



Taxonomic reassessment of the genus *Memecylon* L. (Melastomataceae) in Eastern Ghats, India

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ARTICLE INFO

Article history:

Received : 23 August, 2020

Revised : 27 August, 2020

Accepted : 18 November, 2020

Keywords:

Eastern Ghats

Endemic

Memecylon

India

ABSTRACT

The present paper enumerates 14 species and one variety of *Memecylon* primarily based on the herbarium specimens deposited in MH, CAL, RHT, RRPC, literature survey and field work. Furthermore, *Memecylon jadhavii* is treated as an invalid name.

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1. Introduction

Memecylon L. is considered as a third largest genus in the family Melastomataceae (Stone, 2014). It comprising about 352 species distributed in the Old World tropics (POWO, 2020). The best diagnostic characters used for species delimitation are nature of stem, leaf shape and size, nature and position of inflorescence, pedicel length, calyx shape and nature of cohesion, presence or absence of disc rays, morphology of foliar sclereids and the nature of the embryo (Rao & Bhupal, 1974; Rao & Dakshni, 1963; Rao *et al.*, 1980; Kumar *et al.*, 2004; Stone *et al.*, 2014; Kottaimuthu and Vasudevan, 2015).

Clarke (1879) recognized 40 species and 27 varieties in Flora of British India, among them 15 species and nine varieties are found within the present political boundary of India (Karthigeyan *et al.*, 2016). According to the recent estimate, the genus is represented by 55 species in India (modified after Vadhyar *et al.*, 2020), of which maximum

diversity is found in Peninsular India especially Western Ghats of Kerala and Tamil Nadu. But in Eastern Ghats, so far only eight (Reddy *et al.*, 2020) to nine species (Pullaiah *et al.*, 2007) of *Memecylon* are reported. However, the present communication enumerates 14 species and one variety of *Memecylon* mainly based on the herbarium specimens deposited in MH, CAL, RHT, RRPC coupled with literature survey and field work.

Systematic Enumeration

1. *Memecylon bremeri* M.B.Viswan. in Nordic J. Bot. 21(3): 256. 2001.

Type: —INDIA. Tamil Nadu, Salem District, Kollihills, 11°8' N and 78°20' E, Karavallicombari R.F., ±1,200 m, 2 April 1994, *M. B. Viswanathan 3* (holo.: MH)

Distribution: INDIA (Tamil Nadu).

Note: Critical analysis of the protologue of *M. bremeri* and *M. kollimalayanum* (Viswanathan, 2001) revealed the

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fact that type collections of both species are made on the same date from the same locality are with consecutive collection numbers. Moreover, the specimens collected by us from Karavallicombari, Kolli hills falls within the circumscription of *M. lushingtonii*. Further studies are needed to ascertain the specific status of the former species.

2. *Memecylon capitellatum* L., Sp. Pl. 1: 349. 1753; M.B.Viswan. in Bull. Bot. Surv. India 37: 127. 1995; Kottaim. *et al.* in Taprobanica 7(2): 114. 2015.

Type:—SRI LANKA. Paul Hermann *s. n.* (BM, barcode BM000621286!).

Memecylon edule Roxb. var. *laeta* C.B. Clarke in Hook., Fl. Brit. India 2: 564. 1879.

Type (lectotype designated by Kottaimuthu *et al.* 2015: 114):— SRI LANKA. Without locality data, 1854, *G.H.K. Thwaites* 1564, K-barcode K300357738!).

Distribution: INDIA (Tamil Nadu) and SRI LANKA.

Note: Bremer (1987) and POWO (2019) have given the areas of distribution for the species as Sri Lanka only. However, it is also reported from Eastern and Western Ghats of Tamil Nadu (Viswanathan, 1995; Kottaimuthu *et al.*, 2015)

3a. *Memecylon edule* Roxb., Pl. Coromandel 1(4): 59, t. 82. 1798; Pull. *et al.*, Fl. Eastern Ghats 3: 52. 2007; Britto, Fl. Central & North Tamil Nadu 2: 1282. 2019.

Type: —INDIA. Roxburgh, *Herb. Wallich No.* 4107A (K, barcode K001038141!).

