

Alkaloids: Chemical and Biological Perspectives, Volume 5: edited by S. W. PELLETIER, John Wiley and Sons, Chichester, 1987, 714 pp. £114.65.

The most timely review in this volume is the opening chapter by A. D. Elbein and R. J. Molyneux on polyhydroxy alkaloids. This relatively new group of alkaloids might well have remained undiscovered apart from the fact that they are responsible for the toxic effects of several legume pasture plants on cattle, sheep and horses. Thus, they only respond weakly to the Dragendorff reagent and normally escape isolation when plants are extracted by classical procedures, because of their unusual solubility properties. Furthermore, they occur in very low yields, the concentration of swainsonine in *Swainsona canescens* being only 0.001%. Interest in polyhydroxy alkaloids has been enormously stimulated by the fact that they specifically inhibit animal glycosidases and they can have a profound effect on glycoprotein processing in mammalian cells.

This chapter concentrates on the bicyclic indolizidine alkaloids but does mention briefly the monocyclic relatives which have been the particular study of Arthur

Bell, Linda Fellows and their group at Kew. The authors provide much useful information on the biochemistry of inhibition of glycosidases and glycoprotein processing. Much remains still to be learnt about these fascinating hydroxylated alkaloids and undoubtedly this review will need updating before very long.

The remaining four chapters deal with the phenanthroindolizidines of Asclepiadaceae (E. Gellert), the aporphinoids of Annonaceae (A. Cavé *et al.*), the *Thalictrum* alkaloids of Ranunculaceae (P. L. Schiff) and the cephalotaxine alkaloids of the Cephalotaxaceae (T. Hudlicky *et al.*). These are all excellent compilations of the recent literature. Paul Schiff's review on *Thalictrum* is particularly thorough and includes 484 chemical structures, a seven page tabulation of alkaloid occurrences and 669 literature references. The chapter on Annonaceae alkaloids reviews *inter alia* structural elucidation, biosynthesis and chemotaxonomy and is a model of its kind. The book is completed by subject and organism indexes.

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