

Two new records of non-photosynthetic *Burmannia* species (Burmanniaceae) from Laos and Vietnam

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Summary: Two new national records are reported, i.e. *Burmannia nepalensis* from Laos and *B. lutescens* from Vietnam. Both of them are supplied by photographs of the studied plants in living state. Species diversity of *Burmannia* in Laos and Vietnam is briefly discussed.

Keywords: Indochina, Laos, Vietnam, mycoheterotrophic plants, flora, biodiversity

The genus *Burmannia* is the largest in the family Burmanniaceae (at least if Thismiaceae is treated as a separate family). It comprises 59 currently accepted species (GOVAERTS et al. 2011). This genus is distributed in tropical and subtropical regions of the Old and the New World with about one half of its species occurring in Asia. *Burmannia* represents a notable group of plants as it contains both photosynthetic and mycoheterotrophic species (MAAS-VAN DE KAMER 1998; WU et al. 2010; MERCKX et al. 2013).

Taxonomy and geographical distribution of *Burmannia* species, especially of the mycoheterotrophic ones, are far from being sufficiently studied (ZHANG 1999). Since 2000, at least three currently accepted species (AVERYANOV 2005; TSUKAYA & DARNAEDI 2012) and a number of range extensions have been published. Here we report two further new records, i.e. *B. nepalensis* Hook. f. from Laos and *B. lutescens* Becc. from Vietnam.

Burmannia nepalensis Hook. f. (Fig. 1)

Studied specimen. Laos: Bolikhamsai province, Thaphabat district, Phou Khao Khouay Nat. Biodiv. Conserv. Area, 5.5 km NNW of Hat Khay village, forest edge, 18°27'20"N 103°08'40"E, 300 m, 09 December 2015, M.S. Nuraliev 1420 [spirit material: IBSC, MW].

Notes. Presence of *B. nepalensis* in Laos was rather expectable because it is known to have a wide distribution area from India to Japan, Philippines and Indonesia (ZHANG 1999; WU et al. 2010).

Prior to our finding, five species of *Burmannia* were known from Laos (NEWMAN et al. 2007), of which only one species, *B. wallichii* (Miers) Hook. f., is non-photosynthetic.

Burmannia lutescens Becc. (Fig. 2)

Studied specimen. Vietnam: Kon Tum province, Kon Plong district, Thach Nham protected forest, 17 km N of Mang Den town, in the forest, on slope, 14°45'05"N 108°18'25"E, 1150 m, 09 June 2016, M.S. Nuraliev, A.N. Kuznetsov, S.P. Kuznetsova 1657 [spirit material: IBSC, MW].

Notes. *Burmannia lutescens* was believed to be a 'typical Malesian species', endemic to this area (ZHANG 1999). Among its previously known locations, the ones closest to Vietnam are found on

