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## Book reviews

### Natural Products in the New Millennium: Prospects and Industrial Application

Proceedings of the Phytochemical Society of Europe, Vol. 47. Edited by A.P. Rauter, F.B. Palma, J. Justino, M.E. Araújo and S.P. dos Santos. Kluwer Academic Publishers, Dordrecht, 2002, 505 pp., ISBN 1-402-01047-8, € 150.

This book brings together 50 paper contributions and is part of the successful proceedings of the Phytochemical Society of Europe being volume 47 in that series. The text is broken down into 6 very broad chapters ranging from the characterisation of terrestrial natural products, bioactive metabolites, industrial applications, plant cell biotechnology, synthesis of natural products and finally a section on marine metabolites. This wideness of scope is attractive from the perspective of a general introduction and review of natural product science.

The text commences with an overview of the chemistry, occurrence and significance of pyrrolizidine alkaloids by Mroczek and Glowinski and there is some nice phytochemical analysis employing HPLC-mass spectrometry and gas-chromatography technology in the papers by Czinner et al. and Santos et al. on phenolic compounds from *Helichrysum flos* and essential oil analysis of *Crithmum maritimum* populations, respectively.

In the chapter on bioactive natural products, there is a bias to antimicrobial activity with simple aldehyde alkenes, phenylpropanoids, triterpene saponins, monoterpenes and diterpenes being described and these really highlight the potential of plants as a relatively untapped source of antibiotic drug-leads. There is also a paper dealing with the inhibitory effects of bacteria on the growth of filamentous fungi and yeasts, in particular, *Bacillus subtilis* and *Candida albicans*. These effects are reported as not being solely due to antibiotic production by the bacteria. Two further papers in this section detail research on molluscicidal and trypanocidal activity which is a pharmaceutically underexploited area.

The industrial applications section covers the potential of anticancer, immunomodulatory and antioxidant

metabolites. Notably, work on the modification of flavonolignans from *Silybum marianum*, to enhance their activity as modulators of multidrug-resistance (MDR), is described by Maitrejean et al.

There are only three papers in the plant cell biotechnology section one of which addresses new strategies to produce high-value metabolites from shoot cultures.

The chapter on synthesis starts with an excellent approach by Cavaleiro et al., by starting with a natural product and transforming it to increase access to chemical diversity. This is highlighted with some good examples of dehydroabietic acid and monoterpene derivatisation, and this approach would be applicable to many natural product classes. There is also an interesting short paper by Rodilla et al., covering the use of lipase enzyme to selectively de-esterify a labdane diterpene. This approach is gentle and preferable to more severe conditions which may cause rearrangement of the starting product and may employ ecologically 'unfriendly' reagents.

The final section on marine products, begins with a review on the potential of Mediterranean organisms as a source of new drugs with examples drawn from the antimalarial, antibiotic, cytotoxic and anti-inflammatory areas. The structure elucidation of some brominated diterpenes from a red alga (*Laurencia obtusa*) is very thoroughly detailed by Mihopoulos et al., with some excellent NMR data on these compounds.

I am sure that this text will appeal to groups engaged in phytochemical and pharmacognosy research, although the price is high for the main audience, which I believe will be research students and postdoctoral fellows looking for a broad introduction to the natural product literature. I recommend that this very good compilation be an institutional library purchase.

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### Plant Resources of South-East Asia 12(3) Medicinal and Poisonous Plants 3

R.H.M.J. Lemmens, N. Bunyapraphatsara (Eds.); Backhuys Publishers, Leiden, 2003, 664 pages, ISBN 90-5782-125-7, €150

This is the third issue and final installment of the series of handbooks covering medicinal and poisonous plants from the South-East Asia countries. Volumes 12(1–3) are the result of a cooperative international program of the Prosea Foundation to document infor-