

which has been expanded and updated to show how rapidly this aspect of plant physiology is moving and its potential for the future complete the book.

This revised and updated textbook introduces the student encountering plant physiology for the first time to fundamental concepts of plant physiology. The Summary, Review questions, and Suggested readings at the end of each chapter help students develop a solid understanding of the material covered. The number of references is limited in order to avoid disrupting the narrative and interfering with the flow of ideas that is essential to developing an understanding of a subject.

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### Chitin and Chitinases

P. Jollès, R.A.A. Muzzarelli (Eds.); Birkhäuser, Basel, 1999, xi + 340 pages, ISBN 3-764-35815-7, DM 268.00

Chitin is the most abundant nitrogen bearing organic compound found in nature. It is an insoluble polymer consisting of 1,4 linked *N*-acetylglucosamine residues in the  $\beta$ -D-anomeric configuration, and is the most common constituent of insect exoskeletons, shells of crustaceans and fungal cell walls. *Chitin and Chitinases* is divided into three parts, with an initial short introductory presentation of these polysaccharides in the natural environment. The first part is devoted to chitin biosynthesis, both in vitro and in vivo, the structural organisation of chitin in vivo, and chitin synthases in yeasts and fungi. The role of chitin oligosaccharides in plant morphogenesis and the biochemical aspects of inhibitors of chitin synthase are covered, as are the chitin binding proteins.

Chitinases, which split the  $\beta$ -1,4 glycosidic bonds of chitin (similar to lysozymes), are discussed in the second part of the text. The biochemical, structural and evolutionary aspects concerning chitinases are covered in turn, along with chapters mentioning enzyme inhibitors and newly characterised mammalian chitinase-like proteins. Aspects concerning *N*-acetyl- $\beta$ -D-glucosaminidases, enzymes releasing *N*-acetylglucosamine monomers from chitin, are also discussed in relation with their growing medical importance.

Finally, the third part is devoted to chitosan; a family of

deacetylated chitins, which are used more and more frequently in the agriculture, food, cosmetic and pharmaceutical industries. It is an important chitin derivative, which occurs in the composition of threads, fibres, films, gels, microspheres and liposomes. Some exciting applications are mentioned, which emphasise that applications of chitosan, based on its biological significance, often depend on its biodegradability.

*Chitin and Chitinases* presents some of the most recent and sophisticated chitin-related advances in the life sciences. It is the work of over 50 contributors, with each chapter consisting of an article, which contains extensive referencing. Overall, this book provides a stimulating background for further productive research on chitin in the biochemical and biological fields.

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### Toxic Plants—Dangerous to Humans and Animals

J. Bruneton, Intercept, Lavoisier Publishing, 1999, 560 pages, ISBN 1-898-29862-9, £99.50

Respiratory allergy, allergic dermatitis, phytophotodermatitis, and thorn injury are plant problems as probable as ingestion. Every day physicians, pharmacists, and veterinarians deal with incidents and accidents caused by plants. They are mostly ill-prepared to manage such cases and sorely need reliable information on the subject. *Toxic Plants—Dangerous to Humans and Animals* fulfils this need. The scope of the book includes houseplants, the consequences of widespread enthusiasm for a return to nature, and the impact of plants on companion animals.

A brief Part 1 provides a useful statistical data on frequency and true consequences of accidents caused by plants. It lists the common causes of incidents and accidents induced by plants in humans, describes the risks, emphasises those inherent to herbal drugs, and discusses issues of plant identification and medical treatment, as well as the specifics of animal poisoning, particularly in pets. The inventory of the most significant clinical data are grouped in Part 2 which is a detailed discussion of the plant species most often at fault, including the