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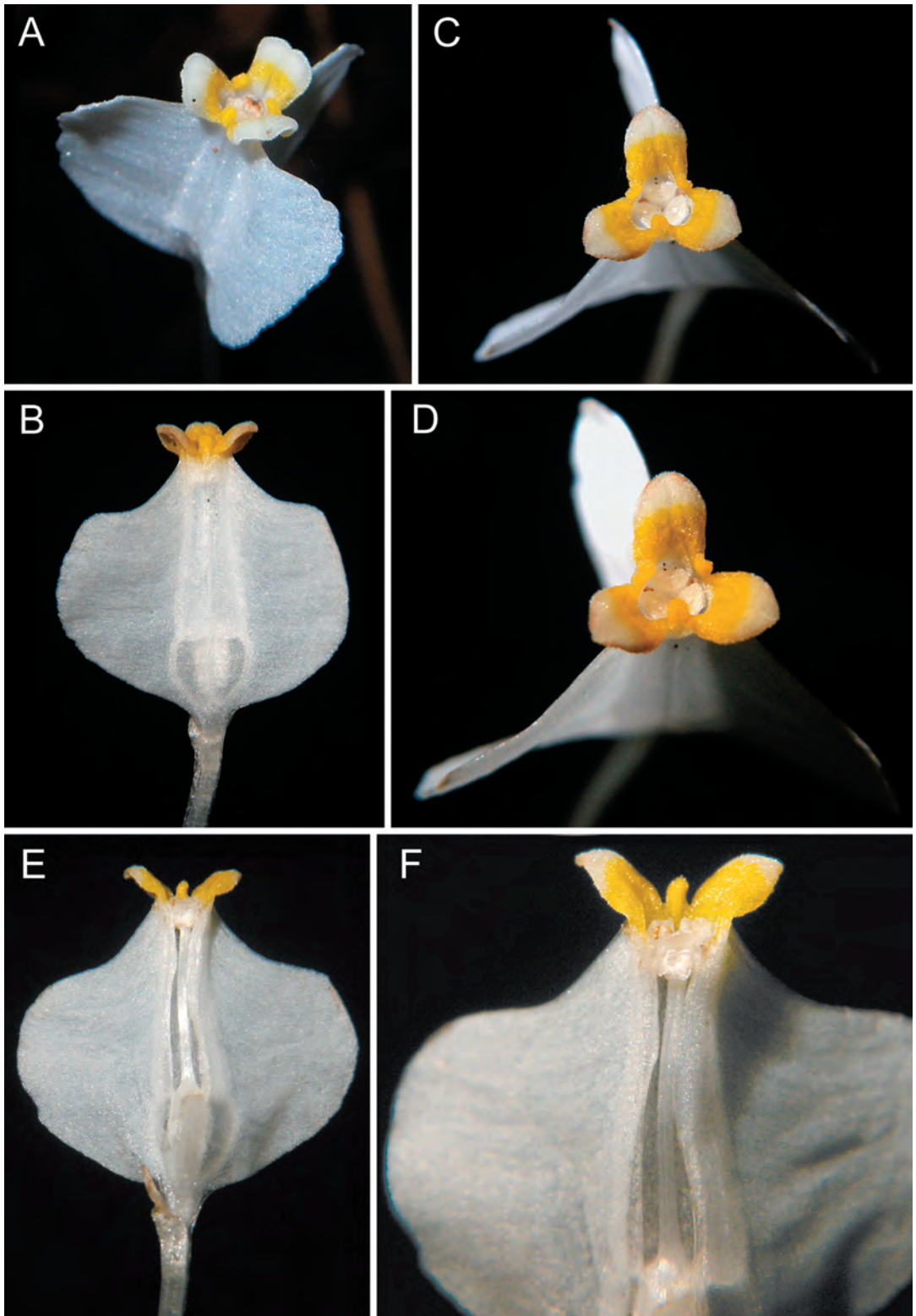


Figure 1. Flower of *Burmannia nepalensis* in Phou Khao Khouay Nat. Biodiv. Conserv. Area (Laos). A – oblique view; B – side view; C, D – top view; E, F – longitudinally opened flower showing stamens and style. *Nuraliev 1420*. Photos by M. Nuraliev.

