

### ***Rhaphiolepis bengalensis* (Roxb.) B.B.Liu & J.Wen: A New Record of Plant to Bhutan**

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#### **Abstract**

During a recent field trip in Wangdue Dzongkhag, few medium sized flowering trees were observed by roadside along Dangchhu river valley near Chuzomsa, and additionally from Phochhu in Puna-kha. The species was identified as *Rhaphiolepis bengalensis* (Roxb.) B.B.Liu & J.Wen, which is a new record of plant to Bhutan. Formerly, the species was known as *Eriobotrya bengalensis* (Roxb.) Hook. f., which is now a synonym of *R. bengalensis*.

**Keywords:** *Eriobotrya bengalensis*, new record, *Rhaphiolepis bengalensis*

During a recent field excursion in Wangdue Dzongkhag, medium sized trees with striking white flowers were observed by riversides near Chuzomsa. The trees were also observed flowering during a field trip to Phochhu by the team from the National Biodiversity Centre during the same period. Using the flora of Bhutan (Grierson and Long, 1987) the species was identified as *Eriobotrya bengalensis* (Roxb.) Hook. f., which is now a synonym of *Rhaphiolepis bengalensis* (Roxb.) B.B. Liu & J. Wen (Liu *et al.*, 2020a; 2020b). The flora of Bhutan has rec-

ords of *E. hookeriana* Decaisne, *E. dubia* (Lindley) Decaisne, and *E. petiolata* Hook.f. from Bhutan with a note on *E. bengalensis* (Roxb.) Hook. f. from Sikkim, which now are synonyms of *Rhaphiolepis*. The three *Rhaphiolepis* species reported from Bhutan are found at higher elevation range of 1200 to 2300 m above mean sea level. These three species either flower in spring or in autumn. However, *R. bengalensis* flowers in winter and are found at lower elevation range of 1000 to 1500 m.

Morphologically, leaves of *Rhaphiolepis hookeriana* and *R. dubia* are subsessile and those of *R. petiolata* and *R. bengalensis* are petiolated. However, the margin of *R. petiolata* is entire and that of *R. bengalensis* is widely serrated. White flowers of *R. bengalensis* are strikingly visible from a distance and have fragrance. These characters are useful in distinguishing the four *Rhaphiolepis* species discussed thus far.

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### Taxonomy

*Rhaphiolepis bengalensis* (Roxb.) B.B.Liu & J.Wen, Front. Plant Sci. 10-1731: 10. 2020.

**Type:** *Mespilus bengalensis* Roxb., Fl. Ind. (ed. 1832) 2: 510. 1832. Type: India. 1824, N. Wallich 668.2

**Description:** *Rhaphiolepis bengalensis* is a medium size tree growing to 15 m tall. Its leaves are elliptic or lanceolate and at times seemingly oblong, 10–32 x 4–13 cm, acuminate, base attenuate, margin serrate, glabrous, lateral veins 8–16 pairs; petiole 2–5.8 cm. Inflorescence is panicle to 15 cm, tomentose. Flowers are fragrant, white tinged yellow, pentamerous, up to 2.4 cm wide, sessile; calyx tube to 0.5 cm long and 0.8 cm wide, sepals 5, sepal lobes about 0.3 x 0.4 cm, apex rounded, dorsal tomentose; petals 5, white, 0.4–0.5 x 0.6–1.2 cm, oblong, glabrous, apex rounded acuminate; stamens about 20; styles 2-3. Pome not observed.

Some of the specific measurements of the plant parts such as the size of leaves and petals were notably larger than those described in the flora of Bhutan. However, the specifications provided in the flora of Bhutan are considered as representative measurements only and may

not agree with all measurements collected in the field.

**Habitat:** *Rhaphiolepis bengalensis* is a riverine species, found on steep slopes among mixed broadleaved forest at 1380 m. It can be easily confused with its associates such as *Diploknema butyracea* (Roxb.) H.J.Lam and *Schima wallichii* (D.C.) Korth. Other tree species growing with *E. bengalensis* include *Engelhardia spicata* Lesch. ex Blume, *Syzygium cuminii* (L.) Skeels, and *Pinus roxburghii* Sarg.

**Flowering time:** (November-) December (-February).

**Specimens examined:** Pema Tobgay, 001, 5 October 2020 (THIM), Chuzomsa, Wangdue, Bhutan.

**Distribution in Bhutan:** Chuzomsa, on the way to Boelangdra, Basochhu in Wangdue Phodrang Dzongkhag and Phochhu in Punakha Dzongkhag.

**Global distribution:** Bangladesh, Cambodia, China, India, Laos, Myanmar, Vietnam, Sumatra, peninsular Malaysia, and Borneo.

**Note:** Since the flower and its parts are larger, the species may need further review in the context of recent molecular studies completed.



**Figure 1:** Flowers of *R. bengalensis* (left; photo by DB Gurung from Wangdue Phodrang) and the tree in flowers (right; photo by Phuentsho from Punakha)

### References

- Grierson, A.J.C. and Long, D.G. (1987). *Flora of Bhutan including a record of plants from Sikkim*. Volume 1 Part 3, Royal Botanic Garden, Edinburgh and Royal Government of Bhutan.
- Hooker, J.D. (1878). *The Flora of British India*. Volume II, Part V, pp.371-372, London. <https://archive.org/details/floraofbritishin02hookrich>. Accessed 10 December, 2020.

- Liu, B.B., Liu, G.N., Hong, D.Y. and Wen, J. (2020a). *Eriobotrya* Belongs to *Rhaphiolepis* (Maleae, Rosaceae): Evidence From Chloroplast Genome and Nuclear Ribosomal DNA Data. *Frontiers in Plant Science*, Vol. 10: 1-14. DOI: <https://doi.org/10.3389/fpls.2019.01731>.
- Liu, B.B., Wang, Y.B., Hong, D.Y. and Wen, J. (2020b). A synopsis of the expanded *Rhaphiolepis* (Maleae, Rosaceae). *Phytokeys*, 154: 19–55. DOI: [10.3897/phytokeys.154.52790](https://doi.org/10.3897/phytokeys.154.52790).
- Roxburgh, W. (1832). *Flora Indica or Description of Indian Plants*. Volume II, p.510, Calcutta and London. <https://www.biodiversitylibrary.org/item/10529#page/513/mode/1up>. Accessed 10 December, 2020.