NEMETH, M.: VIRUS, MYCOPLASMA AND RICKETTSIA DISEASES OF FRUIT TREES. — Académia Kiadó, Budapest 1986. 841 pp., 402 figs.

The publication summarizes the results of research in such a form that it can be used as a handbook giving descriptions of the symptoms of fruit-tree diseases and ample illustrations to recognize virus, mycoplasma and rickettsia infections. This new edition in English, revised and updated with the latest results of research describes 237 diseases of fruit trees.

The general part of this book discusses plant virus taxonomy, the characteristics of fruit-tree viruses with respect to chemical composition, morphology and ultrastructure, and physical, chemical and biochemical factors influencing virus infections. Attention in this part is also given to the questions of virus strains, immunity and susceptibility, virus purification and serology.

Of practical use is the description of methods of experimental transmission of fruit tree viruses, mycoplasma (MLO) and rickettsia-like organism (RLO), inclusive of transmission by mechanical inoculation, graft transmission and transmission by using vectors. This part also involves information on the transmission ways of fruit trees viruses, MLO and RLO in nature, incl. the transmission by vegetative propagation, through seed, pollen and by aphids and leafhoppers.

Measures of fruit protection against these pathogens are presented in the concluding chapter, which contains the modes of preventive and direct control of fruit-tree virus diseases (thermotherapy, meristem culture and chemotherapy).

In the second part of this hanbook virus diseases of pomaceous, stone and shell fruits, as well as the MLO and RLO diseases are described. The last chapter discusses disorders and injuries of fruit trees that resemble virus diseases.

In addition to the internationally used English names of the various diseases, their synonyms used in different countries are listed in 22 languages.

The handbook is a very important and useful help for plant virologists, fruit growing public and the students of high schools of pertinent courses.

J. CHOD (*Praha*)

SHIVANNA, K. R., JOHRI, B. M.: THE ANGIOSPERM POLLEN: STRUCTURE AND FUNCTION. — Wiley Eastern Limited, New Delhi—Bangalore—Bombay—Calcutta—Madras—Hyderabad 1985. 374 pp., 107 figs. Hard cover Rs 275.—.

The book brings a comprehensive summary of our knowledge of angiosperm pollen with emphasis on its physiology and biochemistry and on studies of the last 15 years, signifying an important progress in understanding the development and functions of pollen and in application of pollen biology in plant breeding.

The initial chapter covers the structural and biochemical aspects of specific developmental processes from pollen mother cells to mature pollen grains. The important feature of meiosis is cytoplasmic reorganization and the establishment of polarity. The post-tetrad development is characterized by asymmetric division resulting in the formation of generative and vegetative cells differing in a number of aspects. A large body of information accumulated on pollen wall morphogenesis, control of exine pattern, on pollen wall proteins, and on properties, function and developmental changes of tapetum during microsporogenesis. Pollen development from microsporocytes often exhibits various kinds of abnormalities resulting in the failure of the functional gametes formation. The chapter on pollen sterility describes the related biochemical and cytological changes and discusses their possible reasons and mechanisms. An important aspect is the artificial induction and application of selective male sterility in hybrid-seed production.

The mature pollen grain can survive mostly for a relatively long time and efficient methods of pollen storage have been developed for breeding purposes together with various tests for pollen viability. Studies of *in vitro* pollen cultivation accumulated a large amount of data on germination requirements and on cytology, physiology and biochemistry of tube elongation. Several techniques for *in vitro* germination and viability testing are described in detail in an "Appendix".

Male gamete transmission in nature is a complex process of specific pollen-pistil interactions and various structural and physiological mechanisms are evolved for pollen acceptance or rejection. The topic is treated in 3 separate chapters entitled Pollen-pistil interaction, Intraspecific incompatibility and Interspecific incompatibility. Particular attention is paid to the structure of the stigma and style, to biochemistry of recognition and to various techniques to overcome the incompatibilities.

The book provides a very useful textbook on pollen biology for advanced university students as well as a reference book for research workers in various fields of fundamental and applied botany.

J. TUPÝ (*Praha*)

LINSKENS, H. F., JACKSON, J. F. (ed.): CELL COMPONENTS. Modern Methods of Plant Analysis, New Series, Volume 1. — Springer-Verlag, Berlin—Heidelberg—New York—Tokyo 1985. 399 pp. 96 figs. Hard cover DM 238.—.

Since the appearance in 1964 of the 7th and last volume of the highly popular series of Modern Methods of Plant Analysis edited by M. V. Tracey and K. Peach, the biochemical, biophysical and cytological methods have registered a tremendous progress and many new sophisticated approaches have been developed. Most of the books on modern techniques in biology being concerned with microbial or animal material, it is to welcome very much the decision of the publisher to meet the great need of a collection of up-to-date methods of plant analysis by resuming the edition of the handbook. The New Series appears under the editorship of H. F. Linskens, Nijmegen and J. F. Jackson, Adelaide, and its first volume is devoted to isolation and analysis of plant cell components.

The book is organized into 18 independent chapters written by different specialists and provides a detailed theoretical and practical description and critical evaluation of a number of biochemical, biophysical, histochemical and cytological methods of cell analysis: Isolation of cell walls, determination of cell wall components and properties, isolation and fractionation of protoplasts, use and separation of markers in subcellular fractionation, plasma membrane isolation and analysis, isolation and study of vacuoles and vacuolar tonoplasts from various sources, isolation, subfractionation and analysis of protein and lipid bodies occurring in the storage tissues of seeds, techniques to isolate and purify chloroplasts, inner and outer chloroplast envelope membranes, of chloroplast thylakoid membrane and of subthylakoid fractions, purification and assay of ribulosebisphosphate carboxylase from chloroplast stroma, isolation and characterization of nongreen plastids, of endoplasmic reticulum and of polyribosomes, preparation of mitochondria for DNA analysis and oxidative studies, isolation and cytological staining of nuclei, and, finally, techniques for extraction and analysis of microtubule proteins. The description of the methods is generally based on theoretical considerations on properties and functions of the particular cell fractions and on principles of the presented analytical procedures. All chapters have an extensive bibliography and the text is accompanied by effective illustrations.

This first volume of the New Series of Modern Methods of Plant Analysis will certainly establish itself as a basic laboratory handbook of great help in achieving a high up-to-date methodical level of research in plant sciences.

J. TUPÝ (*Praha*)

ANNOUNCEMENT

Groupe POLYPHENOLS Group

Organizing Committee 1988 International Conference
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The International Polyphenols Group is holding its next biennial conference in the Niagara Falls area of Canada on August 16—19, 1988. Topics of the symposium will be: Biodegradation and utilization of lignin; Significance of flavonoids in foods; Cereal polyphenols; Phenolics in phytopathology and Production of phenolics in cultured tissues. Contributed papers and posters on these and other polyphenol related topics are invited. For further information contact: Dr. T. Fuleki, HRIO, Vineland Station, Ontario, Canada, LOR 2EO.