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SHORT COMMUNICATION

A NEW SPECIES OF DEWFLOWER *MURDANNIA SANJAPPAE* (COMMELINACEAE) FROM ANDAMAN ISLANDS, INDIA

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A new species of dewflower *Murdannia sanjappae* (Commelinaceae) from Andaman Islands, India

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Abstract: *Murdannia sanjappae*, a new species of dewflower plant of the dayflower family from Rutland Island, South Andaman Islands, India, is described and illustrated. This novel species is similar to *M. tenuissima* in not having any staminodes, but differs from it by having oblong-lanceolate leaves with cordate base, distinct peduncle, pedicel with 2–3 articulations, ovate petals, and 24–30-seeded capsules.

Keywords: *Murdannia sanjappae*, new species, Rutland Island, South Andaman Islands.

Murdannia Royle, an Old World genus, is one of the largest in the dayflower family Commelinaceae. It belongs to the subfamily Commelinoideae and tribe Commelineae comprising of ca. 60 species (The Plant List 2013; Govaerts & Faden 2016; Pellegrini et al. 2016). The genus has a pantropical and warm temperate distribution, being especially diverse in Asia, where more than 50% of the accepted species and wide range of morphological diversity are known to occur (Pellegrini et al. 2016). In India, though the genus was estimated to have 27 species (Nandikar & Gurav 2015), later, two new species *M. ugemugei* Kamble et al. (2016) and *M. nampyana* Joby et al. (2016) were added to it along with one new distribution record of *Murdannia keisak* (Hassk.) Hand.-Mazz. (Chowdhury et al. 2015). As of now, the genus *Murdannia* is represented by 29 species in India, which is 52% of the global diversity of the genus. In addition, a new variety, *M. spirata* var. *flavanthera* has also been described by Nandikar & Gurav (2015).

The Andaman & Nicobar Islands are one of the 10 biogeographic zones of India extending over two biodiversity hotspots—Andaman Islands in Indo-Burma hotspot and Nicobar Islands in Sundaland. Pandey & Diwakar (2008) reported five species of *Murdannia* from Andman Islands. Ramana et al. (2013) reported a novel species *Murdannia saddlepeakensis* from North Andaman Islands. After critical study of specimens deposited in various herbaria and literature, Nandikar & Gurav (2015) limited the number of species of *Murdannia* in Andaman Islands to four excluding *M. crocea* and *M. gigantea* which were included in earlier reports.

In our floristic explorations of Rutland Island, South Andaman Islands during 2013–2016, we collected curious specimens of *Murdannia* in forest peripheries of Mt. Ford Ghasnalla and Bahadkhadi areas along the edges of open wetlands. Critical study of the collected specimens, consultation of relevant literature and comparison with the known species of *Murdannia* revealed that the collected specimens are unique in having flowers with only three fertile stamens and without any staminodes, contrary to the general character of the genus of having

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three staminodes in flowers (Brenan 1952). Significantly, absence of staminodes has been reported in only another species of *Murdannia*, *M. tenuissima* (A. Chev.) Brenan (Brenan 1952), a native of Africa. Apart from staminode character, our specimens differ from *M. tenuissima* in other vegetative and reproductive characters, warranting new species status. The novel species based on these specimens is described here with detailed morphological characters, illustrations, photographs, comparison of morphological character sets with closely related species, *Murdannia tenuissima* and key to all the species of *Murdannia* occurring on Andaman Islands.

Taxonomic treatment

Murdannia sanjappae

M.C. Naik & B.R.P. Rao sp. nov.

(Image 1–4, Fig. 1)

Specimens examined: Holotype: SKU 48863, Isotype CAL, PBL, 27.i.2015, India, Andaman & Nicobar Islands, South Andaman Island, Rutland Island (Badakhadi, 11.43111111N & 92.6318889E, elevation, 21m,), coll. Mudavath Chennakesavulu Naik & Boyina Ravi Prasad Rao.

Diagnosis: *Murdannia sanjappae* sp. nov. is similar to *M. tenuissima* in not having staminodes, but differs from it in having oblong-lanceolate leaves with cordate base, distinct peduncle, pedicel with 2–3 articulations,

Image 1. *Murdannia sanjappae* sp. nov. A - Habit; B. Internodes showing hairy nature; C & D. Cincinnus, Flower & Capsule; E. Capsule (Pedicel showing two articulations); F. Flower (without staminodes).

