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(1980, see p. 13 of the present volume) "... it is sometimes difficult to distinguish between particular species without having observed living plants at various developmental stages". This dynamic approach seems advisable in further studies on cytological variation in the *Lemnaceae*, for it gives more chance of coming to satisfactory conclusions when we ask how much of what we find is accident or design.

### Summary

Cytological variation was studied in 30 taxa of the family of *Lemnaceae*, material from 1500 localities being examined.

The duckweed family offers an excellent example of a low-risk life strategy based upon a predominant or exclusive vegetative reproduction, its genetic variation being accordingly limited. The recurrent pattern of cytological variation observed within the *Lemnaceae* strongly suggests that the asexual reproduction plays an important and stabilizing rôle within this group.

Three levels of cytological variations were observed:

- 1) intra-individual variation occurring in form of aneusomy and/or mixoploidy;
- 2) intra-populational variation (aneuploidy or polyploidy);
- 3) "racial" differentiation corresponding to clones and populations that were cytologically uniform yet represented various cytotypes.

Euploid chromosome numbers of the *Lemnaceae* formed a continuous range viz.  $2n=20, 30, 40, 50, 60, 70, 80$ , the tetraploid number  $2n=40$  being positively the most frequent. Mixoploid individuals as well as populations and taxa possessing more than one euploid chromosome number conformed most frequently to a curious single-genome-difference pattern; it is supposed that a selective endoduplication might influence this variation.

Origin and significance of euploid chromosome numbers lower than  $2n=40$  remain ambiguous.  $2n=20$  and  $2n=30$  might partly result, on the one hand, from some reversion processes; on the other hand, particular frequency of these numbers observed within some taxa of the genus *Spirodela* might indicate some ancestor types. The problem remains open to further verifications.

Some aspects of cytological variation suggest that the duckweeds may sometimes be cytologically instable; long-range studies, comprising ageing clonal cultures, are advised.

In conclusion, a comment upon a general philosophy of the chromosome counts in cytologically difficult groups is offered.

### Zusammenfassung

An 30 Arten der Familie der Lemnaceen wurde die zytologische Variation untersucht. Insgesamt fanden 1500 Proben verschiedener Herkunft Berücksichtigung.