

## NEW RECORDS OF DESMIDS FROM MITHAMOIN HAOR IN KISHOREGANJ, BANGLADESH

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### Abstract

A total of 6 species of Desmidiaceae were recorded as new record from Mithamoin haor in Bangladesh. There are namely, *Staurastrum mucronatum* var. *subtriangulare* West & West, *Staurastrum platycerum* Joshua, *Stauroidesmus tortus* (Grobland) Teiling, *Cosmarium manomazum* P.M. Lundell, *Desmidium bailey* var. *caclatum* (Kirchn.) Nordstedt and *Spondylosium lundellii* var. *lundellii* Borge. After a careful and intense review on the list of desmids algae of Bangladesh, all these six species are found to be new addition, and they are described here for the first time in Bangladesh so far.

### Introduction

The algal communities of desmid are very common in different aquatic habitats of Bangladesh specially in many haors and baors. In the recent study on the aquatic communities of Mithamoin haor in Kishoreganj, the presence of desmids in the haor was observed from collected samples. After a detailed study of many samples under microscope, these species were identified and they are belonging to Desmidiaceae family. Following a critical verification, these 6 species of desmids were not reported from Bangladesh so far (Ahmed *et al.* 2007; Islam, 1970; Islam and Irfanullah, 2006) and found to be the new addition to the total species number so far reported from Bangladesh. The recorded species are belonged to the genera namely, *Staurastrum*, *Stauroidesmus*, *Cosmarium*, *Desmidium* and *Spondylosium*.

### Materials and Methods

The study samples were collected from Mithamoin haor of Kishoreganj District between April 2023 and March 2024. Plankton concentrates were obtained by filtering 100 liters of sub-surface water from Mithamoin haor through a plankton net with a 20 µm mesh size. The samples were preserved using Lugol's solution. Photomicrographs of the organisms were captured using a Nikon Optiphot microscope equipped with a UFX-11A unit and a Nikon FX-35WA camera (Japan). The relevant literature (Ahmed *et al.* 2007; Croasdale and Scott, 1976; Croasdale, 1957; Irene-Marie, 1938; Islam, 1970; Islam and Irfanullah, 2006; Ling and Tyler, 2000; Okada, 1934; Palamar-Mordvintceva, 1982; Prescott *et al.*, 1977; Scott *et al.*, 1965; West and West, 1903, 1907) used for species identification is listed in the taxonomic enumeration section provided below.

### Taxonomic enumeration

**Class: Zygnematophyceae; Order: Desmidiales; Family: Desmidiaceae**

**Genus: Staurastrum Meyen**

1. ***Staurastrum mucronatum* var. *subtriangulare* West & West (Fig. 1)**

(Croasdale, 1957; West and West, 1903; Palamar-Mordvintceva, 1982, P. 169, Pl. 38, Fig. 5)

Cell length 32-52 µm, width 28-48 µm, spines 6-10 µm. Cell wall smooth bearing granules, mucros. In vertical view, the cell exhibits bilateral symmetry with a subtriangular shape. Each

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semicell is broadly triangular with convex margins, and their apices are slightly extended, terminating in sharp mucros spine a defining characteristic of this variety. The isthmus, representing the central constricted region, is relatively narrow, separating the two semicells.

**2. *Staurastrum platycerum* Joshua (Fig. 2)**

(Palamar-Mordvintceva, 1982, P. 200, Pl. 47, Figs 1-2)

Cell length 34-36  $\mu\text{m}$ , width 40-55  $\mu\text{m}$ , spines 60-70  $\mu\text{m}$ . A bilaterally symmetrical desmid with inwardly curved, trapezoidal or triangular semicells. The semicells are broad at the base, tapering toward the pointed apices, often tipped with short processes. The narrow, well-defined isthmus separates the semicells, forming a central constriction typical of desmids. The cell wall is smooth and exhibit fine granulations.

**Genus: *Staurodesmus* Teiling**

**3. *Staurodesmus tortus* (Grobland) Teiling (Fig. 3)**

(Palamar-Mordvintceva, 1982, P. 155, Pl. 32, Fig.12)

Cell length 16-20  $\mu\text{m}$ , width 10-15  $\mu\text{m}$ ; spines 8-12  $\mu\text{m}$ . Plant small in size, semicell triangular from front view, spine like small process at each arm tip upwardly directed and sinus open. Its two semicells are elongated, slightly tapering at the apices, and symmetrically oriented in a spiral. The narrow and well-defined isthmus connects the semicells. The cell wall is adorned with granules or short spines, adding a unique texture.

**Genus: *Cosmarium* Corda ex Ralfs**

**4. *Cosmarium manomazum* P.M. Lundell (Fig. 4)**

(Ling and Tyler, 2000, P.174, Pl. 78, Figs 12-13)

Cell length 30-31  $\mu\text{m}$ , width 32-35  $\mu\text{m}$ , isthmus 13  $\mu\text{m}$ , thickness 18  $\mu\text{m}$ . Free living, cells are typically semicircular in lateral view, deeply constricted to form two symmetrical semicells with a narrow, well-defined isthmus. The semicells are circular to sub-hexagonal with smooth or slightly granular margins and fine undulations. Each cell contains two chloroplasts. The cell wall slightly granular.

