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# *Milium tirunelvelica*, a New Species of Annonaceae from the Kalakkad–Mundanthurai Tiger Reserve, Western Ghats, India

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**ABSTRACT.** The new species of *Milium tirunelvelica* (Annonaceae), collected from the Kalakkad–Mundanthurai Tiger Reserve on the Western Ghats of Tamil Nadu, is described and illustrated. It is distinguished by the pubescence on branchlets, petioles, and pedicels; by the shape of the stamen's connective and monocarp apices; and by its stipitate fruit, with the stipe to 20 mm.

**Key words:** Annonaceae, India, Kalakkad–Mundanthurai Tiger Reserve, *Milium*, Tamil Nadu, Western Ghats.

The genus *Milium* Leschenault, with ca. 40 species, is distributed in India, Sri Lanka, east across southern Asia in Bhutan, Bangladesh, Myanmar, Cambodia, Laos, Vietnam, Thailand, Borneo, Indonesia, as well as Australia and New Zealand (Mitra, 1993). Among these, 14 species are found in India: 6 occur in Tamil Nadu, and 5 (*Milium eriocarpa* Dunn, *M. indica* Leschenault, *M. montana* Gardner ex Hooker f. & Thomson, *M. nilagirica* Beddome, *M. tomentosa* (Roxburgh) Sinclair) in the Tirunelveli Hills. Recent botanical explorations (1996–2000) to the Tirunelveli Hills, in the core zone of the Kalakkad–Mundanthurai Tiger Reserve at the southern extension of the Western Ghats in the state of Tamil Nadu, India, yielded a taxon quite different from those Indian species of *Milium* hitherto recognized. It is described here as a new species and is named after the type locality. This area is considered one of the biodiversity hot spots in India (Nayar, 1996; Murugan et al., 2001).

***Milium tirunelvelica*** C. Murugan, V. S. Manickam, V. Sundaresan & G. J. Jothi, sp. nov.  
TYPE: India. Tamil Nadu: Tirunelveli District, Kakachi Hills, Kakachi–Sengaltheri path, 800–1300 m, 1 Sep. 1998, V. S. Manickam 17205 (holotype, XCH; isotypes, MH, MO, XCH). Figure 1.

*Milium wightianae* affinis, sed ramulis et petiolis pilosis (in illa glabris); pedicellis longioribus, 1.5–4 cm longis et pilosis (in illa curtioribus, 1.5–2.5 cm longis et glabris); connectivo apice hemisphaerico (in illa apiculato);

carpellis paucis, ca. 20 (in illa multis); carpellis adultorum apice obtusis, (in illa apice acutis) differt.

Evergreen *small tree* 2–4 m tall; bark black, glabrous, wrinkled when dry; branchlets terete, brown pilose; internode 5–10 mm long. *Leaves* alternate, simple, elliptic to lanceolate, 4–9 × 1–2.5 cm, membranous, glabrous except midrib, base widely cuneate, margin entire, ciliate, apex caudate; secondary veins 6 to 8 pairs, slightly conspicuous below, looped at blade margins; petioles 2–3 mm long, brown pilose. *Flowers* axillary, solitary, 1–1.5 cm diam., bisexual, regular, actinomorphic; pedicels 1.5–4 cm long, slender, sparsely pilose; bracts 2 or 3, ovate, ca. 0.5 mm long, proximal above the base; *sepals* 3, elliptic to lanceolate, ca. 1.5 × 1 mm, sparsely pubescent, valvate, reflexed; *petals* 6 (3 + 3), 2 whorled, valvate; outer petals 3, sepaloid, lanceolate, as long as sepals, sparsely pubescent, alternate to sepals, reflexed; inner petals 3, alternate to outer petals, pink with white tinge, elliptic, ca. 1.5 × 0.8 cm, connivent, sparsely pubescent, rather less so within, base cuneate, apex widely acute; *stamens* ca. 30–40, 6-seriate, ca. 1.5 mm long; connectives flat, not concealing anthers, hemispherical at apex; anthers ovate, ca. 1 mm long, 2-celled; *carpels* ca. 20, free, oblong, rarely falcate, 1–1.5 mm long, pubescent at base; ovules 2, collateral; style 0; stigma terminal, obconic, ca. 1 mm long. *Monocarps* 7 to 21, oblong, 1–1.5 × 0.8–1 cm, glabrous, apex obtuse, pink; stipe 10–20 mm long, terete, glabrous; seeds ovoid, 5–8 mm diam., smooth.

