



Report on the extended distribution of two endemic plants (Angiospermae) in the central Western Ghats of Karnataka, India

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The Western Ghats of India is one of the 34 global biodiversity hotspots of the world (Myers et al. 2000) and over one-third of its angiosperms are endemic (Kaveriappa & Shetty 2001). Both plant diversity and plant endemism are higher towards the wet southern region compared to the dry northern region (Nihara et al. 2007). An endemic taxon, being limited in range to the geographical area under consideration, no doubt has special phyto-geographical interest. In every flora there are many endemic species or small groups of endemics awaiting intensive investigation by combined field observation, experimental ecology and comparative taxonomy (Turrill 1951). It is likely that these endemics have gone unrecorded outside their present day distribution due to insufficient field surveys.

Karnataka, one among the important areas falling under the Western Ghats track of peninsular India,

harbours many endemic plants and is also the limiting range for the distribution of many southern endemics. The state being floristically rich, has been studied well resulting in pioneer works, regional floras, checklists, research articles and short papers as reviewed by Udayan & Ravikumar (2003). In several extensive floristic explorations in the state, many endemics have been rediscovered (Krishnakumar et al. 2004; Krishnakumar & Shenoy 2006; Punekar et al. 2005; Chandran et al. 2008; Mesta et al. 2009). Similarly, many restricted taxa of the Western Ghats have been newly reported from Karnataka State as their extended distribution (Bhat 1993, 2002; Krishnakumar et al. 1995; Ramesh & Pascal 1993; Ravikumar et al. 2001; Udayan & Ravikumar 2003; Udayan et al. 2004, 2006a,b; Datar et al. 2005). As a part of such a floristic diversity study in Uttara Kannada (13°55'–15°31'N & 74°09'–75°40'E) District of Karnataka State, we sighted the populations of two of the Western Ghat's endemics, namely, *Celastrus paniculatus* Willd. subsp. *aggregatus* K.T. Mathew and *Canscora sanjappae* Diwakar & R. Kr. Singh. Critical examination of the plant specimens and comparison with the earlier literature confirmed their extended distribution up to the central Western Ghats.

Celastrus paniculatus Willd. subsp. *aggregatus* K.T. Mathew (Image 1)

in Kew Bull. 46: 540, f. 1, 2. 1991; K. M. Mathew, Ill. Fl. Palni Hills: t. 122. 1996 & Fl. Palni Hills 1: 216. 1999.

Material examined: 05.viii.2009, Devimane Ghat, Uttara Kannada District, Karnataka, India, coll. Gurumurthi R. Hegde & Ganesh R. Hegde, 516 (KUDB); 02.iv.2010, Khandagar (14°36'21.0"N & 74°26'08.6"E), coll. Gurumurthi R. Hegde and Ganesh R. Hegde, 565 (KUDB).

Unarmed straggler or liana. Branchlets glabrous, lenticellate. Leaves broadly elliptic to obovate, 2-9 x 1-5 cm, subcoriaceous, base obtuse, margins shallowly crenulate, apex abruptly acute to retuse; petioles glabrous, up to 1cm long. Inflorescence a condensed panicle (often almost simple raceme), borne on lateral shoots, up to 7cm long, not exceeding the leaves. Flowers polygamous: male flowers 40–65

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Image 1. *Celastrus paniculatus* Willd. subsp. *aggregatus* K.T. Mathew
A - habit with inflorescence; B - bisexual flower; C - infructescence

per cluster, 4–5 mm across, pistillode conical, c. 1mm; bisexual flowers 10–25 per cluster, 3–4 mm across. Calyx cupular, lobes 5, sub-orbicular, c. 1 x 0.8 mm, imbricate. Petals 5, cream coloured, ovate to oblong, 2–5 mm x c. 3 mm, reflexed. Disc concave, 5-lobed. Stamens 5, along margin of disc. Ovary inserted on the disc, ovoid, 3-celled; ovules 2 per cell, collateral, erect; stigmas reflexed. Capsules loculicidal, c. 1.2 x 1.1 cm, 6–14 per cluster; seeds 2–4 per capsule, broadly ellipsoid, erect, 6–7 mm x c. 4 mm, brownish, enclosed in a fleshy, deep orange aril.

