

COMPARISON OF BIOACTIVITY OF *Schumacheria castaneifolia* FROM
DIFFERENT LOCATIONS

**T.A. Dahanayaka¹, A.M.K.C.J. Costa², T.M.T.D. Thennakoon³, A. Wickramasinghe¹
and J.M.S. Jayasinghe^{1*}**

¹Department of Chemistry, Faculty of Science, University of Peradeniya, Sri Lanka

²Department of Limnology and Water Technology, Faculty of Fisheries and Marine Sciences
and Technology, University of Ruhuna, Sri Lanka

³Post Graduate Institute of Science, University of Peradeniya, Sri Lanka

*susanthij@sci.pdn.ac.lk

Schumacheria castaneifolia (“Kekiriwara”), an endemic plant to Sri Lanka, exhibits significant lethality on brine shrimp and possesses anticancer properties. In our previous studies, it was identified that the compound 3-O- α -L-arabinosyloleanolic acid is responsible for the anti-cancer activities; however, it is worth noting that this compound was not present in all the *S. castaneifolia* plants, even though they were collected from the same geographical location. Hence, this study aimed to compare the bioactivity and chemical profiles of leaf and bark extracts of *S. castaneifolia* collected from two distinct locations within the Seethawaka wet zone botanical garden, Ilukovita, Avissawella, Sri Lanka. Plant samples were collected from two locations (A and B) and extracted sequentially into hexane, dichloromethane, and methanol by maceration method. Alpha-amylase inhibition, antioxidant, and brine shrimp lethal activities were evaluated for each extract. Thin-layer chromatography (TLC) analysis was performed to identify the presence of 3-O- α -L-arabinosyloleanolic acid. The methanol extract of the barks from location B exhibited the highest anti-diabetic activity ($IC_{50} = 72.80 \pm 0.04$ mg/L). The highest antioxidant activity was exhibited by the methanol extract of the barks from the location A ($IC_{50} = 6.39 \pm 0.01$ mg/L). The methanol extract of the leaves from location B showed the highest cytotoxic activity ($LC_{50} = 64.70 \pm 1.47$ mg/L). The TLC analysis revealed the compound 3-O- α -L-arabinosyloleanolic acid only in the dichloromethane extracts of leaves and barks from location B and barks from location A. It was absent in the leaves from location A and two other locations within the botanical garden. This suggests that the overall biological activities observed in this study may be influenced by the presence of other phytochemicals. Further, these data demonstrate significant variation in the bioactivity and chemical profile of *Schumacheria castaneifolia* extracts collected from the Seethawaka wet zone botanical garden and emphasize the need for extensive taxonomical identification for a better understanding of this variation.

Keywords: 3-O- α -L-arabinosyloleanolic acid, Bioactivity, *Schumacheria castaneifolia*