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Book Reviews

Sweeteners: Nutritive
by R.J. Alexander; St. Paul: Eagan Press, 1998, vi + 116 pages, ISBN 0-913250-95-3, $59.00

Sweeteners play an important role in the production of many food industry products. Nutritive sweeteners are in general carbohydrate-based, unlike the widely utilised synthetic sweeteners such as aspartame, acesulfame, saccharin and cyclamate. The opening chapter in this volume details the chemistry of carbohydrate-based sweeteners and discusses carbohydrate nomenclature before moving on to cover reactions of carbohydrate-based sweeteners, e.g. hydrolysis and inversion, isomerisation, reduction, oxidation, and thermal degradation.

The next chapter covers sweetness as a sensory property and discusses the definition of sweetness with respect to taste profile, taste spectra, perceived sweetness and relative sweetness. The link between chemical structure and sweetness is also covered in this chapter. There are many different types of commercially available sweeteners, and it is important to understand what these types are in order to select the most appropriate sweetener for a particular food system. The third chapter is therefore devoted to production processes and descriptions of major carbohydrate-based sweeteners, including those based upon sucrose, starch, glucose and fructose. This chapter also includes information on honey, lactose, maple syrup, maple sugar and fruit-derived sweeteners. Analytical tests for sweeteners are covered in the fourth chapter, which is split into three subsections, namely physical tests, chemical tests and microbiological tests. Measurement of such parameters is important with respect to ensuring a safe, consistent, high quality product and for the assessment of changes during storage and transportation. This leads nicely into the next chapter, which focuses upon the chemical and functional properties of carbohydrate-based sweeteners that help determine how it is used to produce the desired effects in food systems.

The next three chapters are concerned with application areas, namely bakery and other grain-based products, confections, and other applications. Carbohydrate-based sweeteners are present in hard and soft wheat products, breakfast cereals and granola products. Frostings, glazes, icings, and fillings are also covered in this chapter since they are often integral components of many grain-based products. Sucrose is the most abundantly utilised sweetener in confections, however, other sweeteners can be used to aid in the manipulation of such characteristics as texture, graininess, and sweetness. Processing considerations, chocolate and compound coatings, hard candies, caramels and other chewy candies, fudge, fondants and cremes, and aerated candies are discussed. Other applications detailed in this volume include fruit and vegetable preservation (jams, jellies, preserves, canned fruits and vegetables), beverages (carbonated and non-carbonated, powdered drink mixes, and alcoholic beverages), and dairy-based foods (ice cream, frozen desserts, and yoghurt), and soups and gravies. The final chapter details special topics such as sweetener selection in product development, dental caries, diabetes, and regulatory status and nutritional labelling.

'Sweeteners: Nutritive' is part of the Eagan Press Handbook series, which was developed as a series of practical guides serving the interests of the food industry. The series aims to offer a practical approach to understanding the basics of food ingredients, applications, and processes. Presented contents aim to bridge the gap between highly specialised information presented in the scientific literature and the product-specific information available from suppliers. This volume is presented in a user-friendly format with definitions of terms, examples, illustrations, and trouble-shooting tips included throughout. There is a comprehensive set of appendices detailing the characteristics of selected sugars and carbohydrate-based products, and providing detailed information on sugar solutions. This volume is therefore recommended to individuals involved in product development, production, testing, ingredient purchasing, engineering, and marketing aspects within the food industry.

Charles J. Knill
John F. Kennedy
Birmingham Carbohydrate & Protein Technology Group, School of Chemistry, The University of Birmingham, Birmingham B15 2TT, UK
E-mail address: jfkennedy@chemistry.bham.ac.uk

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Conformation of Carbohydrates
V.S.R. Rao, P.K. Qasba, P.V. Balaji, R. Chandrasekaran; Harwood Academic Publishers, 1998, xiv + 359 pages, ISBN 90 5702 315 6, Code VUV, £41.00