Flowering and Fruiting: April–October.

Habitat: According to Mathew (1991), this plant occurs in the montane forest at an elevation of 1300–2100 m, often along the periphery, characteristically on tree tops. But in Uttara Kannada District, the plant occurs in the lower elevations ranging from 91m at moist deciduous forests (Khandagar) to 620m (Devimane Ghat) above MSL of tropical wet evergreen forests.

Notes: The genus *Celastrus* L. has 32 species distributed in the world (Mabberley 2005) and in India seven species are reported (Ramamurthy 2000). Mathew (1991) studying the collections from the

Palni Hills of Tamil Nadu in southern India segregated *Celastrus paniculatus* Willd. into two subspecies namely *paniculatus* and *aggregatus* based on the differences in position of inflorescences, number of bisexual flowers, number of capsules for infructescence and leaf apex. But, the subsp. *aggregatus* was not recorded by any workers thereafter, till Francis et al. (2009) reported it from Aurangabad District of Maharashtra. In Karnataka, so far the genus is represented by only one species *C. paniculatus* Willd. (Sharma et al. 1984; Saldanha & Singh 1996). The present collection of subsp. *aggregatus* from central Western Ghats is an addition to the flora of Karnataka State and also connects the distribution link of this taxon between southern and northern Western Ghats.

***Canscora sanjappae* Diwakar & R. Kr. Singh
(Image 2)**

in *Indian. J. Forestry* 32(2): 337–342. 2009.

Material examined: 29.xi.2010, Badal, Uttara Kannada District, Karnataka, India, 14°25'40.8"N & 74°38'36.7"E, coll. Gurumurthi R. Hegde and Ganesh R. Hegde 555 (KUDB); 03.iv.2010, Badal Ghat 14°23'15.2"N & 74°39'53.9"E, coll. Gurumurthi R.

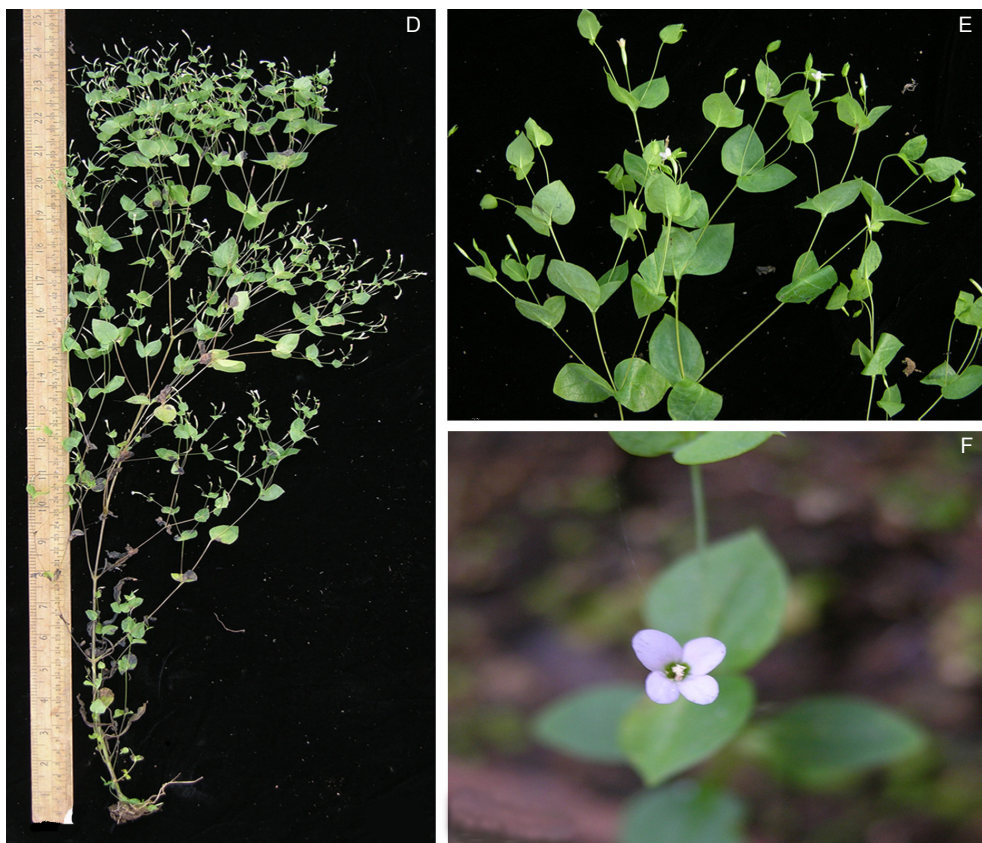


Image 2. *Canscora sanjappae* Diwakar & R.Kr. Singh
D - habit; E - close view showing dichotomous branching; F - enlarged view of flower

