



Taxonomic study of Genus *Cyperus* Linn., from Sudhakarnagar Hill near Satara, Chhatrapati Sambhajinagar District, Maharashtra.

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Abstract

The paper gives an account of sedges of the Sudhakarnagar hill, Chhatrapati Sambhajinagar district. A total of 5 species under the genus *Cyperus* were collected and identified during the year 2019 for the first time. The taxonomy and distribution of genus *Cyperus* in Sudhakarnagar Hill, Chhatrapati Sambhajinagar are clarified through notes on description, distribution, specimen examination, identification keys and photographs.

Keywords: - *Cyperus*, Cyperaceae, Sudhakarnagar Hill, Chhatrapati Sambhajinagar.

Introduction

The Cyperaceae are represented by 70-80 genera and 4000 species distributed throughout the world. In India, it has 28 genera and over 500 species and stands eighth in sequence of dominance with respect to number of species. *Cyperus* is the second largest genus of the sedges (Cyperaceae). In study region Cyperaceous the plants of which are identified as one of the most Sudhakarnagar hill near Satara in Chhatrapati Sambhajinagar. A total of five species were identified belonging to *Cyperus* were collected from Sudhakarnagar Hill. Five species of *Cyperus* genus on the basis of based on morphological variations. The *Cyperus* species are herbaceous plants and mostly used as fodder.

Methods

Collection and identification of samples

Plant explorations were carried out at Sudhakarnagar hill near Satara between July 2017 and February 2019. The wetlands around these areas were frequently visited and fruit samples were collected. The fruiting individuals were collected, pressed, dried, mounted and deposited at the Cyperaceae Herbarium, Sundarrao Solanke College, Majalgaon, Dist. Beed. Specimens were identified by reference to the literature (Fischer C. E. C. 1931; Cook, T. 1908; Lakshminarshiman P.1996; Prasad V.P. & Singh N. P. 2002; Wadoodkhan M. A. 1982. 1998, 2015.) And by comparing them to specimens from various herbaria. The stem, leaf, and nut morphologies were observed under a zoom stereomicroscope.

Key to the Species of *Cyperus*

- 1a Spikelets digitate, stellately radiating on much shortened or condensed rhachis of spikes forming clusters, (sometimes solitary ones often added) or inflorescence capitate..... **C. difformis**
- 1b Spikelets spicately arranged at some distant from one another upon a more or less elongated rhachis. **2**
- 2a Rhachilla distinctly winged; sides of glumes nerved or nerveless. **3**
- 2b Rhachilla of spikelets wingless; sides of glumes often nerved, (except *C. iria*) **4**
- 3a Plants leafless or leaves reduced to bladeless sheaths, rarely with short 5-7 cm long solitary blade. **C. sariosus**
- 3b Plants leafy. **C. rotundus**
- 4a Rhachis of spike scabrid pilose, sides of glumes 1-2 nerved; wing of the keel scabrid-pilose on the back. Spikes and secondary rays erect or spreading, not drooping. **C. alulatus**
- 4b Rhachis of spike smooth; sides nerveless; wing of the keel if present smooth. Spikes secondary rays, often drooping at least in well-developed inflorescence. **C. iria**

Cyperus alulatus Kern. In Reinwardtia 1(14): 463.1952; W. Khan in Ind. Bot. Repr. 1(1):52.1982, et in Naik Fl. Marathwada 2:919.1998. Karthik. et al, Fl. Indic. En. Monocots. 43.1989. L'narsimhn in Sharma et al Fl. Maharashtra (Monocots) 2:278.1996; Cook CDK. Aq. & wetl. Pl. India: 103.1996; Prasad & Singh in sedge. Karnataka (Fam. Cypr.): 75.2002.

