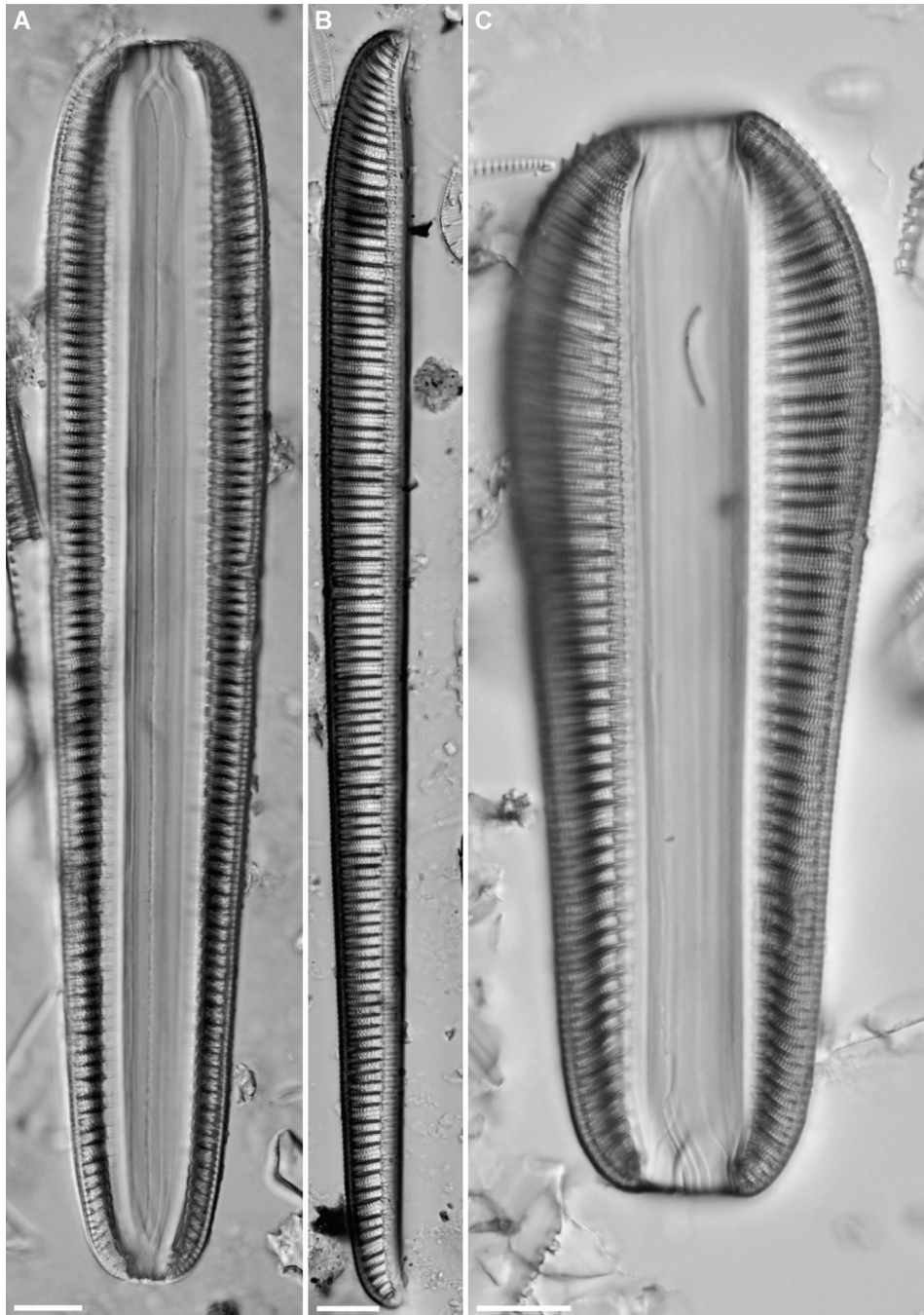
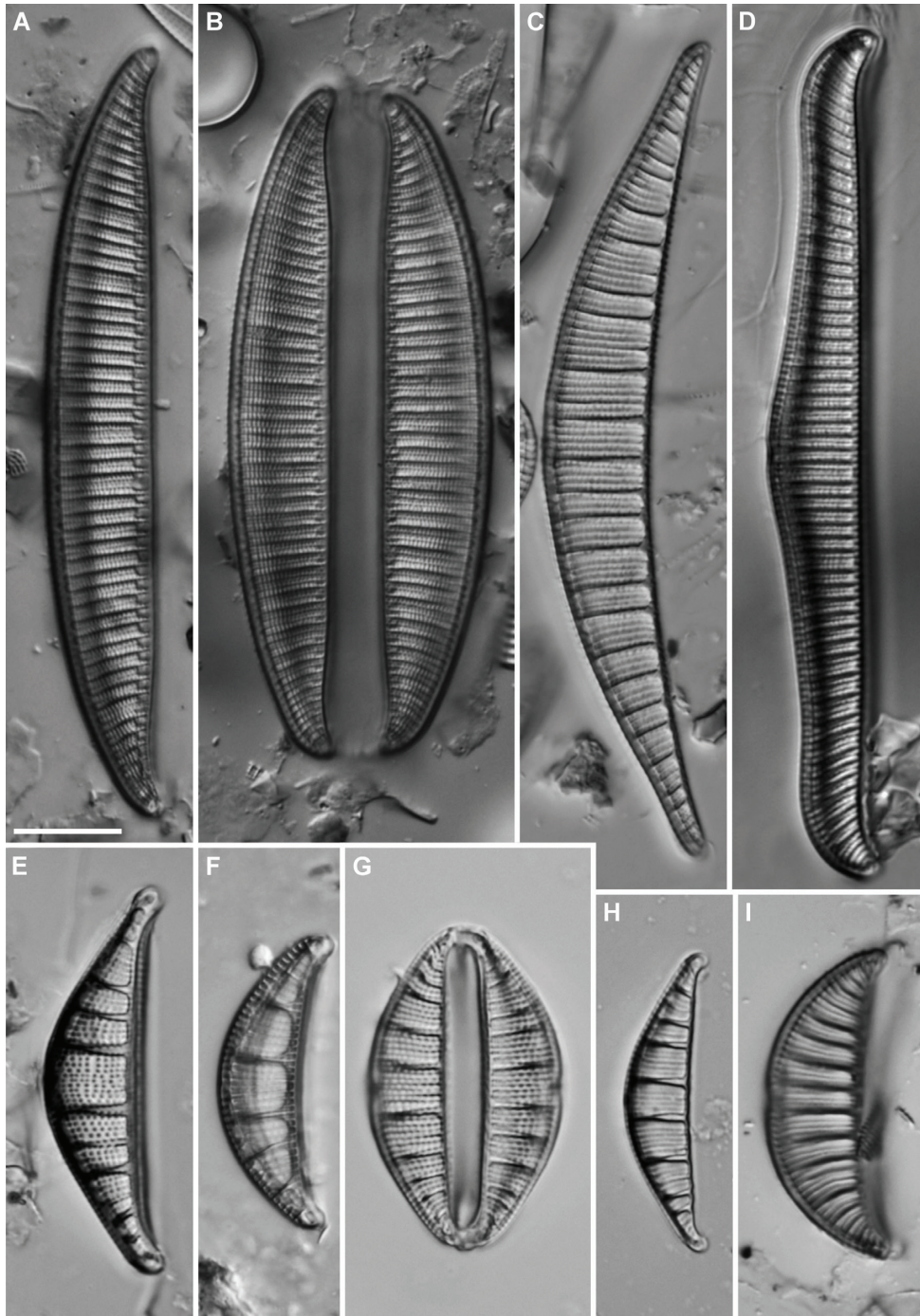


