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# **Division: Cyanophyta**

**Cyanobacteria, Blue-Green Algae**

## **Lab-2**

# Divisions of Algae

- Cyanophyta (blue -green algae)
- Chlorophyta (green algae)
- Charophyta
- Chrysophyta (Diatoms, yellow-green algae)
- Phaeophyta (brown algae)
- Rhodophyta (red algae)
- Phyrrophyta (Dinoflagellates)
- Euglenophyta (Euglenoids)

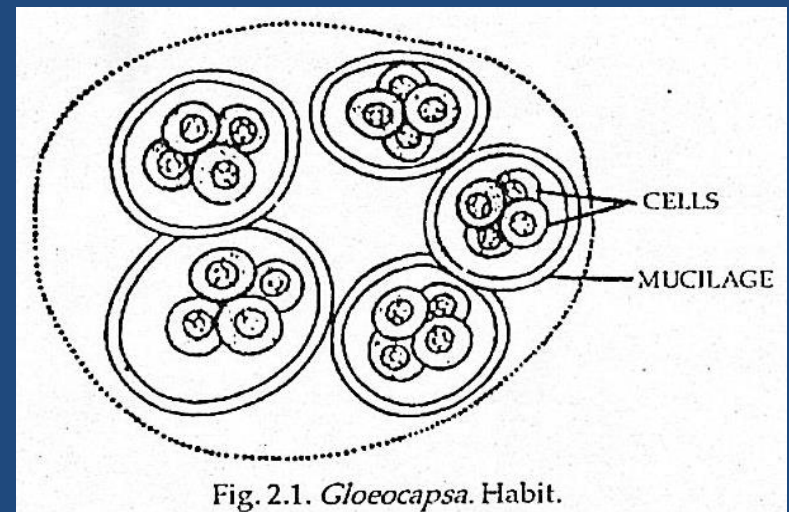
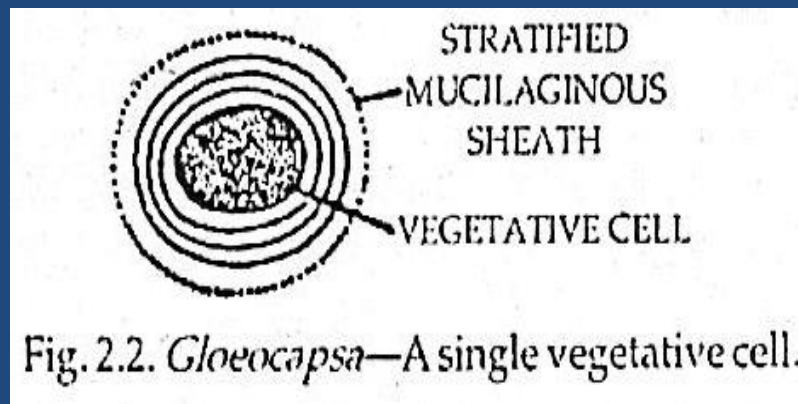
## Order: Chroococcales:

- Members may be unicellular or multicellular colonial, enclosed in **mucilage matrix**.
- Vegetative reproduction by **fission** or **fragmentation**.
- Presence of **nannocytes**.

