



RESEARCH ARTICLE

Two new synonyms in Indo-Burmese *Litsea* (Lauraceae)

Tapas Chakrabarty^{1*}, Anand Kumar² & Partha Pratim Ghoshal²

¹4, Botanical Garden Lane, Howrah, West Bengal 711 103, India

²Central National Herbarium, Botanical Survey of India, Botanic Garden, Howrah, West Bengal 711 103, India

*Email: tchakrab@gmail.com

OPEN ACCESS

ARTICLE HISTORY

Received: 07 September 2024

Accepted: 19 October 2024

Available online

Version 1.0 : 26 November 2024

Additional information

Peer review: Publisher thanks Sectional Editor and the other anonymous reviewers for their contribution to the peer review of this work.

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Chakrabarty T, Kumar A, Ghoshal PP. Two new synonyms in Indo-Burmese *Litsea* (Lauraceae). Trends in Current Biology. 2024; 2(4): 25-27. <https://doi.org/10.14719/tcb.4981>

Abstract

Litsea chartacea (Wall. ex Nees) Hook.f. and *L. laeta* (Wall. ex Nees) Trimen are conspecific and therefore these two species are united herein. Likewise, *L. meghalayensis* R.Kr. Singh is reduced to a synonym of *L. hookeri* (Meisn.) D.G. Long.

Keywords

Taxonomy; *Litsea*; new synonyms; Indo-Burmese region

Introduction

The genus *Litsea* Lam., comprising about 350 species, is distributed in tropical Asia, Australia, the western Pacific and North and Central America (1). Bhuinya & Singh (2) recognized the occurrence of 51 species in India. A taxonomic revision of the genus in the Indo-Burmese region by the present authors is now nearing completion. During the course of this work, a number of confusions and discrepancies were noticed in the available regional treatment (2) of the genus. In the present paper, we are clarifying two such anomalies. Firstly, *L. chartacea* (Wall. ex Nees) Hook.f. is merged with *L. laeta* (Wall. ex Nees) Trimen and the species *L. meghalayensis* R.Kr. Singh is also synonymized under *L. hookeri* (Meisn.) D.G. Long.

Materials & methods

The present studies are based on the study of literature (as cited in the text) including protologues and herbarium specimens available in the major Indian herbaria. Digital images of the type specimens were also studied in the following herbaria: BM, E, G, G-DC, GH, GZU, K, K-W, L, LYJB, M, MEL, NY, P, PH and SG.

Discussion

Litsea hookeri was originally described from northeast India and at present the species is known to occur in East Himalayas (Nepal and Bhutan), India (West Bengal and northeast India), Bangladesh, Myanmar and Thailand (3). Bhuinya & Singh (4) recognized *Tetranthera khasyana* Meisn., a synonym of *L. hookeri* (5), as a distinct variety of *L. hookeri*, and differentiated it from the typical variety (bearing oblong-ellipsoid to obovoid fruits) by the “Berry depressed globose; fruit and umbel peduncle distinctly stout”, a treatment maintained by them in their subsequent publication on the genus in India (2). They called it *Litsea hookeri* var. *khasyana* (Meisn.) Bhuinya & P.Singh. Meanwhile, Singh (6) considered these differences to be sufficient to warrant treating this element as a distinct species, and consequently proposed a new name, *Litsea meghalayensis* R.Kr. Singh. The present studies based on the available specimens over the entire range of distribution of *L. hookeri* revealed that the differences elucidated by Bhuinya & Singh (2, 4) and Singh (6) in

fact represent variation in fruit shapes of a single species and recognition of a distinct species or even variety is not justified on these characters because even a single fruiting twig of *L. hookeri* may bear subglobose, oblong-ellipsoid as well as obovoid fruits (Fig. 1). Hence, *L. hookeri* var. *khasyana* as well as *L. meghalayensis* (based on same type) are synonymized herein with *L. hookeri*.

Litsea laeta was originally described from Sylhet in Bangladesh and at present the species is known to be distributed in East Himalayas (Bhutan), India (West Bengal and northeast India), Bangladesh, Myanmar and Thailand (3). On the other hand, *L. chartacea* was described from Nepal and the species is now known to be distributed in East Himalayas (Nepal and Bhutan), India (Sikkim, West Bengal and northeast India) and Vietnam (3). The present studies on ample specimens throughout the range of distribution of the two species clearly indicate that the boundaries between them are by no means clear cut and they are connected to each other through many intermediates (Table 1). Hence, the two species are combined herein. As the original dates of publication of both the names (*T. laeta* and *T. chartacea*) are same, we chose here to use *Litsea laeta* as the accepted name of the combined species.

