

## Research Article

# Two New Records of *Dimeria* R. Br. (Poaceae) from Kerala

T Shaju<sup>1,\*</sup>, M P Rijuraj<sup>1,2</sup>, A Rasiya Beegam<sup>1</sup>, M Rajendraprasad<sup>1,2</sup>, M K Ratheesh Narayanan<sup>3</sup>

<sup>1</sup>Jawaharlal Nehru Tropical Botanic Garden & Research Institute, Palode, Karimancode P.O., Thiruvananthapuram, Kerala, 695562, India

<sup>2</sup>University of Kerala, Palayam, Thiruvananthapuram, Kerala, 695034, India

<sup>3</sup>Department of Botany, Payyannur College, Edat P.O., Kannur, Kerala, 670327, India

**\*Corresponding Author:** T Shaju, Jawaharlal Nehru Tropical Botanic Garden & Research Institute, Palode, Karimancode P.O., Thiruvananthapuram, 695562, Kerala, India; E-mail: [shaju04@gmail.com](mailto:shaju04@gmail.com)

**Received:** 30 May 2020; **Accepted:** 11 June 2020; **Published:** 13 July 2020

**Citation:** T Shaju, M P Rijuraj, A Rasiya Beegam, M Rajendraprasad, M K Ratheesh Narayanan. Two New Records of *Dimeria* R. Br. (Poaceae) from Kerala. International Journal of Plant, Animal and Environmental Sciences 10 (2020): 127-134.

### Abstract

*Dimeria gracilis* Nees ex Steud. and *D. hohenackeri* subsp. *kodaguensis* Kiran Raj, Sivad & Dileep have been recorded for the first time from the State of Kerala. Detailed description with relevant notes, illustrations and photographs are provided.

**Key words:** Taxonomy; Poaceae; *Dimeria*; Lateritic hillocks; Kerala

### Introduction

The genus *Dimeria* R. Br. comprises about 65 species worldwide [1]. They are mainly distributed in the

tropical and subtropical regions of the world. In India the genus is confined to Peninsular India and represented by about 34 species, four subspecies and one variety [2, 3] of which 27 species, four subspecies and one variety are occurring in the Western Ghats [2, 4]. Among them 23 species, four subspecies and one variety found in Kerala.

While carrying out floral analysis of the lateritic hillocks of northern Kerala, the authors came across few interesting specimens of *Dimeria* collected from Kannur and Kasaragod districts. On critical observation, two specimens of the genus, showed distinct morphological variation from the species

described so far from the region. After a detailed examination they are identified as *Dimeria gracilis* Nees ex Steud., a species found in Sri Lanka and South India (Maharashtra, Goa and Karnataka) and *Dimeria hohenackeri* subsp. *kodaguensis* Kiran Raj, Sivad & Dileep an endemic taxon found in Kudagu district of Karnataka.

*Dimeria gracilis* Nees ex Steud., was first described by E. G. Steudal in Synopsis Plantarum Glumacearum in 1885 based on a specimen from 'Ceylon': s. dat., Macrae 229 (LE) and later by [5-7]. In India the species mainly distributed in Maharashtra and Karnataka [6, 8-15]. So the present collection of the species shows extended distribution and new record from the lateritic region of Kumbla in Kasaragod district in Kerala.

*Dimeria hohenackeri* Hochst. ex Miq., an endemic species of south India is confined to the states of Maharashtra, Karnataka and Kerala. Recently [3] described a new subspecies of *D. hohenackeri* from Kodagu district of Karnataka and named as *D. hohenackeri* subsp. *kodaguensis* Kiran Raj, Sivad & Dileep., which was confined to the type locality only. In such backdrop, reporting the subspecies from the lateritic hillock of Madayipara in Kannur district of northern Kerala forms its extended distribution and new record to the State.

### Taxonomic Treatments

*Dimeria gracilis* Nees ex Steud., [5-13, 15-18].

Type: "Ceylon": s. dat., Macrae 229 (LE).

