

- **Cyanophyta (Blue green algae)**

Division: **cyanophyta**

Class: cyanophyceae

1-order: Chroococales

Genus: *Merismopedia*

2- order: Oscillatoriales

Genus: *Oscillatoria, spirulina*

3- order: Nostocales

Genus: *Nostoc*

4- order: Scytonematales

Genus : *Scytonema*

General characteristics of cyanophyta (blue-green algae)

The individual cells are prokaryotic, The simplest morphology in the cyanobacteria is that of **unicells** (freeliving), or enclosed within a mucilaginous envelope as **colonial forms** or occurring as **filamentous** form.

1. Contain **chlorophyll** type **A**

Contain accessory pigment (**phycocyanean**)this pigment give unique blue- green color for this algal division)

3. **Chloroplast** is absent

4. Cyanophyta store **their food** as unique starch compound named as **(cyanophycean starch)**

5. Both vegetative and reproductive cells are **non-flagellate**

6. Sexual reproduction is absent.

- This group is characterized by the presence of **three types of cells:**

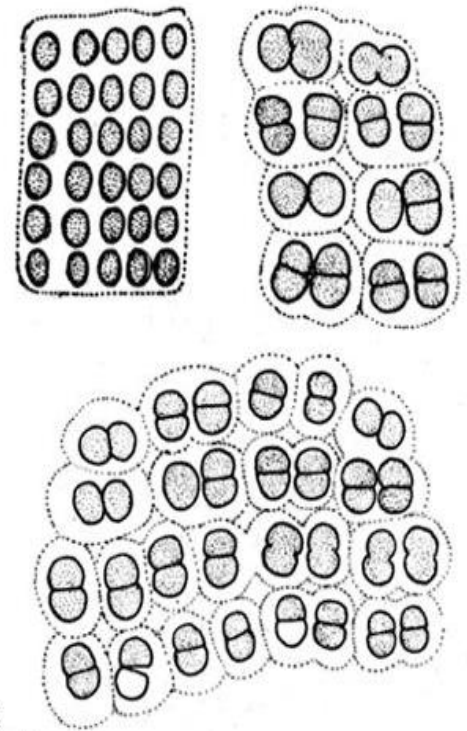
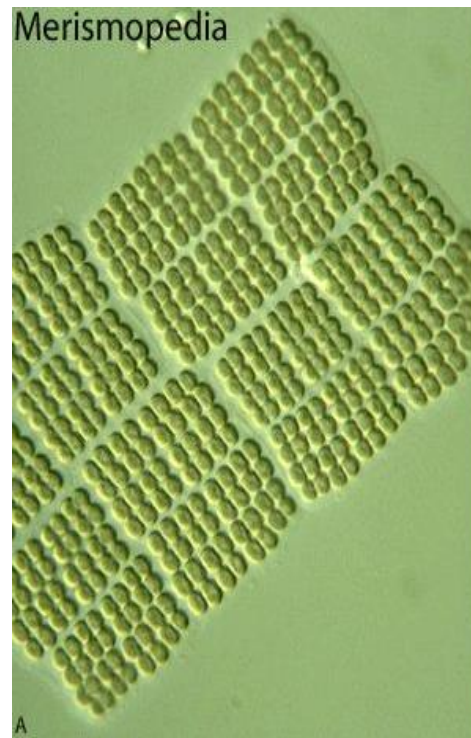
- 1- **Vegetative cells**

- 2- **Heterocystes cells** which are larger than vegetative cells and can be found at the base, apical, or intercalari between vegetative cells, and **are important for nitrogen fixation in the soil.**

- **3-Akinete cell**, which are more elongated than vegetative cells and have thicker walls; **their role is significant in reproduction.**

