

Short Communication

Recollection of *Trigonostemon semperflorens* (Roxb.) Mull. Arg. (Euphorbiaceae) after a gap of century from Assam, India and its conservation status

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ABSTRACT

The paper deals with taxonomy of *Trigonostemon semperflorens* (Roxb.) Mull. Arg. (Euphorbiaceae) collected from Chakrashila Wildlife Sanctuary, Kokrajhar district, Assam. The species is rediscovered after a gap of about 104 years from Assam. The details taxonomic characters, photographs, conservation status and other relevant information are provided.

Key words: *Trigonostemon*, Euphorbiaceae, recollection, conservation status, Assam

INTRODUCTION

The genus *Trigonostemon* is belonging to family Euphorbiaceae, first described as 'Trigostemon' by Blume (1825). *Trigonostemon* Blume was first reported as 'Enchidium' mentioned *E. verticillatum* as a type species by Jack (1822). However, the genus *Enchidium* remained as a monotypic due to its wrong illustration (Merrill, 1952). Muller (1866) and Shaw (1972) placed the genus under the tribe Jatropheae. Webster (1975) placed it under a new tribe *Trigonostemoneae* and Radcliffe-Smith (2001) placed it in *Codiaeae*. The genus is difficult to identify due the presence of variable inflorescence, dissimilar in leaf size and shape.

Trigonostemon Blume comprises of about 85 species in the world distributed in India, Sri Lanka, China, Malesia to North East Australia (Govaerts *et al.*, 2000). In India represented by three species and four varieties viz. *T. aurantiacus*, *T. nemoralis*, *T. semperflorens*, *T. villosus* var. *nicobaricus*, *T. viridissimus* var. *viridissimus*, *T. viridissimus* var. *chatterjii*, *T. viridissimus* var. *confertifolius* (Chakrabarty and Balakrishnan, 2012). However, in North East India the genus is represented by one species i.e., *Trigonostemon semperflorens* (Kanjilal *et al.*, 1940) and one variety i.e., *T. viridissimus* var. *chatterjii* (Balakrishnan and Chakrabarty, 1984).

METHODOLOGY

The extensive floristic surveys were conducted in forests of protected areas of Chirang and Kokrajhar district, BTAD (Bodoland Territorial Area Districts), Assam. During the surveys, authors collected a shrub with flowers and fruits. The scrutiny of the pertinent literatures (Muller, 1866; Hooker, 1887; Kanjilal *et al.*, 1940; Chakrabarty & Balakrishnan, 2012) and consultations of herbarium specimens deposited in Botanical Survey of India, Eastern Circle, Shillong (ASSAM!) revealed that the species is *Trigonostemon semperflorens*. The specimens on which the present study is based have been preserved following standard herbarium

techniques (Jain & Rao, 1977). An updated species distribution map is also prepared (Figure 2) based on the current data. The voucher specimens are deposited in Bodoland University Botanical Herbaria (BUBH!), Kokrajhar, Assam and in Botanical Survey of India (BSI), Eastern Regional Centre, Shillong (ASSAM!) bearing an accession number 94934.

Taxonomic treatment

Trigonostemon semperflorens (Roxb.) Mull. Arg. in DC., Prodr. 15(2): 1110. 1866; Hook. f., Fl. Brit. Ind. 5: 397. 1887; Kanjilal *et al.*, Fl. Assam 4: 196.1940; *Cluytia semperflorens* Roxb. Fl. Indica 3: 730. 1832 (Figure 1).

