ABSTRACT

At the commencement of this most interesting project, the term "Prosorphine" had just entered the vocabulary of the natural products chemist, and only one naturally occurring morphinandienone alkaloid, sinoacutine, had been fully characterised. The work here presented is an extension of that initiated on the alkaloids from Croton species by Professor L.J. Haynes and Dr. K.L. Stuart at U.W.I.

Part I is a detailed account of the experiments performed in the isolation of the alkaloids of C. linearis Jacq. The alkaloids obtained in addition to those previously isolated by Haynes and Stuart and subsequently characterised were Base E diacetate, a prosorphine, Base E_{1a} (8,14-dihydroseluteridine) and G (8,14-dihydronorseluteridine), and Bases I and J, postulated dimers.

Part II begins with a comprehensive review of previous work on prosorphines. Work in this field has been extremely active and new compounds reported whilst this thesis was in preparation have also been included. This is followed by a concise account of related mass spectral work. The chemistry of Base E diacetate is next discussed. Base E diacetate has been correlated with crotonosine.

Morphinandienones reported to date have been described at the beginning of Part III. Then follows an

account of the experimental work carried out on Base B_{1s} acetate and Base G which were finally correlated with the morphinandienone salutaridine.

Part IV deals with the biogenesis of the morphines and aporphines. Proaporphines and Morphinandienones are key intermediates in their formation and were predicted by Barton and Cohen well in advance of their isolation. A review of these biogenetic experiments which used radioisotopically labelled precursors is presented in this section.

Part V is a description of the work carried out on Bases H and J. No conclusions have been arrived at with regard to their gross structure, but these alkaloids have been interrelated.