

BOOK REVIEWS

The Systematic Identification of Flavonoids: T. J. MABRY, K. R. MARKHAM and M. B. THOMAS. Springer-Verlag, Berlin, 1970. 354 pp. + 325 figures. Price 98 DM or \$27.

THIS very attractively produced volume has an unusual format (20×28 cm), but this is because it is essentially a compilation of u.v. and NMR spectral data on this important and widespread group of plant pigments. The two spectral sections, however, are preceded by three short chapters in which techniques are outlined for the isolation, purification and preliminary identification of these compounds. A valuable feature of these chapters is the wealth of practical procedures included. There follows then a section on u.v. spectroscopy which contains a useful collection of spectral curves for 103 flavonoids; not only are neutral spectra given, but also spectra in the presence of alkali and inorganic salts. The final section, which is the only really novel feature of this book, is devoted to the NMR spectroscopy of flavonoids and is illustrated by no less than 128 NMR spectra. Again, practical details are given, the authors clearly favouring the measurement of the spectra of the trimethylsilyl ethers; spectral interpretation is also discussed at some length. In all, this is a splendid illustration showing what a powerful tool NMR spectroscopy is for elucidating novel flavonoid structures.

As a complete guide to the identification of flavonoids, this book, to my mind, is lacking in certain respects. Less than justice is done, for example, to the versatility of chromatographic methods for separating and identifying these pigments and for deducing structures. It is true that R_f s are quoted for all the compounds studied spectrally, but only in two solvents. No TLC R_f data are given at all, which is a pity in view of the elegance of this technique. Again, not a word is mentioned of i.r. spectroscopy or mass spectrometry. While it is true that infra-red data have only limited value in this field, mass spectral fragmentation patterns are playing an increasingly important part in the analysis of the more complex flavonoid molecules. Since mass spectrometry requires very much less material than NMR, it is, I believe, a useful complementary procedure, if only for providing an exact molecular formula for a new or rare substance.

In spite of these minor strictures, this book will undoubtedly be of great value to all those working with flavonoids. More important, this book is a pioneering venture in terms of providing a satisfactory key and practical guide to the identification of a particular class of plant constituents. All phytochemists should welcome it as such and hope that experts in other fields of natural products will take note and employ it as a model for similar guides to the carotenoids, triterpenoids and so on. In view of the increasing complexity of phytochemical research, we sorely need such a series of texts for laboratory use.

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