



RESEARCH COMMUNICATION

# New synonyms, new records and typifications in Indo-Burmese *Cryptocarya* (Lauraceae)

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## Abstract

*Cryptocarya cavei* M.Gangop. & Chakrab., described from the Darjeeling District of West Bengal, India is reduced to a synonym of the Indo-Malesian species, *C. amygdalina* Nees. Likewise, *C. calderi* M.Gangop., endemic to Myanmar, is merged under *C. diversifolia* Blume, occurring in China (Hainan), Vietnam, Thailand, Malaysia Brunei and Indonesia. Thus, the range of distribution of the species is extended to Myanmar. Furthermore, *C. biswasii* M.Gangop., also endemic to Myanmar, is synonymized with *C. kurzii* Hook.f., occurring in Thailand, Malaysia, Singapore, Indonesia (Borneo and Sumatra) and the Philippines. Interestingly, *C. muthuvariana* R.Jagad., P. Suresh Kumar, Gangapr. & S.P. Mathew, so far known to be endemic to Kerala in India, is recorded for Sri Lanka for the first time indicating a wider distribution of the species. The names *C. bourdillonii* Gamble (a synonym of *C. wightiana* Thwaites), *C. floribunda* Nees (a synonym of *C. amygdalina*) and *C. procera* Talbot are lectotypified for correct and unambiguous application of these names.

**Keywords:** *Cryptocarya*; lectotypification; new record; new synonym

## Introduction

The genus *Cryptocarya* R.Br. is characterized by its fruits, which are fully enclosed and adnate to the accrescent perianth tube. It comprises of about 200–250 pan-tropical species, except central Africa (1); however, POWO lists 363 accepted species (2). Gangopadhyay & Chakrabarty recognized the occurrence of 15 species of the genus in the Indian subcontinent (3). Recently Gangopadhyay treated 17 species in India (4). During our ongoing studies on the Indo-Burmese Lauraceae, it was found that three recently described species of *Cryptocarya*, namely *C. biswasii* M. Gangop., *C. calderi* M.Gangop. and *C. cavei* M.Gangop. & Chakrab. do not stand good as distinct species, so they have been synonymized herein as given below. Furthermore, *C. muthuvariana* R.Jagad. *et al.*, described from Kerala, India is now reported from Sri Lanka. Additionally, three names, *C. bourdillonii* Thwaites, *C. floribunda* Nees and *C. procera* Talbot have been lectotypified. The new synonyms were made for a better understanding of the concerned species and their distribution and range of variations whereas the lectotypes have been designated for nomenclatural stability and unambiguous use of the names. The new record of *C. muthuvariana* is of considerable phytogeographic importance because it shows a wider range of distribution of the species in a different geographic region.

## Materials and methods

The present research is based on the study of protologues, herbarium specimens including the types and field photos. The types from BM, BSI, CAL, E, G, GH, K, L, M, MEL, MH, NY, P, TBGT, U and WAG were studied. All the specimens cited here are available on the websites of the respective herbaria. The nomenclature and typifications adopted here are after Turland *et al.* (5). No molecular studies were considered.

## Nomenclature and taxonomy

***Cryptocarya amygdalina*** Nees in Wall., Pl. Asiat. Rar. 2: 69. 1831.

Type (lectotype designated by de Kok (6), p. 315): India, Datgong, 26 March 1809, *Buchanan-Hamilton* in *Wallich* Numer. List No. 2585 (K001116509, image!; isolectotype E00393147, image!).

***Cryptocarya floribunda*** Nees in Wall., Pl. Asiat. Rar. 2: 69. 1831.

Type (lectotype designated here): Bangladesh, Sylhet, s.d., *F. de Silva* in *Wallich* Numer. List No. 2593 A (K001116517, image!; isolectotypes BM000880687, E00393148, E00393149, E00393150, E00393151, G00693959, K000768399, L1793098, M0152467, MEL2390467, MEL2390468, MEL2390469, P00745539, P00745540, P02010447, image!).

