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Note

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Notes on *Cinnamomum travancoricum* Gamble (Lauraceae) - a Critically Endangered species from the southern Western Ghats, India

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Cinnamomum Schaeff. belongs to the family Lauraceae, with approximately 350 species distributed from Southeast Asia to Australia and the New World (Rohwer 1993; van der Werff 2009). The species was described by Gamble (1925) based on the specimen collected by T.F. Bourdillon from Chemunji Hills of Agasthyamala Biosphere Reserve, Kerala, India in 1895. Owing to its affinity to *C. sulphuratum* Nees several botanists incorrectly reported this species from different localities (Ramachandran & Nair 1988; Mohanan & Sivadasan 2002; Geethakumary et al. 2013). During recent explorations in 2012 from the Kerala part of the Western Ghats, the present authors collected one unknown *Cinnamomum* species from Pandipath in Agasthyamala Biosphere Reserve, Thiruvananthapuram district of Kerala. Scrutiny of the collected specimens and comparison with the type sheets deposited at L (Nationaal Herbarium Nederland, Leiden), CAL (Central National Herbarium, Howrah, India), TBGT (Tropical Botanic Garden and Research Institute, Trivandrum, India) proved that the collected material was *C. travancoricum* Gamble, a Critically Endangered and endemic plant with a very narrow distribution in Kerala. The misleading report of Geethakumary et al. (2013) from the Anamalai Hill ranges, however, confused us and it led us to the reinvestigation of the literature, type specimens and expert opinions to confirm the correct identity of the species. There are only a few small trees identified from the top edge of the hills. The present effort is a collection of the species after type specimen.

Cinnamomum travancoricum

Gamble in Kew Bull. 1925: 128. 1925 & Fl. Madras 2: 1224. 1925; Bor, Man. Ind. For. Bot. 52. 1953; Kosterm., Bibl. Laur. 358. 1964; Chandras. in A.N. Henry et al. Fl. Tamil Nadu 2: 208. 1987; M. Mohanan & A.N. Henry, Fl. Thiruvanthapuram 392. 1994; Gopalan & A.N. Henry, Endemic Pl. Agasthyamala 81. 2000; N. Mohanan & Sivad., Fl. Agasthyamala 568. 2002; Sasidh., Biodiv. Doc. Kerala - Fl. Pl. 397. 2004 (Images 1 & 2).

Type: India, Kerala, Chemunji, Travancore, ±1200m, 05.iv.1895, Bourdillon 545 (K000778624 (Royal Botanic Gardens, Kew) image! "inadvertently" lectotypified by

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Image 1. *Cinnamomum travancoricum* Gamble
A - habit; B - young leaves; C - leaves-abaxial view; D - leaves-adaxial view; E - inflorescence; F - flowers.

Kostermans in 1983).

Specimens examined: 545 (K000778623 image!), 5.iii.1895, India, Kerala, Travancore, Chemunji, 1,220m, coll. T.F. Bourdillon; 23319 (KFRI!), 24.ii.2012, Thiruvananthapuram District, Pandipath, ±1,600m, coll. A.J. Robi & P. Sujanapal.

Small trees, up to 6m tall; bark greyish; branchlets slender, angular, densely sub-appressed or appressed pilose; terminal buds not perulate, small, sub-appressed pilose. Leaves simple, opposite, estipulate, trinerved; petioles 6–10 mm long, slender, shallowly grooved above, sub-appressed pilose; lamina 3.5–8 × 2–3 cm, elliptic or subovate-elliptic, base cuneate or acute, apex obtusely acuminate or attenuate, thinly coriaceous, glabrous adaxially (young leaves appressed pilose), smooth, glossy adaxially, glaucous, densely appressed sericeous abaxially; midrib slightly raised or impressed adaxially, raised, prominent and slender abaxially; lateral veins 2, paired, opposite, thin, at 2–5 mm above the base and terminate near the tip of lamina, faint and glabrous adaxially, prominent, densely appressed sericeous abaxially; major intercostal veins scalariform, prominent abaxially; minor intercostal veins finely reticulate, prominent abaxially and faint adaxially. Inflorescences pseudo-terminal and axillary reduced cyme (or racemose), 1–4 cm long, slender, few flowered, unbranched, densely brown sub-appressed pubescent, 3–5 flowers per peduncle. Flowers c. 6mm

long, greenish, densely brown-sericeous; pedicels c. 3mm long, thick, greenish, densely appressed sericeous; tepals 6 in 2 whorls of 3 each, equal, ovate, c. 2 × 1 mm long, obtuse at apex, thick, densely sub-appressed light brown pilose, appressed pilose inside (hairs long, coarse) caducous, greenish, margin ciliate; stamens 9 in 3 whorls of 3 each, c. 1.5–2.5 mm long; outer whorl 3, anthers elliptic, 4-locular, fleshy, introrse; filaments densely pilose, thin, eglandular; middle whorl almost the same as the outer; inner whorl 3, latrorse; anthers c. 2mm long, oblong, 4-locular, with obtuse tips; filaments with 2-glands attached near the basal portion; sessile, oblong, obtuse at apex, pilose; staminodes 3, c. 1.5mm long, sagittate, stipitate, densely pilose; ovary c. 1.5mm long, ellipsoid, glabrous; style c. 1mm long, glabrous, stigma large and peltate. Fruits unknown.