New synonyms

Litsea hookeri (Meisn.) D.G. Long in Notes Roy. Bot. Gard. Edinburgh 41: 510. 1984. - *Cylicodaphne hookeri* Meisn. in DC., Prodr. 15(1): 209. 1864. - *Litsea khasyana* Meisn. var. *hookeri* (Meisn.) Hook.f., Fl. Brit. India 5: 164. 1886.

Type (lectotype designated by Long [7], p. 510): India, Meghalaya, Khasia, 3000-4000 ft, s.d., *J.D. Hooker & T.Thomson s.n.* (G-DC barcode G00476263, image!; isolectotypes CAL0000021772!, NY00355087, image!). Additional syntypes: India, Meghalaya, Khasia, 2000-000 ft, s.d., *J.D. Hooker & T.Thomson s.n.* (BM000880736, image!). India, Meghalaya, Khasia, 4000-6000 ft, s.d., *J.D. Hooker & T.Thomson s.n.* (CAL herb. acc. no. 386880!, GH00241875, image!). India, Meghalaya, Khasia, Churra, 3000-4000 ft, 13 Aug. 1850, *J.D. Hooker & T.Thomson s.n.* (K000793194, image!). India, Arunachal Pradesh, East Bengal, Mishmi, s.d., *Griffith* Kew Distrib. No. 4287 (CAL0000021770!, K000357520, P02003207, images!). India, Assam, s.d., *Griffith s.n.* (G00476257, image!). India, Assam, s.d., *Griffith* 247 (L0036718, image!). India, East Bengal, s.d., *Griffith* Kew Distrib. No. 4286 (CAL0000021771!, K000357521, image!). India, Meghalaya, Khasia, s.d., *Griffith s.n.* (CAL herb. acc. no. 386895!).

= *Tetranthera khasyana* Meisn. in DC., Prodr. 15(1): 185. 1864. - *Litsea khasyana* (Meisn.) Hook.f., Fl. Brit. India 5: 164. 1886, *nom. illeg., non Litsea khasyana* Meisn. in DC., Prodr. 15(1): 227. 1864. - *Litsea hookeri* (Meisn.) D.G. Long var. *khasyana* (Meisn.) Bhuinya & P.Singh in Bangladesh J. Pl. Taxon. 20(1): 125. 2013. - *Litsea meghalayensis* R.Kr. Singh in Kew Bull. 72(2)-20: 8. 2017, **syn. nov.**

Type (lectotype first-step designated by Long [7], p. 510; second-step designated by Singh [6], p. 8): India, Meghalaya, Khasia, 2000-4000 ft, s.d., *J.D. Hooker & T.Thomson s.n.* (G00476587, image!; isolectotypes

BM000880736, G00476381, G00476600, GH00415038, L.1789463, M0147371, NY00355978, P02003205, P02003206, SG-3743, images!). Additional syntypes: India, Meghalaya, Khasia, Cheerra (Cherrapunjee), 2000-4000 ft, 16 June 1850, *J.D. Hooker & T.Thomson* 909 (K000357522, image!). India, Meghalaya, Khasia, Cheerra (Cherrapunjee), 2000-4000 ft, 16 Aug. 1850, *J.D. Hooker & T.Thomson s.n.* (K000793193, image!). India, Meghalaya, Khasia, Cheerra (Cherrapunjee), 2000-4000 ft, 18 Aug. 1850, *J.D. Hooker & T.Thomson s.n.* (K000793192, image!).

Litsea laeta (Wall. ex Nees) Trimen, Syst. Cat. Fl. Pl. Ceylon 76. 1885. - *Litsea laeta* (Wall. ex Nees) Hook.f., Fl. Brit. India 5: 169. 1886 (isonym). - *Tetranthera laeta* Wall. ex Nees in Wall., Pl. Asiat. Rar. 2: 67. 1831.

