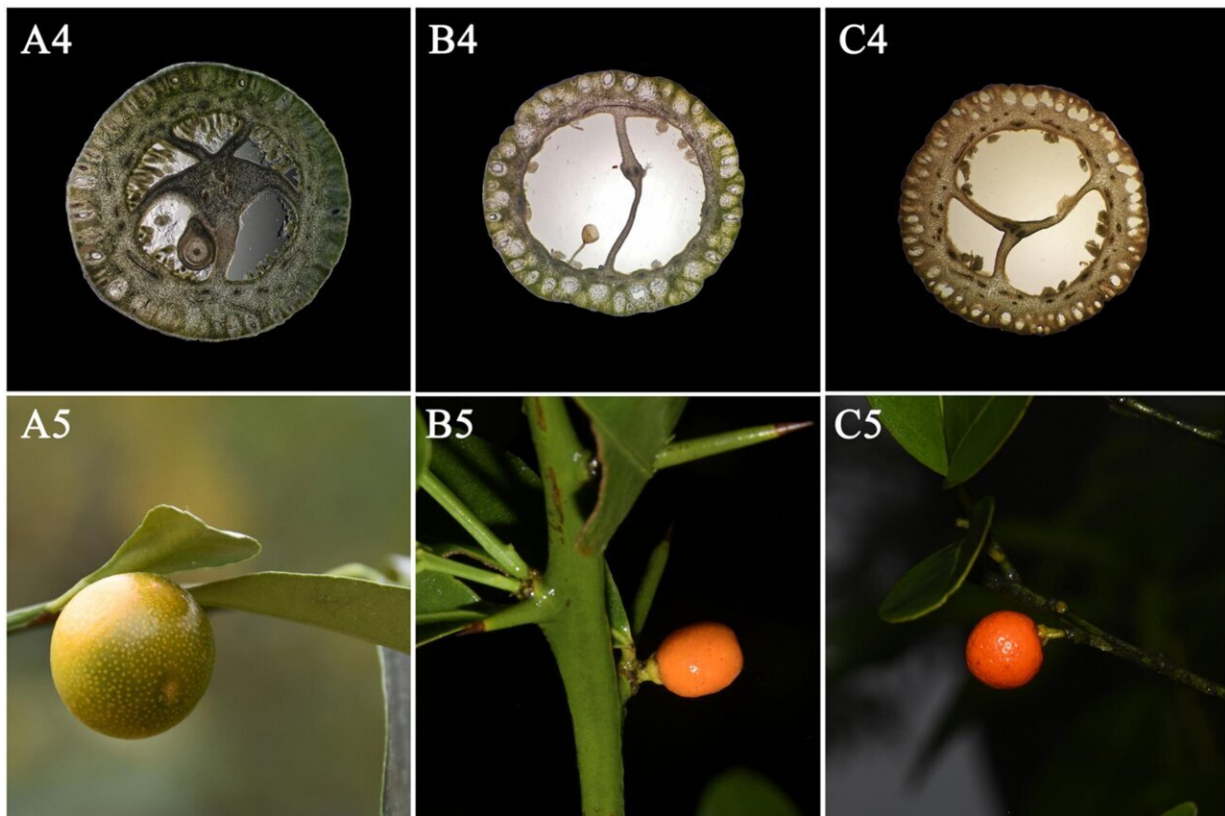


Researchers untangle the taxonomic status of *Fortunella*

July 18 2022, by Zhang Nannan



Comparison of morphological characteristics of *Fortunella*. A. *F. japonica* B. *F. venosa* C. *F. hindsii*. Credit: Wang Ting

