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BIOCHEMICAL AND TAXONOMICAL INVESTIGATION OF GENUS *HORTONIA* IN SRI LANKA

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Hortonia is an endemic genus belonging to the family Monimiaceae which originated in Gondwanaland about 100-120 million years ago. Wight in 1853 described three species of *Hortonia* (*H. floribunda*, *H. ovalifolia* and *H. acuminata*) from the wet zone of Sri Lanka. Later, in 1864, Thawaites considered all these species as varieties of *H. floribunda*. According to him there are numerous intermediate forms between varieties. Trimen in 1895 considered *H. floribunda* and *H. angustifolia* as two different species. The oval leaved plants collected from the Adam's peak area were made into a variety under *H. floribunda*. Latest revision of the family Monimiaceae by Dassanayake (1996) considers three species (*H. floribunda, H. angustifolia* and *H. ovalifolia*).

Trees of the three species are found in the low country wet zone (*H. angustifolia*) and montane (*H. ovalifolia* and *H. floribunda*). The present study was carried out to study the phytochemistry and biological activity of the genus *Hortonia* in Sri Lanka with a view to finding whether these species, forms and varieties are different in their chemistry. Leaves of *Hortonia* were collected from eight different geographical locations of Sri Lanka namely Kannaliya, Wewelkadura, on Kotapola road to Hulanduwa, on Rakwana road to Deniyaya, on the road to Hiniduma from Pittabeddara, Kelabokka, Hakgala and at the foothills of Adam's peak. The first five samples were those of *H. angustifolia*. The Kelabokka and Hakgala samples were *H. floribunda* while the one collected at Adam's peak was *H. ovalifolia*.

Dried, powdered leaves collected from each location was extracted sequentially into CH_2Cl_2 and MeOH. The CH_2Cl_2 extracts were subjected to semi-quantitative TLC analysis. All dichloromethane extracts were subjected to the mosquitolarvicidal assay against 2nd instar larvae of *Aedes aegypti*. Extracts were fractionated by medium pressure liquid chromatography and with the aid of bioassay-guided fractionation, three mosquitolarvicidal compounds were isolated. They were also subjected to the mosquitolarvicidal assay with *Aedes aegypti* as before.

TLC studied showed that the CH_2Cl_2 extracts of all the eight samples of *Hortonia* collected were identical both in the number of spots and their R_f values. Bioasaay studies showed that all of the CH_2Cl_2 extracts showed 100% mortality of *Aedes aegypti* at 62.5 ppm. The same active compounds were present in all the samples collected. Two compounds isolated showed high activity (60-70% at 0.625 ppm). The other one showed activity of 70% mortality at 10 ppm. Each leaf material (0.1 g) was subjected to protein analysis by extraction and gel electrophoresis. Here, all leaf samples of *Hortonia* exhibited identical protein bands.

These results suggest that there are no significant phytochemical differences between the three species (*H. floribunda, H. angustifolia* and *H. ovalifolia*) recognised by the revision. More taxonomic research coupled with chemical as well as DNA analysis in order to study the speciation of genus *Hortonia* in Sri Lanka are in progress.