Type (lectotype designated by Ngernsaengsaruy *et al.* [5], p. 66): Bangladesh, Sillet (Sylhet), s.d., *F. de Silva* in Wallich, Numer. List No. 2541 (K-W barcode K001116385, image!; isolectotypes BM000951042, image! CAL0000073538!, CAL0000073539!, CAL0000073540!, CAL0000073541!, E00393194, E00393195, E00393196, G00694095, G00694701, G00694702, GH00415042, GZU000254484, GZU000254485, GZU000254486, K000357525, K000793221, L.1789426, L.1789428, LYJB006364, M0147365, MEL2388435, fragm. NY00355979, P00745293, P02003139, PH00030196, SG-6037, images!).

= *Tetranthera chartacea* Wall. ex Nees in Wall., Pl. Asiat. Rar. 2: 67. 1831. - *Litsea chartacea* (Wall. ex Nees) Hook.f., Fl. Brit. India 5: 170. 1886, **syn. nov.**

Type (lectotype designated by Singh [6], p. 1): Nepal, without locality and date, *Wallich* Numer. List No. 2531 (GZU000254464, image!; isolectotypes G00694068, K001116366, L0036650, L0036651, NY00355967, images!).

Notes: The lectotypification of *Tetranthera laeta* by Singh (6) based on a specimen at GZU (GZU000254484, image!) stands ineffective.



Fig. 1. A-B: Field images of fruiting twigs of *Litsea hookeri*.

Table 1. Comparison between *Litsea chartacea* and *L. laeta*

Character	<i>L. chartacea</i>	<i>L. laeta</i>
Habit	Shrubs or trees, 3-8 m high	Shrubs or trees, 3-10 m high
Indumentum	Peduncles, involucre bracts (outside), pedicels and tepals (outside) tomentellous to puberulous	Peduncles, involucre bracts (outside), pedicels and tepals (outside) tomentellous to puberulous
Phyllotaxy	Alternate	Alternate
Leaves		
a. Shape and size	Oblong-elliptic or narrowly so to lanceolate-oblong, 9-19 × 2.5-6 cm	Narrowly oblong-elliptic to lanceolate-oblong or lanceolate-elliptic, 8-23 (-30) × 2.5-7 (-10) cm
b. Base	Acute to subacute	Acute to subacute
c. Apex	Apiculate to acuminate (acumen 5-20 mm long)	Acute, apiculate to acuminate (acumen 5-15 mm long)
d. Texture	Chartaceous to coriaceous	Chartaceous to coriaceous
e. Midrib	Flat or occasionally slightly incised above, raised beneath	Flat above, raised beneath
f. Lateral veins (pairs)	6-12	6-12
g. Tertiary veins	Inconspicuous to prominent above, obscure beneath, laxly reticulate	Inconspicuous to faint above and beneath, laxly reticulate
h. Minor venation	Inconspicuous to prominent above, obscure beneath	Inconspicuous to faint above and beneath
i. Undersurface	Glaucous	Glaucous
j. Petioles (length)	7-15 mm, channelled above	8-20 mm, channelled above
Male umbels	Axillary or on branches or on brachyblasts (3-5 mm long), solitary or 2-5-together, each 5-6-flowered, pedunculate (peduncle 7-13 mm long)	Axillary or on branches or on brachyblasts (2-5 mm long), solitary or 3-10-together, each 5-6-flowered, pedunculate (peduncle 10-15 mm long)
Female umbels	As in male but solitary or 2-3-together on 7-10 mm long peduncles, each 5-flowered	As in male but solitary or 2-3-together on 4-10 mm long peduncles, each 5-flowered
Fruits	Ellipsoid to oblong-ellipsoid or ovoid-oblong or subglobose, 12-22 × 7-13 mm; cupule 4-7 mm high, 8-14 mm in diameter; fruiting pedicels 5-10 mm long, stout (up to 3 mm thick towards apex)	Oblong to obovoid-ellipsoid or subglobose, 14-20 × 10-20 mm; cupule 5-10 mm high, 10-15 mm in diameter; fruiting pedicels 4-12 mm long, stout (up to 3 mm thick towards apex)

Acknowledgements

Authors are thankful to the Director, Botanical Survey of India, Kolkata and Head of Office, Central National Herbarium, Howrah (CAL) for the facilities and to Dr. Prabhat Kumar Das for kindly providing the field images of *Litsea hookeri*.

Competing Interests

The authors have no competing interest.

Authors' contributions

All authors have equally contributed in the planning of the research and preparation of manuscript.

Compliance with ethical standards

Conflict of interest: The authors declared that they have no conflict of interest.

Ethical issues: None.

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