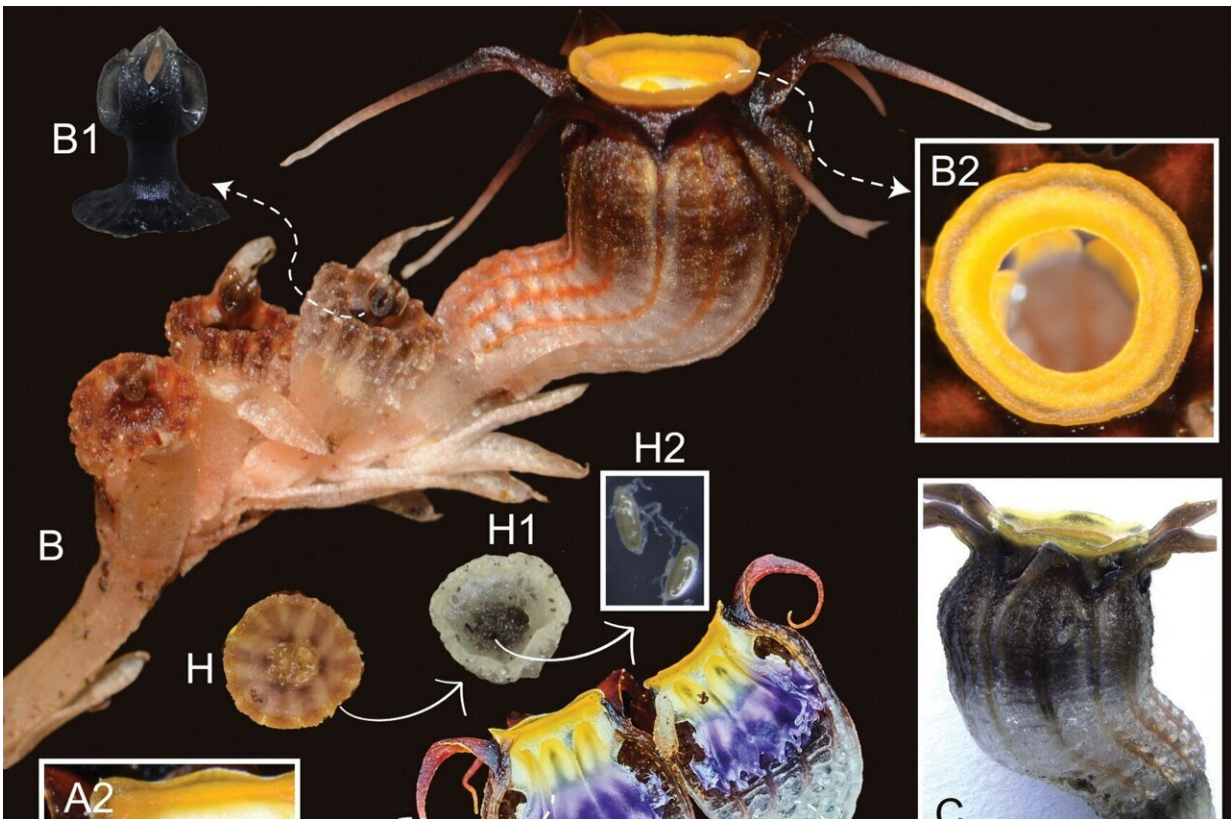


Remarkable new plant species steals nutrients from underground fungi

June 4 2024



Thismia malayana A flowering plant A1 floral tube, inner surface A2 annulus and stamen filaments, view from inside B inflorescence with anthetic flower and several young fruits B1 style and stigma B2 annulus, top view C flower, side view D, E stamens, view from inside and from outside, E1 stamen supraconnectives: one pair of club-shaped inwards-pointing, one pair of acute

outwards-pointing, and one central appendage F stamen supraconnectives, apical view G stamen tube, view from below H, H1 fruit after dehiscence, top view, H2 seeds I shoot base with roots. Credit: Siti-Munirah (A1–I) and Hardy-Adrian (A), CC-BY4.0

A distinctive plant that steals nutrients from underground fungi has been discovered as a new species by botanists from the Forest Research Institute Malaysia (FRIM) in collaboration with local naturalists and stakeholders. The research is [published](#) in the journal *PhytoKeys*.

Discovered in the tropical rainforests of Peninsular Malaysia, *Thismia malayana* belongs to a group of plants known as mycoheterotrophs. Unlike most plants, mycoheterotrophs do not perform photosynthesis. Instead, they act as a parasite, stealing carbon resources from the fungi on their roots.

This adaptation takes advantage of the mycorrhizal symbiosis, which is usually a mutually beneficial relationship between colonizing fungi and a plant's root system.