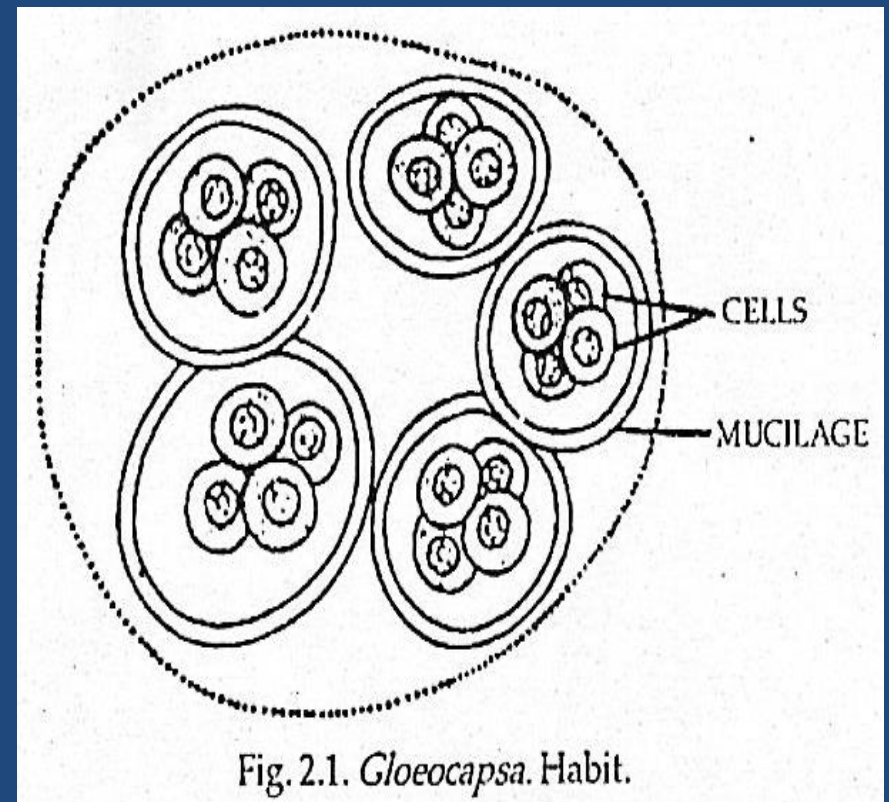
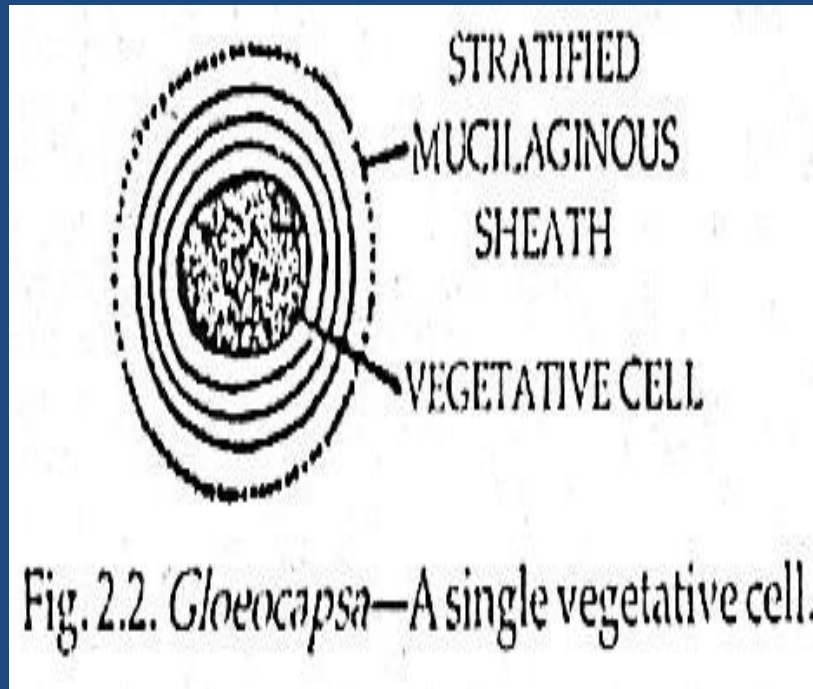
# Family: Chroococaceae

## External features:

1. Cells are **arranged in groups** or **colonies**.
2. Number of the cells in a colony ranges from **2 to 8**.
3. Each cell of the colony is **spherical** in shape.
4. Colonies are surrounded by many **concentric envelopes** or **mucilage sheath** which may be colorless or colored.
5. Each concentric envelope may be **lamellated** or **unlamellated**.



