

Cenchrus echinatus L. (Poaceae): An Addition to Flora of Rajasthan from Indian Desert

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Abstract

Cenchrus echinatus L., addition to flora of Rajasthan, is described in the present study, also confirming its range extension to the Indian desert. It is earlier reported from Jharkhand, Kerala and West Bengal. In the present study, it was collected from Danta, Santhore district. Its description, phenology photoplate, distribution and habitat are discussed below for its easy identification.

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1. INTRODUCTION

Rajasthan is the largest state of India in terms of geographical area. It lies towards the north-west and majority of its area falls under the Great Indian Desert. This region harbours a large number of plant species, among which some are endemic to this region. A large number of publications are there dealing the floristic account of Indian desert, among which the two most pioneer works were carried out by Singh and Singh in 2006 (Biodiversity of Desert National Park) and Bhandari in 1990 (Flora of Indian Desert). While other major contribution on the Indian desert floral wealth was done by Shetty and Singh in 1987-1993 in the form of "Flora of Rajasthan" in three volumes. Some other publications on desertic plants include Ramchandra Rao, 1941; Nair and Joshi, 1957; Puri and Jain, 1960-1962; Gupta and Bhandari, 1965; Meena, 2000; Purohit and Sharma, 2006; Sharma and Purohit, 2013; Kumar and Purohit, 2015; Purohit, 2019; Purohit et al. 2019; Purohit, 2020a, 2020b, 2020c, 2020d; Purohit et al. 2020a, 2020b, 2025a, 2025b; Purohit, 2021, 2024, 2025a,

2025b; Purohit et al., 2024; Purohit and Meena, 2025; Pandey et. al, 1983 etc.

Cenchrus L. is a large genus of Poaceae family having 108 accepted species worldwide (POWO, 2025). In India, this genus has 22 species (Mao and Dash, 2020), distributed in several parts of the country. One of its species, *Cenchrus echinatus* L., reported from Jharkhand, Kerala and West Bengal (Mao and Dash, 2020), is recently collected from the Indian desert in Rajasthan. It is a clump forming annual medium sized grass, native to North and South America.

2. METHODOLOGY

During the plant exploration survey to Indian desert, the authors came across a population of *Cenchrus* spp., in Danta area of Santhore district in Rajasthan. It was morphologically different from its common allies viz. bristles few, connate to form a deep cup, extremely rigid, inner bristles hairy at base. The voucher samples were collected and preserved in BSJO. The field photography was done by Sony DSC HX400V camera. Detailed scrutiny of literatures like

Sunil and Sivadasan, 2000; Sharma & Purohit, 2013; Prasanna et. al., 2024; Anh. & Thi. 2012; and major herbaria (CAL, BSJO, BLAT, RuBL and K), revealed the identity of the collected sample as *Cenchrus echinatus* L. Review of literatures Bhandari 1990, Shetty and Singh, 1993, Sharma & Purohit, 2013 and Kotiya et. al. 2020 confirmed that this grass is addition for flora of Rajasthan state.

3. RESULT AND DISCUSSION

Taxonomic treatment:

Cenchrus echinatus L. Sp. Pl. 2: 1050. 1753. Bor, Grasses Burma, Ceylon, India & Pakistan 289. 1960. S. Moulik, Grasses Bamboos India 1: 82. 1997. Prasanna & al. in A.A. Mao & S.S. Dash, Fl. Pl. India Annot. Checkl. 3: 336. 2020.

Annual grass, culms geniculate, erect or trailing, branches from lower nodes, 20 – 80 cm tall, rooting at lower nodes. Leaf sheaths keeled, the ligule a row of hairs. Leaf blade linear or linear – lanceolate, 6 – 35 × 0.5 – 1.0 cm, acuminate, glabrous to pubescent; ligule a fringe of hairs. Panicle 5 – 11 cm long, rachis angular. Spikelet's somewhat arranged, 2 – 4 in burr, 4 – 6 mm long, enclosed within an involucre of bristly hairs, involucre spherical, form a cup up to 9 mm long. Outer bristles long and inner bristles short, all bristles retrorsely barbed. Glumes ovate, shorter than the spikelet. Lower glume 1-nerved; upper glume 3 – 5-nerved. Lower florets barren, upper floret bisexual. Stamen 3, ovary globose. Lower and upper lemma as long as spikelet's, 5-nerved, paleate (Fig. 1).