Distribution: INDIA (Andaman, Andhra Pradesh, Assam, Kerala, Madhya Pradesh, Orissa, Tamil Nadu, Tripura). BANGLADESH, BORNEO, MALESIA and SRI LANKA.

Note: Leaves are used for the treatment of internal piles (Sankar *et al.*, 2012).

3b. *Memecylon edule* Roxb. var. ***petiolatum*** (Trimen ex Alston) M.Das Das, G.S.Giri, A.Pramanik & D.Maity in Feddes Repert. 129(1): 52. 2018; Britto, Fl. Central & North Tamil Nadu 2: 1283. 2019. *Memecylon petiolatum* Trimen ex Alston in Trimen, Hand-Book Fl. Ceylon vi. Suppl.: 126. 1931.

Lectotype (designated by Bremer 1979: 50):— SRI LANKA. *Trimen s.n.* (PDA).

Distribution: INDIA (Andhra Pradesh, Kerala & Tamil Nadu) and SRI LANKA.

4. *Memecylon gracile* Bedd., Fl. Sylv. S. India Forester's Man. Bot.: p. cxv. 1872; Pull. *et al.*, Fl. Eastern Ghats 3: 52. 2007.

Lectotype (designated by Das *et al.* 2016: 2):—INDIA. Travancore (Kerala), without precise locality: *s. d.*, *Coll. ign.*, (MH).

Distribution: INDIA (Andhra Pradesh, Kerala & Tamil Nadu), Endemic.

Note: *M. gracile* differs from other species of *Memecylon* in this region by its characteristic ovate-lanceolate leaves with caudate apex and three flowered umbellate cymes.

5. *Memecylon grande* Retz., Observ. Bot. (Retz.) 4: 26. 1786; Pull. *et al.*, Fl. Eastern Ghats 3: 52. 2007.

Lectotype (designated by Bremer 1979: 23):— SRI LANKA, Koenig *s.n.* (LD).

Distribution: INDIA (Andhra Pradesh, Kerala & Tamil Nadu) and SRI LANKA.

Note: Bremer (1983) opined that reported occurrence of *M. grande* from India is due to misidentification. This species was included here on the authority of Pallithanam (2001) and Pullaiah *et al.* (2007) with some hesitation. Further explorations in the reported localities will resolve the distribution crisis.

6. *Memecylon kollimalayanum* M.B.Viswan. in Nordic J. Bot. 21(3): 253. 2001.

Type:—INDIA. Tamil Nadu, Salem District, Kollihills, 11°8' N and 78°20' E, Karavallicombari R.F., ±1200m, 2 April 1994, *M.B.Viswanathan* 2 (holo.: MH).

Distribution: INDIA (Tamil Nadu).

Note: It is very difficult to delimit *M. kollimalayanum* and *M. bremeri* from *M. lushingtonii*. Hence following Das (2017), Britto (2019) has synonymised this species along with *M. mundanthuraianum*, *M. bremeri* and *M. courtallense* under *M. lushingtonii*. Further studies are needed to ascertain the specific status of these species.

7. *Memecylon lushingtonii* Gamble in Bull. Misc. Inform. Kew 1919(5): 227. 1919; Pull. *et al.*, Fl. Eastern Ghats 3: 53. 2007; Britto, Fl. Central & North Tamil Nadu 2: 1283. 2019.

Lectotype (designated by Das *et al.* 2016: 2):—INDIA. Madras (Andhra Pradesh): Cuddapah Dist.: Horsleykonda, 1212 m [4000 ft], July 1884, *J. S. Gamble 15110* (K, barcode K000859150!).

Distribution: INDIA (Andhra Pradesh, Karnataka, Kerala & Tamil Nadu), Endemic.

8. *Memecylon madgolense* Gamble in Bull. Misc. Inform. Kew 1919(5): 227. 1919; Pull. *et al.*, Fl. Eastern Ghats 3: 32.

2007; Britto, Fl. Central & North Tamil Nadu 2: 1284. 2019.

Lectotype (designated by Das *et al.* 2016: 2):—INDIA. Madras: Vizagapatnam, Machiput, Madgol hills, 969 m [3200ft], 6 June 1914, A. W. Lushington *s.n.*, (K, barcode K000357502!).