Flowering: February–April.

Distribution: Endemic to the southern Western Ghats; Kerala (Thiruvananthapuram District). It is very rare in the high altitude wet evergreen forests, collected from Pandipath of the Agasthyamala Biosphere Reserve (Image 3).

Ecology: This species grows mainly along the wet evergreen forests at an altitude range of 1200–1500 m and the associated species are mainly *Beilschmiedia jacobii* Robi, Udayan & S. George, *Elaeocarpus venustus* Bedd., *Garcinia travancorica* Bedd., and *Litsea gorayana* Udayan & Robi. Only five mature individuals were noted on the hilltop. Natural regeneration of this species is very poor due to the fragmented forest patches.

Notes: In the protologue Gamble mentioned only one specimen, T.F. Bourdillon 545 (K000778624 image!), but there are well-preserved specimens at L, CAL, TBGT. While revising the genus *Cinnamomum* in southern India, Kostermans (1983) typified the name *C. travancoricum* and it should be considered as 'inadvertent' lectotypification according to Art. 7.11 of ICNAFP (Turland et al. 2018). Geethakumary et al. (2013) misidentified *C. sulphuratum* as *C. travancoricum* and reported its occurrence in Munnar sholas, Idukki District of Kerala. Later, Deepu et al. (2017) lectotypified *C. travancoricum*, but it was superfluous. In this paper we report its recollection from Pandipath of Agasthyamalai region.

According to Walter & Gillet (1997), the species was recorded as Vulnerable; however, the number of individuals identified from the locality was five. According to the IUCN Red List category and criteria, the extent of occurrence of *C. travancoricum* is estimated to be less than 50km2 in a single location with a decline in quality of habitat (CR B1ab(iii)). The total number of mature individuals in the known population is less than 5 (D). Based on this evidence the conservation status of *C. travancoricum* is assessed as Critically Endangered (B1ab(iii)+D).

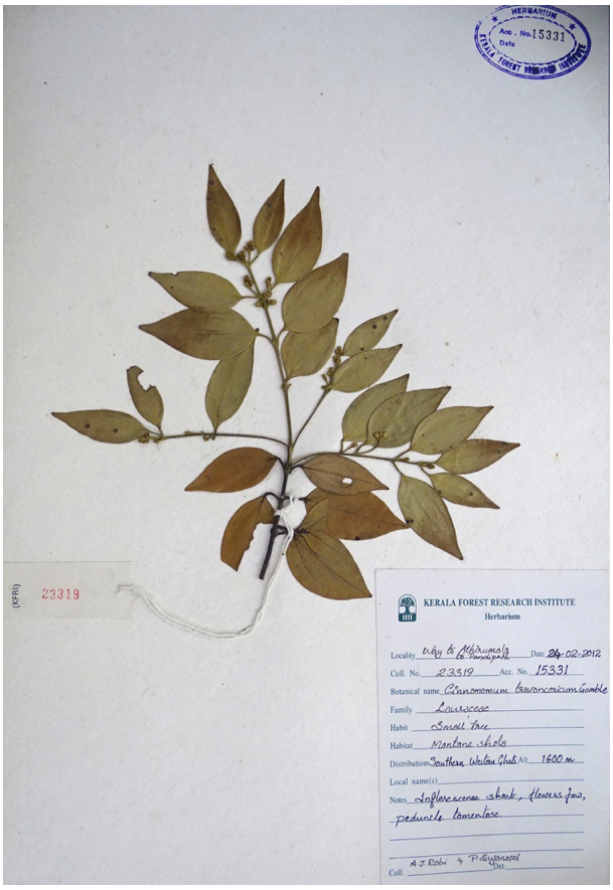

Image 2. Herbarium sheet of *Cinnamomum travancoricum* Gamble (Coll. no 23319 (KFRI!))

References

Deepu, S., Geethakumary, M.P. & A.G. Pandurangan (2017). Typification of five names of *Cinnamomum* (Lauraceae). *Botany Letters* 164(2): 171–176; http://doi.org/10.1080/23818107.2017.1310057

Gamble, J.S. (1925). New Lauraceae from Southern India. *Bulletin of Miscellaneous Information, Kew* 1925: 126–132.

Geethakumary, M.P., A.G. Pandurangan & E.S.S. Kumar (2013). Rediscovery of *Cinnamomum travancoricum* Gamble (Lauraceae) from the southern Western Ghats, India. *Journal of the Bombay Natural History Society* 110(1): 89–90.

The IUCN Red List (2017). <www.iucnredlist.org>. Downloaded on 23 June 2017.

Kostermans, A.J.G.H. (1983). The south Indian species of *Cinnamomum* Schaeffer (Lauraceae). *Bulletin Botanical Survey of India* 25: 90–133.