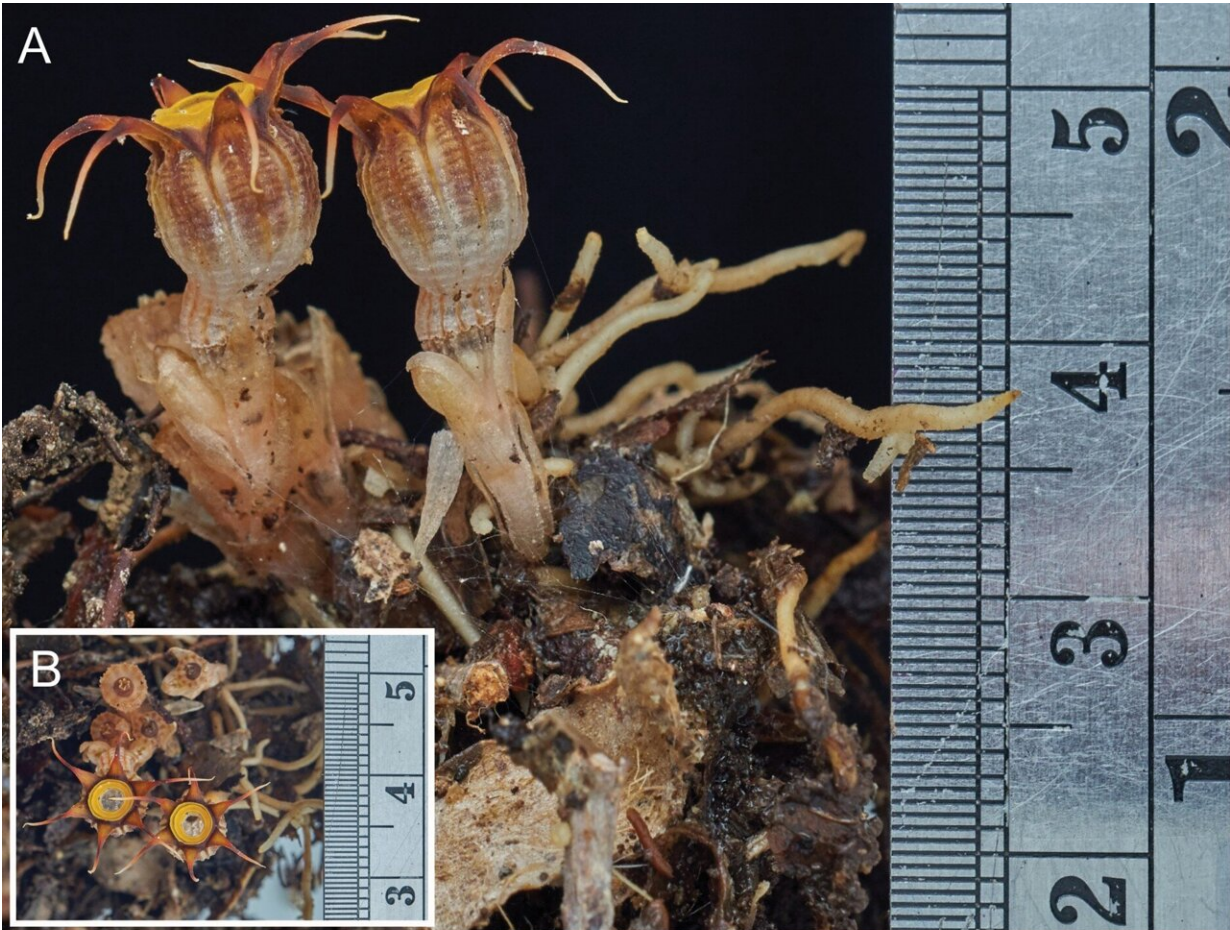
By stealing nutrients from fungi, this newly discovered species thrives in the low-light conditions of dense forest understories where its highly specialized flowers are pollinated by fungus gnats and other [small insects](#)



Thismia malayana live specimen. Credit: Mat Yunoh Siti-Munirah, CC-BY4.0



Thismia malayana live specimen. Credit: Mat Yunoh Siti-Munirah, CC-BY4.0



Thismia malayana with scales (the finest grade is 0.5 mm) A side view B top view C the size compared to the 20-sen coin (23.59 mm in diameter). Credit: Chin Hardy-Adrian, CC-BY4.0

The unusual plant is around 2 cm long and typically found hidden in leaf litter and growing near tree roots or old rotten logs. The research team identified *Thismia malayana* in two locations: the lowlands of Gunung Angsi Forest Reserve in Negeri Sembilan and the hilly dipterocarp forests of Gunung Benom in the Tengku Hassan Wildlife Reserve, Pahang.

Despite its small size, *Thismia malayana* is very sensitive to [environmental changes](#) and has been classified as Vulnerable according to the IUCN Red List criteria. Its limited distribution and the [potential threat](#) from trampling due to its proximity to hiking trails underscore the importance of continued conservation efforts.

More information: Mat Yunoh Siti-Munirah et al, *Thismia malayana* (Thismiaceae), a new mycoheterotrophic species from Peninsular Malaysia, *PhytoKeys* (2024). [DOI: 10.3897/phytokeys.242.120967](https://doi.org/10.3897/phytokeys.242.120967)

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