

## Reinstatement and lectotypification of *Biophytum poterioides* Edgew. (Oxalidaceae) - an endemic species of the Peninsular India.

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### Abstract

*Biophytum poterioides* (Oxalidaceae), an enigmatic species, erroneously has been considered as synonymous with *B. nervifolium* Thwaites in recent treatments. Upon examining the types and other related specimens we prefer to treat it as an independent species. The name is reinstated and a lectotype is designated here.

**Keywords:** *Biophytum poterioides*, Lectotypification, Endemic, Western Ghats.

### Introduction

The genus *Biophytum* DC. (Oxalidaceae) has about 80 species distributed mainly in the pantropical region of the World. It is distinguished from other genera of Oxalidaceae by its clusters of paripinnately compound leaves at the stem or branch tips (Lourteig, 1980). In India, the genus has 21 taxa and of these 18 is reported from the Western Ghats (Manna, 1997; Khan *et al.*, 1998; Nayar *et al.*, 2014).

During a taxonomic revision of Indian Oxalidaceae, we found that several well-defined taxa of *Biophytum* have been synonymised for no apparent good reasons. One such example is the well defined species *B. poterioides* Edgew., which has been reduced as a synonym of *B. nervifolium* Thwaites (= *B. sensitivum* var. *nervifolium* (Thwaites) Hook.f.) by Hooker f. (1874) is presented here.

The treatment of various intraspecific taxa included under *B. sensitivum* by Hooker f. (1874) is rather confusing and easy to misinterpret. He accepted only 3 varieties under *B. sensitivum* viz. var. *candolleianum*, var. *assamicum* and var. *nervifolium* from the erstwhile British India. He

then noted that Edgeworth (his co-author of the treatment of the family, but apparently Hooker was the final editor) had "laboriously studied ...the Indian forms" and distinguished 4 species (*B. candolleianum*, *B. sesbanioides*, *B. cumingianum* and *B. poterioides*) which he enumerated and diagnosed, obviously from a manuscript available to Hooker. However, Hooker f. did not accept their specific status and regarded only one of them as a variety of *B. sensitivum* (var. *candolleianum*) and others are treated as synonyms of var. *nervifolium*. Knuth (1930) studied the different species recognized by Edgeworth and regarded them as varieties of *B. sensitivum*. Later, several authors (Gamble, 1915; Manna, 1997; Dassanayake, 1999, etc) followed Hooker f. (1874) resulted a 'blanket treatment' of *B. sensitivum* that caused much confusion in their identities and application of names (see Veldkamp 1989, on their nomenclature and typification). A study of literature and herbarium specimens showed that *B. nervifolium* and *B. poterioides* are two quite distinct taxa: the former can very easily be distinguished by its perennial habit, the strongly nerved leaflets, the longer bracts (4-6 mm long), petals pinkish-orange darkening to purple in the middle and

yellow at base with prominent purple veins or yellow with orange-brown streaks, whereas the later can be recognized by the annual habit, faintly nerved leaflets, shorter ovate bracts (2.5–3 mm long), lanceolate or narrowly lanceolate sepals and brick-red to flame coloured or pink petals, hence *B. poterioides* is reinstated as a distinct species from *B. nervifolium* and a lectotype is designated here.

### Taxonomic treatment

***Biophytum poterioides*** Edgew. in Edgew. & Hook. f. in Hook. f., Fl. Brit. India 1: 437. 1874. Type:—INDIA. Wallich B.D. B1 (K-001038742!; lectotype, here designated).

*Biophytum sensitivum*: sensu Mathew, Fl. Tamilnadu Carnatic 189. 1983 & Ill. Fl. Tamilnadu Carnatic t. 96. 1982. non DC. 1824.

