

**Comparison of chemical identities of natural plants and callus cultures of
Andrographis paniculata and *Munronia pinnata***

A PROJECT REPORT PRESENTED BY

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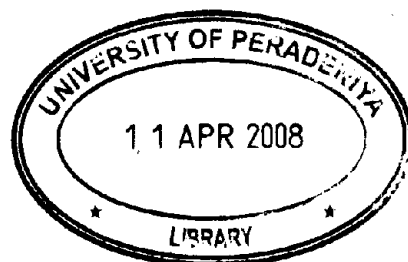
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ABSTRACT

Comparison of chemical identities of natural plants and callus cultures of *Andrographis paniculata* and *Munronia pinnata*

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Munronia pinnata belonging to the family Meliaceae and *Andrographis paniculata* (family Acanthaceae), are used in ayurvedic and traditional medicine in Sri Lanka for the treatment of fever, dysentery and skin diseases as a substitute for *Swertia chiratta* (Family Gentianaceae). Although *M. pinnata* is not described in the ayurvedic textbooks, but ayurvedic and traditional physicians use it as a substitute for *Swertia chirata* in the treatment of fever, dysentery and skin diseases.

M. pinnata became an endangered plant in Sri Lanka due to over exploitation from wild for medicinal purposes. There is no program for its large-scale cultivation. Hence, there is an urgent need for a comparison of *M. pinnata* and *A. paniculata* as a substitute for *Swertia chirata* to prove their similarity, in terms of chemical and physico-chemical standards though they belong to different families. This study is based on the investigation of chemical identities of natural plants and callus cultures of *M. pinnata* and *A. paniculata*. There was no literature available on solvent systems to separate chemical identities of *A. paniculata* using TLC. Therefore, a number of solvents and different extraction methods were used in this study. Methanol: cyclohexane: chloroform (1:1:1) solvent system and hexane: acetone (6: 1) were found to be more suitable for separation of compounds in chloroform and ethyl acetate extracts. From the results obtained it was observed that many of the chemical constituents as judged by their chromatographic behavior, present in *M. pinnata* and *A. paniculata* were similar whereas a few were only present either in *M. pinnata* or *A.*

paniculata. The only one chemical constituent detected in this study, common to both of natural plant and callus of *M. pinnata* was indicating by its chromatographic behaviour. According to the results of this study anti-bacterial activity of *A. paniculata* and *M. pinnata* against *E. coli*, the traditional decoction concentration of *A. paniculata* showed the highest inhibition towards to *E. coli*. While the concentration of *M. pinnata* showed a comparatively lower inhibition of *E. coli* growth than that of *A. paniculata*