Tufted annuals, 15-60 cm. tall; stems trigonus, 1-3 mm wide (rarely filiform) Leaves sheath glabrous, blades linear, 3-4 mm wide, often crowded at the base or 1-2 subcauline, above the base green or yellowish, shorter to as long as the stems. Inflorescence: compound or subdecompound; involucre bracts 5-7, the longest up to 25 cm long; much overtopping the inflorescence; secondary rays with sessile or peduncled spikes; spikes calandric, 1.5- 4 x 1-4 cm with many spikelets, often subtended by setiform bracteoles. Spikelets linear, 4-10 x 1.5-2 mm, subcompressed, greenish or yellow; rhachilla wingless. Glumes broadly ovate or suborbicular, 1.5-1.7 x 1.5-1.7 mm, strongly keeled; keel 3-nerved, with a rib-like lateral nerve on either side of the mid nerve, with antorsely scabrid wing on the back; sides with 1-2 nerves, often yellowish or greenish-hyaline; apex obtuse, apiculate. Stamens 2, anthers linear, muticous. Nuts trigonous, obovoid, 1-1.5 mm long, almost as long as the glume, smooth.

Very common, in rice-fields, ponds, along road sides.

Fls & Frts: - September to December.

Specimen examined:- Maharashtra State, Chhatrapati Sambhajnagar District, Sudhakarngar near hill, Solanke S.N. 1249.

Cyperus difformis L. Cent. Pl. Part. 2:6.1756 et Amoen Acad. 4:302.1788; Clarke in Hook. Fl. Brit. India 6: 599.1893. W. Khan in Indian. Bot. Repr. 1(1):53.1982; W. Khan in Naik Fl. Marathwada 2:927.1998; Prasad & Singh in sedge. Karnataka (Fam. Cypr.): 88.2002.

Densely tufted annual, 10-50 cm tall; roots fibrous, often purplish, stem triquetrous almost winged with concave faces at least below the umbels somewhat weak. 1.5 - 4 mm wide, Leaves: sheaths glabrous, membranous, rather spongy below; blades linear, 5-7 mm wide, flat, usually shorter than stem, long acuminate. Inflorescence: compound, involucre bracts 3-4, much overtopping the inflorescence; primary rays 4-6, 2-4cm long. Spikelets linear- oblong 4-6 x 1.3 mm, subcompressed, very slender, green, tinged with brown; rhachilla wingless. Glumes suborbicular, boat shaped, thinly membranous, 3 nerved keel; lateral nerves very distinct sides nerveless, hyaline, tinged with brown apex apiculate. Stamens 2; anther elliptic,

minute muticous, Nuts triquetrous, ellipsoid, 0.4- 0.6 mm long almost as long as the glumes, smooth, apiculate, style 3 - fid, as long as the nuts, glabrous.

Common in marshes of pastures, margins of tanks, marshes along road sides.

Fls & Frts: - October to January.

Specimen examined: -Maharashtra State, Chhatrapati Sambhajnagar District, Sudhakarngar near hill, Solanke S.N. 1210.

Cyperus iria L. Sp. Pl. 45.1753. Clarke in Hook. f. Fl. Brit India 6:606.1893 W. Khan in Ind. Bot. Reprt. 1(1):53.1982; et al, in Naik Fl. Marathwada 2:931.1998; Koyama in Dassan. & Fosb. Rev. Handb. Fl. Ceylon 5:196.1985; Karthik. et al, Fl. Indic. En. Monocot. 45.1989; L'narsimhn in Sharma et al Fl. Maharashtra (Monocots) 2:287.1996.

Simple annual, 20-60 cm tall; stems trigonous, 1-2 mm wide, slender to rather robust, rigid. Leaves: sheaths glabrous membranous; blades linear, 4-5 mm wide, often basal, as long as or shorter than the stems, long-acuminate Inflorescence : simple to compound, involucre bracts 4-5, 2-3 the longest 10-20 cm long, much overtopping the inflorescence; primary rays 3-6, slender, 4-9 cm long; secondary rays basset with spikes and spikelets near to the base; spikes cylindrically-oblong dense or loose, much longer than broad, with many spikelets, long, setaceous bracteoles. Spikelets linear-oblong, 7-10 x 1-1.5 mm, greenish-yellow; rhachilla wingless. Glumes broadly ovate or suborbicular, 1.4-1.6 mm long, almost equally broad, very distantly disposed, erect, strongly keeled; keels 3-nerved, with strong lateral nerve on either side; sides nerveless, yellow or orange-yellow, obtuse at apex, muticous. Nuts triquetrous, obovoid, as long as the glumes, with somewhat concave faces, smooth, stipitate; styles 3-fid, very short or obscure.