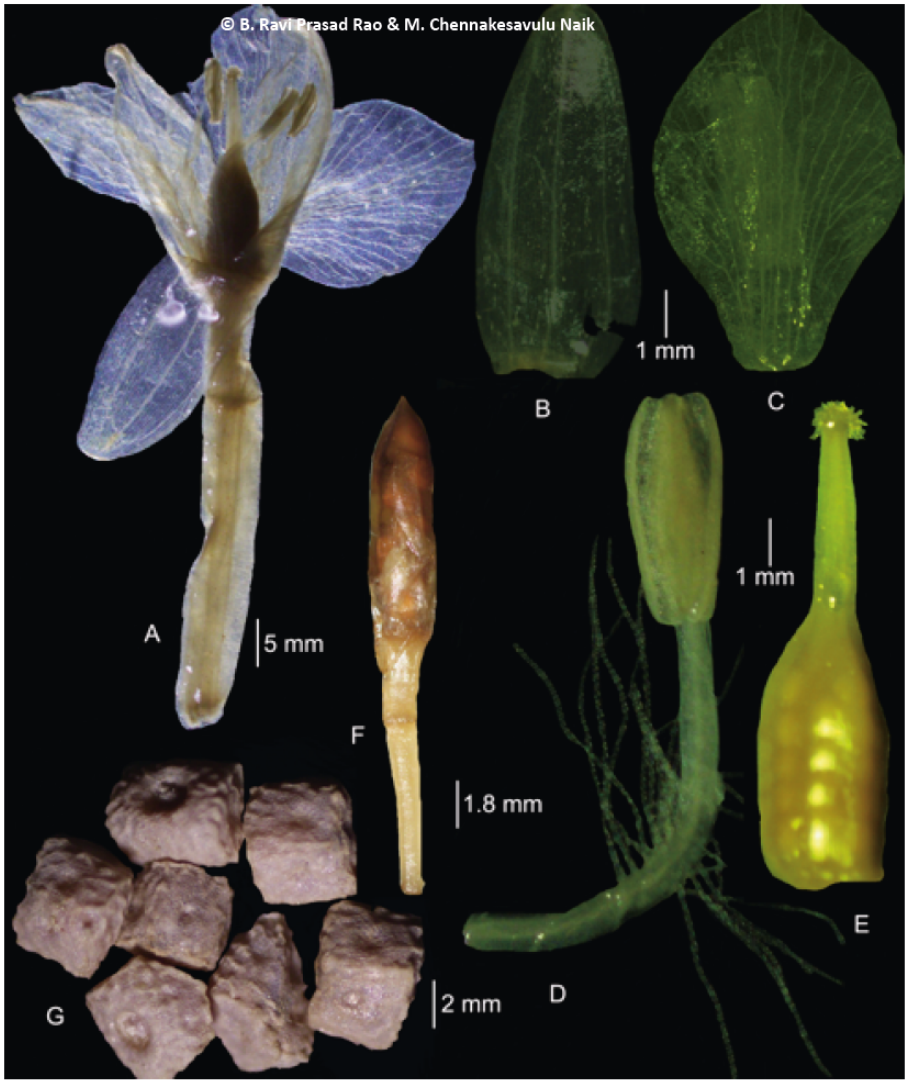

Image 2. *Murdannia sanjappae* sp. nov.
A. Flower; B. Sepal; C. Petal; D. Stamen; E. Ovary; F. Capsule; G. Seeds ventral & dorsal view.

ovate petals, and 24–30-seeded capsules with three 8–10-seeded locules.

Annual, decumbent, definite to indefinite herbs with erect branches up to 30cm high. Roots fibrous. Stem erect, unbranched, cylindrical; internodes green, pubescent. Leaf sheath pale green, ca. 0.5mm in length, pubescent, with a line of cilia along fused edges. Leaves sessile, cauline distichous; lamina oblong-lanceolate to linear-lanceolate, 3–4 × 0.4–0.6 cm, glabrous, base cordate, sparsely ciliate, margin scabrous, apex acute or obtuse, hyaline, undulate. Inflorescence of terminal and axillary, 3-4 flowered cymes, partially exerted from leaf sheath. Flowers bisexual, pedunculate, peduncle 2-3 mm long, symmetrical, pedicel ca. 2mm long, with 2-3 articulations, glabrous. Sepals 3, elliptic, concave, 3–4 × 4 mm, pale green, 3-veined. Petals 3, ovate ca. 5 × 4 mm, white lilac. Stamens 3, ca. 3mm long, antisepalous, symmetrically arranged, filament ca. 2mm long, sparsely bearded in the middle, lilac, anthers dorsifixed, dehiscence longitudinal, pollen white, globular. Staminodes absent. Ovary oblong to elliptic, ca. 3 × 2 mm, pale green, glabrous, style ca. 3mm, non-enantiostylous, stigma lilac, minutely papillate. Capsules ellipsoid, trilocular, 4–5 × 2–3 mm, pale greenish to brown; 24-30-seeded. Seeds bi-seriate, 8–10 per locule, pyramidal–plano-convex in shape, polygonal to cuboid in outline, 0.3–0.4 × 0.4–0.5 mm; testa brown, with abruptly pitted uneven warts, embryo tega dorsal, raised, hilum ventral discoid to ellipsoid or punctiform.