6. Each Cell of the colony has its **individual sheath**.
7. Cell wall consists of **two layers** i.e. **cellulose** and **pectin**.

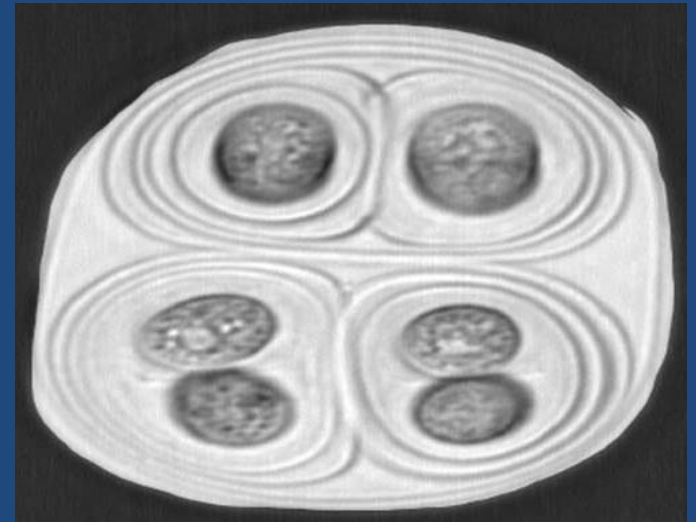
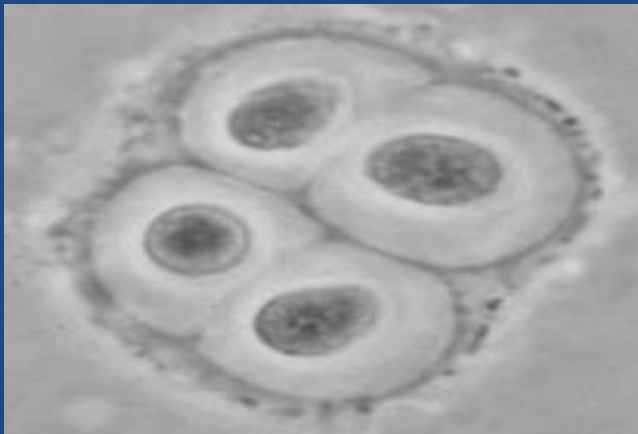


# Reproductive structures

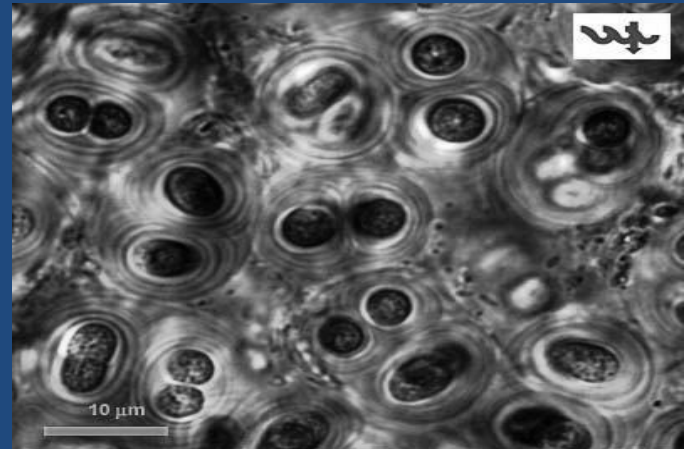
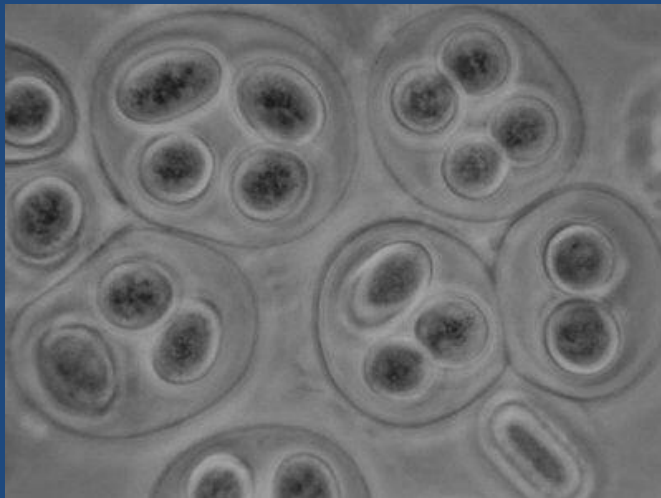
- ❖ It reproduces vegetatively by **fission** in which cell divides regularly in three directions.
- ❖ Asexual reproduction is reported by the formation of **nannocytes** only in some species.

