

Book Review

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Perspectives in flavor and fragrance research

Wiley-VCH, 2005,
242 pp; price £90.00, €135.00 (hardcover).
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Eighteen of the papers presented at the 2004 'Flavours and Fragrance' meeting make up the content of this book. It is designed for R&D scientists or as a general advanced review text. The content shows how research in the flavour and fragrance industry is developing from its traditional organic chemistry base through detailed analysis of natural systems to an understanding of odour perception. The presentation is excellent, with figures and structures drawn to a common format and some good use of colour figures.

The first two chapters are reviews covering human olfaction and the scents of endangered plants. The former subject is highly topical, given the award of the Nobel Prize to Buck and Axel for their pioneering work, and presents a good account of the systems that sense odours and some new work in determining the specificity of the receptors. Interestingly, it shows that human sperm cells use the same mechanisms, and react to the

same odorants, as the olfactory epithelium, which may suggest a link between fragrances and sexual activity. The second review chapter describes work by Givaudan to analyse scents from rare plant sources in the field using an ingenious array of equipment. This theme of natural materials is expanded in the next chapters on honey (including sampling from bees), on active compounds in pepper oils and on new odour active compounds in angelica.

The next section of the book is about the stereochemistry of odorants. Biological pathways leading to single stereoisomers are described, the potential of enantiomers to be sensed as different perceived odours is then discussed, followed by methods for analysing these compounds. Musk odorants are then the subject for investigation using classical synthetic approaches, as well as structure–function-type analyses to probe the features necessary for activation of olfactory receptors.

The book closes with chapters on the volatile compounds from shrimps, a fascinating chapter on furans (a chemical class of odorants we tend to overlook) and information on the odoriferous compounds in human sweat which identifies some new compounds.

The diversity of the book could be considered both a strength and a weakness.

One could argue that the division of science into increasingly small, esoteric subject areas has prevented communication across disciplines, a problem that is now being addressed by the creation of multidisciplinary teams to study systems (or integrated) biology. By presenting a broad range of topics, this book (and the conference) has shown how the different disciplines need to come together to understand odour perception. On the other hand, such a broad approach can lead to a book without a strong theme. My opinion is that the book content will satisfy the specialists (e.g. the flavour chemists) and the generalists. Some headings in the index and in the text to clarify the book organization would have been helpful and would have demonstrated the distinct, yet connected, themes. The book will serve both as a statement of current progress and as a reference source, and I am sure I will revisit some of the chapters on a frequent basis.

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