

BOOK REVIEWS

The Chemistry and Biochemistry of Plant Proteins: Edited by J. B. HARBORNE and C. F. VAN SUMERE. Academic Press, London, 1975. Pages xiii plus 326. Price: £11.60

This volume contains expanded versions of the papers presented at a Symposium of the Phytochemical Society held in Ghent in September 1973. While it cannot be denied that the coverage is reasonably comprehensive, I found the book rather pedestrian in parts. For example, although it is mentioned in the Introduction that "there are different (protein) synthesizing systems in the cytoplasm, chloroplast and mitochondria" and three chapters are indeed devoted to these aspects (by O. Ciferri on Protein Synthesis, by C. J. Leaver on Biogenesis of Plant Mitochondria, and by B. Parthier and his colleagues on the Biogenesis of Chloroplasts), not one contains a reference to the exciting evolutionary implications of the phenomena put forward by Margulis, Pickett-Heaps among others. Nor, surprisingly, do any of the three chapters discuss the findings of the possible importance of hydroxyaromatic acid protein esters in plants outlined in the chapter by Van Sumere and his colleagues on Plant Proteins and Phenolics.

In my opinion, the chapter on Proteins and Taxonomy (J. G. Vaughan) also misses the boat. Recent advances in our knowledge of antibody-antigen reactions are ignored so that the significance of the serological and cognate methods does not relate to the underlying genetical and molecular phenomena. No mention is made of the use of the analysis of isoenzymes, of dehydrogenases, nor is there any cross-reference to the chapter by J. Daussant (Immunochemical Investigations of Plant Proteins) in which certain wider aspects of these techniques are discussed.

The other chapters on Amino Acid Sequence Analysis of Proteins (D. Boulter and J. A. M. Ramshaw), Properties of Storage Proteins (H. Stegemann), Barley Proteins (G. Préaux and R. Lontie) and on Protein Sweeteners (G. E. Inglett) are all of interest in their specific field.

Overall, then, this is a useful compilation of our knowledge of the chemistry and biochemistry of plant proteins, but I did not find it half as fascinating as the original classic by Chibnall, written over thirty years ago.

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Crop Genetic Resources for Today and Tomorrow: edited by O. H. FRANKEL and J. G. HAWKES. 492 pp., Cambridge Univ. Press, 1975. £13.00

This volume is the second in a series of publications generating from the International Biological Programme, which ran for ten years from 1964 to 1974. This book, in fact, represents the edited proceedings of a closed conference organized under this Programme. The topic—the preservation of a reservoir of genetic variability in cultivated plants—will be highly relevant to plant biochemists working on crop plants or involved in breeding programmes concerned with modifying biochemical parameters of plants. Although the volume is strongly biologically oriented, there are three chapters concerned with biochemical aspects. One by D. E. Alexander outlines the problem of identification of high quality protein variants and describes the discovery of such well known mutants as opaque-2 maize and high lysine barley. While a useful contribution, this chapter is really too brief for such an important subject. A second chapter by G. Röbbelen on the screening of plants for their oils and

fats is more comprehensive and provides useful tabular material on the fatty acid composition of all the best known plant lipids.

In a third biochemical chapter on secondary metabolites and crop plants, R. Hegnauer points out the potential economic importance of many non-crop plants. In a sense, it is unfortunate that crop plants are separated from other plants, as they are in the book. Where does one draw the line? Surely, the problems of sampling, collection and preservation are the same for all plants and it will be wasteful on scarce resources to mount separate programmes for the same purpose—to collect and preserve plants which are threatened in their native habitats. While clearly the emphasis must be on present-day crop plants and their near relatives, there is surely a good case for preserving a judicious selection of threatened wild plants, some of which may be valuable in the future for the products of their secondary metabolism.

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