

## TYPIFICATION OF TEN SPECIES OF *LITSEA* LAM. (LAURACEAE) ENDEMIC TO INDIA

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### Abstract

This paper deals with the lectotypification of eight binomials of seven recognized species of *Litsea* Lam. endemic to India, namely *Litsea assamica* (Meisn.) Hook. f., *L. coriacea* (B. Heyne ex Nees) Hook. f., *L. membranifolia* Hook. f., *L. oleoides* (Meisn.) Hook. f., *L. stocksii* (Meisn.) Hook. f., *L. venulosa* (Meisn.) Hook. f., and *L. wightiana* (Nees) Hook. f. Types of three other endemic species, viz. *L. beddomei* Hook. f., *L. mishmiensis* Hook. f. and *L. oreophila* Hook. f. are also specified.

### Introduction

The family Lauraceae Juss. comprises 52 genera with about 2,550 species, distributed mainly in the tropical and warm regions of southeastern Asia and Brazil (Mabberley, 2008; Bhuinya *et al.*, 2010). The genus *Litsea* Lam. consists of more than 300 species worldwide, especially in tropical Asia and Australia (Mabberley, 2008; Bhuinya *et al.*, 2010). In India, there are 45 species, occurring in moist deciduous, semi-evergreen, and evergreen forests at 200–3,650 m elevation, with 18 species endemic to different states (Bhuinya *et al.*, 2010; Singh, 2015). As part of the revisionary studies of *Litsea* in India, we realized the necessity for typification of some endemic species; hence, here we lectotypified eight binomials of seven species of the genus. While designating lectotypes, we followed the guidelines of Art. 9.2 of the Melbourne Code (McNeill *et al.*, 2012). Specification of holotype for other three endemic species was done as no holotype was cited in their protologues.

### Taxonomy

1. *Litsea assamica* (Meisn.) Hook. f., Fl. Brit. India 5: 161 (1886). *Tetranthera rangoonensis* Meisn. var. *assamica* Meisn. in De Candolle, Prodr. 15(1): 188 (1864).

*Type:* India. Assam, 1850, *W. Griffith 1190* [*Tetranthera* n. 17, Herb. Hook. f. *et* Thoms.] (lectotype K-000793183!, here designated; isolectotype BM-000951039!).

*Distribution:* India, endemic (Arunachal Pradesh, Assam and Meghalaya).

*Notes:* In protologue of *Tetranthera rangoonensis* var. *assamica*, Meisner cited 'In Assam (Jenkins !), *Tetranthera* 17. Hook. fil. *et* Thoms.! Hb. Ind. Or.' Three specimens belonging to the herbarium of Hooker f. & Thomson, *Tetranthera* no. 17 are now extant, which comprised of a single specimen gathered by *T.J. Jenkins s.n.* (K-000357513) and two of *W. Griffith 1190* (K-000793183 and BM-000951039). Of these, K-000793183, is designated here as the lectotype as it agrees well with the protologue and also includes a short description of the flower by Hooker.

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From the protologue, it seems that “Jenkins” and “*Tetranthera* 17. Hook. fil. et Thoms” are different collections and two of *W. Griffith* 1190 (K-000793183 and BM-000951039) likely belong to “*Tetranthera* 17. Hook. fil. et Thoms”.

2. ***Litsea coriacea*** (B. Heyne *ex* Nees) Hook. f., Fl. Brit. India 5: 166 (1886). *Tetranthera coriacea* B. Heyne *ex* Nees in Wall., Pl. Asiat. Rar. 2: 66 (1831).

*Type*: India. Deccan Peninsula, *s.d.*, *B. Heyne s.n.* [in *Wallich* Number. List no. 2556] (lectotype GZU-000254469!, here designated; isolectotype BM-000793685!).

*Distribution*: India, endemic (Goa, Karnataka, Kerala and Tamil Nadu).

*Notes*: Three specimens are extant, two at GZU (GZU-000254468 and GZU-000254469) and one at BM (BM-000793685). The GZU-000254469 specimen is designated here as the lectotype as it agrees well with the protologue.

