
Leaf Morphology, Protogynous Dichogamy and Leaf Essential Oil Composition of Selected *Cinnamomum* Species in Sri Lanka

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The knowledge gap on morphology, floral behaviour and chemical composition of endemic seven wild relatives of cultivated cinnamon (*Cinnamomum verum* J. Presl) should be addressed for their utilization in cinnamon breeding and industry. This study was carried out to determine the floral behaviour of two wild cinnamon species of *Cinnamomum dubium* Nees (*Cd*) and *Cinnamomum litseaefolium* Twaites (*Cl*) along with *Cinnamomum verum* (*Cv*) variety *Sri Gemunu* (*SG*), leaf morphological characters (LMC) and, leaf essential oil composition of *Cinnamomum capparucoronde* Blume (*Cc*), *Cd* and *Cl* under *ex-situ* conservation at mid country research station, Dalpitiya, Sri Lanka (GPS: 7.1333031 N, 80.590026 E) along with *Cv* varieties *SG* and *Sri Wijaya* (*SW*) during February 2019. Floral cycles were determined through visual observation for two consecutive days. Protogynous dichogamy was determined: *Cl* and *SG* belonged to type A, while *Cd* was type B. In all species, the first opening was distinguishable with the fresh white stigma and white petals, while the stigma was brown and anthers were dehiscent during the second opening irrespective of time point of the floral cycle. Partial overlappings of functional male and functional female stages were observed in both type A and B plants, which may lead to self pollination. LMC of length, width, shape, apex, base, texture, venation, petiole length and margin varied among species. Gas Chromatography Mass Spectrometry (GC-MS) revealed of 34, 34, 12, 48, 8 and 18 chemical compounds from *Cc*, *Cd*, *Cl*-1, *Cl*-2, *SG* and *SW* respectively. The highest abundant chemical compound varied as Eugenol in *Cc*, *SG*, *SW* and *Cl*-1 (33.11%, 82.11%, 90.80% and 42.13% respectively), Eucaliptol in *Cd* (51.19%) and linalool in *Cl*-2 (30.93%). Above results will indicate the potential variation among wild relatives of cultivated cinnamon, which needs to be further investigated for insights on future cinnamon breeding.

Keywords: Chemical composition, *Cinnamomum capparucoronde* Blume, *Cinnamomum dubium* Nees, *Cinnamomum litseaefolium* Twaites, Floral behaviour