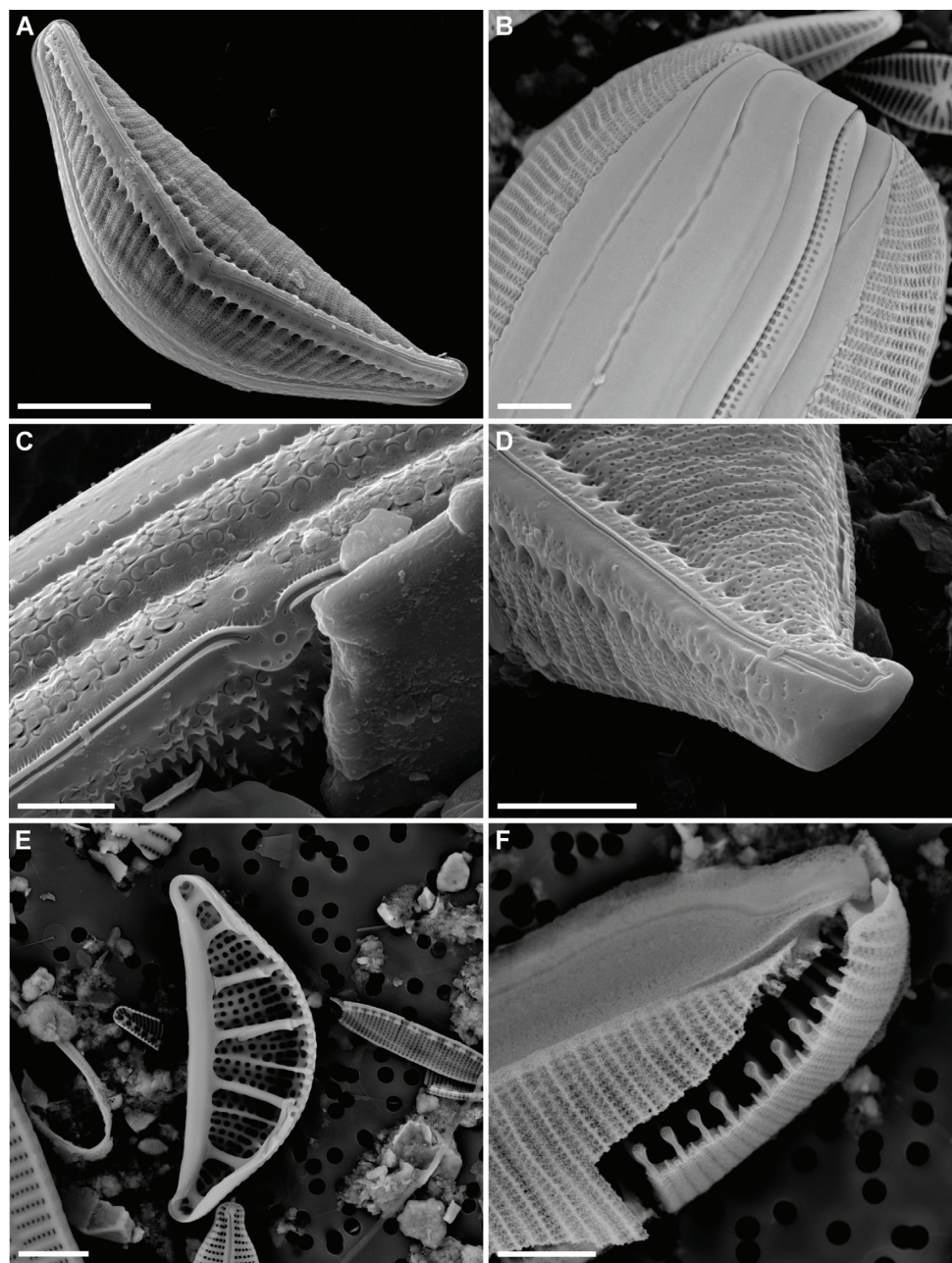
**Fig. 178.** *Rhopalodia* spp. **A-D.** LM, living cells. **A.** *Rhopalodia gibba*, valve view. **B-C.** *Rhopalodia gibba*, girdle view. **D.** *Rhopalodia* sp., girdle view, showing highly lobed plastid. Scale bars = 10  $\mu$ m.