Distribution: INDIA (Andhra Pradesh & Tamil Nadu), Endemic.

Note: Pragasan & Parthasarathy (2009) rediscovered this species from Kolli Hills, Tamil Nadu.

9. *Memecylon molestum* Cogn. in A.DC. & C.DC., Monogr. Phan. 7: 1169. 1891; Pull. *et al.*, Fl. Eastern Ghats 3: 54. 2007. *Memecylon umbellatum* var. *molestum* (Cogn.) M.Das Das, D.Maity & A.Pramanik in Britto, Fl. Central & North Tamil Nadu 2: 1287. 2019.

Type:—INDIA. Tamil Nadu, Anamallay Mts., *Wight 1072* (K).

Distribution: INDIA (Andhra Pradesh, Karnataka, Kerala, & Tamil Nadu), Endemic.

10. *Memecylon ovatum* Sm. in Rees, Cycl. 23, no. 3. 1813; Britto, Fl. Central & North Tamil Nadu 2: 1285. 2019.

Type: — *Herb. Linnaeus* 161: 1 (holo: LINN!).

Distribution: INDIA (Andaman & Nicobar Islands, Andhra Pradesh, Bihar, Goa, Kerala, Maharashtra, Odisha & Tamil Nadu), BORNEO, JAVA MALESIA, MYANMAR, SUMATRA and THAI LAND.

Note: The species is often misidentified in the herbaria either as *M. edule* or *M. grande*.

11. *Memecylon parvifolium* Enum. Pl. Zeyl.: 113. 1859; Britto, Fl. Central & North Tamil Nadu 2: 1285. 2019.

Lectotype (designated by Bremer 1979: 28):—SRI LANKA, 6000 ft. (1828 m), Thwaites *C. P.* 2955 (PDA).

Distribution: INDIA (Tamil Nadu) and SRI LANKA.

12. *Memecylon royenii* Blume, Mus. Bot. 1(23): 360. 1851; Murugan & Gopalan in Indian J. Forest. 29(1): 107. 2006; Kottaim. *et al.* in Int. J. Curr. Res. Biosci. Pl. Biol. 6(7): 27. 2019; Britto, Fl. Central & North Tamil Nadu 2: 1286. 2019.

Lectotype (designated by Bremer 1979: 19):— *Herb. Van Royen s. n.* (L, barcode L0052995!).

Distribution: INDIA (Andhra Pradesh, Kerala & Tamil Nadu) and SRI LANKA.

Note: Murugan & Gopalan (2006) first reported this Sri Lankan endemic species for India from Andhra Pradesh

based on the specimens collected by Ellis and Chandrabose. Later, Rajendraprasad *et al.* (2006) have reported the species from the Western Ghats of Kerala. Recently this species was reported from the Sirumalai (Kottaimuthu *et al.*, 2019) and Kolli hills (Britto, 2019).

13. *Memecylon talbotianum* Brandis, Indian Trees: 336. 1906; M.B.Viswan. & Lakshmanan in Indian J. Forest. 13(2): 174. 1990; Pull. *et al.*, Fl. Eastern Ghats 3: 54. 2007; Britto, Fl. Central & North Tamil Nadu 2: 1286. 2019.

Lectotype (designated by Das *et al.* 2015: 210):—INDIA. Karnataka: Bombay, North Kanara District, Bunwasi (Banavasi), 2000 ft (600 m), 22 March 1896, W.A. *Talbot* 3568 (K, barcode K000859141!).

Distribution: INDIA (Goa, Karnataka, Kerala, Maharashtra & Tamil Nadu), Endemic.

14. *Memecylon umbellatum* Burm.f., Flora Indica 1768; Pull. *et al.*, Fl. Eastern Ghats 3: 54. 2007; Britto, Fl. Central & North Tamil Nadu 2: 1287. 2019.

Type:—SRI LANKA, Hermann Vol. 1 p. 17, left specimen (BM!).

Distribution: INDIA (Andhra Pradesh, Karnataka, Kerala, Pondicherry & Tamil Nadu) and SRI LANKA.

Note: Leaves are useful for the treatment of stomach ulcers and diabetes (Sankar *et al.*, 2012).

