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RESEARCH ARTICLE

A NEW SPECIES OF *DIMERIA* (POACEAE: PANICOIDEAE), FROM MIDDLE ANDAMAN, INDIA.

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Abstract

Dimeria fasciculata (Poaceae) collected from Panchvati, Middle Andaman of the Andaman group of Islands in India is described and illustrated as a new species. Some of its morphological characters resemble with other members of the genus *Dimeria avenacea*, *Dimeria fuscescens*, *Dimeria kurzii* and *Dimeria ornithopoda* but this species differs from all in having culms branched on almost all nodes; branches 3–9, unequal in length, terminating usually in solitary, rarely 2-digitate racemes; spikelets embedded within the rachis; and awn of lemma short, stiff, aligned along with raceme. Morphological features place this species under Section *Dimeria* of Genus *Dimeria*.

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Introduction:-

Dimeria R. Br., a paleotropical genus belongs to monotypic subtribe Dimeriinae Hack. (Poaceae, Panicoideae, Andropogoneae). Although there is a difference of opinion regarding number of species, 59 species under this genus (Mabberley, 2017) are reported from the world. The species are found all over the tropical Asian regions from India to China, Korea, Japan, Indonesia, the Philippines, Northern Australia, and to Sri Lanka and Madagascar (Bor 1953; Teerawatananon *et al.* 2014; Kiran Raj *et al.* 2015a; Naik M.C. *et al.* 2016) of which c. 40 species are present in India (Ravi *et al.* 2001; Kiran Raj *et al.* 2015a, Gosavi *et al.* 2016).

The genus is characterized by its usually equal and divergent binate racemes with laterally compressed, homogamous, 1-fl diandrous spikelets. Bor (1952), based on the rachis characters classified the genus *Dimeria* R. Br. into three sections: *Capillares*, *loriformes* and *Annulares*. Later Kiran Raj *et al.* (2015) proposed a new section *Dimeria* with eleven species. Sect. *Dimeria* is characterized by triquetrous, trigonous, or angular, wingless or minutely winged rachis being scaberulous to sparsely ciliate along margins; usually reddish-purple or fuscous, imbricate spikelets and sub-coriaceous glumes. 12 species from sect. *Dimeria* have been reported from India (Kiran Raj 2008; Kiran Raj *et al.* 2015b).

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From Andaman and Nicobar Islands three species namely *Dimeria andamanica* Gosavi, M.Y. Kamble, Chandore & S.R.Yadav under sect. *Loriformes* Bor, *Dimeria hohenackeri* Hochst. ex Miq. under sect. *Capillares* Bor ex Kiran Raj et Sivad., and *Dimeria ornithopoda* Trin. under sect. *Dimeria* are reported (Pandey & Diwakar 2008; Gosavi *et al.* 2016; Naik *et al.* 2016).

During the exploration tour to Andaman and Nicobar Islands in 2017, an interesting species of *Dimeria* was collected from Panchvati, Middle Andaman. Intensive study of the herbarium specimens and thorough study of related literature (Bor 1960; Clayton & Renvoize 1986; Ravi *et al.* 1995; Mohanan & Ravi 1996; Ravi *et al.* 1997; Ravi *et al.* 2001; Kiran Raj & Sivdasan 2008; Arisdason & Daniel 2009; Kabeer & Nair 2010; Teerawatananon *et al.* 2014; Biju *et al.* 2017), revealed that collected *Dimeria* species is unique in its morphological characters in having culms branched on almost all nodes in fascicle of 3–9 and terminating into single, rarely 2-digitate racemes. Thus, the current collection is described as a distinct new species.

Taxonomy: — *Dimeria fasciculata* P. Kumari & R. Lakra *sp. nov.* Fig. 1 & 2.

Type: — India. Andaman Islands: Middle Andaman, Panchvati, Long. E92°58'11.9", Lat. N12°33'13.4", 08 February 2017, Reshma Lakra 32835 (holotype CAL!; isotype PBL!).