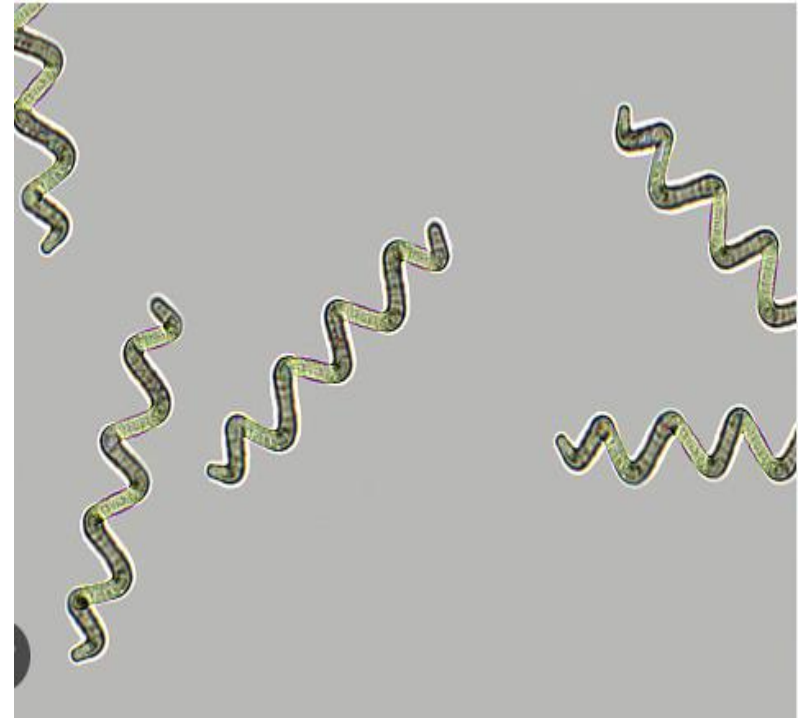
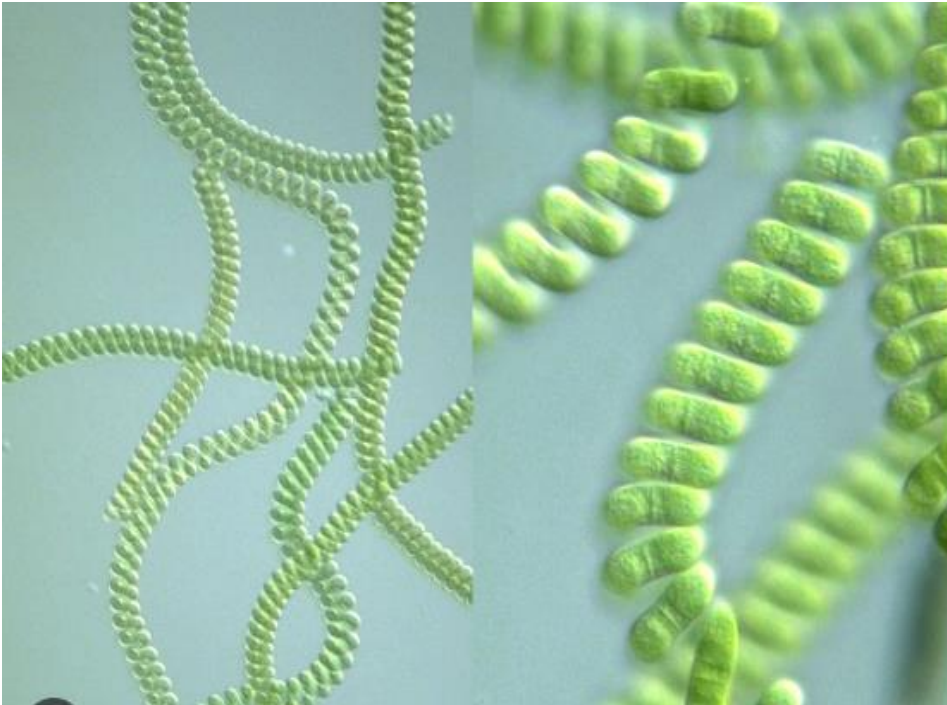
Merismopedia

- **Spherical to ovoid** cells arranged in flat sheets colony
- comprised of squareish clusters of four cells embedded in colorless, transparent gelatinous coating.



spirulina

- Filamentous algae are unbranched
- twisted or spiraled, They are multicellular, and the cell walls separating the cells cannot be distinguished under a microscope due to the twisting of the filament.
- Different types of spirulina can be **differentiated** based on the number of spirals, the length of the spiral, and its thickness.



