ISSN (Online): 2349-1183; ISSN (Print): 2349-9265
TROPICAL PLANT RESEARCH
The Journal of the Society for Tropical Plant Research
9(2): 92–95, 2022
DOI: 10.22271/tpr.2022.v9.i2.014

Research article

New distributional records of two species of *Glyphochloa* Clayton from Satpuda range of Khandesh region, Maharashtra, India

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[Accepted: 10 August 2022]

Abstract: In this communication, *Glyphochloa forficulata*, *Glyphochloa maharashtraensis* are recorded from the Satpuda ranges of Khandesh region, Maharashtra, India very first time. Description and photos of both species have been provided for easy identification.
Keywords: *Glyphochloa forficulata* - *Glyphochloa maharashtraensis* - Grasses - Khandesh region - Satpuda ranges.

[Cite as: Khan TA & Gosavi KV (2022) New distributional records of two species of *Glyphochloa* Clayton from Satpuda range of Khandesh region, Maharashtra, India. *Tropical Plant Research* 9(2): 92–95]

INTRODUCTION

Glyphochloa Clayton is represented by 12 species and is endemic to peninsular India (Irwin & Narasimhan 2011, Gosavi *et al*. 2016). All species of *Glyphochloa* are restricted to the coastal and elevated lateritic plateaus of Malabar, Konkan and Western Ghats except *Glyphochloa forficulata* (Fischer) Clayton (Fonseca 2003, Gosavi *et al.* 2016). The species of *Glyphochloa* were originally described under the genus *Manisuris* L. Further six species were described by different workers within it (Bor 1960, Rao & Hemadri 1968, Jain & Deshpande 1969, Jain & Hemadri 1969, Jain 1970, Kulkarni & Hemadri 1974). Clayton (1981) segregated the genus *Glyphochloa* from *Manisuris*. Except *Manisuris myuros* L. and *Manisuris clarkeii* (Hack.) all species of *Manisuris* transferred to the genus *Glyphochloa*.

Taxonomic revision of *Glyphochloa* has been done by Fonseca (2003). She has recognized two groups of the genus based on morphology and anatomical characters. Further work was extended by Gosavi *et al*. (2016) and they supported the two groups within a genus by using morphology, geography, cytology, embryology and molecular data. Among the genus, *Glyphochloa forficulata* is distributed to high and low elevated areas of Western Ghats and surrounding areas while *Glyphochloa maharashtraensis* Potdar & S.R. Yadav recently described by Potdar *et al*. (2011) from elevated areas of northern Western Ghats.

Khandesh is a region of the Maharashtra state and it contains three districts namely Dhule, Jalgaon and Nandurbar. North east part of Khandesh contains Satpuda ranges. The ranges have rich plant diversity because of different habitat. During plant exploration of Satpuda in Khandesh region authors collected *Glyphochloa forficulata* and *Glyphochloa maharashtraensis*. After perusal literation (Patil 2003, Yadav *et al.* 2003, Valvi *et al.* 2006, Kshirsagar & Patil 2008, Khan 2017, 2019), authors revealed that the *Glyphochloa forficulata* was not reported from the Khandesh region and *Glyphochloa maharashtraensis* not beyond the Western Ghats so far. Thus in the present communication, authors reported *Glyphochloa forficulata* to the Khandesh region and *Glyphochloa maharashtraensis* to the Satpuda ranges as a new report. Description and photos of both species have been provided for identification.

MATERIALS AND METHODS

During plant exploration of Khandesh region authors were collected two grass species, *Glyphochloa forficulata* and *Glyphochloa maharashtraensis* by using aforesaid literature, regional flora and grass manual (Lakshminarasimhan *et al*. 1996, Moulik 1997, Potdar & Yadav 2011) and the confirmed the identity by consulting opinion of grass expert in Maharashtra (Dr. Girish G. Potdar, Department of Botany, Yashwantrao Chavan College of Science, Vidyanagar, Karad), The voucher specimens of the both species have been

Received: 09 March 2021 Published: 31 August 2022
https://doi.org/10.22271/tpr.2022.v9.i2.014

deposited in the herbarium of Department of Botany, H. J. Thim College of Arts and Science Mehrun, Jalgaon, Maharashtra.