**Fig. 179.** *Rhopalodia hirudiniiformis* O. Müller. **A-C.** LM, cleaned valves. **A, C.** Girdle view. **B.** Valve view.  
Scale bars = 10  $\mu$ m.



**Fig. 180.** *Rhopalodia* spp. **A-I.** LM, cleaned valves. **A.** Valve view. **B.** *Rhopalodia* sp., girdle views. **C.** *Rhopalodia* sp., valve view. **D.** *R. gibba*, valve view. **E-F.** *Rhopalodia* sp., valve views. **G.** *Rhopalodia* sp., girdle view. **H.** *R. gibberula* var. *vanheurckii* O. Müller, valve view. **I.** *Rhopalodia* sp., valve view. Scale bar = 10 µm.



**Fig. 181.** *Rhopalodia* spp. **A-F.** SEM. **A-D, F.** External views. **B.** *Rhopalodia hirudiniformis*, detail of girdle bands. **C.** Detail of central raphe endings. **D.** Detail of terminal raphe ending. **E.** Internal view of valve. **F.** broken valve showing the complex structure of the areolae.  
 Scale bar = 10 µm (A), 5 µm (B, E-F), 2 µm (C-D).

***Crucicostulifera*** J.C. Taylor & Lange-Bertalot 2010

Type species: *Crucicostulifera areolata* (Hustedt) J.C. Taylor & Lange-Bertalot

SYNONYM:

*Navicula* Bory 1822 pro parte

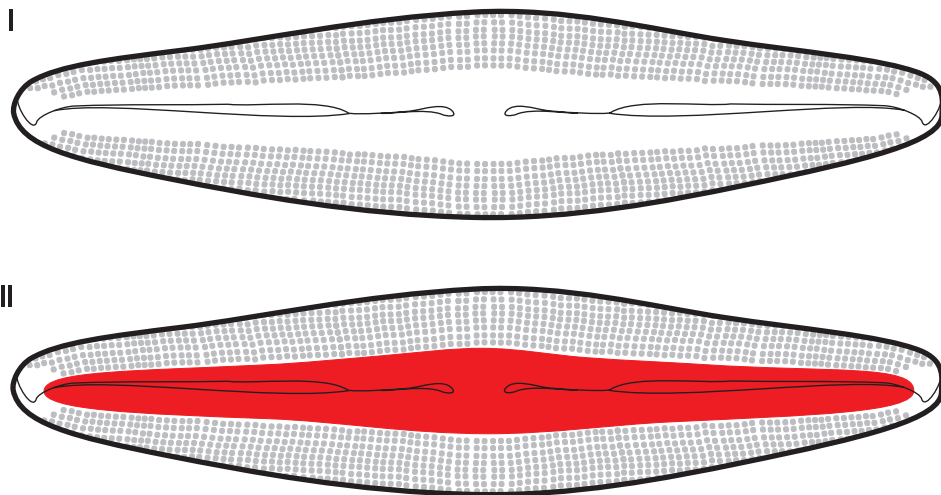
**Characteristics** – Cells **biraphid** with parallel striae through the length of the valve, areolae large, regularly arranged and easily observed under LM (Fig. 183: A-B).