Oscillatoria

- 1-single filamentous form (un-branched)
- 2- The filament consists of **vegetative cells** characterized by a length that is less than its width (a distinctive feature of this alga).
- 3- containing compressed concave sides within the **dead cells**. This alga is an organism that reproduce by **fragmentation**. which can breaks into fragments called **hormogonia**. The hormogonia can glide away from the parent filament and grow into a new, longer filament. Breaks in the filament usually occur where dead cells are present

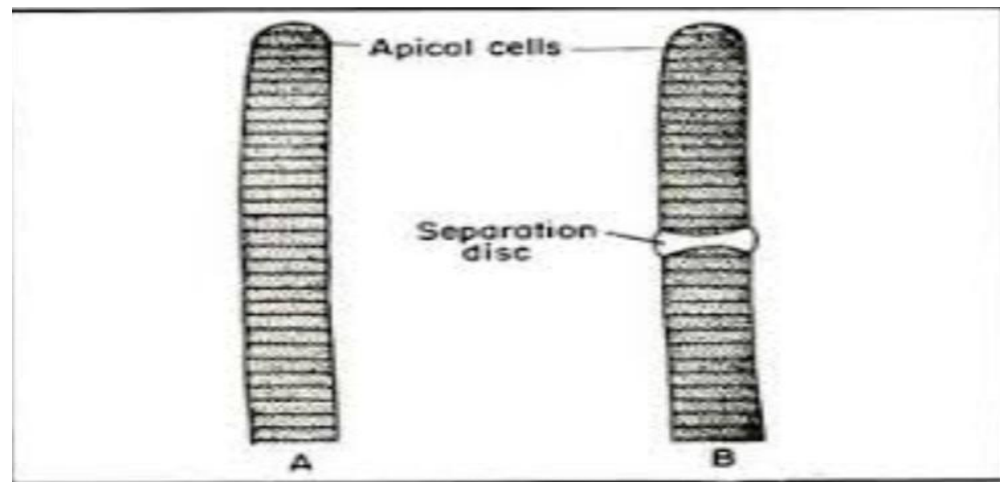
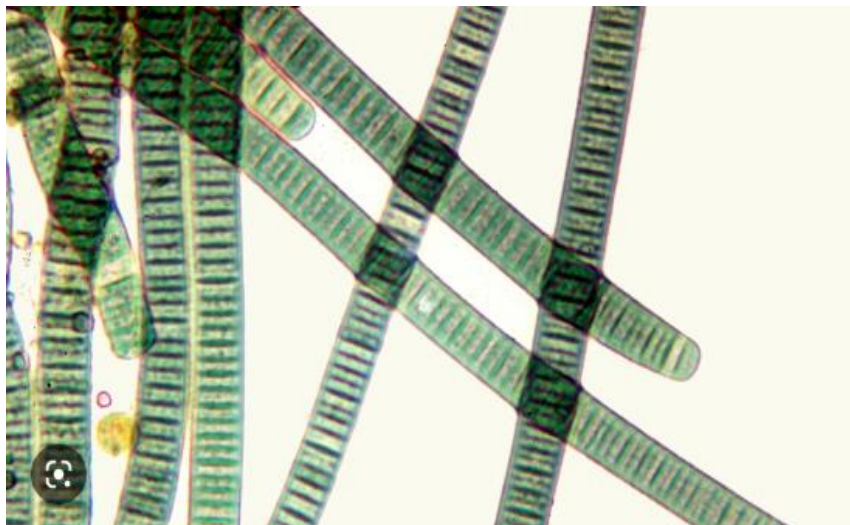


Fig 2.2. *Oscillatoria* Sp. A & B – Trichomes.

