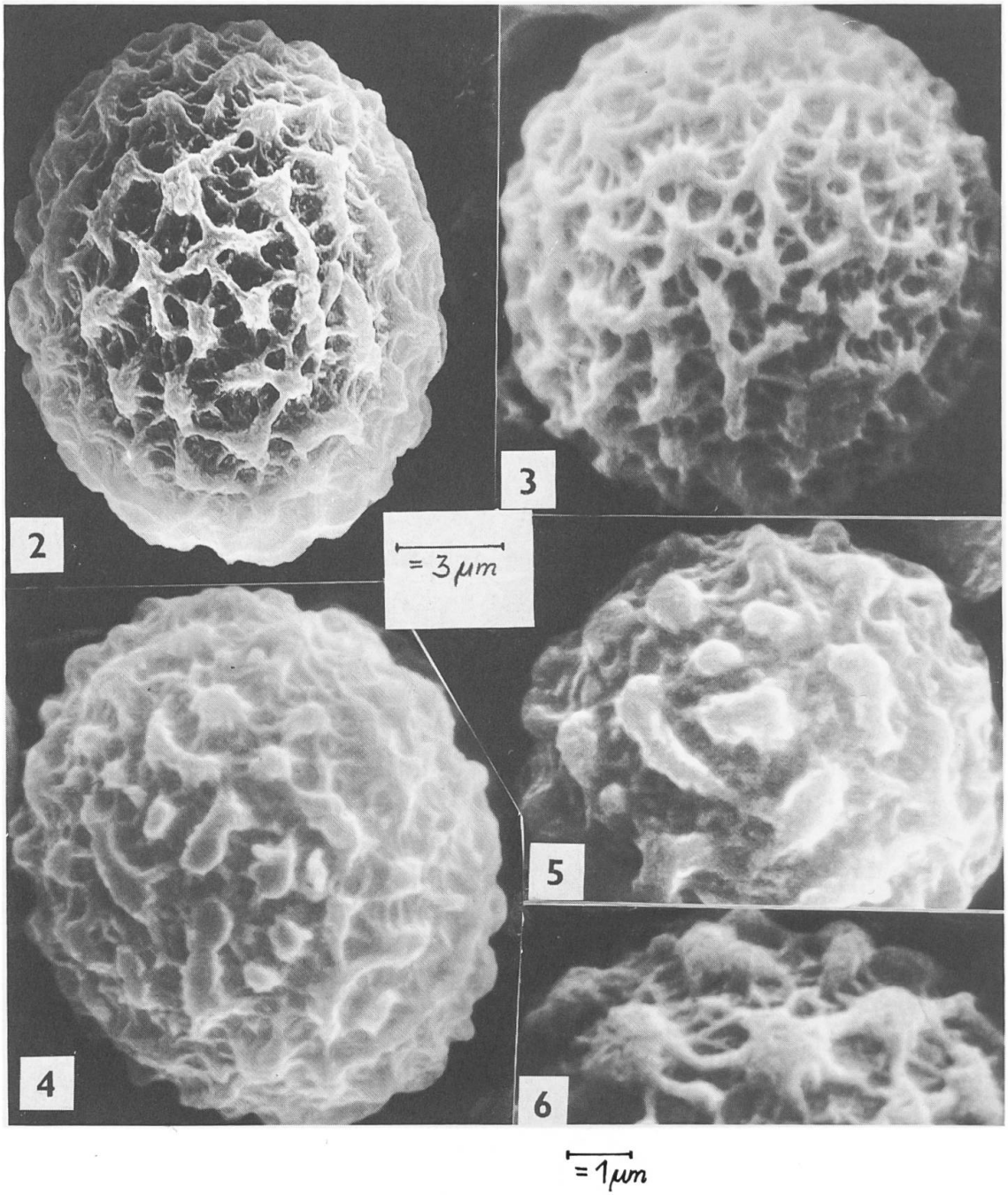


Fig. 1. *Greletia marchica* spec. nov.: a. Upper part of one ascus and paraphyses of the holotype. b. Apex of paraphyses of the collection from Jüterbog. c. Diagrammatic section of the marginal part of an apothecium of the holotype. d. Section of the marginal part of the apothecium, holotype. e. Ascospores under oil immersion + CB. Holotype.



Figs. 2-6 SEM of ascospores of *Greletia marchica* spec. nov. Figs.2 and 5 Ascospores of the holotype, figs.3,4 and 6 Ascospores of the collection from Jüterbog.