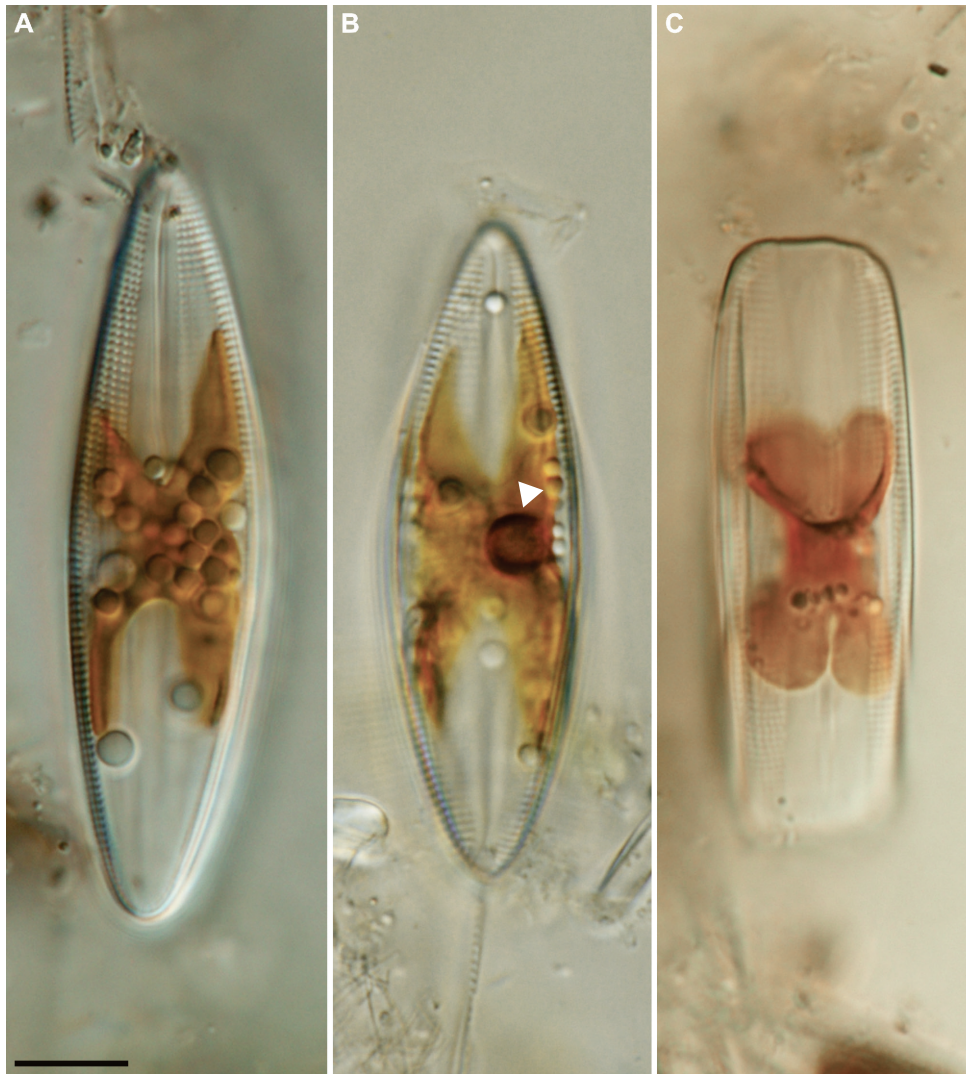
**Axial area** very broad (II; Fig. 183: A-B). Areolae have a typical X-shape when observed under SEM and are separated by transapical costae (Fig. 183: C-D).

**Plastid structure** – Cells with one H-shaped plastid and a large pyrenoid in the central area against one girdle. Several small lipid droplets scattered throughout the cell (Fig. 182).