Hegde and Ganesh R. Hegde 567 (KUDB).

Annual erect herb, with dichotomous branches reaching up to 65cm high. Stems quadrangular, not winged. Leaves vary in size and shape; lower cauline leaves 1.5–3.2 x 0.5–1.8 cm, elliptic, attenuated at base; petioles c. 1 cm long; upper leaves 0.5–1.6 x 0.5–1.2 cm, broadly ovate, rounded to subcordate at base, sessile. Inflorescence a compound dichasial cyme. Bracts foliaceous, ovate, membranous. Pedicels c. 2cm long. Calyx-tube c. 8mm long, without wings, teeth triangular. Corolla almost actinomorphic, rosy pink to white, tube slightly curved, c. 9mm long, lobes 4, almost equal, some times two are slightly smaller. Stamens 4, didynamous, 2 upper with larger anthers and the lower with smaller anthers. Ovary oblong; style c. 5mm long; stigma bilobed. Capsules oblong; seeds irregular in shape.

Flowering and Fruiting: October–March.

Habitat: Along wet slopes and in between rocky crevices of moist deciduous and wet evergreen forests, at an elevation range of 50–450 m.

Notes: The genus *Canscora* Lam. is represented by about 30 species in the world (Mabberley 2005), mainly confined to the tropical regions. Out of eight species of this genus with two endemics in India, Karnataka State harbours seven species (Sharma et al. 1984). Recently, *Canscora sanjappae*, Diwakar & R. Kr. Singh, has been described from Mookambika Wildlife Sanctuary of Udupi District (Diwakar & Singh 2009). The present collection, at an elevation range of 50–450 m along the wet slopes in wet evergreen and moist deciduous forests of Kumta Taluk of Uttara Kannada District, is outside the type locality, and extends its distribution towards the northern part along the Shimoga-Belgaum corridor of wet evergreen belt of central Western Ghats. In addition, our specimen measured about 65cm in height, almost three times the height of the type collection by Diwakar & Singh (2009).

