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**Title:** Phylogenetic analyses of *Tolpis* Adans. (Asteraceae) reveal patterns of adaptive radiation, multiple colonization and interspecific hybridization

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**Abstract:** The plant genus *Tolpis* (Asteraceae) has been the subject of several investigations on the evolution of oceanic island plants. Its insular species were utilized in studies of artificial hybrid fertility, testing the validity of Baker's law, the application of DNA barcodes, and the phylogenetic utility of inter-simple sequence repeat markers. Despite this considerable interest in *Tolpis*, little is known about its phylogenetic history. Past investigations were unable to resolve most of the interspecific relationships, especially within the Canary Islands, where the genus is particularly diverse. Incomplete taxon sampling, the use of ambiguous outgroups and the limited utility of slowly evolving chloroplast DNA markers precluded detailed reconstructions. The present investigation presents a comprehensive molecular phylogeny of *Tolpis*. By utilizing highly variable nuclear DNA markers and a comprehensive taxon set, we have resolved the majority of interspecific relationships in the genus. Evaluations of competing tree topologies and ancestral area reconstructions complemented the analyses. Our results highlight the presence of three dominant mechanisms of island plant evolution-island colonization, adaptive radiation and interspecific hybridization-in *Tolpis*: (i) the extant distribution of the genus is the result of two independent colonization pathways, (ii) *Tolpis* has colonized at least one archipelago multiple times, (iii) the present insular diversity is the product of adaptive radiation, (iv) potential hybridization was detected between species now inhabiting different islands and archipelagoes, indicating sympatric historical distributions, and (v) several undescribed species await taxonomic recognition. (C) The Willi Hennig Society 2012

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