Large shrubs or small tree, upto 5 m tall; stem terete, bark grey, rough or scabrous; leaves opposite or subopposite, closely associated at apex or whorled, obovate, elliptic-lanceolate, apex acuminate, base symmetrical, narrowly rounded or sub-cordate, margin subentire, erose or remotely serrate, sparsely hairy, lamina 15-28 × 4-7 cm, 1-2 cm at diameter at base, adaxially green, sparsely pubescent on nerves, abaxially pale green, nerves pubescent, glabrous both side except nerves, lateral nerves 10-13 pairs, petiole 0.5-1 × 0.4 cm, green, pubescent; male inflorescence fascicles, 2-5 flowered; male flowers 4 mm diameter, pedicel 3 mm long, 0.5 mm diameter, yellow, glabrous; calyx 5-lobed, 5 × 3 mm, 1-2 × 1 mm per lobe, 2 lobes smaller, light yellowish-pink or light purple, sparsely pubescent outside; petals 5, 2-3 mm, dark purple, 3 white nerves at base; anther 3, bifid, sessile on a column; disk glands 5, 0.4 mm, light yellow, circularly arranged; Female inflorescence axillary short cyme, 1-2 cm long, 1-3 flowers per peduncle, peduncle 1-1.5 cm long, 1-2 mm diameter, pubescent; bracts 5-7 × 1-2 mm, ovate-elliptic, margin entire, sparsely pubescent; female flowers 8 × 5 mm, pedicel 3 mm long, green, pubescent; sepals 5, 4-5 × 2-3 mm, green, sparsely pubescent; petals 5, 4 × 2 mm, dark purple, 3 white nerves at base; ovary 2 × 2 mm, 3-lobed, whitish-green; densely pubescent; style 3, 1 mm, bifid, yellowish, reddish-brown when matured,



Figure 1. *Trigonostemon semperflorens* (Roxb.) Mull. Arg.; A. Habit; B. Leaf; C and G. Male flowers; D. Female flowers; E. Developing fruit; F. Bracts; H. Fruit; I. Sepals of female flower; J. Petals of male flower, K. Seeds.

