



Taxonomy of Phytoplankton

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DIVISIO: BACILLARIOPHYTA (Diatoms)

Class: Bacillariophyceae

Colour: Brown

Pigment

(Chloroplast):

Chlorophyll a-c (+)

Caretonid:

Carotene (+)

β carotene (+)

Fucoxanthin (+)

Diadoxanthin (\pm)

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Tallus Shaped: single-celled, colony, filament

Storage material: lipid, chysolaminarin

Cell wall: Inner wall, pectin, outer wall is covered with silicate

Reproduction:

-Asexually; dividing (paralel to the shell surface)

-Sexually; Iso-Aniso-Oogamy

Distribution Range:

-Fresh waters

-Seas

-Brackish Waters

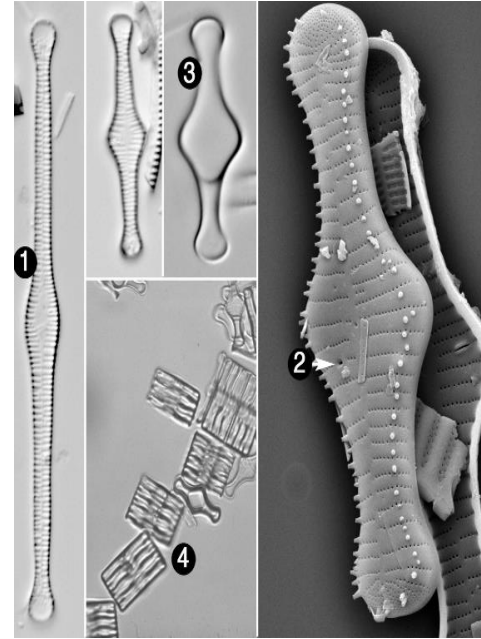
-Humid Soils

Genus: Tabellaria

- Curved (flat) zig-zag shaped filamentous.
- They can create radial colony.
- Cells creating a chain are connected in musilagouesly.
- Cells lids are in belted view.
- Brown chloroplast is on the cell upper part.
- There are strict stripes (septas) in the latitudiunally.

Reproduction: Asexual
(dividing), sexually (oogamy)

Distribution range: Less calcerous water, lakes



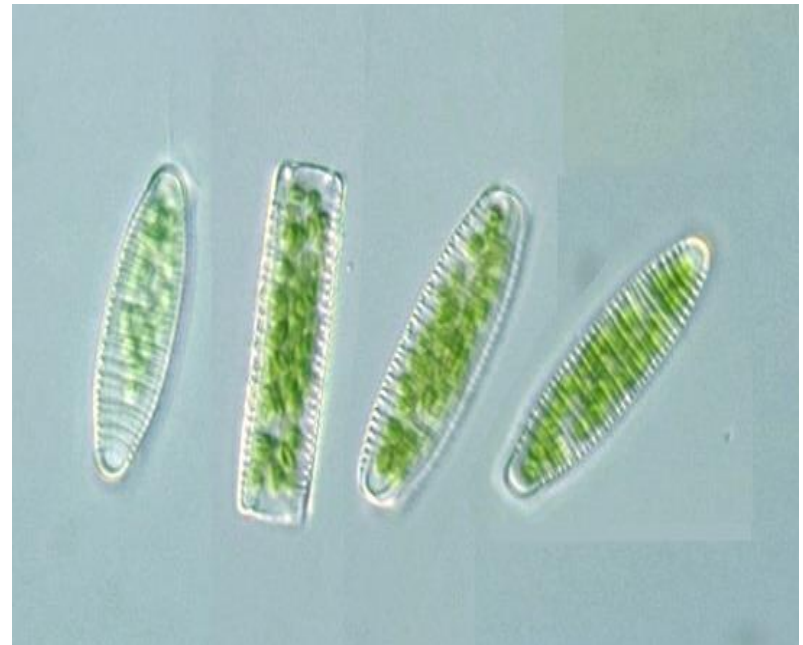
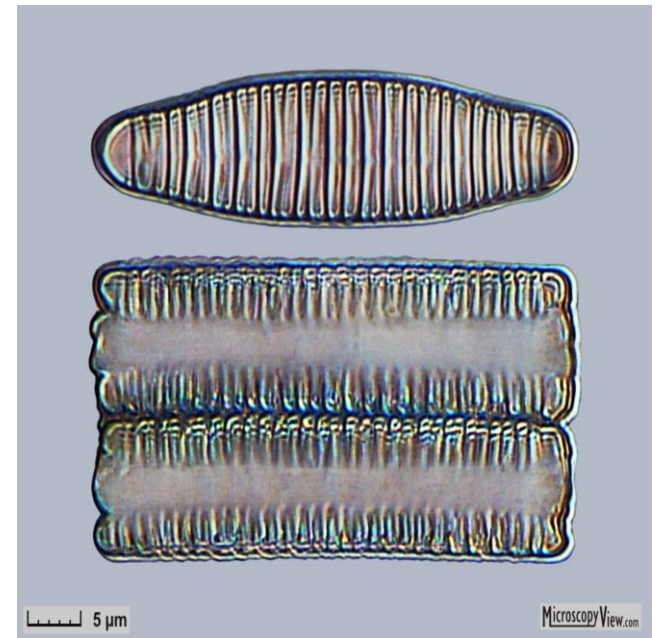
Genus: Diatoma