Taxonomy

Glyphochloa forficulata (C. E. C. Fischer) Clayton in Kew Bull. 35: 815. 1981.

Annual. Culms tufted, terete, 8–30 cm tall, slender, branched, sparsely villous, glabrous nodes. Leaf sheath compressed; ligule membranous. Leaf blade linear, 3–10 cm long densely covered with tubercle based hairs, apex acuminate. Racemes compressed, stout, solitary, peduncles villous. Joints clavate. Sessile spikelet ovate-oblong. callus glabrous. Lower glume coriaceous, oblong-ovate. 4–6 mm long, 5–6-nerved, with tubercles on lower half, hooked on dorsal surface, broad wing on both sides, apex with 2-awns. Upper glume coriaceous, oblong- elliptic, 3-nerved, apex acute. Lower lemma hyaline, oblong-elliptic, obscurely nerved, apex obtuse. Palea hyaline, oblong. Upper lemma hyaline, elliptic-ovate, obscurely nerved, apex subacute. Palea hyaline, elliptic-lanceolate, apex subacute. Lodicules 2. Stamens 3. Joints and pedicels fused. Pedicelled spikelet elliptic-oblong, awned. Lower glume chartaceous, elliptic- oblong, margins winged on one side, awned at apex. Upper glume coriaceous, keeled, keels winged, awned at apex.

Flowering and Fruiting: September to November

Location (*GPS Reading*): N 21^{o} 41' 32.73" E 74^{o} 1' 32.55" (Elevation 856.8 m)

Habitat: Rare. Grows on elevated exposed grassland at hill slopes.

Distribution: Goa, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra and Tamil Nadu. In Maharashtra reported only from Western Ghats and Khandesh (in present communication).

Specimens examined: INDIA, Maharashtra State, Nandurbar Dist., Toranmal, TAK 5714; Bhagadari, TAK 5393.

Note: It can be identified by its irregular ridges, furrows and hooks on lower glume of sessile spikelet.

