



Research Paper

New records to the family Acanthaceae of Andaman and Nicobar Islands, India

Fouziya Saleem, Gautam Anuj Ekka and Lal Ji Singh*

Botanical Survey of India, Andaman and Nicobar Regional Centre, Shri Vijayapuram, Andaman and Nicobar Islands, India.

*Corresponding author email: laljisingh1970@rediffmail.com

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Abstract: *Asystasia dalzelliana* Santapau, *Ruellia prostrata* Poir. and *Thunbergia alata* Bojer ex Sims of the family Acanthaceae are recorded here for the first time as the additions to the flora of Andaman and Nicobar Islands. The detailed morphological description along with phenology, habitat, ecology and, distributional range are discussed.

Keywords: Acanthus family, *Asystasia*, *Ruellia*, Taxonomy, *Thunbergia*.

Introduction:

Acanthaceae is a well recognized is a family of dicotyledonous flowering plants, which was established by Antoine Laurent de Jussieu in 1789 (Gen.Pl.Paris.102.) and the first comprehensive classification have been published in 1847 by Nees. Thereafter, *Acanthaceae* Juss. has been studied by several workers. Based on phylogenetic and taxonomic knowledge, currently it is considered as the most taxonomically diverse, geographically widespread, and morphologically and ecologically variable lineages of flowering plants (Manzitto-Tripp et. al 2021). The family comprises ca. 207 genera mostly distributed in tropics and

subtropics and only a few are distributed in temperate regions (POWO 2026). Most are herbs, shrubs, or twining vines; some are epiphytes and trees.

In India Acanthaceae comprise ca. 40 genera (Lakshminarasimhan et. al. 2023), occurs throughout the country including Andaman and Nicobar Islands (ANI). The ANI is one of the hotspots of biodiversity and recognized as a rich and unique phytogeographical region with high endemism in India (Singh et al. 2014, 2020 a, b, 2021 a, b; Singh & Misra 2020; Singh 2021; Singh & Ranjan, 2021). During botanical surveys in the ANI the authors came across interesting specimens of family Acanthaceae which appears to fit into the genera *Asystasia* Blume, *Ruellia* L. and *Thunbergia* Retz.

The genus *Asystasia* Blume (Blume, 1826) belongs to the family Acanthaceae, which is well known for its flowering herbs and shrubs widely distributed in tropical and subtropical regions. The genus comprises more than 70 recognized species that occur mainly in the Old World tropics, including Asia and Africa (Long, 1970; Mabberley, 2017). Members of this genus are typically herbaceous or sub-shrubby in habit,

characterized by opposite leaves, tubular bilabiate corollas, and capsules containing several seeds. They are often found in open grasslands, forest margins, and disturbed habitats, indicating their adaptability to diverse ecological conditions. In India, *Asystasia* is represented by 11 species, one subspecies, and one variety, including several perennial herbs and undershrubs. These species are distributed across the plains and lower hill regions, often flourishing in moist and semi-shaded areas. The genus *Ruellia* Plum. ex. L. is represented by about 975 species worldwide (POWO, 2025), includes evergreen shrubs from the warm and tropical meadows and open woods of Africa, Asia and South America (Murugan *et al.*, 2018). So, far, 12 species are found in India (Karthikeyan *et al.*, 2009, Kumar and Murugan, 2008). Among these 02 species (*R. simplex* C. Wright and *R. elegans* Poir.) have been reported from the Andaman and Nicobar Islands (Kumar and Murugan, 2008).

Whereas the genus *Thunbergia* Retz., is morphologically distinct and comprises approximately 150 species distributed across the tropical and subtropical regions of the Old World. These species include both herbaceous climbers and woody lianas known for their showy, brightly colored flowers. In India, *Thunbergia* Retz. is represented by 12 species and two varieties, commonly occurring in humid and forested regions while only three species have been recorded from Andaman and Nicobar Islands so far. As the *T. alata* is an ornamental species but it was found growing in wasteland escaped from captivity and has been established itself. Hence these species are found to be addition to the flora of ANI.

