



A new subspecies of *Celastrus* (Celastraceae) from the Palni hills of South India

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ABSTRACT: *Celastrus paniculatus* Willd. ssp. *angladeanus* S.J. Britto, B. Mani and S. Thomas new subspecies from the Palni hills, Western Ghats of Tamilnadu, South India is described and illustrated. The new ssp. is similar to *Celastrus paniculatus* ssp. *aggregatus* but differs in flame-coloured branchlets, terminal, erect and stiff panicles exceeding leaves, prominent gibbous and oblique capsules, flowers polygamous but predominantly pistillate and 3-seeded capsules.

KEY WORDS: *Celastrus paniculatus* ssp. *angladeanus*, India, New subspecies, Palnil hills.

INTRODUCTION

The genus *Celastrus* L. with ca. 31 species is mostly seen in (sub) tropical to warm temperate areas of Eastern Asia, India, N. America, New Caledonia, Australia, Madagascar and Sri Lanka (Wadhwa, 1996; Mabberley, 2008). In India it is represented by three species (Hou, 1962) namely *C. paniculatus* Willd., *C. hindsii* Benth., and *C. stylosus* Wall. ssp. *stylosus*. Earlier Hou (1955) had described 3 subspecies for *Celastrus paniculatus* based on the dimensions of leaves and geographical distribution but in his later revision of Celastraceae for the Flora Malesiana (1962) withdrew the above subspecies. Matthew (1996 & 1999) distinguished a subspecies and named it *Celastrus paniculatus* Willd. ssp. *aggregatus* K. T. Mathew.

During the floristic explorations of the Western Ghats of Tamilnadu, India, authors came across specimens of *Celastrus paniculatus* from the Palni hills that differed from the known *Celastrus paniculatus* ssp. *aggregatus*. *C. paniculatus* ssp. *paniculatus* is always characterised by inflorescence on terminal shoots diagnostically pendent, with flowers > 150 per cluster while ssp. *aggregatus* is with inflorescence on lateral shoots, flowers, < 25 per cluster. After critical examination of the new ssp. and comparison with specimens from other herbaria, it was concluded that the specimen deserves to be described as a new subspecies.

TAXONOMIC TREATMENTS

Celastrus paniculatus Willd. ssp. *angladeanus* S.J. Britto, B. Mani & S. Thomas, ssp. nov. **Fig. 1**

Type: India, Tamilnadu, Dindigul district, Palni hills, Thandikudi RF., 78°90' N, 11°41' E, alt. 1200 m,

15 Jan. 2008 Britto sub **RHT 56086** (holotype RHT; isotype MH).

Celastrus paniculatus ssp. *angladeanus* is similar to ssp. *aggregatus* but differs in flame-coloured branchlets, terminal, erect and stiff panicles exceeding leaves, prominent gibbous and oblique and 3-seeded capsules, flowers polygamous but predominantly pistillate.

A woody climber up to 5 m high. Stem erect, pubescent and densely so at apices, characteristically flame coloured with prominent linear lenticels. Leaves variable but more often elliptic to broadly elliptic to suborbicular at time obovate, pubescent on both surfaces, 5.7 – 18 × 3.5 – 13.7 cm, base obtuse, sometimes cuneate, margin subserrate to subcrenate occasionally dentate, apex significantly and abruptly cuspidate at times acute or rounded. Inflorescence always terminal characteristically stiff, turgid and erect, pubescent, twice or more exceeding leaves. Bracts leafy, elongate, linear to 1.5 × 0.5 cm deciduous to semi persistent. Flowers 30 – 110, polygamous but mostly pistillate, 6 – 9 × 4.5 mm. Pistillate flower: Calyx cupular. Sepals semi-orbicular or broadly ovate, 2-2.2 × c. 0.5 mm, ciliate imbricate, pale green to cream. Petals ovate, pale yellow, 3.1 – 3.4 × 1.7 – 2.0 mm, reflexed. Disk cupular with wavy margins. Stamens absent. Staminodes 5. Ovary ovoid, 3 × 1.5 mm, 3-celled with 2 ovules per cell; stigma distinctly and unequally 3-lobed, each lobe minutely 2-lobed, reflexed. Fruit stalk articulate at lower half but near to middle. Capsule obliquely globose to obovoid, very gibbous distally at the apex, asymmetrical, 6 – 9 × 7 – 8 mm, 3-valved, bright yellow becoming pale orange when mature, usually 3-seeded, one smaller in size. Seeds ellipsoid, unequal 3.5 – 7 × 2 – 3 mm, bright and distinctly reddish; aril orange.

**Table 1.** Comparison of key morphological characters of *Celastrus paniculatus* ssp. *angladeanus* with other subspecies.