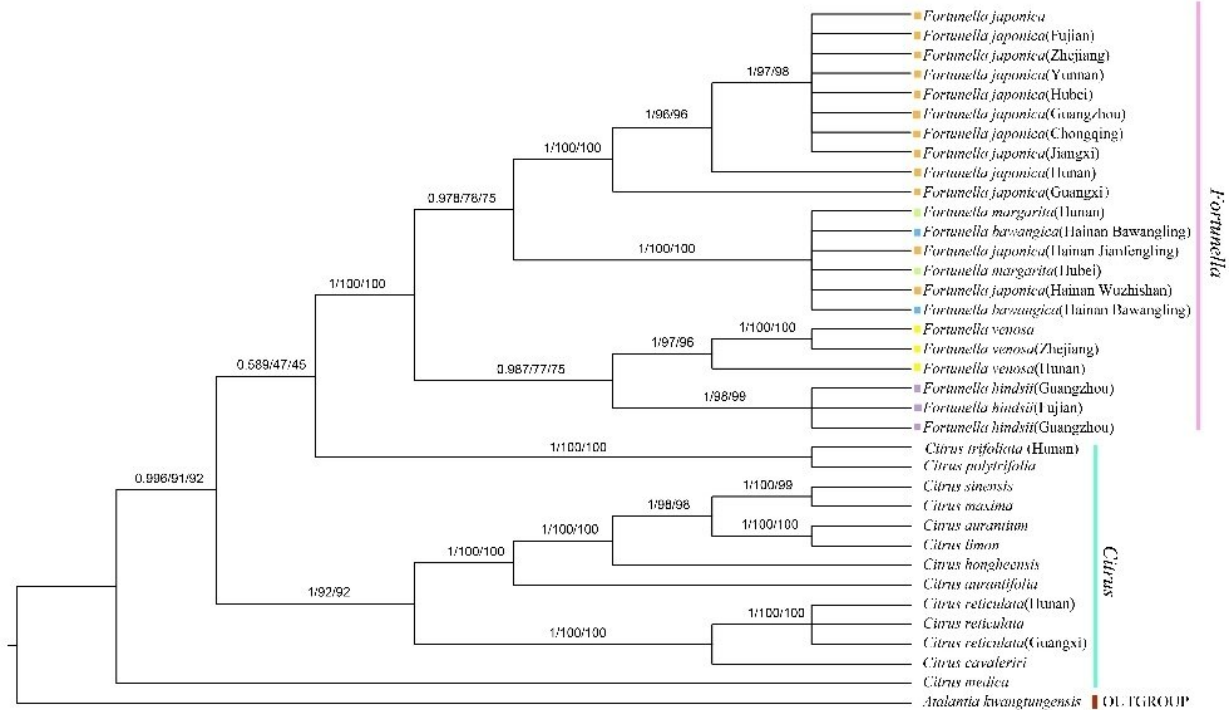
Fortunella Swingle (Rutaceae) is an evergreen shrub or small tree distributed in Southeast Asia. China has the most abundant distribution

of this genus, and all species are concentrated in China. The genus is a unique fruit resource in China, and almost all species are rare and endangered wild plants, so the conservation and classification of its resources have been concerned. Due to the lack of understanding of its main taxonomic characteristics and different understanding of species scale, there has been a long dispute on its systematic status and taxonomy.

In order to clarify the systematic status of *Fortunella* and the taxonomic relationship of the [genus](#), the East African Flora and Taxonomy Group from the Wuhan Botanical Garden of the Chinese Academy of Sciences, cooperating with researchers from Hunan Normal University and the Rural Workstation of Hunan Eco-environment, carried out a large number of field investigations in China for *Fortunella* plants, and the first-hand detailed and accurate morphological data of the genus were obtained. The pollen characteristics were observed by scanning [electron microscope](#), and the pollen micromorphological data of *Fortunella* were obtained.

The researchers have sampled extensively throughout the country, constructed the phylogenetic relationship of the genus by using the chloroplast genome and ITS fragments, confirmed the key characteristics of the classification of *Fortunella*, revised the classification of *Fortunella*, and solved the problems of the system status and subgenus classification of *Fortunella*.

According to the morphological, palynological, and molecular biological evidences, *Fortunella* and *Citrus* are closely related, and there are overlaps in morphology and palynological and molecular biological characteristics.



Phylogenetic analysis of Fortunella and related taxa. Credit: WANG Ting

This study supports the inclusion of Fortunella into Citrus. The morphological and palynological characteristics of *F. venosa*, *F. hindsii*, and *F. japonica* are different, and the three species should be considered as independent species. *F. swinglei*, *F. margarita*, *F. bawangica*, and several hybrids have no essential differences from Fortunella and are treated as synonyms of the latter respectively.

In this study, *F. venosa* and *F. hindsii* were transferred to Citrus as independent species, and new combined names for these two species were proposed. Their species names still use the previous [species](#) epithets: (1) *Citrus venosa* (Champ. ex Benth.) K.M. Liu, X.Z. Cai & G.W. Hu, comb. nov. (2) *Citrus hindsii* (Champ. ex Benth.) K.M. Liu, G.W. Hu & X.Z. Cai, comb. nov.

Citrus japonica Thunb. was originally placed in the genus *Citrus* when it was first named by Thunberg in 1780, and its scientific name should be restored.

The research was published in *Frontiers in Plant Science*.

More information: Ting Wang et al, *Fortunella venosa* (Champ. ex Benth.) C. C. Huang and *F. hindsii* (Champ. ex Benth.) Swingle as Independent Species: Evidence From Morphology and Molecular Systematics and Taxonomic Revision of *Fortunella* (Rutaceae), *Frontiers in Plant Science* (2022). [DOI: 10.3389/fpls.2022.867659](https://doi.org/10.3389/fpls.2022.867659)

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