Materials and Method:

During the floristic survey, authors collected three specimens from three

different locations belonging to genus *Asystasia* Blume, *Ruellia* L. and *Thunbergia* Retz. On the scrutiny of literature and critical examination the identity of specimen was identified as *Asystasia dalzelliana* Santapau, *Ruellia prostrata* Poir. and *Thunbergia alata* Bojer ex Sims hitherto unrecorded from ANI (Rao, 1986; Hajra *et al.* 1999; Parkinson, 1923; Lakshminarasimhan & Rao 1996; Sinha, 1999; Pandey & Diwakar, 2008; Karthikeyan, *et al.*, 2009; Singh *et al.* 2014; Murugan *et al.* 2014; Murugan *et al.*, 2016; Naik *et al.*, 2020; Sanjappa, 2020). ANI is floristically very rich and unique phytogeographical region in India with higher number of endemism (Singh *et al.* 2014, 2020 a, b, 2021 a, b; Singh & Misra 2020; Singh 2021; Singh & Ranjan, 2021). Taxa are enumerated with brief description, phenology, habitat and distribution. Field photographs of the species were also provided for easy identifications.

The herbarium specimens were critically examined, and identity of these specimens were verified through relevant literature and comparison with the collected material housed in the herbarium at PBL and Indian Virtual Herbarium (<https://ivh.bsi.gov.in>). Further the representative specimens were deposited in National Repository Herbarium (PBL) of Botanical Survey of India, Andaman and Nicobar Regional Centre.

Result:

Taxonomic Treatment:

Asystasia dalzelliana Santapau, Kew Bull. 3 (2):276. 1948. *A. violaceae* Dalzell ex C. B. Clarke in Hook.f. Fl. Brit. India 4: 494. 1884, non Dalzell 1850.

Erect, diffusely branched herbs or undershrubs, 40–50 cm tall. *Stem* terete, branched, glabrous. *Leaves* opposite, simple, petiolate, exstipulate; *lamina* ovate to elliptic, 10–14 cm long, base cuneate, apex acuminate, margin entire; adaxial

surface pubescent. *Petiole* terete, green, 2–2.5 cm long, sparsely pubescent. *Inflorescence* a one-sided raceme, 18-flowered; *peduncle* terete, green, 5–6.4 cm long. *Flowers* 2.0 cm long, lilac with dark violet blotches on the lower middle lobe. *Pedicel* green, 0.2 cm long. *Bracts* 3, minute, ciliate; middle bract 0.2 cm, lateral bracts 0.1 cm. *Bracteoles* absent. *Sepals* 5, free, valvate, 0.6 cm long, acute, adnate at base. *Corolla* funnel-shaped, 1.5–1.9 × 0.5–0.7 cm, bilabiate, lobes 5, united up to half their length forming a tube; lobes rounded, curved outward, outer surface pubescent. *Stamens* 4, included, epipetalous, in two pairs, 0.6–0.8 cm long; filaments white, glabrous; *anthers* basifixed, ovoid, white with a vertical black-blue band. *Gynoecium* 1–1.3 cm long; *style* white; *stigma* smooth,

unlobed. *Ovary* green, densely pubescent with non-glandular hairs. *Fruit* a clavate, bilocular capsule, 2.6 cm long, pubescent, apex acuminate; each locule containing 2 seeds. *Seeds* brown, polygonal, ~0.4 cm long, surface moderately irregular; *funicle* distinct (Fig. 1).

Flowering & fruiting: July to November

Habitat & ecology: Well distributed in forest margins and semi-deciduous forest floor.

Distribution: Native to Africa; **India:** Karnataka, Kerala, Maharashtra, Tamil Nadu, **ANI:** South Andaman.

Specimen examined: Andaman and Nicobar Islands: **South Andaman:** Namunaghar, 03.11.2023, Fouziya Saleem 35392 (PBL).

