

Chapter 15

Common sedges of Nayagarh district, Odisha, India

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Abstract: The present study documents the diversity of sedges (family Cyperaceae) in Nayagarh district of Odisha, India, based on an extensive field survey. Sedges are ecologically significant wetland plants that contribute to soil stabilization, nutrient cycling, and fodder resources. Systematic surveys conducted from July 2025 to September 2025 recorded 30 species belonging to 10 genera, with the genus *Cyperus* being dominant. Most species were concentrated in wetlands, moist grasslands, rice fields, and lake margins, reflecting the district's hydric landscape and seasonal monsoon influence. The documentation of lesser-known species such as *Actinoscirpus grossus*, *Eleocharis dulcis*, and *Fimbristylis ferruginea* highlights the need for habitat protection to conserve wetland biodiversity.

Keywords: Cyperaceae, Nayagarh, Odisha, wetlands, sedge diversity, field survey

Introduction

Sedges (family Cyperaceae) represent an important group of monocotyledonous plants found primarily in wetlands, riverbanks, moist grasslands, and rice agro-ecosystems (Barrett, 2013). Globally, the family includes about 5,600 species distributed across diverse habitats, serving as key components in ecological processes such as water purification, erosion control, and carbon sequestration (Taheri et al., 2021). In India, Cyperaceae is represented by approximately 610 taxa (Rameshkumar et al., 2022; Rahul et al., 2025), many of which are yet to be thoroughly explored in regional floras. Odisha, with its mosaic of wetlands, forested landscapes, and agricultural fields, provides suitable habitats for sedges. Nayagarh district, located in Odisha state, is characterized by an undulating topography, tropical monsoon climate, and fertile alluvial soils, creating ideal conditions for the growth of sedges. Despite their ecological (Barrett, 2013) and economic value (Simpson and Cecilia, 2001), sedges remain under-documented species. This study aims to systematically record the diversity, habitats, and distribution patterns of sedges in Nayagarh district to provide baseline data for future ecological monitoring and conservation planning.

Materials and methods

The field survey was carried out in Nayagarh district, Odisha, India between July 2025 and September 2025. The district comprises of forested uplands, paddy fields, seasonal wetlands, and riverine landscapes.



Figure 1: Habitat of *Eleocharis dulcis*



Figure 2: Habitat of *Cyperus distans*



Figure 3: Inflorescence of *Cyperus cyperoides*

Representative habitats included rice fields, lake margins, forest edges, moist grasslands, sandy wastelands, wastelands, and Mahanadi River banks. Plant specimens were photographed, collected, and identified using published literature (Saxena and Brahman, 1996). Vernacular names and habitat details were searched from different database (Kumar, 2025). The field data were compiled into a checklist with botanical names, vernacular/common names, and observed habitats.

Results and discussion

A total of 30 sedge species belonging to 10 genera were documented (Table 1). The genus *Cyperus* was the most dominant, with 15 species, followed by *Fimbristylis* (7 species), *Eleocharis* (1 species), *Abildgaardia* (1 species), and others. Notable species include *Actinoscirpus grossus*, a robust wetland sedge with high fodder potential, and *Eleocharis dulcis* which is known for its edible tubers. It was observed that wetlands and moist rice fields supported the highest species richness, hosting nearly 65% of the recorded species. Species such as *Cyperus difformis*, *Fimbristylis aestivalis*, and *Schoenoplectiella juncoides* were dominant in swampy paddy ecosystems, while *Bulbostylis barbata* and *Lipocarpha chinensis* were found in sandy wastelands. *Fuirena umbellata* and *Scleria terrestris* are observed in forest edges and near water bodies. Sedges play critical roles in soil binding, flood control, and nutrient retention. Their abundance in wetlands indicates good water retention but also reflects habitat vulnerability due to agricultural intensification, drainage, and invasive weeds.

Table 1: Common sedges of Nayagarh district, Odisha, India

Botanical Name	Vernacular Name	Habitat
<i>Abildgaardia ovata</i>	Marmari	Moist areas and wetlands
<i>Actinoscirpus grossus</i>	Santara	Rice fields and wetlands
<i>Bulbostylis barbata</i>	Bearded watergrass	Sandy disturbed areas
<i>Cyperus articulatus</i>	Guinea rush	River banks
<i>Cyperus brevifolius</i>	Green kyllinga	Moist grasslands
<i>Cyperus compactus</i>	Badoli	Watter logged areas or near wet agricultural lands
<i>Cyperus cuspidatus</i>	Coastal plain flatsedge	Sandy moist areas
<i>Cyperus cyperoides</i> (Figure 3)	Common flat Sedge	Disturbed wetlands
<i>Cyperus difformis</i>	Smallflower umbrella sedge	Wetlands
<i>Cyperus diffusus</i>	Dwarf umbrella sedge	Forest edges

<i>Cyperus distans</i> (Figure 2)	Piedmont flatsedge	Moist to wet areas
<i>Cyperus esculentus</i>	Tiger nut	Wet agricultural fields
<i>Cyperus haspan</i>	Dwarf papyrus sedge	Swampy lake edges and wetlands
<i>Cyperus imbricatus</i>	Shingle flatsedge	Wetlands and Rice field edges
<i>Cyperus mindorensis</i>	White water sedge	Moist areas
<i>Cyperus neochinensis</i>	Chinese flatsedge	Forest areas near streams and wetlands
<i>Cyperus platystylis</i>	Flat-style flatsedge	Lakes and river banks
<i>Cyperus polystachyos</i>	Manyspike flatsedge	Disturbed wetlands
<i>Eleocharis dulcis</i> (Figure 1)	Chinese water chestnut	Lakes and wetlands
<i>Fimbristylis aestivalis</i>	Summer fringe-rush	Wetlands and swampy grasslands
<i>Fimbristylis complanata</i>	Puerto Rico fimbry	Wetlands
<i>Fimbristylis dipsacea</i>	Harper's fimbry	Moist sandy soil
<i>Fimbristylis ferruginea</i>	Rusty sedge	Coastal wetland
<i>Fimbristylis schoenoides</i>	Ditch fimbry	Grasslands
<i>Fimbristylis tenera</i>	NIL	Wetlands
<i>Fimbristylis tetragona</i>	Angled-stem fimbry	Wetland and swampy areas
<i>Fuirena umbellata</i>	NIL	Lake edges
<i>Lipocarpus chinensis</i>	NIL	Moist wastelands
<i>Schoenoplectiella juncoides</i>	Rock bulrush	Swampy wetlands
<i>Scleria terrestris</i>	Ground nut-rush	Wet forest edges

Conclusion

This field survey presents the first comprehensive checklist of sedges from Nayagarh district, documenting 30 species across diverse wetland and grassland ecosystems. The dominance of *Cyperus* and *Fimbristylis* species highlights the ecological importance of seasonal wetlands and rice agro-ecosystems. Given the increasing threats of wetland degradation, land-use change, and climate variability, urgent conservation measures, including habitat

restoration, awareness programs, and long-term ecological monitoring, are recommended to protect the region's sedge diversity.

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