



New distributional record of *Eleocharis acutangula* (Roxb.) Schult. (Cyperaceae) for the State Flora of Gujarat from Sabarkantha and Arvalli districts, India

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Abstract

The present study found new distributional record of *Eleocharis acutangula*, a sedge from water logged area belonging to family Cyperaceae to the Gujarat state flora from Sabarkantha & Arvalli districts of North Gujarat Region. In addition to this key to the species of *Eleocharis* in Gujarat, description, flowering-fruitlet period, relevant citation and photographs are provided here for easy identification

Keywords: Arvalli, Cyperaceae, *Eleocharis acutangula*, North Gujarat, Sabarkantha.

Introduction

The Cyperaceae family ranks as the third largest among monocotyledons, comprising approximately 109 genera and about 5,500 species (Govaerts, 2007). *Eleocharis* R.Br., a cosmopolitan genus in this family, includes around 200 species (Gonzalez-Elizondo & Peterson, 1997; Mabberley, 2009), with 21 species reported from India (Prasad & Singh, 2002). During a floristic survey of wetlands in northeastern Gujarat (Sabarkantha and Aravalli districts), a population of an interesting *Eleocharis* species was encountered in Lebhori Pond, Talod Taluka, and subsequently in the Modasa region. Preliminary observations suggested it could be *Eleocharis acutangula* (Roxb.) Schult., a species previously undocumented in this part of Gujarat. This paper presents the taxonomic identification and distributional implications of this collection.

Materials and Methods

Specimens were collected during field surveys in 2023 from wetland habitats in Sabarkantha and Aravalli districts. Identification was carried out through critical morphological analysis and comparison with diagnostic keys and descriptions in standard floras (Shah, 1978; Wadoodkhan, 2015), supplemented by expert consultation. Herbarium sheets were prepared following the procedures outlined by Jain et al. (1977) and deposited in the Government Science College, Gandhinagar (Gujarat).

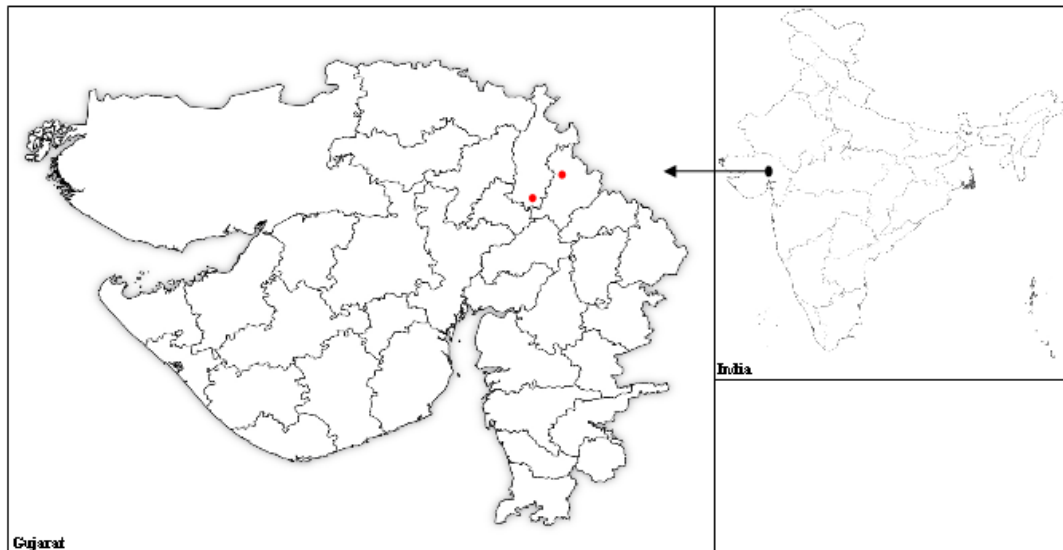


Figure 1: Location map of showing *Eleocharis acutangula* (Roxb.) Schult. in Aravalli & Sabarkantha Districts, Gujarat, India.

Results

Key to the species of *Eleocharis* R. Br. in Gujarat. (Shah, G. L., 1978)

- 1a Perennials.....2
 1b Annuals.....4
 2a Glumes sub rigid, smooth or striate, but not keeled, concolorous; stem usually stout; spikelet cylindrical; nut vertically striate.....3
 2b Glumes membranous with a green keel; stem slender; nut smooth.....*E. palustris*
 3a Stem terete, when dry transversely septate.....*E. ducis*
 3b Stem triquetrous, when dry not septate.....*E. acutangula*
 4a Style 2-fid, nut biconvex.....5
 4b Style 3-fid, nut trigonous.....*E. congesta*
 5a Hypogynous bristles glistening white; nut without faint vertical lines.....*E. atropurpurea*
 6a Hypogynous bristles brown; nut with faint vertical lines.....*E. geniculata*

Taxonomic description:

