



# Taxonomy of Phytoplankton

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# DIVISIO (Divizyo): CYANOPHYTA (Cyanobacteria)

**Colour:** Blue or green  
sometimes olive green or red

**Pigments (Chloroplast):**

## Chlorophyll

- Chlorophyll *a* (+)

## Carotenoid

- B Carotene (+)
- Flavacene (+)
- Zeaxanthin ( $\pm$ )
- Echinenone ( $\pm$ )
- Isozeaxanthin (+)
- Myxoxanthophyll (+)
- Oscillaxanthin ( $\pm$ )

## Biliprotein

- Allophycocyanin (+)
- C- Phycocyanin (+)
- C- Phycoerythrin ( $\pm$ )

**Tallus Shape:** single-celled colony,  
filament (Branched and-  
unbranched)

**Storage material:** Starch, (in  
granular form)

- Cell wall doesn't contain  
cellulose, they are made of  
mucopeptids

**Reproduction: Asexually**  
(Dividing)

**Distribution Range:** Freshwater,  
soil, thermal springs (spa)

# I. Order: Chroococcales

- Single celled or colony formation.
- Cell wall is covered with a musilageous layer.
- Colony round shaped, elipsoid, cubic etc. shaped or shapeless

## Genus: Chroococcus

- Cells are round, eliptical, or one by one (single celled)
- 2, 4, 8 and 16 are all together colony formation
- Rarely lots of cell groups
- Cells have 50 micron diameter
- Colony is in musilageous medium
- Mostly real plankton, colony, cover is colourless.

**Reproduction:** Asexually (Dividing)

**Distribution Range:** Humid rocks, rock and tree cavities, marshes, humid areas, rocks, woods etc. Stagnant waters, baths, sulfur waters, lakes.

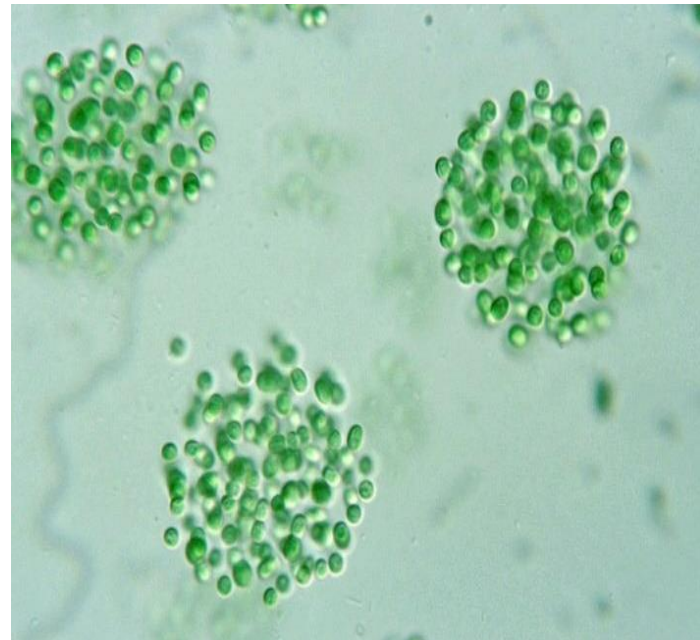


# Genus: Aphanothece

- Cells are small, longitudinally oval
- Length 3-8 micron
- There is no individual sheaths (cover)
- Only has a thinner membrane, no sheath
- Colony formation and cells are buried loosely and irregularly in mucilageous medium hücreler
- Occasionally colonies are round shaped and microscopic size.
- Olive-green coloured.

**Reproduction:** Asexually (dividing)

**Distribution Range:** Marshes, pools, epiphytic, rock grooves



# Genus: Gomphosphaeria

**Cell Shape:** Round or heart shaped

- Cell size is 5 micron

**Colony formation:** Round or oval

- Colony forming cells are close to each other or at certain distances ends with mucilageous strings are organized with radial organization