Characters	<i>Celastrus paniculatus</i> ssp. <i>paniculatus</i>	<i>Celastrus paniculatus</i> ssp. <i>aggregatus</i>	<i>Celastrus paniculatus</i> ssp. <i>angladeanus</i>
Branchlet	Scandent, glabrous or pubescent	Scandent, glabrous	Erect, pubescent
Branchlet colour	Pale brown	brown	Flame coloured
Branchlet lenticels	Prominent or obscure, elliptic		Prominent, elliptic
Petiole	6–16 mm long, pubescent	Up to 10 mm long, glabrous	10–19 cm long, pubescent
Leaf blade	5–10 × 2.5–5 cm, polymorphic (elliptic, oblong, rectangular, ovate, obovate to suborbicular), glabrous	2–9 × 1–4.5 cm, broadly elliptic, elliptic to obovate, glabrous	5.7–18 × 3.5–13.7 cm, elliptic to widely elliptic, rarely obovate, pubescent on both surface
Leaf base	Cuneate	Obtuse	Cuneate to obtuse
Leaf apex	Mucronate to acuminate	Abruptly acute to retuse	Cuspidate to acute
Leaf margin	Serrate	Shallowly crenulate	Serrate
Lateral veins	5–7 pairs	7–8 pairs	4–7 pairs
Inflorescence	Terminal on terminal shoots, twice or more as long as the leaves, pendent	Terminal on lateral shoots, not exceeding the leaves, straight	Terminal, pubescent, exceeding the leaves, erect
Bracts	Deciduous; caducous	Deciduous; caducous	Leafy, elongate, deciduous to quasi persistent
Flowers	2–3 × 1.2–1.8 mm, polygamous	5–6 × 4–5 mm, polygamous	6–9 × 4–5 mm, polygamous, predominantly pistillate
Sepals	c. 2 × 0.5 mm, semiorbicular, ciliate, imbricate, pale green	Calyx cupular, c. 2 × 0.5 mm, suborbicular, pale green	Calyx cupular, 2–2.2 × c. 0.5 mm, ciliate, imbricate, green, semiorbicular
Petals	2.1–2.4 × c. 3 mm, oblong to obovate-rectangular, pale yellow	c. 2.5 × 3 mm, ovate to oblong, reflexed, pale yellow	3.1–3.4 × 1.7–2 mm, ovate, pale yellow, reflexed
Disk	Cupular, membranous, slightly 5-lobed	Concave, 5-lobed	Cupular, margin wavy
Stamen	c. 3 mm, inserted on the margin of the disk <i>Staminate</i> : stamen 1.4 mm <i>Bisexual</i> : stamen 0.6 mm	inserted on the margin of the disk <i>Staminate</i> : Stamen 1.6 mm <i>Bisexual</i> : stamen 0.7 mm	<i>Pistillate</i> : Stamens absent. Staminode 0.9 mm
Ovary	c. 3 × 1.5 mm, globose	3–3.5 × 1.5 mm, ovoid, 3-celled, 2 ovules per cell	c. 3 × 1.5 mm, ovoid, 3-celled, 2 ovules per locule
Stigma	Obscurely 3-lobed	2 or 3-lobed	3-lobed, each lobe minutely 2-lobed or bifid.
Fruit stalk	5–8 mm long, glabrous	5–7 mm long, glabrous	5–10 mm long, pubescent
Articulation on fruit stalk	Lower half, close to the rachis	Lower half, close to the rachis	Lower half but near to middle
Capsule	1–1.3 cm in diam., globose, 3-valved, bright yellow, 3-6 seeded	1.2 × 1.1 cm, 1– (2–4) (–6) seeded	6–9 × 7–8 mm, globose, 3-valved, bright yellow, usually 3-seeded
Seeds	3.5–5.5 × 2–5 mm, elliptic, yellowish to reddish brown	6–7 × c. 4 mm, broadly ellipsoid, brownish	3.5–7 × 2–3 mm, elliptic, reddish
Aril	Orange-red	Deep orange	Orange
Flowering	April–June	June–July	April–May
Fruiting	June–September	August–December	September
Habitat	At low altitudes 800–1300 m	At high altitudes (1200) 1700–2200 m	In altitudes below 1300 m in shola border

Flowering and fruiting: June–December.

Distribution: Palni hills of Tamilnadu in shola periphery.

Etymology: The subspecies is named after Fr. Aloysius Anglade an eminent naturalist who contributed significantly to the flora and fauna of the Palni hills.

Conservation status: The subspecies population has been spotted in the Palni hills in the one locality only and the habitat is under severe anthropogenic pressure. It can be provisionally categorised as Data Deficient (DD) as per IUCN 3.1 version (IUCN, 2012).

