Phytochemistry, 1967, Vol. 6, pp. 1453 to 1455. Pergamon Press Ltd. Printed in England

BOOK REVIEWS

3. Internationales Symposium Biochemie und Physiologie der Alkaloide: Edited by KURT MOTHES, DIETER GROSS, HANS-WERNER LIEBISCH and HORST-ROBERT SCHÜTTE. Academie-Verlag, Berlin, 1966. 636 pp.

IN THIS volume the papers read at the 3rd International Symposium on the Biochemistry and Physiology of the Alkaloids held from 24–27 June 1965 at Halle are collected. Of the ninety-four papers presented, twenty-two are in English and the remainder in German. Most of the contributions are followed by discussions which appear after individual papers or groups of papers. In the first section on the biology and chemotaxonomy of alkaloids the introductory lecture is given by Professor K. Mothes followed by papers on toxic amino acids, the chemotaxonomy of the pyrrolizidine alkaloids and the chemotaxonomy of the betacyans. A paper by Professor K. Schreiber gives a general survey of the biochemistry of the steroidal alkaloids and is followed by contributions on the steroidal alkaloids of *Buxus sempervirens*, *Solanum dulcamara* and *Lycopersicon pimpinellifolium*.

A review of our knowledge of the biosynthesis of the tobacco alkaloids by Professor H. Rapoport introduces the section on pyridine and piperidine alkaloids which includes papers on the constitution and synthesis of iso-orensine, the biosynthesis of pyrrolidine and piperidine alkaloids of *Withania somnifera*, variations in the alkaloid pattern in developing fruits of *Conium maculatum* and *Papaver somniferum*, the biochemistry of the *Lobelia* alkaloids, the biosynthesis of nicotinic acid in *Mycobacterium tuberculosis* and the enzymatic synthesis of the tobacco alkaloids. Further papers in this section deal with the interconversion of the tobacco alkaloids and the genetic analysis of nicotine content in the tobacco plant; the occurrence of compounds resembling alkaloids in tobacco smoke and the role of N-methylornithine as a precursor of the pyrrolidine ring in pyridine and tropane alkaloids. The section on quinolizidine alkaloids is introduced by Professor K. Hasse with a paper on the biosynthesis of quinolizidine alkaloids with special reference to enzymatic processes. Of the papers which follow, four are devoted to studies of various aspects of the biosynthesis of the alkaloids of *Lupinus* and one paper is devoted to a study of the breakdown of lupinine by micro-organisms. There is a contribution on the biogenesis of angustifoline and results of investigations on the alkaloids of species of *Genista*, *Thermopsis* and other members of the Leguminosae are reported. Eighteen papers on the isoquinoline alkaloids are mainly devoted to studies on the alkaloids of *Papaver somniferum* and other species of *Papaver*. This section is introduced by Professor A. R. Battersby who discusses the biosynthesis of some isoquinoline alkaloids. Contributions on the biosynthesis of the alkaloids of *Papaver* spp. include studies on transaminase, decarboxylase and phenolase activity in *P. somniferum*, changes in content of thebaine in tissue cultures, the biosynthesis of thebaine from tyrosine and observations on the biosynthesis of alkaloids in latex. Two papers in this section deal with genetic studies in relation to alkaloid production, and observations on the biosynthesis of the alkaloids of the Amaryllidaceae by use of sterile tissue cultures form the subject of one paper.

The important group of indole alkaloids has received much attention in this Symposium. Eight papers are devoted to studies on the ergot alkaloids, beginning with a survey by Professor H. Plieninger. The biosynthesis and biogenetic interrelations of the ergot alkaloids are

discussed in four papers, one paper deals with the intermediary metabolism of ergot and the variability of alkaloid production in submerged culture and one paper reports the results of experiments on the influence of tryptophane content on alkaloid production. The remaining nine papers on the indole alkaloids include a general review of the biosynthesis of members of the group by Professor E. Leete and an important paper by Professor G. H. Svoboda on the "Current Status of Research on the Alkaloids of *Vinca rosea* L. (*Catharanthus roseus* G. Don) and their Role in Cancer Chemotherapy". The biosynthesis of the alklaoids of *Catharanthus* is discussed in one paper and other papers deal with stereochemical relationships of the indole alkaloids, and the configuration of vincamine and other alkaloids.

The physiology and biochemistry of the tropane alkaloids is the subject of an introductory lecture by Professor W. C. Evans and is followed by ten papers covering various aspects of the biosynthesis of this group of alkaloids including studies on the biosynthesis of the alkaloids of Pomegranate and the tigloyl esters of *Datura* spp. Other papers deal with the changes in the nature of the alkaloids during development of plants of *Datura* spp., the effect of chemical fertilizers on the growth and alkaloid production in *Datura stramonium* var. *inermis* and the effect of gamma radiation. One paper is devoted to studies on the alkaloids of *Scopolia lurida* Dun. from the Himalayas.

A paper on the pyrrolizidine alkaloids reports experiments on the biosynthetic pathways leading to the formation of alkaloids of *Senecio* spp. and the biogenesis of the quinazoline group of alkaloids, including berberine, is discussed in four communications. The remaining papers of the Symposium include studies on the physiology and biosynthesis of muscarine in species of *Inocybe*, investigations on sterile root cultures of *Delphinium elatum*, the breakdown of caffeine in *Coffea arabica*, the biosynthesis of damascenine, the biosynthesis of galegine and the protoalkaloids of *Capsicum annuum*.

The collected papers of this Symposium make a valuable contribution to our knowledge of the biochemistry of the alkaloids and workers in this rapidly growing field will find much of interest in this volume.

B. T. CROMWELL

MARTIN LUCKNER: **Prüfung von Drogen.** Gustav Fischer-Verlag, Jena, GDR, 1966. 357 pp. £2 1*s*. 9*d*.

THIS book deals generally with the examination of crude drugs and medicinal plants but in particular with the analytical procedures adopted by the Deutsches Arzneibuch 1965–6 (DAB-7, the Pharmacopoeia of the German Democratic Republic) for maintaining the standards of the numerous crude drugs, both organized and unorganized, included among the monographs of this publication.

The book is divided into twenty-one sections. The first section briefly introduces the principles involved in the physical and physico-chemical methods used which includes paper and thin-layer chromatography, fluorimetry and flame photometry as well as the more conventional pharmacopoeial methods, e.g. ash values, moisture content, acid values, etc. The other sections deal with a more detailed examination of drugs containing alkaloids, anthocyanins, anthracene derivatives, volatile oils (and the individual oils), bitters, diferuloyl methane derivatives, fixed oils (and the individual oils), flavonoids, furanochromone derivatives, tannins, cardiac glycosides, hydroquinones, carbohydrates, coumarins, leucoanthocyanins, proazulene derivatives, saponins and, finally, a miscellaneous group which