REFERENCES

- Bhat, K.G. (1993).** New plant record for Karnataka. *Journal of the Bombay Natural History Society* 90: 137–139.
- Bhat, K.G. (2002).** Additions to the Flora of Karnataka. *Journal of the Bombay Natural History Society* 99(3): 566–567.
- Chandran, M.D.S., D.K. Mesta, G.R. Rao, S. Ali, K.V. Gururaja & T.V. Ramachandra (2008).** Discovery of Two Critically Endangered Tree Species and Issues Related to Relic Forests of the Western Ghats. *The Open Conservation Biology Journal* 2: 1–8.
- Datar, M.N., R. Manikandan, P. Lakshminarasimhan & P.S.N. Rao (2005).** New plant records for Goa and Karnataka. *Rheedea* 15(2): 133.
- Diwakar, P.G. & R.K. Singh (2009).** *Canscora sanjappae* (Gentianaceae) - A new species from Mookambika Wildlife Sanctuary, Karnataka, India. *Indian Journal of Forestry* 32(2): 337–342.
- Francis, J.W., A.S. Dhabe & M.M. Sardesai (2009).** *Celastrus paniculatus* subsp. *aggregatus* (Celastraceae), an addition to the Flora of Maharashtra State. *Rheedea* 19(1&2): 73–74.
- Kaveriappa, K.M. & B.V. Shetty (2001).** Biodiversity of the Western Ghats with special reference to conservation of plant Diversity at Kaiga. *International Journal of Nuclear Power* 15(1–4): 40–42.
- Krishnakumar, G. & H.S. Shenoy (2006).** *Syzygium travencoricum* Gamble (Myrtaceae)- A new record for Karnataka. *Journal of Economic and Taxonomic Botany* 30(4): 900–902.
- Krishnakumar, G., G.K. Bhat & K.M. Kaveriappa (1995).** Studies on the Vegetation of Kaiga (Uttara Kannada District) of Karnataka. *My Forest* 31(4): 29–41.
- Krishnakumar, G., H.S. Shenoy & K.M. Kaveriappa (2004).** Rediscovery of *Madhuca insignis* (Radlkofer) H. J. Lam (Sapotaceae) - A critically endangered species of the Western Ghats, India. *Phytomorphology* 54 (3&4): 209–213.
- Mabberley, D.J. (2005).** *The Plant—Book: A Portable Dictionary of the Vascular Plants* (Second Edition). Cambridge University Press, Cambridge, UK, 124 & 137pp.
- Matthew, K.M. (1991).** Precursory notes for a flora of the Palni Hills, south India. *Kew Bulletin* 46(3): 539–546.
- Mesta, D.K., H.V. Hegde, V. Upadhyay, G.R. Rao, G.R. Hegde & S.D. Kholkute (2009).** *Cassipourea ceylanica* (Gardn.) Alston (1925) (Rhizophoraceae) in Karnataka. *Journal of Threatened Taxa* 1(10): 530–532.
- Myers, N., R.A. Mittermeier, G.A.B. da Fonseca & J. Kent (2000).** Biodiversity hotspots for conservation priorities. *Nature* 403: 853–857.
- Nihara, R.G., A.E.D. Daniels, I.A.U.N. Gunatilleke, C.V.S. Gunatilleke, P.V. Karunakaran, K.G. Nayak, S. Prasad, P. Puyravaud, B.R. Ramesh, K.A. Subramanian & G. Vasanthi (2007).** A brief overview of the Western Ghats – Sri Lanka biodiversity hotspot. *Current Science* 93(11): 1567–1572.
- Punekar, A.S., P. Lakshminarasimhan & P.S.N. Rao (2005).** Rediscovery of *Toxocarpus concanensis* Hook. f. (Apocynaceae: Secamonoideae), a little-known endemic species of the Western Ghats. *Phytotaxonomy* 5: 8–11.
- Ramamurthy, K. (2000).** Celastraceae, pp. 75–137. In: Singh, N.P., J.N. Vohra, P.K. Hajra & D.K. Singh (eds.). *Flora of India—Vol. 5*. Botanical Survey of India, Calcutta.
- Ramesh, B.R. & J.P. Pascal (1993).** Five new additions to the Flora of Karnataka. *Journal of the Bombay Natural History Society* 90: 323–325.
- Ravikumar, K., P.S. Udayan & S.P. Subramani (2001).** Additions to the flora of Karnataka. *My Forest* 37(4): 619–624.
- Saldanha, C. & B.G. Singh (1996).** Celastraceae. In: Saldanha, C.J. (ed.). *Flora of Karnataka—Vol. 2*. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi, 94pp.
- Sharma, B.D., N.P. Singh, R.S. Raghavan & U.R. Deshpande (1984).** *Flora of Karnataka Analysis*. Botanical Survey of India, Calcutta, 394pp.
- Turrill, W.B. (1951).** Some Problems of Plant Range and Distribution. *Journal of Ecology* 39(2): 205–227.
- Udayan, P.S. & K. Ravikumar (2003).** New plant record for Karnataka State. *Indian Journal of Forestry* 26(4): 384–388.
- Udayan, P.S., K. Ravikumar & K. Udaiyan (2004).** New plant record from the state of Karnataka. *Indian Forester* 130(5): 551–564.
- Udayan, P.S., S. George & I. Balachandran (2006a).** *Heliotropium keralense* Sivar. & Manilal - A little known endemic and red listed medicinal plant from Agumbe, Sirsi and Udipi as a new report from the state of Karnataka, India. *My Forest* 42(2): 165–169.
- Udayan, P.S., K.V. Tushar, A.K. Pradeep & I. Balachandran (2006b).** *Phyllanthus kozhikodanus* Sivar. & Mani. - A new report for the state of Karnataka, India. *My Forest* 42(3): 267–271.