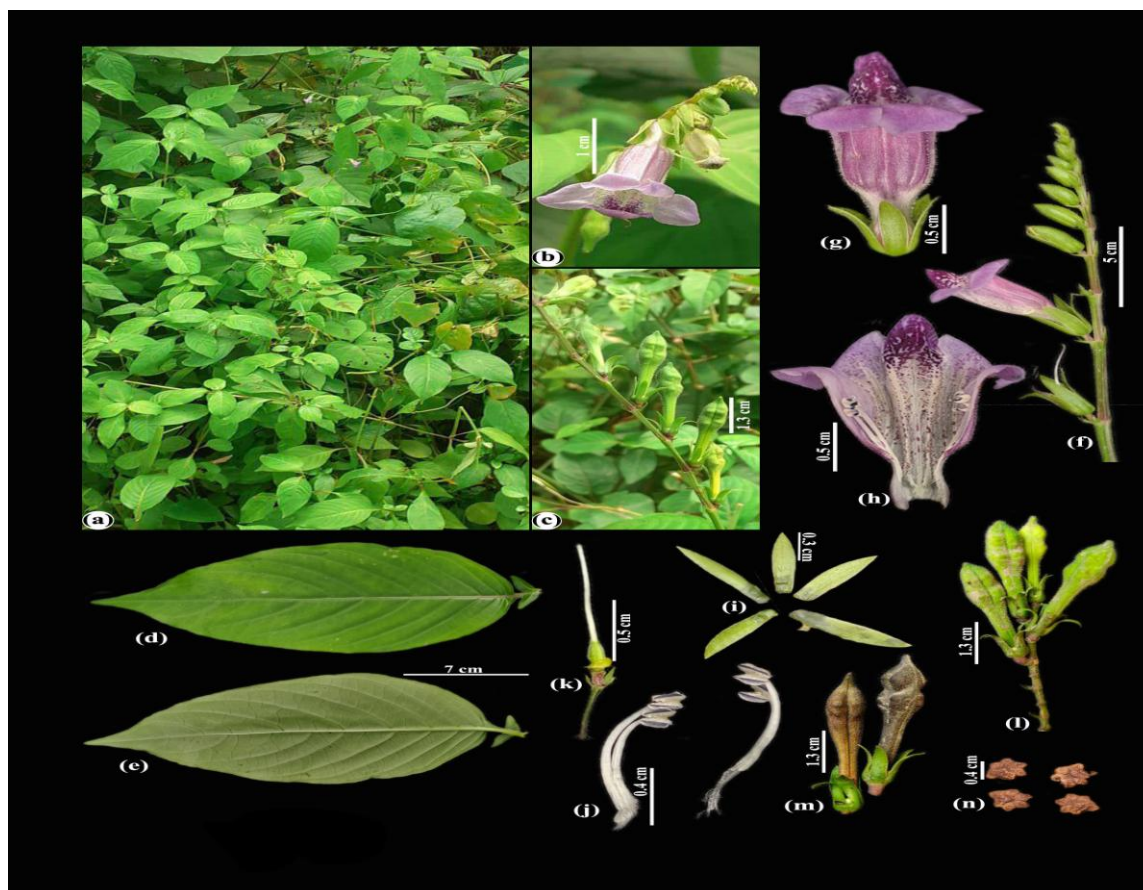


Figure: 1. *Asystasia dalzelliana* (a) – Natural habit; (b) – Flower; (c)- Fruit; (d-e)- leaf dorsal and ventral; (f)- Inflorescence; (g)- flower with bract; (h)- dissected flower; (i)- bract; (j)-Anthers; (k)- stigma (l-m) - fruit; (n)- seed.



Figure: 2. *Ruellia prostrata* (a) – Natural habit; (b) – Flower; (c)- Twig; (d)- Flower (e)- Leaf dorsal and Ventral; (f)- dissected flower; (g)- Calyx Flower with bract; (h)- anthers; (i)- stamens; (j)-fruit; (k)- seed.

Ruellia prostrata Poir. in Lam., Encycl. Meth. Bot. 6: 349. 1804. Beddome, Icon. Pl. Ind. Or. t. 282. 1872; Clarke in Hook. f., l.c. 431; Cooke, l.c. 431 Stewart, l.c. 678.

