

New records of the genus *Rungia* (Acanthaceae) from Vietnam

ZHELI LIN^{1,*}, NGUYEN THU THUY^{2,3}, DO VAN HAI^{2,3} & YUNFEI DENG^{1,4}

ABSTRACT

Three species of *Rungia* are newly recorded from Vietnam, viz. *R. burmanica*, *R. flaviflora* and *R. sinothailandica*. Photographs, ecology, phenology and notes regarding each species are provided.

KEYWORDS: Flora, taxonomy, Vietnam.

Accepted for publication: 28 June 2022. Published online: 26 July 2022

INTRODUCTION

The genus *Rungia* Nees (Acanthaceae) consists of approximately 50 species distributed in the tropical and subtropical regions of the Old World (Hu, 2002; Mabberley, 2008; Hu *et al.*, 2011). It is closely related to *Justicia* L., but differs by the rising placenta in ripe fruit (Hansen, 1989; Hu *et al.*, 2011). In Vietnam, 14 species have been previously recorded (Hai & Huyen, 2009; Hai *et al.*, 2012, 2016, 2018, 2021; Hai & Khoi, 2015), but during recent field and herbarium surveys in preparation for the taxonomic revision of *Rungia* in Vietnam, three species were found for the first time in the country and are reported below.

SPECIES NEWLY RECORDED IN VIETNAM

1. *Rungia burmanica* (C.B. Clarke) B. Hansen, Nordic J. Bot. 9(2): 211. 1989.—*Justicia burmanica* C.B. Clarke, Fl. Brit. India 4(12): 527. 1885. Type: Myanmar, Griffith 6184 (lectotype **K** [K000884074!], designated by Lin & Deng (2017a); isolectotype **K** [K000884073!]). Fig. 1.

Distribution.— China, Myanmar, Vietnam.

Ecology.— In wet evergreen forest, alt. 150–500 m.

Phenology.— Flowering from March to April, October to early November. Fruiting from May to June, November to early January.

Note.— *Rungia burmanica* is characterized as a shrubby herb with broadly obovate green bracts, white corolla and puberulent capsule. It is morphologically similar to *R. pinpiensis* H.S.Lo, but *R. pinpiensis* has oblong bracts and a glabrous capsule. It is also similar to *R. sinothailandica* Z.L.Lin & Y.F.Deng in habit, but in *R. sinothailandica* the fertile bracts have crispate and tawny margins.

Specimens examined.— VIETNAM. Lao Cai [Doi Lang Forest, Pho Lu Forestry Farm, 19 Dec. 1964, *Sino-Vietnam expedition 3121* (HN); Van Ban District, Nam Xe, 29 Apr. 2011, *D.V. Hai et al. HLVB 938* (HN)]; Thai Nguyen [Vo Nhai District, Thuong Lung, 180 m alt., 21 Oct. 2004, *L.Q. Li et al. 116* (HN)]; Tuyen Quang [Na Hang District, An Ma Forest, about 2 km from trail between Na Hang Power Station and Ban Chou, 7 Mar. 1994, *D.K. Harder et al. 2375* (HN)].

¹ Key Laboratory of Plant Resources Conservation and Sustainable Utilization, South China Botanical Garden, Chinese Academy of Sciences, Guangzhou 510650, China.

² Department of Botany, Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Cau Giay, Hanoi 10072, Vietnam.

³ Graduate University Science and Technology, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Cau Giay, Hanoi 10072, Vietnam.

⁴ Southeast Asia Biodiversity Research Institute, Chinese Academy of Sciences, Yezin, Nay Pyi Taw 05282, Myanmar.

