

Secondary Metabolism in Plants and Animals

by M. Luckner

Chapman and Hall; London, 1977

xviii + 404 pages. £ 5.00 (paper)

It is a pleasure to welcome Professor Luckner's book in a paperbacked edition. Appearing first in German in 1969 and then as a hardbound English translation in 1972 'Secondary Metabolism in Plants and Animals' provided, and still provides, an overall survey of secondary metabolism which cannot be found elsewhere. The author assumes in the reader a basic knowledge of chemistry and biochemistry, but does not hesitate to take him back and show him how the metabolic pathways leading to 'secondary' metabolites are related to, or derived from, the more familiar pathways of primary metabolism.

After brief introductory sections concerned with the possible biological significance of secondary compounds and experimental methods, Professor Luckner discusses the types of enzymes which are concerned with secondary metabolism and then turns to his main theme, which is to trace out the known synthetic routes to secondary compounds. He groups together

compounds derived from key precursors such as acetate, shikimic acid and individual protein amino acids, laying emphasis on their metabolic relationships rather than on their structural similarities, or biological functions. This treatment provides the reader with a feeling for the 'place' of individual secondary compounds in an integrated web of primary and secondary metabolism; a feeling which cannot be provided by a specialist volume on a specific group of compounds such as the alkaloids or flavonoids.

The one inevitable regret is that this book is now eight years old and the bibliography six years old. Nevertheless it still provides one of the few real guides to secondary metabolism which can be recommended to students of biology or biochemistry and with the new edition they may reasonably be expected to buy as well as borrow it.

E. A. Bell

Immunochemistry of Enzymes and Their Antibodies

Edited by Milton R. J. Salton

John Wiley and Sons; New York, London, Sydney, Toronto, 1977

ix + 230 pages. £ 14.25, \$ 24.15 (cloth)

The effect of antibodies on biologically active molecules has long been of interest to immunologists as a first step in the disposal (neutralization) of foreign macromolecules. The topic has also been of interest to biochemists and cell biologists as a tool for the study of the functional role of different surface regions of enzyme molecules. Immunological methods can contribute to our understanding of evolution of

enzymes and of species, and thus to taxonomy, to a study of enzyme location within the cell or within the cell membrane, and to comparison of isofunctional enzymes from different tissues of the same animal. These fields of biology and the techniques which are employed in their study can obviously not be considered systematically in a slim volume of 230 pages, unless a single author attempted to integrate the

entire subject. The rapid developments in these areas, and the consequent speedy antiquation of any summary of existing knowledge, makes it doubtful that the time is ripe for such an attempt. The Editor of 'Immunochemistry of Enzymes and Their Antibodies' has been wise to illustrate the various approaches by six chapters, dealing with seven enzyme systems, each having been extensively studied by the authors of the particular chapter: lysozyme, β -lactamases, malic enzyme and fructose diphosphate aldolase, bacterial

ATPases, fatty acid synthetases and cytochrome *c*. In addition, one, and by far the longest chapter (57 pages), is devoted to a summary of methods and of results obtained with various types of quantitative methods of immunoelectrophoresis.

This volume will be a useful source of information for investigators who require an introduction to the immunological study of enzymes, or to the potential of immuno-enzymological studies.

Bernhard Cınader

Platelets in Biology and Pathology

Edited by J. L. Gordon

North-Holland; Amsterdam, Oxford. American Elsevier; New York, 1977

xiv + 388 pages. \$ 53.95, Dfl 132.00

Until the last few years research involving blood platelets was largely the province of pharmacologists and haematologists. A few biochemists had realised the potential of these cells which provide an excellent model system for studies on the basic mechanisms involved in secretion and aggregation (as well as their attraction for the purpose of implied clinical relevance in the construction of applications for research support!). However, the major portion of the biochemical population have remained blissfully unaware that cells other than the erythrocyte, and perhaps the leucocyte, circulated in the bloodstream and could provide interesting systems for investigation. More recently there has been a marked increase in interest and the results of studies using platelets, which previously had been published almost entirely in clinical and specialist haematological journals, have started to appear regularly in the major biochemical journals. Conversely those workers whose research interests had been exclusively focused on platelets are starting to become aware that many of the properties exhibited by these fascinating little cells are not unique but are shared in greater or lesser measure by other aggregating and secreting systems. These similarities have been disguised by the remarkable overlay of jargon which characterises research on the blood platelet and by

the relatively inward-looking attitude of many workers in this field.

Thus although numerous monographs and conference proceedings dealing with the blood platelet have appeared (most recently an excellent CIBA Foundation symposium on 'The Biochemistry and Pharmacology of Blood Platelets') there are for the most part specialised volumes concerned only with platelet research in isolation or viewing the platelet in its clinical context of thrombosis and hemostasis; and they make no concessions to the biologist or biochemist who is unfamiliar with these areas. In this monograph Dr Gordon has therefore set out to introduce the blood platelet to a wider audience and to demonstrate the way in which studies using blood platelets can contribute to our understanding of a wide range of biological processes. Thus in the initial chapter Drs Gordon and Milner set out in admirably clear fashion the basic facts regarding the origin, structure and reactions of the blood platelet, and the proposed and established roles of this cell in various physiological and pathological responses. There can be fewer better introductions to basic platelet biology. The subsequent articles deal in detail with a wide range of aspects of the blood platelet and its functions, including adhesion and aggregation (Baumgartner

vital metabolic responsibilities, by participating in. Secondary Metabolites of Plants and their Role: Overview. Saurabh Pagare^{1*}, Manila Bhatia¹, Niraj Tripathi², Sonal Pagare³ and Y.K. Bansal¹.
animals. (III) Sulphur containing secondary metabolites: They include GSH, GSLS plants in terms of carbon flux. In a cell more than 20% of the total metabolism can go through this pathway, the enzyme chorismate mutase is an important regulatory point. This book will therefore have an intrinsic importance to groups of scientists working in a considerable variety of disciplines: chemistry, botany, pharmaceutical studies, biochemistry, agriculture and medicine.

SECONDARY METABOLISM IN PLANTS AND ANIMALS begins with a general introduction which is followed by a section on experimental techniques. Thereafter the chapters describe and discuss the origins, conversions and degradations of different classes of compounds, which are grouped according to their relationship with primary metabolism. Some secondary plant products can be reversibly degraded and are fed into the basic metabolism while others cannot. Although secondary plant products are very common, this does not mean that every plant can produce every product. Some compounds are restricted to single species, others to related groups. Insects (and other animals) have developed defence strategies against the insecticide effects of some secondary plant products. During evolution, at first detoxification mechanisms, later even dependencies on certain plant products were developed. Some species, for example, need starting compounds for their steroid synthesis that were originally meant to be a plant defence. They are slightly modified within the animal and get thus a simpler structure.