Perennials, Culms tufted, up to 90cm tall, glabrous, striate, nodes ciliate, lamina with stiff whitish hairs, ligule short membranous, ciliate, blades linear, narrowed at base, glabrous or sparsely covered with whitish hairs, plicate, long acuminate at apex. Racemes

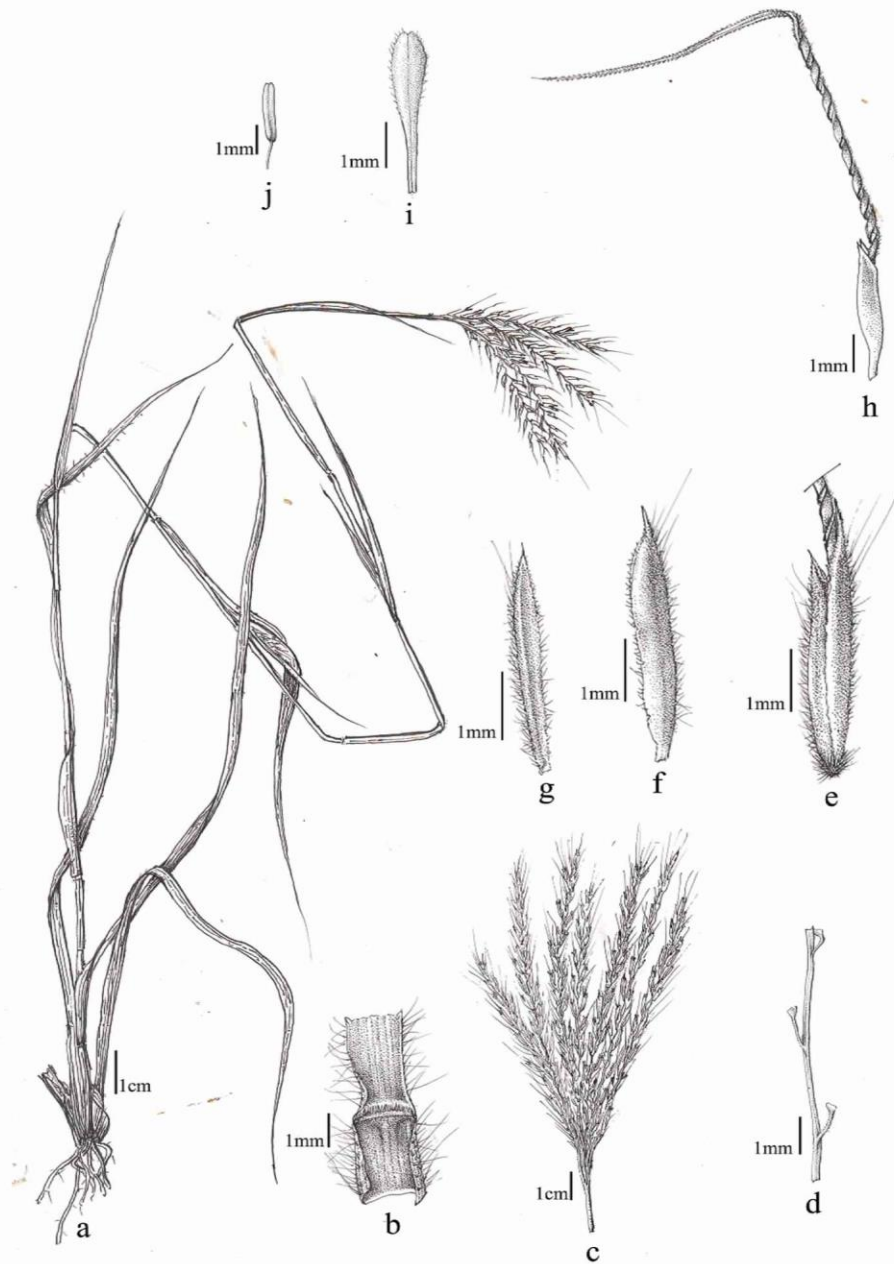
3-11, slender, ca. 12cm long, lax-flowered, peduncle long exerted from spatheole, glabrous, raceme rachis tough, glabrous filiform, bearing pedicelled spikeletes, one to a node, rachis internode ca. 4mm long, pedicels clavate, 2.5mm long, spikeletes 5.5-6mm long (incl. callus) callus short, cuneate 0.5mm long, densely bearded, lower glume linear oblong, 5.5-6mm x 1-2mm, acute, shortly aristate at apex, chartaceous, hyaline ciliate margins, covered all over the surface with white hairs, upper glume oblong-acute, 5-6mm long, coriaceous, tip aristate, hyaline margins shortly ciliate, keel rounded, scabrid and covered with fairly ciliate on all along the keel, with a few long cilia towards the aristate tip, wing less, Lower floret empty, lemma lanceolate, 1.5-3mm long, hyaline, short hyaline hairs along the margin, upper floret bisexual, lemma linear oblong, 4mm long, cleft at tip in to 2 acute or obtuse lobes, hyaline with few hairs at the top, awned in the cleft, awn 9-10mm long, column brownish, 4mm long, twisted. Lower lemma hyaline, oblanceolate, 3.5mm long, 1-nerved, shortly bifid at apex, cuneate towards base, ciliate on the margins above the middle; upper lemma hyaline, linear oblong, 1-nerved, bifid with acute lobes at apex, awned from the sinus; awn up to 12mm long with a column up to 4mm long and scaberulous; palea absent; lodicules 2, hyaline. Stamens 2. Style 2; stigma plumose. Grain oblong- elliptic.

