

Book Reviews

Biotechnology & Genetic Engineering Reviews; Vol. 16
S.E. Harding (Ed.); Intercept Ltd, 1999, xviii + 418 pages,
ISBN 1-898-29858-0, £95.00

Biotechnology & Genetic Engineering Reviews is a well-established hardcover review series with one new volume published each year. This new volume contains 17 original, major review articles covering important developments in industrial, agricultural and medical applications of biotechnology with particular emphasis on the genetic manipulation of the organisms concerned.

Now that the nutritional requirements of infants, adults and patients are becoming more clearly defined, biotechnology is moving to the forefront of lipid modification strategies. *Biotechnology & Genetic Engineering Reviews, Vol. 16* includes an overview of how biotechnology, in the form of lipase-catalysed reactions, biotransformations and genetic engineering of oilseeds, allows both nutritional and physical modification of fats and oils. This new volume also includes new or previously unreported data on xylans of industrial and biomedical importance along with biomedical and pharmaceutical applications of alginate, chitosan, biopolymer mucoadhesives, amorphous saccharides, polysialic acids, and the non-folding functions of the chaperonins. The rationale for undertaking genetic modifications of skin for clinical or investigative purposes and the assessment of the progress made are also reviewed.

Topics of interest such as transgenic tomato technology, genetic manipulation of starch biosynthesis, the functions of 4- α -glucanotransferases and their potential use in starch processing are featured. The volume also contains up-to-date descriptions on pullulan from agro-industrial wastes, microbial polysaccharide products, and plant–microbe interactions with focus on pectin structure and microbial pectin degrading systems. Recent advances in rapid sequencing technology for N- and O-linked and GPI anchor glycans are described with the underlying aim to view glycoproteins in their entirety and correlate the roles that sugars, proteins and anchors play in the structure and function of glycoproteins. Correlations are established between the chemical structure and conformational characteristics of polysaccharides and the properties of interfaces formed by them. Technical advances and applications on analytical ultracentrifuge technologies for the characterisation of biopolymer gels and microgels estimating the potential of this technology for the future is also featured.

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Introduction to Plant Physiology

W.G. Hopkins; 2nd ed., Wiley, New York, 1999, 528 pages,
ISBN 0-471-19281-3, £28.50

Plants germinate, grow, develop, mature, reproduce, and die. Plant physiology is the study of these processes. It is about how plants use the energy of the sun to assimilate carbon, and how they convert the carbon to the organic material of which they are made. It is about how plants obtain and distribute nutrients and water. It is about how they grow and develop, how they respond to the environment, how they react to stress, and how they reproduce. Plant physiology is about how plants function, how and why each plant behaves in its own peculiar.

Introduction to Plant Physiology, Second Edition blends modern molecular approaches with traditional physiological and biochemical methods and environmental physiology in order to understand how plants work. Topics such as water relations of plants and plant cells, the acquisition of inorganic nutrients, and the significance of roots and root-soil interactions are featured in Part 1. Part 2 covers energy transduction and carbon metabolism. The role of carotenoids has been expanded to take into account the contribution of the xanthophyll cycle to photoprotection. Plant development and its regulation is the focus of Part 3. The significance of the role of molecular genetic approaches to the study of hormone action, photoperiodism, and other aspects of development has been amplified. A new chapter “Molecules and Metabolism” discusses aspects of primary and secondary metabolites, terpenoids, glycosides, phenolics and alkaloids. Part 4 deals with “The physiology of plants under stress” which includes a new section on insects and disease stress. A relevant chapter on biotechnology,