



## News and Views

### INTERNATIONAL SYMPOSIUM ON CEREAL AND OTHER PLANT CARBOHYDRATES, KAGOSHIMA, JAPAN 7–9 AUGUST 1990

In July 1980, Professor B. A. Stone (Melbourne, Australia) organised a small and informal workshop on cereal carbohydrates during the week before the Xth International Carbohydrate Symposium was held in Sydney, Australia. This workshop was so successful that it became the first of a biannual series of scientific meetings devoted to cereal carbohydrates and related polysaccharides, which became satellite meetings to the main International Carbohydrate Symposia. The most recent meeting, the sixth in the series, was held in Kagoshima, Japan. An excellent scientific programme arranged by Professor S. Hizukuri and his colleagues, attracted some 250 participants, including 40 overseas visitors from 14 different countries.

The first day comprised 10 lectures on various aspects of the structure and properties of starch, and of the amylose and amylopectin components, together with four lectures on non-starch polysaccharides. In the first lecture, Professor H. Fuwa (Fukuyama, Japan) reviewed progress made in the structural analysis of amylopectin since the pioneering work of Professor Z. Nikuni in the 1960s. This forms the basis of much of our present knowledge, and starch chemistry as a whole is greatly indebted to our Japanese colleagues.

The second day began with a series of nine lectures on a range of enzymic topics covering not only starch degrading enzymes, but also cellulases, dextranase, levanase, fructotransferases and the immunological detection of carbohydrases. The next session consisted of four papers on polysaccharide metabolism, and in those dealing with  $\beta$ -glucanases and the regulation of starch metabolism, the contribution of molecular biological techniques to recent advances was very clear.

The Symposium was completed by a lecture on the biogenesis of glycogen and starch by Professor W. J. Whelan (Miami, USA), in which very recent work on the role of protein primers was described. This was an up-to-date account of a rapidly growing and complex area of biochemical research, where several novel features have been discovered. For example, in muscle tissue, there is a glucose-tyrosine

linkage between glycogen and the protein primer (glycogenin), a partial glucosylation of glycogenin by an unknown mechanism, followed by the autocatalytic glucosylation of maltosyl-glycogenin to give malto-octaosyl-glycogenin, with UDPG as the donor. This lecture concluded with a description of a self glucosylation protein system in sweetcorn which could be involved in phytylglycogen synthesis.

The scientific programme also included poster sessions which provided a wide range of new and significant results. Thirty-three posters were devoted to starch chemistry and biochemistry, and included a description of a single enzyme from *Bacillus circulans* showing both amylase and pullulanase activity (this will be a problem for the Enzyme Nomenclature Committee!) by Dr H. Taniguchi (Tokyo, Japan); 4 posters described progress with non-starch polysaccharides, 12 dealt with foods and nutrition and a further 9 with enzymes. Many of the poster abstracts covered two pages of typescript, so that collectively, more new information than usual was available. This included complete amino-acid sequences, and X-ray crystallographic structures of some enzymes as well as many tables of numerical data.

The overall impression of the meeting was the presence in Japan of numerous lively and active groups of cereal carbohydrate scientists. In the forefront of these, the Kagoshima group also provided a kind and thoughtful hospitality for the meeting as a whole, and for the overseas guests in particular.

**D. J. Manners**

#### XV<sup>TH</sup> INTERNATIONAL CARBOHYDRATE SYMPOSIUM, YOKOHAMA, JAPAN 12-17 AUGUST 1990

Some 700 participants, including 250 overseas visitors from 31 countries attended this excellent symposium: Europe and North America were well represented with 140 and 87 participants, respectively. The scientific programme comprised 11 plenary lectures and four simultaneous sessions of invited lectures dealing with: (A) Synthesis, (B) Biochemistry, (C) Analysis and (D) Biotechnology and Industry. There was also a full series of more than 400 posters grouped into the above four subjects.

The breadth of the carbohydrate knowledge discussed can be judged by the titles of the plenary lectures — Specific interaction between glycolipids as a basis for specific cell recognition, by S. Hakamori (USA); Carbohydrates as structural constituents of yeast cell wall and septum, by E. Cabib (USA); The use of FAB-MS for the study of oligosaccharides, by H. Egge (Germany); Topography of binding site of

animal lectins — Ligand's view, by Y. C. Lee (USA); New reactions and intermediates involving the anomeric center, by A. Vasella (Switzerland); Recent advances in glycosylation reactions, by P. Sinay (France); Structure and dynamics of carbohydrate residues on the surface of membranes as seen by  $^2\text{H}$  NMR, by I. C. P. Smith (Canada); Regulatory mechanisms involved in the biosynthesis of starch, by J. Preiss (USA); Glycosaminoglycan chains of proteoglycans: approaches to the study of their structure and function, by S. Suzuki (Japan); New strategies and methods for the synthesis of complex oligosaccharides, by K. C. Nicolaou, (USA), and Chemical structure, biosynthesis and genetic regulation of carbohydrate antigens: retrospect and prospect, by W. M. Watkins (UK).

The high scientific tone of the symposium was set by Dr H. Kammerling (Utrecht, The Netherlands) who received the 1990 Whistler Award for Carbohydrate Chemistry. His award lecture was entitled 'Playing with complex carbohydrate chains. A world of fascinating developments'. This reviewed the very substantial progress that has been made in the last two decades following the introduction of refined NMR spectroscopy and FAB-MS techniques for the structural analysis of a wide range of complex carbohydrates, particularly the glycan moieties of glycoproteins. These significant advances in methodology were continuing themes through many of the invited lectures and posters.

The final lecture by Professor Watkins emphasised the importance of molecular biology to modern carbohydrate biochemistry, and the role of carbohydrates as biological recognition molecules; both of these topics were also recurrent themes in the Symposium.

The overall organisation of the Symposium was excellent, and the provision of adequate time to view the large number of posters was much appreciated. Whilst it is perhaps invidious to mention one poster from the large number presented, the writer was particularly intrigued by the first *in vitro* synthesis of cellulose, using  $\beta$ -cellobiosyl fluoride as a substrate for a cellulase which was described by S. Kobayashi (Japan).

The high quality of the scientific programme was matched by the social programme, which was greatly enjoyed. The warmth of the Japanese hospitality was exceeded only by the outside temperature, which remained in the 95°F region for the whole glorious week. Certainly, the organisers of the XVIth International Carbohydrate Symposium, to be held in Paris, France, 5–10 July 1992, will be hard pressed to surpass this meeting.

**D. J. Manners**