

NOTES ON THE IDENTITY AND TYPIIFICATION OF *EUPHORBIA HYPERICIFOLIA* L.
(EUPHORBIACEAE) WITH SPECIAL REFERENCE TO INDIA

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A B S T R A C T

The true *Euphorbia hypericifolia* L., was long beleived to be represented only in the New World. According to Boissier, *E. hypericifolia* L., does not belong to Asia. After critical studies made on a large number of herbarium speciemens and field observations it became clear that *E. hypericifolia* is an introduction and was in India only for the last 4-5 decades. The major distinguishing features of this species is its erect habit, glabrous nature, axillary or terminal clustered cyathia, stalked rounded glands, subspherical glabrous capsules and finely ovoid convex-faced wrinkled seeds.

INTRODUCTION

While studying the genus *Euphorbia* L., for the Flora of India project, the authors noticed difficulties in the application of the names *Euphorbia hypericifolia* L., *Euphorbia indica* Lam., *Euphorbia parviflora* L., and *Euphorbia bracteolaris* Boiss., as treated in most Indian floras. Many workers due to insufficient understanding applied one or the other of the above-mentioned names to plants belonging to this group in India. Hooker (1887) faced difficulties while working on this group and as a solution he brought together and listed all the four names provided Boissier's diagnoses to them and left it to Indian Botanists to test their values. All the studies made since then on this group did not satisfactorily clear the demarcation problems among this group.

Taxa belonging to this group are to be found in both Old and New World hemispheres forming two sepearte complexes. The Old World species complex consists of *E. hypericifolia* L., *E. indica*

Lam., *E. parviflora* L., and *E. bracteolaris* Boiss. The New World species complex consists of *E. nutans* Lag., *E. hypericifolia* L., *E. hyssopifolia* L., and *E. lasiocarpa* Klotz. The presence of *E. hypericifolia* L., in both these groups is interesting and is the basic cause for most of the confusion. Hence this species required detailed studies. As part of more detailed studies among this group, the authors after studying all available materials conclude the presence of the true *E. hypericifolia* L., in India.

The studies are mainly based on the herbarium materials received on loan from most of the Indian herbaria, Peradeniya Herbarium, Sri Lanka and University Herbarium, Karachi, Pakistan. The field observations were highly useful in determining its identity. It is interesting to note the occurrence of *E. hypericifolia* L. and *E. indica* Lam., side by side in different phytogeographical regions on India. The type photographs of *E. hypericifolia* L., *E. indica* Lam. and *E. bracteolaris* Boiss., helped in supporting the conclusions. The differences between allied species, a detailed taxonomic description of *E. hypericifolia* L., with illustrations and photograph of typotype are given in this paper to facilitate easy recognition of the species.

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<i>E. hepericifolia</i> L.	<i>E. hyssopifolia</i> L.	<i>E. indica</i> Lam.
Plants erect, glabrous.	Plants ascending or decumbent, sparsely hairy below.	Plants ascending or decumbent with hispid hairs.
Stems unbranched from base, woody, reddish ; nodes thickened.	Stems 2 or 3 branched and woody at base, straw coloured or darker brown; nodes slightly thickened.	Stems always more than 2 branched from base, weak, pale green ; nodes not thickened.
Leaves elliptic-oblong, or elliptic-lanceolate, 1.5-3.5 × 0.7-1 cm, glabrous, serrate at margins.	Leaves linear-lanceolate, 1.5-3.5 × 0.3-0.6 cm, glabrous or sparsely long pilose, serrate towards apex.	Leaves ovate-obovate or oblong, 1-2 × 0.5-1 cm ; hairy to puberulous, entire or rarely serrulate at margins.
Glands orbicular, stalked.	Glands transversely elliptic or suborbicular, sessile.	Glands ovate to elliptic, sessile.
Limb or gland obsolete or prominent, white or pink, ca 5 mm diam., with entire margins.	Limb of gland obsolete to prominent, white or pink, entire or sub-wavy at margins.	Limb of gland prominent, white or pink, ca 4 mm diam., with entire to crenulate margins.
Capsules subspherical, keeled or obtusely keeled, glabrous.	Capsules truncate, cuneiform to broadly ovoid, glabrous.	Capsules obtusely keeled, appressed hairy.
Seeds ovoid, tetragonous, ca 0.8 mm long, ca 0.5 mm wide; faces convex, wrinkled, light brown.	Seeds oblong, ovoid, ca 1 mm long, ca 0.5 mm wide; faces with transverse ridges, brown or black.	Seeds ovoid, tetragonous, ca 1.5 mm long, ca 1 mm wide, with 4-5 transverse furrows or wrinkled.