Excluded species

Memecylon jadhavii K.N.Reddy, C.S.Reddy & V.S.Raju in J. Econ. Taxon. Bot. 28(1): 165. 2004, *nom. inval.*

Note: Reddy *et al.* (2004) have described this species based on the specimens collected from Sapprala hills, Northern Eastern Ghats. However, they failed to specify the herbarium where type has been conserved hence it is an invalid name (Art. 37.7 of ICN, Turland *et al.*, 2018). However, POWO (2019), Roskov *et al.* (2019) and Singh *et al.* (2015) erroneously treated this species as an endemic species of Andhra Pradesh.

Acknowledgements

Authors are grateful to the authorities of Central National Herbarium, Madras Herbarium, and RHT for granting permission to consult the herbarium and library. We are thankful to Dr. Kare Bremer for sharing necessary literature. The authors (RK & MJ) thankfully acknowledge the MHRD-RUSA 2.0 [F.24/51/2014-U, Policy (TNMulti-Gen), Dept. of Education Govt. of India] for the financial supports and infrastructure facilities.

References

- Bremer, K. (1979). Taxonomy of *Memecylon* (Melastomataceae) in Ceylon. *Opera Bot.* 50: 1–32.
- Bremer, K. (1987). Melastomataceae. In: Dassanayake, M. D. and Fosberg, F. R. (eds.). *A Revised Handbook to the Flora of Ceylon*. Volume IV., Oxford and IBH publishing Co. Pvt. Ltd., New Delhi, pp. 157–240.
- Britto, S.J. (2019). Melastomataceae. In: The Flora of Central and North Tamil Nadu, Part-2, St. Joseph College, Tiruchirappalli, pp.1280–1290.
- Clarke, C. B. (1879). Melastomaceae. In: Hooker, J. D. (ed.), *The Flora of British India*, Vol. II: 553 – 565. L. Reeve & Co. Ltd, London.
- Das, D.M. (2017). Taxonomic revision of the family Memecylaceae DC. in India. Ph.D. Thesis submitted to the University of Calcutta (Unpublished).
- Das, D.M., Maity, D. and Pramanik, A. (2015) Typification of the name *Memecylon talbotianum* Brandis (Melastomataceae). *Phytotaxa* 203(2): 210–212.
- Das, D.M., Maity, D. and Pramanik, A. (2016) Typification of seven names of Indian *Memecylon* (Melastomataceae). *Kew Bull.* 71: 48. 1–4.
- Karthigeyan, K., Das, D.M. & Wijedesa, W. (2016). *Memecylon cerasiforme* (Melastomataceae): a poorly known species rediscovered, redescribed and newly recorded for India. *Gard. Bull. Singapore* 68(2): 319–326.
- Kottaimuthu, R., Vasudevan, N. and Saravanan, A. (2015). On the occurrence of *Memecylon capitellatum* L. (Memecylaceae) in India. *Taprobanica* 7(2): 114–117.
- Kottaimuthu, R., Selvakumar, S., Eswaran, S., Boomibalagan, P. and Karmegam, N. (2019). *Memecylon royenii* Blume (Olisbeoideae: Melastomataceae): A new record for Tamil Nadu, India. *Int. J. Curr. Res. Biosci. Pl. Biol.* 6(7): 26–28.
- Kumar, E.S.S., Thulasidass, G., Yeragi, S.S. and Nair, G.M. (2004). *Memecylon sylvaticum* Thw. (Melastomataceae) - A new record for India. *J. Econ. Taxon. Bot.* 28: 513–515.
- Murugan, C. and Gopalan, R. (2006). Four additions to Indian *Memecylon* L. (Melastomataceae) from south India. *Indian J. Forest.* 29 (1):105–108.
- Pallithanam, J. M. (2001). A pocket flora of the Sirumalai hills, South India. Rapinat Herbarium, St. Joseph's College, Tiruchirappalli.
- POWO., 2020. *Memecylon*. <http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:26452-1> (accessed on 30 November 2020).
- Pragasan, L.A. and Parthasarathy, N. (2009). Rediscovery of *Memecylon madgolense* Gamble (Melastomataceae) after a century from Eastern Ghats of India. *J. Econ. Taxon. Bot.* 33: 337–338.