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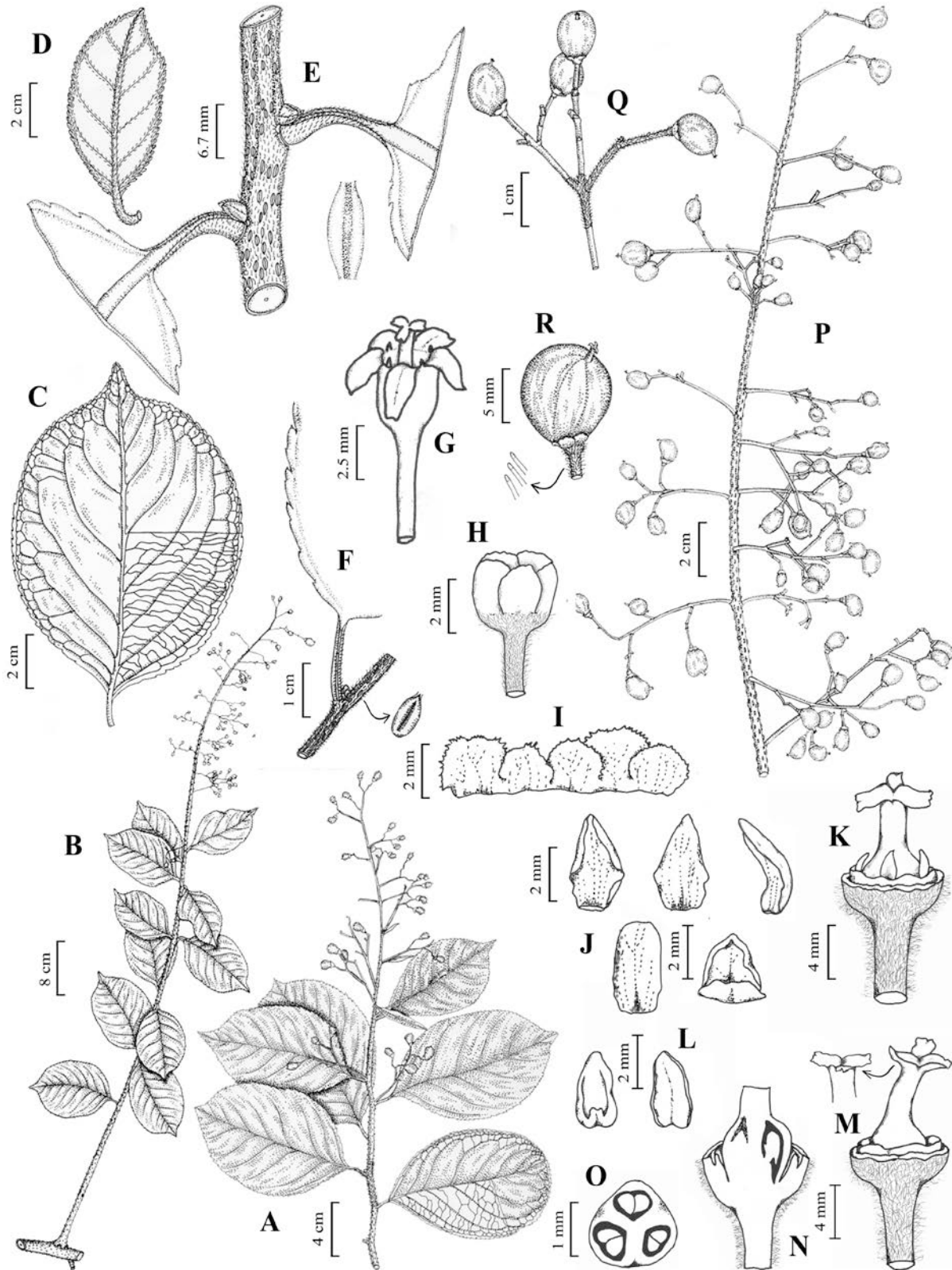


Fig. 1: *Celastrus paniculatus* Willd. ssp. *angladeanus* SJ. Britto, B. Mani & S. Thomas. **A:** Habit with young fruits. **B:** Habit with inflorescence. **C:** Leaf with cusp. **D:** Leaf with acute tip. **E:** Stem with lenticels. **F:** Leaf margin. **G:** Pistillate flower. **H:** Calyx. **I:** Calyx, spread out. **J:** Petals. **K:** Pistil with staminodes. **L:** Staminodes. **M:** Pistil with Stigma enlarged. **N:** Ovary, l.s. **O:** Ovary c.s. **P:** An infructescence. **Q:** Cluster of capsules. **R:** Capsule, enlarged.



Fig. 2: *Celastrus paniculatus* Willd. ssp. *angladeanus* S.J. Britto, B. Mani & S. Thomas. **A:** The plant habit with young fruits. **B:** Flowering branchlets. **C:** Close-up of flowers. **D:** An Inflorescence with bracts. **E:** An Infructescence. **F:** Close-up of a capsule. **G:** Capsule with seeds.

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