ISSN: 1391-8796
Proceedings of 11th Ruhuna International Science & Technology Conference
University of Ruhuna, Matara, Sri Lanka
January 24, 2024

Can leaf micromorphology and foliar anatomy be used to identify cinnamon species in Sri Lanka?

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There are eight *Cinnamomum* species and *C. zeylanicum* is one of the most economically important spice crops, bringing a considerable amount of foreign currency to the country. Flowering time varies among the species and flowers are rare. Plants' morphology is affected by the environmental conditions making it difficult to rely on only morphology to differentiate the *Cinnamomum* species found in the country. In the absence of floral or fruiting materials, it is possible to use anatomical characters to differentiate the species. This study aimed to use light and scanning electron microscopy of leaf micromorphology, petiole and foliar anatomy of Sri Lankan *Cinnamomum* species, *C. capparu-coronde*, *C. citriodorum*, *C. dubium*, *C. litsiaefolium*, *C. ovalifolium*, *C. rivulorum*, *C. sinharajaense* and *C. zeylanicum* to determine the taxonomically informative characters to differentiate the species. The shape and the amount of cuticular materials present on abaxial and adaxial surfaces were different within and between species. Hypo-stomatic stomata and different properties of trichomes (whether unicellular, simple, unbranched, solitary or non-glandular) were observed and in some species, the density of the trichomes was different on abaxial and adaxial surfaces. In the midrib cross-section, symmetrical, asymmetrical, boat, irregular, and saucer-shaped contours were observed. The vascular tissue was one open arch and different shapes of vascular bundles (oval, elongated, irregular, 'V', partially dissected into 2 or 3 segments) were observed in different species. Leaf cuticular features, trichome shape and density, midrib cross-section outline and the shape of vascular bundles are taxonomically informative characteristics that can differentiate the eight *Cinnamomum* species.

Keywords: *Cinnamomum*, Cuticular materials, Microscopy, Trichomes, Stomata

Acknowledgement: *The Endeavour Research Fellowship (ERF_PDR_2014_4408) financially supported the author.*

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