**Flowering & Fruiting:** November-January.

**Habitat:** It is gregariously growing in wet areas of seasonal water channel near the slopes of lateritic hillock. The associated species are *Ischaemum indicum* (Houtt.) Merr., *Heteropogon contortus* (L.) P. Beauv. ex Roem. & Schult., *Eulalia trispicata* (Schult.) Henrard, *Rhynchospora wightiana* (Nees) Steud. etc.



**Figure 1:** *Dimeria gracilis* Nees ex Steud., a. Habitat, b. Habit (Inset), c. Leaf base, d. Raceme, e. A portion of rachis with pedicels, f. Callus, Anther, Glume, Upper lemma with awn, g. Kew Image (K000245775).



**Figure 2:** *Dimeria gracilis* Nees ex Steud., a. Habit, b. Leaf base with ligule, c. Inflorescence, d. A portion of rachis with pedicels, e. Spikelets, f. Upper glume, g. Lower glume, h. Upper lemma with awn, i. Lodicules, j. Stamen.



**Distribution:** India: Maharashtra, Karnataka and Kerala (present collection) and Sri Lanka.

**Specimen Examined:** India, Kerala: Kasaragod District, Kumbala, Ananthapura, 12°35.027' N, 74°59.175' E, ± 100 m, October 2018, *Shaju & Rijuraj*, 77585 (TBGT). Sri Lanka, August 1889, *Thwaites*, C.V 3863 (K000245775 image seen!).

**Dimeria Hohenackeri Hochst. ex Miq. subsp. Kodaguensis [3]:**

**Type:** India, Karnataka: Kodagu Dist., Chettalli, on the way to Madikeri from Siddapura, 3 December 2002, Kiran Raj CU 92982 (Holotype: CALI !; Isotype: KFRI !).

Annuals, Culms procumbent, 15-30cm length, crowded at base and mat forming, nodes bearded, leaves confined to the base of the culm. Sheath shorter than internodes. Ligule membranous, truncate and fimbriate at apex. Leaves linear-acuminate, 3-5 x 0.2-0.4cm, acuminate at apex, rounded at base. Racemes 2-4, sub-digitate, 4-6mm long; rachis teret or angled, glabrous. Pedicelled Spikelets alternately arranged; pedicels c.1mm long, lip cupuliform, glabrous; each raceme with 15-20 spikelets. Spikelets linear oblong, 3.5-4mm long, callus short densely bearded. Lower glume coriaceous, oblong, acuminate 3-3.5mm long, rounded and keeled towards apex, not winged, slightly hairy along the keel towards apex, margins hyaline. Upper glume coriaceous, linear-acuminate, 3.5-4.0mm long and 1.0-1.5mm wide, compressed, straight on back, keeled at apical, not winged, few long bristly hairs

along the keel towards apex; glumes not widely divergent during anthesis. Lower floret empty; lower lemma very hyaline oblanceolate, c. 1.5mm long, single veined, margin ciliate. Upper floret bisexual; upper lemma elliptic, 2.5-3.0mm long, bifid at apex, lobes acute, sub-hyaline, awned from the sinus, awn up to 11 mm long with a dark twisted c. 3.0mm long column; palea lanceolate, c. 0.5mm long, hyaline; lodicules 2, small, truncate, apically toothed. Stamens 2; anthers 1.5mm long, yellowish brown. Ovary oblong; styles 2; stigmas plumose. Grain c. 0.2mm long, oblong-elliptic, slightly compressed, hilum basal, linear-punctiform; embryo about 1/3<sup>th</sup> the length of grain, without epiblast and with a scutellate tail.