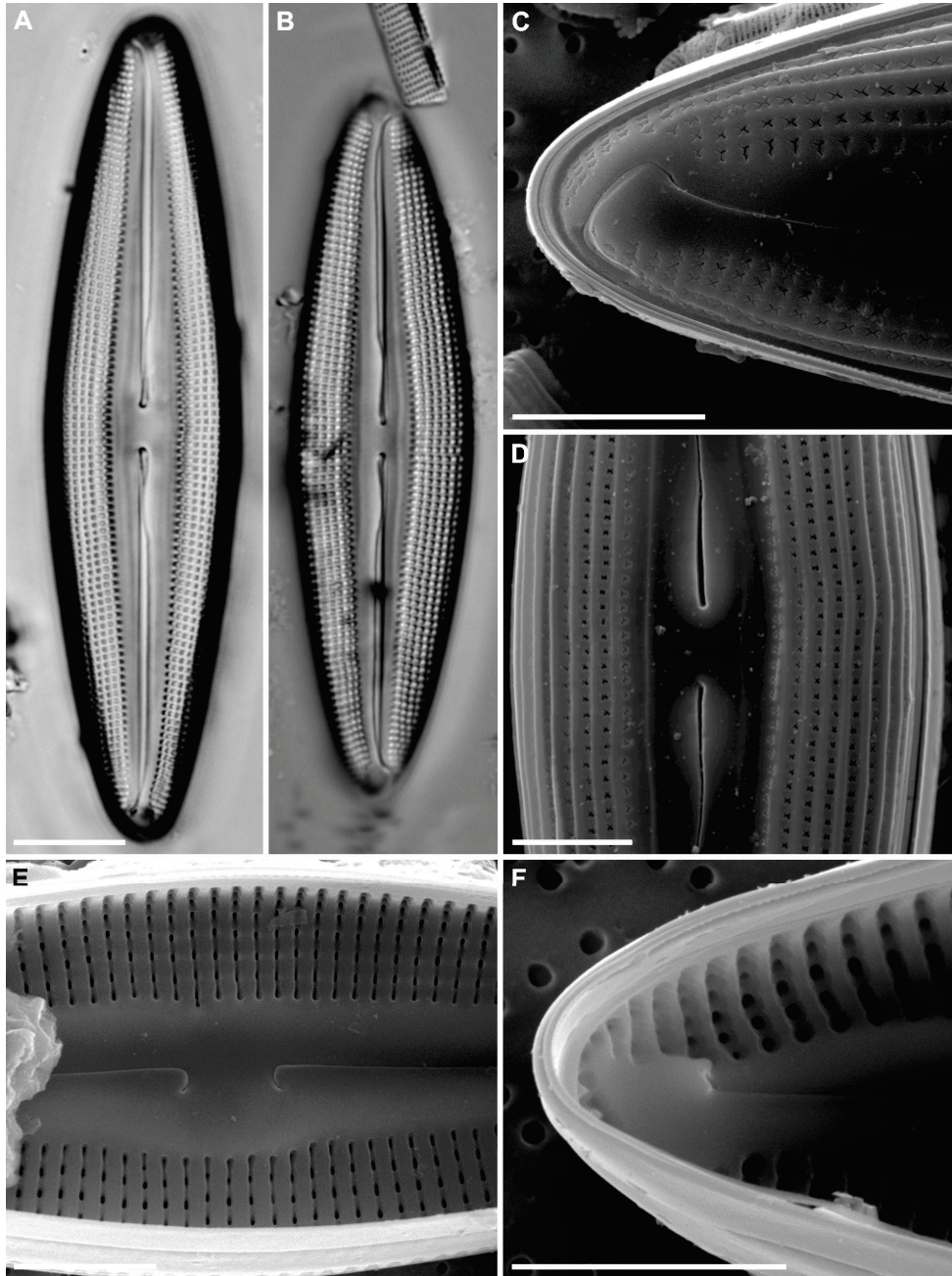
**Identification of species** – Up till now only one species known from tropical Africa: *Crucicostulifera areolata*.

**Ecology** – Cells solitary and motile. Found in the benthos of oligotrophic slightly acidic water and extending into moist habitats such as splash zones near waterfalls.





**Fig. 182.** *Crucicostulifera areolata*. **A-C.** LM, living cells, note H-shaped plastid and large pyrenoid (arrow - **B**). Scale bars = 10  $\mu$ m (A-C).



**Fig. 183.** *Crucicostulifera areolata*. **A-C.** LM, cleaned valves. **C-F.** SEM. **C.** Detail of external terminal raphe ending, note X-shaped areolae. **D.** Detail of external central raphe endings. **E.** Detail of internal central raphe endings. **F.** Detail of internal terminal raphe ending  
Scale bars = 10  $\mu$ m (A-B), 5  $\mu$ m (C-F).

## ***Campylodiscus* Ehrenberg ex Kützing 1844**

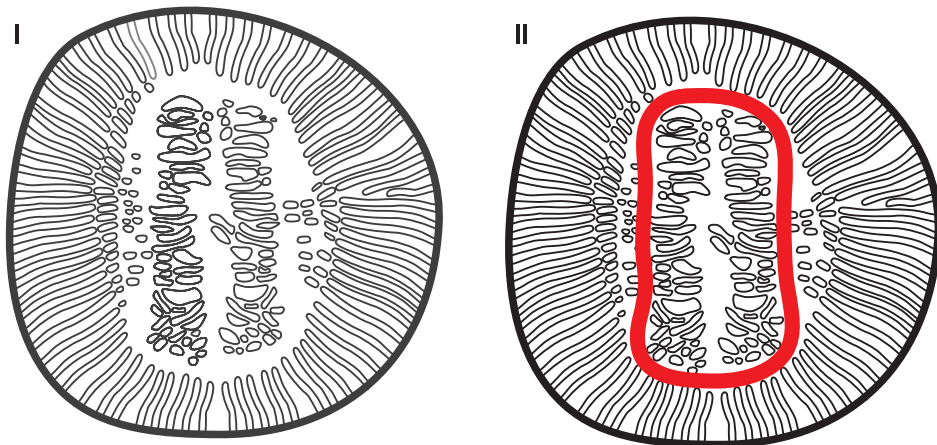
Type species: *Campylodiscus clypeus* (Ehrenberg) Ehrenberg ex Kützing

**Characteristics** – Cells **isopolar**, **biraphid**, saddle-shaped and very large. Concentric transapical valve undulations run parallel to the valve outline enclosing a (semi)circular area. Striae interrupted by a hyaline area (II). Raphe in a canal, raised on a keel above the valve (Fig. 184 F). This keel may be significantly higher than the valve face forming a wing. Open fenestrae sometimes present on the wing and in line with the depressions of the transapical valve undulations.

