



Book review

Annual Plant Reviews, Vol. 3, Functions of Plant Secondary Metabolites and their Exploitation in Biotechnology

Michael Wink (Ed.); Sheffield Academic Press, Sheffield, UK, 1999, 362 pp., £79.00, ISBN 1-84127-008-3

This book is part three of a series of now seven volumes named "Annual Plant Reviews" and is a companion, published simultaneously, to volume two "*Biochemistry of Plant Secondary Metabolites*". In contrast to the first of these twin volumes with a more academic scope this second one is of interest also for people from the pharmaceutical and agrochemical industrial sector and has also an appeal for ecologists. Molecular geneticists are attracted only by chapter 4, which covers jasmonate actions and the complexity of induced defenses against herbivores.

The book starts off with an excellent introductory chapter by the editor, which presents historical and current concepts of secondary metabolite functions in simple schemes. The times when "secondary" metabolites were regarded as simple waste products of plant metabolism are long gone. As is the whole book, this chapter is divided into "phytogenic views" (physiological functions of secondary metabolites in the plant for its survival in ecosystems) and "anthropogenic aspects" (pharmaceutical and other uses of secondary metabolites and ways to their production on a larger scale). Representing somewhat the bias of the book to the latter aspects, chapter 2 deals in great detail with the interference of alkaloids with neurosignalling processes and with their mutagenic and carcinogenic properties. Similarly, chapters 5 and 6 present many antimicrobial

properties of secondary compounds, their specific microbe target organisms and novel medical applications, e.g. of taxane- and lignan-derived compounds.

Ecological and physiological aspects of terrestrial systems are discussed elegantly within the chapter on the role of jasmonates and other signals in defenses to herbivores. As stated by the author Ian Baldwin, this topic has benefitted tremendously from a unification process bringing together people from molecular and ecological subdisciplines having different perspectives. This chapter also reviews new information on the costs of such defenses at the expense of developmental processes. Marine ecosystems and in particular tropical coral reefs are probably the most complex and least understood ecosystems on earth. Chapter 3 gives some fascinating insights into emerging concepts and new experimental approaches in this area, which is still in its infancy, when compared to the long tradition of terrestrial chemical ecology.

Taken together, the book provides a wealth of well-written and meticulously-edited information for both plant physiologists and ecologists as well as for pharmaceutical biologists but the "anthropogenic people" get at least more of the pages.

Michael H. Walter
Leibniz-Institut für Pflanzenbiochemie
Abt. Sekundärstoffwechsel
AG Molekulare Physiologie der Mykorrhiza
Weinberg 3, Halle/S, D-06120 Germany
E-mail address: mhwalter@ipb-halle.de