Habit a much branched, prostrate to procumbent with long internodes, twigs 4-angled, up to 50 cm long. **Leaves** with 1.5-1.7 cm long hairy petiole; **Lamina** ovate-elliptic to deltoid, 2.5 x 6 cm sparsely hairy to almost glabrous, entire, apex acute. **Flowers** pale-purple to violet, 2.5-3 cm long, solitary axillary; bracteoles leafy, elliptic, 1 x 2 cm. **Calyx** lobes linear-subulate, 0.5 cm long ciliate, acute. **Corolla** sparsely hairy outside, tube infundibuliform, 2.5-3 cm long, limb lobes semi-orbicular, 1-1.5 cm x 8-10 mm, rounded. **Staminal filaments** glabrous, anthers oblong, ca. 01 cm long. **Ovary** oblong, ca. 3 mm pubescent; style up to 1.6 cm long, hairy. **Capsule** oblong, 2 cm long, hairy, 16-20-seeded. **Seeds** flat, orbicular, 3-4 mm across, marginally hairy. (Fig. 2).

Flowering & fruiting: August to December

Habitat & ecology: Commonly spread on wasteland.

Distribution: Native range is Central African Republic to Eritrea and S. Africa, Arabian Peninsula, Indian Subcontinent, Christmas Island to SW. Pacific; **India:** Throughout India; **ANI:** South Andaman.

Specimen examined: Andaman and Nicobar Islands: **South Andaman:** RGT

Road, South Andaman, 20.10.2024, Fouziya Saleem 35397 (PBL).

Thunbergia alata Bojer ex Sims, Bot. Mag. 52: t. 2591. 1825. Gamble, Fl. Madras 1008 (708).1924.

Herbaceous vines. **Stems** 4-angled to flattened, bisulcate, pubescent. **Petiole** 6.3 cm long, winged, sparsely pubescent. **Leaf blade** sagittate to deltoid-ovate, 8.5 × 6.5 cm; abaxially hirsute, adaxially sparsely strigose; palmately 5-veined; base hastate to cordate; margin entire or undulate; apex acute. **Flowers** axillary, solitary. **Peduncle** 4.5 cm long, sparsely strigose. **Bracteoles** ovate, 1.5 × 1.2 cm, abaxially hirsute, 5–7-veined; apex acute, acuminate, or obtuse. **Calyx** annular, unequally 10–13-lobed. **Corolla** orange with a dark purple glandular “eye” at the throat, 3.3 cm long; tube cylindric at base for 3 mm, throat 1.5 cm long; lobes obovate, apically truncate. **Stamens** with filaments 8 mm long, glabrous; **anther thecae** 4 mm long, unequal, pubescent along the margin and at base. **Ovary** glabrous; **style** 1.3 cm long, glabrous; **stigma** funnel-shaped, unequally 2-lobed, lower lobe spreading, upper lobe erect. **Capsule** pubescent; basal portion 7 × 10 mm, 2-seeded; **beak** 8 mm long, 3 mm wide at base. **Seeds** reticulate on the dorsal surface (Fig. 3).