Eleocharis acutangula (Roxb.) Schlt. In Roem. & Schult., Mant. 2:91.1824; Kern in Steenis Fl. Malesiana 1.7(3):525.1974; Rao & Verma Cyper. NE India. 23.1982; Koyama in Dassan. & Fosb. Rev. Handb. Fl. Maharastra (Monocots):298.1996; Cook CDK. Aq. & Wetl. Pl. India :127.1998. W. Khan in Sivadasan & Mathew Biod. Tax. Conser, Fl. Pl. 308.1999 *Scripus acutangulus* Roxb., Hort. Beng. 81.1814, et Fl. Ind. 1:216.1820. *Scripus fistulosus* Poir., Ency. 6:749.1804. *Eleocharis fistulosa* (Poir.) Schult. R. & S. Mant. 2:89.1824; Clarke in Hooke f. Fl. Brit. India 6:626. 1893, non Forsk. 1775; T. Cooke, Fl. Pres. Bombay 2:888.1908. Fischer in Gamble Fl. Pres Madras (1931) 3:1640 (repr. ed) 1994.

Perennial with short rhizome; stolon long, 2-3 mm thick, rooting at nodules; stem triquetrous, 30-75 cm long, 3-5 mm thick, solid not transversely septate. Leaf sheaths membranous, 5-17 cm long, oblique at mouth, purplish towards base. Spikelet cylindrical, acute at apex, 1.5-3.5 cm long, as broad as the stem, many flowered. Glumes comparatively loosely imbricate, broadly oblong or oblong-ovate, obtuse-acute at apex, 4.5-3 mm, not keeled, scarious towards margins; mid-vein prominent with many faint veins on both sides. Hypogynous bristles 6, linear, slightly broader towards apex, ca 2.5 mm long, subequal, as long or slightly exceeding the nut, retrorsely scabrid. Stamens 3; anther linear-oblong, ca 2 mm long, connective appendage very minute, dark brown. Style 3-fid, with ca 0.5 mm long conical base. Nut obovoid, slightly compressed, constricted to a conspicuous neck below the apex, ca 2 × 1.5 mm, yellowish-brown, with persistent style base dark brown; epidermal cells conspicuous, in ca 15 vertical rows on either face, transversely oblong.

Flowering – Fruiting: July-October.

Specimen examined: Lebhon Pond, Talod, Sabarkantha District, Gujarat (GPS coordinate: 23°20'02.0" N - 72°57'13.3" E) (Collector –Tarun Nayi, Collection date: 30th Sept., 2023). Rakhial, Modasa, Arvalli District,

Gujarat (GPS coordinate: 23°30'22.7" N - 72°15'45.7" E) (Collector – Urvish Patel & Trupesh Revad, Collection date: 24th Oct., 2023).

Distribution: Nepal, Myanmar, China, Sri Lanka, Malaysia, Cambodia, Laos, Philippines, Japan, Tropical Africa, Madagascar, America and Australia, India: Andaman and Nicobar Islands, Punjab, Rajasthan, Uttar Pradesh, Madhya Pradesh, West Bengal, Assam, Maharashtra, Karnataka, Andhra Pradesh, Kerala and Tamil Nadu, Gujarat: Central Gujarat, South Gujarat and now in North Gujarat also.

Habitat: Shallow stagnant water in ditches and margin of ponds.

Status in Gujarat: Very rare. (Shah, G. L., 1978)

Discussion

The collected specimens were conclusively identified as *Eleocharis acutangula* (Roxb.) Schult., based on key diagnostic traits including triquetrous, non-septate stems and specific nut morphology. Prior to this study, the species was recorded only from Central Gujarat (Sabnis, 1967) and South Gujarat (Parabia, 1974). Our findings mark the first confirmed record of *E. acutangula* in the northern region of Gujarat. Notably, Punjani (2015) had previously misidentified a specimen collected from the Meshwo River near Padusan Plain as *E. acutangula*, which was later confirmed to be *E. geniculata* (L.) R. & S., highlighting the importance of rigorous morphological verification. A comprehensive review of regional floras and checklists (Parmar, 2012; Raghavan, et al., 1981; Saxton, 1922; Saxton & Sedgwick, 1918; Yogi, 1970) yielded no prior records of this species in North Gujarat, reinforcing the significance of this new record.



Figure 2: *Eleocharis acutangula* (Roxb.) Schult.: (a.) Habit; (b.) Culms with spikelets; (c.) Glume, adaxial view; (d.) Glume, abaxial view; (e.) Nut.

Conclusion

The present study establishes the first confirmed occurrence of *Eleocharis acutangula* in North Gujarat. This addition to the regional flora underscores the importance of continued wetland biodiversity assessments in underexplored regions of the state. *Eleocharis acutangula* (Roxb.) Schult.: (a.) Habit; (b.) Culms with spikelets; (c.) Glume, adaxial view; (d.) Glume, abaxial view; (e.) Nut.

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