# Genus *Gloeocapsa*

- Living in **Marine** or **fresh water**.
- Number of the cells in a colony ranges from **2 to 8 cells**.
- Each cell is enclosed by a **distinct stratified mucilage sheath**.
- Cells are **oval** or **spherical** in shape.



# Some examples of Gloeocapsa





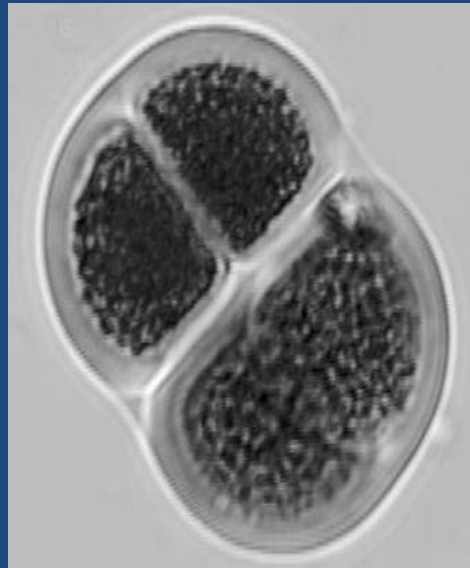
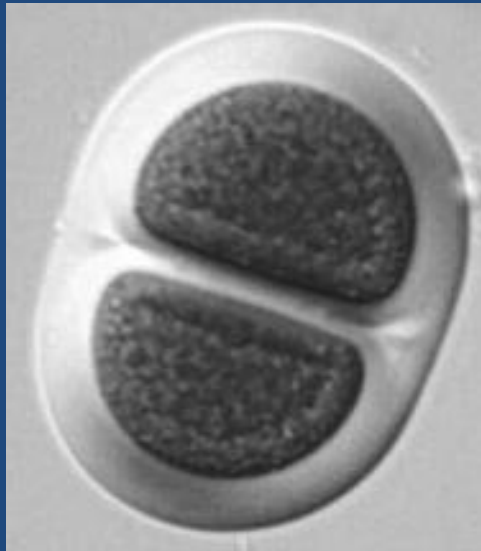
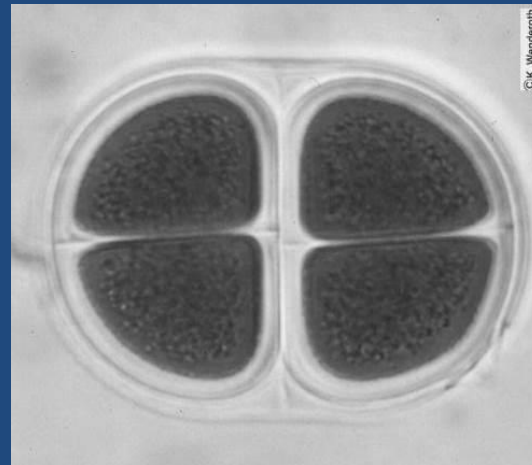
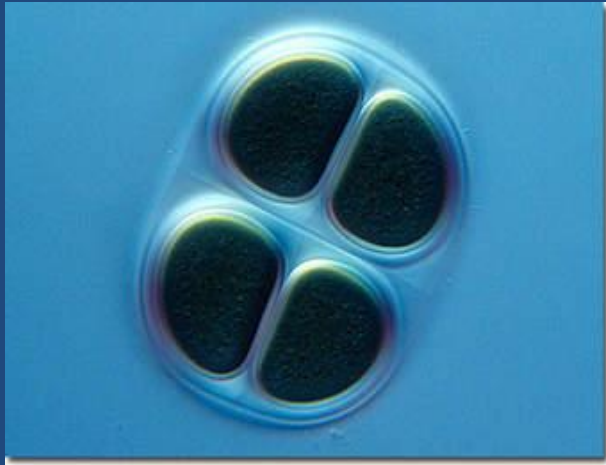