3. ***Litsea membranifolia*** Hook. f., Fl. Brit. India 5: 159 (1886).

*Type*: India. Arunachal Pradesh, Dibang Valley, Mishmi Hills, *s.d.*, *W. Griffith s.n.* [*Kew Distrib.* 4310] (lectotype K-000357530!, here designated; isolectotypes K-000793176!, GH-00415039!).

*Distribution*: India, endemic (Arunachal Pradesh and Nagaland).

*Notes*: Hooker described *Litsea membranifolia* on the basis of specimens from ‘Upper Assam; Mishmi Hills, and woods at Yen, *Griffith (Kew Distrib.* 4310)’, but no specific specimen was indicated as the holotype. Furthermore, for this species, three specimens of Griffith’s collections are extant, two at K (K-000357530 and K-000793176) and one at GH (GH-00415039). The K-000357530 specimen is designated here as the lectotype as it agrees well with the protologue.

Ngernsaengsaruy *et al.* (2011: 72) cited the following: “*Type*: India, East Bengal, *Griffith 4310* (holotype K!)”. Although they cited K as housing the “holotype,” their citation of “holotype” is not corrected to lectotype. Because, from 2001, an act of lecto-, neo-, and epitypification needs the citation of the phrase, “here designated” or its equivalent. The critical scrutiny of description provided in Ngernsaengsaruy *et al. (l.c.)* shows that it is best matches with *L. glutinosa* (Lour.) C.B. Rob., and thus the occurrence of this species in Thailand is uncertain and needs further confirmation based on fresh collections.

4. ***Litsea oleoides*** (Meisn.) Hook. f., Fl. Brit. India 5: 175 (1886). *Tetranthera oleoides* Meisn. in DC., Prodr. 15(1): 195 (1864).

*Type*: India. Kerala, Sispauray (Sispara), April 1846, *R. Wight 2530* (lectotype K-000357533!, here designated).

*Syntype*: India. Kerala, *s.d.*, *R. Wight 54* (NY-00355989!).

*Distribution*: India, endemic (Kerala and Tamil Nadu).

*Notes*: Meisner described *Tetranthera oleoides* on the basis of specimen(s) from ‘In Penins. Indiae Or.? (Wight!)’. The type data lack Wight’s collection number and date, and information on the number of specimens used by Meisner to describe this species. Currently, Meisner’s main herbarium is at New York (NY), which has one fragmentary specimen of this species (NY-00355989); the specimen shows “*Tetranthera oleoides* Meisn. In Hb. Hook., “Wight. Hb. N. 54!” and an illegible writing of what seems to be the locality. In contrast, the K specimen (K-000357533) is complete and fits well with the protologue. Therefore, the K-000357533 specimen is designated here as the lectotype as it agrees well with the protologue.

5. ***Litsea stocksii*** (Meisn.) Hook. f., Fl. Brit. India 5: 176 (1886). *Cylicodaphne oblonga* Nees var. *stocksii* Meisn. in DC., Prodr. 15(1): 205 (1864).

*Type*: India. Canara (Karnataka), *s.d.*, *J.E. Stocks s.n.* (lectotype K-000357539!, here designated; isolectotype K-000793237!).

*Litsea stocksii* (Meisn.) Hook. f. var. *glabrescens* (Meisn.) Hook. f., Fl. Brit. India 5: 176 (1886). *Cylicodaphne wightiana* Meisn. var. *glabrescens* Meisn. in DC., Prodr. 15(1): 201 (1864).

*Type*: India. Canara (Karnataka), *s.d.*, *J.E. Stocks s.n.* (lectotype K-000793240!, here designated; isolectotype K-000357538!).

*Litsea josephii* S. M. Almeida, Fl. Savantwadi 1: 364 (1990), nom. illeg. *et* superfl. for *L. stocksii*

*Litsea vartakii* M. R. Almeida, J. Bombay Nat. Hist. Soc. 86(2): 180 (1989), nom. illeg. *et* superfl. for *L. stocksii*

*Distribution*: India, endemic (Goa, Karnataka, Kerala, Maharashtra and Tamil Nadu).

