

A New Species of *Eleocharis* (Cyperaceae) from Western Ghats, India

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Abstract

Eleocharis wadoodii S. R. Yadav, Lekhak et Chandore, a new species from the lateritic plateau of Northern Western Ghats (India) has been described and illustrated. The species is allied to *E. tetraquetra* Nees but differs from it in having smooth perianth bristles, bifid style and constricted nut.

Keywords: *Eleocharis wadoodii*, Cyperaceae, Lateritic Plateau, Western Ghats

Introduction

The genus *Eleocharis* R. Br. with c. 120 species (Mabberley, 2005) is widely distributed from tropics to temperate regions of both hemispheres. It is represented by 21 species in India (Prasad & Singh, 2002). Rao & Verma (1982) recorded eight species from Northeast India. Cook (1996) accounted for 11 species of *Eleocharis* for Indian subcontinent excluding nine temperate species found in Himalayas. The genus is represented by 15 species and two subspecies in Peninsular India. Most of the species of *Eleocharis* in Peninsular India are restricted to coastal marshes of west coast. However, few are widely distributed throughout the region.

Lateritic plateaus of higher altitude in northern Western Ghats are usually remote areas rarely visited by botanists during rainy season because of harsh misty and windy weather that prevails on them from June to September. Short-lived species of monsoon vegetation are usually neglected and missed by botanists as they complete their life cycle in short period from June to August. Such short-lived endemic species restricted to these plateaus include *Aponogeton satarensis* Sundararagh. et al., *Arisaema sahyadrica* S. R. Yadav & Patil, *A. sahyadrica* var. *ghatica* Sardesai et al., *Eriocaulon epedunculatum* S. R. Yadav et al., *Eulalia shrirangii* Salunkhe & Potdar and *Mnesithea veldkampii* Potdar et al. These species of monsoon vegetation of plateaus of higher altitudes in Northern Western Ghats discovered in the last three decades indicate the need for intensive and extensive floristic studies on monsoon vegetation of the plateaus. During October 2006, the senior author visited Masai Pla-

teau, in the vicinity of famous Panhala fort and collected few specimens of *Eleocharis*. The specimens on detailed analysis turned out to be an undescribed species. Therefore, the locality was visited subsequently to collect enough plant material to study variations within the species. It is described and illustrated here as a new species.

Eleocharis wadoodii S. R. Yadav, Lekhak et Chandore, *sp. nov.* **Fig. 1**

Eleochari tetraquetrae Nees similes, perianthii setis crassis laevibus, stylo bifido, nucis collo constricto differt, versus in *E. tetraquetra* setae barbatae, stylus trifidus, nux collo non-constricto.

Typus: INDIA, Maharashtra, Kolhapur District, Panhala Tahsil, Masai Plateau (16° 49.072' N and 74° 04.406' E; altitude 940 – 950 m), 15.8.2007, A. N. Chandore 131 (Holotypus, CAL; Isotypii, K, BSI, BLAT, SUK).

Densely tufted leafless perennials, up to 65 cm high; rhizome thick, 1 – 2 cm long; stolons slender, wiry, 5 – 15 cm long, 3 – 4 mm thick, covered with brown to black scales; culms tetraquetrous, slender, 1.5 – 2.5 mm thick, greenish to pale yellowish, striated; sheath membranous, stramineous to purplish; outer sheath up to 3.5 cm long; inner ones 10 – 15 cm long, oblique at mouth. Spikelets solitary, terminal, straight, cylindrically oblong, 1.8 – 4.5 cm long, 2 – 3.5 mm in diameter, terete, acute, densely many-flowered, pale yellowish; rachilla persistent; bracts glume-like, 3 – 5 mm long. Glumes imbricate, all fertile, 4 or

