

## REVIEW

M. HESSE, E. PACINI & M. WILLEMSE (Eds.): *The tapetum: cytology, function, biochemistry and evolution. Plant Systematics and Evolution/Supplementum 7.* Springer-Verlag, Wien/New York, 1993. vii + 152 pp., 94 figs., 4 tabs. Cloth-bound. Price DM 170 (DM 153 for subscribers to *Pl. Syst. Evol.*). ISBN 3-211-82486-3.

This book contains the proceedings of the special tapetum symposium, held during the VIII International Palynological Congress in 1992 (Aix-en-Provence, France). Twelve contributions demonstrate the importance of the tapetum in the reproduction of land plants. As the editors state: any tapetum malfunction causes pollen sterility. All papers deal with basic research, not with applied research such as plant breeding and genetic engineering.

Although 'evolution' is listed in the title, very little (no special contribution) is devoted to this subject. It is a pity, because a phylogenetic theory has been suggested in the past, which should be treated in a book covering such a highly and diversely specialised structure. A taxonomic survey (table) listing the various tapetum types in different groups of land plants, and a section on the '14 functions' attributed to the tapetum, and referred to on several occasions in the book, would be very convenient, and might stimulate own thoughts on the evolutionary significance of diverging tapetum function and possible evolution scenarios. The first paper, on the role of the tapetum in pollen and spore dispersal, is very interesting in this context, but somewhat fuzzy and suffering from an unsatisfying table 1.

The last paper deals with the techniques used in tapetum research, including advanced EM methods as freeze fixation and freeze substitution, and reviews the recent literature on tapetum research. The other ten contributions mainly treat chemical and developmental aspects of the tapetum as a transient secreting tissue, such as tapetal activity cycles, nuclease activity, tapetal nuclear antigens, calcium levels, pollen kitt, Ubisch bodies (orbicules), pollen pigmentation, all studied in selected plant species.

I believe that the book offers a number of interesting contributions to our knowledge of the tapetum, and that it is an obligatory introduction to the topic. It does not cover all aspects and the review sections are rather short, which necessitates a lot of searching and additional reading.

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