*Notes*: Hooker (*l.c.*) based his *Litsea stocksii* on *Cylicodaphne oblonga* var. *stocksii* Meisn.; at the same time, he also included “*Tetranthera lancaefolia* (sensu) Graham (Cat. Pl. Bombay. 174. 1839, non Roxb. 1832)” with a query sign. Because of the doubtful inclusion, the citation does not cause superfluity to the name *L. stocksii*.

Meisner described *Cylicodaphne oblonga* var. *stocksii* on the basis of specimens from ‘In Canara (Stocks!).’ Two specimens collected by *Stocks* from Canara are now extant at K (K-000357539 and K-000793237). The K-000357539 specimen is designated here as the lectotype as it agrees well with the protologue.

Meisner described *Cylicodaphne wightiana* var. *glabrescens* Meisner on the basis of specimens from ‘Wight!, Perrott. n. 451!, 452!, 1843!, Hohenack. n. 1335! Stocks! Gardn.! Law!’, but no specific herbarium sheet was designated as the holotype. Pertaining to this specification, only two specimens collected by *Stocks* from Canara are now extant at K (K-000793240 and K-000357538). The best one, K-000793240, is designated here as the lectotype as it agrees well with the protologue.

6. ***Litsea venulosa*** (Meisn.) Hook. f., Fl. Brit. India 5: 161 (1886). *Tetranthera venulosa* Meisn. in DC., Prodr. 15(1): 187 (1864).

*Type*: India. Peninsula Indiae Orientalis, *s.d.*, *R. Wight s.n.* (lectotype K-000793184!, here designated).

*Syntypes*: India. Peninsula Indiae Orientalis, *s.d.*, *R. Wight 2532a* (L-0037108!); Tamil Nadu, Courtallam, Sep 1835, *R. Wight 710b* (L-0037109!); Penins. Ind. Or. (Peninsula Indiae Orientalis), *s.d.*, *R. Wight 30* (NY-00356000!).

*Distribution*: India, endemic (Kerala and Tamil Nadu).

*Notes*: Meisner described *Tetranthera venulosa* on the basis of specimens from ‘In Penins.? Indiae (Wight!).’ Four specimens belonging to Peninsula Indiae Orientalis of the Wight Herbarium are extant (K-000793184, L-0037108, L-0037109, and NY-00356000). The K-000793184 specimen is designated here as the lectotype as it agrees well with the protologue.

7. ***Litsea wightiana*** (Nees) Hook. f., Fl. Brit. India 5: 177 (1886). *Cylicodaphne wightiana* Nees in Wall., Pl. Asiat. Rar. 2: 68 (1831).

*Type*: India. Peninsula Indiae Orientalis, *s.d.*, *R. Wight 2232* [= Wall. Cat. n. 2557 A] (lectotype P-02003106!, here designated; isolectotypes, BR-0000013053000!, K-000357542!).

*Distribution:* India, endemic (Maharashtra, Goa, Karnataka, Kerala and Tamil Nadu).

*Notes:* In the protologue of *Cylicodaphne wightiana*, Nees cited ‘Wall. Cat. n. 2557, A, B. Habitat in sylvis Nilghiry (Deenhutty in schedis). (E. Noton.) Vidi etiam in Hb. Wight.’ The “Wall. Cat. n. 2557 A” specimen belongs to the Wight Herbarium, whereas the “Wall. Cat. n. 2557 B” specimen belongs to collections from Nilghiry by E. Noton. Three specimens belonging to the Wight herbarium (Wall. Cat. n. 2557 A) are extant (BR-0000013053000, K-000357542, and P-02003106). Of the choice of specimens, P-02003106! is designated here as the lectotype as it agrees well with the protologue.

**Types of three endemic species are also specified below as in their protologues no holotypes were cited.**

1. ***Litsea beddomei*** Hook. f., Fl. Brit. India. 5: 177 (1886).