* Corresponding author: zhelinlin@scbg.ac.cn

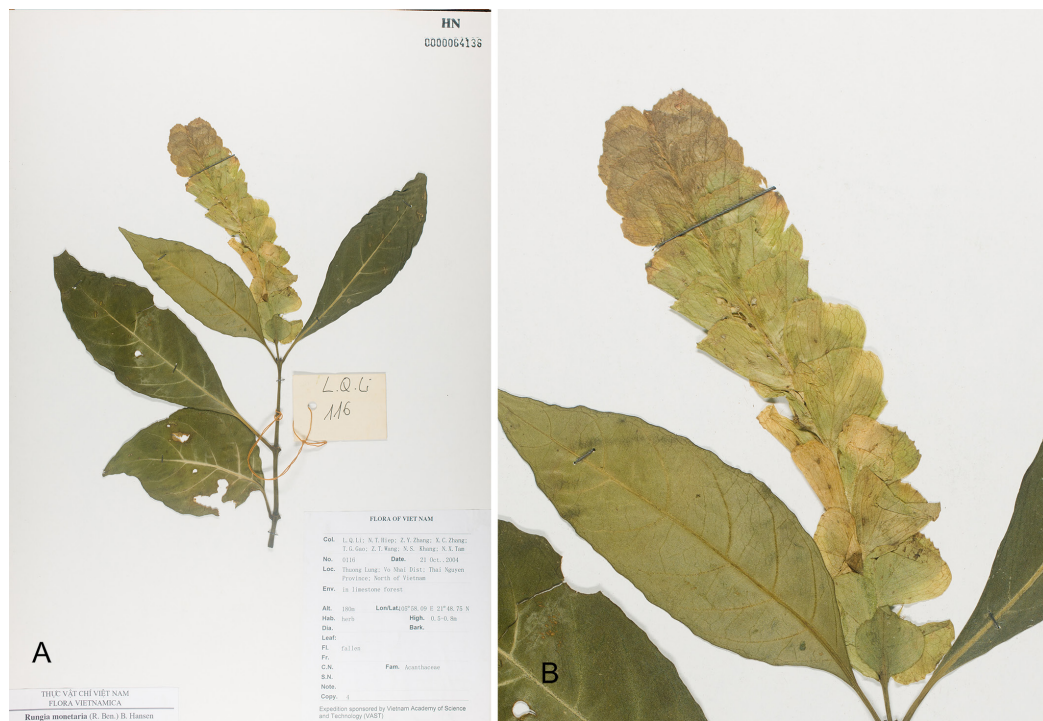


Figure 1. *Rungia burmanica* (C.B. Clarke) B. Hansen : A. habit; B. inflorescence showing bracts. Photos from L.Q. Li et al. 116 (HN).

2. *Rungia flaviflora* Z.L. Lin & Y.F. Deng, Syst. Bot. 43(1): 290. 2018. Type: China, Yunnan, Gejiu Shi, Manhao Zhen, Lüshuihe, ca 500 m, in limestone forest, near a streamside, 28 Mar. 2015, Z.L. Lin L15032802 (holotype **IBSC!**; isotype **IBSC!**). Fig. 2A–C.

Distribution.— China, Vietnam.

Ecology.— In evergreen forest, on limestone, alt. 200–500 m.

Phenology.— Flowering from March to May.

Note.— *Rungia flaviflora* is a distinctive species given its prostrate, 30–50 cm long stem, adaxial leaf surfaces covered with dotted cystoliths, and yellow corollas. It is similar to *R. burmanica* in bract shape, but is easily distinguished from the latter by the prostrate (not erect) stem, yellow (not white) corolla, and dotted (not linear) cystoliths in adaxial leaf surfaces (Lin & Deng, 2018).

Specimen examined.— VIETNAM. Lao Cai [Bat Xat District, Ngai Thau, 16 Apr. 2018, D.V. Hai et al. DVH 85 (HN)].

3. *Rungia sinothailandica* Z.L. Lin & Y.F. Deng, Nordic J. Bot. 35(4): 488. 2017. Type: China, Yunnan, Xishuangbanna Daizu Zizhizhou, Jinghong Shi, Menglong Zhen, Mengsong Cun, 1,700 m, 29 Mar. 2014, Z.L. Lin & X.E. Ye 14032901 (holotype **IBSC!**; isotype **IBSC!**). Fig. 2D–F.

Distribution.— China, Thailand, Vietnam.

