New distributional records of *Cleome rutidosperma* DC. and *Ruellia simplex* C.Wright for Tripura, India

Somnath Kar¹, Aparajita Das², Dipti Das³ and B. K. Datta²

¹Communicating author: Department of Botany Holy Cross College, Lembucherra, 799210
E-mail: somnathagt21@gmail.com

²Plant Taxonomy and Biodiversity Laboratory, Department of Botany, Tripura University, Suryamaninagar-799022, Tripura, India

³Department of Botany, Netaji Subhash Mahavidyalaya, Udaipur, 799120, Tripura, India

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Abstract

The occurrence of two angiospermic species *Cleome rutidosperma* DC. (Cleomaceae) and *Ruellia simplex* C.Wright (Acanthaceae) in different places of Tripura are recorded as their extended distribution as well as naturalization in the state of Tripura in North-east India.

Key words: *Cleome rutidosperma*, *Ruellia simplex*, New distribution, Tripura

INTRODUCTION

The flora of any region is always changing due to inward and outward migration of different species. At the same time forced introduction of many species as crop or ornamental or any type of useful plants is also a continuous process through different anthropogenic activities. Many weedy plants also reach to other localities through natural migration or accidentally by human (Das 2002, 2011; McDougall 2011).

Tripura, the second smallest state of North-eastern India is surrounded by Bangladesh in three sides and situated between 23°30'2" to 23°44'2" N latitudes and between 91°15'2" to 91°28'2" E longitudes (Kar & Datta, 2015). It is positioned at the convergence of Indo-Burman biogeographical zone (Rao 1994) and part of the IUCN recognized Indo-Burma Biodiversity Hotspots (Myers 2000; Mittermeier *et al.* 2005). The undulating topography, high rainfall and varied altitudes are main factors that have contributed to its rich hilly ecosystem and habitat diversity.

Deb (1981, 1983) studied the flora of Tripura state with later additions. During continuous field survey (2016 – 2019), recently two plants were collected from different parts of the state and were identified as *Cleome rutidosperma* DC. and *Ruellia simplex* C.Wright using different literature including *Flora of India* (Sharma & Balakrishnan 1993), *Flora of West Bengal* (Anonymous 1997), e-floras, <http://www.flowersofindia.net/catalog>. Both of these species are exotics for the flora of India. While *Cleome rutidosperma* is a weedy plant native of tropical Africa and now distributing as an invasive weed in tropical areas (Anonymous 1997; Biswas & Das 2019). On the other hand, *Ruellia simplex*, a native of South-Tropical America is introduced to many countries as an ornamental almost in all tropical countries (<https://sites.google.com/site/efloraofindia/species/a—l/a/acanthaceae/ruellia/ruellia-brittoniana>). The evidence of garden or crop plants escaping

and naturalized is not rare (Moktan & Das 2013; Biswas & Das 2013) and generally cause international concern (IUCN 2000).

Present paper deals with the reports the occurrence of two species in the North-east Indian state Tripura along with their description and photographs. The voucher specimens has been deposited in the Tripura University Herbarium.

TAXONOMIC TREATMENT:

***Cleome rutidosperma* DC.**, Prodr. 1:241.1824; Ansari, Fl. Kasaragod Div. 61. 1985; Sundararagh. in B.D. Sharma & N.P. Balakr., Fl. India 2: 313. 1993; R. Sundara. & N.P. Balakr. in P. Daniel, Fl. Kerala 1: 243. 2005; Sunil & Sivadasan, Fl. Alappuzha Dist. 93. 2009. [CLEOMACEAE] [Plate – I; Figures A - D]

