



# Rediscovery and lectotypification of *Phyllanthus megacarpus* (Phyllanthaceae), an endemic species from the Western Ghats, India

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## Abstract

*Phyllanthus megacarpus* (Gamble) Kumari & Chandrab., a narrow endemic species has been rediscovered after a lapse of 130 years from other than its type locality, which also forms an addition to the flora of Karnataka. Besides, the name *Phyllanthus megacarpus* (= *Reidia megacarpa* Gamble) is lectotypified here.

**Keywords:** Addition, Karnataka, lectotype, *Phyllanthus*, rediscovery

## Introduction

*Phyllanthus* is the largest genus of the family Phyllanthaceae Martinov (Malpighiales), one of the five segregates of Euphorbiaceae *sensu lato* (APG II, 2003). The genus is represented by 750–800 species in the world and distributed chiefly in tropics and subtropics (Mabberley, 2008; Chakrabarty *et al.*, 2012). Webster (1956–58) divided *Phyllanthus* into 8 subgenera and more than 30 sections based on vegetative architecture, floral characters and pollen morphology. However, Kathriarachchi *et al.* (2006) separated it into 10 subgenera and 50 sections based on nuclear ribosomal ITS and plastid matK sequence data. In India, the genus *Phyllanthus* is represented by 51 species under 6 subgenera with 18 species as endemics (Chakrabarty *et al.*, 2012).

Review of literature and examination of specimens housed at BSI, CAL and MH pertaining to the occurrence of *P. megacarpus* in India shows that it is hitherto reported only from the Nilgiris district in Tamil Nadu and Wayanad district in Kerala (Gamble, 1925; Sasidharan, 2004; Balakrishnan & Chakrabarty, 2007; Chakrabarty *et al.*, 2012; Nayar *et al.*, 2014). During a recent botanical exploration in Chikkamagaluru district of Karnataka state, the senior authors could collect a specimen of *Phyllanthus* and later it was identified as *P.*

*megacarpus*, which was hitherto known only from the type locality. Thus this collection is a rediscovery after a lapse of 130 years from other than its type locality, which also forms a new record for the state of Karnataka. Moreover, the present report from Karnataka is about 250 km away from the type locality, which explicitly shows its extended phytogeographical significance of distribution. The occurrence of this species from Palakkad in Kerala reported by Sasidharan (2004) needs further confirmation as there is no authentic representative specimen available at any of the herbaria, including KFRI.

