



Book Reviews

Similarity Models in Organic Chemistry, Biochemistry and Related Fields. Studies in Organic Chemistry 42. Edited by R. I. Zalewski, T. M. Krygowski and John Shorter. Elsevier Science Publishers, Amsterdam, 1991. vi + 688 pp. ISBN 0-444-88161-1. Price: US\$240.00.

It's important to explain at the outset that this book should, despite a somewhat misleading title, be seen as a successor to two useful predecessors, *Advances in Linear Free Energy Relationships* (1972) and *Correlation Analysis in Chemistry—Recent Advances* (1978). Thus it deals for the most part with recent advances in organic chemistry (CAOC).

The eleven camera-ready chapters written by 13 different contributors, including the editors, adopt a variety of different types and formats as almost always in a book of this type. The first chapter, 'Similarity models: statistical tools and problems in using them' (T. M. Krygowski and K. Wozniak), is mathematical in content and much of the material can be found in standard statistical texts. The authors, however, do use chemical examples and this is its main merit. Chapter two, 'Substituent effect parameters and models applied in organic chemistry' (J. Shorter), is a good update and the various parameters and equations used by the author draw on the very latest literature data. In chapter three, 'The transmission of substituent effects in organic systems' (M. Godfrey), the author considers the mode of transmission of substituent effects and looks at some contemporary models. In chapter four 'Properties of hydrogen as a substituent in planar organic pi-systems' (H. Häfelinger) are considered. Chapter five, 'Similarity models in IR and UV spectroscopy' (C. Lawrence), presents some interesting IR frequency shifts for various IR active compounds in different solvents and the second part, which will be more familiar to many readers, deals with the well known solvatochromic scales (E_T , π^* , α , β). The following chapter, 'Description of properties of binary solvent mixtures' (H. Langhals), also deals with empirical solvent polarity scales and explores the effect of molar concentration (C_p) of a solvent in a binary mixture on the E_T value.

'Additivity rules and correlation methods in gas chromatography' (J. Oszczapowicz), are considered in chapter seven and chapter eight (J. S. Jaworski and M.

K. Kalinowski) looks at 'Similarity models in organic electrochemistry'.

In chapter nine (R. I. Zalewski), 'Principal component analysis as a tool in organic chemistry and food chemistry' is considered. Following a good introduction to PCA the author illustrates the use of the technique with many examples for structure-activity studies, spectroscopy and food chemistry. The first 20 pages of the chapter introduce PCA and the remaining 64 deal with application. There is a detailed review covering application especially in the area of foods (> 250 references)

Chapter ten, 'Quantitative structure-activity relationships' (D. J. Livingstone), has the largest reference list in the book with 513 references. It will be of considerable interest to those interested in QSARs and deals with the various types of parameters used, computational chemistry and data analysis methods. In the final chapter, 'The quantitative description of steric effects' (M. Charton), there are sections in the nature of steric effects, steric parameters, multiparametric methods of modelling steric effects, estimation methods for steric parameters and the electrical effects of alkyl groups'.

Mistakes and ambiguities seem to be minimal throughout the book. At the price there are likely to be few individual buyers but workers in the areas covered will want to consult it and therefore it is essential for librarians.

W. J. Spillane

Sweeteners, Discovery, Molecular Design and Chemo-reception. ACS Symp. Series 450. Edited by D. E. Walters, F. T. Orthoefer and G. E. DuBois. Amer. Chem. Soc., Washington DC, 1991. x + 333 pp. ISBN 0-8412-1903-6. Price US \$79.95.

This book gives the proceedings of a symposium sponsored by the ACS's Division of Agriculture and Food Chemistry at the 199th National Meeting of the American Chemical Society at Boston. The meeting was held in late April 1990 and remarkably this volume appeared in the UK well within a year.

Some changes from the original presentations at the Symposium as regards title, arrangement of topics, etc., are noticeable but this is to be expected since the authors appear to have had a full four months period in which to prepare their chapters.

After an opening section by Eric Walters, on the rational discovery of sweeteners, the rest of the book is