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Cover: A Warty Hammer Orchid *Drakaea livida* gets pollinated by a male thynnine wasp through 'sexual deception' — a colour pencil reproduction of photos by ron_n_beths (flickr.com) and Rod Peakall; Water colour reproduction of Flame Lily *Gloriosa superba* — photo by Passakoran_14; and a bag worm and its architectural genius (source unknown). Art work by Pannagasri G.



of relevant literature and examination of type materials housed at different herbaria, the collected specimens were identified as *Biophytum nervifolium* Thwaites, a species previously reported from southern India and Sri Lanka, with no prior records of its occurrence in Gujarat (Shah 1978; Shetty & Singh 1987; Bhandari 1990; Singh & Karthikeyan 2001). The description for *B. nervifolium* in the literature is quite inadequate. Therefore, a detailed account of the species, including morphological description, phenology, ecology, distribution map, and a coloured photoplate is provided to facilitate accurate identification of the species.

RESULTS

Taxonomic Treatment

Biophytum nervifolium Thwaites, Enum. Pl. Zeyl.: 64. 1858; Manna in Hajra et al. (eds.), Fl. India 4: 234. 1997. *B. sensitivum* var. *nervifolium* (Thwaites) Edgew. & Hook.f. in J.D.Hooker, Fl. Brit. India 1: 437.1874.

Erect, annual herbs; stem 2–13 cm high, unbranched, herbaceous, cylindrical, red when young. Leaves 7–20 per plant, paripinnate, crowded on top of the stem; rachis hairy, 1–7 cm long; leaflets opposite, sessile, 3–12(–14) pairs, overlapping, green, and glabrous above, paler beneath, terminal leaflets are the largest, obovate, 11–13 × 3–6 mm, apex obtuse, apiculate, base sharply oblique, margins entire, lateral leaflets oblong, 2–10 × 3–5 mm, obtuse at apex, apiculate, not asymmetric at base, entire at margin, slightly hairy along margins (under dissecting microscope), lateral nerves 6–13 pairs, prominent, sub-opposite or alternate. Inflorescence shorter than or rarely exceeding the leaves, peduncles 0.8–5(–7) cm, stiff with appressed glandular hairs. Flowers 3–6 in dense, crowded umbels, yellow with purple lines; pedicels shorter than bracts, 0.5–1 mm long (fruiting pedicels around 2 mm); bracts broadly ovate, 1–2 × 0.5 mm; shortly acuminate at apex, glandular hairy; bracteoles 1–2 mm long, linear, glandular pubescent. Sepals five, linear-lanceolate, 4–5.5 × 0.5–1 mm, deeply divided to the base, sharply acuminate at apex, broader at base, glandular hairy, nerves seven, prominent, parallel, persistent. Petals five, exceeding the sepals, oblanceolate, 6–7 × 2–2.5 mm, slightly hairy on both surfaces, 3-nerved, middle nerve prominent. Stamens 10 in two whorls, 5-longer filaments 2.5–3 mm long, hairy along one side, 5-shorter filaments 1.5 mm long. Ovary ovoid, as long as broad, 0.8–1 mm, pubescent; styles five, bifid, ca. 0.5 mm long. Capsules ovoid, shorter than sepals, 3–4 × 2–2.5 mm, glabrous except the densely hairy apex, 5-valved; seeds 10, 2 per locule, arillate, strongly transversely ridged, as

long as broad, reddish-brown (Image 1).

Flowering & Fruiting: August to December.

Habitat & Ecology: In the present study, the specimens were collected from two different localities in the Saurashtra Peninsula. The first is situated in the Shatrunjaya Hill ranges, characterized by undulating terrain of hills with a mix of dry deciduous and thorny scrub vegetation. Here, the individuals (nearly 50) of *Biophytum nervifolium* grow in microhabitats on rocky cliffs at an altitude of 150–170 m and at c. 300 m. The main associated species in a 5–6 m radius include *Aeschynomene* sp., *Alysicarpus* sp., *Blepharis maderaspatensis* (L.) B.Heyne ex Roth, *Cassia absus* L., *Chorchorus aestuans* L., *Crotalaria bifaria* L.f., *Crotalaria hebecarpa* (DC.) Rudd, *Dalechampia scandens* var. *cordofana* (Hochst. ex Webb) Müll.Arg., *Evolvulus alsinoides* (L.) L., *Grewia villosa* Willd., *Hibiscus lobatus* (Murray) Kuntze, *Hyptis suaveolens* (L.) Poit., *Indigofera cordifolia* B.Heyne ex Roth, *Ipomoea sindica* Stapf, *Phyllanthus maderaspatensis* L., *Phyllanthus* sp., *Polygala erioptera* DC., *Tephrosia strigosa* (Dalzell) Santapau & Maheshw., *Tridax procumbens* L., and *Urochloa ramosa* (L.) T.Q.Nguyen.

