

## TAXONOMIC STATUS OF *Impatiens subcordata* Arn. (Balsaminaceae)

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*Impatiens subcordata* Arn. (Family Balsaminaceae) is a herbaceous species endemic to Sri Lanka. The species is morphologically similar to *I. cordata* Wight, a species endemic to India. These morphological parallels raise a critical taxonomic question of whether these two geographically separated populations are distinct species, or conspecific. Resolving this taxonomic ambiguity is important for biodiversity conservation, as *I. subcordata*, endemic to Sri Lanka, was thought to be extinct but recently rediscovered in the wild. The objective of the present study was to re-evaluate the taxonomic positions of *I. cordata* and *I. subcordata* to discern whether the two were distinct species or not. This was done by performing both a morphometric analysis and a molecular phylogenetic analysis. Four different populations of *I. subcordata* were sampled to obtain morphological and molecular data. Morphological data were subjected to a cluster analysis using PAST software. The ITS, *atpβ-rbcL* and *trnL – trnF* regions (chosen based on the availability of data for *I. cordata*) were sequenced. Maximum likelihood and Bayesian inference analyses were performed to reconstruct the phylogeny using *Hydrocera triflora* (L.) Wight & Arn. as the outgroup. Morphometric analysis of 16 characters revealed significant variation patterns, where *I. subcordata* populations clustered distinctly from *I. cordata*. Zero genetic distance was found between the *I. subcordata* populations. The reconstructed phylogenies strongly supported (bootstrap value of 100% from Bayesian inference analysis and posterior probability value of 1 from maximum likelihood analysis) *I. subcordata* as a monophyletic group, sister to *I. cordata*. Furthermore, morphological analysis indicates that the two species are also morphologically distinct. Overall results strongly indicate that while closely related, the Sri Lankan and Indian species are distinct, resolving a longstanding uncertainty about the validity of the species and thereby confirming the endemic status of *Impatiens subcordata* to Sri Lanka. This will contribute to the accurate documentation of endemic plant diversity and development of appropriate conservation strategies.

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