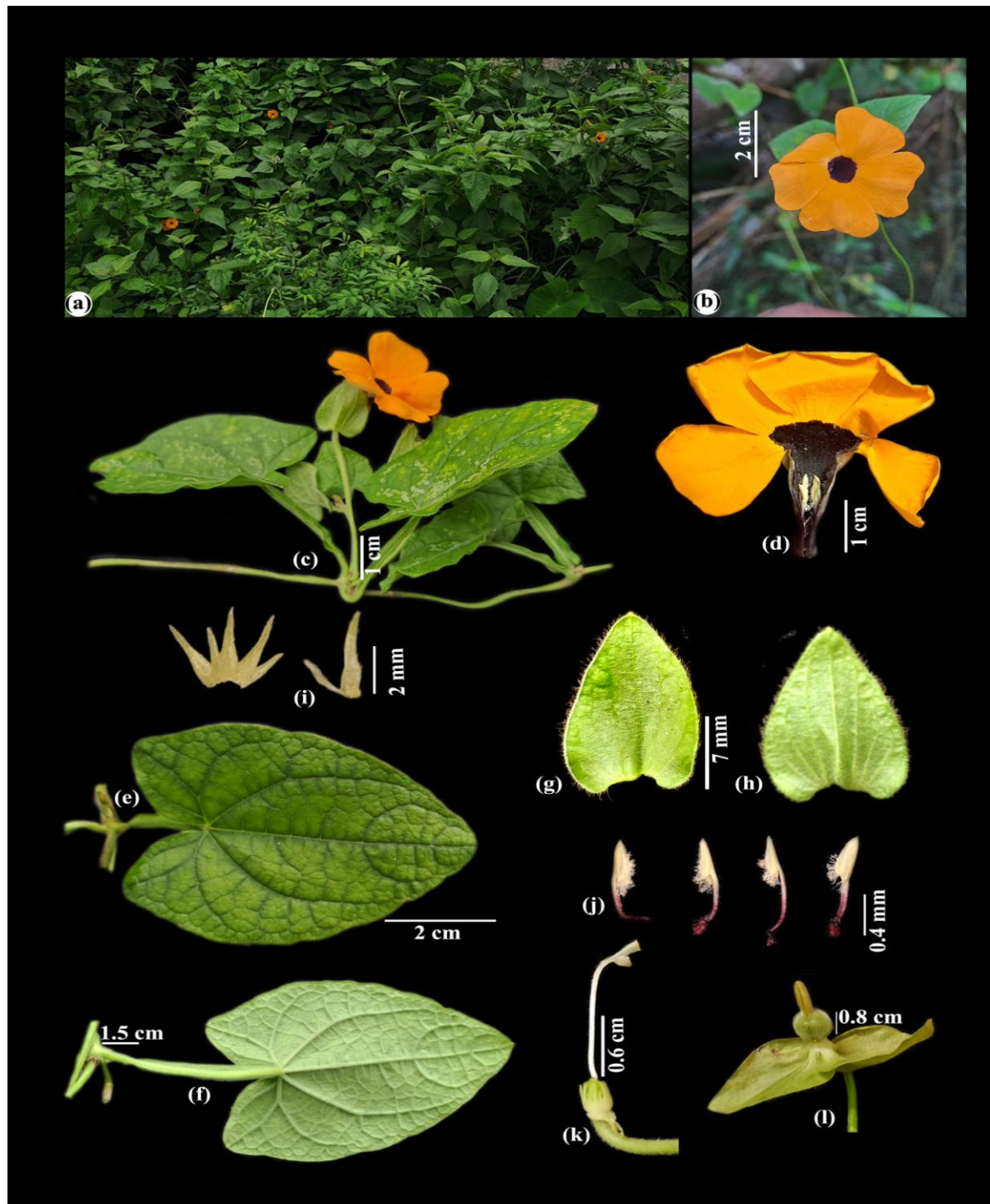


Figure: 3. *Thunbergia_alata* (a) – Natural habit; (b) – Flower; (c)- Twig; (d)- Dissected flower; (e-f)- Leaf dorsal and ventral; (g)-bract; (h)- dissected flower; (i)- calyx; (j)- anthers; (k)- stigma (l)-fruits.

Flowering & fruiting: September to May.

Habitat & ecology: Grows along the margins of moist forests.

Distribution: Native to Tropical & S. Africa, Madagascar; **India:** Naturalized throughout India; **ANI:** South Andaman.

Specimen examined: Andaman and Nicobar Islands: **South Andaman:** Jirkatang, 25.09.2024, Fouziya Saleem & Gautam Anuj Ekka 35393 (PBL); Middle Andaman: Kadamtala No.-15, 14.10.2013, Lal Ji Singh 33746 (PBL).

Discussion:

A. dalzelliana is well established in forest edges in moist, shady habitat, *R. prostrata* grows near roadside as weed whereas *T. alata* is an ornamental species, but during the recent floristic surveys it was observed that *T. alata* is well established outside its cultivated area and is now established itself in the wild. All the species was seen growing in association with *Chromolaena odorata* (L.) R. M. King & H. Rob., *Centrosema pubescens* Benth., *Dicanthelium acuminatum* (Sw.) Gould & C. A. Clark and *Mimosa pudica* L. Further, extensive floristic surveys are essential for spotting the new localities for assessment of conservation measures.

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