**Flowering & Fruiting:** November- December.

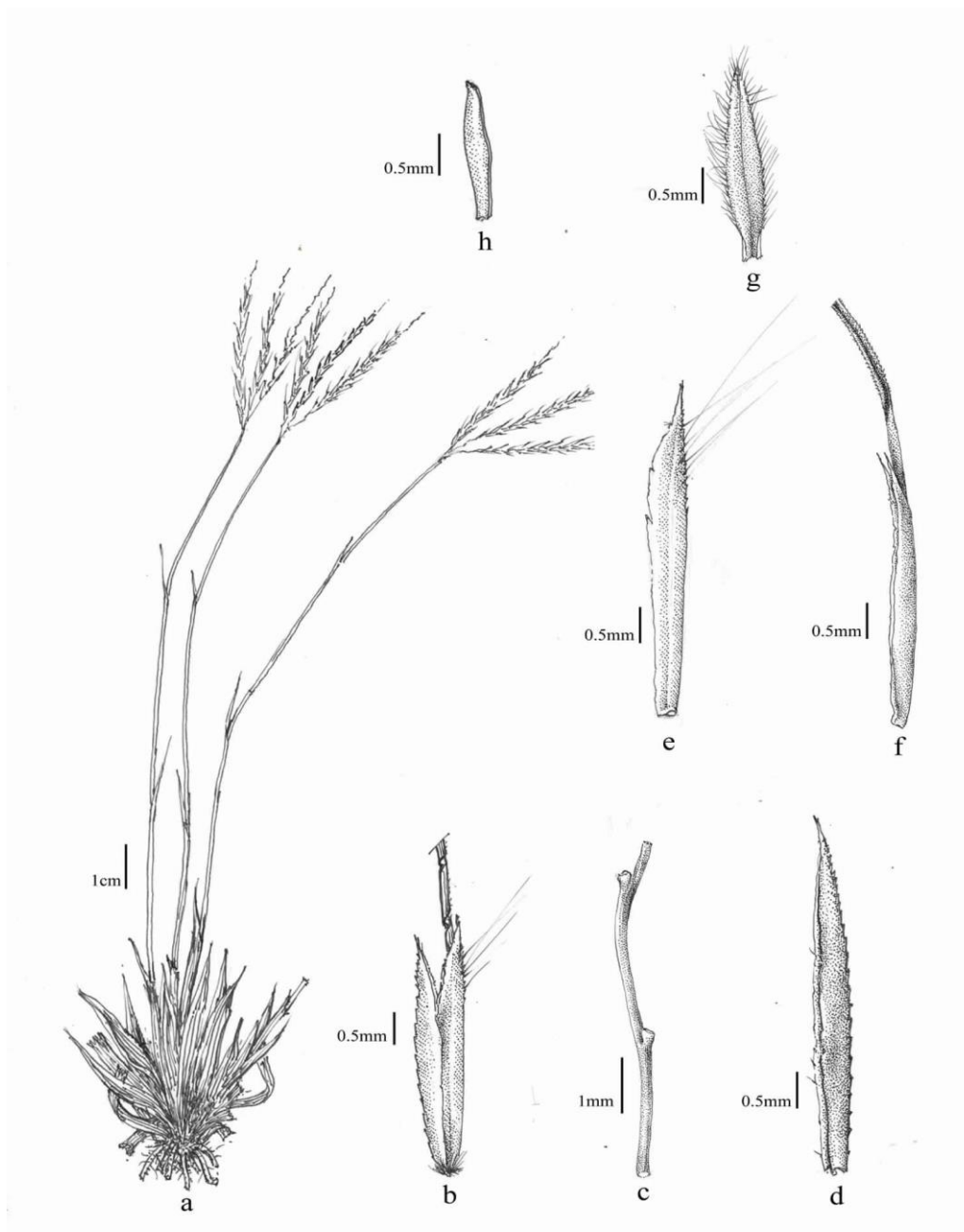
**Distribution:** Endemic to the Western Ghats region: Karnataka and Kerala (present collection).

**Habitat & Ecology:** Growing small populations in shallow bogs on the lateritic rock surface of Madayipara in Kannur District, Kerala. The associated species in the community are *Arundinella kannanorica* V. J. Nair *et. al.*, *Fimbristylis ovata* (Burm. f.) J. Kern, *Murdania semiteres* Sant. *etc.*

**Specimens Examined:** India, Kerala: Kannur District, Madayipara, 12°01' 98.7'' N, 74°15' 73.3'' E, ± 45 m, November 2019, *Shaju & Rijuraj*, 96031 (TBGT); India, Karnataka: Kodagu Dist., Chettalli, on the way to Madikeri from Siddapura, 3 Dec 2002, Kiran Raj CU 92982 (Holotype: CALI !; Isotype: KFRI !).



