CHAPTER V

CONCLUSION AND RECOMMENDATION

The leaves of *Uncaria attenuata* Korth. (Rubiaceae) collected while flowering had been examined for alkaloids. Heteroyohimbines were found to be present as dominant alkaloids and three were isolated, two of which were identified as *allo* closed E ring aromatic - unsubstituted isomers. One of them has C(19) - CH_3 α configuration, viz. tetrahydroalstonine, the other is its C(19) - CH_3 β analogue, viz. rauniticine, which is present as major alkaloid. This is the first report of rauniticine as being present in the genus *Uncaria*. The isomerisation of these two alkaloids were undertaken, from which akuammigine and 3-isorauniticine, their *epiallo* isomers, were obtained respectively. The third heteroyohimbine was characterised as *epiallo* closed E ring aromatic - unsubstituted isomer with β equatorial hydroxyl substituent at C(14) and C(19) - CH_3 β configuration. This alkaloid has never been known as occurring elsewhere either naturally or synthetically. Full characterisation of this novel alkaloid has been performed and discussed.

Two oxindoles were isolated, but in too small the quantities to be fully studied in order to propose a definite identification. The presence of another oxindole was revealed in trace amount. There is also an evidence of 'base-line' alkaloid(s) which presents another interesting point to be investigated. Further large scale extraction

of the leaves collected while flowering is firstly recommended in the hope that adequate amount of these three oxindoles would be obtained so that identification could be rendered. The oxidation of some heteroyohimbines to their pseudoindoxyls is needed to confirm the identities of the naturally occurring alkaloids.

Leaves collected at different periods, i.e. young leaves, without flowers or in fruit are also recommended for alkaloidal examination since it might reveal more interesting features of the alkaloidal content of this particular plant. In addition, the study of other parts of plant, e.g. stem bark, stem wood, root, root bark and hook is worth investigating. The examination of leaves collected from the same tree at regular monthly interval is further recommended in order to observe alkaloidal pattern of this species over a whole year. These would be a very useful information for the study of site and route of alkaloid biogenesis.

The pharmacological study is one of the points strongly recommended. Among the isolated alkaloids, only tetrahydroalstonine has been reported pharmacologically as antiviral, diuretic, hypoglycemic and muscle relaxant (Taylor and Farnsworth, 1975). Some heteroyohimbines have been reported as having ganglionic and neuromuscular transmission blocking agents (Harada *et al.*, 1974; Harada and Ozaki, 1976). The particular alkaloids isolated from this species have not yet been subjected to such investigations from which interesting results might be revealed.