

## NEW RECORDS OF EUGLENOID ALGAE FROM SURMA RIVER IN BANGLADESH

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### Abstract

Eight species of Euglenophyceae from Surma river in Bangladesh are reported in this paper. The species are: *Euglena hyalina* Klebs, *E. robertilamii* Lefèvre, *Phacus gigas* Da Cunha, *P. pseudoplatalea* Pochm., *P. triqueter* (Ehr.)Duj. var. *oblonga* Shi, *Trachelomonas scabra* Playf. var. *labiata* (Teiling) H.-P., *T. spiculifera* Palmer, and *T. umbilicopora* Conradare. After a careful review on the list of euglenoid algae of Bangladesh, all these eight species are found to be new addition, and hitherto described here for the first time in Bangladesh.

### Introduction

The occurrence of Euglenoid algae are very common in different aquatic habitats of Bangladesh (Alfasane *et al.*, 2010, 2021a,b; Gani *et al.*, 2012; Alfasane and Khondker, 2007; Khondker and Alfasane, 2005; Islam and Alfasane 2002, 2003, 2004; Islam and Muniruzzaman, 1981). In a recent study on the algae of Surma river in Sylhet, a good number of samples showed the presence of euglenoid algae in this river. After a detailed microscopic observation, these samples were identified as belonging to eight species of the euglenoid algae of Bangladesh. Following a critical verification, these eight species were found to be new addition to the total species number so far reported for Bangladesh (Khondker 2022). The recorded species belonged to the genera namely, *Euglena*, *Phacus*, and *Trachelomonas*.

### Materials and Methods

The study materials were collected from the Surma River of Sylhet District between October 2021 and September 2022. Plankton concentrates were collected by sieving 100 L of sub-surface water samples of the Surma river through a plankton net having a mesh size 20 µm and preserved with Lugol's solution. Photomicrographic images of the organisms were taken with the help of a Nikon Optiphot, UFX-11A microscope with a Nikon FX-35WA camera, Japan. The relevant literature consulted to identify the species have been given in the taxonomic enumeration section as furnished below.

### Taxonomic enumeration

**Class: Euglenophyceae; Order: Euglenales; Family: Euglenaceae;**

**Genus: *Euglena* Ehrenberg**

**1. *Euglena hyalina* Klebs.**

(Huber-Pestalozzi 1955, Pl.16, Fig. 76a, Gojdics 1952, 178)

Syn. *Euglena ruttneri* Stein.

**(Fig. 1)**

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Cell length 128-159  $\mu\text{m}$ , breadth 7-14  $\mu\text{m}$ , cell elongated, rounded anterior tip, slightly curvy in the posterior side and sharply being a long tail, ornamented and arranged striations both side of the cell. Chloroplasts with pyrenoids arranged in definite patterns, caudus 18-25  $\mu\text{m}$ .

Collection no. S-4(2), 16.09.2022

**2. *Euglena robertilamii* Lefèvre (Fig. 2)**

(Gojdics 1953, Pl. 37, Fig. 6)

(Syn. *E. acusformis* Schiller)

Cell length 65-70  $\mu\text{m}$ , breadth 7-14  $\mu\text{m}$ , Cells elongate, fusiform, rounded to truncate anteriorly, ending in a blunt point posteriorly. Pellicle thin, very finely striated, colourless. Chromatophores numerous, discoid, moderately large, peripheral. Paramylon numerous rings of varying size.

Notes: The first report of this species obtained from Marine habitat of Saint Servan, France in 1933 with *Brachionomonas submarina* and *Platymonas tatrathale*.

It is a new record for Bangladesh. Collection no. S-5(2), 07.08.2022

**Genus: *Phacus* Dujardin**

**3. *Phacus gigas* Da Cunha (Fig. 3)**

(Huber-Pestalozzi 1955, Pl.45, Fig. 275)

Cell length 100-123  $\mu\text{m}$ , breadth 70-75  $\mu\text{m}$ , broadly oval flattened body, the anterior end rounded, the posterior end terminating in a long and thin bend sideways from the longitudinal axis with 26-30  $\mu\text{m}$  long tail. Longitudinal stripes present in the membrane and disc like chromatophores. Numerous and densely packed chromatophores in the central part rather rarer and more distant towards the outside. Paramylons present scattered in the protoplasm in the form of numerous ring-shaped bodies. Eye-spots found in front part of the cell.

Collection no. S-3(1), 16.09.2022

**4. *Phacus pseudoplatalea* Pochm. (Fig. 4)**

(Huber-Pestalozzi 1955, Pl. 40, Fig. 247)

Syn. *Phacus platalea* Drez. fa. *minor* Defl.

Cell length 58-68  $\mu\text{m}$ , breadth 26-30  $\mu\text{m}$ , broadly rounded anterior end ellipsoid body and posterior end sharply bend sideways with a short narrower pointed tip like cauda. Chromatophores and paramylons also found in the central part of the body.