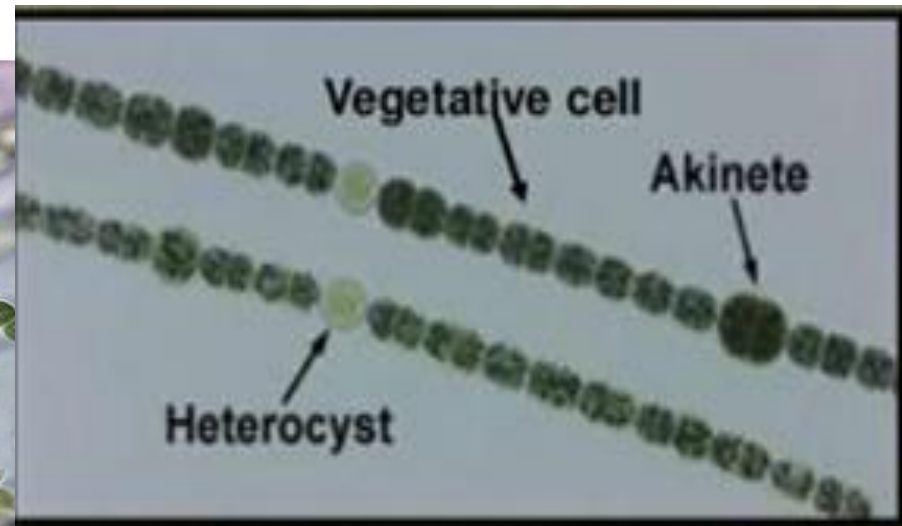
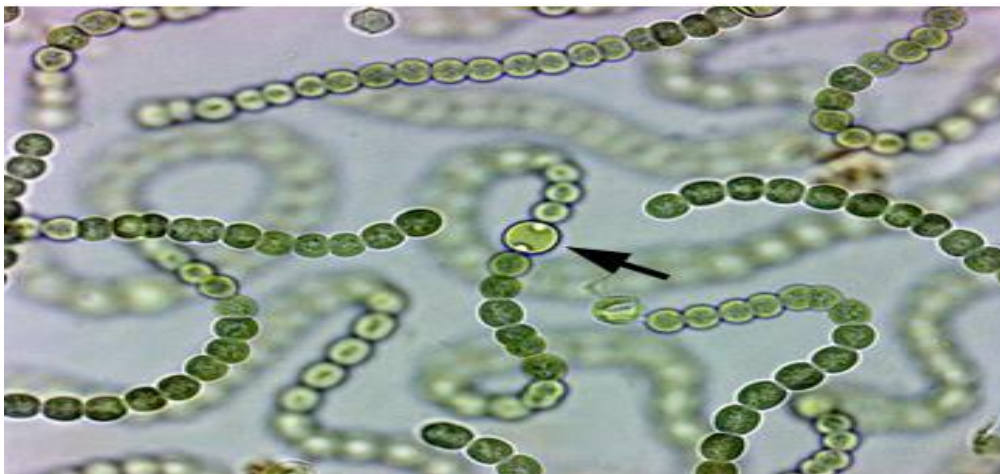
Nostoc

1-filamentous algae covered with mucilaginous sheath ,cells are barrel and more rounded .

2-un-branched

3-possesing specialized **vegetative cell** with homogenous transparent structure and thick wall and pores at either side where they meet **other cells named (Heterocyst) responsible for nitrogen fixation(intercalary heterocyst)**

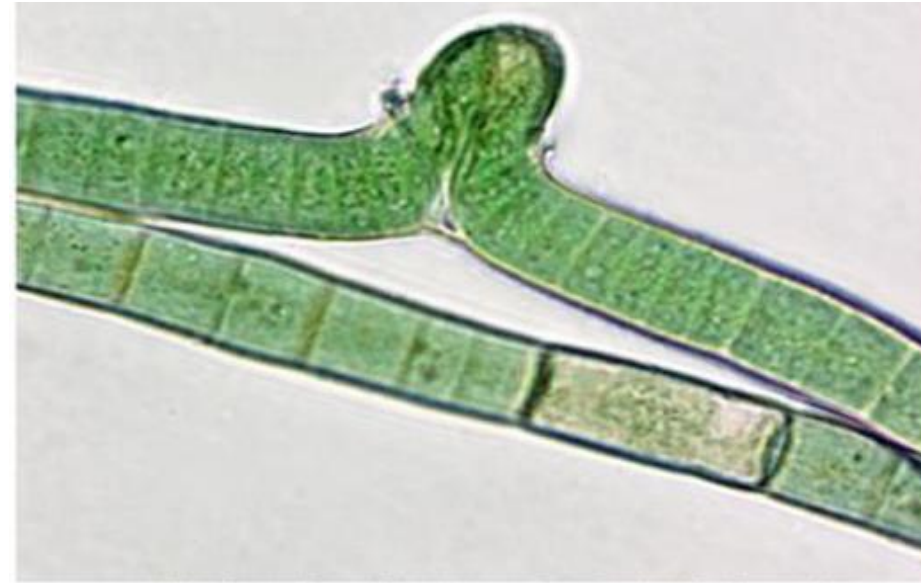
4- possesing gaint thick-walled cell full of reserve material named (**akinetes**) responsible for vegetative reproduction during un-suitable environmental conditions.