**Genus: *Desmidium* C.A. Agardh**

**5. *Desmidium bailey* var. *caclatum* (Kirchn.) Nordstedt (Fig. 5)**

(Palamar-Mordvintceva, 1982, P. 571, Pl.160, Figs 6-7)

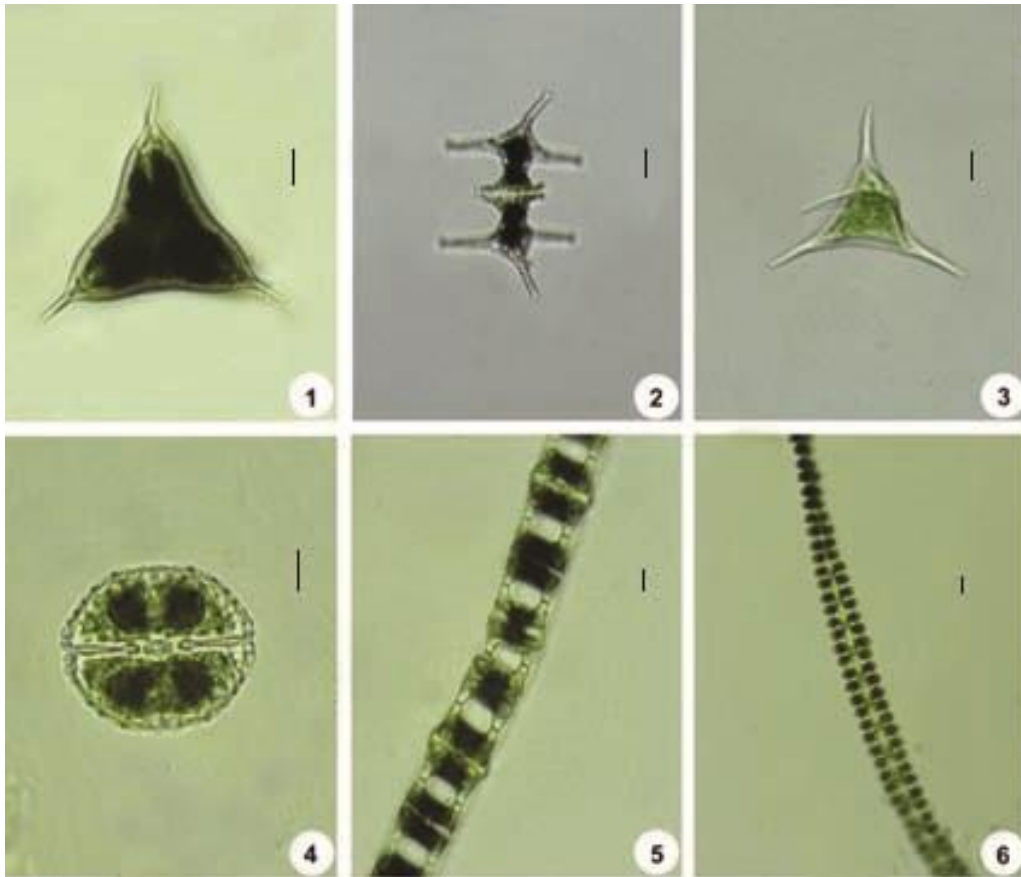
Cell length 15-16  $\mu\text{m}$ , width 20-23  $\mu\text{m}$ . Elongated, cylindrical cells arranged in linear, unbranched filaments with cells attached end-to-end. The cell wall is smooth or may have slight ornamentation, and the filaments are typically straight or slightly curved. The cell junctions have minimal constriction, giving the filaments a seamless appearance.

**Genus: *Spondylosium* Brébisson**

**6. *Spondylosium lundellii* var. *lundellii* Borge (Fig. 6)**

(Palamar-Mordvintceva, 1982, P. 549, Pl. 154, Figs. 1-4)

Cell length 19-20  $\mu\text{m}$ , width 20-23  $\mu\text{m}$ . Unicellular desmid cell forming filament like colony, flatten body with narrow or open sinus, unbranched filaments. The cells are narrow, often slightly curved or straight, and uniformly elongate without mid-region constrictions. Cells are united by apposition of their apices. The smooth, unornamented cell wall and parietal chloroplasts, often containing visible pyrenoids, characterize the species.



Figs 1-6. 1. *Staurastrum mucronatum* var. *subtriangulare* West & G.S. West, 2. *Staurastrum platycerum* Joshua, 3. *Staurodesmus tortus* (Grobland) Teiling, 4. *Cosmarium manomazum* P.M. Lundell, 5. *Desmidium bailey* var. *caclatum* (Kirchn.) Nordstedt, 6. *Spondylosium lundellii* var. *lundellii* Borge. (Scale= 10  $\mu$ m)

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