***Cryptocarya cavei*** M.Gangop. & Chakrab. in J. Econ. Taxon. Bot. 26(3): 725. 2002, *syn. nov.*

Type: India, West Bengal, Darjeeling dist., Teesta, 1 July 1914, *G.H. Cave s.n.* (holotype CAL0000021303!; isotype CAL0000021304!).

Notes: *Cryptocarya floribunda* was described from Sylhet in Bangladesh based on a collection of F. de Silva, listed in the Wallich's Catalogue with the number 2593 A. Several duplicates of this collection are available at various herbaria (as cited above). Of these, a profusely flowering specimen at K-W is selected here as the lectotype of the name. The oblong fruits of *C. cavei*, used as the main distinguishing character from *C. amygdalina* does not hold good because a few specimens of the latter from Malaysia and Thailand bear such oblong fruits. Hence, the species is synonymized herewith with *C. amygdalina*.

***Cryptocarya diversifolia*** Blume, Mus. Bot. 1: 335. 1851; de Kok in Gard. Bull. Singapore 67(2): 323. 2015 & in Kew Bull. 71-7: 10. 2016.

Type (lectotype designated by de Kok [6], p. 323): Indonesia, Sumatra, Palembang, 1834, *Pretorius s.n.* (K000768453, image!; isolectotypes L0036273, fragm. NY00581223, fragm. U0002715, fragm. U0002716, images!).

*Cryptocarya calderi* M.Gangop. in Bangladesh J. Pl. Taxon. 15: 101. 2008, *syn. nov.*

Type: Myanmar, Upper Cinchona Camp, 12 Apr. 1924, *C.C. Calder s.n.* (holotype CAL0000033395!, Fig. 1).

Notes: de Kok (1, 6) included "Andaman Islands" while citing the distribution of the species. He (pers. comm. 2019) informed that the basis of this record rests on a specimen at Kew which could not be examined by us. Further, according to earlier studies (6) *C. diversifolia* is distributed in China (Hainan), Vietnam, Thailand, Malaysia (including Sarawak and Sabah), Brunei and Indonesia (Borneo and Sumatra). The present merger of *C. calderi* under it extends the range of distribution of the species to Myanmar.

***Cryptocarya kurzii*** Hook. f., Fl. Brit. India 5: 119. 1886.

Type (lectotype designated by de Kok (6), p. 335): Myanmar, Tenasserim, Mergui, *W.Griffith* 1142 [Kew Distribution 4274] (K000768400, image!; isolectotypes CAL0000021377!, G00693975, P02010376, images!).

*Cryptocarya biswasii* M.Gangop. in Bull. Bot. Surv. India 48: 118. 2006, *syn. nov.*

Type: Myanmar, Tenasserim, Jelinga, 15 Feb. 1931, *K.Biswas* 1093 (holotype CAL0000025631!; isotypes CAL0000025629!, CAL0000025630!).

Notes: The characters of *C. biswasii*, described on the basis of a fruiting material, clearly fall within the range of variation of *C. kurzii*.

***Cryptocarya muthuvariana*** R. Jagad., P. Suresh Kumar, Gangapr. & S. P. Mathew in Ann. Bot. Fenn. 58: 377. 2021, Fig. 2

Type: India, Kerala, Idukki dist., Munnar, Forest along the road from Pettimudy to Edamalakkudy settlement, 31 Jan 2018, R Jagadeesan & P Sureshkumar 92064 (holotype CAL - not deposited; isotype TBGT, image!). Paratype: India, Kerala, Idukki dist., Munnar, forest along the road to Edamalakkudy Tribal settlement, 27 Jan. 2019, R Jagadeesan & P Sureshkumar 93436 (TBGT - *n.v.*).

Distribution known so far: India (Kerala).

Extension of range: Sri Lanka, Kandy dist., Between Corbet's Gap and Fernadel, 1240 m, fr., 22 Nov. 1977, *H.Huber* 683 (L1787845, image!, Fig. 3, WAG.1694154, image!) – tree, ca 18 m high.