Diagnosis: —

Dimeria fasciculata resembles with *Dimeria avenacea* (Retz.) C.E.C.Fisch., *Dimeria fuscescens* Trin., *Dimeria kurzii* Hook.f., and *Dimeria ornithopoda* but differs from all in having culms branched on almost all nodes; branches 3–9, unequal, terminating usually in solitary, rarely 2-digitate racemes; spikelets embedded within the rachis; and awn of lemma short, stiff, aligned along with raceme.

Description: —

Tufted annuals. Culms 8–35 cm tall, geniculate, branched on almost all nodes; nodes swollen, bearded with ring of fine white hair; hair up to 0.8 mm long; internodes 1–3.6 cm × 0.5–1 mm, terete, glabrous; branches 3–9, unequal in length. Leaf blades 3–8 cm × 1–1.8 mm, linear, acute at apex, ventral surface faintly scabrid, margins with bulbous based 1–3 mm long hair; ligule membranous, obtuse or truncate, praemorse; leaf sheaths 1–2 cm long, compressed, mid-rib prominent, margin papery. Peduncle 0.5–9.5 cm long, glabrous terete. Raceme solitary or rarely 2-digitate, unilateral, 3–6 cm long. Rachis 0.3–0.4 mm wide, tough, triquetrous with alternately arranged spikelets, ridges scabrid. Spikelets oblong-elliptic, scabrid, hairy, awned, brownish, closely attached to rachis. Lower glume 2–2.5 mm × 0.3–0.4 mm, narrowly oblong to linear, compressed, coriaceous, acute at apex; keeled and narrowly winged, scabrellate; surface puberulous and scabrid; margins open. Upper glume 2.5–3 mm × 0.4–0.5 mm, oblong, compressed, coriaceous, acute to acuminate at apex; keeled and narrowly winged, scabrellate; surface puberulous and scabrid; margins open, ciliate on upper half. Florets-2, lower barren, upper bisexual. Lower lemma 0.8–1 mm × 0.1–0.2 mm, lanceolate, membranous. Lower palea absent. Upper lemma 1.8–2.2 mm × 0.3–0.4 mm, lanceolate to oblong, membranous, apex with 0.1 mm incision, awned; awn arising from the sinus, 0.3–3.5 mm long, scabrid. Upper palea absent. Lodicules-2, 0.2–0.3 mm long, hyaline. Stamens-2, 0.5–0.8 mm × 0.2–0.3 mm. Ovary 0.5–1 mm × 0.2 mm, oblong. Stigmas-2, up to 1 mm long, plumose. Caryopsis 1.5–2 mm × 0.2–0.3 mm, oblong, brownish yellow, with persistent style. Fig. 1, 2.

Distribution: —

India, Andaman Islands.

Specimens Examined: —

INDIA. Andaman Islands: Middle Andaman, Panchvati, 08 Feb. 2017, Long. E92° 58'11.9", Lat. N12°33'13.4", Reshma Lakra 32835 (holotype CAL; isotype PBL).

Habitat & Ecology: —

The species grows on rocky surface of hill slopes along fringes of semi-evergreen forests, with associates like *Paspalum scrobiculatum* L., *Schizostachyum andamanicum* M.Kumar & Remesh, and *Pennisetum* sp.

Conservation Status: —

Data Deficient (IUCN 2001). The species is currently reported only from the type locality in a restricted fragmented rocky area with small population in dense patches. As it is a new species being described here, a proper status can only be assigned after further exploration and reports of the species.

Flowering & Fruiting: —

November to February.

Etymology: —

The specific epithet is named after the fascicled nature of branches of this plant.

Notes: —

Habit appearance of *D. fasciculata* is unique due to its multiple branched culm and further branched branch nodes, which makes it congested in appearance and distinguish this species from all other members at once.