Ecology.— In evergreen forest, along stream, alt. 800–1,700 m.

Phenology.— Flowering from November to March, fruiting from February to April.

Note.— *Rungia sinothailandica* is easily distinguished from other *Rungia* species by the fertile bracts with crispate, tawny margins (Fig. 2E) (Lin & Deng, 2017b).

Specimens examined.— VIETNAM. Bac Kan [Na Ri District, Kim Hy, unknown collector, Tb48 (HN)]; Lao Cai [Van Ban District, Nam Xe, 25 Mar. 2019, D.V. Hai et al. HL158 (HN, **IBSC**); 29 Apr. 2011, D.V. Hai et al. HLBV 982 (HN); 27 Feb. 2001, D.K. Harder et al. 7015 (HN)]; Son La [Phu Yen

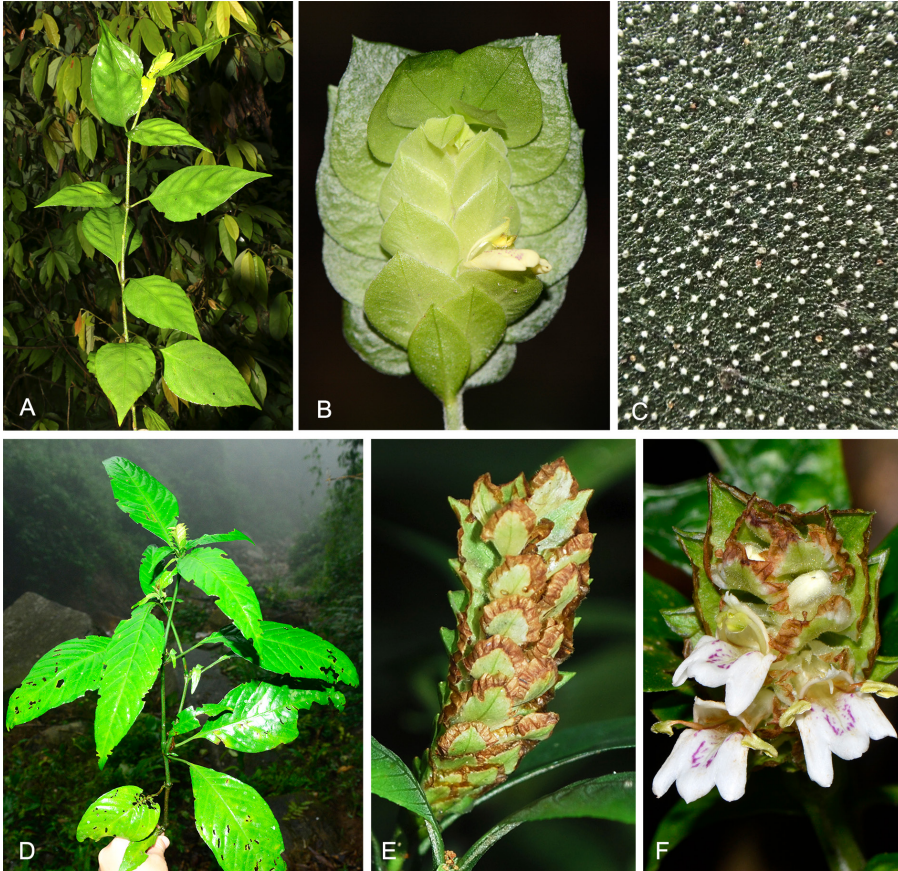


Figure 2. *Rungia flaviflora* Z.L.Lin & Y.F.Deng: A. habit; B. inflorescence showing bracts and corolla; C. adaxial leaf surface showing dotted cystoliths; *R. sinothailandica* Z.L.Lin & Y.F.Deng: D. habit; E. inflorescence showing fertile bracts (with crisped and tawny margins); F. part of inflorescence showing corollas.

District, 8 Apr. 2008, *N.Q. Binh & D.D. Cuong VN1947 (HN)*]; Yen Bai [Nghia Lo District, Muong Lang, 28 Mar. 1971, *unknown collector; s.n. (HN)*].