Annuals, stem slender, up to 15 cm long. Leaves 4–15 jugate, rachis slightly winged, 2.8–9.5 cm long, sparsely patently strigose and septately glandular hairy. Leaflets often overlapping, 3–10 × 4–5 mm, terminal obovate, oblique, midrib eccentric; others oblong, base truncate, midrib median, apex rounded, apiculate, with a few hairs on the acroscopic half, margin ciliate, lateral nerves 10–15 pairs, oblique to midribs, inconspicuous. Peduncle 1.5–5 cm long, strigosely hairy, eglandular. Bracts ovate, 2.5–3 mm long, strigosely hairy, intermingled with a few glandular hairs, apex acuminate. Pedicels 1.5–2 mm long, glabrous or occasionally with 1–5 glandular trichomes. Flowers long-styled (LF). Sepals lanceolate or narrowly lanceolate, 4–4.5 × 0.75–1 m, half as long as corolla, 6-nerved, longer than capsules, glandular hairy outside, glabrous within. Petals oblanceolate, 8–10 × 4–5 mm, apex retuse, limb brick red-flame or pink. Stamens the shorter 2 mm long, glabrous; the longer 3.5 mm long, puberulous. Ovary ovoid-globose, 0.6–1 mm long, pubescent; style 0.25–2.8 mm long; stigma flattened, crenate-bifid. Fruits 4–4.5 × 3–3.5 mm, apically ciliate on the ribs. Seeds 1- or 2 per cell, 1.2–1.4 × 0.8–0.9 mm, concentrically 9-ridged, not tuberculate.

**Distribution and Habitat:**— Endemic to Tamil Nadu, India. It usually grows in waste lands and wet arable land at elevations of 100–400 m.

**Flowering and fruiting:**—August–January.

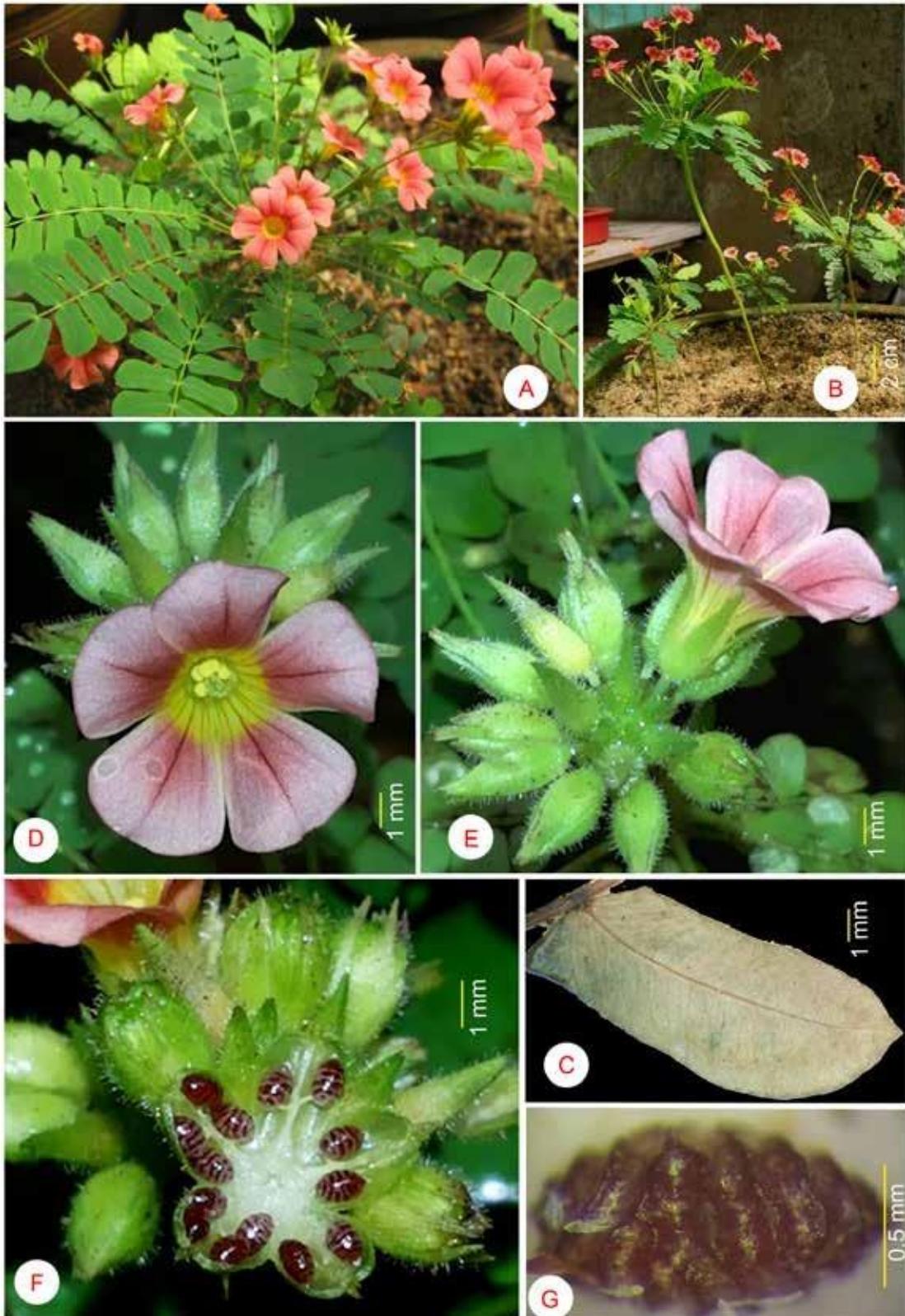
**Specimens examined:**— India: Tamil Nadu State; Tirunelveli District, Manonmaniam Sundaranar University Campus, E.S. Santhosh Kumar 70455 (TBGT).