Recognition: —

Dimeria fasciculata is characterized by triquetrous, scaberulous rachis margins, sub-coriaceous glumes and belongs to genus *Dimeria* of sect. *Dimeria*. It resembles *D. avenacea*, *D. fuscescens*, *D. kurzii* and *D. ornithopoda* but differs in having culm branched on almost all nodes; branches unequal in length, in groups of 3–9; raceme solitary or rarely 2-digitate, unilateral; spikelets embedded within the rachis; awn of lemma minute, stiff, along with raceme. A detailed comparison is shown in Table 1. and taxonomic identification key of all related species is given below:

Key to the species

- 1a. Branches 3–9, fascicled; spikelets embedded within the rachis; awn of lemma 0.3–3.5 mm long, stiff, straight, aligned along with raceme..... **D. fasciculata**
- 1b. Branches 0–3, not fascicled; spikelets exerted from the rachis; awn of lemma 4–15 mm long, twisted, geniculate, spreading out of raceme..... 2
- 2a. Culm unbranched; racemes 5–12 cm long..... **D. fuscescens**
- 2b. Culm branched; racemes 1–5 cm long..... 3
- 3a. Raceme usually 2, rarely 1, 3, or 4; upper glume slightly keeled towards apex; upper lemma awn 4–5 mm long..... **D. ornithopoda**
- 3b. Raceme usually solitary, rarely 2; upper glume keeled from base to apex; upper lemma awn 8–18 mm long..... 4
- 4a. Rachis triquetrous; upper glume 4.5–5 mm long, scabrid..... **D. avenacea**
- 4b. Rachis flattened; upper glume 2.1–2.5 mm long, hairy..... **D. kurzii**

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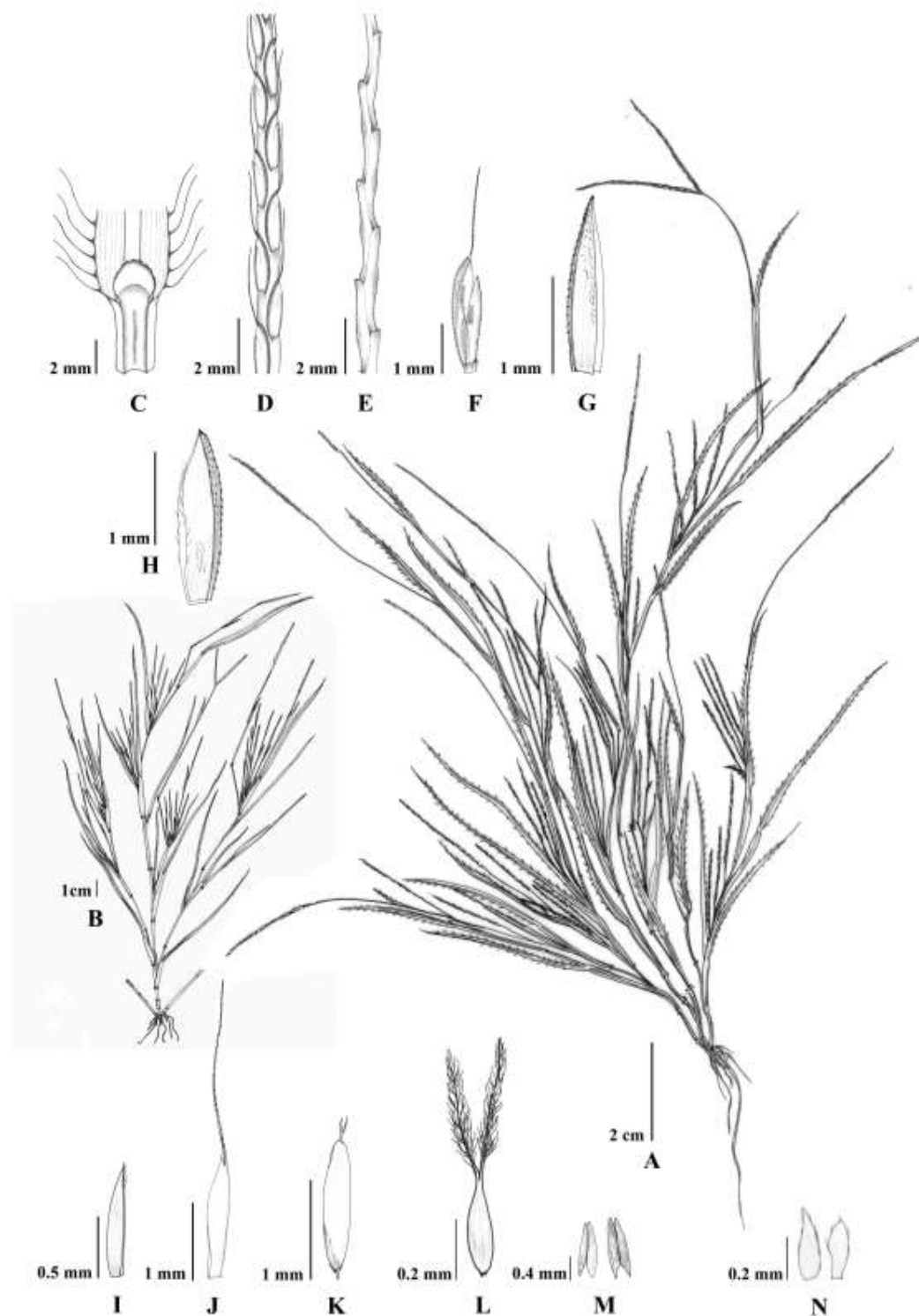


