

BOOK REVIEWS

The Chemical Constituents of Citrus Fruits, Supplement 2 to Advances in Food Research: J. F. KEFFORD and B. V. CHANDLER, Academic Press, London and New York, 1970. 246 pp. \$11.50.

THIS is an unusual volume in terms of the evident quality of scholarship and scope of treatment of a subject that otherwise would have interested only those who produce and process citrus fruits. There is much for the general reader of science as well as for the horticulturist, the biochemist, the plant physiologist and the food scientist. The chemist concerned with natural products is seldom treated to such a complete array of background information. For example, the limonoids (limonin is the bitter principle of Navel oranges) are discussed from the standpoints of structure, biogenetic relationships and of biodegradation with molecular structural analogies drawn from other sections of the botanical family, the Rutaceae, to which citrus belong. There is afforded a fascinating insight into possibilities for further biochemical research, although, as the authors note, efficient biosynthesizing systems remain to be developed for use by the experimentalist.

The treatment of flavonoids is also exemplary. Identities and structures of all known citrus flavonoids are provided; the isomeric rhamnoglucosides (one bitter, the other tasteless) are employed to illustrate relationships between organoleptic properties and molecular structure. In addition, methods of isolation and analysis are evaluated; the components of different citrus fruits representing different species and types are listed; and plant physiological and biochemical aspects of flavonoid production are detailed. In another section, the casual reader may receive something of a start when he reads that his morning glass of orange juice contains small amounts of natural sympathomimetic and vasopressor amines, synephrine and octopamine, relatives of ephedrine.

Matters of interest to the horticulturist who grows these plants of such unusual ecological preferences, to the food technologist who processes the fruits and to the product development chemist are abundant. In each chapter the authors have tabulated chemical constituents for the sake of clear presentation. The chapters are arranged in logical groups and sequences, and the material in the text is fully documented. The authors state that the period 1958–1967 has been reviewed in full and that about 1000 references have been included in the bibliography.

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The Botany and Chemistry of Cannabis: edited by C. R. B. JOYCE and S. H. CURRY, J. & A. Churchill, London, 1970. 217 pp. £3.00.

THIS book, which contains the proceedings of a conference held at the CIBA foundation in April 1969, begins with some splendid stereoscan pictures of cannabis leaf hairs from