Cells are thin, long, rectangular

- Cells reach to the 70 micron length.
- Colony shaped smooth, zig-zag shaped
- In above and bottom view there are seen irregular stripes on the lids.

Reproduction: Asexually, sexually

Distribution Range: Exists in all kinds of waters.

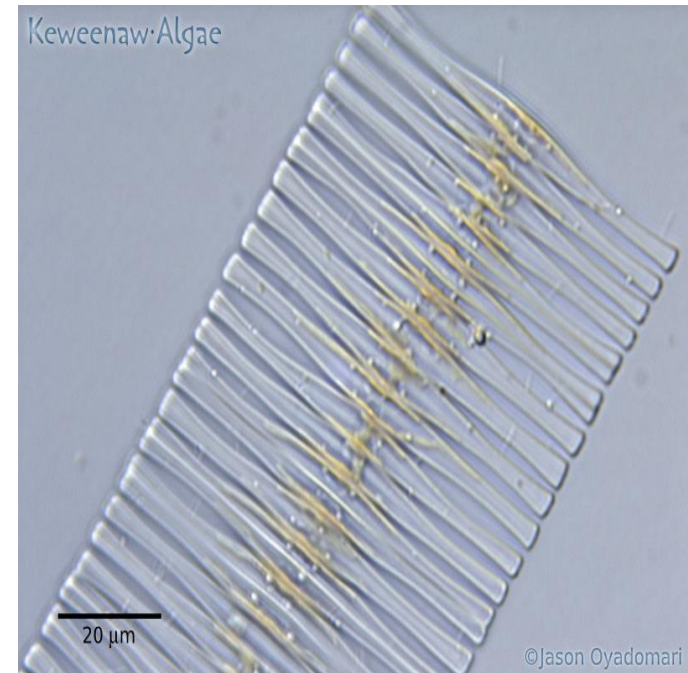
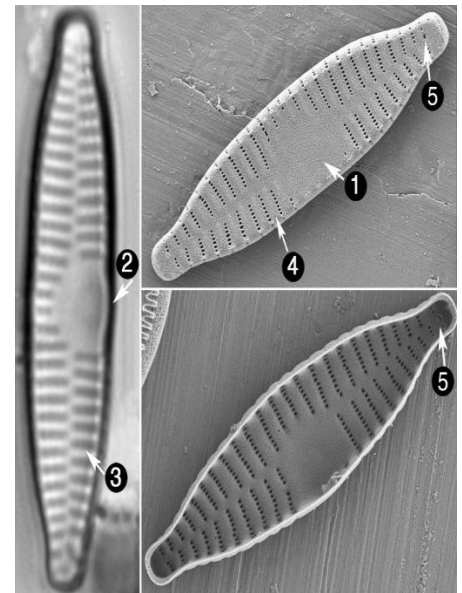


Genus: Fragilaria

- Lid appearance looks-like Synedra
- Lateral view looks-like square or rectangular.
- Cells are adherent side by side.
- Cells length 150 micron or more.
- Colony formed curved(flat)-long
- Pseudorafes are wide
- They are real plankton

Reproduction: Asexually, sexually

Distribution Range: Lakes, Pools.