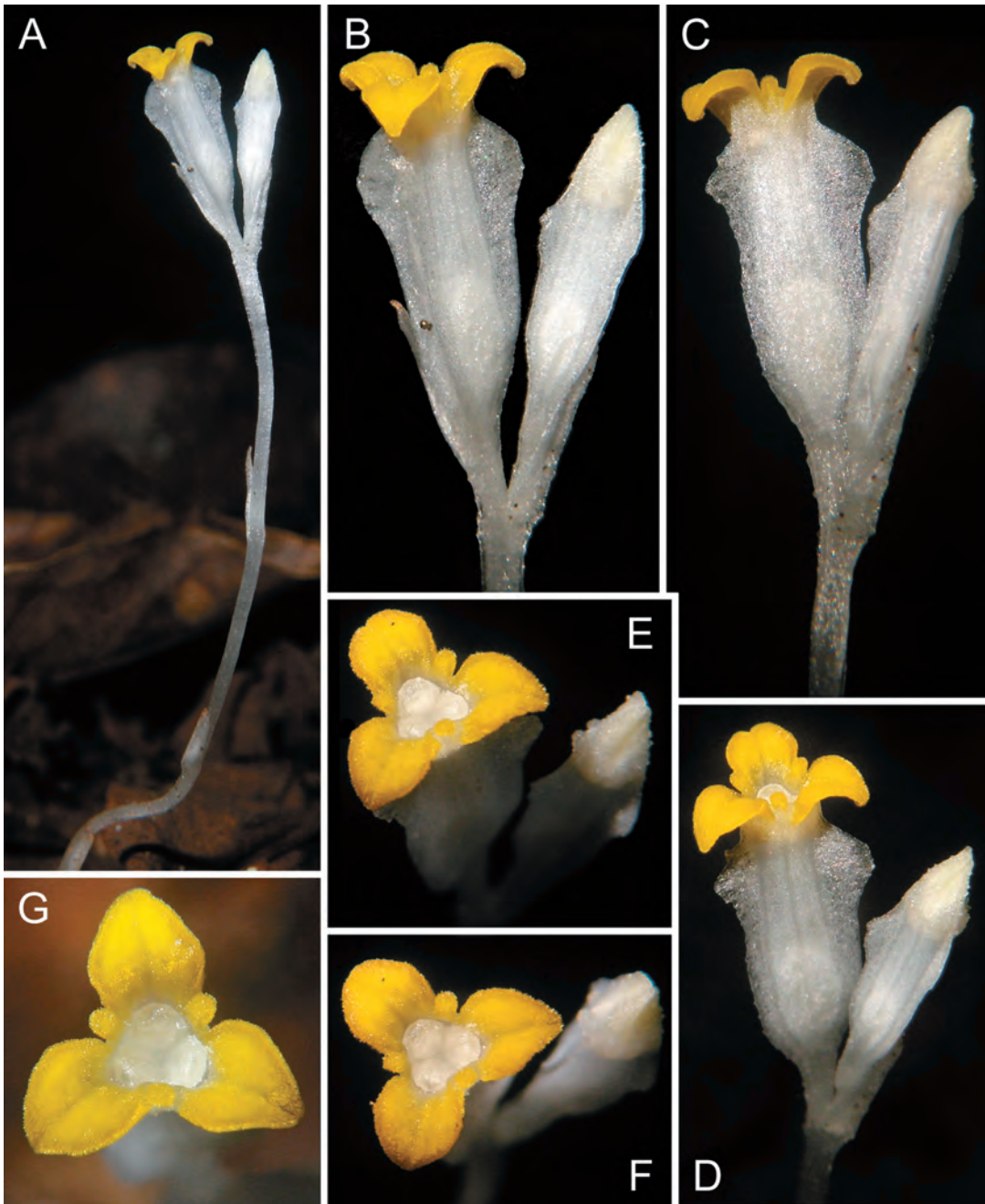


Figure 2. *Burmannia lutescens* in Thach Nham forest (Vietnam). A – plant in natural habitat; B, C – side view of inflorescence; D – oblique view of inflorescence; E–G – close-up of flower. *Nuraliev, Kuznetsov, Kuznetsova 1657*. Photos by M. Nuraliev.

Palawan island of the Philippines and in Sarawak (Borneo) (ZHANG 1999). JONKER (1948) also included Malay Peninsula in distribution area of *B. lutescens*; this is probably a consequence of his different view on the species delimitation in this group in relation to the treatment by ZHANG (1999; see also GOVAERTS et al. 2011) which is followed here. Anyway, in JONKER's account this species is also restricted to the Malesian region.

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Similar findings of Malesian species in Southern Vietnam were recently reported for other groups of plants, e.g. *Plocoglottis quadrifolia* J.J. Sm. (Orchidaceae; NURALIEV et al. 2015) and a mycoheterotroph *Petrosavia stellaris* Becc. (Petrosaviaceae; REMIZOWA et al. 2017). It is likely that Southern Vietnam shows a considerable floristic relation with northern Malesian areas and more examples of common floristic elements are to be discovered in future.

NGUYEN THI DO (2003) as well as PHAM HOANG HO (2000) list nine species of *Burmannia* occurring in Vietnam. Two species new to science (AVERYANOV 2005) and one new record (DANG VAN SON et al. 2015) were added afterwards. Together with our finding, the number of *Burmannia* species known from Vietnam reaches 13, of which seven are mycoheterotrophs; DANG VAN SON et al. (2015) erroneously indicated *B. luteoalba* Gagnep. as 'saprophytic' in their key as this species is in fact autotrophic.