**Distribution.** Endemic to Tirunelveli Hills; recorded so far from only four hilly tracts, viz. Papanasam, Kalakkad, Kothayar, and Mahendragiri in Western Ghats, Tamil Nadu, India; 800–1500 m elevation.

**Flowering and fruiting.** June to April.

**Ecology.** The new species is found along streams of wet evergreen forests between 900 and 1700 m. It is associated with *Acronychia pedunculata* (L.) Miquel (Rutaceae), *Aglaia simplicifolia* (Beddome) Harms (Meliaceae), *Begonia fallax* DC.

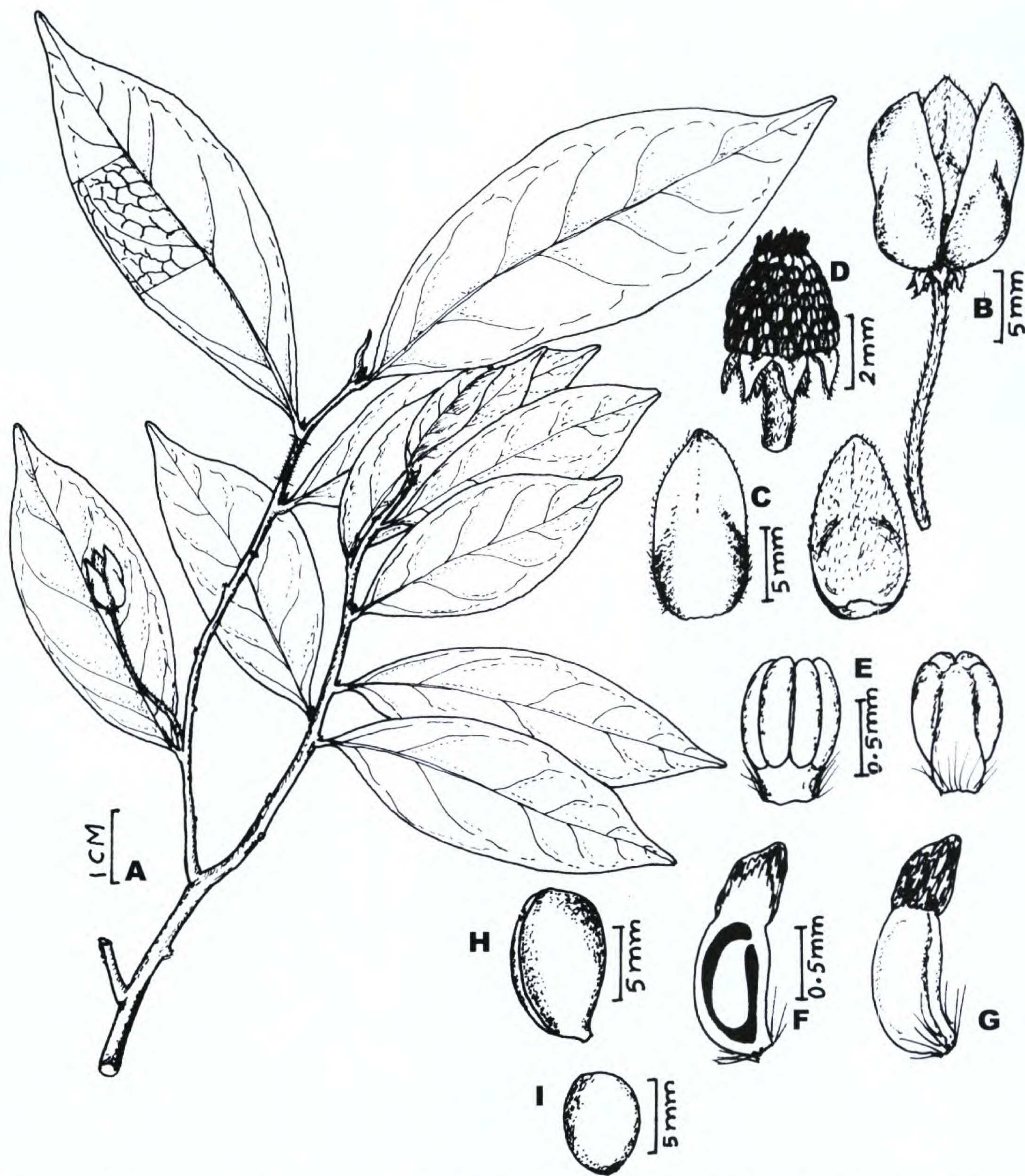


Figure 1. *Miliusa tirunelvelica* Murugan et al. —A. Twig. —B. Flower. —C. Inner petal (outer and inner surfaces). —D. Androecium. —E. Stamen. —F, G. Carpel (immature). —H. Monocarp. —I. Seed. Drawn from the type, V. S. Manickam 17205 (XCH).

(Begoniaceae), *Cullenia exarillata* Robyns (Bombacaceae), *Elaeocarpus munronii* (Wight) Masters (Elaeocarpaceae), *Euonymus crenulatus* Wallich ex Wight & Arnott (Celastraceae), *Gomphandra coriacea* Wight (Icacinaceae), *Impatiens cordata* Wight, *I. uncinata* Wight (Balsaminaceae), *Lasianthes cinereus* Gamble (Rubiaceae), *Leea indica* (Burman f.) Merrill (Leeaceae), *Ophiorrhiza eriantha* Wight (Rubiaceae), *Orophea thomsoni* Beddome (Annon-

