

## A new record of an endemic and endangered succulent *Euphorbia vajravelui* for the Eastern Ghats of Tamil Nadu

*Euphorbia* L. is the largest genus in the family Euphorbiaceae and the sixth largest genus among the flowering plants (Sarojinidevi & Venkatraju 2017), comprising 2,054 accepted species that are cosmopolitan in nature, especially with the highest diversity found in arid and semi-arid regions of the tropics and subtropics (Mabberley 2017; POWO 2024). In India, this genus is represented by 93 species, of which 40 are endemic taxa (Sarojinidevi & Kullayiswamy 2023).

This genus shows a variety of habits, such as herbs, shrubs, trees, and geophytes, present in a few succulent and xerophytic forms (Aditya 2010; Horn et al. 2012).

During the floristic studies in the Sirumalai Hills situated in the southernmost part of the Eastern Ghats in Tamil Nadu, the authors collected an unidentified succulent species of *Euphorbia*. After a detailed scrutiny of the specimens using relevant literature (Matthew



***Euphorbia vajravelui*: A–Habit of the plant | B–Habitat of the plant | C–Cyathia | D–Sapling at the Conservatory. © P. Raja.**

1999; Pallithanam 2001; Binojkumar & Balakrishnan 2010; Balakrishnan et al. 2012), it was identified as *Euphorbia vajravelui*. Binojk. & N.P.Balacr. That is so far reported only in the Western Ghats of Tamil

Nadu, hitherto has not been reported anywhere in the Eastern Ghats. Therefore, the present report of *E. vajravelui* is the first record for the Eastern Ghats.

**Taxonomic treatment****Key to closely related species of *Euphorbia vajravelui***

1. Branches crowded at apex; space between the wings flat ..... *E. susan-holmesiae*  
- Branches not crowded at apex; space between the wings not flat, shallowly curved ..... 2
2. Ultimate branches 2-winged, lower branches 4- or 5-winged; primary peduncles < 1 cm long ..... *E. vajravelui*  
- All branches 3-winged; primary peduncles >1 cm long ..... *E. antiquorum*

***Euphorbia vajravelui*** Binojk. & N.P.Balacr., Cact. Succ. J. (Los Angelss) 63(3): 229–232. 1991; Binojkumar, Cact. Succ. J. (Los Angelss) 66(4): 169–170. 1994; Rajendran & al., JETB, 26(1): 223–235. 2002; Binojk. & N.P.Balacr., *Euphorbia* in India 334. f. 69, t. 24. 2010; N.P.Balacr. & al., *Euphorbiaceae* in Fl. India. 23: 327. 2012.

**Description:** Shrubs or small trees; stem 3-angled; mature branches angular, 4 or 5 winged, young one flat, 2-winged; wings thin, wavy-margined; spines 2, divaricate, 2–3 mm long. Leaves sessile broadly obovate–suborbicular, 3–5 × 2–4 mm, obtuse–subtruncate at base, entire at margins, obtuse or subacute at apex, fleshy, obscurely nerved, caducous. Cyathia in axillary, solitary or in triads, central one sessile, bearing with male florets; laterals pedunculate, bisexual; peduncles 4–5 mm long; bracts broadly ovate, c. 3 × 2 mm, yellowish. Involucre saucer-shaped, 5 × 5 mm; lobes 5, orbicular, 2 × 1.5 mm, lacerate along apical margin; glands 4 or 5, transversely oblong 3.8 × 1.7 mm, fleshy, strongly pitted, pale yellow. ♂ florets: in 5, fascicles, each 5 or 6-flowered; pedicels 1 mm long, glabrous;

anthers c. 0.5 mm long, subglobose; bracteoles obconic, lacerate, 3 × 4 mm. ♀ floret: gynophore c. 2 mm long; ovary ovoid, 5–7 mm across, separating into 3 bivalved, 1-seeded cocci, columella persistent; seeds ovoid, c. 3 × 2 mm, black.

**Specimens examined:** Tamil Nadu: Theni District, Kurangani, Kottagudi river, 22.xi.2023, P. Raja 69134 (RHT); Dindigul District, Sirumalai hills, Kadaman Kombai, 27.xi.2023, P. Raja 69152 (RHT).

**Flowering and fruiting:** December–April

**Habitat:** Occasional in rocky slopes along the outer layer of semi evergreen forests.

**Distribution and ecology:** *Euphorbia vajravelui* Binojk. & N.P.Balacr. is a succulent small shrubs or subshrubs species endemic to Western Ghats and it was first discovered in the Kalakkad forests of Tirunelveli by Binojkumar & Balakrishnan (1991). After a decade Rajendran et al. (2002) reported its distribution extended to Srivilliputtur Hills of Virudhunagar District and Selvakumar et al. (2016) reported its distribution extended to Theni District. Based on the literature, *E. vajravelui* is distributed only in the southern Western Ghats of Tamil Nadu at an altitude of 1,000–1,200 m. Recent exploration on Kurangani Hills of Theni District, the authors recorded >40 matured individuals and 30 saplings in five quadrants (each 32 × 32 m) along the barren slopes along the Kottagudi River an altitude of 617–1,100 m. Subsequently visited Thonimalai Forest, eastern slopes of Palani Hills, Dindigul District where four matured individuals of *E. vajravelui* were recorded from an altitude of 1,333 m. Later,

during the field visit to Sirumalai Hills of Eastern Ghats the authors recorded seven matured individuals associated with evergreen woody species such as *Memecylon edule* Roxb., *Psydrax umbellata* (Wight) Bridson, *Atalantia racemosa* Wight ex Hook., *Psychotria subintegra* (Wight & Arn) Hook.f., *Strobilanthes consanguinea* (Nees) T.Anderson, *Mallotus resinusus* (Blanco) Merr. and herbaceous species such as *Hemionitis arifolia* (Burm.f.) T.Moore, *Spermacoce pusilla* Wall., *Doryopteris concolor* (Langsd. & Fisch.) Kuhn, *Zehneria maysorensis* Arn., and *Begonia malabarica* Lam.

**Conservation status:** *Euphorbia vajravelui* has been assessed as an Endangered species by the IUCN Red List (2023), with the global population currently estimated at 110–130 mature individuals, and the population is decreasing due to storms and floods. As part of the ex-situ conservation measures, two seedlings collected from the study area are maintained at the Rapinat Herbarium Conservatory.

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