In the Rajkot location, the second recorded site, all the individuals (more than 150) are growing along the roadsides among grasses. The main associated species are *Apluda mutica* L., *Alysicarpus scariosus* (Rottler ex Spreng.) Graham, *Alysicarpus tetragonolobus* Edgew., *Atylosia scarabaeoides* (L.) Benth., *Aristida* sp., *Convolvulus* sp., *Cymbopogon* sp., *Dichanthium* sp., *Euphorbia* sp., *Merremia gangetica* (L.) Cufod., *Mimosa hamata* Willd., *Orthosiphon pallidus* Royle ex Benth., *Polygala chinensis* L., *Rhynchosia aurea* (Willd.) DC., *Sehima nervosa* (Rottler) Stapf, *Senna uniflora* (Mill.) H.S.Irwin & Barneby, *Trichodesma* sp., and *Ziziphus nummularia* (Burm.f.) Wight & Arn. (Image 2).

Distribution: Sri Lanka and India. In India, it occurs in Tamil Nadu, Andhra Pradesh, and Gujarat.

Specimen examined: INDIA, Gujarat, Bhavnagar District, Shatrunjaya Hill ranges, 150–170 m, N21.5028373 E71.8130176, 15.ix.2024, Kishan Prajapati & Siddharth Dangar, KP-036, KP-037; Shatrunjaya Hill ranges, c. 300 m, N21.5025425 E71.8119276, 22.09.2024, Kishan Prajapati, KP-038, KP-039; Rajkot District, Munjka to Ishwariya Village, c. 50 m, N22.2901183 E70.7174083, 16.x.2024 to 10.11.2024, Kishan Prajapati, KP-040, 041, 042, 043.

Notes

Biophytum nervifolium was described by Thwaites in 1858 based on the collection by A.O. Brodie (CP 2787)

