

Book reviews

Inulin and Inulin-containing Crops — Studies in Plant Science Volume 3. A. Fuchs, Elsevier Science Publishers, 1993. xvi + 417 pp. Price Dfl.349.00/US\$199.50. ISBN 0-444-89369-5.

Inulin, a 2,1-linked D-fructan with a D-glucose terminal, is one of the major reserve carbohydrates in certain plants. In recent years, inulin and inulin-containing crops are drawing attention for scientific reasons and for their potential to be utilized in both food and non-food applications. The benefits of fructans in human diets are two-fold. First, the small proportion of glucose in the molecule makes it an alternative carbon source for diabetics. Secondly, it tends to reduce digestive problems such as constipation.

In chicory, Jerusalem artichoke and dahlia, inulin constitutes up to 72–80% of the dry weight. Chicory has a long history as a vegetable crop and has already been used as a commercial source of inulin in Belgium and The Netherlands. Jerusalem artichoke, with the availability of higher yielding cultivars, is attracting more attention. Comparatively, dahlia has not been studied so much. Apart from applications in food industry, inulin and inulin derivatives are also being applied in non-food industry, for instance as dicarboxy-inulin, to be used as a biodegradable composite, and as a raw material for the production of fine chemicals.

This book is mainly based on the papers and posters presented at the International Congress on Food and Non-Food Applications of 'Inulin and Inulin-containing Crops, held in Wageningen, The Netherlands'. It covers a broad range of disciplines, such as agronomy and processing; analysis, chemistry and non-food applications; biochemistry, microbiology and molecular biology; and food and medical applications. Although emphasis is put on inulin and inulin-containing crops, other fructan and fructan-containing plants, even microorganisms producing and/or degrading fructans are also dealt with. Though the format of papers presented is inconsistent, this book is an up-to-date source of information for those working in such diverse fields as agronomy and process technology, food science, medical science, chemistry and biology, as well as to industries involved in the research and development of carbohydrate-based novel chemicals.

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Oligosaccharides: Production, Properties, and Applications. T. Nakakuki, Gordon and Breach Science Publishers, Switzerland, 1993. xviii + 235 pp. Price \$167/£108/ECU139. ISBN 2-88124-890-X.

Oligosaccharides, usually simply defined as saccharides having a degree of polymerization of two to ten and sometimes greater, have some biological activities distinctly different from those of monosaccharides or polysaccharides. Some oligosaccharides can control the population of intestinal microflora. Some are sweet, albeit hardly digestible or indigestible. Cyclodextrins, round ring structure oligosaccharides, can stabilize highly volatile flavour component in food and form an extensive range of inclusive compounds. Therefore, oligosaccharides are in fact remarkable materials having unique properties with applications in the food, beverage, pharmaceutical, cosmetic, and agrochemical industries.

Japan has become one of the research centres of work on oligosaccharides, because Japanese are historically familiar with fermentation and both consumers and industries are interested in oligosaccharides in view of their applicability to improving health. Some oligosaccharides such as fructooligosaccharides and galactooligosaccharides have already been commercialized in Japan.

Oligosaccharides: Production, Properties and Applications is presented as one of the *Japanese Technology Reviews* series and aims to introduce to the world, in the English language, the results of Japanese research on commercially common oligosaccharides and their utilization. Therefore, the editor and all contributors are purposely Japanese. This book consists of 12 chapters respectively focusing on types of oligosaccharides such as maltooligosaccharides, cyclodextrins, fructooligosaccharides, anomalously linked oligosaccharides, galactooligosaccharide, isomaltulose, maltooligosylsucrose, xylooligosaccharides, chitooligosaccharide, xylsucrose, isomaltosucrose, lactosucrose, soybean oligosaccharides and neoagarooligosaccharides. Each chapter reviews production processes, enzymes, microorganisms, chemical and physical properties, and utilities related to oligosaccharides.

This book is recommended to all university scientific libraries and all enterprises that are practically involved in commercial oligosaccharides.

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