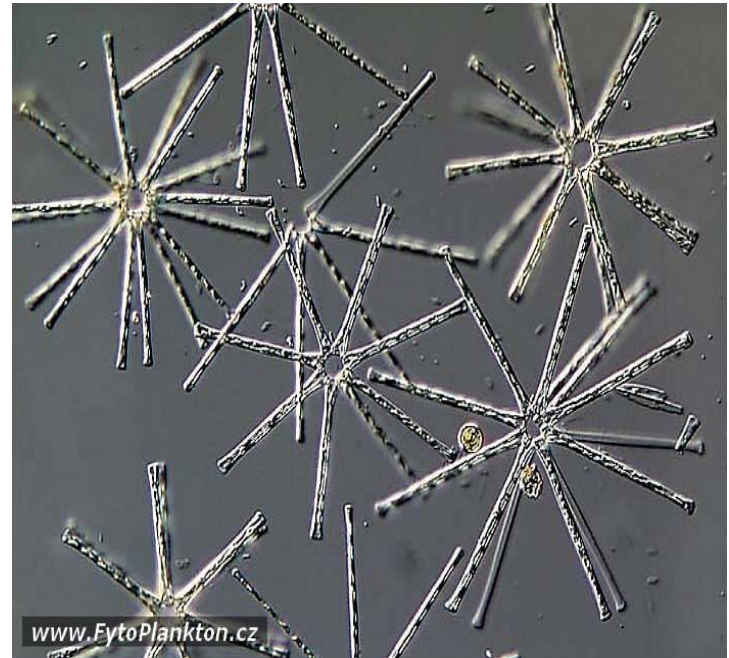


Genus: Asterionella

- Star shaped floating colony
- Cells are long as 100 micron length
- Shell viewed (from the belt) longitudinally rectangle

Reproduction: Sexually,
Asexually

Distribution Range: Lakes
hard waters

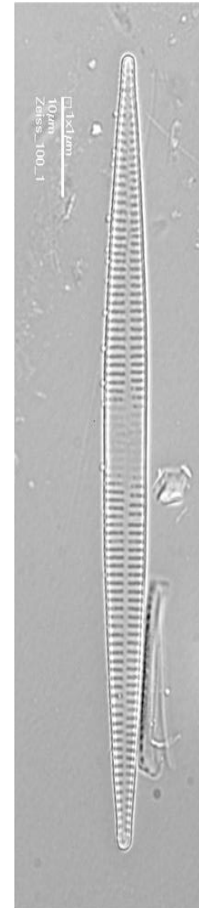


Genus: *Synedra* (*Ulnaria*)

- Cell is narrow, length 500 micron
- Doesn't form a chain
- Shell is longish, flat (curved), needle shaped
- Mostly planktonic or radial colony, musilgaeous leg.
- Connected to substratum, pseudorafe exists

Reproduction: Sexually, Asexually

Distribution Range: Exist in every kind of waters.

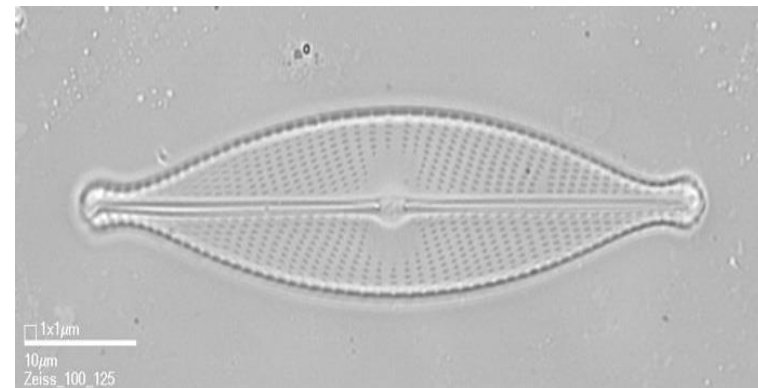


Genus: Navicula

- Long, spindle shaped diatome
- Length of species are between 5 - 200 micron
- In living cells chloroplasts
- are near the edge of the cells
- Belts appearance near the parallel edges
- There are rafes exist in each lids.
- Lines on the lids are towards to the center.

Reproduction: Asexually, Sexually

Distribution Range : Benthic and planktonic species, fresh waters- salty waters, muddy areas



Genus: *Nitzschia*

- Lengths are more than 5 – 100 micron
- 2 pieces of chloroplast are existed in cell ends (Differs from *Navicula*).
- They are exist in big, sigmoid shaped species (600 micron)
- Cells are single-celled or colony (mucilageous) forming

Reproduction: Sexually,
Asexually

Distribution Range: Fresh,
Brackish, Salty Waters



II. Order: Centrales

- Circular, has many edges, elipsoid shaped
- Rafe doesn't exist
- Cells are single-celled or connected to each other with mucilageous , sometimes colony formation sometimes chain shaped.
- Radial symmetry.
- They don't have sliding movement (no raves)
- Reproduction: Sexually, anisogamy, oogamy
- Swimming and mostly in sea forms.
- Cell walls on the holes (from centered dot (spot)) are organized radially (in ray form).
- phytoplanktonic most of the forms.