British Journal of Nutrition (2007), **97**, 807

Book Review

A. Voilley and P. Etiévant (editors), *Flavour in Food*, CRC Press LLC, Boca Raton FL, USA and Woodhead Publishing Ltd, Cambridge, UK, 2006, £135 (hardback), pp. 436, ISBN 1 85 573 960 7.

Flavour in Food is an interesting (if slightly eclectic) compilation of chapters covering far broader aspects of flavour science than the title initially suggests. This book is unique in that the emphasis is on the physicochemical, physiological and even psychological aspects of flavour in food, rather than the more traditional flavour chemistry approach, to the extent that those readers expecting to find information on the chemical nature or origins of flavour molecules need to consult other standard texts. That said, the book presents convincing evidence that flavour science is expanding far beyond the realms of organic chemistry and is developing into a truly multidisciplinary subject.

The book has been divided into three parts and unfortunately begins with the least coherent. The first part, entitled 'Characterisation of Aroma Compounds', gives the reader very little information on the nature of the compounds responsible for the flavour in food and only touches on the subject of chemical analysis. Ironically, the first chapter in this section deals with the molecular mechanisms involved in the human perception of taste and the identification of families of genes putatively responsible for sweet and bitter tastes. This is followed by a chapter highlighting the multimodal nature of human perception, looking at the neurobiology of all aspects of flavour perception (aroma, taste and those compounds that stimulate the trigeminal nerve). The next two chapters are critical overviews of current techniques used for sensory analysis and instrumental analysis – well referenced starting points for those wishing to embark on either type of analysis. This section ends with a very useful chapter on how to link sensory and instrumental data, using a case study on tomato flavour to compare statistical techniques.

Part II, 'Flavour Retention and Release from the Food Matrix', is well structured and presents a rigorous scientific account of recent research carried out in the areas of flavour retention and release. It starts with a fundamental review of the thermodynamic and kinetic parameters that control mass transfer and diffusion and moves on to an in-depth discussion of the chemistry behind flavour–food interactions. One chapter is dedicated to each component of the food matrix (lipids, emulsions, proteins and carbohydrates) and the final two chapters in this section look at modelling aroma release. Whilst chapter 11 is concerned with modelling flavour release from the food matrix, chapter 12 discusses the innovative work carried out *in vivo* and the development of the artificial throat.

Part III, 'Influences on Flavour Perception', addresses the human experience of flavour release. It starts with an excellent chapter on flavour delivery *in vivo*, considering, for example, aroma delivery to the airways and the role of swallowing and breathing in flavour perception. There are informative chapters on the role of odour–taste and aroma–texture interactions in flavour perception. Of interest to the non-flavour scientist is the chapter on the learning of human flavour preferences. This fascinating essay is widely researched, summarising a wealth of scientific literature encompassing neuroscience, philosophy, paediatrics, gerontology, psychopharmacology and cookery. This is a topical chapter in view of the increased awareness of the role of food in health and the drive to improve nutritional status, particularly of children. It very much enters into the realm of psychology, describing how food choice in later life is linked to early exposure to differently flavoured foods, but also emphasises how the relationship between carer and child plays a crucial role in food selection. On a lighter note, the author of this chapter even alludes to his own experience in developing a liking for raw fish, pickled jellyfish and caterpillar tortillas through repeated exposure! This chapter also comments on the shift in eating patterns driven by health, fashion and status. This and the final chapter on olfaction in infants are probably the most relevant to those in the field of nutrition.

In conclusion, the use of the all-encompassing title 'Flavour in Food' is potentially misleading to prospective readers who might expect a comprehensive review of all aspects of flavour in food. Nevertheless, this volume gives an informative account of current research at the interface of flavour science and bioscience and is highly recommended. All chapters are well referenced and many also contain other sources of information, such as websites, which are an invaluable source of information not readily available elsewhere (e.g. patents, 'Generally Recognised As Safe' lists). Whilst it is clear that this volume will be of interest to those involved in flavour science at all levels, it should not be overlooked by those in related fields, since the very aim of the book is to demonstrate that modern flavour science is the result of recent collaborations between flavour scientists and those dealing with the human aspect of flavour perception. Whilst it is primarily a volume to be found on the bookshelf of the specialist, some chapters have a far wider appeal and it should be available in libraries for those readers involved at the boundaries of food science and the biological and psychology of flavour perception.

Dr Jane K. Parker
Department of Food Biosciences
University of Reading
Whiteknights
Reading RG6 6AP
UK
Email J.K.Parker@reading.ac.uk
DOI: 10.1017/S0007114507432998