Notes: The specimen cited above was identified as *C. wightiana* Thwaites, which, however, differs from *C. muthuvariana* by the globose to subglobose fruits. According to the collector, the species occurs in evergreen forests at about 1250 m asl.

***Cryptocarya procera*** Talbot, Forest Fl. Bombay 2: 385. 1911; C.J. Saldanha & B.R. Ramesh in C.J. Saldanha, Fl. Karnataka. 1: 64. 1984.

Type (lectotype designated here): India, Karnataka, Uttara Kannada dist., Nilkund, 2 Jan 1889, *W.A. Talbot* 2872 (BSI0000000338!, Fig. 4; isolectotype BSI – without barcode!).

Notes: The better specimen of the two syntypes with profuse flowering is selected here as the lectotype.

***Cryptocarya wightiana*** Thwaites, Enum. Pl. Zeyl. 254. 1861.

Type (lectotype designated by Kostermans (7), p. 106): Sri Lanka, without locality and date, *Without collector s.n.* in CP 414 (PDA, *n.v.*). Additional syntypes: Sri Lanka, without locality and date, *Thwaites s.n.* in CP 414 (BM000950882, G00693977, G00693983, GH00041366, K000768401, MEL2386589, images!). Sri Lanka, without locality and date, *Without collector s.n.* in CP 414 (BM000950883, G00693976, images!).

*Cryptocarya bourdillonii* Gamble, Bull. Misc. Inf. Kew 1925: 127. 1925.

Type (lectotype designated here): India, Kerala, Travancore, Colatoorpolay, 5 Nov 1894, *T.F. Bourdillon* 384 (K000768409, image!). Additional syntypes: India, Kerala, Travancore, Colatoorpolay, 3 Nov. 1894, *T.F. Bourdillon* 385 (CAL0000021370!, K000768410, image!, MH00002457!). India, Kerala, Travancore, Colatoorpolay, 1 May 1896, *T.F. Bourdillon* 851 (CAL0000021369!). India, Tamil Nadu, Tirunelveli dist., South Tinnevely, Dec. 1880, *R. H. Beddome* 23 (K000768408, image!). India, Tamil Nadu, Dindigul dist., Lower Palni hills, Tandigudi, June 1901, *A.G. Bourne & Lady Bourne* 1453 (MH00002456!). India, Karnataka, Uttara Kannada dist., locality illegible, 10 May 1882, *W.A. Talbot* 2879 (CAL – without barcode!).

Notes: *Cryptocarya bourdillonii* was described on the basis of 6 collections from Kerala, Tamil Nadu and Karnataka of India: 3 collections by T.F. Bourdillon from Travancore in Kerala, one collection by R.H. Beddome from Tirunelveli district in Tamil Nadu, one collection by A.G. Bourne and Lady Bourne from the Palni hills of Tamil Nadu and one collection by W.A. Talbot from Uttara Kanada district of Karnataka. Of these, a good fruiting material of *C. bourdillonii* at K is selected as the lectotype of the name because it agrees well with the protologue and it also justifies the merger of the species under *C. wightiana* (8).

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## Authors' contributions

The first author solely contributed the planning of the research and preparation of manuscript. All authors read and approved the final manuscript.