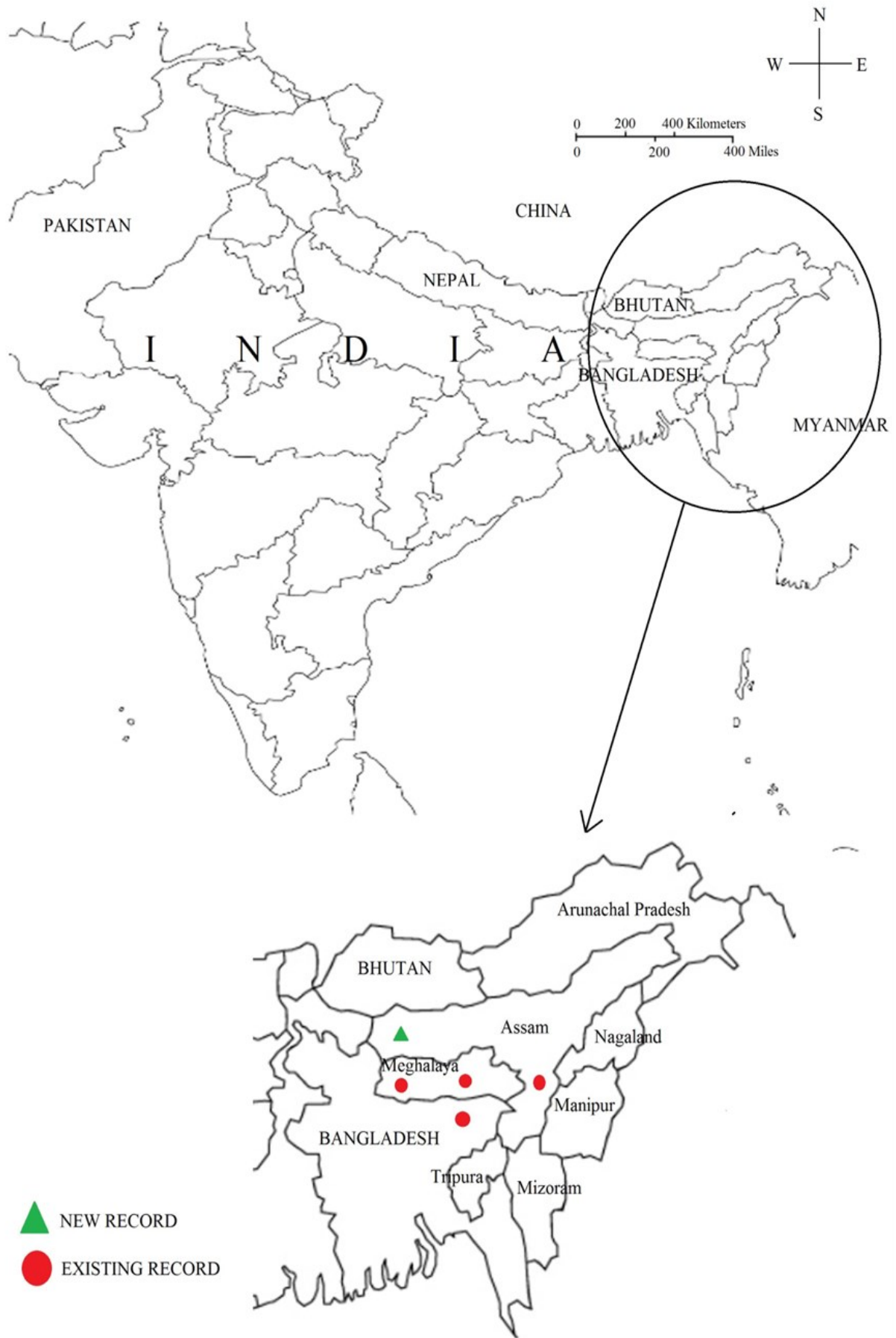


Figure 2. Updated distribution of *Trigonostemon semperflorens*

connate at base; capsule 1-1.3 cm diameter, 3-lobed, densely pubescent, green; seeds 3, 7×5 mm, white on young.

SPECIMEN EXAMINED – INDIA. Assam: Chakrashila Wildlife Sanctuary, Kokrajhar District, Dangdupur, $26^{\circ}20'11.17''N$ $90^{\circ}18'35.51''E$, 20 January 2019, *S. Basumatary 0105* (ASSAM! BUBH!); Meghalaya, Khasi and Jaintia Hills, 21 November 1915, *U. N. Kanjilal 6248* (ASSAM!); Meghalaya, Tura Forest, Garo Hills, 25 March 1941, *R. N. De 20506* (ASSAM!); Meghalaya, Khasi and Jaintia Hills, 13 October 1938, *S. R. Sharma 17976* (ASSAM!); Meghalaya, Khasi and Jaintia Hills, 18 August 1968, *N. P. Balakrishnan 46723* (ASSAM!).

VERNACULAR NAME – ‘Bodo’: Bijou Jabtu (Assam).

FLOWERING – April-June; **FRUITING** – July-March.

DISTRIBUTION - INDIA: Assam (Dima Hasao, Kokrajhar), Meghalaya; BANGLADESH.

ECOLOGY - Growing in shady places of sloppy area.

CONSERVATION STATUS - At the time of field surveys, only 23 individuals were recorded from Chakrashila Wildlife Sanctuary (CWS), Kokrajhar, Assam. The species was noticed only from a patches of 70 sq. m ($26^{\circ}20'11.17''N$ $90^{\circ}18'35.51''E$) of Chakrashila Wildlife Sanctuary. Following the IUCN Red List Categories and Criteria version 11 (2014), it is provisionally assessed here as ‘Vulnerable (VU)’ under D2 option of Criterion D in Assam. Due to the human activities such as construction of roads, collection of firewood, cutting down of trees and grazing are the threats to the species.

NOTE- Kanjilal *et al.*, (1940) reported the occurrence of *Trigonostemon semperflorens* at an elevation of about 1524 m in Khasi and Jaintia Hills of Meghalaya, India and Sylhet of Bangladesh, Whereas, the present collections were made from 86 m in Chakrashila Wildlife Sanctuary. Kanjilal *et al.*, 1940 reported the species in Khasi, Jaintia Hills and North Cachar Hills (Now as Dima Hasao), Assam. However, scrutiny of the voucher specimens deposited in ASSAM herbaria, Shillong revealed that the first collection were made in 1915 by U.N. Kanjilal bearing collection number 6248. Other

than this place, the species was neither collected nor reported by any workers from present political boundary of the state.

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