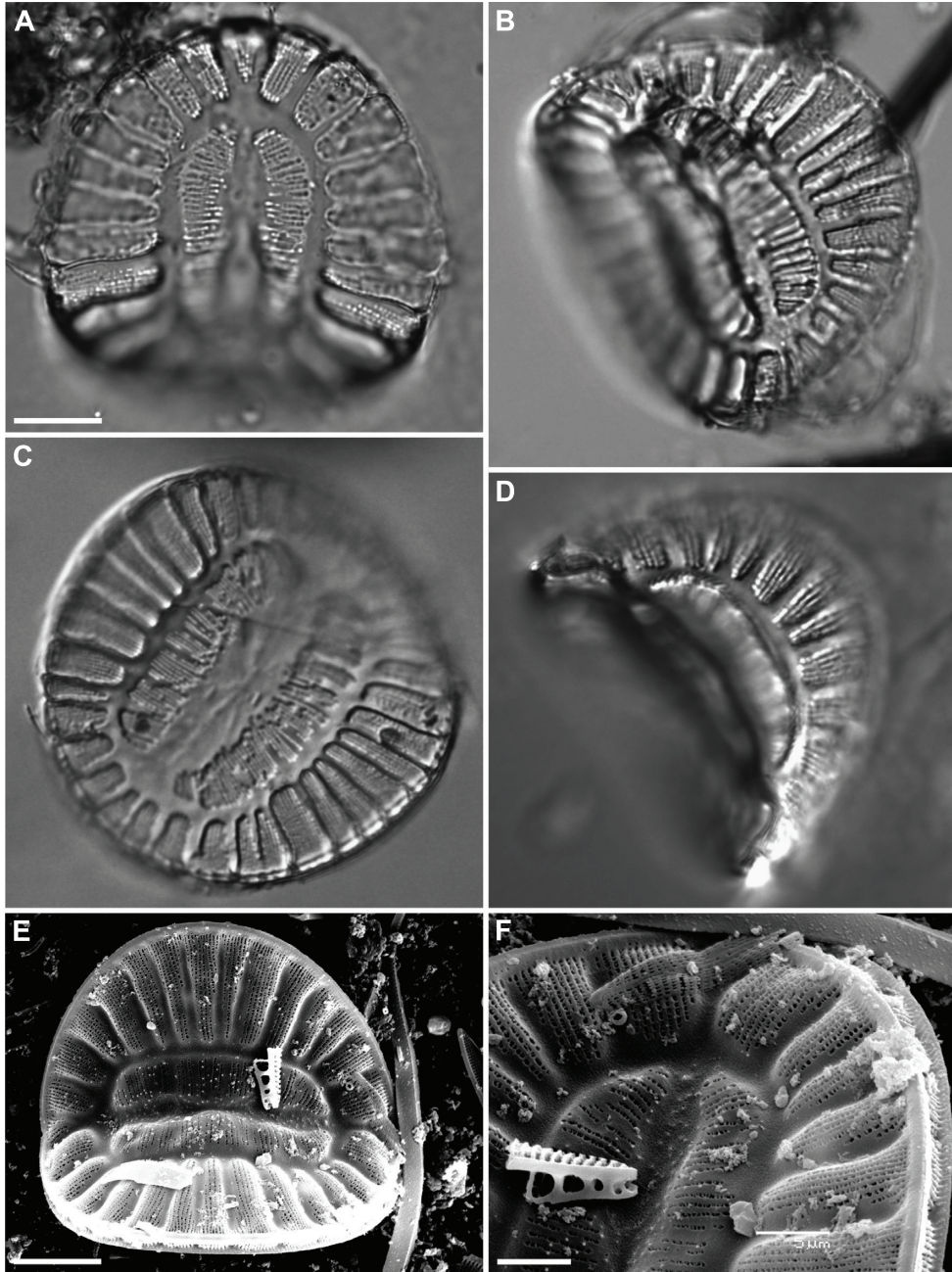
**Plastid structure** – Cells with one large lobed plastid.

**Identification of species** – Species can be identified by cell size, structure and density of the striae, and structure of the central region.

**Ecology** – Cells solitary, benthic, re-suspended in the plankton. Found in waters with moderate to high conductivity.







**Fig. 184.** *Campylodiscus clypeus*. **A-D.** LM. Cells at various angles and foci. **E-F.** SEM, external view of valve, note elevated keel bearing the raphe slit (arrow - F).

Scale bars = 10 µm (A-F).

