

E2-21: A Phytochemical approach to the classification 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 zones of Sri Lanka. Later, in 1864, Thwaites 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 phytochemistry and biological activity of the genus *Hortonia* in Sri Lanka were studied, with a view to find whether these species, forms and varieties are different in their chemistry.

Leaves of *Hortonia* were collected from eight different geographical locations of Sri Lanka (1) Kannaliya, (2) Wewelkadura, (3) 15 km south of Rakwana and (4) 20 km south of Deniyaya both on Madampe-Galle road, (5) 10 km north of Pittabeddara on Pittabeddara-Dodanduwa road, (6) Kelabokka, (7) Hakgala and (8) at the foothills of Adam's peak. The first six samples were those of *H. angustifolia*. The Hakgala sample was *H. floribunda* while the one collected at Adam's peak was *H. ovalifolia*. Dried, powdered leaves collected from each location were 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 mosquito-larvicidal assay against 2nd instar larvae of *Aedes aegypti*. Extracts were fractionated by medium pressure liquid chromatography and with the aid of bioassay-guided fractionation, the mosquito-larvicidal active compounds were isolated. The three pure compounds isolated were then subjected to the mosquito-larvicidal assay with *Aedes aegypti* as before.

TLC 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. Bioassay 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 2.5 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*) recognized by the revision.

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