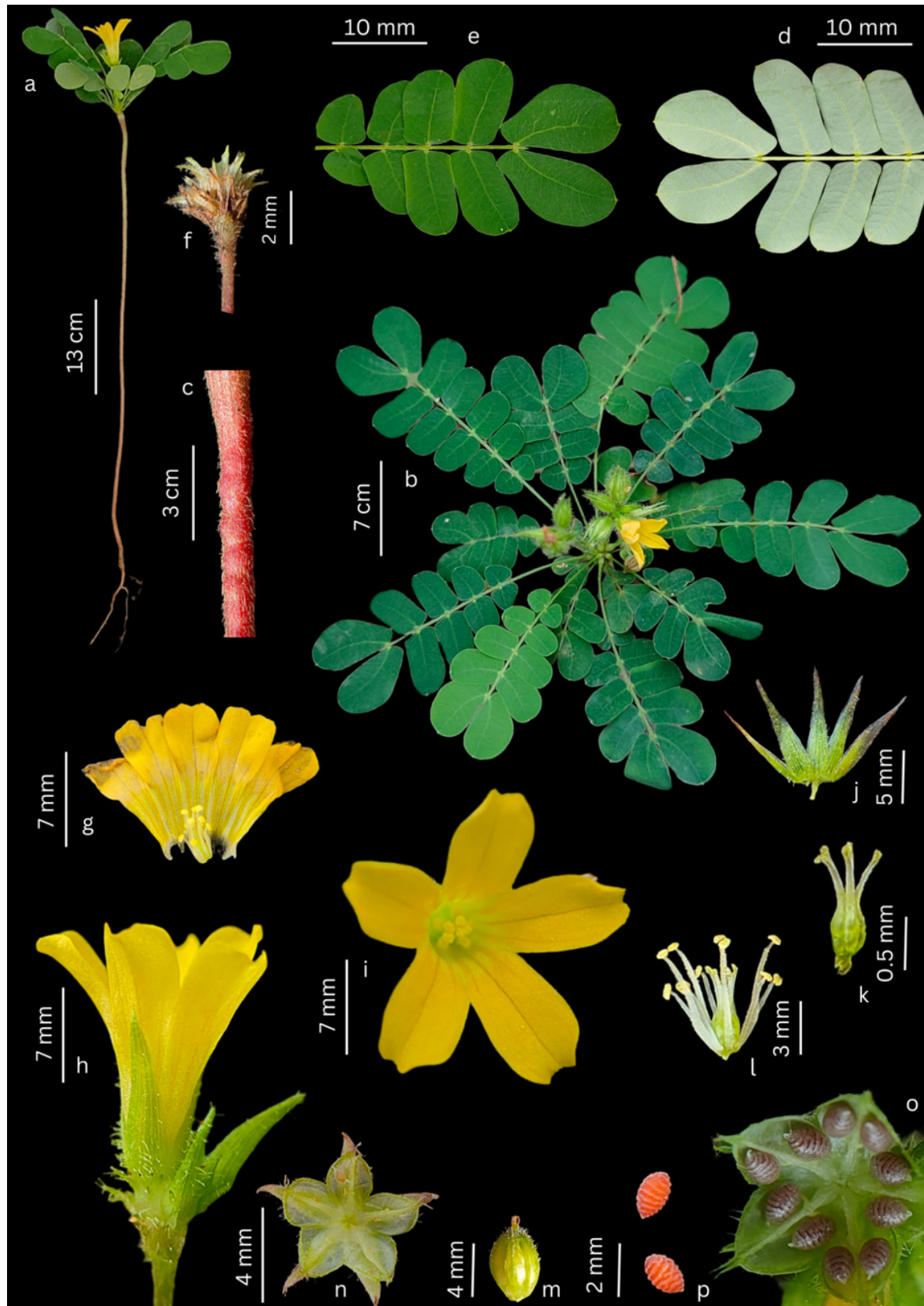


Image 1. *Biophytum nervifolium* Thwaites: a & b—habit | c—mature stem | d & e—abaxial and adaxial surface of leaflets, respectively | f—bracts | g—opened tube of corolla | h & i—side view and top view of the flower, respectively | j—sepals | k—gynoecium | l—androecium | m—capsule | n—opened capsule with persistent calyx | o—opened capsule with seeds | p—seeds. © Kishan Ishwarlal Prajapati.

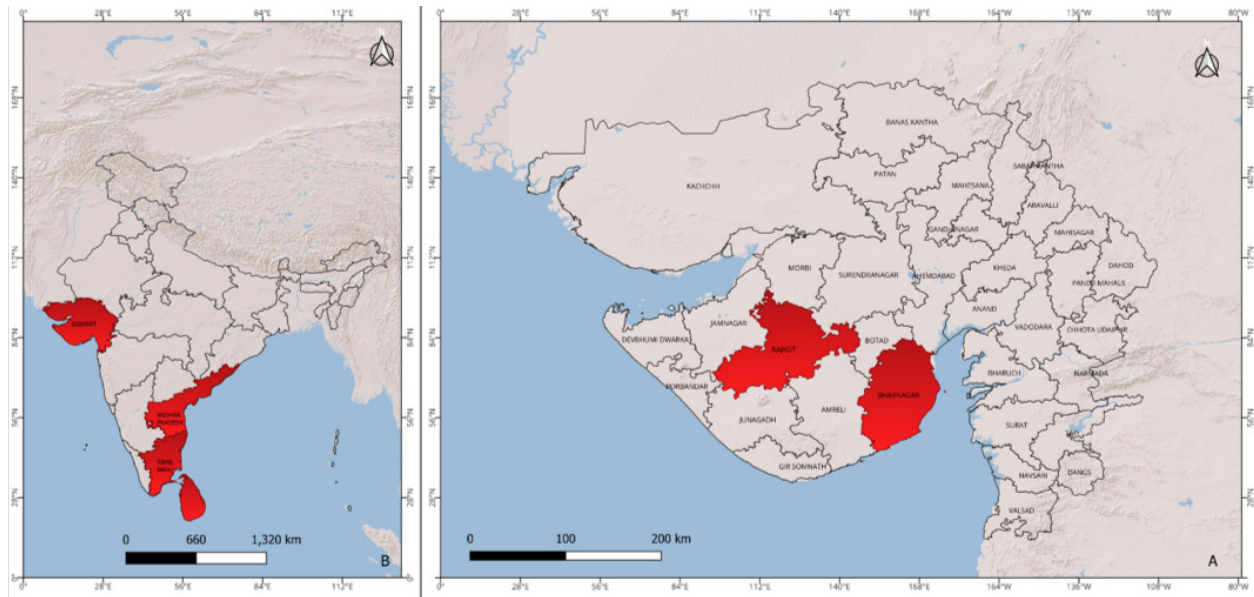


Image 2. Distribution of *Biophytum nervifolium* Thwaites. A—Gujarat map showing the occurrence of the species in the Rajkot and Bhavnagar districts | B—Distribution in within India (Tamil Nadu, Andhra Pradesh, and Gujarat). Map prepared by: V.U. Chauhan.