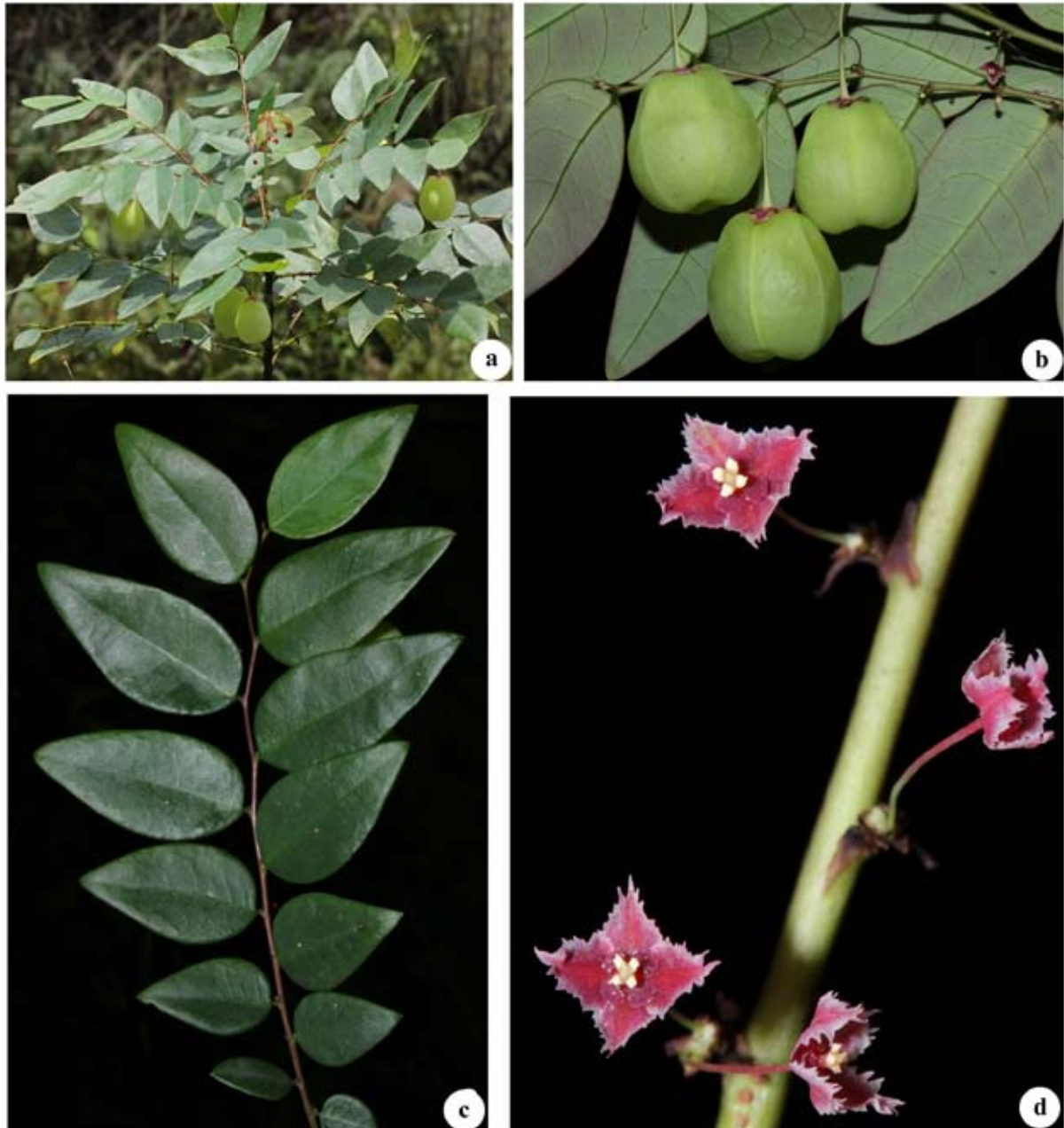
Gamble (1925) described *Reidia megacarpa* based on two collections, viz. Devala, Nilgiris [J.S. Gamble 15547] and Wayanad [R.H. Beddome *s.n.*] and cited the former as the type. A thorough search of original materials resulted in finding four specimens of J.S. Gamble 15547 [CAL0000025108, K000246613, K000246614, MH00002513], however R.H. Beddome *s.n.* could not be traced. Of these, the specimen at CAL is devoid of any annotation by the original author and thus it is presumed that this specimen might not have been used to describe this species though it was collected by him. Therefore the specimen bearing the barcode number K000246613 is designated here as the lectotype (Fig. 2), since

it is a complete specimen with pencil drawings of male and female flowers by the original author, in accordance with 9.2 and recommendation 9C.1 of ICN (McNeill *et al.*, 2012).

***Phyllanthus megacarpus*** (Gamble) Kumari & Chandrab. in A.N. Henry *et al.*, Fl. Tamil Nadu 2: 238. 1987 (*'megacarpa'*); Sasidh., Biodiv. Doc. Kerala

Pt. 6: Fl. Pl.: 427. 2004; T.S. Nayar *et al.*, Fl. Pl. Kerala – Handb.: 256. 2006; N.P. Balakr. & Chakrab., Fam. Euphorbiaceae India: 373. 2007; Chakrab. *et al.*, Fl. India 23: 456. 2012; T.S. Nayar *et al.*, Fl. Pl. Western Ghats 1: 381. 2014. **Fig. 1**

*Reidia megacarpa* Gamble in Bull. Misc. Inform. Kew 1925: 332. 1925 & Fl. Madras: 1292. 1925.



**Fig. 1.** *Phyllanthus megacarpus* (Gamble) Kumari & Chandrab.: **a.** Habit; **b.** A fruiting-twig; **c.** A leafy twig showing the dorsal surface of leaves; **d.** Male flowers.

**Lectotype** (designated here): INDIA, **Tamil Nadu**, Nilgiris, Devala, 3000 ft, Nov. 1884, *J.S. Gamble* 15547 (K, K000246613, image!; isolectotypes K, K000246614, image!, MH, MH00002513!). **Fig. 2**

Undershrub, up to 1 m high; leaves ovate-lanceolate, membranous, glabrous, glaucous beneath; pedicels of male flowers filiform and sepals 4 with denticulate margins; sepals of female flowers 6, with denticulate margins; fruits obovoid, not enclosed by enlarged calyx, c. 3 × 2.5 cm, crustaceous.

*Flowering & Fruiting*: November–August.

*Habitat*: Semi-evergreen to evergreen forests, between 900–1350 m.