Flowering & fruiting: December–February. Flowers partially open from the leaf sheath. Flowering time: around 09:00hr and fade after 10:30hr.

Etymology: The new species *Murdannia sanjappae* is named after Dr. M. Sanjappa, ex Director, Botanical Survey of India for his invaluable contributions to plant taxonomy and conservation in India.

Suggested common name: Sanjappa's Dewflower.

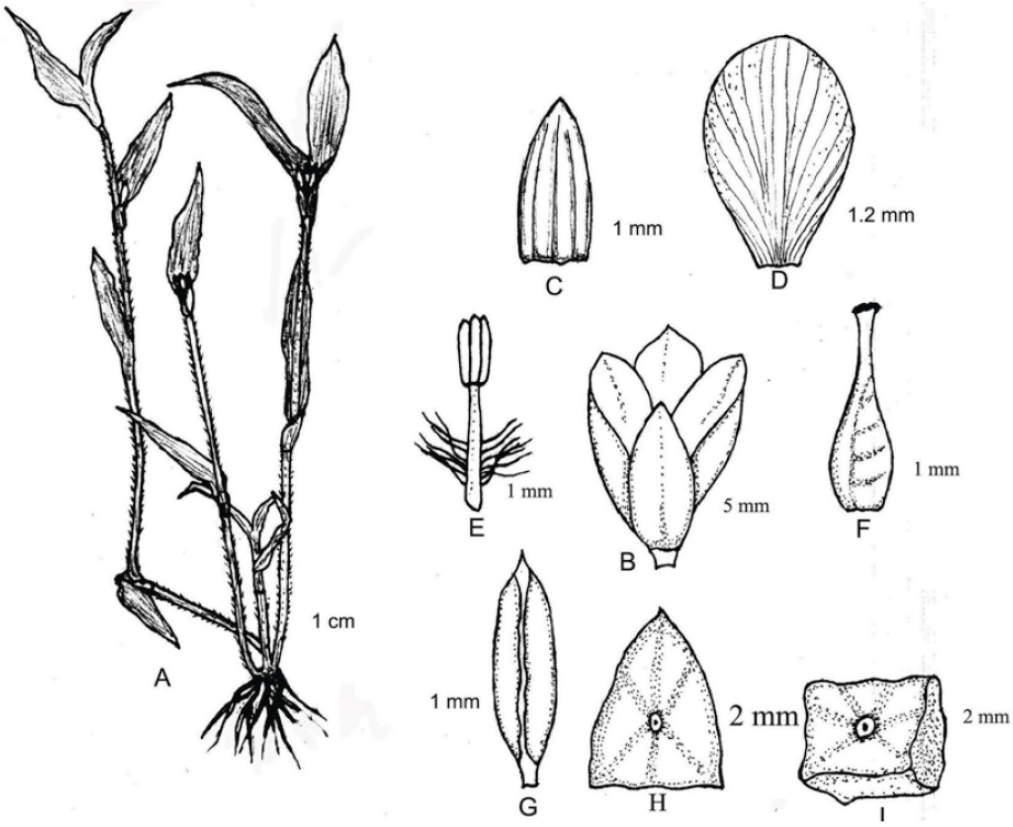

Figure 1. ***Murdannia sanjappae*** **sp. nov.**
A. Habit; B. Flowers; C. Sepal; D. Petal; E. Stamen; F. Ovary; G. Capsule, H & I. Seeds. (Illustrated by M. Chennakesavulu Naik).

Table 1. Comparison of morphological characters of *Murdannia tenuissima* and *M. sanjappae* sp. nov.