Fl. and Fr.: Nov – March.

Habitat: The plant prefers sandy areas of warmer climate. In the present study, the plant was collected from the dry sandy area along the road in Danta, Sanchore. The other species

growing in association were *Calotropis procera* (Aiton) W.T.Aiton, *Convolvulus deserti* Hochst & Steud. ex Baker and *Achyranthes aspera* L (Fig. 2).

Distribution: *C. echinatus* L. is native of north and south America and introduced in several other countries. In India it is reported from Jharkhand, Kerala and West Bengal (Mao and Dash, 2020; Fig. 3) and Rajasthan (present study, Fig. 4).

Specimen examined: Rajasthan, Sanchore, Danta, 10.02.2024, 24°44'58.11"N & 71°54'19.14"E, 92.2m, C.S. Purohit & Amit Kumar 40989;

Key to the *Cenchrus echinatus* and morphological similar congeners:

- 1a. Bristles retrorsely barbellate.....(2)
- 1b. Bristles antrorsely barbellate(3)
- 2a. Outer bristles in two divergent whorls.....
.....*C. echinatus*
- 2b. Outer bristles in one whorl.....*C. biflorus*
- 3a. bristles connate above the base to form a cup
.....(4)
- 3b. bristles united only at the base.....(5)
- 4a. Outer bristles numerous. One of the inner
bristles longer than the rest.....*C. pennisetiformis*
- 4b. Outer bristles few or absent. All of the inner
bristles similar.....(6)
- 5a. Inner bristles stouter at the bases, annuals
.....*C. prieurii*
- 5b. Inner bristles not stouter at the base,
perennials.....*C. ciliaris*
- 6a. Rachis scabrid.....*C. setigerus*
- 6b. Rachis glabrous.....*C. rajasthanensis*

Conservation: *C. echinatus* L. is not yet formally assessed according to the IUCN Red list guidelines.

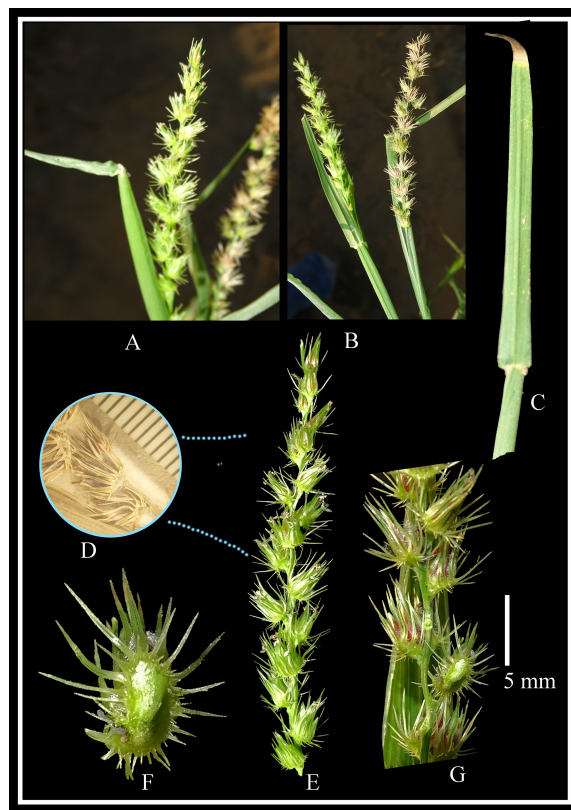


Figure 1: *Cenchrus echinatus*: (A & B): Habit; (C): close-up of leaf; (D): close-up of small cup at base of spikelet; (E): whole inflorescence; (F): close-up of involucre; (G): arrangement of spikelets.



