

Presentation format: Oral

Diversity and *ex situ* conservation of terrestrial orchids in Khao Yai National Park, Thailand

Nooduan Muangsan¹, Chuthapond Musimun¹, Rungtip Malaiphis¹, Nongyao Piankhunthod², Thotsaporn Chanokkhun¹, and Santi Watthana¹

¹ School of Biology, Institute of Science, Suranaree University of Technology, Nakhon Ratchasima, Thailand

² Plant Genetic Conservation Center, Khlong Phai, Sikhio district, Nakhon Ratchasima, Thailand

Khao Yai National Park, established in 1962, is the first national park in Thailand. It is now a World Heritage Site. Covering almost 2,168 km², the national park is located mainly in the Nakhon Ratchasima province. The park harbours a rich diversity of animals and plants, including terrestrial orchids, which require further conservation studies. The aim of this talk is to report the diversity, ecology and *ex situ* propagation of the terrestrial orchids of Khao Yai National Park. Previous reports and our exploration during 2021-2023 in Khao Yai National Park have recorded a total of 83 terrestrial orchid species belonging to 40 genera and five subfamilies. The genera *Habenaria*, *Calanthe*, *Eulophia*, and *Liparis* have the highest number of species with 12, 5, 5 and 5, respectively. There are 8 (9.64%) holomycotrophic species. The most common species are *Calanthe triplicata* (Willemet) Ames, *Acanthophippium striatum* Lindl., *Apostasia wallichii* R.Br. J.J.Sm. A comparative study across different forest types in Khao Yai National Park showed varying numbers of orchids: moist seasonal rainforest (18 spp.), mixed deciduous forest and dry evergreen forest (77 spp.), grassland (13 spp.) and lower montane rainforest (39 spp.), with low similarity (<0.33) between forest types based on the Sorensen Index. Moreover, four popular nature trails for tourists revealed different numbers of terrestrial orchids: Pha Diewdai (13 spp.), Krongkaew (3 spp.), Pha Kluai Mai (14 spp.), Pha Tabaek (4 spp.), with low similarity (<0.35) based on the Sorensen Index. We report success with the *ex situ* propagation of 12 species via *in vitro* seed germination. Notably, there were 9 endemic species, 4 vulnerable species, and 3 endangered species which needed urgent conservation measures.

Keywords: conservation, Khao Yai National Park, micropropagation, terrestrial orchids