



Thismia okhaensis (Thismiaceae)—a new fairy lantern from Vietnam

LƯU HỒNG TRƯỜNG¹, NGUYỄN THIỆN TỊCH², TRẦN GIỎI³, ĐINH QUANG DIỆP⁴, VŨ NGỌC LONG¹,
NGUYỄN LÊ XUÂN BÁCH¹, NGÔ THỊ THÙY DUNG¹ & NGUYỄN THÀNH TRUNG¹

¹ Southern Institute of Ecology, Vietnam Academy of Science and Technology. Address: 1 Mạc Đĩnh Chi, District 1, Ho Chi Minh City, Vietnam. Corresponding author's e-mail: hongtruongluu@gmail.com

² Department of Ecology and Evolutionary Biology, University of Sciences, Vietnam National University, Hồ Chí Minh City, Vietnam

³ Department of Forestry, Khánh Hòa Province, Vietnam

⁴ Faculty of Environment and Resource, Nong Lam University. Address: Thủ Đức District, Hồ Chí Minh city, Vietnam

Abstract

Thismia okhaensis is described and illustrated as a new species discovered in Ô Kha Valley, Khánh Hòa Province in central Vietnam. The new species belongs to section *Sarcosiphon* on account of having mitre-like flowers. It is allied to *T. angustimitra* and *T. mirabilis*, but it differs in having a convex top mitre with three digitate furrows, involucre bracts with round apex, apertures totally hidden under the mitre, and connective appendages with lateral teeth.

Key words: Thismiaceae, *Thismia okhaensis*, mycotrophic plant, Khánh Hòa Province, Vietnam

Introduction

Thismia Griffith (1844: 221) has been traditionally classified in the Burmaniaceae (Jonker, 1938, 1948, Stone 1980, Larsen 1987) but a recent molecular work supports its position within the Thismiaceae (Merckx *et al.* 2006). The genus is known to have more than 30 mycotrophic species occurring mainly in the Asian and American tropics, with few species in the subtropical and temperate areas in North America, East Asia and Australia (Ridley 1924, Jonker 1948, Thiele & Jordan 2002, Yang *et al.* 2002, Tsukaya & Okada 2005, 2012, Dančák *et al.* 2013). Prior to this paper, three species of *Thismia* had been recorded in Vietnam (Pham-Hoang 2000, Larsen & Averyanov 2007), namely *Thismia annamensis* Larsen and Averyanov (2007: 13), *Thismia javanica* Smith (1910: 32) and *Thismia tentaculata* Larsen and Averyanov (2007: 16). A botanical expedition to the Ô Kha Forest in Khánh Sơn District, Khánh Hòa Province in south-central Vietnam yielded a *Thismia* collection that is different from all other known species in the genus. Further search for additional individuals was not successful. Therefore, only 3 individuals occurring in an area of less than 1 square metre were observed and two of them were collected (KH 638B). After examination of the specimen and consulting the literature, the collection is described below as a new species to science, making it the fourth species of the genus for the flora of Vietnam.

Taxonomy

Thismia okhaensis Luu, Tịch, G. Trần & Q.D. Đinh, *sp. nov.* (Figs. 1 & 2).

Allied to *Thismia angustimitra* Chantanaorr. and *T. mirabilis* K.Larsen in having vermiform roots, and suppressed outer tepals and connate inner tepals that form a mitre, but it differs in having a convex top mitre with three digitate furrows, involucre bracts with round apex, apertures totally hidden under the mitre, and connective appendages with lateral teeth.

Type:—VIETNAM. Khánh Hòa Province: Khánh Sơn District, Khánh Sơn Protection Forest, Ô Kha Valley, approximate coordinates 12° 2'57" N & 108°59'10" E, ca. 800 m elevation, 12 July 2013. Nguyễn Thiện Tịch, Trần Giỏi, Đinh Quang Diệp, Lưu Hồng Trường and Nguyễn Thành Trung KH 638B (holotype, SGN!).