Figure 2: Habitat of *C. echinatus* in present study (near Danta, Sanchore, Rajasthan)

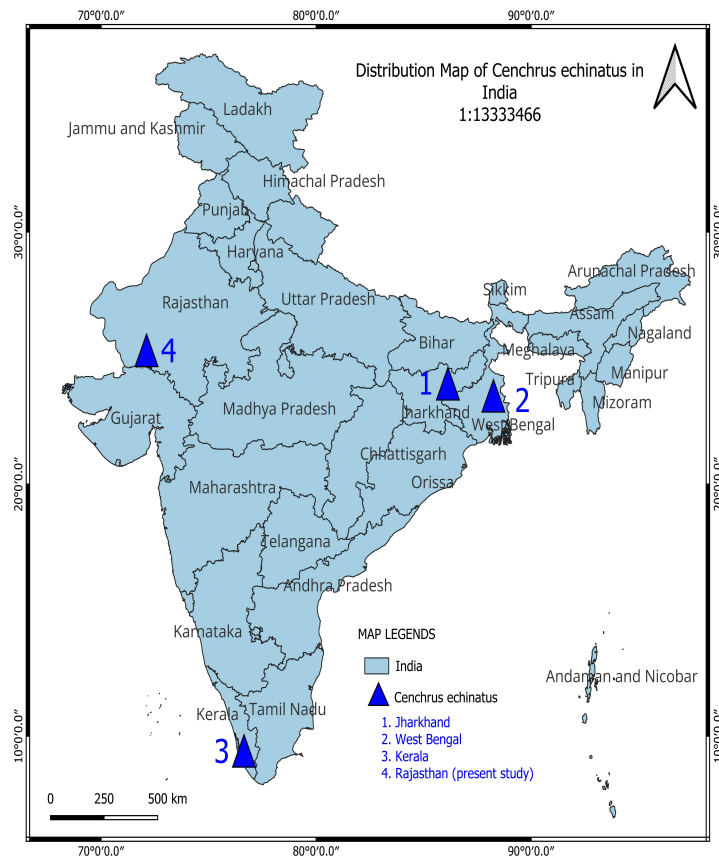


Figure 3: Map shows distribution of *C. echinatus* in India

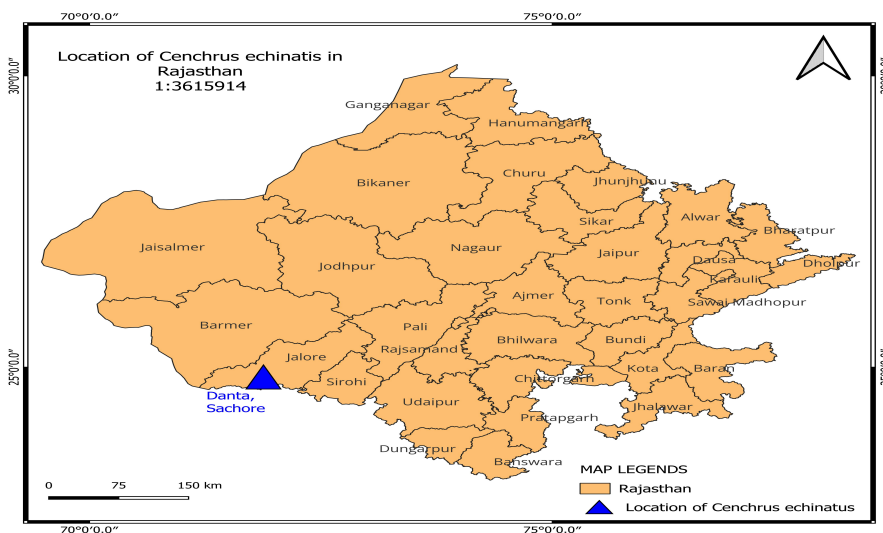


Figure 4: Map shows distribution of *C. echinatus* in Rajasthan

4. CONCLUSION

Range extension of a grass species, *C. echinatus* L. to Rajasthan and Indian desert is discussed in the present study with its description, phenology, photoplates, distribution and habitat, enabling its easy identification. The authors suggest field exploration to arid and semi arid regions to disclose its probable locations.

Conflict of Interest: The authors declare that there is no conflict of interest.

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