

## Book review

**Functions of plant secondary metabolites and their exploitation in biotechnology.** Annual Plant Reviews, Volume 3. Edited by Michael Wink. 1999. 362 pp. Sheffield Academic Press, Sheffield. £85.00. ISBN 1-8493-4086-1.

While a number of published texts describe aspects of secondary metabolism, far fewer consider their biological and biotechnological significance in detail. This is the remit of this book and many aspects of the text are simply excellent, both in detail and in coverage. In addition to their functions as signal molecules between organisms, there are many cases where plant secondary metabolites act as chemical defence mechanisms against other plants, herbivores, predators, microbes and viruses. Therefore it is important not to underestimate the overall significance of secondary compounds in biological systems. The modes of action of defensive secondary metabolites are described in detail by M. Wink and O. Schimmer, while aspects of chemical defence in marine ecosystems are covered by P. Proksch. One chapter of particular interest to plant pathologists is by I.T. Baldwin who reviews recent advances relating to the jasmonate cascade and induced defence responses against herbivore attack. Plant-microbe interactions and secondary metabolites with antimicrobial properties are

covered by J. Reichling and this chapter also describes thoroughly the secondary compounds with anti-HIV properties. Other medical applications of secondary metabolites are described by J. Heilmarm and R. Bauer and a review of the biotechnological production of compounds in plant tissue cultures by N.J. Walton, A.W. Alfermann and M.J.C. Rhodes provides an interesting final chapter. While the latter part of this volume focuses upon secondary compounds and medicine, many of the early chapters will be of general interest to biological scientists developing an interest in the multiple functions of plant secondary metabolites. My only criticism is that this text focuses upon low molecular weight secondary compounds and this reviewer would contend that the inducible and constitutive expression of higher molecular weight end products such as condensed tannins and lignins should not be overlooked in future editions. Few books cover this subject area in such a comprehensive manner and one's expectation is that this text will be a valuable source of important information for a considerable time.

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