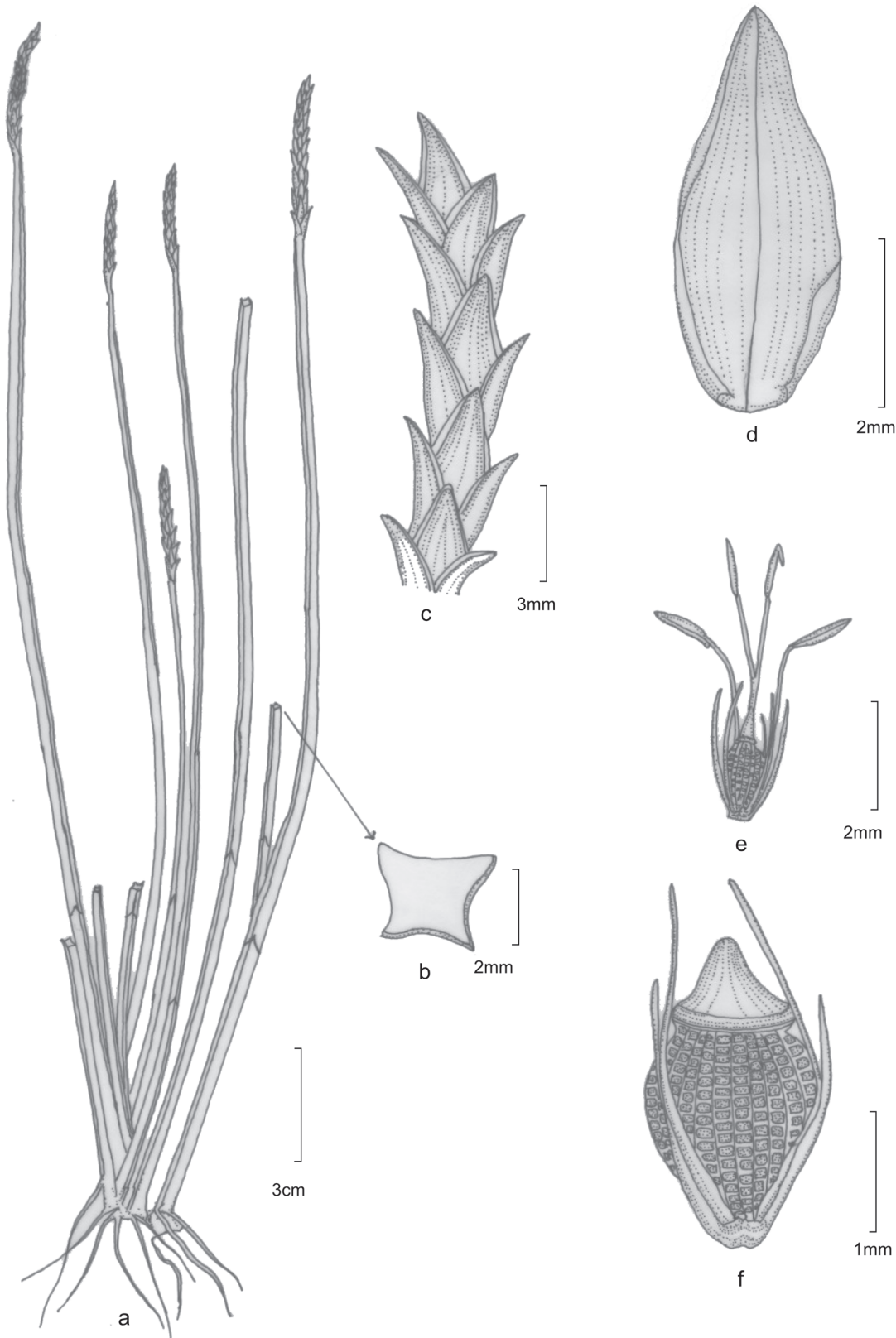


Figure 1. *Eleocharis wadoodii* S. R. Yadav *et al.*: a. Habit; b. T. S. of culm; c. Spike; d. Glume; e. Flower; f. Nut

