



Heliotropium amplexicaule (Boraginaceae-Heliotropioideae): A new record for Indian sub-continent

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Abstract

Heliotropium amplexicaule Vahl belonging the family Boraginaceae is native of South America and a widespread noxious weed in Australia, United States and some parts of Central America. The species is now recorded for the first time from the Indian sub-continent. A brief taxonomic description with illustrations is provided here.

Keywords: *Heliotropium amplexicaule*, Indian sub-continent, Bangalore, new record

Introduction

Heliotropium L. (Boraginaceae: Heliotropioideae) is one of the widespread genus originating from the Old World tropics and sub-tropics with c. 350 species. It is spread to the warm and warm temperate zones of all continents (Mabberly, 2008; Zheng-yi & Raven, 1995). In India, this genus is represented by 18 species (Digital flora of Karnataka, 2014; Gamble, 1921; Hooker, 1885; Matthew, 1995).

Heliotropium amplexicaule Vahl, a native of South America, is now naturalized in other parts of America and is reported as a noxious weed in Australia (Parsons & Cuthbertson, 1992). In Asia, the species is reported from Malaysia and parts of south-east Asia (Steenis, 1997). The present collection from Bangalore, Karnataka, India makes this a new distribution record for the Indian sub-continent.

H. amplexicaule is found growing in the semi-wilderness habitat of Indian Institute of Science, Bangalore campus, which is a part of the southern Deccan Plateau with an elevation of about 962 m. The species is found associated with other herbs such as *Synedrella vialis* (Less.) A.Gray, *Tridax procumbens* (L.) L., *Senecio tenuifolius* N.Burman, *Richardia scabra* L. and *Emilia sonchifolia* (L.) DC. ex DC.

A small population of this taxon comprising of c. 10 individuals was spotted by the authors which on critical study determined as *H. amplexicaule* Vahl.

A thorough scrutiny of literature in consultation with the type revealed that the species was hitherto not known to occur in Indian subcontinent. A brief description along with illustration and photographs (Fig 1 & 2) is provide for easy identification of the taxon.

Heliotropium amplexicaule Vahl, Symb. Bot. 3: 21. 1794; I. M. Johnston, Contr. Gray Herb. 81: 21. 1928, H. Riedl in Fl. Malesiana. 1(13): 101. 1997. *Cochranea anchusifolia* (Poir.) Gürke in Engl. & Prantl. Nat. Pflanzenfam. 4 (3a): 97. 1894. *Heliotropium anchusifolium* Poir. Encycl. Suppl. 3: 23. 1813. **Fig. 1, 2, 3**

Perennial sub-erect hairy herbs upto 45 cm high. Root, dark-brown to black. Stem hirsute, much branched from the root stalk, cylindrical, ascending. Leaves sub-sessile, crowded at apex, 3.5–6 × 1.5–2 cm, elliptic-oblong, strigose on both sides, more below, base attenuate, margin undulate, apex obtuse, nerves 6–10-pairs, impressed above, pale green. Inflorescence in terminal helicoid cyme, 10 cm long, dichotomously branched; peduncle up to 5 cm long, hirsute. Flowers c. 4.8 mm, in two rows on the peduncle, purplish-blue to violet, turning brownish when dry, sessile, ebracteate. Calyx 5-lobed, c. 3.5 mm long linear, light-green, glandular hairy without, glabrous within, tube 1 mm long. Corolla 5-lobed, upto 6 mm long, pubescent without, tube upto 4 mm long and greenish-yellow; throat yellowish, villous hairy within in 5 vertical lines. Stamens 5, glabrous,

