Phytochemistry, 1979, Vol. 18, p. 1421. Pergamon Press Ltd. Printed in England.

BOOK REVIEWS

Mammalian Metabolism of Plant Xenobiotics: by R. R. SCHELINE. Academic Press, London, 1978. xii + 502 pp. £28.

This book comprehensively and succinctly surveys the metabolism of secondary plant compounds in mammals, bringing together from a wide variety of sources, metabolic data for a large number of plant xenobiotics. It should, therefore, prove to be a most useful reference source for those actively engaged in research involving secondary plant compounds.

Chapter 1 outlines the metabolic reactions of plant xenobiotics in mammals. It deals first with the reactions of the body tissues by giving examples of the different types of oxidations, reductions, hydrolyses and conjugations undergone by secondary compounds *in vivo*. The biochemical mechanisms responsible for carrying out these reactions are dealt with only briefly, but references are given to recent reviews on the enzymes involved. The wide variety of reactions catalysed by the enzymes of the intestinal microflora are then described and contrasted with those carried out by the tissue enzymes. Thus, metabolism by the body tissues is mainly oxidative and conjugative, whereas gut bacterial metabolism tends to involve the hydrolysis of conjugates, degradative and reductive reactions. The toxicological significance of these bacterial reactions is discussed. The excretion of xenobiotics is only briefly mentioned in this introductory chapter. A general account of the types of xenobiotics excreted via the bile into the intestine, and of the factors influencing biliary excretion, would have been useful, because many xenobiotics, following metabolism, are eliminated in bile bringing their metabolites into contact with the intestinal microflora.

Subsequent chapters describe the metabolic fate of individual plant xenobiotics, each chapter dealing with a particular chemical class. Thus, chapter 2 describes the metabolism of hydrocarbons (aliphatic, monoterpenoid and aromatic hydrocarbons); chapter 3 deals with alcohols, phenols and ethers; chapter 4 with aldehydes, ketones and quinones and chapter 5 with acids, lactones and esters. Chapter 6 discusses the metabolism of higher terpenoids (sesquiterpenoids, diterpenoids and tetraterpenoids). It is followed by a chapter dealing with oxygen heterocyclic compounds, which includes metabolic data on pyrones, chroman derivatives, coumarins, flavonoids and xanthones. Chapter 8 is on the metabolism of amines, nitriles, amides and non-protein amino acids, and is followed by a long chapter (104 pages) on nitrogen heterocyclic compounds. This describes the mammalian metabolism of pyrrolidine, piperidine, pyridine, pyrazine, tropane, indole, quinoline, morphinan, pyrrolizidine, imidazole and purine alkaloids. The final chapter considers the metabolism of organic sulphur compounds derived from plants. Each chapter has an extensive list of references to original papers.

In each chapter the metabolism of specific compounds is illustrated by structural formulàe, and, for those compounds which have several metabolic routes open to them, by detailed figures showing the structures of the intermediates in each pathway. There are also several useful tables summarizing data from the literature on the metabolites of individual compounds. The literature coverage on each compound is extensive, making this book a very useful reference source for those who need to obtain, quickly and conveniently, the known metabolic data on a specific secondary plant compound.

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Progress in Phytochemistry Vol. 5: edited by L. REINHOLD, J. B. HARBORNE and T. SWAIN. Pergamon Press, Oxford, 1978. 329 pp. £35.00

This book follows the policy established for the earlier volumes in the series and includes six authoritative reviews covering what the editors term 'both the dynamic and static aspects of plant chemistry.' In the first article, H. Kauss reviews 'Osmotic Regulation in Algae' and deals with two mechanisms. The role of inorganic ions in the giant algae will be familiar to plant physiologists but much less so to biochemists; the review of the use of the organic constituents galactosylglycerol and glycerol for regulation in *Ochromonas* and *Dunaliella*, respectively, will be much appreciated by both physiologists and biochemists. In view of the importance of the biochemical work on glycerol and galactosylglycerol, it is unfortunate that there are no formulae given in the very brief outline of the metabolic pathways involved.

I. Uritani, in the second article 'Biochemistry of Host Response to Infection', concentrates particularly on the interaction between sweet potato roots and *Ceratocystis fimbriata*. This is a subject on which Uritani has concentrated his own research for many years. Although it is an impressive review of the findings of his own research group, it is perhaps unfortunate that the scope of his review was not broadened to include more information on other host–parasite combinations since some aspects