

***DIMERIA KALERII* (POACEAE: PANICOIDEAE), A NEW SPECIES FROM
NORTHERN KERALA, INDIA**

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Keywords: Dimeria; Endemic species; Kerala; New species; India.

Abstract

Dimeria kalerii, a new species collected from the lateritic plateaus of Northern Kerala, India is described and illustrated. It is allied to *Dimeria gracilis* in robust habit, densely bearded nodes, lax racemes, long clavate pedicels with cupuliform apex but differs in ciliate apex of ligules, numerous racemes on the peduncles (7-32), hairy pedicels, smaller spikelets (3.8–4.2 mm), shorter cilia on the upper and lower glume, long bristly hairs at the apex of upper glume, hairy column of awns and smaller anthers (1.8–2.0 mm).

Introduction

Dimeria R. Br. (Brown, 1810) is a widely distributed genus in the tropical and subtropical regions of the world. Kiran Raj *et al.* (2015) recognized 65 species in their revised infrageneric classification of *Dimeria* R. Br. and classified them into four sections. The genus is represented by 40 species in the Peninsular India (Kiran Raj *et al.*, 2008). Recently a new species (Gosavi *et al.*, 2016) and a new subspecies (Kiran Raj *et al.*, 2016) were added to the list. The genus can be easily distinguished by solitary, laterally compressed spikelets and flat or filiform rachis without joints (Sreekumar and Nair, 1991). The laterite plateau of Western Ghats shows luxuriant growth of *Dimeria* R. Br. populations during the post monsoon season and gives characteristic golden yellow colour to the plateau when they dry out.

During the floristic exploration of seasonal ponds in northern Kerala, India, the authors collected an interesting specimen of *Dimeria* with fascicled racemes. It grows densely inside two seasonal pools with approximately 1,000 individuals in the Karakkode lateritic plateau (2 sq. km. area) in Kasaragod district, Northern Kerala. The new grass showed extended distribution in Erikkulam lateritic plateau in Kasaragod district. The detailed study of specimens from three different collections (Biju & Jomy 1166, Biju & Jomy 1193, Biju & Jomy 2810) of three populations revealed that it is an interesting specimen of *Dimeria* R. Br. and differed from all other species of the genus known so far. Hence it is described here as a new species, *Dimeria kalerii*. The new species shares many characters of *Dimeria* sect. *Capillares* such as presence of numerous racemes, thin and wingless rachis and distantly arranged spikelets which are not readily disarticulating from the pedicel.

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Results and Discussion

Dimeria kalerii P. Biju, E.J. Josekutty & Augustine Jomy, **sp. nov.**

(Figs 1-3).

Diagnosis: *Dimeria kalerii* is allied to *D. gracilis* in robust habit, densely bearded nodes, lax racemes, long clavate pedicels with cupuliform apex but differs in ciliate apex of ligules, numerous racemes (7–32), hairy pedicels, smaller spikelets (3.8–4.2 mm), shorter cilia on the upper glume and lower glume, long bristly hairs at the apex of upper glume, hairy column of awn and shorter anthers (1.8–2.0 mm).

Type: India, Kerala, Kasaragod district, Karakkode lateritic plateau, 12°36'18.9"N, 075°00'06.4"E, 75 m above sea level, 12 Dec 2014, *Biju & Jomy 1166* (*Holotype*: CAL; *Isotype*: MH).