Turland, N.J., J.H. Wiersema, F.R. Barrie, W. Greuter, D.L. Hawksworth, P.S. Herendeen, S. Knapp, W.H. Kusber, D.Z. Li, K. Marhold, T.W. May, J. McNeill, A.M. Monro, J. Prado, M.J. Price & G.F. Smith (eds.) (2018). International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International

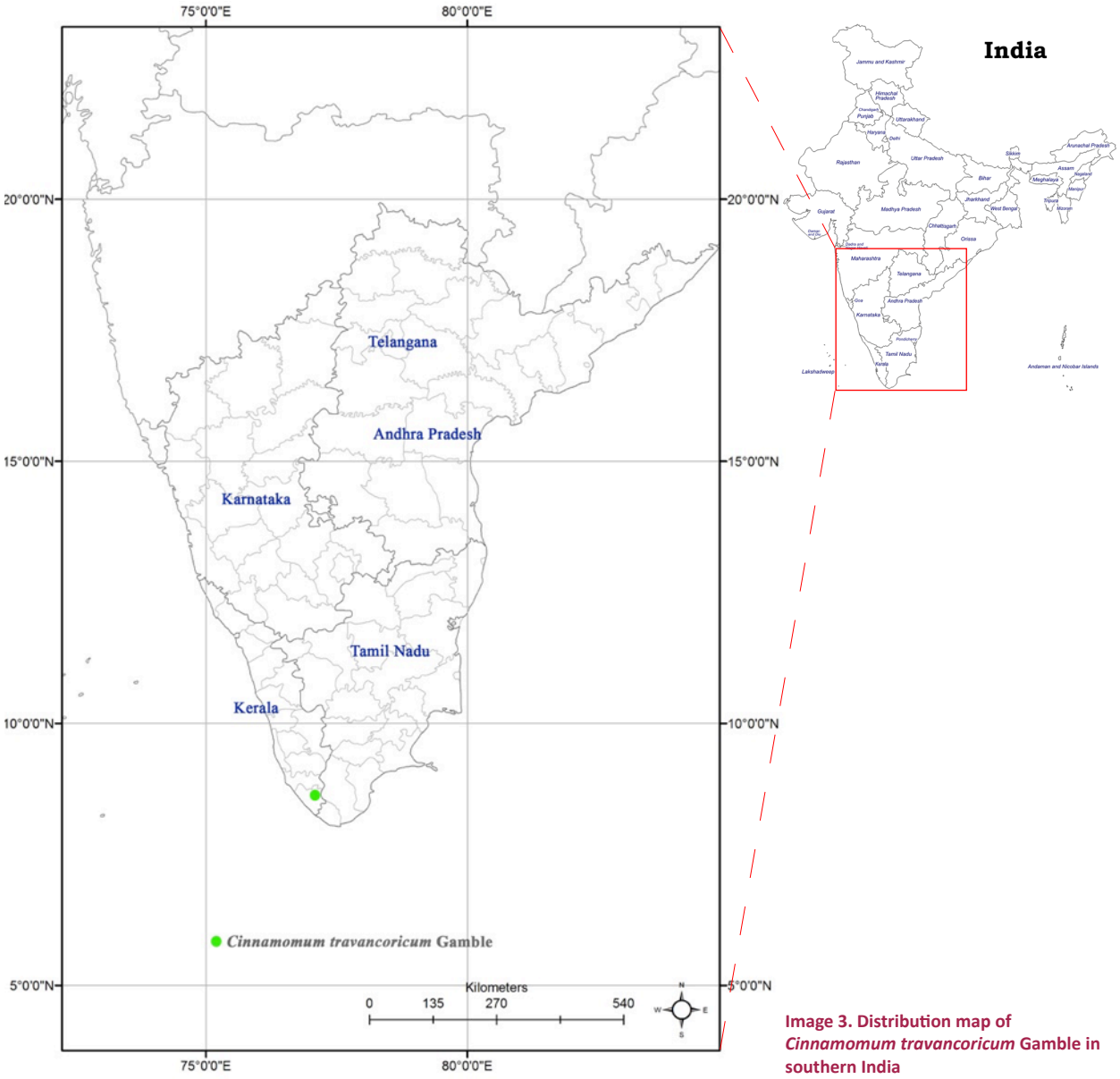

Image 3. Distribution map of *Cinnamomum travancoricum* Gamble in southern India

Botanical Congress Shenzhen, China, July 2017. Regnum Vegetabile 159. Glashütten: Koeltz Botanical Books. https://doi.org/10.12705/Code.2018

Mohanan, N. & M. Sivadasan (2002). *Flora of Agasthyamala*. Bishen Singh Mahendra Pal Singh, Dehradun, India, 568pp.

Ramachandran, V.S. & V.J. Nair (1988). *Flora of Cannanore*.Botanical Survey of India, Calcutta, 393pp.

Rohwer, J.G. (1993). Lauraceae, pp. 366–391. In: Kubitzki, K., J.G. Rohwer& V. Bittrich (eds.). *The Families and Genera of Vascular Plants - Vol. 2*. Springer Verlag, Berlin.

van der Werff, H. (2009). Eight new species of Lauraceae from Ecuador, Peru, and Panama. *Novon* 19(4): 534–548; http://doi.org/10.3417/2008066

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