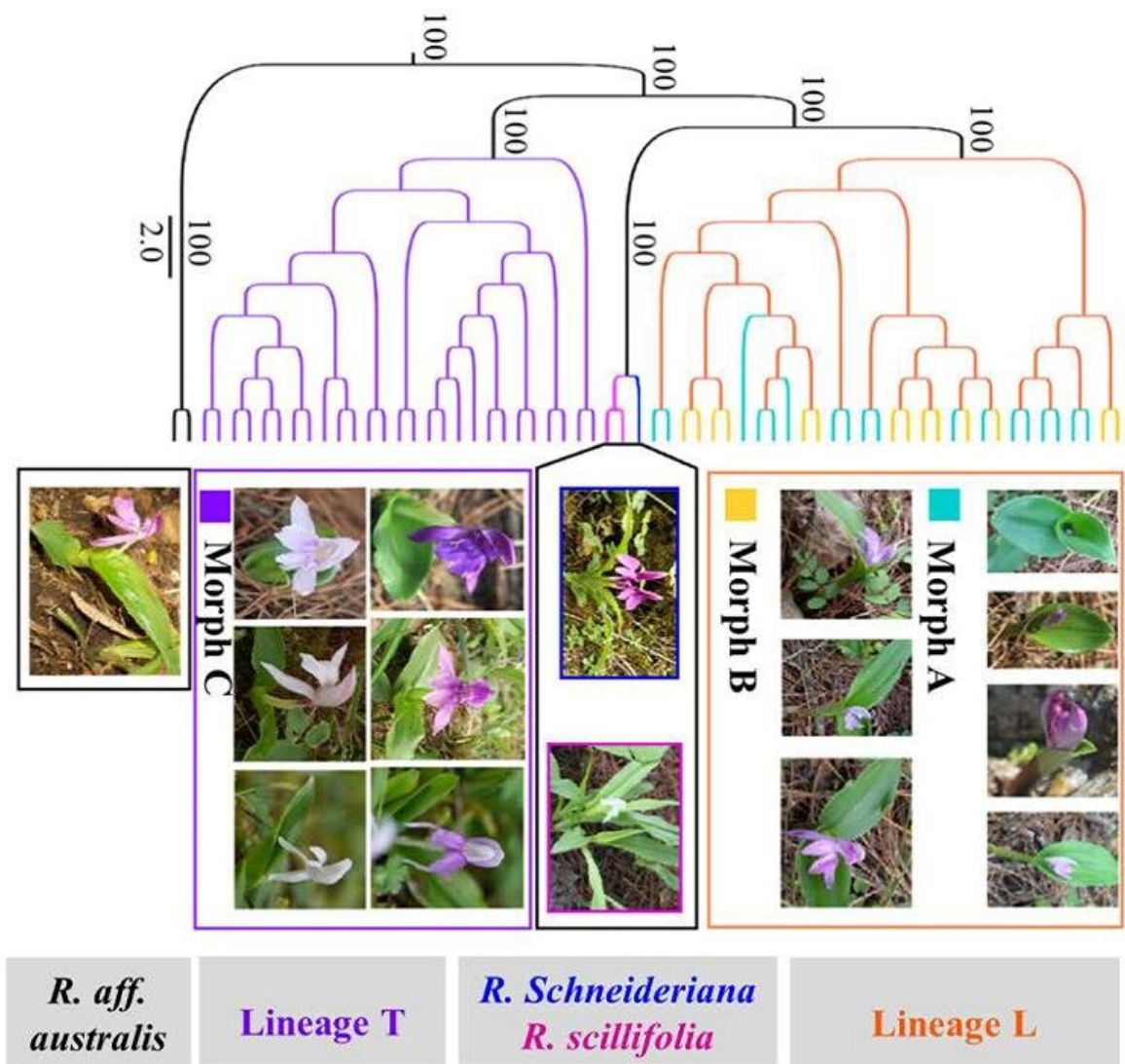


Alpine ginger *Roscoea tibetica* comprises two species

May 20 2020, by Zhang Nannan



Diverse morphological individuals of *Roscoea tibetica* in morph A, B and C

observed in field. Credit: LI Li

The alpine ginger *Roscoea tibetica* Batalin is the most widespread and extensively phenotypic-variable herbaceous species in *Roscoea* in the Hengduan Mountains. Diverse phenotypic variations in one population and similar habitat make this species difficult to identify, especially during the non-flowering phase.

In a study published in the *Journal of Systematics and Evolution*, researchers from Xishuangbanna Tropical Botanical Garden (XTBG) tried to rule out how many [evolutionary lineages/species](#) are there in *R. tibetica* by integrating genomic data, [morphological traits](#) and ecological evidence of [species distribution models](#) (SDMs).

Roscoea tibetica was classified into two monophyletic groups with 100% supported value in the phylogenetic tree. The researchers named the two monophyletic groups [lineage](#) L and lineage T.

Individuals in the lineage L were always recognized as *R. tibetica* (lineage T) in the field, because morph A, B and C comprised cryptic diversity of *R. tibetica*. However, phylogenomic reconstruction, genetic structure analysis and species distribution models indicated that the previously reported *R. tibetica* taxon in fact comprised two species.

Species distribution models illustrated significant ecological divergence between both lineages. Model test of gene flow and effective population size changes in fastsimcoal2 and a negative Tajima's D value suggested that recent contact likely occurred between the two lineages.

Although the rediscovered morphological traits of previously reported *R. tibetica* could be divided into three groups that comprised cryptic

diversity, two non-sister monophyletic lineages were indicated based on genomic-level variations with significant ecological niche divergence.

Thus, a novel species should be proposed from previously reported *R. tibetica*, where lineage T is *R. tibetica* Batalin and lineage L is a new species. The new species was named *Roscoea lingbaoshanensis*.

"This study reminds us that accurate species delimitation should be done before further research was carried out on widespread species with diverse morphology," said LI Li, a Ph.D candidate of XTBG.

More information: Li Li et al. Genomic data reveals two distinct species from the widespread alpine ginger *Roscoea tibetica* Batalin (Zingiberaceae), *Journal of Systematics and Evolution* (2020). [DOI: 10.1111/jse.12596](https://doi.org/10.1111/jse.12596)

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