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# *GOMPHOCARPUS PHYSOCARPUS* E. Mey. (APOCYNACEAE): A NEW SPECIES RECORD FOR THE NORTH-WEST HIMALAYA FROM RAJOURI (J & K), INDIA

**G. H. Dar[1*], Nisar A Malik[1] and Anzar A Khuroo[2]**

[1]Mahatma Gandhi Chair, Centre for Biodiversity Studies, Baba Ghulam Shah Badshah University, Rajouri-185 131 (J&K), India

[2]Centre for Biodiversity and Taxonomy, University of Kashmir, Srinagar-190 006 (J&K), India.

*Corresponding author - e-mail: profdar99@gmail.com

## ABSTRACT

*Gomphocarpus physocarpus* E. Mey. (Apocynaceae) is reported for the first time from the North-West Himalaya. A detailed taxonomic description of this species, with its colour photographs and specimens examined, is presented in this paper to validate the new record and facilitate field identification of the species.

***Key Words:*** Biodiversity, floristics, taxonomy, new plant record

## INTRODUCTION

The genus *Gomphocarpus* R. Br. belongs to the family Apocynaceae (*sensu lato*), which comprises approximately 480 genera and 4800 species worldwide (Singh, 2004). This genus was first described by Robert Brown (1810), who distinguished it from *Asclepias* L. in its lacking a tooth in the cavity of corona lobe and in the inflation and orientation of follicles; its closely related genus *Asclepias* possesses a tooth in the corona lobe cavity, and slender smooth follicles. Under *Gomphocarpus,* 25 taxa in 20 species are recognized, which are native to the drier parts of Africa and the adjacent territories of Arabia, Sinai, Israel and Jordan (Goyder and Nicholas, 2001). Two species: *Gomphocarpus physocarpus* and *G. fruticosus* W. T. Aiton have been so far reported from southern parts of India (Jagtap and Singh, 1999); these two species differ mainly in their follicles, which are ball-like with rounded depressed apex in the former, and ovate with beaked pointed apex in the latter.

While carrying out floristic studies in district Rajouri of the Jammu and Kashmir State, main part of the biogeographic province of North-West Himalaya (Rodgers *et al.*, 2000), the authors collected several specimens of plants from its different localities, which on critical examination turned out to be *Gomphocarpus physocarpus* E. Mey. An extensive screening of all the relevant floristic literature revealed that this species has not so far been reported from the North-West Himalaya, including its parts in Pakistan (see Hooker, 1883; Stewart, 1972; Singh and Kachroo, 1976; Sharma and Kachroo, 1981; Ali, 1983; Swami and Gupta 1998; Goyder and Nicholas 2001; Dar *et al.*; 2002; Sharma, 2010; Bhellum and Magotra, 2012, 2013). The present finding is, therefore, the first record of this species from the North-West Himalaya. A detailed taxonomic description of the

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species, together with some useful colour photographs and specimens examined, is provided here to validate this new record and facilitate its field identification. The voucher specimens are deposited in the herbarium of BGSB University, Rajouri and in the KASH.

**TAXONOMIC DESCRIPTION OF THE SPECIES**

*Gomphocarpus physocarpus* E. Mey., Comm. Pl. Afr. Austr. 1: 202. 1838. (Figure 1, a-f.).

Type: '*Gomphocarpus physocarpus* EM. a.'- South Africa, by Stream near Glenfilling, alt. 500 ft, *Drege* s. n. (K, lectotype (specimen in Herb. Benthamianum), designated by Goyder (1998 b); BM, E, K, TCD isolectotypes).

*Gomphocarpus brasiliensis* E. Fourn. in Martius, Fl. Bras. 6 (4): 203, t. 53.1885; *Asclepias physocarpa* (E. Mey.) Schltr., Bot. Jahrb. Syst. 21 (Beibl. 54): 8.1896 & J. Bot. 34: 453.1896; *Gomphocarpus fruticosus* f. *brasiliensis* (E. Fourn.) Briq., Kongl. Svenska Vetenskapsakad. Handl. 34 (7): 21.1900; *Asclepias brasiliensis* (E. Fourn.) Schltr., Meded. Rijks-Herb. 29: 12. 1916.