aceae), *Saprosma corymbosum* (Beddome) Beddome (Rubiaceae), *Syzygium mundagam* (Bourdillon) Chithra (Myrtaceae), and *Xanthophyllum flavescens* Roxburgh (Xanthophyllaceae).

*Etymology.* The species epithet refers to the type locality of this species.

*Miliusa tirunelvelica* C. Murugan, V. S. Manickam, V. Sundaresan & G. J. Jothi is allied to *Miliusa wightiana* Hooker f. & Thomson by its leaf shape,

flower, pedicel, and stamens. However, the new species differs by pubescence on branchlets and petioles; the pedicel length 1.5–4 cm long; the stamens connectives hemispherical at apex; the monocarps obtuse at their apex with a stipe to 10–20 mm long. The new species is often confused with *Miliusa nilagirica* and *M. wightiana* by their similar pedicel length.

*Paratypes.* INDIA. **Tamil Nadu:** Tirunelveli District, Papanasam Hills, Kannikatti-Peyyar, 5 June 1997, V. S. Manickam 12887 (XCH); Kalakkad Hills, Sengaltheri, 8 Dec. 1996, V. S. Manickam 11652 (XCH); Kakachi Hills, Kakachi–Sengaltheri path, 1 Sep. 1998, V. S. Manickam 17197 (XCH); on way to Sengaltheri, 29 May 1999, V. S. Manickam & C. Murugan 19304 (XCH); Kanniyakumari District, Kothayar Hills, Kothayar–Muthukuzhivayal, 11 Mar. 1998, V. S. Manickam 14951 (XCH); Mahendragiri Hills, on way to Parvatham from Red Fort Estate, 20 Mar. 1999, V. S. Manickam 18593 (XCH).

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