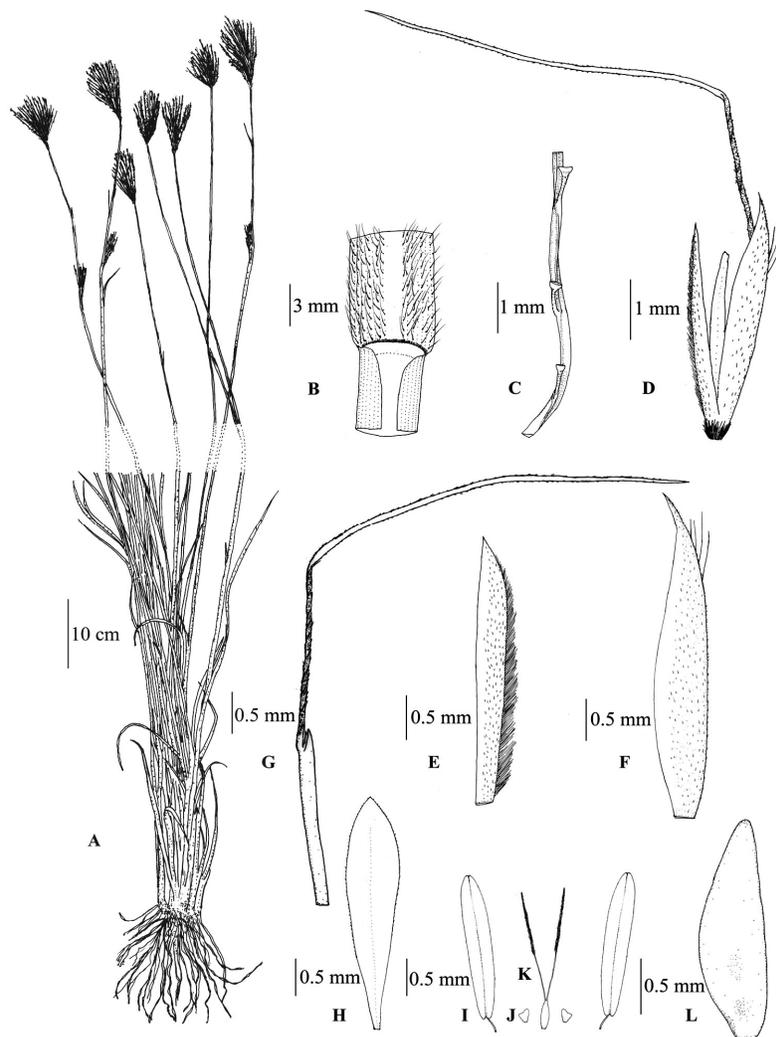


Fig. 1. *Dimeria kalerii* **sp. nov.** A. Habit; B. Junction of leaf sheath and lamina showing ligule; C. A portion of the rachis; D. Spikelet; E. Lower glume; F. Upper glume; G. Upper lemma; H. Lower lemma; I. Stamen; J. Lodicule; K. Carpel; L. Grain.

Tall, robust, tufted, marshy-terrestrial grass; culms 1.2–2.0 m high, branched or unbranched; internodes 10–25 cm long, 2–3 mm in diam., glabrous; nodes densely bearded, hairs white, up to 3 mm long. Leaves ascending; sheath 5–13 cm long, hairy above, basal sheaths extends to higher internode, upper sheaths shorter than internodes, laterally flattened, keeled; ligules membranous, 0.8–1.0 mm long, ciliate at apex; leaf blade linear-lanceolate, 15–45×0.4–0.5 cm, covered by long bulbous-based hairs on both sides, hairs 2–3 mm long; tip acuminate; base round-attenuate; margin minutely serrulate with distantly arranged bulbous based hairs, revolute in older leaves;



Fig. 2. *Dimeria kalerii* sp. nov. A. Habitat; B. Habit; C. Fascicled raceme.

midrib prominent, keeled on the midrib below. Racemes 7–32, usually 18–23, sub-digitate, 4–15 cm long with 34–55 spikelets; rachis thin, trigonous, tough and continuous, up to 0.4 mm wide, glabrous; spikelets oblanceolate, 3.8–4.2 mm long, distantly arranged, 0.5–5.0 mm apart, alternate, distichous, laterally compressed; pedicels 0.5–0.8 mm long, hairy, clavate, apex cupulate, sometimes pedicels curved bringing all the spikelets on the same side; callus short, 0.1–0.2 mm long, truncate at base, covered with golden hairs; hairs 0.5–0.6 mm long; lower glume 3.3–3.6x 0.4–0.5 mm, oblong-linear, single nerved, acute-acuminate, laterally flattened, one side convex, other side concave, coriaceous, hirsute on dorsal side, minutely keeled, long cilia along the keel, margin hyaline, minutely ciliate; upper glume 3.6–4.0x0.8–1.0 mm, elliptic, 2-nerved, coriaceous, round at back, acuminate, hirsute, few long bristly hairs towards apex, margin hyaline, ciliate. Florets two, lower floret reduced to lower lemma, oblanceolate, 2.8–3.2x0.5–0.6 mm, thin, hyaline, single-veined, margin minutely ciliate, acute, rarely emarginate; upper floret bisexual, upper lemma 2.0–2.2x0.4–0.6 mm, single-nerved, awned, awn 9.0–9.3 mm long; column 2.7–2.9 mm long, hairy; palea absent; lodicules 2, obovate, 0.1x0.15 mm, bilobed, hyaline; stamens 2; anthers yellow, 1.8–2.0x0.2–0.3 mm; filaments 0.8–1.0 mm long; ovary ovoid-elliptic, glabrous, 0.3–0.4x0.1–0.15 mm; style 0.5–0.7 mm long; stigma plumose, 0.8–0.9 mm long. Grain greyish brown, elliptic, 1.0–1.5x0.4–0.5 mm.