**Notes:**— Michael Pakenham Edgeworth (1812–1881) from Co. Longford, Ireland, had studied oriental languages and botany at University of Edinburgh, Scotland. Although he was landowner in Ireland, he left for India in 1831, initially employed as a “writer” by the Indian Civil Service of the British Colonial regime. He travelled widely in India, collecting and making notes on its plants. In 1850 he was made the Chief of Police of the English settlement Punjab. He returned to England before 1861. He is the author of an 8,000(!) page diary (1828–1867). It chronicles the broadening of British imperial influence in the Indian territories and is principally of cultural and political interest. Among his interest was the genus *Biophytum* in India and he recognized *B. poterioides* as a distinct species—“*poterioides*” alludes to its presumed resemblance to *Poterium* L. (Rosaceae), Burnets, now *Sanguisorba* L. with some vague resemblance in its red flowers and pinnate leaves, but otherwise totally different.

To cite e.g. *B. poterioides* as “Edgew. ex Hook. f. in Edgew. & Hook. f. in Hook. f.” is wrong. Article 36.1(a) of the Code (McNeill, et al. 2012) applies and the combination is invalid not being accepted by the presumed author (Hooker). Instead, the author responsible for the specific combinations and validating them here is Edgeworth and *B. poterioides* is to be attributed to “Edgew. in Edgew. & Hook. f. in Hook. f.” as noted above.

**Lectotypification:** Edgeworth cited Wallich Cat. 4343 B–D as the type of *Biophytum poterioides*. On the K sheet that he presumably used (with barcodes K 001038742–45; there may be more sheets in K or elsewhere than can be seen on the internet!) there are nine specimens of at least 3 species. Most are annotated in pencil (by Edgeworth?), usually with a “B” or “d”, presumably referring to the Wallich letters. B1 and B3 were annotated as “*poterioides*”, hence both can be—considered as syntypes. Of these, B1, the specimen in the lower right corner of the sheet”, is considered as an ideal specimen exactly matched with the description of *B. poterioides* provided by Edgeworth in Hooker, hence it is designated as the lectotype here.

The specimens marked “d” belong to *B. candolleanum* (note spelling!, not to be “corrected” to “*candolleianum*”: Art. 60.1, and Exx. 7, 8, 13), but the one in the lower left corner is annotated “Reinwardtii Java” which seems a correct identification of what must have been obtained from an unknown source, as Wallich and his contributors did not collect in Java. The duplicate of 4343–D in P consists of a single plant of this species.



**Figure 1.** *Biophytum poteroides* Edgew. A & B: Habit of brick-red flowered form; C: Median leaflet showing abaxial surface; D & E: Flowers of pink flowered form; F: Capsule with seeds; G: A seed.

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Legend

