
BOOK REVIEWS

An Introduction to Experimental and Applied Embryology of Angiosperms By T. M. Varghese (Published by Oxford & IBH Publishing Co., 66 Janpath, New Delhi 110001) 1984, pp. 164. Price: Rs. 62/-

This book is brief treatise covering a very new and an important branch of Plant Science. It contains 12 Chapters, an Appendix and Selected Bibliography. After a brief 'Introduction' the author presents another brief summary on 'Sexual Reproduction in Plants'. The Chapter 3 on Male Sterility gives the basic aspects with scientific explanation on male sterility and proceeding further to detail artificial manipulation of the same for purpose of plant breeding. The Chapters on Pollen Physiology and Pollen Storage cover important areas of research on Pollen, and two chapters could have been conveniently merged. The Chapter 6 on Control of Pollination and Fertilization deals with research on the subject with some selected plants, and covers the important natural pollinators, the honey bees. Likewise the subject Fertilization, as different from Pollination, is well covered with suitable examples. Parthenocarpy is an important subject in Plant Science and the author has covered this subject very briefly. Likewise 'Self-Incompatibility' is another major area of interest in Plant Science, which has been covered very briefly.

Chapters 9 to 12 deal with culturing of anthers and pollen embryo endosperm, and protoplast. Besides giving briefly the techniques of culturing, examples are given under each section to illustrate the progress made. The importance of culturing each of the plant morphological units in respect of genetic improvement of plants is given. A brief account of the significance of Somatic Hybridisation is given in the last few pages.

On the whole the book gives a fairly good account of Embryology of Angiosperms. The coverage is, however, not uniform in respect of depth of knowledge and presentation. The illustrations could have been better. There has been very significant progress made in the subject during past decade, which hardly finds a place in the book. In reviewing the work done in the field the author seemed to have touched a few old references and a few more of not too recent origin. Under 'Select Bibliography', there are 53 references, of which only three are dated after 1975. Likewise Suggested Readings listed at the end of each chapter are also not

upto-date. I trust these could be updated when the second edition of the book is published.

The book will be a useful reference to all the students of Plant Science, and especially to those specializing in Embryology and modern Plant Breeding.

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Annual Review of Pharmacology and Toxicology, edited by George, R., Okun, R. and Cho, A. K. (Published by Annual Reviews Inc., 4139, Palo Alto, El Camino Way, California 94306, USA). Vol. 24, 1984. pp. 533. Price, USA \$27.00 elsewhere \$30.00.

A prefatory chapter written in an autobiographical vein by doyens of the profession has been a welcome feature of the Annual Reviews in recent years. The current year's review carries a nostalgic account by Prof. Borje Uvanas in which he traces the growth of Pharmacology as an independent discipline from the early foundation laid by classical physiologists who saw pharmacology and biochemistry as an integral part of physiology. This chapter containing as it does critical accounts of the role played by the Karolinska Institute, Stockholm in nourishing frontier interdisciplinary areas such as biochemical pharmacology, neuropsychopharmacology, clinical pharmacology and toxicology and the formation of the International Union of Pharmacology is of interest to students of history of the growth of pharmacology in the middle decades of this century.

Of special interest to biochemical toxicologists are the chapters on the deleniation of the role of monoxygenase enzymes in the metabolism of insecticides and the pharmacokinetics of PCB's. It is now generally recognized that cytochrome P-450 exists as a number of isoenzymes and display widely varying degrees of response to induction, substrate specificities, physical properties and distribution in animal tissues. There is increasing interest in purifying the inducible enzymes and establishing their specificity for insecticide substrates. The enzymes are involved in the desulphuration and ester cleavage of organophosphatic pesti-

cides. The reaction mechanism for lindane oxidation is under elucidation. An interesting fall out of the work on insecticide metabolism is the N-dealkylation of some insecticides related to prostaglandin biosynthesis. The existence upto 209 different chlorinated biphenyls used as congeners in industry complicates considerations of modelling the pharmacokinetics of these compounds. These compounds are readily absorbed and distributed but their elimination is subject to modulation by many factors. Excepting when secreted into milk or eggs, elimination requires prior metabolism to polar compounds.

The chapter on teratogenesis puts the estimate of the congenital malformations in man resulting from exposures to environmental agents as a single cause as 5-8% and in combination with genetic components as 20%. The genes involved in polygenic or plurogenic teratogenic processes are yet unknown. Mechanisms proposed for environmental teratogens include mutational changes in nucleotide sequence, chromosomal aberrations, mitotic interference, enzyme inhibition etc. The agents discussed for mechanisms include alcohol, aminopherin, androgens, coumarin derivatives, diethylstilbesterol, diphenyl hydantoin, methyl-mercury, polychlorinated biphenyls, oxazolidine-2, 4 diones, progestins, tetracycline, thalidomide and some antithyroid drugs.

The section on environmental toxicology deals with two important toxins: cyanide and vanadium. The review of antidote therapy on cyanide intoxication (acute and chronic) by thiosulphate and other agents gives also an account of the mechanism of toxicity of this classical oison apart from the primary action on cytochrome oxidase. The review on the toxicology of vanadium highlights the involvement of membrane bound AT pases ann ion transport in the expression of toxicity affecting cardiac function.

Under the heading Review of Reviews there is a useful discussion of the relevance of the plethora of journals to pharmacology and toxicology the state of art of allelopathic agents, opiopeptides, analgesics and never antihypertensive agents. The pharmacology of gossypol has been dealt with extensively from the point of its effect or male fertility.

The twelve chapters of the current volume have kept the high standards associated with Annual Reviews.

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ANNOUNCEMENT

NATIONAL SYMPOSIUM ON BIOLOGY OF INDIAN PTERIDOPHYTES

With a view to arousing interest among botanists for using ferns and fern allies as tools for basic and applied research and to project the importance of conservation of these plants, in the total context of the national flora, the above symposium is sponsored by The Indian Fern Society and Punjabi University, Patiala (India). The symposium will be held at Department of Botany, Punjabi University, Patiala, from 15-16 November 1985. Deliberations will pertain to the following aspects:

1. Distribution, Ecology, Systematics and Taxonomy
2. Endangered fern species and conservation strategies
3. Reproductive Biology and Cytogenetics
4. Morphology, Anatomy and Experimental Aspects

Interested scientists and scholars may contact Dr S. S. Bir, Professor of Botany, Punjabi University, Patiala-147002, India, latest by 30 June 1985.
