



BOOK REVIEWS

Physiology, Biochemistry and Molecular Biology of Plant Lipids. Edited by J. P. WILLIAMS, M. U. KHAN AND N. W. LEM. Kluwer Academic, Dordrecht, 1997. 418 pp. £150. ISBN 0-7923-4379-4.

Anyone wishing to find out the latest developments in the biochemistry of plant lipids will do well to browse through the closely packed pages of this excellent volume. It is derived from an international symposium on plant lipids held at the University of Toronto in July 1996. Over 200 scientists attended. There are no less than 130 individual contributions so that each paper averages out at about three pages. The papers are divided into eight sections: fatty acid biosynthesis; glycerolipid biosynthesis; membranes; isoprenoids and sterols; environmental effects of lipids; lipid degradation; oil seeds and fruits; and molecular

biology and biotechnology. Papers range in topic from the characterization and cloning of biotin holocarboxylase synthetase from higher plants, through the analysis of plant cerebrosides by HPLC to the isolation of cytochrome P-450 genes from *Vernonia galamensis*.

Personally, I would have preferred a volume with longer, more considered contributions. Nevertheless, this symposium volume does have the advantage of providing papers from all the leading scientists in the field and also of indicating the breadth and extent of current plant lipid research. It is also right up-to-date. It is unfortunate that the price of this volume means that it will essentially be only purchased by libraries.

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Plant Volatile Analysis, Modern Methods of Plant Analysis, edited by H. F. LINSKENS and J. F. JACKSON, Springer-Verlag, Berlin, 1997. Volume 24, 266 pp. DM 198. ISBN 3-540-61589-X.

Volume 19 of this well-established series covers broadly the analysis of plant volatiles relevant to the evaluation of flavor and aroma principals of commercial and aesthetic interest, as well as the analysis of plant emissions of significance in the physiological and chemical ecological contexts. The first two chapters cover preisolation considerations in *in situ* head-space analysis and the analysis of fruit volatiles, respectively. Four chapters describe various aspects of the essential oils, including GC-FID, GC-FTIR-MS and olfactory characterization, chemometric analysis, principal components analysis, and supercritical CO₂ extraction of eucalyptus oils, and these extend the previous coverage of essential oil analysis provided in Volume 12 (1991) of this series. Two chapters focus on wine aroma (adsorption-thermal desorp-

tion-gas chromatography, and isotope dilution GC-MS for determination of methoxypyrazines) and two on tea aroma (comparison of extraction techniques and analysis by GC-FTIR-MS, and aroma release from scented teas); wine analysis was last covered in Volume 6 (1988) of this series. The book also includes two excellent chapters on the measurement of isoprene in air and ammonia emission from plants.

The coverage within chapters is expert and thorough, with attention to analytical problems and methodological detail that is the hallmark of this series. The overall production quality of the book is quite good and there are relatively few errors. The quality and utility of the graphics, however, vary considerably between chapters. The Subject Index is adequate. This book will be a highly useful library addition, but the price will discourage purchase by the specialist interested in only one or two aspects of the material covered.

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Drought Tolerance in Higher Plants: Genetical, Physiological and Molecular Biological Analysis, edited by ERIC BELHAUSSEN, Kluwer Academic Publishers, Dordrecht, The Netherlands, 1997. 104 pp. £66. ISBN 0-7923-4123-6.

Current interest in drought tolerance in higher plants

is largely channelled towards crop plants, although lessons learnt from the study of natural xerophytic communities and resurrection plants are not ignored. Recent data obtained from the molecular and physiological analysis of *Arabidopsis* mutants may also have useful applications to improving the response to drought stress in cereal and legume crops. This attrac-

tive book provides a series of eleven reviews by European experts on present progress in understanding the basis of drought tolerance. The authors do not hide the fact that much still remains to be learnt about this aspect of plant survival. For example, there are still problems in identifying the adaptive responses that improve drought yield without decreasing significantly the potential crop yield. We are still ignorant of the precise mechanisms of the adaptive response, although abscisic acid is recognised as a key player in the cellular response. The absence of an essay on the biochemistry of drought resistance was especially noticeable.

These relatively brief essays are well written and provide the reader with an excellent overview of the largely physiological aspects of drought tolerance. The volume is unfortunately overpriced, particularly since the essays have been directly reprinted from the journal *Plant Growth Regulation* Volume 20, No. 2 (1996). It is difficult to recommend this as a library purchase if this journal is already available on the shelves.

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