- Freely swimming (floating) colony

- Occasionally have blackish appearance

- Mostly covered with mucilageous

- Colony size 100 micron

**Reproduction:** Asexually dividing

**Distribution Range:** Lakes

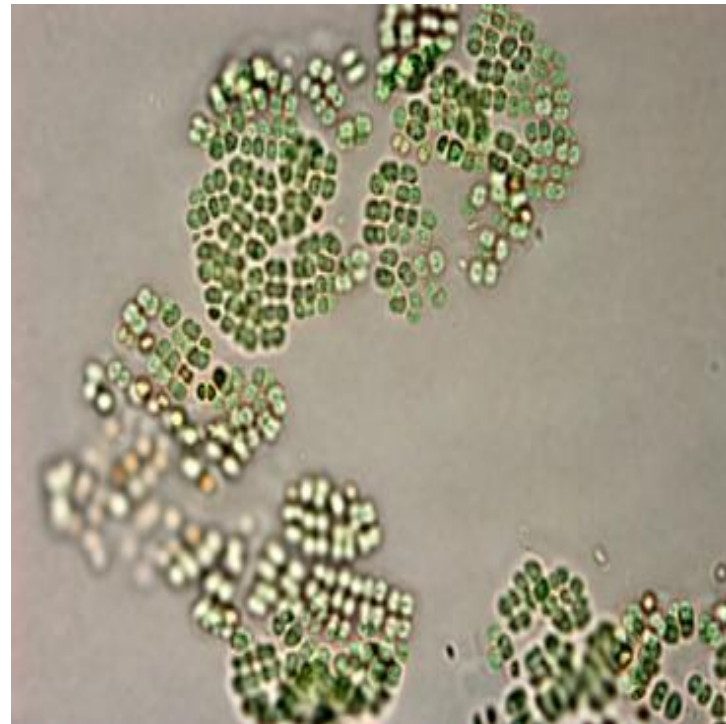
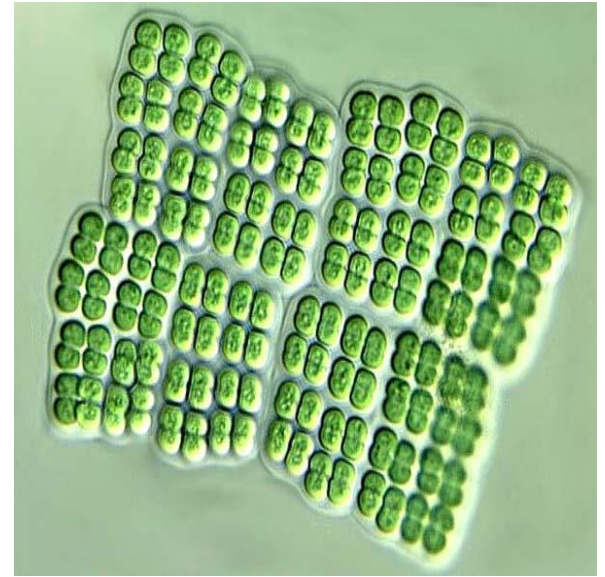


## Genus: Merismopedia

- Cells are round shaped, oval
- Size 3-10 micron diameter
- Cells are organized on the same direction
- Colony shape is rectangular, flat (curved)

**Reproduction:** Asexually dividing

**Distribution Range:** Pools lakes, live together with other algae

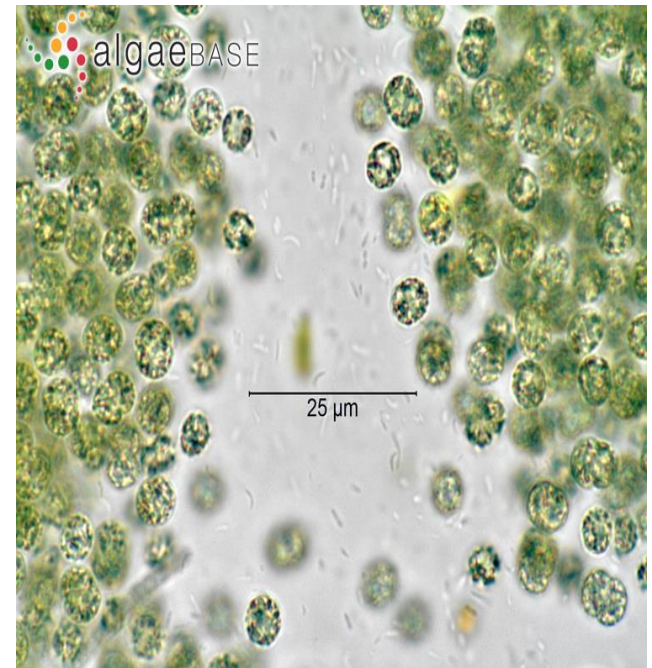


# Genus: Microcystis

- Cells are small rounded.
- Cells are 5 micron in diameter
- Numerous or crowded cells are buried into mucilageous medium.
- Colony shape is irregular, amorphous and shape is irregular
- Mostly is holed towards to inside, with cavity (Pseudovakuole)
- Pseudovakuole reflects light
- Colony seems as brown, black, purple
- Pseudovakuole (gas) makes colony float above the water
- Mucilageous can not be seen easily in stored examples.

