

# Taxonomy and distribution of *Eragrostis cumingii* (Poaceae: Chloridoideae) in India

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**Abstract:** The recent record of *Eragrostis cumingii* Steud. from the Andaman and Nicobar Islands in addition to its earlier lone authentic report from Kerala in India is discussed with its present distributional status in the country. Its correct nomenclature, description, images and morphological difference with similar species, *E. zeylanica* Nees & Mey. are also provided.

**Keywords:** Andaman and Nicobar Islands, Distribution, *Eragrostis cumingii*, India, Taxonomy.

## Introduction

The grass genus *Eragrostis* Wolf comprises about 423 species, distributed in the tropical and subtropical regions of the world (Clayton & Renvoize, 1986; Veldkamp, 2002; Ingram, 2010; Giraldo Canas *et al.*, 2012). The genus is represented in India by 45 species (Vivek *et al.*, 2015, 2016; Veldkamp *et al.*, 2017). Recently, some interesting specimen of *Eragrostis* has been collected from the plains of South Andaman. On critical examination with the literature (Bor, 1960; Karthikeyan *et al.*, 1989; Sreekumar & Nair, 1991; Moulik, 1997; Pandey & Diwakar, 2008; Kabeer & Nair, 2009; Singh *et al.*, 2014; Murugan *et al.*, 2016), it has been identified as *E. cumingii* Steud., hitherto not recorded in the flora of Andaman and Nicobar Islands. This species is native to Taiwan, presently spread in temperate and tropical Asia, Australasia and North America. In India, the first authentic report of the species was made from

Thiruvananthapuram district in Kerala by Mohanan and Sreekumar (1982) based on the specimens, *M. Mohanan* 63327 (CAL, MH) and *J. Christopher* 267 (Kerala University Herbarium). In addition, authors also studied another gathering (*V.S. Ramachandran* 62649), collected from Kannur district in Kerala, probably overlooked by Mohanan and Sreekumar (1982), at CAL and MH. Khan *et al.* (2010) recorded *E. cumingii* from Maharashtra state based on the specimen, *Tanveer Khan* 1054, but without mentioning the herbaria wherein the specimen is housed, thus not traceable. Besides, it is evident from the description and illustration provided in the publication (2 stamens and distantly arranged spikelets on widely spreading panicle branches are not the characters of *E. cumingii*) that the above specimen was misidentified by the authors and belongs to another species. Therefore, the species record in Maharashtra state is not considered in the present paper. Furthermore, a few earlier collections of *E. cumingii* from the Andaman Islands and wrongly identified as *E. zeylanica* Nees & Mey. were studied in CAL, MH and PBL. A comparative study between these specimens and authentic specimens of *E. zeylanica* housed at BSHC, CAL, MH, and BM has facilitated the authors for confirming the correct identity of *E. cumingii* in India. The present collection forms the first report of the species from the Andaman Islands.