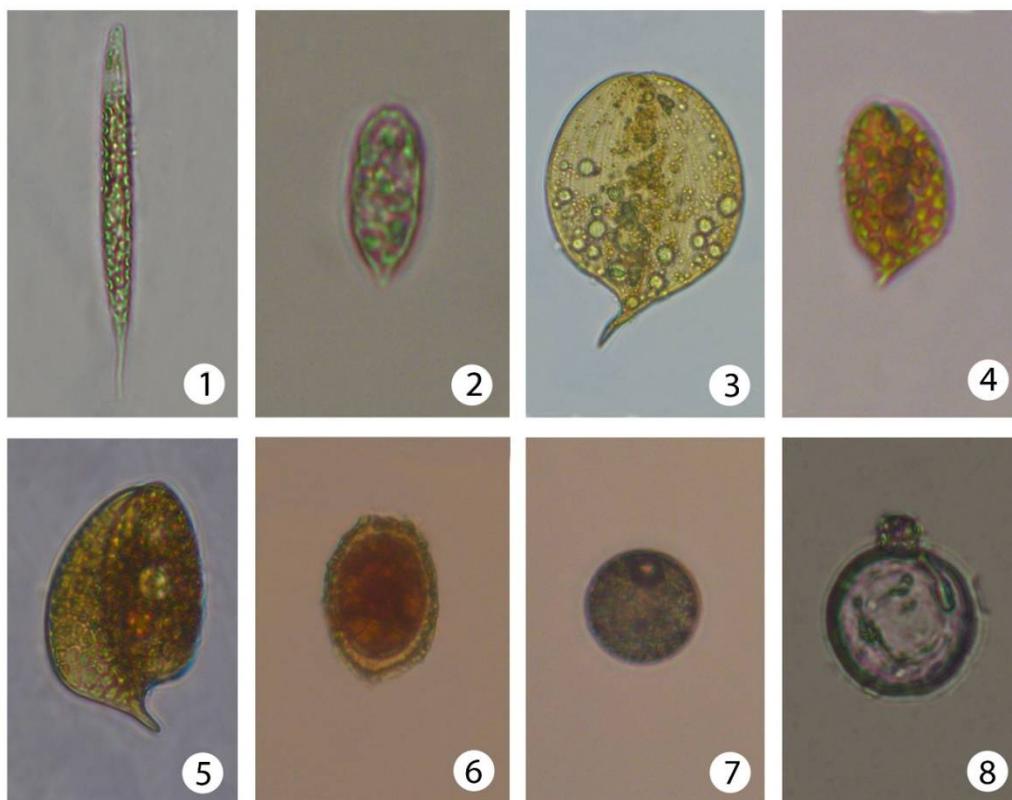
Collection no. S-4(2), 16.09.2022

**5. *Phacus triqueter* (Ehr.) Duj. var. *oblonga* Shi (Fig. 5)**

(Yamagishi and Akiyama, 1995, 15:67, 10.01.02)

Cells oblong to ovoid, dorsal surface with a longitudinal high flange and ventral one slightly concaved or nearly straight, low triangular with concaved lateral sides in apical view; anterior ends narrowly rounded; posterior ends broadly rounded with a cauda; cauda thin, long, slightly inwardly curved; periplast longitudinally striated, paramylon bodies one or two, large circular or ring like plate; cells 40-50  $\mu\text{m}$  in diameter at midregion, 55-60  $\mu\text{m}$  long without cauda; cauda 12-18  $\mu\text{m}$  long.

Collection no. S-2(3), 16.09.2022



Figs 1-8. 1. *Euglena hyalina* Klebs, 2. *E. robertilamii* Lefèvre, 3. *Phacus gigas* Da Cunha, 4. *P. pseudoplatalea* Pochm., 5. *P. triqueter* (Ehr.) Duj. var. *oblonga* Shi, 6. *Trachelomonas scabra* Playf. var. *labiata* (Teiling) H.-P., 7. *T. spiculifera* Palmer, 8. *T. umbilicopora* Conrad (Magnifications  $\times 400$ ).

**Genus: *Trachelomonas* Ehrenberg**

6. *Trachelomonas scabra* Playf. var. *labiata* (Teiling) H.-P. (Fig. 6)  
 (Huber-Pestalozzi 1955, Pl.70, Fig. 655A)  
 Syn. *Trachelomonas labiata* Teiling  
 Cell length 23-30  $\mu\text{m}$ , breadth 16-18  $\mu\text{m}$ , oval shaped, thicken cell wall, anterior side more or less rounded and posterior side slightly narrower and pointed. Condensed central part of the body.  
 Collection no. S-2(4), 01.08.2022
7. *Trachelomonas spiculifera* Palmer (Fig. 7)  
 (Huber-Pestalozzi 1955, Pl. 59, Fig. 424a)  
 Cell dia 25  $\mu\text{m}$ , more or less circular or ovoid shaped body. Rounded anterior side with pore surrounded by an annular thickening. Light brown in color.  
 Collection no. S-2(3), 01.08.2022

**8. *Trachelomonas umbilicopora* Conrad (Fig. 8)**

(Huber-Pestalozzi 1955, Pl. 59, Fig. 417)

Syn. *T. perforata* Awerinz var. *umbilicophora* (Conrad) Skv.

Round shaped cell with color. Breadth 24-26  $\mu\text{m}$ , collar 2-3  $\mu\text{m}$  in height. Membrane hyaline in color. Pore surrounded by an annular thickening and a distinct cylindrical collar which may be anterior end.

Collection no. S-4(3), 01.08.2022

In a recent review, Khondker (2022) has mentioned that the total species of Euglenophyta of Bangladesh is 254. By adding these eight newly added species, the total number of euglenoid species thus gives a figure of 262.

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