ACKNOWLEDGEMENTS

We are grateful to the curators of the herbaria of HITBC, HN, IBSC, K, KUN, PE and QBG for access to the specimens for our study. This work was supported by National Natural Science Foundation of China (grant no. 31900182, 31970208), Guangdong Natural Science Foundation (grant no. 2018A030310390), Southeast Asia Biodiversity Research Institute, Chinese Academy of Sciences (grant no. Y4ZK111B01) and Vietnam Academy of Science and Technology (grant no. VAST 04.09/22-23).

REFERENCES

- Hai, D.V., Anh, T.T.P. & Huyen, D.D. (2012). *Rungia yunnanensis* H.S.Lo, a newly recorded species of Acanthaceae for flora of Vietnam. In: M.S. Tuan (ed.), Proceedings of the 1st National Scientific Conference on Biological Research and Teaching in Vietnam, Hanoi. 12th December 2012. Agriculture Publishing House, Hanoi, pp. 84–87. [in Vietnamese].
- Hai, D.V., Deng Y.F., Choudhary, R.K. & Lee, J. (2016). *Rungia daklakensis* (Acanthaceae), a new species from Vietnam. *Annales Botanici Fennici* 53(3–4): 219–222.
- Hai, D.V., Hoan, D.T., Lin, Z.L., Deng, Y.F., Choudhary, R.K. & Lee, J. (2021). *Rungia gialaiensis* (Acanthaceae), a new species from the Central Highlands of Vietnam. *Phytotaxa* 500(4): 294–300.

- Hai, D.V. & Huyen, D.D. (2009). The genus *Rungia* Nees (Acanthaceae Juss.) in the flora of Vietnam. In: H.T. Hai (ed.), Proceedings of the 3rd National Scientific Conference on Ecology and Biological Resources, Hanoi, 22nd October 2009. Agriculture Publishing House, Hanoi, pp. 102–106. [in Vietnamese].
- Hai, D.V. & Khoi, N.K. (2015). *Rungia sarmentosa* Valetton (Acanthaceae Juss.): New record for the flora of Vietnam. In: K.D. Long (ed.), Proceedings of the 6th National Scientific Conference on Ecology and Biological Resources, Hanoi, 21st October 2015. Publishing House for Science and Technology, Hanoi, pp. 121–123. [in Vietnamese].
- Hai, D.V., Oanh, P.T., Deng, Y.F., Lin, Z.L., Choudhary, R.K. & Lee, J. (2018). *Rungia khoii* (Acanthaceae), a new species from northern Vietnam. *Annales Botanici Fennici* 55(4–6): 333–337.
- Hansen, B. (1989). Notes on SE Asian Acanthaceae 1. *Nordic Journal of Botany* 9(2): 209–215.
- Hu, C.C. (2002). *Rungia*. In: C.C. Hu (ed.), *Flora Reipublicae Popularis Sinicae*, Vol. 70, pp. 255–266. Science Press, Beijing.
- Hu, J.Q., Deng, Y.F. & Daniel, T.F. (2011). *Rungia*. In: Z.Y. Wu, P.H. Raven & D.Y. Hong (eds), *Flora of China*, Vol. 19, pp. 443–447. Science Press, Beijing & Missouri Botanical Garden Press, St. Louis.
- Lin, Z.L. & Deng, Y.F. (2017a). The identity of *Justicia burkilliana* (Acanthaceae). *Phytotaxa* 305(4): 293–298.
- . (2017b). *Rungia sinothailandica* sp. nov. (Acanthaceae) from China and Thailand. *Nordic Journal of Botany* 35(4): 488–493.
- . (2018). *Rungia flaviflora* (Acanthaceae), a new species from Yunnan, China. *Systematic Botany* 43(1): 290–296.
- Mabberley, D.J. (2008). *Mabberley's Plant-book: A Portable Dictionary of Plants, their Classification and Uses*. Ed. 3, 1021 pp. Cambridge University Press, Cambridge.