

reviewed in Volume 2, together with information on their effect on nutritional quality.

Although, even in two volumes, it is only possible to give an overview of the current knowledge and technology, the contents of both books are well supplemented with up-to-date references for those requiring additional information.

These two volumes provide essential information for food technologists, engineers involved in development of food processing equipment, processors and shippers of fruit and vegetables, and to anybody interested in the nutritional content of the fresh and processed fruit and vegetables consumed as part of their diet.

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**Biomaterials: Novel Materials from Biological Sources.**

Edited by D. Byrom, MacMillan Press, Basingstoke, UK, 1991. viii + 365 pp. ISBN 0-333-51175-1. Price £50.00.

Biomaterials can be classified into two types: type 1, which can be defined as chemically derived polymeric materials utilized in a wide range of medical applications; and type 2, which may be described as polymeric materials produced by a direct biological process, e.g. fermentation, or manufactured by extraction from natural sources. This second type of biomaterial can be synthesised from renewable resources and is often biodegradable with a range of specific properties which cannot easily be reproduced in synthetic polymers. They are, therefore, of much commercial interest although manufacturing costs, compared with

synthetic products, are high, so limiting their application to specialized areas. It is this second category of biopolymers which are commercially important, or of commercial potential, which are discussed in 'Biomaterials: Novel Materials from Biological Sources'.

The book is divided into eight chapters, the first seven of which review the structure, physical properties, manufacture, directly and/or indirectly, and applications of a particular type of biopolymer; silkworm and spider silks, collagen, polyhydroxyalkanoates, microbial polysaccharides, microbial cellulose, hyaluronic acid and alginates which are currently of commercial importance. The final chapter reviews briefly miscellaneous biomaterials including: poly- $\beta$ -hydroxybutyrate, starch based plastics, polylactide and polyglycolide, polyglutamic acid, mollusc glue bioadhesive, chitin and chitosan and skin substitutes which have commercial potential either for direct use or after chemical modification to enhance their properties.

'Biomaterials: Novel Materials from Biological Sources' is a well written, readable book which clearly demonstrates the requirement for a multidisciplinary approach to the further exploitation of biopolymers. It contains a wealth of information and over 1,500 references for those who wish to further expand their knowledge in this field. It should be of value to both commercial and non-commercial organizations working in the field of biomaterial development or production, as it covers both scientific and commercial aspects of the subject.

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