



## Book reviews

**Sweeteners: Discovery, Molecular Design and Chemoreception.** D. Walters, F. T. Orthoefer and G. E. DuBois, American Chemical Society, Washington, DC., 1991. x + 333 pp price \$79.95, ISBN 0-8412-1903-6.

People seem to want more and more low-calorie palatable products, motivated usually by preoccupations with health and/or fitness. Whatever the reason, the answer to their quest can be a natural or synthetic sweetener — which are available in the market in an amazing variety of options.

In this sense 'Sweeteners: Discovery, Molecular Design and Chemoreception' is a complete and easily read volume, adequately entitled. The book is divided into three main sections. The first covers sweetener discovery and structure–taste studies, and contains up-to-date information on new sweet compounds from natural and synthetic sources (terpenoids, stereodial saponins, suosan, sucrose, and guanidine derivatives, etc.). It also embraces topics on chemical synthesis, biochemical and genetic engineering of sweet peptides, and proteins like monellin, thaumatin, alitame, amongst others.

Theoretical and practical aspects of modelling of sweeteners and sweet-tasting receptors are dealt with in the second section. Stereoisomerism, structure–activity relationships and electrostatic recognition patterns are all discussed on a broad basis.

Mechanisms of sweet taste perception come in the third section, which focuses upon aspects of cellular response to sweetness, at the molecular and biological levels. Several models are presented based on electrophysiological, pharmacological and morphological investigations involving a wide range of compounds (alitame, aspartame, fructooligosaccharides, sucralose, maltitol, and so on). The book finishes with a discussion of the future of synthetic sweeteners. Since it can be assessed that the world market in this area is on its way up, this should be a stimulus for more research for new compounds which can improve taste, flavour, odour, appearance and health.

'Sweeteners' is therefore recommended to all those involved with food and organic chemistry, or with pharmaceutical and agricultural sciences.

**John F. Kennedy  
Haroldo C. B. Paula**

**Food Polymers, Gels and Colloids.** Edited by Eric Dickinson, Royal Society of Chemistry, Cambridge, 1991. xi + 575 pp. price £69.50, ISBN 085186-657-3.

Food polymers, gels and colloids can be produced using a protein, polysaccharide or both types of macromolecule as starter. The term 'food colloids' covers numerous materials of a disperse phase, the constituent(s) of which may exist in various states — gas, liquid, solution, crystal, glass, gel, liquid crystal, microemulsion and so on. In recent years there have been significant advances in theories of interaction of polymers because the way which proteins and polysaccharides can interact affects the behaviour of such colloidal systems as well as the interaction of the macromolecules with polyelectrolytes which can stabilize or destabilize the colloid.

Polysaccharide gels can be formed by heating and cooling, pH adjustment or specific ion addition and are characterised by their fine texture and transparency. Protein gels are characterised by a higher polymer concentration and are formed almost exclusively by heat denaturation.

This book records the proceedings of the International Symposium organized by the Food Chemistry Group of the Royal Society of Chemistry, at Norwich, UK. It contains 36 separate contributions in the form of short research papers and 21 poster presentations. It provides the latest information about stability, structure, texture and rheology of food colloids. It also includes theories and experimental data about interfaces between macromolecules and basic principles of physicochemistry of colloid systems.

The book can be of particular benefit to researchers, technologists and lecturers involved with various aspects of polymers, gels and colloids.

**John F. Kennedy  
Regina C. M. Paula**

**High Performance Liquid Chromatography, in Enzymatic Analysis.** Edward F. Rossomando, John Wiley & Sons, New York, 1987. xv + 253 pp, price £36.70, ISBN 0-471-87959-2.

Although there is an abundance of texts devoted to the subject of chromatography, few are of immediate use to

technical and specialized staff. This volume is clearly aimed at the practising chromatographer who wants to achieve a good separation on a short chromatogram and not spend months trying to do it. This readership will appreciate the experience and expertise which 'elutes' from the pages.

After two initial chapters dealing with basic concepts of enzyme assays and high performance liquid chromatography (HPLC), the author presents the so-called strategies for designing systems for enzymatic activity assays from tissues, body fluids and single cells. However, most emphasis is placed on surveys of assays

by HPLC which contain well explained and detailed information on assays for proteinases, carbohydrate enzymes ( $\beta$ -D-galactosidase,  $\alpha$ -amylase, neuraminidase) and enzymes involved in the metabolism of amino acids, steroids, purines, sulfur, etc. Without doubt this book should be present in the libraries of all serious researchers in the areas of chemical, biochemical, technological, medical and pharmaceutical sciences.

**Haroldo C. B. Paula**  
**John F. Kennedy**