

Researchers report new fern species from Yunnan, China

May 15 2024, by Zhang Nannan



Angiopteris nodosipetiolata Ting Wang tris, H.F.Chen & Y.H.Yan (A, B: the habitat; C, D, E: lamina; F: portion of stipes showing pulvini; G: rhizome; H, I: sporangia; J: pinnae backside, showing a dense covering of hairs; K: exospores; L: petiole scales.). Credit: Chen Hongfeng

The genus *Angiopteris* Hoffmann, which belongs to the Eusporangiate

ferns within the Marattiales Link and Marattiaceae Kaulf., is a crucial clade in the origin and evolution of ferns, offering significant ornamental, medicinal, edible, and scientific research value.

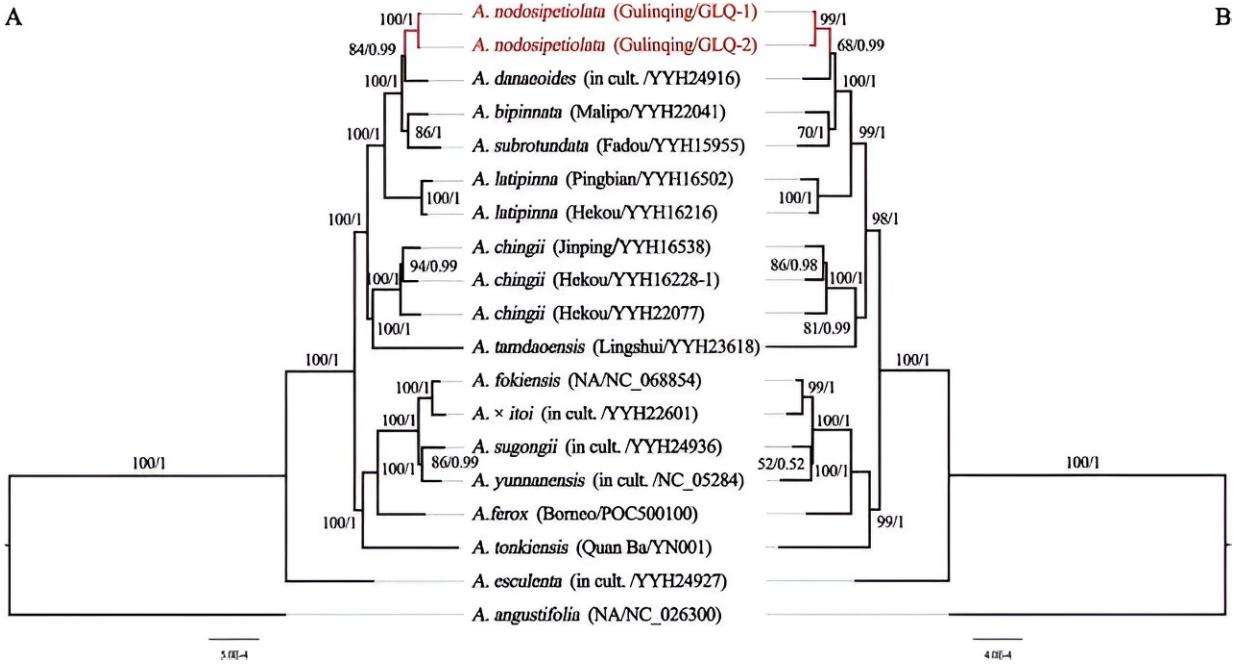
At present, *Angiopteris* is recognized to contain about 53 species in the world, with 30 species in China (18 of which are endemic).

During a field survey of *Angiopteris* in the Gulinqing Nature Reserve, Yunnan Province, in August 2022, researchers led by Prof. Chen Hongfeng from the South China Botanical Garden of the Chinese Academy of Sciences discovered a presumed new species within the genus, and they collected specimens for further morphological observations.

After consulting Flora of China, literature, and data from websites such as CVH and GBIF, the researchers found that this species had morphological characteristics different from those of known species.

For example, it is quite similar to *A. chingii* J.M. Camus in having more than one bare pulvinus on the stipe and numerous joint-like hairs on the undersides of the mature pinnae. However, the pinnae of the former are lanceolate and occur in 4–6 pairs, while the pinnae of the latter are elliptical and occur in only 2–3 pairs.

Judging by the shape of the laminae, this species also closely resembles *A. latipinna* (Ching) Z. R. He, W. M. Chu & Christenh. and *A. subrotundata* (Ching) Z. R. He & Christenh. However, these two species have only one bare pulvinus on the stipe, and the surfaces of their mature pinnae are smooth and hairless except for the mid-rib.



Maximum likelihood and Bayesian inference tree of *Angiopteris* species, based on (A) complete plastid genome sequences and (B) 84 CDSs. Maximum likelihood bootstrap support and Bayesian inference posterior probability are given above the branches. NA (not available), used to show the sampling site cannot be provided. Credit: CHEN Hongfeng

In July 2023, the researchers returned to Gulingqing Nature Reserve to conduct a detailed survey and statistics on the natural environment, species number, and [morphological characteristics](#) of this species, and collected molecular samples for chloroplast genome sequencing.

Phylogenetic and genetic distance analysis revealed that this species is not closely related to the above-mentioned morphologically similar species, and there is significant genetic distance between the species.

Integrating morphological and molecular systematic research, the team confirmed this species as a new species of the genus *Angiopteris*, named

Angiopteris nodosipetiolata Ting Wang et al., H. F. Chen & Y. H. Yan
based on its stipe characteristics with multiple pulvinus.

The research is [published](#) in the journal *PhytoKeys*.

At present, there are about 500 mature individuals of *Angiopteris nodosipetiolata* has been found at the type locality. According to IUCN standards, it is recommended that this new species be listed as Endangered and, like other members of the genus *Angiopteris*, be given second-level national protection.

Potential [species](#) similar to *Angiopteris nodosipetiolata* may exist in [nature reserves](#) as well as in areas of high human activity such as cities or rural areas. Only through active conservation and [scientific research](#) can we ensure the preservation of the diversity and uniqueness of all life on Earth.

More information: Ting Wang et al, *Angiopteris nodosipetiolata* (Marattiaceae), a new fern species from Yunnan, China, *PhytoKeys* (2024). [DOI: 10.3897/phytokeys.241.115175](https://doi.org/10.3897/phytokeys.241.115175)

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