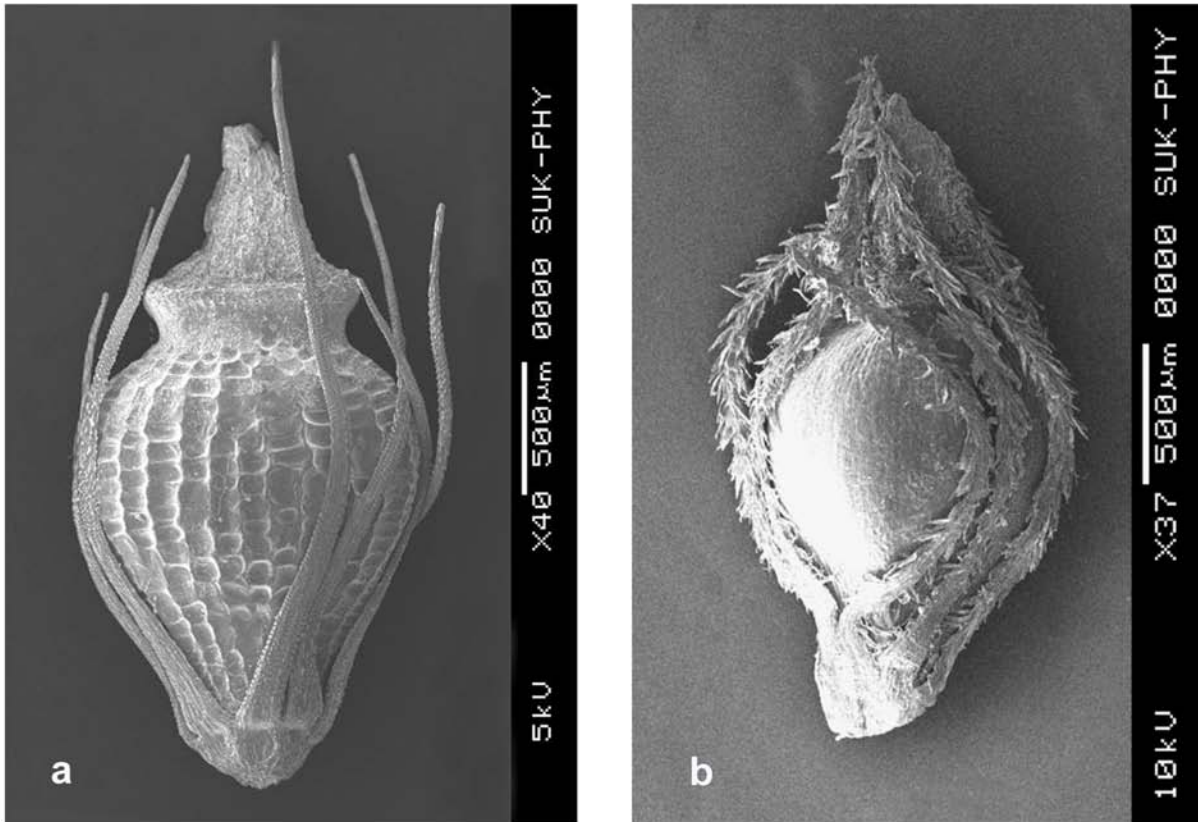


Figure 2. SEM Photographs of Nuts: a. *Eleocharis wadoodii* S. R. Yadav et al.; b. *E. tetraquetra* Nees

5-ranked, distinctly wider than the culms, ovate-lanceolate, $4.5 - 5.5 \times 1.7 - 2.4$ mm, subflat, cartilaginous, closely imbricating except the loose spreading tips, convolute when dry giving subsquarrose appearance to spikelets, $\frac{1}{2}$ overlapping, acute, not keeled, scarious along margins, nerved; midnerve conspicuous, ending below the apex; side nerves many, fine. Hypogynous bristles 6 or 7, unequal, 4 or 5 as long as nut; 1 or 2 slightly overtopping the conical style base, smooth (under low magnification), linear, slender, flat, gradually narrowed upwards, slightly connate at base, stramineous to pale yellowish, 2 – 3.2 mm long. Stamens 2 or 3; anthers linear, 1.2 – 2 mm long, connective appendage minute. Style bifid, up to 3 mm long, glabrous, much dilated into a conical base; style-base articulate but persistent on the nut, c. 0.5 mm long, as wide as the narrowed annular apex, dark brownish, smooth; stigmas c. 3 mm long, minutely scaberulous. Nut turgidly biconvex (lenticular), suborbicular to obovate, $1.8 - 2.2 \times 1.1 - 1.3$ mm (excluding style-base), narrowed at base, constricted below the annular apex into a short neck, coarsely reticulate with 12 – 14 vertical series of isodiametric (rounded) hexagonal cells, appearing deeply pitted, pale brownish.

Eleocharis wadoodii S. R. Yadav, Lekhak et Chandore, *sp. nov.* is similar to *E. tetraquetra* Nees but differs in its stout smooth perianth bristles, bifid style and nut constricted at neck as against barbed bristles, trifid style and nut non-constricted at neck in later species.

Flowering & Fruiting: August – September.

Etymology: The species is named in honour of Dr. M. A. Wadood Khan, Department of Botany, Majalgaon College, Majalgaon, Beed District, Maharashtra, India, in recognition of his contribution to the Cyperaceae of Peninsular India.

Habitat: *Eleocharis wadoodii* grows along margins of big ponds in shallow waters in association with *E. acutangula* (Roxb.) Schult., *Iseilema antheophoroides* Hack., *Mnesithea veldkampii* Potdar & S. R. Yadav, *Crinum viviparum* (Lam.) R. Ansari & V. J. Nair and *Rotala* species. Of the two species of *Eleocharis*, *E. acutangula* grows in deeper water while *E. wadoodii* occupies shallow pond margins. During October, aerial parts of both the species dry up; the species perennate through under ground rhizomes and stolons and sprout in June with the onset of monsoon.

Note: *Eleocharis wadoodii* approaches apparently to the trigynous *E. tetraquetra* Nees (series *Multicaules*) but differs essentially from the latter by the 2-fid style, lenticular nut, different style-base and surface pattern of nut (Fig. 2).

Spikelets slightly wider than the culm, the cartilaginous glumes with a distinct midnerve, lenticular nuts and articulated style-base which is sharply differentiated from the nut point its association with Malesian *E. philippinensis* Svenson (series *Mutatae*). However, the characteristic smooth bristles, the coarsely reticulate nuts with 12 – 14 vertical series of cells and tetraquetrous stem suggests that the new species is not amply related to any of the digynous taxa of the genus *Eleocharis*.

In spite of our intensive search in similar habitats on various plateaus in northern Western Ghats, the species could not be located. It is apparently endemic to the type locality.

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