

ABSTRACT

Much work has been done in the field of isolation and characterisation of compounds from the Croton species. Nearly fifty species have so far been examined and from these, twenty one alkaloids have been isolated and given structural assignments. The alkaloid classes found include the morphinandienone, aporphine, proaporphine, reduced proaporphine, phenylethylisoquinoline and phenylalkylamine types.

Detailed studies have also been undertaken into the chemistry of some of these alkaloid classes isolated from Croton species, and Part I of this thesis reviews the more recent work done on the synthesis and rearrangement reactions of morphinandienone alkaloids. This section also reports the establishment of a structure for a $C_{19}H_{19}NO_4$ dienone obtained from the acid rearrangement of a derivative of the morphinandienone alkaloid norsinoacutine.

Work done on the isolation and characterisation of alkaloids from Croton humilis L. is described in Part II. Four new alkaloids have been isolated. On the basis of chemical, spectroscopic and analytical evidence on the two phenolic alkaloids, the N-methylhomotyramine structure has been proposed for the $C_{10}H_{15}NO$ compound and the N-methyltyramine structure for the $C_9H_{13}NO$ compound. Analytical and mass spectral data suggests that the two nonphenolic alkaloids have the molecular formula $C_{18}H_{27}N_3O_3$ and $C_{35}H_{51}NO_7$ respectively. Evidence is also presented for the presence of certain functional groups in the molecules, but no proposals

have been made concerning their complete structures.

In Part III the recently reported reduced proaporphine, jaculadine, characterised as its triacetyl derivative $C_{23}H_{29}NO_6$, and isolated from Croton linearis Jacq. is also reported. The structure of this compound has been established by correlating a derivative of the compound with desoxyhexahydrocrotonosine and also with the assistance of spectral data.