Vernacular name: *Fringed Spider Flower, Neelavela*

Herbs, annual or rarely perennial, 30 – 100 cm tall. Stems sparsely branched, often with decumbent branches, glabrous or glabrescent to slightly scabrous (sometimes glandular-pubescent); leaves trifoliate; stipules 0.1 – 0.5 mm long, scaly or absent; petioles 5 – 35 mm, proximally winged; leaflets ovate-lanceolate to rhomboid-elliptic, 10 – 35 × 5 – 18 mm, entire or serrulate-ciliate, acute to obtuse or sometimes acuminate, abaxially with curved trichomes on veins especially when young, adaxially glabrous. Lower flowers axillary-solitary, gradually run into a 3 – 6-flowered raceme; bracts leafy, 3-foliate, 10- 35 mm; pedicels 1.1 – 2.2 cm elongate to 1.8 – 3.0 cm in fruit; Sepals yellow, narrowly lanceolate, 2 – 4 × 0.2 – 0.3 mm, persistent, glabrous, margin ciliated; petals white or speckled with purple, oblong to narrowly ovate, 7.0 – 9.5 × 1.5 – 2.3 mm, central 2 petals outside with a yellow transverse band; filaments yellow, 5 – 7 mm; anthers purplish brown, 1 – 2 mm; pistil 2 – 3 mm long, glabrous; style 0.5 – 1.4 mm long; ovary with distinct gynophore that elongate in fruits, 4 – 12 mm; capsules 40 – 70 × 3 – 4 mm, striate. Seeds 8 – 24 per capsule, reddish brown to black with white funicular aril, 1 – 1.5 mm, slender, striately verrucose.

Habitat: The species grows as a weed in disturbed and ruderal habitats, primarily in areas with humid and hot environmental conditions; prefer calcareous habitat like walls.

Flowering & Fruiting: April – December.

Specimens examined: Tripura, Tripura University, Kar *et al.*, TUH-2728, dated 09.10.2017.

Distribution: A native of Mexico, the Caribbean, and South America. In Asia: Bangladesh, India, Malaysia, Maldives, Myanmar, Philippines, Sri Lanka, Thailand; North America; South America; Africa.

Indian Distribution: Andaman & Nicobar Islands, Assam, Bihar, Gujarat, Karnataka, Kerala, Maharashtra, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal.

State distribution: Throughout the state of Tripura.

Use: Leaves are used to make soups (Grubben & Denton 2004). The plant is an appetizer and laxative.

***Ruellia simplex* C. Wright**, Anales Acad. Ci. Med. Habana (6) 41: 321. 1870. Type: Cuba. En sabanas abajas y frangosas ca. del Hato “El Salado,” jurisdiccion de San Cristóbal y Palacios, 21 December 1860, C. Wright 3642 (Holotype: GH[00094208]). [ACANTHACEAE] [Plate – I; Figures E & F]

PLATE - I. A - D. *Cleome rutidosperma* DC. [A & B. Flowering Plant; C. Flower; D. Fruits]; E - F. *Ruellia simplex* C.Wright [E. Plant flower; F. Plant with fruit]

Common name: Mexican petunia, Mexican bluebell, Britton's wild petunia

Perennial herbs or under-shrubs; stem erect or prostrate to decumbent; older stems often slightly woody, younger stems green, 4-angled, glabrous or sparsely puberulent, often with prominent tufts of hairs at nodes. **Leaves** opposite; petiole missing or up to 20 mm long; lamina linear to narrowly oblong, 15.0 – 30.0 cm x 1.3 – 1.9 cm, entire or slightly crenulate, acute to acuminate, mostly glabrous, dark green or slightly purplish-tinged. Cymes axillary, expanded dichasia, sometimes forming spikes, thyrses, or panicles, sometimes reduced to solitary; bracts opposite, entire, usually green; bracteoles 2, blue or purplish. Calyx deeply 5-lobed; lobes equal or subequal; corolla funnel-shaped, tube basally with a narrowly cylindric portion, usually expanded apically into an expanded throat; limb 5-lobed; lobes usually ovate to orbicular, equal to unequal in size, contorted in bud; stamens 4, more or less didynamous, epipetalous; filaments connate in pairs at base; anthers oblong; ovary with up to 10 ovules per locule; style usually included in

corolla tube or slightly exserted; stigma equally or unequally 2-lobed. Capsules narrowly oblong, stipitate or not, 12 – 26-seeded; septa with attached retinacula; seeds discoid, usually pubescent with hygroscopic trichomes.

Habitat: A weed of riparian vegetation, dams, ponds, wetlands and drainage ditches in sub-tropical and tropical regions.

Flowering & Fruiting: June – December.

Specimens examined: Tripura, College-tilla, Kar *et al.*, TUH-2733, Dated 19.11.2017

Global Distribution: Asia: Japan, India; North America; South America; Africa; Australia.

State distribution: Throughout the state of Tripura; naturalized.

Indian distribution: Maharashtra, West Bengal; common in gardens, frequently escapes and naturalized.

Use: Despite being highly weedy, the species is very popular among consumers, landscapers and gardeners (Hammer 2002). It has been widely commercialized as an ornamental plant with many cultivars.

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