***Cymatopleura*** W. Smith 1851

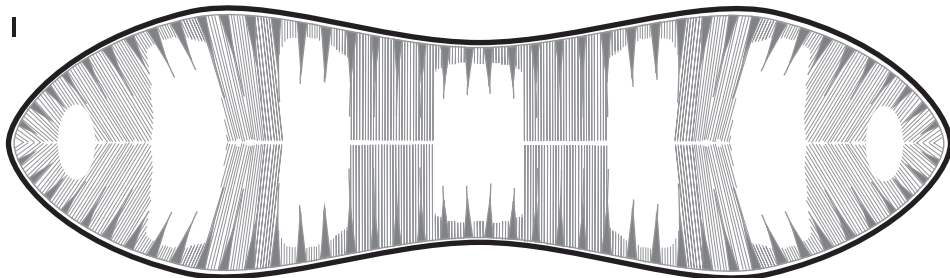
Type species: *Cymatopleura solea* (Brébisson) W. Smith

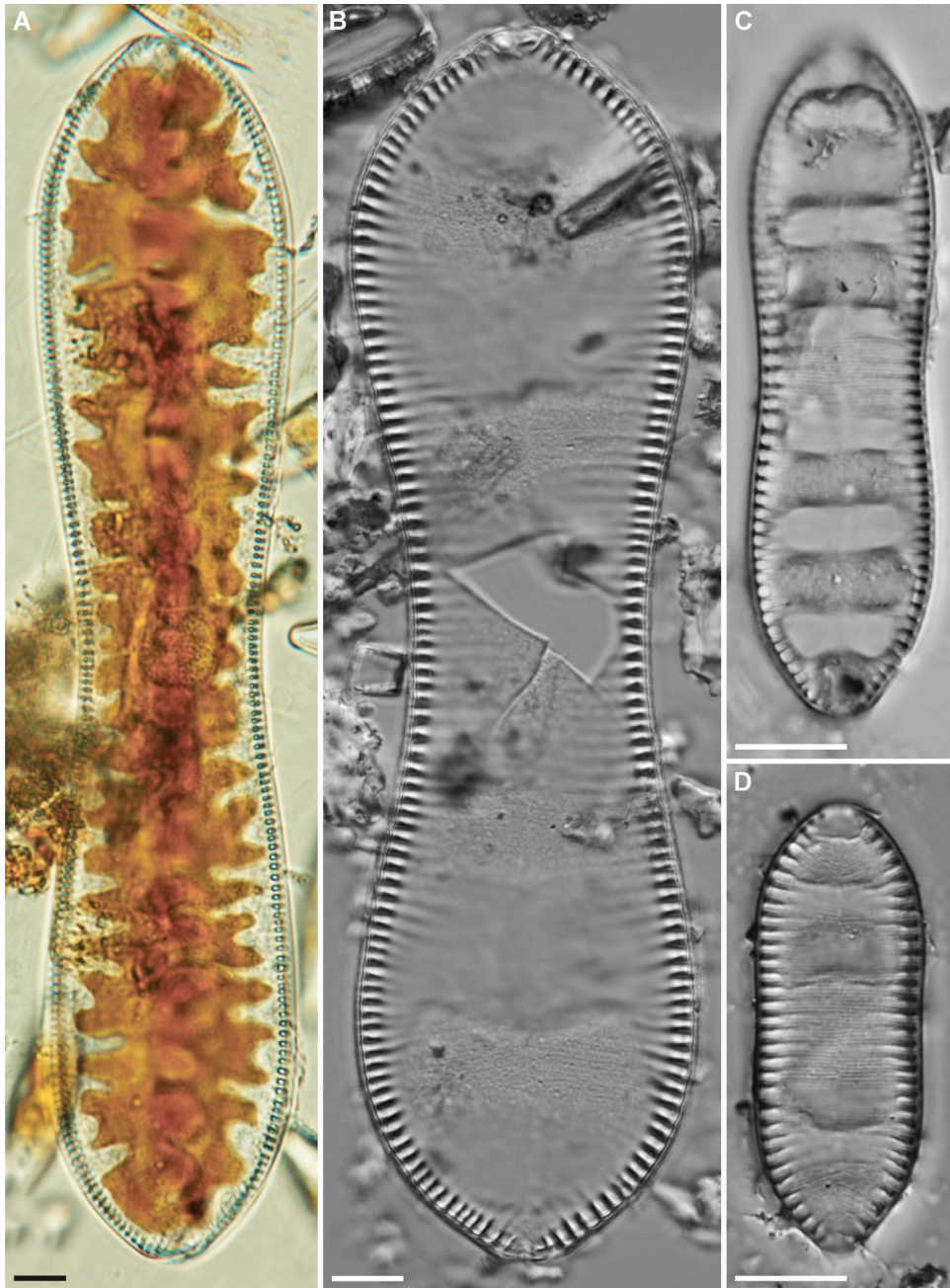
**Characteristics** – Cells **isopolar**, **biraphid**, large, elliptical, panduriform or linear with valve margins straight or constricted mid-valve. **Raphe** in a shallow **keel** on the entire circumference of the valve face supported by robust **fibulae** (Fig. 185: B-D; Fig. 186: D). Striae radiate, very fine, composed of small areolae which cannot be resolved using LM. Valve undulates in the transapical plane (Fig. 185: C, D).