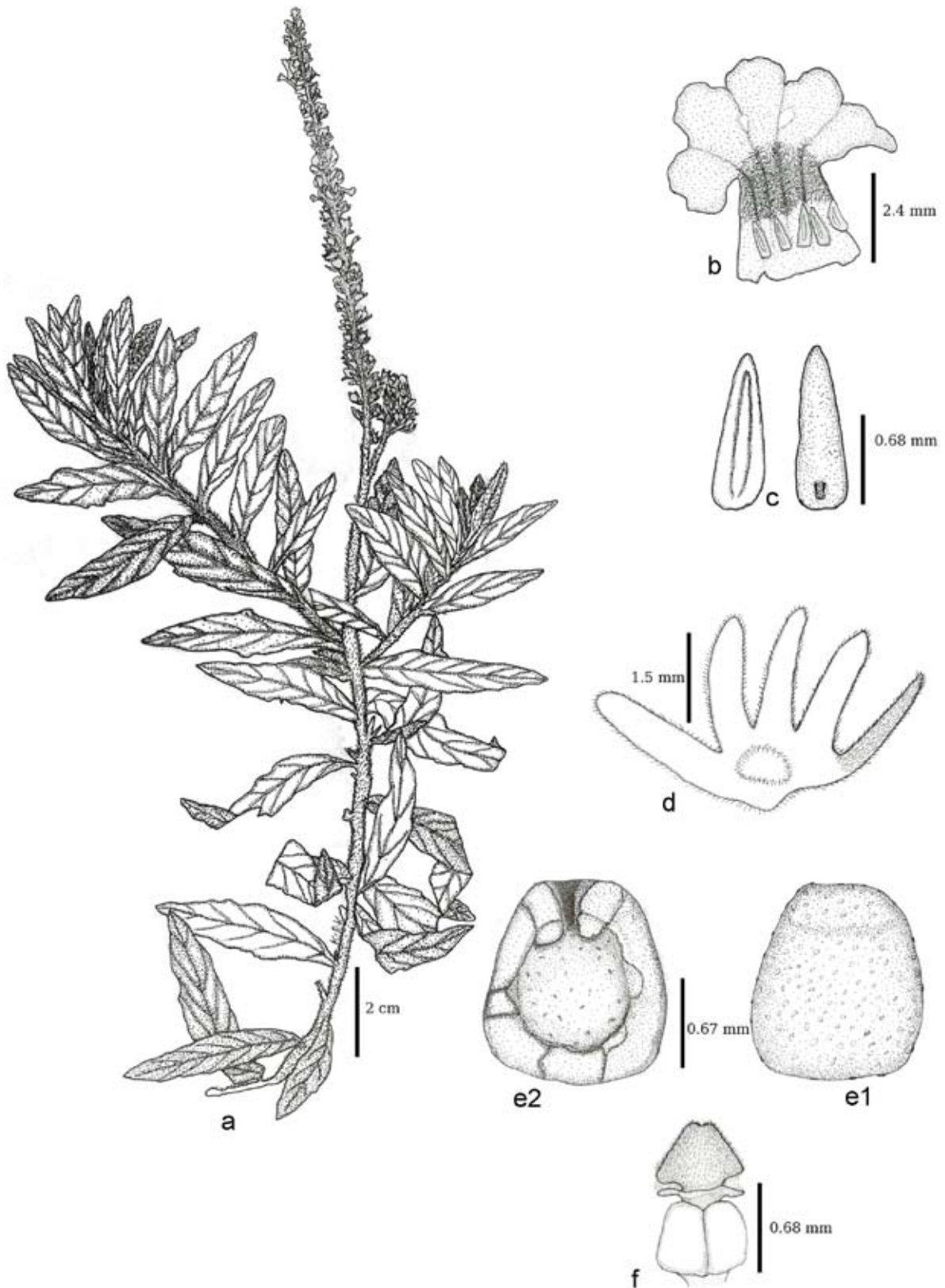


Fig. 1. *Heliotropium amplexicaule* Vahl: **a.** Habit; **b.** Corolla opened; **c.** Calyx opened; **e1.** Seed dorsal view; **e2.** Seed ventral view; **f.** Pistil.



Fig. 2. *Heliotropium amplexicaule* Vahl: **a.** Habit; **b1 & b2.** Inflorescence; **c.** Infructescence; **d.** Corolla split open; **e.** Pistil; **f.** Seeds.