# Genus Chroococcus

1. *Chroococcus* is unicellular or grouped in 2 – 4 cells.
2. Each group of cells is surrounded by its own sheath of mucilage which is thin & colorless.
3. The cell is filling the sheath, i.e the size of cells of *Chroococcus* is larger than *Gloeocapsa*.

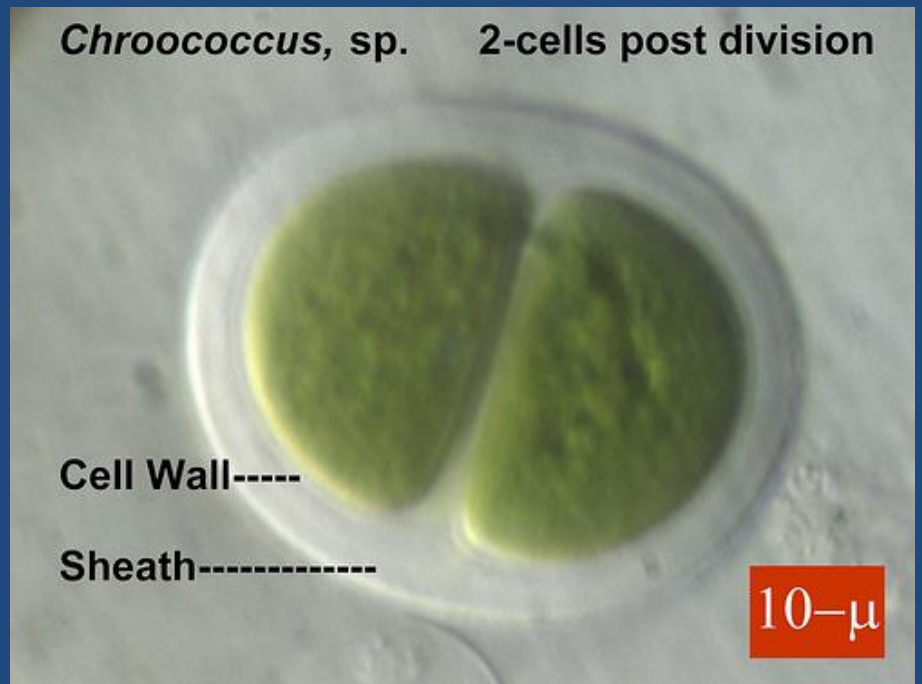


# Some examples of *Chroococcus*





*Chroococcus*, sp. 2-cells post division



Cell Wall-----

Sheath-----

10- $\mu$

## Meaning:

**Hormogonia:** a portion of a filament in many cyanobacteria that becomes detached as a reproductive body.

**Heterocyst:** Thick wall cells with hyaline protoplast, characterizing by lacking of reserve materials and gas vacuoles.

**Function:** Fixing atmospheric nitrogen. It has also a role in reproduction.

**Akinete:** large thick wall cells, full of reserve material, which enable the species of algae to survive along periods when environmental conditions are not favourable to growth. It has also a good role in reproduction.

**Thanks for your attention**