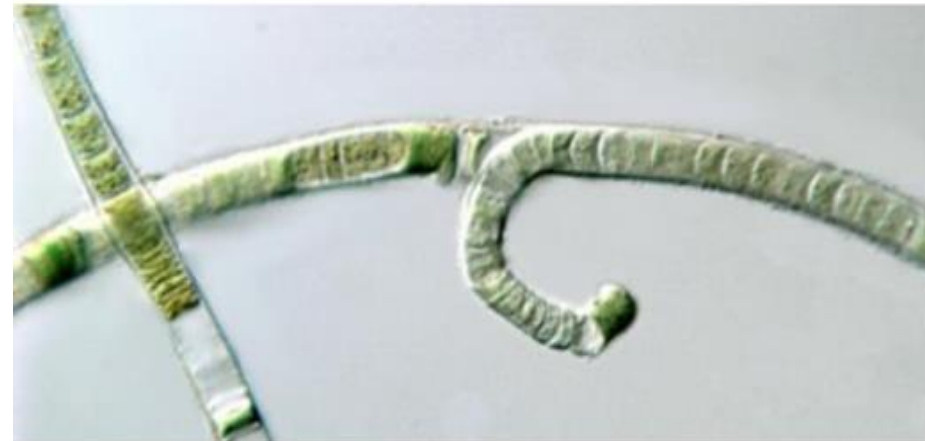
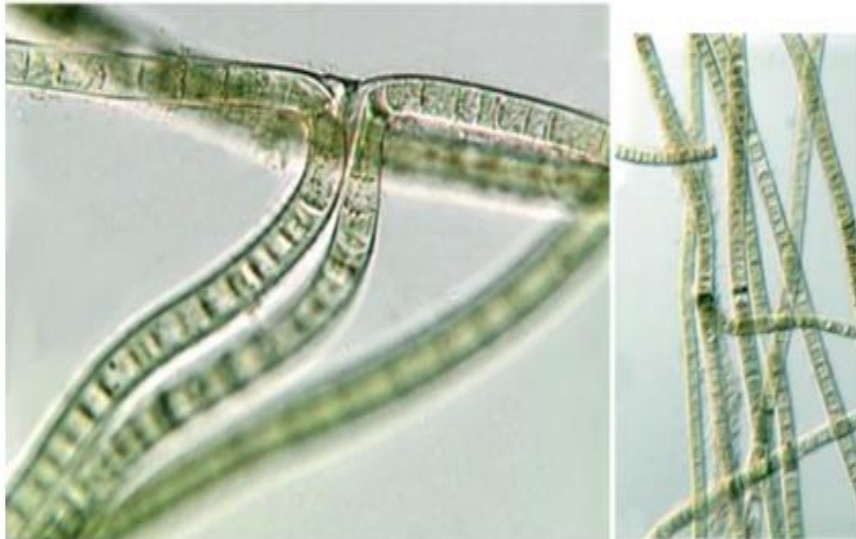
Scytonema

1-filamentous algae

2-characterized **with false branching**
,false branching may occur when a filament breaks apart at the site of added cells, both ends of filament then break through the mucilage sheath and continue to grow as ranches.



False branching begins to develop as both ends of the filament break through the mucilage sheath.



The right portion has grown quite a bit, while the portion to the left is just breaking through the sheath