*Distribution*: INDIA: Karnataka (Chikmagalur dt.), Kerala (Wayanad dt.) and Tamil Nadu (Nilgiris dt.).

*Conservation Status*: Henry *et al.* (1979) and Ahmedullah & Nayar (1986) categorized *P.*

*megacarpus* as a Rare and Threatened species since there was no further collection after type. Whereas, Walter & Gillett (1998) have assessed it as Indeterminate (I) species due to insufficient information on its distribution. However, this species is evaluated here as **Endangered** [EN, B1ab(iii), B2ab(iii)] according to the recent IUCN Red List Criteria and Categories version 3.1 (IUCN, 2012). Further intensive explorations are required in similar habitats in adjacent areas for the possible location of this species. During the present survey, only eight mature individuals have been located, which are growing as undergrowth in the semi-evergreen forest along stream.

*Specimen examined*: INDIA, **Karnataka**, Chikmagalur district, Mudigere taluka, Devaramane near Guthi village, 1350 m, 28.06.2014, *K. Ravikumar* 115321 (FRLH).

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## Literature Cited

- Ahmedullah, M. & M.P. Nayar 1986. *Endemic Plants of the Indian region*. Vol. 1. Peninsular India. Botanical Survey of India, Calcutta.
- APG II 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. *Bot. J. Linn. Soc.* **141**: 399–436.
- Balakrishnan, N.P. & T. Chakrabarty 2007. *The Family Euphorbiaceae in India – A synopsis of its profile, taxonomy and bibliography*. Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Chakrabarty, T., Gangopadhyay, M. & N.P. Balakrishnan 2012. Tribe *Phyllanthae*. In: Balakrishnan, N.P., Chakrabarty, T., Sanjappa, M., Lakshminarasimhan, P. & P. Singh (Eds.),



**Fig. 2.** Lectotype of *Phyllanthus megacarpus* (Gamble) Kumari & Chandrab. (*J.S. Gamble* 15547, K, K000246613).

*Flora of India. Loranthaceae – Daphniphyllaceae.*  
Vol. 23. Botanical Survey of India, Kolkata.

**Gamble, J.S. 1925.** Decades Kewenses – Plantarum Novarum in Herbario Horti Regii Conservatorium. *Bull. Misc. Inform. Kew* **1925**: 329–333.

**Henry, A.N., Vivekananthan, K. & N.C. Nair 1979.** Rare and Threatened flowering plants of South India. *J. Bombay Nat. Hist. Soc.* **75**: 684–698.

**IUCN, 2012.** *IUCN Red List Categories and Criteria: Version 3.1. Second Edition.* IUCN, Species Survival Commission, Gland, Switzerland and Cambridge, UK.

**Kathriarachchi, H., Samuel, R., Hoffmann, P., Mlinarec, J., Wurdack, K.J., Ralimanana, H., Stuessy, T.F. & M.W. Chase 2006.** Phylogenetics of tribe Phyllantheae (Phyllanthaceae; Euphorbiaceae *sensu lato*) based on nrITS and plastid matK DNA sequence data. *Amer. J. Bot.* **93**: 637–655.

**Mabberley, D.J. 2008.** *Mabberley's Plant-Book. A portable dictionary of plants, their classification and uses.* Third Edition. Cambridge University Press, Cambridge.

**McNeill, J., Barrie, F.R., Buck, W.R., Demoulin, V., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Marhold K.,**

**Prado, J., Prud'homme van Reine, W.F., Smith, G.F., Wiersema, J.H. & N.J. Turland 2012.** International Code of Nomenclature for Algae, Fungi, and Plants (Melbourne Code). *Regnum Veg.* Vol. **154**. Koeltz Scientific Books, Koenigstein.

**Nayar, T.S., Rasiya Beegam, A. & A. Sibi 2014.** *Flowering Plants of the Western Ghats, India.* 2 Vols. Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvananthapuram.

**Sasidharan, N. 2004.** *Biodiversity Documentation for Kerala. Part 6: Flowering Plants.* Kerala Forest Research Institute, Peechi.

**Walter, K.S. & H.J. Gillett (Eds.) 1998.** *1997 IUCN Red List of Threatened Plants.* Compiled by the World Conservation Monitoring Centre. IUCN – The World Conservation Union, Gland.

**Webster, G.L. 1956–58.** A monographic study of the West Indian species of *Phyllanthus*. *J. Arnold Arbor.* **37**: 91–122, 217–268, 340–359; **38**: 51–80, 170–198, 295–373; **39**: 49–100, 111–212.

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