Small shrub, 1-2 m high with single-stemmed trunk; stem succulent; branches arise higher up on the main stem. Leaves opposite, simple, short-petioled, petiole 5-10 mm; lamina narrowly oblong to lanceolate, (4-)9-12 cm long, (0.5-)1.5-2 cm wide, apex acute, base cuneate, margins smooth, dark green on abaxial surface and light green with prominent midrib on adaxial surface, subglabrous or sparsely pubescent with soft white hairs, particularly on the midrib. Inflorescence cymose, peduncle 3-4 cm long; flowers borne in pendulous clusters of 5-10, 6 mm long, complete, actinomorphic, hermaphrodite, hypogynous, pentamerous. Calyx 5-lobed; lobes green, lanceolate, 4 mm long, 1 mm wide, apex acuminate, margin ciliate. Corolla 5-lobed; lobes white, ovate-elliptic, 8 mm long, 5 mm wide, bent strongly backwards, glabrous, apex obtuse, margin ciliate. Stamens 5, epipetalous, alternating with corolla lobes, ca. 5 mm long, filaments fused to form a staminal column around carpels; anthers fused to the style head forming a gynostegium; pollinia 2 per anther, oblong, pendulous. Corona staminal, 5-lobed; lobes uniseriate, cupulate, fleshy, ca. 4 x 3.6 mm, white or suffused with light pink or purple. Carpels 2, free, apically united to form the enlarged style head, the 5-lobed gynostegium, ovary superior, placentation parietal. Fruit balloon-shaped, shizocarpic (follicle), yellowish, 6-8 cm long, 4-7 cm in diameter, apex rounded, surface covered with diffuse soft thin spines which are 4-8 mm long and ± curved. Seeds numerous, oblong-obovoid, 4-5 x 1.5-2 mm, with one convex and one concave face, comose with long, white silky hairs at on end.

*Gomphocarpus physocarpus* is characterized by having a single main stem with many scattered branches higher up; lamina ± broader than in other species; follicles strongly inflated and globular without a beak but with soft flexible processes; upper margin of corona lobe sloping downwards away from column, with proximal tooth weakly developed; plant parts, especially leaves, with milky latex; seeds with long silky hairs attached to one end.

**GLOBAL DISTRIBUTION**

Native to tropical Africa, widespread in South


**Figure 1.** ***Gomphocarpus physocarpus*** E. Mey. : a. Habit; b. flowering branch; c. flower pollination; d. close up of a fruit showing spines; e. seeds with silky white hairs released from fruits; f. a mature fruit splitting to release seeds.

Africa, northwards to Kenya; introduced to other parts of the world, naturalized as a weed in Australia, Hawaii, the Americas and the Mediterranean (www.Plantzafrica.com.); South India, and now in the North-West Himalaya.

**Flowering period:** JuneOctober.

**Fruiting period:** (June-) July October (-December).

**Common names:** Balloon plant, Balloon cotton-bush, Balloon milkweed, Bladder bush, Hairy balls, Swan plant.

**SPECIMEN EXAMINED**

INDIA: Jammu and Kashmir - Rajouri, Baba Ghulam Shah Badshah University Campus, roadside below the administrative block, 15.6.2012, *G. H. Dar* and *Nisar A. Malik 31*; Rajouri, Darhal Malikan, near Ramzani Morh, roadside 9.10.2012, *G. H. Dar* and *Nisar A. Malik 50*; Rajouri, Manjakote, Gambir Mughlan, roadside, 1.12.2012, *G. H. Dar* and *Nisar A. Malik 146*; Rajouri, Kalakote, near Sialsui, roadside, 5.12.2012, *G. H. Dar* and *Nisar A. Malik 147*.

**ECOLOGICAL NOTE**

*Gomphocarpus physocarpus* is almost naturalized in the Rajouri district of J & K State (North-West Himalaya). Probably first introduced as an ornamental plant, it now grows wild on dry sandy slopes, more frequently along roads. The long silky hairs attached to its seeds facilitate their efficient long-distance wind dispersal which, in turn, may help the species to spread fast in the near future and may become invasive in human-made and natural landscapes of the region. Its balloon-like fruits also appear attractive, and may augment further proliferation of the species for ornamental

purposes.

Since its milky latex is poisonous if ingested, the plant is avoided by the cattle. In its native range, it attracts butterflies, particularly the African monarch butterfly (*Danaus chrysippus orientis*), whose larvae feed on the latex and accumulate it to deter predators (www.Plantzafrica.com.).

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