V. Yuryev, P. Tomasik, E. Bertoft (Eds.), Starch: Achievements in Understanding of Structure and Functionality, Nova Science Publishers, New York, NY, USA, 2007 (ix + 315 pp., $145.00, ISBN 1-60021-227-1)

Starch, an important plant energy reserve, is composed of two glucan polymers, namely amylose and amylopectin, synthesised in the form of microscopic granules in the tissues of many plant species. Due to their compact structure, starch granules are insoluble in water at ambient temperature. Granule morphology and amylose:amylopectin ratio generally varies according to the botanical source. Amylose is a linear polymer of (1 → 4)-linked-α-D-glucopyranosyl (α-D-Glc*p*) residues, whereas amylopectin also has (1 → 4)-linked α-D-Glc*p* but also has (1 → 6)-linked branch points every 24–30 glucose residues. Starch occurs in seeds, roots, tubers, fruits and stems of plants, and is a primary dietary energy source for animals and man. '*Starch: Achievements in Understanding of Structure and Functionality*' contains selected conference presentations (16 Chapters) covering theoretical and applicative aspects of starch chemistry and technology presented at the XIII International Starch Convention, held in Moscow, Russia.

In spite of achievements in understanding of enzyme-catalysed reactions occurring during the biosynthesis of starch polysaccharides, the processes of assembly of starch granules and the resulting semi-crystalline structures are poorly known. Model presentations describing the structural organisation of starch granules, specifically the location of amylose in wheat and potato starch granules, are detailed in Chapter 1; the chain-length distribution profiles of endosperm starch from *Triticum–Aegilops* species in Chapter 2, and the physicochemical and structural characteristics of endosperm starches of rice cultivars bred in Japan in Chapter 3. Amylopectin contains both short and long chains, which form interconnected clusters, and has a chemical structure similar to glycogen, however glycogen is much more highly branched. The structure of the limit dextrins obtained from amylopectin and glycogen are compared and contrasted (Chapter 4). Polysaccharide–polysaccharide hydrocolloid interactions are discussed in Chapter 5. The complexation (trapping and retention) of aroma compound ligands with amylose, to assess interactions between a Viennese pastry aroma and a food matrix (sponge cake) are detailed in Chapter 6, whilst Chapter 7 focuses on the encapsulation of lipids in starch molecules using microwave heating.

The effects of linearly polarised visible light on the structural arrangement of sago starch and its physicochemical properties are detailed in Chapter 8. Increasing interest in environmentally-benign polymers has led to the development of a range of thermoplastic starches (TPS), obtained by amorphisation and plasticisation of native starch. The hydrophilicity of such polymers needs to be reduced for certain applications, and can be done so by the use of electron beam (EB) irradiation to graft lignin derivatives onto the TPS (Chapter 9). The effect of high pressure, time of treatment, and polysaccharide composition (different amylose contents) on the physicochemical properties of starches and their mixtures are also presented (Chapter 10).

The structure and properties of type III resistant starches in gels and bread produced from high-amylose wheat flour (from Winter Bulava wheat grown in central Russia) are covered in Chapter 11. This is of particular interest for type II diabetes mellitus sufferers as it can help with reduction of glycaemic loading, compared with normal bread consumption. The thermo-mechanical behaviour of a crumb during such processes as chilling and freezing is presented in Chapter 12, whilst the following Chapter (13) details the effects of parboiling on the properties of rice. The final three Chapters (14–16) cover complexes of single-wall carbon nanotubes with dextrans and agarose, interactions of cereal starches with selected polysaccharide hydrocolloids, and the application of hydrocolloids and oat hydrolysate in mayonnaise production. The latter chapter details the use of oat hydrolysate as a potential fat replacer.

Overall, this authoritative volume provides a wealth of detailed information on the structure of starch granules and the effect of structure and structural changes on the functional properties of starch, with respect to specific highlighted applications. Some collection of the chapters into similar topic areas (presumably along the lines of specific sessions within the conference) would have assisted the reader to obtain information from specific subject areas.

John F. Kennedy*
Agnieszka Szymańska
Chembiotech Laboratories,
Institute of Research & Development,
University of Birmingham Research Park,
97 Vincent Drive, Edgbaston,
Birmingham, B15 2SQ, UK

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* Corresponding author.
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H. Dodziuk (Ed.), Cyclodextrins and their complexes: Chemistry, analytical methods, applications, Wiley-VCH, Weinheim, Germany, 2006 (xvii+489 pp., €149.00, ISBN: 3-527-31280-3)

Cyclodextrins are naturally occurring homochiral macrocyclic oligosaccharides composed of 6–13 1 → 4-linked α-D-glucopyranosyl (α-D-Glc*p*) units. They possess annular structures whose wide and narrow hydrophilic ends are delineated by OH(2) and OH(3) secondary and OH(6) primary hydroxyl groups, respectively, whereas their hydrophobic annular interiors are lined with methyl and methylene groups and ether oxygens. The great interest in