Euphorbia hypericifolia L., Sp. Pl. (ed. 1) 454. 1753; Boissier in DC., Prodr. 15(2) : 23. 1862; Hook. f., Fl. Brit. India 5 : 250. 1887, descr. Boissier only; Haines, Bot. Bihar & Orissa 1: 151. 1925, p.p. var. only; Burch in Rhodora 68 : 160. 1966 (entity c only); R. Smith in Nasir & Ali, Fl. Pakistan 171 : 98. 1986. *Chamaesyce hypericifolia* (L.) Millsp. in Publ. Field Mus. Nat. Hist. Bot. Ser. 2 : 302, 1909; Croizat in Degener, Fl. Hawaiiensis, Fam. 190. 1937; Burch in Webster & Burch, Fl. Panama in Ann. Missouri Bot. Gard. 54 : 345. 1967.

Herbs, annual, erect, glabrous, 20-50 cm high, rarely up to 1 m high ; stems slender woody below, branched, tan to reddish brown, terete, distinctly swollen at nodes; internodes 2-5 cm long. Leaves opposite, oblong-lanceolate to ovate-elliptic, serrate, oblique at base, acute at apex, 1.5-3.5 × 0.7-1 cm, glabrous on both sides, chartaceous, lateral nerves obscure ; petioles ca 2 cm long ; stipules jointed, sheathing, triangular, ca 3 × 1 mm, often bifid at apex, usually laciniate, hairy towards upper nodes. Cyathia shortly stalked, axillary or terminal in congested fascicles with floral leaves towards upper axils or solitary

cyathium on ca 3.5 mm long peduncle ; involucre campanulate, ca 1.5 mm long, ca 0.7 mm wide, glabrous ; lobes lanceolate, ca 1.5 mm, laciniate, hairy, exceeding the gland ; glands 4, tiny, orbicular or rounded, stalked, ca 0.2 mm across, sparsely hairy at base ; limb of gland white or pale pink, ca 5 mm diam., subdeltoid, entire at margins. Male florets less in number, bracteoles filiform, ca 1.2 mm long, glabrous ; filaments articulate with the pedicels ; pedicels ca 1 mm long ; anthers subglobose, transversely dehiscent. Female florets: Gynophore ca 1.5 mm long, glabrous ; ovary ca 2 mm diam., glabrous ; styles 3, each bifid from the middle : stigma capitate. Capsules obtusely keeled, subspherical, ca 3 mm diam., glabrous ; seeds ovoid, tetragonous, ca 1 mm long, ca 0.7 mm wide; faces flat or convex, scrobiculate, wrinkled, light brown [Figs. A-G].

This species occurs as a weed in cultivated areas with rich humus soils. Flowers and fruits are seen throughout the year.

Distribution : New World tropics and subtropics - Bahamas, Bermudas, Florida, Guatemala, Jamaica, Mexico, Guyana, Panama, Hawaiian Islands, Venezuela, and Introduced to India and Pakistan.



Fig.1: *Euphorbia hypericifolia* L. *Typotype*. Sloane specimen No. 3 : 117(BM).

Specimens examined : INDIA: Andhra pradesh. Hyderabad, Moosi river bank, 833 m 28-4-1959, *K.M. Sebastine* 5965 (MH) ; Hyderabad, Hussain Sagar dam, 833 m, 28-6-1959, *K.M. Sebastine* 8032 (MH) ; Jammu & Kashmir. Chenab valley, 1200-1700 m, 10-9-1958, I.A. Rao (BSD) ; Kerala. Calicut University Campus, 4-6-1983, *Vasantha* 1211 (CALI) ; Tamil Nadu. Tiruchirapalli, Bharathidasan University Campus, 4-1-1989, *Binojkumar* 85073 (MH) ; Coimbatore, Ramanathapuram, Sennankovil area, 10-7-1989, 500 m, *V. Lakshmanan* 9115 (MH) ; Coimbatore, Agricultural University Campus, 22-3-1989, *Binojkumar* 85074 (MH) ; Coimbatore, Forest College Campus, 25-10-1989, *Binojkumar* 85086 (MH) ; Coimbatore, on way to Maruthamalai, 29-10-1989, *Binojkumar* 85087 (MH) ; PAKISTAN : Karachi University Campus, Karachi, 14-5-1987, *S. Khatoon* 408 (KUH).

Notes on typification : While describing this species in *Species Plantarum* (1753), Linnaeus gave many references. Burch (1966) lectotypified the species on the Sloane illustration in *A. Voyage to the Islands of Madera*, etc. 1: t. 126 (1707) cited by Linnaeus in his original description. While choosing the lectotype, Burch stated that "the specimen on which the illustration was based, if it still exists in the Sloane Herbarium in the British Museum, would constitute what Dandy has referred to as a *typotype*." We could recently trace this "typotype" specimen Herb. Sloane specimen no. 3 : 117. (Photograph 1) in BM. Whether Linnaeus did actually see the Sloane specimen 3 : 117 or not while describing the species, is uncertain. Unless and untill this is proved, the lectotypification of the species by Sloane's illustration, as done Burch, has to be followed.

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