Common, marshes along road sides.

Fls & Frts - September to December.

Specimens examined: - Maharashtra State, Chhatrapati Sambhajnagar District, Sudhakarngar near hill, Solanke S.N. 1225.

Cyperus rotundus L. Sp. Pl. 45. 1753; Clarke in Hook f. Fl. Brit. India 6: 614.1893. T. Cooke fl. Pres. Bombay 2:859.1908. Kern In Steenis, Fl. Malesiana 1.7(3):604, f. 49.1974; Naik, Fl. Osmanabad 357.1979; W. Khan in Ind. Bot. Reprt. 1(1):53.1982; Lakshminarshiman in Sharma et al Fl. Maharashtra (Monocots) 2:293.1996; W. Khan in Naik Fl. Marathwada 2:938.1998.

Rather slender perennial, 30-50 cm tall; stolons slender, wiry ending in ellipsoid or sub-globose, more or less zoned tubers; stems slender trigonous, 1.5-2 mm wide, arising from tuberous base. Leaves: 3-6 mm wide, sheaths glabrous, stramineous or pale yellowish-brown, loosely distichous; blades linear. Inflorescence: compound, or subdecompound; involucre bracts 4-5, the longer ones often much overtopping the inflorescence, spreading, spikes ovoid, with 8-10 spikelets. Spikelets linear, 1-2 cm x 2 mm, compressed, erect, pale to dark reddish-brown, acute; rhachilla broadly winged. Glumes elliptic-oblong, 3.5-4 x 2 mm, 5-7 nerved, closely imbricated; acute or subacute, keel with 3-nerves ending little below the apex, reserved at the tips; sides with 1-2 nerves on either side close keel; margins narrowly hyaline; acute or sub-acute at apex. Stamens 3; anthers linear, 2 mm long with reddish appendage at the tips. Styles 3-fid, longer than the nuts, glabrous. Nuts rarely developed, the immature ones acutely trigonous, ellipsoid 1.5 x 0.4 mm, smooth or faintly reticulate, greyish, apiculate, sessile.

Common, weed of agricultural fields, in marshes along the banks of water courses.

Fls & Frts: - September to December.

Specimens examined: - Maharashtra State, Chhatrapati Sambhajnagar District, Sudhakarngar near hill, Solanke S.N. 1249.

Cyperus scariosus R.Br. Prodr. 216.1810; Clarke in Hook. f. Fl. Brit. India 6: 612.1893. Kern In Steenis, Fl. Malesiana 1.7(3):607.1974. W. Khan in Ind. Bot. Repr. 1(1):53.1982. et in Naik Fl. Marathwada 2:940.1998.

Perennial, 20-100 cm tall; stolons slender, wiry, ending in globose or ovoid, blackish strong aromatic tubers; stems terete at least in the lower half, 1.5-4 mm wide, incrassate near the base, trigonous below the inflorescence, smooth. Leaves: reduced or if present, 2-6 cm by 1-2 mm, shorter than stem. Inflorescence: simple to subcompound, usually small, 4-8 x 3-5 cm, erect or nodding; involucre bracts very variable like the leaves, the lowest one erect, appearing as though continuation of the stem and pushing aside the small inflorescence; primary rays 3-6, filiform, erect. Spikes ovoid, 2-4 mm long with 3-6 spikelets, alternately and closely disposed; rhachis smooth. Spikelets linear, 1-2.5 cm by 1-1.5 mm, very slender, compressed, ascending, pale-brown, acute; rhachilla winged. Glumes ovate, 2.5-2.7 x 1.5 mm, remote, with 3-nerved keel ending conspicuously below the hyaline apex, sides faintly 2-3 nerved; margins broadly hyaline; apex obtuse. Stamens 3; anthers linear, 1 mm long with reddish appendiculate tips. Nuts trigonous, obovoid, 1.5 x 0.5 mm, smooth, orange-yellow, shortly stipitate. Style 3-fid, as long as or shorter than the nuts.

Common, in tanks, tanks, often in perennial water.

Fls & Frts - September to December.

Specimens examined: - Maharashtra State, Chhatrapati Sambhajnagar District, Sudhakarngar near hill, Solanke S.N. 1270.

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