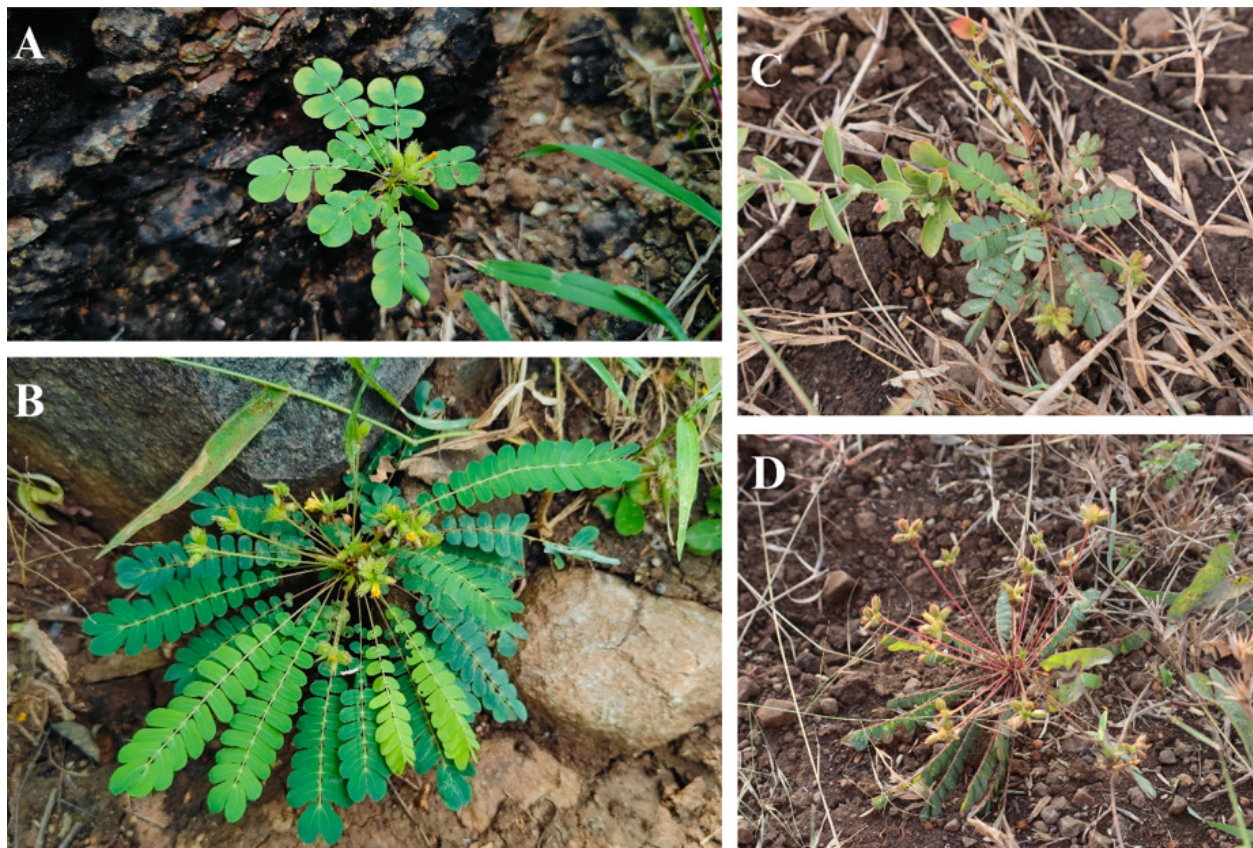


Image 3. *Biophytum nervifolium* Thwaites: Habitats in the Shatrunjaya hill range (A & B) and the Rajkot locality (C & D). © Kishan Ishwarlal Prajapati.

from Puttalam in the Puttalam District of Sri Lanka. This species is reported to be common on sandy and clayey soils of the dry zones in Jaffna, Anuradhapura, Mannar, Batticaloa, and Hambantota districts of Sri Lanka (Dassanayake 1999).

During this study, we observed that *B. nervifolium* is commonly present in Gujarat, but is often misidentified as *B. sensitivum*, including in regional floras (Santapau 1968; Shah 1978). However, these two species can be easily distinguished by their floral features. In *B. sensitivum*, the sepals are nearly as long as the petals, whereas in *B. nervifolium*, the petals are longer than the sepals. The linear glandular bracteoles are one of the striking characters in *B. nervifolium*, but the bracteoles are absent in *B. sensitivum*.

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