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Editorial

Professor Walter Pilnik

This issue of *Carbohydrate Research* is devoted to Walter Pilnik. He was an internationally recognized authority on food science and technology and, in particular, he was the leading expert on pectic substances and their role in the processing of fruits, vegetables and other plant produce, as dietary fiber components and as ingredients for food products.

He started studying pectin as a PhD student at the Swiss Federal Institute of Technology, Zürich, where he received his PhD in 1946 for a thesis entitled “Streaming birefringence of pectins in aqueous solutions.” After working for 5 years as a Chief Chemist in the food industry he became Director of Research at the Central Citrus Products Research Laboratory, Rehovot, Israel. In 1955 he returned to Switzerland as Chief Chemist and later as Technical and Managing Director of Obipektin Ltd in Bishofszell. Here he had to deal with all aspects of the properties of apple pectin, from characterization of raw materials, extraction, purification, modification to modulate functional properties, sensorial properties, specifications and analysis, applications, legislation and regulations, and health aspects. He mastered them all.

In 1963 Walter Pilnik joined the faculty at Wageningen Agricultural University, where he served as Professor of Food Science and Head of the Department of Food Chemistry and Microbiology. He retired in 1988. In his education programmes Walter Pilnik favored the disciplinary approach. He had a special gift for extracting, from the enormous volume of knowledge on food products, the key processes of a chemical, enzymological or microbial nature. In this

spirit he familiarized his students with food products as complicated mixtures of compounds, which, depending on the conditions of storage and processing, may undergo various reactions affecting quality and nutritive value. His ideas about teaching food science drew worldwide attention, as judged from the endless flow of food scientists from abroad who visited with him for discussions on the development of research and education in food science.

In his research activities, Walter was an equally remarkable and gifted personality. He actively pursued research projects in a very broad field, often in close collaboration with colleagues from other disciplines at the university, with Food Research Institutes in the Netherlands and abroad, and with the multinational food industry. Research on pectin was a major theme in his research activities and he was particularly successful in studying the processing of fruit, vegetables and other plant produce (e.g., sugar beet, potatoes and tomatoes). His research efforts on structure–function relationships of pectic substances and other plant cell-wall polysaccharides have had a clear impact on fruit and vegetable technology and the use of pectin as a food ingredient. The unraveling of several mechanisms of cloud stability and the consistency of tomato pastes has greatly contributed to the quality of fruit juices and pastes. An even greater success was the identification of technological relevant enzyme activities in fruit processing, the various stages in plant cell wall degradation and the introduction of the enzymatic extraction processes for apple and other fruit juices. These studies are also a model for studies into new enzymatic processes, such as the

improvement of baking quality of cereals and brewing properties of malt, and the digestibility of fiber-rich animal feeds. Undoubtedly the key to success in all these projects lay in the expertise that Walter's group built up in the structural analysis of plant polysaccharides using enzymes as analytical tools together with other instrumental methods. His group demonstrated the heterogeneity of commercial pectin preparations, the presence of hairy and smooth regions in extracted pectins, the presence of feruloyl groups in pectins extracted from sugar beet and their potential use for oxidative cross-linking in collaboration with scientists at INRA-Nantes, the functional properties of amidated pectins and new approaches for their characterization. He has reported this work in many publications, book chapters and presentations at scientific meetings. One of his presentations was entitled "Pectin, a many splendored thing."

Walter's principle underlying all his research work was that it does not really matter what subject in food sciences one decides to work on, if only the job is done properly, which means that

one has to work at the molecular level. However, the inspiration has to come from an interest in product and process development. Indeed, in most of Walter's research work, basic knowledge has been acquired which has allowed the food industry to make rapid technological progress.

Walter Pilnik passed away January 19, 2007, in Wageningen, The Netherlands, at the age of 85.

We lose a good friend, colleague and one of Europe's great food chemists.

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