ABSTRACT

Part I of this thesis consists of a brief review of the alkaloids and diterpenic compounds isolated from *Turbina (Rivea) corymbosa* (Convolvulaceae). An investigation of the Jamaican variety of *Turbina corymbosa*, which resulted in a new diterpenic glycoside, turymboside, was next descibed. This is a new glucoside with two separate β-glucooses linked to a (-) kaurane carbon skeleton. The structural elucidation of turymboside using spectral and chemical analysis is described. Determination of relative stereochemistry of the glucoside using 2D-NMR, CD and correlation with (-)-17-nor kaurane hydrocarbon prepared from (-)-7,18-dihydroxy kaurenolide is also explained. A preliminary biological investigation of turymboside on rat and guinea pig ileum did not show any observable activity. This work was prompted by the extensive use of the seeds of the plant by Mexican Indians for medicinal and religious rituals.

Part II comprises the isolation and characterisation of four new aromatic compounds A, B, C and G, from Jamaican *Piper aduncum* and *Piper hispidum* (Piperaceae). Compound A is similar to dillapiole, a volatile oil from dill oil and B , a new acid, an example for mixed biogenesis. Attempted synthesis of B , C (a new chalcone) and G , a new flavanone, are also listed. *Piper* species are well known for their medicinal use but a preliminary biological investigation of these compounds proved no such activity on test insect *Tribolium confusum* Duval. (flour beetles) and *Boophilus macroplus* L. (cattle ticks).

Part III deals with an attempted synthesis of pyrethroid compounds from the 5, 6-Z- and E-fadyenolides isolated from

Jamaican *Piper fadyenii* (endemic) (Piperaceae). *Compounds H,I* and *J* are characterised and calculation of LC_{50} of these compounds on test insects *Tribolium confusum* Duval. (flour beetles) and the oviposition activity on *Boophilus macroplus* L. (cattle ticks) is also explained. These compounds could be used as intermediates for the future synthesis of pyrethroid compounds.