

product stability are discussed next. The subsequent chapters are devoted specifically to by-products: pulp wash, dried pulp, pellets, molasses, essential oils, essences, d-limonene, pectin, seed products, flavonoids and limonoids. The chapter on 'Peel fiber, cloud, and products' not only considers issues dealing with alternatives to processing citrus fruit residue into dried citrus pulp cattle feed, but also describes traditional and new processes for peel products for human food use. Because citrus processing waste and by-products streams are potential sources of substrates for manufacture of fermentation and bioconversion products, a chapter is devoted to this topic. The last chapter addresses nutritional and medical aspects of natural substances in citrus juices and by-products.

'Handbook of Citrus By-Products and Processing Technology' brings together all the scattered information on citrus by-products including data, research, and technological developments. It will be useful for industrial, government, and academic scientists, plant engineers, processors, quality control specialists, and students searching for descriptions of current industry technology.

Mercedes G. Garaita  
John F. Kennedy\*

ChembioTech Laboratories,  
The University of Birmingham Research Park,  
Vincent Drive,  
Birmingham B15 2SQ, UK  
E-mail address: jfkennedy@chemistry.bham.ac.uk

\* Corresponding author. Tel.: +44-121-414-7029; fax: +44-121-414-7030.

0144-8617/01/\$ - see front matter © 2001 Elsevier Science Ltd. All rights reserved.  
PII: S0144-8617(01)00241-7

### Gums and Stabilisers for the Food Industry 10

P.A. Williams, G.O. Phillips (Eds.); Royal Society of Chemistry, Cambridge, 2000, x + 470 pages, ISBN 0-85404-820-0 (£79.50)

*Gums and Stabilisers for the Food Industry 10* is the latest volume in a well-respected series, based on regular conferences held at The North East Wales Institute (NEWI), Wrexham, Wales, which have aimed to focus attention on and inspire new work in the field via the bringing together of scientists, producers and users to present their latest findings in the field.

This volume is divided into six broad-ranging sections, the first of which contains nine chapters on aspects of polysaccharide characterisation, with specific chapters in this section covering a variety of techniques for the characterisation of pectin, gum arabic, rice starch, and the structural features of some unusual polysaccharides. The second section focuses upon polysaccharide gelation, with selected chapters covering biopolymer gelation, and the rheological characteristics of gellan gum, carageenan and pectin gels, hydroxypropylated and cross-linked potato starch, and the gelling mechanisms of non-starch polysaccharides from wheat bran. The third section is composed of eight chapters, which cover the physical characteristics of a number of mixed biopolymer systems, such as starch/carrageenan mixtures,  $\kappa$ -carrageenan and  $\beta$ -lactoglobulin, casein micelles and *exo*-polysaccharides, micellar casein/ $\kappa$ -carrageenan mixed systems,  $\kappa$ -carrageenan gelation in milk,  $\kappa$ -carrageenan and locust bean gum, and deacetylated xanthan with a high galactose galactomannan.

The fourth section discusses the behaviour of polysaccharides in a range of high solid systems, with specific chapters detailing the effects (rheology, gelation, etc.) of low water and high sugar environments on sago starch, amylose and amylopectin gels, gellan gum gels, and milk protein. The penultimate section contains six chapters on proteins and emulsions, covering recent advances in protein interactions, surfactant–protein interactions, depletion-flocculated polydisperse emulsions, lupin protein emulsions, whey protein gelation, and rennet casein. The final section details recent developments and future trends, including commercial requirements and interests, gelatin substitution, guar speciality products, and topical issues such as market trends, and genetic modification of polysaccharides.

In conclusion, this volume is a valuable reference for researchers, both academics and industrialists, with interests in the use of gums and stabilisers in food science and technology, and is therefore highly recommended.

John F. Kennedy\*  
Charles J. Knill  
ChembioTech Laboratories,  
University of Birmingham Research Park,  
Vincent Drive,  
Birmingham B15 2TT, UK  
E-mail address: jfkennedy@chemistry.bham.ac.uk

\* Corresponding author. Tel.: +44-121-414-7029; fax: +44-121-414-7030.

0144-8617/01/\$ - see front matter © 2001 Elsevier Science Ltd. All rights reserved.  
PII: S0144-8617(01)00253-3