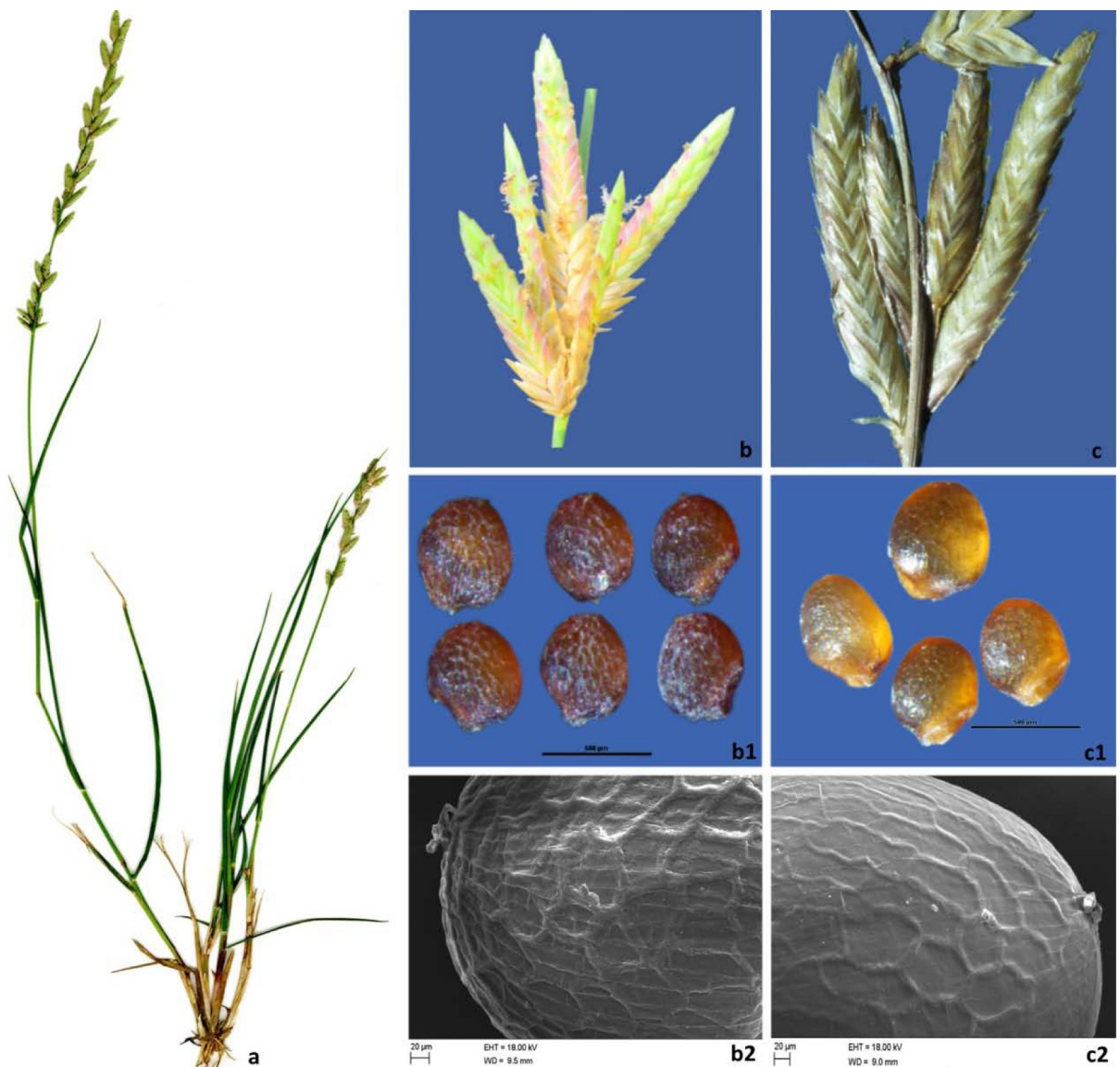
## Taxonomic treatment

*Eragrostis cumingii* Steud., Syn. Pl. Glumac. 1: 266. 1854; Bor, Grass. Burma Ceylon India Pakistan 507. 1960; Mohanan & Sreekumar, J.

Econ. Taxon. Bot. 3: 447. 1982; Karthik. *et al.*, Fl. Ind. Enum. Monocot. 216. 1989; Sreek. & V.J. Nair, Fl. Kerala-Grass. 380. 1991. *E. simplex* Scribner, Bull. Div. Agrostol. U.S.D.A. 7(ed. 3): 250. 1900. *E. distans* Hack., Publ. Bur. Sci. Gov. Lab. 35: 81. 1906. *Lectotype* (designated by Lazarides, 1997): PHILIPPINES. **Luzon**, *Cuming* 1104 (K000290379 digital image!; isolecyto BM, BRI, E, FI, G, L, MO, P, W). Fig. 1

Annuals or perennials. Culms erect or decumbent, slender, 3–100 cm tall; nodes brownish; internodes

2–5 cm long, glabrous. Leaf sheaths 1.5–4 cm long, glabrous or sparsely tubercle based ciliate, mouth bearded; ligule a fringe of cilia; leaves mostly basal, filiform, 5–10 cm long, blades linear to lanceolate, apex acuminate, base more or less rounded, margins entire, upper surface sparsely ciliate. Panicle open, elliptic to oblong, 4–10 × 1–2 cm, with spikelets clumped along branches, branches alternate, short, 1–3 cm long, eglandular, angled, slightly scabrous along angles, base and axils densely ciliate; peduncle 3–13 cm long, striate, glabrous. Spikelets lanceolate



**Fig. 1. a–b2.** *Eragrostis cumingii* Steud. **a.** Habit; **b.** Spikelets; **b1.** Stereomicroscopic image of caryopses; **b2.** SEM image of caryopsis; **c–c2.** *E. zeylanica* Nees & Mey. **c.** Spikelets; **c1.** Stereomicroscopic image of caryopses; **c2.** SEM image of caryopsis.