	Characters	*Murdannia tenuissima*	*M. sanjappae* sp. nov.
1	Height	30–80 cm long	10–30 cm long
2	Internodes	6–7 cm long	3–5 cm long
3	Leaves	Lamina linear, 2.6–5 cm × 0.2–0.5 mm, base acute, obtuse.	Lamina oblong-lanceolate, 3–4 × 0.4–0.6 cm, base cordate.
4	Flowers	Solitary (rarely 2–3)	Cincinni 3–4-flowered
5	Peduncle	Absent	Present, 1–3 mm long
6	Pedicel	Not articulated, 2–20 mm	With 2–3 articulations
7	Sepals	Oblong; 3mm long	Elliptic, concave, 3–4×4 mm long
8	Petals	Obovate	Ovate
9	Capsule	Oblong, 3mm long	Ellipsoid, trilocular, 4–5 mm long
10	Seeds	Few-seeded	24–30-seeded

Distribution & habitat: South Andaman Islands (Rutland Island), India. Found scattered as undergrowth in forest peripheries in the edges of open wetlands in Mt. Ford Ghasnalla and Badakhadi forests located on southern side of the Island.

Conservation status: *Murdannia sanjappae* sp. nov. is collected only from two different localities comprising 40 individuals on Rutland Island. Our efforts to locate other specimens on the Island were in vain. According to the IUCN Ver. 11 guidelines (IUCN 2014), the species is assessed as 'Data Deficient' as further explorations are needed to locate new populations of the species and to assess its conservation status.

Additional specimens examined: Paratype: SKU, 49766, 22.i.2016, Andaman & Nicobar Islands, South Andaman, Rutland Island (Mt. Ford-Ghasnalla, 11.44152 N & 92.62799 E, 19m,), coll. Boyina Ravi Prasad Rao & Mudavath Chennakesavulu Naik.

Note 1: Observations pertaining to absence of staminodes in flowers are based on 50 flowers collected from live specimens in the field as well as plants maintained ex situ.

Note 2: Of the 30 species reported from India, the novel species is found closely related to *Murdannia blumei,* which was recorded from Assam and West Bengal (Nandikar & Gurav 2015) in vegetative characters, but can easily be separated in having pedicels with 2–3 articulations, ovate petals, flowers with only fertile stamens and without staminodes, 8–10-seeded locules and seeds with abruptly pitted, uneven warty testa. Though, Nandikar & Gurav

Key to the species of *Murdannia* on Andaman Islands

1. Plants with basal rosette leaves 2
1. Plants without basal rosette leaves 5
2. Capsule subglobose; locule one-seeded ..... *M. saddlepeakensis*
2. Capsule ovoid to ellipsoid; locule two- seeded 3
3. Capsule globose; locule one-seeded ..... *M. vaginata*
3. Capsule ovoid to obovoid or elliptic; locule morethan one-seeded 4
4. Leaves linear-lanceolate to linear-oblong; locule 2-seeded ..... *M. nudiflora*
4. Leaves lanceolate to ovate; locule 3-10-seeded 5
5. Locule 3–7-sedeed; seeds uni-seriate ..... *M. spirata*
5. Locule 8–10-seeded; seeds bi-seriate ..... *M. sanjappae*

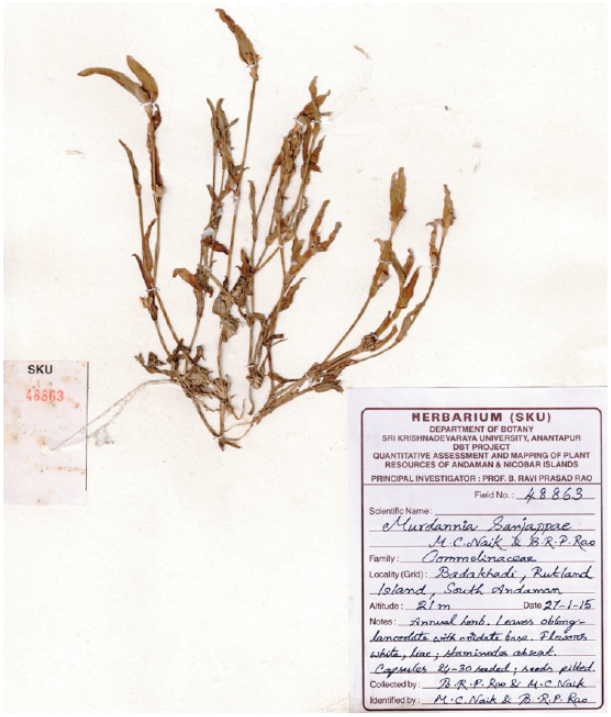

Image 3. Herbarium image of *Murdannia sanjappae* sp. nov. (Holotype)

Image 4. Herbarium image of *Murdannia sanjappae* sp. nov. (Paratype)

(2015) reported 8 to 10 bi-seriate seeds per locule in a specimen of *M. blumei* collected from Assam (Masters 488269) available at CAL, the seeds are smooth and not pitted as in the novel species.

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