

NMR. Chapter 8 deals with the structure and analysis of food glycosides. The final chapter covers the recent attention now being devoted to dietary fibre and the analytical and nutritional understanding of the fate of carbohydrate during digestion, absorption and fermentation by gut microorganisms.

Analysis of Food Carbohydrate aims to describe the main areas of food carbohydrate analysis for scientists, technologists and analysts concerned with the food industry or research in food, nutrition or agriculture. Its intelligible contents and uncomplicated style indicate its value for students' use.

G. Lisinska

The Role of Fats in Human Nature. Edited by F. B. Padley and J. Podmore. Published jointly by VCH Verlagsgesellschaft, Federal Republic of Germany, and Ellis Horwood, Chichester, Great Britain, for the Society of Chemical Industry. 1985. Price: DM 98/US\$41.00.

This latest volume in the Ellis Horwood Series in Food Science and Technology contains fifteen chapters based on papers delivered at a symposium organized by the Society of Chemical Industry in 1984. The contents are timely because of the publication of the COMA report in that year which included a recommendation for reducing the overall fat level in the UK diet to 35% of total calorific intake. The rôle of fats in human nutrition continues to be a controversial subject and this collection of papers will go some way to help food chemists evaluate the evidence underlying this controversy.

The book opens with a summary by W. P. T. James of dietary trends in Britain this century. These indicate that there has been a substantial increase in fat intake when expressed on an energy basis, but that polyunsaturated fatty acid intake in absolute terms may also have risen over the last two decades. It is interesting that differences in energy intake derived from fat between the social classes are as evident now as they were at the turn of the century.

There follow a series of chapters which, though interesting and valuable individually, lose some of their impact through being inadequately arranged and edited. To illustrate the point, this review deals with the contributions in the order in which they appear.

The biosynthesis of fats and the absorption and metabolism of fats are

summarized in expert manner by M. I. Gurr and D. N. Brindley, respectively. By contrast, R. T. Holman provides a rather over-detailed account of the effects of the individual fatty acids found in partially hydrogenated vegetable oils on the metabolism of polyunsaturated fatty acids in rats. M. A. Crawford then describes the requirements in a number of species for linoleic (18:2, ω 6) and α -linolenic (18:3, ω 3) acids as the precursors for two of the families of 'essential' polyunsaturated fatty acids. It is not clear what relevance dolphins and zebras have to the title of this book, but the chapter ends with an interesting discussion of the meaning of 'essentiality' of fatty acids. It is unfortunate that some of the references are incomplete.

There follows a fascinating account, by A. G. Hassam, of evening primrose oil in nutrition and a wide range of diseases and the possible rôle of the γ -linolenic acid (18:3, ω 6) which characterizes its fatty acid composition. It seems that the American Indians, who used the plant and seeds for medicinal purposes, knew a thing or two; when brought to Europe it was soon dubbed the King's Cure. Even the aesthetic features of the plant have brought forth poetry, which has been set to music by Benjamin Britten. The contribution of T. A. B. Saunders is a critical account of the controversy surrounding the need for the partial replacement of other fats in the diet by modest amounts of marine oils which are enriched with the 20:5, ω 3 and 22:6, ω 3 derivatives of linoleic acid. The rôle of these particular polyunsaturated fatty acids in prostaglandin, thromboxane and prostacyclin formation, and hence in the regulation of blood platelet function and its possible effects on coronary heart disease, is illustrated by reference to Greenland Eskimos and Japanese fishermen. These consume large quantities of fish a day and seem relatively immune from this major 'killer disease'. The author comments, in passing, that there has been a marked decline in the UK in the popularity and consumption of fatty fish over the past century.

The recommendation by FAO/WHO in 1977 that a minimum intake of about 3 energy % as linoleic acid is needed to prevent essential fatty acid deficiency syndrome is re-evaluated by J. J. Gottenbos. He concludes that this should be about 10 energy % in view of its effects on general heart function and blood pressure, on coronary heart disease and arterial thrombosis, and on adult-onset diabetes. There was a 'scare' in the 1970s when pathological damage to heart tissue was reported in weanling rats fed rape seed or partially hydrogenated fish oils, which are rich in mono-unsaturated 20:1 acids. S. M. Barlow and J. F. Duthie evaluate the

subsequent extensive studies with humans and primates and conclude that these lesions have not been found even when there is a high dietary intake of these acids. The chapter by G. R. Thompson on the rôle of lipoproteins in transporting fat unfortunately overlaps that by Brindley, but also deals with the somewhat rare genetic defects which lead to pathological increases in these lipoproteins.

In case the reader at this stage starts taking massive daily doses of polyunsaturated fatty acids, A. S. Smith provides a warning of the possible harmful effects this might have in view of their potential cocarcinogenic and immunosuppressive effects. An isolated chapter by G. Billek on the formation of 'polar material' in heated fats and oils appears at this point, followed by a thought-provoking paper by M. J. Gibney on the rôle of food and nutritional scientists in the formulation (or non-formulation!) of dietary guidelines to reduce coronary heart disease. This could be linked with the excellent summary by R. V. Crawford of patterns of consumption and production world-wide of refined fats and his plea to understand the constraints placed on food manufacturers in an extremely competitive situation. The final chapter, by J. W. Marr, takes yet another look at the basis for recommendations for dietary change and the practical problems of convincing the public that scientists have got it right this time.

This is an important book which contains a great deal of valuable information on a topic which is of major importance to readers of *Food Chemistry*. It would have benefited enormously by strict editorial control in reassembling conference material into a coherent book.

R. R. Dils

Sensory Evaluation of Food, Theory and Practice. By Gisela Jellinek. Ellis Horwood, Chichester, 1985. 429 pp. Price: Hardcover, US\$41.50.

This book is one of the Ellis Horwood Series in Food Science and Technology and is an English version of the original German book. The quality of translation is very good, ensuring minimal loss of meaning and accuracy. However, a major disadvantage is that the suggested suppliers of materials are in Germany.

I found the title misleading as the term 'sensory evaluation' does not appear in the text, and the major emphasis is on 'practice' not 'theory'. A