to oblong, 5–10 × 1–2.3 mm, apex sharply acute, greenish to pinkish; pedicels short, stiff, 0.5–1.5 mm long, eglandular, angled, slightly scabrous along angles. Glumes deciduous, linear to lanceolate, apex acute to acuminate, margins entire, chartaceous to subcoriaceous, 1-nerved, keeled, scabrous along keel; lower glume 1–1.5 × 0.3–0.5 mm; upper glume, 1.5–2 × 0.5–0.7 mm. Florets 10–30, breaking from below upwards, closely arranged on rachilla, pinkish; rachilla narrowly zig-zag. Lemmas deciduous, ovate to lanceolate, 1.5–1.8 × 0.6–1 mm, apex acute, margins entire, subcoriaceous, 3-nerved, lateral nerves nearly straight, 1-keeled, slightly scabrous along keel. Paleas persistent, elliptic to oblanceolate, 1–1.3 × 0.2–0.4 mm, apex acute to obtuse, margins entire, slightly curved, 2-nerved, 2-keeled, ciliate along keels. Lodicules 2, *c.* 0.15 mm long, apex truncate, white. Stamens 3; anthers *c.* 0.1 mm long, purplish. Ovary ovoid, *c.* 0.1 mm long, pale green to cream coloured; styles *c.* 0.2 mm long, white; stigmas *c.* 0.3 mm long, white to cream coloured. Caryopses ovate to globose or orbicular, *c.* 0.5 × 0.3 mm, brownish.

*Flowering & fruiting:* June–March.

*Habitat:* In plains and open places in forests.

*Distribution:* Temperate and tropical Asia, Australasia, North America.

*Specimens examined:* INDIA, **Andaman and Nicobar Islands**, South Andaman, Beadonabad, 30.11.1973, *N.P. Balakrishnan* 661 (CAL, PBL); Nayasahar, N 11°34.447' E 092°40.470', 5 m, 04.03.2019, *C.P. Vivek*

33203 (PBL); Shippighat, N 11°35.543' E 092°40.497', 3 m, 25.01.2019, *C.P. Vivek* 33202 (PBL); Port Blair, 3 m, 12.01.1951, *K. Thothathri* 9042 (CAL, MH, PBL). **Kerala**, Kannur district, Chandanathode, 825 m, 17.06.1979, *V.S. Ramachandran* 62649 (CAL, MH); Thiruvananthapuram district, Veli, 30 m, 30.07.1979, *M. Mohanan* 63327 (CAL, MH).

*Notes:* *Eragrostis cumingii* can be easily mistaken for a morphologically similar taxon, *E. zeylanica* Nees & Mey. which is distributed in Bangladesh, Myanmar, Sri Lanka and India. Both the species closely resemble each other in a number of vegetative as well as floral characters. They have linear panicle with sharply acute spikelets clumped along branches, and florets are closely arranged on rachilla. Moreover, leaves exhibit panicoid type of microhairs (*Vivek et al.*, 2016). However, *E. cumingii* has rather sprawling and taller culms as compared to *E. zeylanica* and more other distinct characters as depicted in figure 1 and table 1. Only a few authentic specimens of *E. zeylanica* could be studied in Indian herbaria, recorded from Kerala [*V.S. Ramachandran* 60035 (CAL & MH); *V.J. Nair* 59997 (MH); *C.P. Vivek* 126160 (MH)], Sikkim [*R.C. Srivastava* 12118; 12114 (BSHC)] and West Bengal [*Joh. W. Helfers.n.*, acc. no. 541918 (CAL)]. Other specimens wrongly determined in the herbaria as *E. zeylanica* are in fact belonging to *E. cumingii*. The Checklist of flora of Andaman and Nicobar Islands (Pandey & Diwakar, 2008; Murugan *et al.*, 2016) have included *E. zeylanica*, probably based on the collections of *K. Thothathri*

**Table 1.** Distinguishing characters of *Eragrostis cumingii* and *E. zeylanica*

Characters	<i>Eragrostis cumingii</i> Steud.	<i>Eragrostis zeylanica</i> Nees & Mey.
<b>Culms</b>	Sprawling, wiry, 3–100 cm tall	Shortly spreading, stout, 5–25 cm tall
<b>Leaves</b>	Mostly basal, filiform	Not basal, filiform
<b>Spikelets</b>	5–10 × 1–2.3 mm, apex sharply acute, greenish to pinkish	5–20 × 0.1–3 mm, apex sharply acute to acuminate, greenish
<b>Florets</b>	10–20 (–30)	10–60
<b>Lemmas</b>	1.5–1.8 mm long, apex acute	1.5–2.5 mm long, apex acute to acuminate
<b>Caryopses</b>	Ovoid to globose, prominently reticulate on surface with isodiametric thick walled broader cells, deep brown in colour	Ovoid to subglobose, not prominently reticulate on surface with isodiametric thick walled broader cells, light brown in colour

9042 (CAL, MH & PBL) and N.P. Balakrishnan 661 (CAL & PBL). However, critical study on the specimens revealed that the gatherings belong to *E. cumingii* and included in the present paper under the latter as additional collections of the taxon examined in the Islands. So far, no authentic specimen of *E. zeylanica* could be traced in herbaria as occurring in the Andaman and Nicobar Islands.

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