

Phylogeny and evolution of flower symmetry of *Posoqueria* (Rubiaceae)

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The genus *Posoqueria* is a phylogenetically poorly understood Neotropical group of roughly 20–25 species of shrubs and trees in the coffee family Rubiaceae, which presents several internal taxonomic difficulties. Here, we used samples from 15 species and a high-throughput sequencing strategy to target-capture 353 nuclear loci, from which 177 genes were chosen to generate a phylogeny of *Posoqueria* using the multispecies coalescent (MSC) method. Our study confirms the monophyly of most *Posoqueria* taxa, providing evidence of phylogenomic distinctiveness of species such as *P. mutisii*, *P. longiflora*, *P. maxima*, *P. grandiflora*, and *P. williamsii*, but questions the current circumscription of *P. chocoana* and *P. costaricensis*. The phylogeny also supports the re-circumscription of *P. latifolia*, suggesting that populations from Central America and Colombia belong to an undescribed species in the genus. Moreover, our phylogenomic study indicates that flower symmetry and the unique catapult mechanism linked to zygomorphic flowers in *Posoqueria* is the product of several evolutionary transitions. On the other hand, some phylogenetic relationships in our study were only recovered with weak to moderate support, indicating further investigation is required that could include designing a customised bait panel that allows to resolve recent diversification events in *Posoqueria*.