- Pragasan, L. A. and Parthasarathy, N. (2009). *Memecylon parvifolium* Thwaites (Melastomataceae) from southern Eastern Ghats – A new record to tree flora of India. *J. Econ. Taxon. Bot.* 33: 426–427.
- Pulaliah, T., Ramamurthy, K. S. and Karuppusamy, S. (2007). *Memecylon*. In: *Flora of Eastern Ghats: Hill ranges of South East India*. Vol. 3, Regency Publications, New Delhi.
- Rajendraprasad, M., Prathapan, S. L., Pandurangan, A. G. and Shaju, T. (2006). *Memecylon royenii* Blume (Melastomataceae): A new record for India. *Indian Forester* 132: 229–232.
- Rao, T.A. and Bhupal, P. (1974). The utility of sclereid typology in solving problems of synonymy in a few taxa of the genus *Memecylon* L. *Proc. Nat. Acad. Sci. (Biol. Sci.)* 80: 291–300.
- Rao, T.A. and Dakshni, K.M.M. (1963). Systematics of *Memecylon*—A preliminary survey based on the sclereid morphology. *Proc. Nat. Acad. Sci. (Biol. Sci.)* 58: 28–35.
- Rao, T.A., Bremer, K. and Chakraborti, S. (1980). Foliar sclereids in Sri Lanka (Ceylonese) species of *Memecylon* (Melastomataceae). *Bot. Notis.* 133: 397–401.
- Reddy, C.S., Kar, T., Mandal, K.K. & Rao, J.P. (2020). A floristic assessment of tree species of Eastern Ghats, India. *NeBio* 11(3): 157–179.
- Reddy, K. N., Reddy, C. S. and Raju, V. S. (2004). *Memecylon jadhavii* (Melastomataceae): A new species from Andhra Pradesh, India. *J. Econ. Taxon. Bot.* 28(1): 165–166.
- Roskov Y., Ower G., Orrell T., Nicolson D., Bailly N., Kirk P.M., Bourgoin T., DeWalt R.E., Decock W., Nieukerken E. van, Zarucchi J. and Penev L. (2019). Species 2000 & ITIS Catalogue of Life, 2019 Annual Checklist. Naturalis, Leiden, the Netherlands.
- Sankar, R.V., Ravikmar, K. and Ravichandran, P. (2012). Plant Resources of Tiruvannamalai District, Tamil Nadu, India. Bishen Singh Mahendra Pal Singh, Dehra Dun.
- Singh, P., Karthigeyan, K., Lakshminarasimhan, P. and Dash, S.S. (2015). Endemic Vascular Plants of India. Botanical Survey of India, Kolkatta.
- Stone, R.D. (2014). The species-rich, paleotropical genus *Memecylon* (Melastomataceae): molecular phylogenetics and revised infrageneric classification of the African species. *Taxon* 63: 539–561.
- Turland, N.J., Wiersema, J.H., Barrie, F.R., Greuter, W., Hawksworth, D.L., Herendeen, P.S., Knapp, S., Kusber,

- W.-H., Li, D.-Z., Marhold, K., May, T.W., McNeill, J., Monro, A.M., Prado, J., Price, M.J. & Smith, G.F. (eds.) (2018) International Code of Nomenclature for algae, fungi, and plants (Shenzhen Code) adopted by the Nineteenth International Botanical Congress Shenzhen, China, July 2017. *Regnum Vegetabile* 159. Koeltz Botanical Books, Glashütten.
- Vadhyar, R.G., Benjamin, J.H.F. & Sujana, K.A. (2020). *Memecylon nervosum* (Melastomataceae) a new species from India. *Edinburg J. Bot.* 403–411.
- Viswanathan, M. B. (1995). A note on the distribution and conservation status of *Memecylon capitellatum* Linn. in South India. *Bull. Bot. Surv. India* 37: 127–128.
- Viswanathan, M. B. (2001). Two new species in *Memecylon* (Melastomataceae) from India. *Nordic J. Bot.* 21: 253–258.
- Viswanathan, M. B. & Lakshmanan, K. K. (1990). *Memecylon talbotianum* Brandis (Melastomataceae) – A new record for the Eastern Ghats of Peninsular India. *Indian J. Forest.* 13: 174–175.