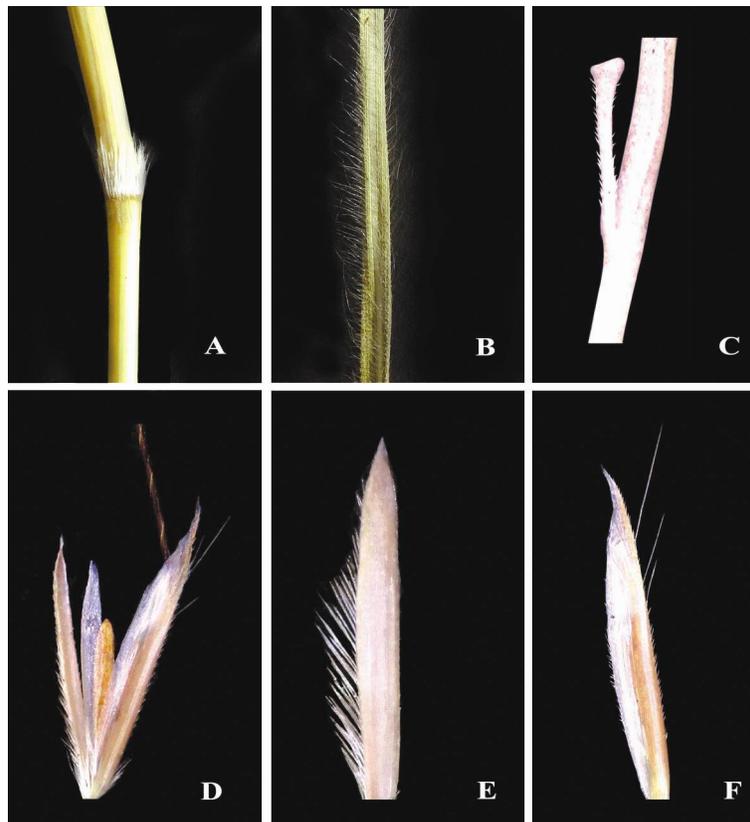


Fig. 3. *Dimeria kalerii* **sp. nov.** A. Bearded node; B. A portion of leaf blade; C. A portion of rachis with pedicel; D. Spikelet; E. Lower glume; F. Upper glume.

Etymology: The new species is named to honour Mr. Om Prakash Kaler, a dedicated conservationist and former Chief Conservator of Forests, Kerala, India.

Additional specimens examined: India, Kerala, Kasaragod district, Karakkode lateritic plateau, 12°33'19.1"N, 075°04'19.7"E, 73 m asl, 20 Jan 2014, *Biju & Jomy 1193* (St. Thomas College Herbarium, Pala, Kerala, India); Kerala, Kasragod district, Erikkulam lateritic plateau, 12°34'17.4"N, 075°03'21.3"E, 110 m asl, 25 Nov 2016, *Biju & Jomy 2810* (St. Thomas College Herbarium, Pala, Kerala, India).

Related species: The new species *Dimeria kalerii* is allied to *D. gracilis* Nees ex Steud. (Steudel, 1854) but differs in many characters as given in Table 1.

Table 1. Distinguishing characters of *Dimeria kalerii* sp. nov. and *D. gracilis*.

Characters	<i>Dimeria kalerii</i> sp. nov.	<i>Dimeria gracilis</i>
Culm	Up to 200 cm long	Up to 90 cm long
Leaves	Up to 45 cm long, densely covered with long hairs; sheaths laterally flattened, hairy above; ligule ciliate at apex	Up to 25 cm long, sparsely covered with hairs; sheath terete, glabrous; ligule lacerate at apex
Racemes	Up to 32	Up to 11
Spikelets	3.8–4.2 mm long	5.0–5.5 mm long
Callus	Very short, up to 0.15 mm long	Up to 0.5 mm long
Pedicel	Hairy, laterally flattened-triangular	Glabrous, terete
Lower glume	Minutely keeled, densely ciliate along the keel; dorsal surface is covered with short white hairs; margin ciliate	Covered all over with long white hairs or glabrous; margin not ciliate
Upper glume	Covered with short white hairs, few long bristly hairs towards the apex; margin ciliate	Covered with long white hairs, long bristly hairs are absent at the apex, margin not ciliate.
Awn	Column up to 2.8 mm, hairy	Column up to 4 mm, glabrous

Distribution and conservation status: *Dimeria kalerii* is restricted to the marshy areas and seasonal ponds in the lateritic plateaus of Karakkode and Erikkulam in Kerala, India. The new species has so far been reported only from two localities, so further studies are needed to assess its distribution and conservation status. As per the currently available data the species should be assigned to the category 'Data Deficient' (DD) of IUCN (2012). This new species shows healthy populations in two seasonal pools in the type locality. The distribution of this rare, tall and robust endemic grass is limited. The increasing human activities and habitat destruction cause threat to the existence of this rare and interesting species.

Notes: The new species *Dimeria kalerii* is the largest species of *Dimeria* reported so far in the world. It is a perennial grass showing robust habit and growing up to 2 m high. The culms are 2-3 mm in diameter and the leaves are up to 45 cm long. The inflorescence fascicled with 7-32 racemes, which are up to 15 cm long. It can be easily distinguished from the allied species by its numerous racemes, hairy pedicels, smaller spikelets, long bristly hairs at the apex of upper glumes.

Acknowledgements

The authors are indebted to the Principal, St. Thomas College, Pala, Kerala for providing necessary laboratory facilities for the work. The first author is grateful to the Principal, Govt. College, Kasaragod, Kerala for providing necessary support for the work. The first and second authors are thankful to University Grants Commission, Government of India for providing financial support.

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(Manuscript received on 15 July 2017; revised on 22 May 2018)