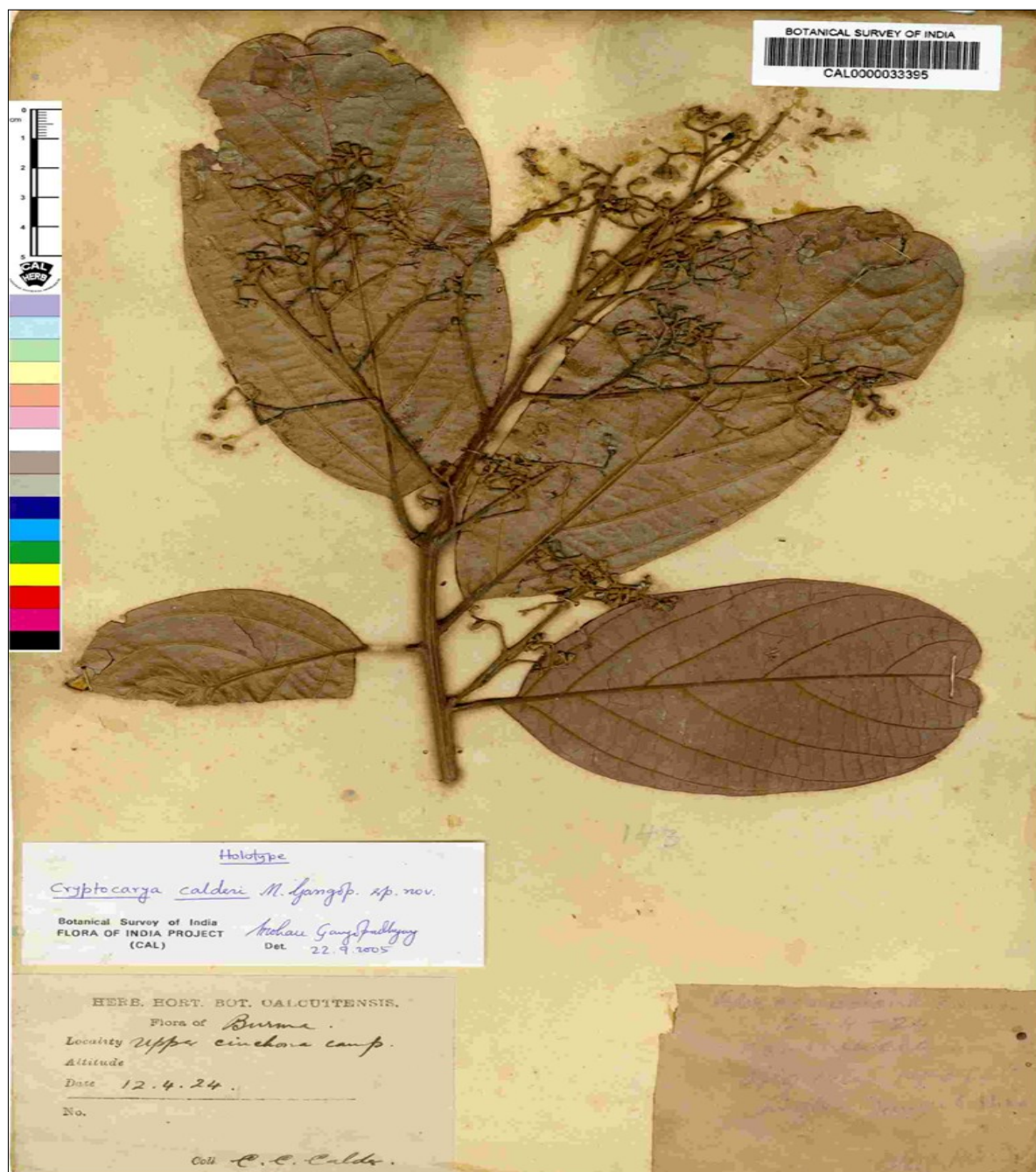
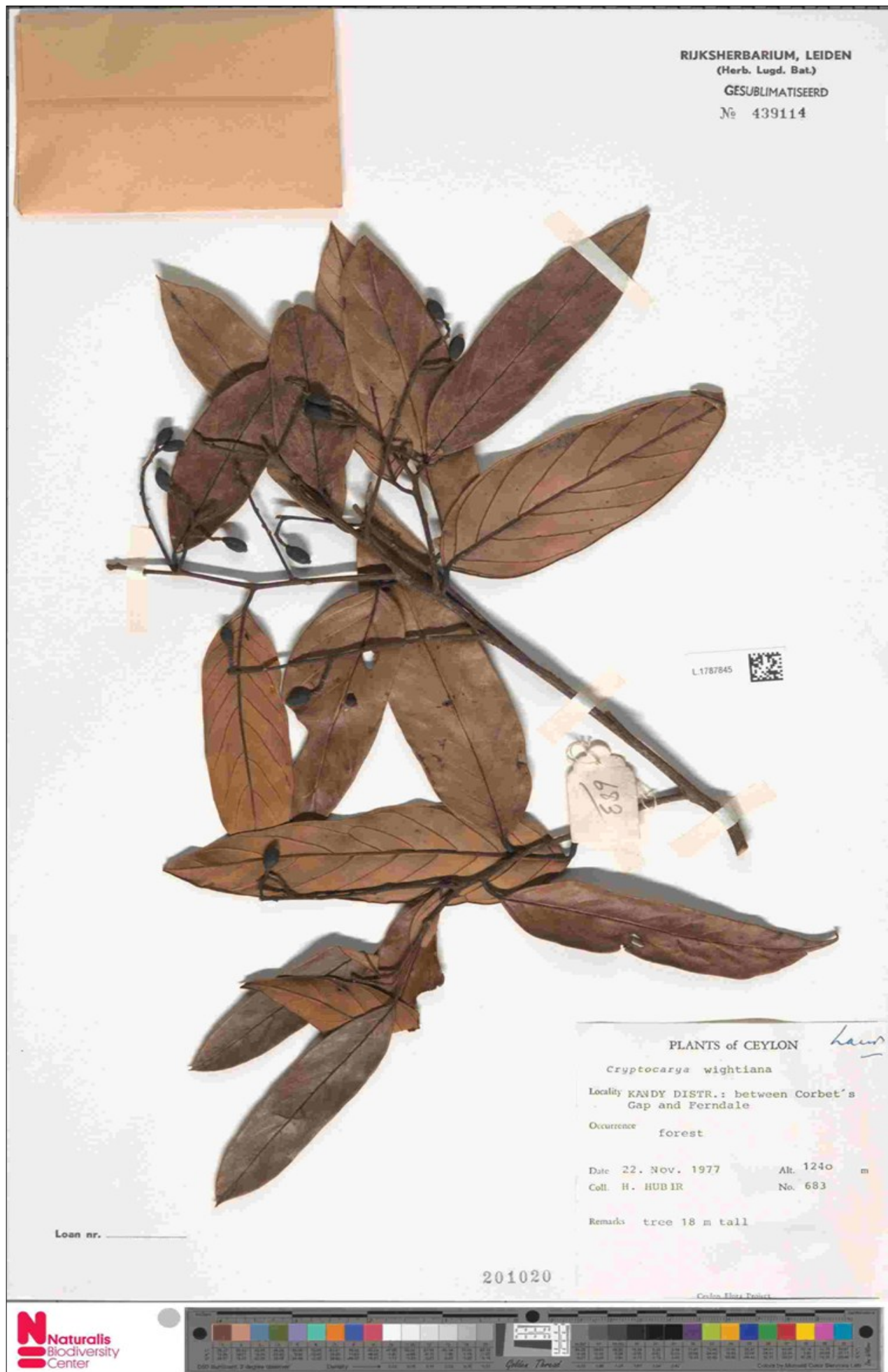


Fig. 1. Holotype of *Cryptocarya calderi* (CAL0000033395) © The Director, Botanical Survey of India, Kolkata.



Fig. 2. Field image of *Cryptocarya muthuvariana*.



**Fig. 3.** A specimen of *Cryptocarya muthuvariana* from Sri Lanka (L.1787845). <https://data.biodiversitydata.nl/naturalis/specimen/L.1787845>





**Fig. 4.** Lectotype of *Cryptocarya procera* (BSI0000000338) © The Director, Botanical Survey of India, Kolkata.

## Compliance with ethical standards

**Conflict of interest:** The author declared that he has no conflict of interest.

**Ethical issues:** None

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