Phytochemical Screening of Ayer Hitam Forest Reserve: Isolation of Ariskanin-A from Thottea corymbosa (Griff.) Ding Hou (Aristolochiaceae)

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ABSTRACT

During a phytochemical screening of higher plants at Ayer Hitam Forest Reserve, Puchong, Selangor, we collected a large amount of sample of Thottea corymbosa roots for further investigation of its bioactive constituents. The plant is a shrub commonly used in herbal medicine and could easily be found along the open forest trails. The roots of the collected sample were consecutively extracted with petroleum ether, chloroform and methanol followed by separation of the chloroform fraction by column chromatography and preparative thin-layer chromatography. In this study we reported the isolation of an aristolactam, Ariskanin-A with a toxicity value of LC50 < 200 ppm in Brine-Shrimp Lethality Bioassay based on spectroscopic data and comparison with literature.

INTRODUCTION

As a continuation of our previous preliminary work (Mat So'ad and Nik Idris Yusoff 2001) on the phytochemistry of Thottea tomentosa (Blume) Ding Hou to isolate bioactive components of some pharmacological interests (or possibly toxic) especially Aristolochic acids and aristolactam, we chose to investigate the chemical constituents of its next-of-kin, T. corymbosa. The plant is called 'hempedu beruang' in Malay, a shrub found growing commonly along the open trails of lowland forests throughout Malaysia. In herbal medicine, the pounded leaves are applied to sore gums or tooth cavity for toothache. Also it is claimed that the shrub can be used even in drug form as an analgesic, antiasthmatic, antifertility and for treating impotence and snake-bite. Although the plant is widely used among the locals, to date no study on the phytochemistry and biological activity has ever been reported.

In Peninsular Malaysia the family Aristolochiaceae ia represented by two genera, namely Aristolochia and Thottea. The former consists of five species, namely A. curtisii, A. foveolata, A. jackii, A. minutiflora and A. tagala and the latter contains a total of seven species, namely, T. corymbosa, T. dependens, T. grandiflora, T. parviflora, T. sumatrana, T. tomentosa and T. tricornis. The species within Aristolochia have a very narrow range of distribution except A. tagala which is widespread. Turner (1995) stated that A. curtisii is only found in Penang, A. foveolata is found in Terengganu, A. jackii is found in Pahang