Acknowledgements

The species was discovered during the course of the project “Building a database of forest biodiversity in Khánh Hòa Province” funded by Khánh Hòa Provincial Department of Natural Resource and Environment to the Southern Institute of Ecology and managed by the Khánh Hòa Agency of Environment. We thank Mr. Mai Văn Thắng, Ms. Trần Thị Gái, Ms. Lê Thị Thu Hồng, Mr. Trần Chí Thu, Ngô Thị Tố Loan and Mr. Dương Quang Vinh for their support and cooperation. We are grateful to the directors and staff of Khánh Sơn Protection Forest for assistance in the field. We thank Mr. Lê Khắc Quyết and Dr. Herbert Covert for providing copies of the literature, Mr. Nguyễn Trần Quốc Trung for editing the drawings, and Dr. Jacinto Regalado for correcting the English language. We thank the editors and reviewers for their constructive comments.

References

- Chantanaorrapint, S. (2008) *Thismia angustimitra*, a new species from Thailand. *Blumea* 53: 524–526.
<http://dx.doi.org/10.3767/000651908x607477>
- Dančák, M., Hroneš, M., Sochor, M., Koblíková, L., Hédli, R., Hrázský, Z., Vildomcová, A., Sukri, R.S. & Metali, F. (2013) A new species of *Thismia* (Thismiaceae) from Brunei Darussalam, Borneo. *Phytotaxa* 125: 33–39.
<http://dx.doi.org/10.11646/phytotaxa.125.1.5>
- IUCN (2001) *IUCN Red List Categories and Criteria, Version 3.1*. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Switzerland, and Cambridge, United Kingdom.
- Jonker, F.P. (1938) A monograph of the Burmanniaceae. *Mededeelingen van het Botanisch Museum en Herbarium van de Rijks Universiteit te Utrecht (Utrecht)* 51: 1–279.
- Jonker, F.P. (1948) Burmanniaceae. In C.G.G.J. van Steenis (ed.) *Flora Malesiana* 1 (4): 12–26. Leiden.
- Larsen, K. & Averyanov, L.V. (2007) *Thismia annamensis* and *Thismia tentaculata*, two new species of Thismiaceae from central Vietnam. *Rheedea* 17 (1&2): 13–19.
- Larsen, K. (1965) Studies in the flora of Thailand 27. Thismiaceae. *Dansk Botanisk Arkiv Udgivet af Dansk Botanisk Forening (Copenhagen)* 23: 171–174.
- Larsen, K. (1987) Thismiaceae. In: T. Smitinand & K. Larsen (eds.), *Flora of Thailand* 5 (1): 124–126.
- Merckx, V., P. Schols, H. Maas-van de Kamer, P. Maas, S. Huysmans & E. Smets (2006) Phylogeny and evolution of Burmanniaceae (Dioscoreales) based on nuclear and mitochondrial data. *American Journal of Botany* 93: 1684–1698.
<http://dx.doi.org/10.3732/ajb.93.11.1684>
- Pham-Hoang, H. (2000) *Thismiaceae. Cay co Viet Nam (An Illustrated Flora of Vietnam)*, 3: 759. Youth Publishing House, Ho Chi Minh City, Vietnam.
- Ridley, H.N. (1924) *Thismia. Flora of Malay Peninsula*. 4: 307–308. L. Reeve & Co. London.
- Smith, J.J. (1910) I. Zur Systematik von *Thismia javanica* J.J.Sm. *Annales du Jardin Botanique de Buitenzorg* 23: 32–35.
- Thiele, K.R. & Jordan, P. (2002) *Thismia clavarioides* (Thismiaceae), a new species of Fairy Lantern from New South Wales. *Telopea* 9: 765–771.
- Tsukaya, H. & Okada, H. (2005) *Thismia mullerensis* (Burmanniaceae), a new species from Muller Range, Central Kalimantan. *Acta Phytotaxonomica et Geobotanica* 56: 129–133.
- Tsukaya, H. & Okada, H. (2012) A New Species of *Thismia* (Thismiaceae) from West Kalimantan, Borneo. *Systematic Botany* 37: 53–57.
<http://dx.doi.org/10.1600/036364412x616639>
- Yang, S.-Z., Saunders, R.M.K. & Hsu, C.-J. (2002) *Thismia taiwanensis* sp. nov. (Burmanniaceae tribe Thismiaceae): first record of the tribe in China. *Systematic Botany* 27: 485–488.