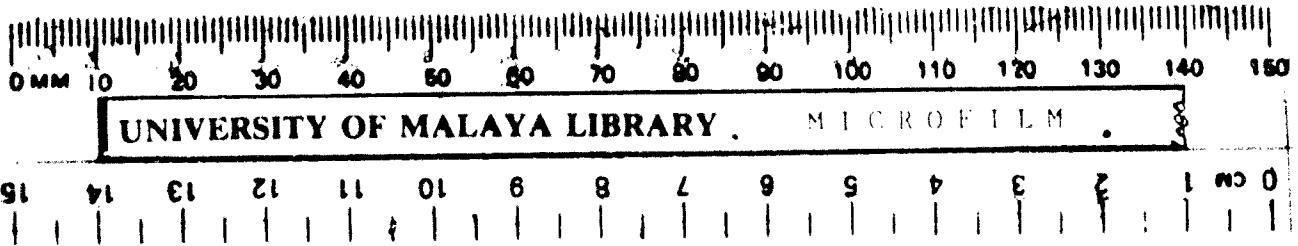


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# ALKALOIDS FROM MALAYSIAN *UNCARIA*

A dissertation submitted in  
partial fulfillment of the  
requirements for the degree of

Master of Philosophy

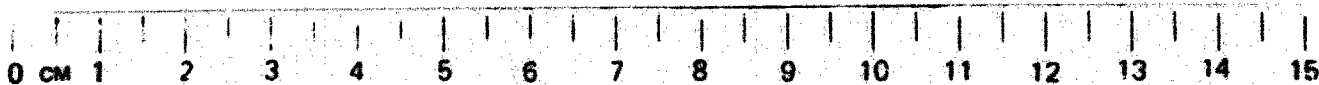
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## ABSTRACT

Eight species of Malaysian *Uncaria* were investigated for their alkaloidal content in this study and the results are summarized in the table below.

Detailed studies were carried out on two species, viz., *U. callophylla* and *U. borneensis*. Four new alkaloids were isolated from the leaves of *U. callophylla*. Two of these were tetracyclic heteroyohimbine alkaloids, isogambirine (10-hydroxydihydrocorynantheine) and gambireine (9-hydroxycorynantheine) and the other two were dimeric alkaloids, callophylline A (constituted from gambirine and 3-epi- $\beta$ -yohimbine) and callophylline B (constituted from gambirine and 9-hydroxypseudoyohimbine). A detailed discussion on the structure elucidation of these new compounds is presented.

*U. callophylla* was found to show a seasonal dependence of its alkaloidal content in which there is a sharp drop in the gambirine content coinciding with the flowering season.

The rutin content of Malaysian *Uncaria* species were also determined and only *U. callophylla* was found to be a major source of rutin (2.6%).

Crude alkaloidal mixtures as well as pure isolated alkaloids were also evaluated for cardiovascular effects (antihypertensive activity) in rats.

Distribution of Alkaloids in Malaysian *Uncaria*

Species	Alkaloids <sup>#</sup>
<i>U. callophylla</i>	<b>dihydrocorynantheine</b> [20], <b>gambirine</b> [22], isogambirine [86], gambireine [87], rotundifoline [42], <b>callophylline</b> [88] callophylline A [89], callophylline B [90], yohimbine [47], pseudoyohimbine [50], $\beta$ -yohimbine [49], $\alpha$ -yohimbine [54].
<i>U. borneensis</i>	<b>isorhynchophylline</b> [38], <b>rhynchophylline</b> [39], <b>isocorynoxene</b> [40], <b>corynoxene</b> [41], alloyohimbine [53], pseudoyohimbine [50], 3-epi- $\beta$ -yohimbine [52].
<i>U. longiflora</i>	
<i>var. longiflora</i>	isorhynchophylline [38], rhynchophylline [39], isocorynoxene [40], corynoxene [41].
<i>var. pteropoda</i>	isopteropodine [34], pteropodine [35].
<i>U. lanosa</i>	
<i>var. glabrata</i>	isopteropodine [34], pteropodine [35].
<i>var. ferrea</i>	isopteropodine [34], pteropodine [35].
<i>U. cordata</i>	
<i>var. cordata</i>	
<i>f. sundaica</i>	<b>dihydrocorynantheine</b> [20].
<i>f. cordata</i>	-ve
<i>var. ferruginea</i>	
<i>f. ferruginea</i>	<b>dihydrocorynantheine</b> [20].
<i>U. elliptica</i>	mixture of alkaloids but no roxburghines [5].
<i>U. acida</i>	-ve
<i>U. gambir</i>	-ve

<sup>#</sup>major alkaloids in bold type; -ve = not detectable.

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