Figure 1: — *Dimeria fasciculata*. **A** Habit; **B** Branching pattern; **C** Ligule; **D** Raceme; **E** Rachis; **F** Spikelet; **G** Lower glume; **H** Upper glume; **I** Lower lemma; **J** Upper lemma; **K** Caryopsis; **L** Gynoecium; **M** Anther; **N** Lodicules

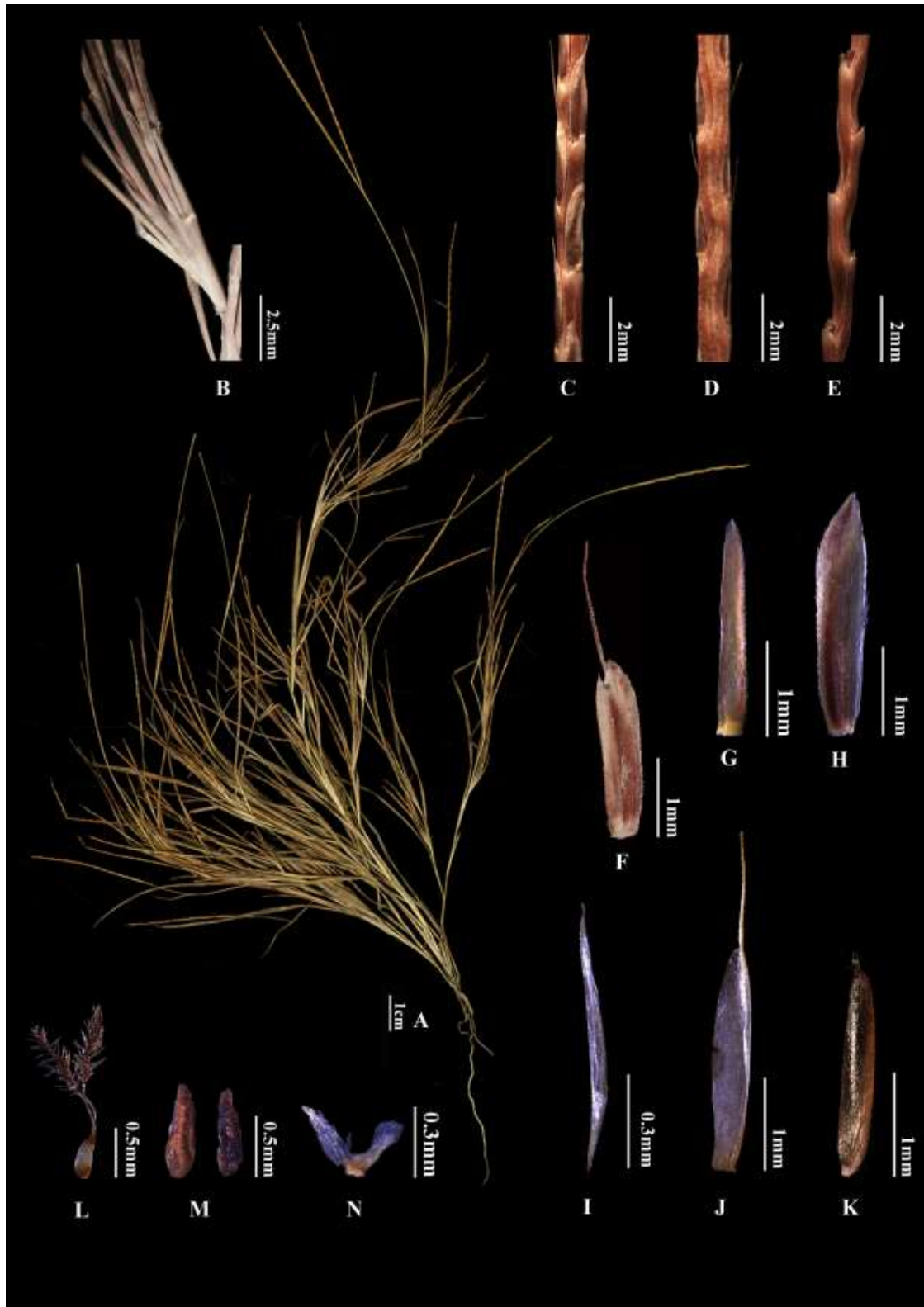


Figure 2: — *Dimeria fasciculata*. **A** Habit; **B** Branching pattern; **C** Part of raceme (Ventral); **D** Part of raceme (Dorsal); **E** Rachis; **F** Spikelet; **G** Lower glume; **H** Upper glume; **I** Lower lemma; **J** Upper lemma; **K** Caryopsis; **L** Gynoecium; **M** Anther; **N** Lodicules

Table 1: — Distinguishing character of *Dimeria fasciculata* with *D. kurzii*, *D. avenacea*, *D. fuscescens* and *D. ornithopoda*.

Characters	<i>D. fasciculata</i>	<i>D. kurzii</i>	<i>D. avenacea</i>	<i>D. fuscescens</i>	<i>D. ornithopoda</i>
Culms	Caespitose, branched, branches fascicled 3–9	Caespitose, branched, branches 2	Caespitose, solitary	Solitary, branched, branches 2	Caespitose, branched, branches 1–5
Raceme	Solitary or rarely 2-digitate, 3–6 cm long	Solitary, 2–5 cm long	Solitary, 4–4.5 cm long	2, rarely 3 or 4-digitate, 5–12 cm long	2, rarely 1, 3 or 4-digitate, 1–5 cm long
Rachis	0.3–0.4 mm wide	0.4–0.8 mm wide	0.4–0.7 mm wide	0.2–0.3 mm wide	0.25–0.5 mm wide
lower glume	2–2.5 mm long, keeled and winged, acute at apex	2–2.3 mm long, not keeled but slightly compressed at acuminate or shortly aristate apex	4–5 mm long, keeled towards short awned apex	4–4.5 mm long, keeled, acuminate at apex	0.8–2 mm long, keeled, acute at apex
Upper glume	2.5–3 mm long, apex acute to acuminate, keeled and winged from base to apex	2.1–2.5 mm, slightly compressed at bifid shortly aristate apex	4.5–5 mm long (excl. awn), awned, winged from base to apex	4.4–5 mm long, apex acute, narrowly winged and broader towards apex	1–2.5 mm long, apex acute, keeled at apex
Lower lemma awn	0.3–3.5 mm long	12–18 mm long	8–13 mm long	10–15 mm long	4–5 mm long

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