**Figure 3:** *D. hohenackeri* Hochst. ex Miq. subsp. *kodaguensis* Kiran Raj, Sivad. & Dileep, a. Habitat, b. Habit, c. Spikelets, d. Lower glume & Upper lemma, e. Base of plant.



**Figure 4:** *D. hohenackeri* Hochst. ex Miq. subsp. *kodaguensis* Kiran Raj, Sivad. & Dileep, a. Habit, b. Spikelets, c. A portion of rachis with pedicels, d. Lower glume, e. Upper glume, f. Upper lemma with awn, g. Lower lemma.

### Acknowledgements

Authors are grateful to the Director, Jawaharlal Nehru Tropical Botanic Garden and Research Institute (JNTBGRI), Palade, Thiruvananthapuram for

providing constant help and encouragement in research activities and second author thankful to University of Kerala, Thiruvananthapuram.

## References

1. Teerawatananon AT, Boontia VE, Chantarasuwan B, et al. A taxonomic revision of the genus *Dimeria* (Poaceae: Panicoideae) in Thailand. *Phytotaxa* 186 (2014): 137-147.
2. Kiran Raj MS, Sivadasan M, Veldkamp JF, et al. A revised infrageneric classification of *Dimeria* R. Br. (Poaceae-Andropogoneae). *Bangladesh Journal of Plant Taxonomy* 22 (2015): 47-54.
3. Kiran Raj MS, Sivadasan M, Dileep P, et al. A new subspecies of *Dimeria hohenackeri* Hochst. ex Miq. (Poaceae) from India. *Bangladesh Journal of Plant Taxonomy* 23 (2016): 27-31.
4. Nayar TS, Beegam AR, Sibi M. Flowering plants of the Western Ghats. India. Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Palode, India 2 (2014): 1146-1150.
5. Senaratna JESD. The Grasses of Ceylon. Peradeniya manual, no. 8, Government Press, Ceylon (1956): p. 164.
6. Bor N. L. The grasses of Burma, Ceylon, India & Pakistan. Pergamon Press, Oxford (1960): p. 140.
7. Clayton WD. *Dimeria* R. Br. In: Dassanayake M. D. & F. R. Fosberg (eds). *A Revised Hand Book to the Flora of Ceylon*. Smithsonian Institution Press, Washington 8 (1994): 179.
8. Hooker JD. *Dimeria* R. Br. In *Flora of British India*. L. Reeve & Co., London 7 (1897): p. 105.
9. Fischer CE. Gramineae In Gamble J. S. *Flora of the presidency of Madras*. Adlard & Sons Ltd., London 3 (1934): p. 1713.
10. Blatter E, McCann C. *Bombay Grasses* (The). Manager of Publications, Delhi (1935): p. 9.
11. Cooke T. Gramineae. In: *Flora of the Presidency of Bombay*. Botanical Survey of India, Calcutta 3 (1958): 462.
12. Bor NL. Notes on Asiatic Grasses: XI. The Genus *Dimeria* R. Br. in India and Burma. *Kew Bulletin* 7 (1952): 553-592.
13. Kulkarni BG. *Flora of Sindhudurg*. Botanical Survey of India, Calcutta (1988): p. 520.
14. Sharma B.D., Karthikeyan S. & Singh N.P. (eds). *Monocotyledones*. Botanical Survey of India, Calcutta (1996).
15. Bhat KG, Nagendran CR. *Sedges and grasses (Dakshina Kannada and Udupi Districts)*. Bishen Singh Mahendra Pal Singh (BSMPS) (2001): p.269.
16. Steudel EG. *Synopsis Plantarum Glumacearum. Gramineae*. J. B. Metzler, Stuttgart 1 (1855): p. 413.
17. Karthikeyan SK, Jain SK, Nayar MP, et al. *Flora of India, Series 4, Florae Indicae Enumeratio: Monocotyledonae*. Botanical Survey of India, Calcutta (1989): p. 210.
18. Kothari MJ, Moorthy S. *Flora of Raigad District, Maharashtra State*. Botanical Survey of India, Calcutta (1993): p. 455.
19. <http://specimens.kew.org/herbarium/K0002457775>



This article is an open access article distributed under the terms and conditions of the [Creative Commons Attribution \(CC-BY\) license 4.0](https://creativecommons.org/licenses/by/4.0/)