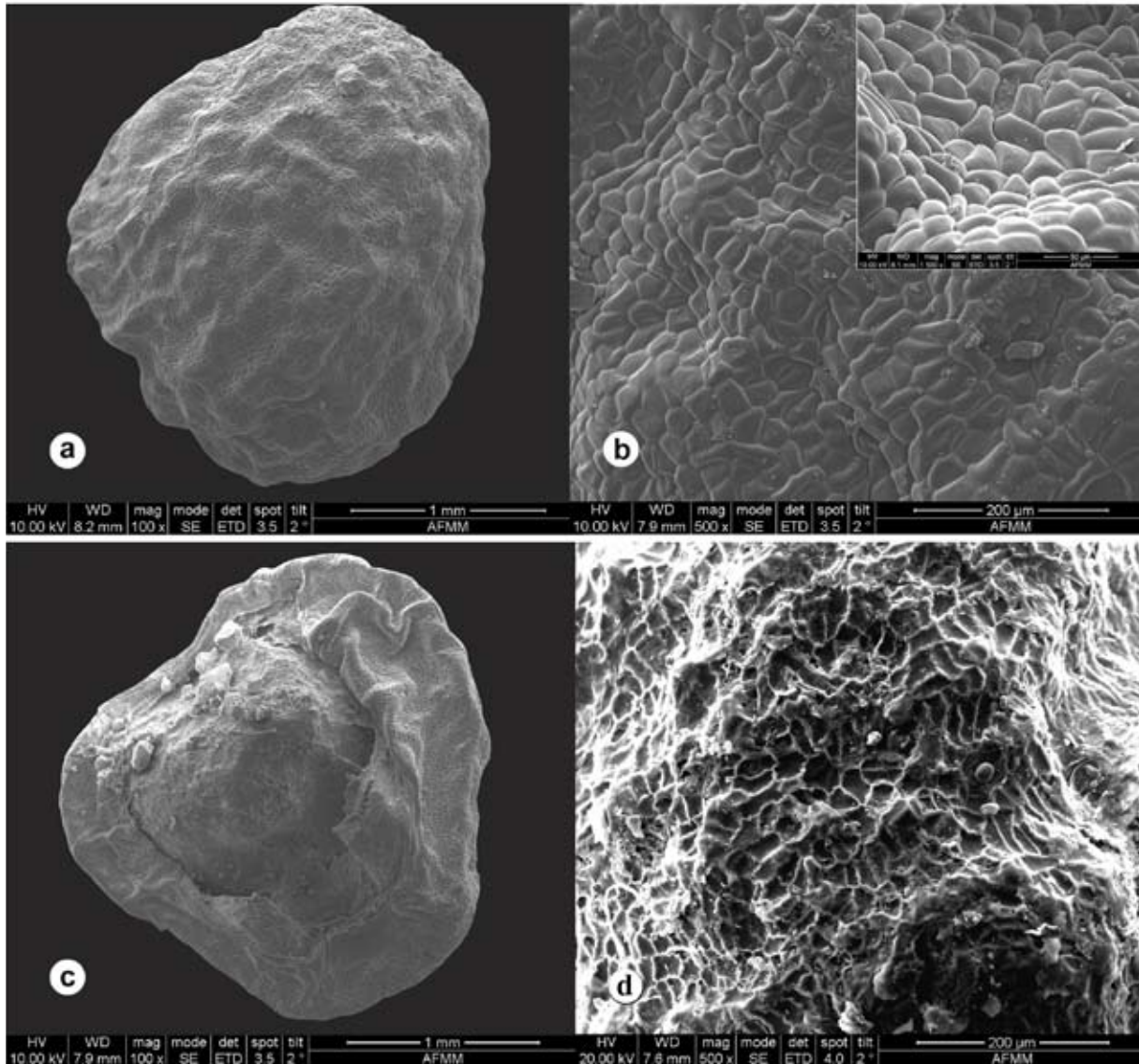


Fig. 3. *Heliotropium amplexicaule* Vahl SEM Pictures showing the seed surface ornamentation: **a.** Outer view; **b.** Testa surface, inset showing the fine structure; **c.** Inner view showing the hilum; **d.** Hilum surface.

white, oblong-lanceolate, *c.* 1.2 mm long, sessile, adhered to the base of the tube, introrse. Ovary green, *c.* 0.5 mm long, glabrous; style minute; stigma conical, strigose hairy. Fruits of 2 bilocular nutlets, glabrous, dark green when mature, turning black when dry enclosed in persistent calyx. Seeds discoid, *c.* 1.5 mm across, plano-convex; testa hard, rough, dark; hilum pitted, reticulate.

Flowering & Fruiting: Throughout the year.

Habitat: Dry to semi-arid locations.

Distribution: Tropical America, Africa, Australia, India, Malaysia and South-east Asia

Specimens examined: INDIA, Karnataka, Bangalore, IISc campus, 15.9.2014, 13° 01' 54.4''N and 77° 56' 70''E, 940 m KRKS, AS & SR 0138 (Herbarium, JCB Centre for Ecological Sciences IISc, Bangalore). USA, South Carolina, Edgefield County, June 1996, A.E.Radford 44810, (CAL). BOLIVIA, Vicinity of Cochabamba, 1891, *Bang Miguel* 926 (MO), MO: 694704, Type. 2516390.

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