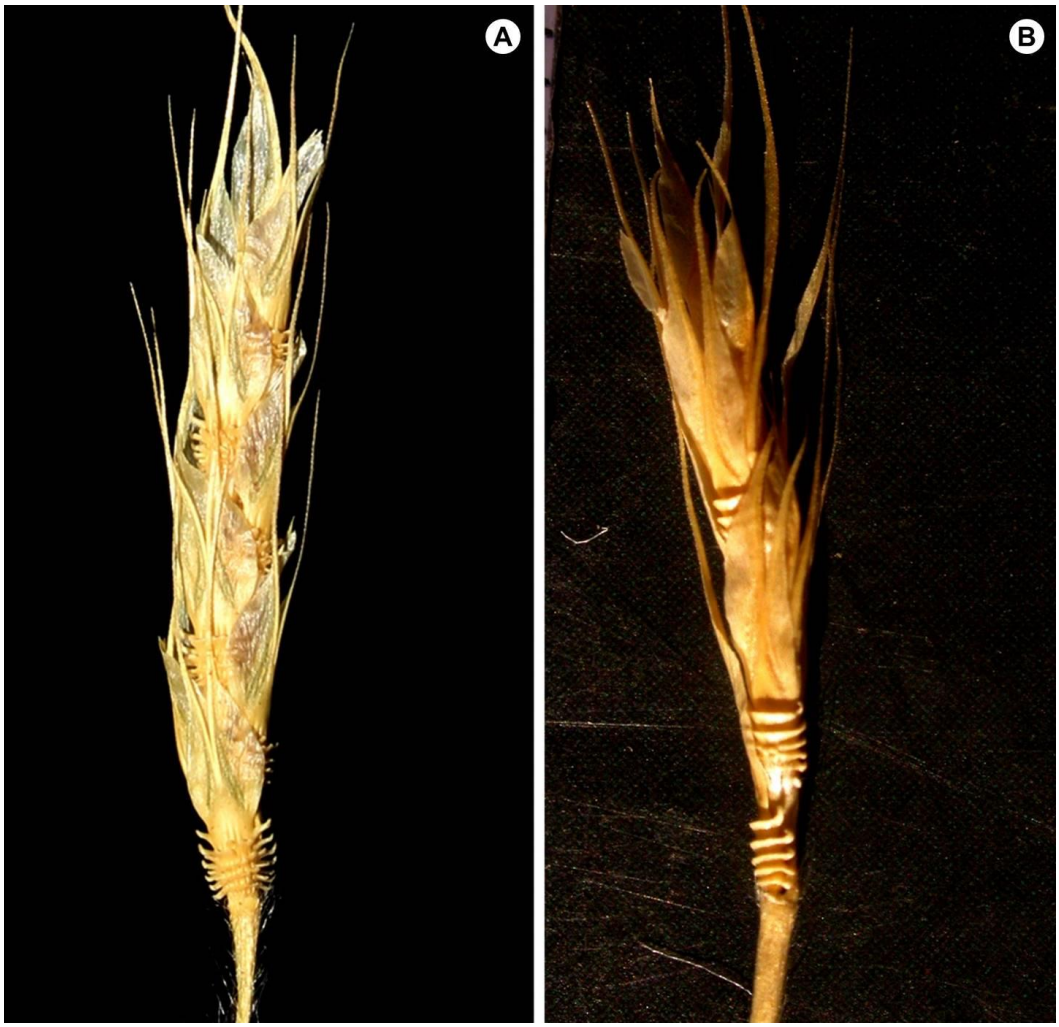

Figure 1. A, *Glyphochloa forficulata* (C. E. C. Fischer) Clayton; **B,** *Glyphochloa maharashtraensis* Potdar G.G. & S.R. Yadav.

Glyphochloa maharashtraensis Potdar G.G. & S.R. Yadav, Kew Bull. 66: 625. 2011.

Annual. Culms tufted, terete, 8–20 cm tall, slender, erect branched or simple, glabrous nodes. Leaf sheath terete, covered with bulbous based hairs; ligule membranous. Leaf blade linear, densely villous with bulbous based hairs, acuminate at apex. Raceme solitary, 3–5 cm long, peduncles glabrous or villous. Joints and pedicels fused, ciliate hairy on the margins and at apex. Sessile spikelet ovate to elliptic. Lower glume coriaceous, ovate to elliptic, 4–5 continuous ridges pointing and overlapping upwards, glabrous, margins inflexed, 7–9 nerved, apex 2-awned, keels broadly winged on both sides. Upper glume membranous, narrowly elliptic, 3-nerved, apex acute. Lower lemma hyaline, ovate, margins inflexed, ciliate, nerveless, obtuse at apex. Palea hyaline, ovate, glabrous, nerveless, apex obtuse. Upper lemma hyaline, ovate, nerveless, apex obtuse. Palea hyaline, ovate, apex subacute. Lodicules 2. Stamens 3. Caryopsis elliptic. Pedicelled spikelets narrowly ovate. Lower glume sub-coriaceous, elliptic, 5–7-nerved, winged on one margin, awned at apex. Upper glume membranous, 3–5-nerved, strongly keeled, keels winged.

Flowering and Fruiting: September to October

Location (GPS Reading): N 21^{o} 41' 2.31" E 74^{o} 1' 24.85" (Elevation 863.7 m)

Habitat: Rare, on open grassland at flat topped plateau at Satpuda range.

Distribution: In India only reported elevated areas of northern Western Ghats and Satpuda ranges of Khandesh region (In present communication)

Specimens examined: INDIA, Maharashtra State, Nandurbar Dist., Toranmal, TAK 4713; Bhagadari, TAK 5173.

Note: *Glyphochloa maharashtraensis* is easily recognized by continuous upwardly pointing ridges on the lower glume of the sessile spikelet.

ACKNOWLEDGEMENTS

The authors thankful to Dr. Girish G. Potdar, Department of Botany, Yashwantrao Chavan College of Science, Vidyanagar, Karad, who confirmed the identity of the species. KVG thankful to SERB for financial assistance; TAK thankful to Principal, H.J. Thim College, Jalgaon, for providing laboratory and library facilities.

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