*Type:* India. Tamil Nadu, Tinnevely (Tirunelveli), Dec 1880, *R.H. Beddome 15* (Lectotype, here designated (or perhaps holotype): K-000357515!).

*Distribution:* India, endemic (Kerala and Tamil Nadu).

*Notes:* For his new species *Litsea beddomei*, Hooker cited the type collection information as follows: “SOUTH DECCAN; Tinnevely Hills, Beddome.” The protologue lacks the collection date and number. Furthermore, neither a holotype nor the name of the herbarium housing the type was mentioned. A single specimen collected by Beddome from Tirunelveli in December 1880 bearing Hooker’s annotation ‘*L. beddomei*’ is now extant at K (K-000357515). Because of the uncertainty whether Hooker’s description was based on the K single specimen alone or on additional specimens, it is concluded here that the single specimen at K may serve as the holotype or a lectotype.

2. ***Litsea mishmiensis*** Hook. f., Fl. Brit. India 5: 161 (1886).

*Type:* India. Arunachal Pradesh, Dibang Valley, Laim-planj-thaya, Mishmi Hills, *s.d.*, *W. Griffith 4317* (Lectotype, here designated (or perhaps holotype): K-000357531!).

*Distribution:* India, endemic (Arunachal Pradesh).

*Notes:* Within the protologue of *Litsea mishmiensis*, Hooker mentioned the following: ‘Upper Assam; Mishmi Hills at Laim-planj-thaya, *Griffith*’. The collection date and number were not cited. A single type specimen is now extant at K (K-000357531). Hooker, however, did not cite a holotype or mention the herbarium housing the type. It is uncertain whether Hooker’s description was based on the K single specimen alone or on additional specimens. Therefore, it is concluded here that the single specimen at K may serve as the holotype or a lectotype.

3. ***Litsea oreophila*** Hook. f., Fl. Brit. India 5: 156 (1886). *Lindera hookeri* Meisn. in DC., Prodr. 15(1): 245 (1864).

*Type:* India. Sikkim, Lachoong (Lachung), 10,000–11,000 ft., 29 Aug 1849, *J.D. Hooker s.n.* [*Tetranthera* n. 4, Herb. Hook. f. et Thoms.] (holotype K-000357534!).

*Distribution:* India, endemic (Sikkim).

*Notes:* Within the protologue of *Lindera hookeri*, Meisner mentioned: ‘In Sikkim (Hook. fil. et Thoms. hb. Ind. or. *Tetranthera* 4!)’ and “(v. s. in hb. Hook.)” (= vidi siccam in Hooker herbarium (K)). Only one specimen is extant at K (K-000357534), which is therefore the obligatory holotype.

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### References

- Bhuinya, T., Singh, P. and Mukherjee, S.K. 2010. An account of the species of *Litsea* Lam. (Lauraceae) endemic to India. *Bangladesh J. Pl. Taxon.* **17**(2): 183–191.
- Mabberley, D.J. 2008. *Mabberley's Plant-Book: A portable dictionary of plants, their classification and uses.* 3<sup>rd</sup> edition. Cambridge University Press, Cambridge, 1020 pp.
- McNeill, J., Barrie, F.R., Buck, W.R., Demoulin, V., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Marhold, K., Prado, J., Proud'homme van Reine, W.F., Smith, G.F., Wiersema, J.H. and Turland, N.J. (Eds) 2012. *International Code of Nomenclature for algae, fungi and plants (Melbourne Code): Adopted by the Eighteenth International Botanical Congress, Melbourne, Australia, July 2011.* *Regnum Vegetabile* **154**: 1–274.
- Ngernsaengsaruy, C., Middleton, D.J. and Chayamariat, K. 2011. A revision of the genus *Litsea* Lam. (Lauraceae) in Thailand. *Thai Forest Bull. Bot.* **39**: 40–119.
- Singh, R.K. 2015. Typification of seven species of *Litsea* (Lauraceae) endemic to India. *Phytotaxa* **201**(4): 278–286.

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