**Plastid structure** – Cells with one large many lobed plastid (Fig. 185: A).

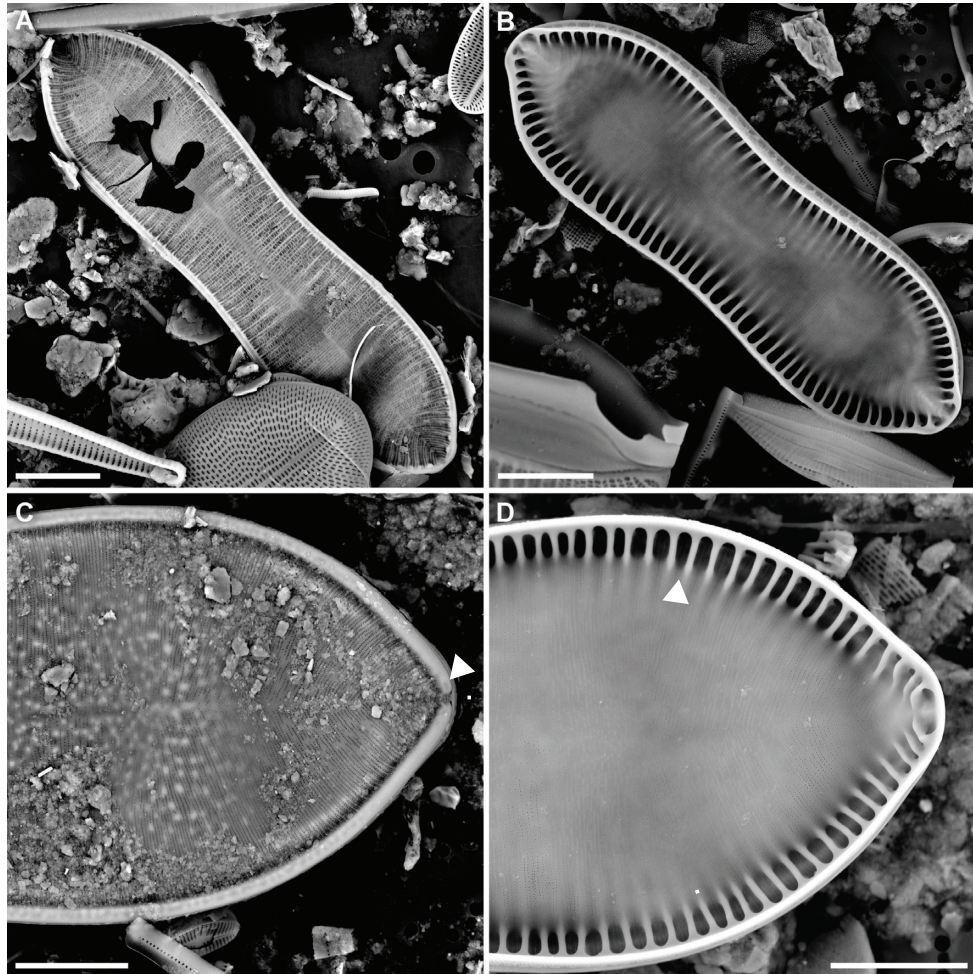
**Identification of species** – Cell shape, shape of the apices and size, number and position of the transapical valve undulations, structure and density of the fibulae.

**Ecology** – Cells benthic or planktonic, motile. Found in alkaline waters of low to moderate conductivity.





**Fig. 185.** *Cymatopleura* spp. **A-D.** LM. **A.** Living cell of *Cymatopleura clavata* (O. Müller) Cocquyt & R. Jahn, valve view, note highly lobed plastid. **B-D.** Cleaned material, valve view. **C-D.** *C. comperei* Cocquyt & R. Jahn, note undulations on valve face. Scale bars = 10  $\mu$ m (A-D).



**Fig. 186.** *Cymatopleura* spp. **A-D.** SEM. **A-B.** *C. comperei*. **A.** View of valve exterior. **B.** View of valve interior. **C.** Valve exterior showing cell apex and raphe endings (arrow). **D.** Valve interior showing fibulae (arrow).  
Scale bars = 10  $\mu\text{m}$  (A-D).

***Stenopterobia*** (Brébisson) Van Heurck 1896Type species: *Stenopterobia sigmatella* (W. Gregory) R. Ross

SYNONYM:

*Surirella* Turpin 1828 pro parte

**Characteristics** – Cells **isopolar**, **biraphid**, valves narrow lanceolate or sigmoid. Striae fine, parallel composed of 2-3 rows of areolae which are not discernable under LM. **Costae** (Fig. 188: A-D; Fig. 189: A) cross the raphe and interrupted by a narrow axial area (Fig. 189: A-B). Raphe runs the length of the valve on both margins in a canal on a keel raised above the valve (Fig. 189: A-D).

**Plastid structure** – Cells with one plastid divided into 2 plates (Fig. 187: C, F), one against each valve connected by a narrow isthmus near one pole.

**Identification of species** – Species can be identified by cell size, cell shape (lanceolate or sigmoid), shape of the apices, structure and density of the costae, density of the striae as well as structure and width of the axial area.

**Ecology** – Cells solitary, free living and motile. Found in the benthos of acidic, oligotrophic waters in low conductivities.