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References

- AVERYANOV L. V. (2005): Two new species of Burmanniaceae – *Burmannia coerulea* and *B. unguiculata* from limestone mountains of the northern Viet Nam. – Vietnam J. Sci. Technol. **21**(3): 49–53.
- DANG VAN SON, TAGANE S., TOYAMA H., YAHARA T., NAIKI A., NGUYEN HONG QUAN & TRAN HOP (2015): A new record of *Burmannia championii* Thwaites (Burmanniaceae) from Southern Vietnam. – J. Biotechnol. **13**(14A): 1393–1396.
- GOVAERTS R., SAUNDERS R. M. K., MAAS-VAN DE KAMER H., MAAS-VAN DE KAMER P. & ZHANG D. X. (2011): World checklist of Burmanniaceae. – Kew: Royal Botanic Gardens. Available from: <http://apps.kew.org/wcsp/> [Accessed: 20 October 2017]
- JONKER F. P. (1948): Burmanniaceae. – In: VAN STEENIS C. G. G. J. [ed.]: Flora Malesiana I (4): 12–26. – Batavia: Noordhoff-Kolff N.V.
- MAAS-VAN DE KAMER H. (1998): Burmanniaceae. – In: KUBITZKI K. [ed.]: Families and genera of vascular plants, Vol. 3: Monocotyledons, Liliaceae (except Orchidaceae): 154–164. – Berlin, Heidelberg, New York: Springer.
- MERCKX V. S. F. T., FREUDENSTEIN J. V., KISSLING J., CHRISTENHUSZ M. J. M., STOTLER R. E., CRANDALL-STOTLER B., WICKETT N., RUDALL P. J., MAAS-VAN DE KAMER H. & MAAS P. J. M. (2013): Taxonomy and classification. – In: MERCKX V. S. F. T. [ed.]: Mycoheterotrophy: The biology of plants living on fungi: 19–101. – New York: Springer.
- NEWMAN M., KETPHANH S., SVENGUSUKSA B., THOMAS P., SENGDALA K., LAMXAY V. & ARMSTRONG K. (2007): A checklist of the vascular plants of Lao PDR. – Edinburgh: Royal Botanic Garden Edinburgh.
- NGUYEN THI DO (2003): 239. Burmanniaceae Blume, 1827. – In: NGUYEN TIEN BAN [ed.]: Checklist of plant species of Vietnam. Vol. 2: 26–27. – Hanoi: Agric. Publ. House. [In Vietnamese]
- NURALIEV M. S., AVERYANOV L. V., KUZNETSOV A. N. & KUZNETSOVA S. P. (2015): Review of the genus *Plocoglottis* (Orchidaceae) in Cambodia, Laos and Vietnam. – Wulfenia **22**: 189–199.
- PHAM HOANG HO (2000): An illustrated flora of Vietnam. Vol. 3. – Ho Chi Minh: Youth Publishing House. [In Vietnamese]

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- REMIZOWA M. V., NURALIEV M. S., AVERYANOV L. V., KUZNETSOV A. N. & KUZNETSOVA S. P. (2017): A revision of the family Petrosaviaceae in Vietnam. – *Nordic J. Bot.* **35**: 262–271.
- TSUKAYA H. & DARNAEDI D. (2012): *Burmannia bengkulensis* sp. nov. (Burmanniaceae) from Sumatra. – *Nordic J. Bot.* **30**(2): 159–162.
- WU D., ZHANG D. & SAUNDERS R. M. K. (2010): Burmanniaceae. – In: WU Z. Y., RAVEN P. H. & HONG D. Y. [eds]: *Flora of China*. Vol. 23: 121–124. – Beijing and St. Louis: Science Press and Missouri Botanical Garden.
- ZHANG D. X. (1999): Systematics of *Burmannia* L. (Burmanniaceae) in the Old World. – Unpublished PhD thesis, The University of Hong Kong.

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