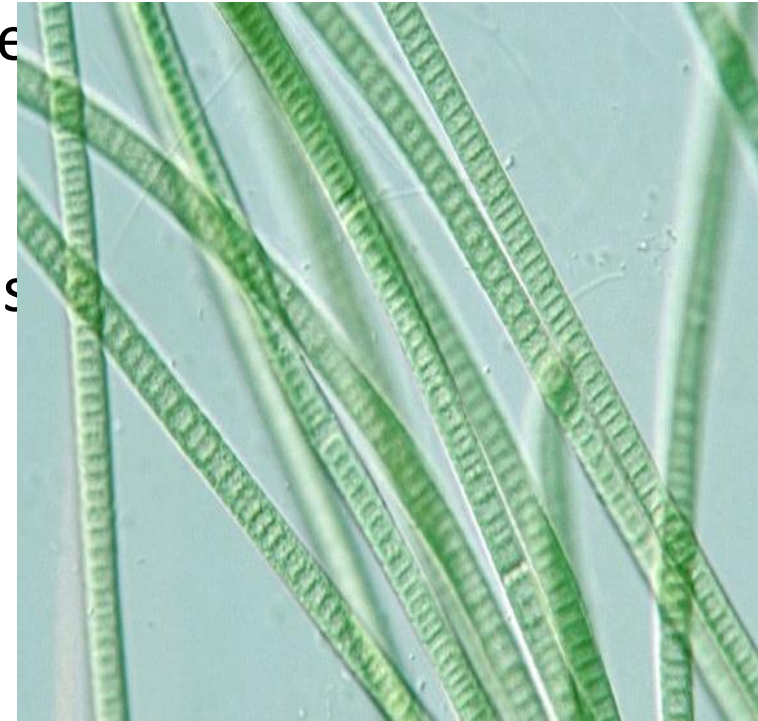
**Reproduction:** Asexually (dividing)

**Distribution Range:** Lakes, marshes, (Creates water bloom)



## Order: Hormogonales (Oscillatoriales)

- Cells are connected to each other tightly
- Filamentous shaped
- Filaments are unbranched, has a spiral structure
- or branched.



## Genus: Oscillatoria

- Cells are merged together tightly
- Unbranched filaments
- Filament is single (trichomes) feather or
- bristle shaped
- Filament are together with other
- algae in clusters formation

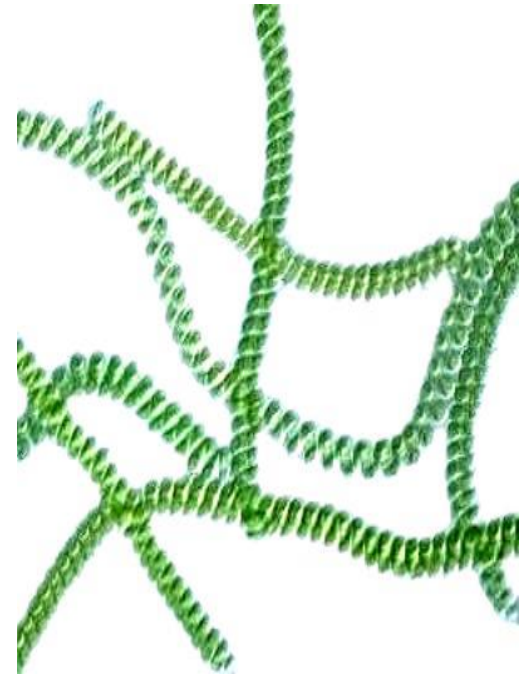


# Genus: Spirulina

- Trikom (filament), single celled (unicellular)
- Trikom is spirally shaped, long and coverless
- Can easily find one by one in environment
- Mostly form masses or they move together with other kinds of algae (Oscillatoria)
- They move actively (in microscope)
- Movement is a form of musilage changing place

**Reproduction:** Asexually

**Distribution Range:** In every kinds of waters



## **Order: Nostocales**

- Cells forming a trikom with a single lined formation
- Trikom is placed one by one or all together with cluster formation
- End sections have villuses or don't not have villuses
- Rarely pseudo branching

## **Genus: Anabaena**

- Trikoms (filament) are formed from bead or rosary-like cells.
- Cells can grow up to 10 micron
- Filaments are frizzled
- Sometimes there are thick walled special cells in filaments (heterocyst)
- Also intense spores exist in filaments in sausage shaped (at regular distances)

## **Genus: Aphanizomenon**

- Trikom looks like Anabaen, but
- Cells are short cylindrical, barrel shaped
- Diameters are same through the cell, only, this is getting thinner into cells ends
- Cell size 2-6 micron diameter
- Filaments are parallel to each to other by lining side by side
- They formed (swimming) floating freely as bundled layers
- Bundle size can find several mm
- Filament can contain heterocyst and spores

**Reproduction:** Asexually same as Anabaena

**Distribution Range:** Lakes, pools, (Overgrow), havuzlar, (Aşırı büyür) water flowers.

**Producing Toxin**

