

**Biology Dept., College of Education,  
Salahaddin University - Erbil,  
Kurdistan region - Iraq**



# **Division: Cyanophyta**

## **Cyanobacteria, Blue-Green Algae**

### **Lab-5**

Practical phycology

**Division: Cyanophyta**

**Class: Cyanophyceae (Myxophyceae)**

**3- Order: Oscillatoriales**

**Family: Oscillatoriaceae**

**1- Genus: *Oscillatoria* sp.**

**2- Genus: *Phormidium* sp.**

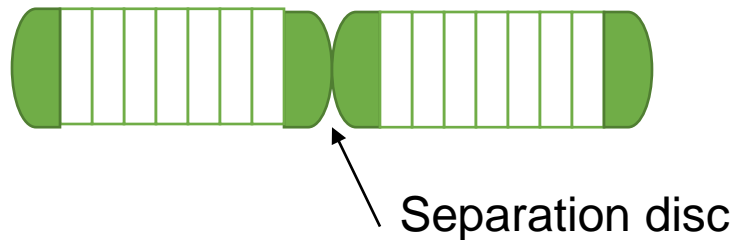
**3- Genus: *Lyngbya* sp.**

**4- Genus: *Spirulina* sp.**

**5- Genus: *Arthrospira* sp.**

# Family: Oscillatoriaceae

1. The individuals of this group are filamentous blue-green algae. They can perform photosynthesis.
2. The species may consist of a trichome covered by a sheath which is extremely variable in character or there may not have sheath.
3. They are reproduced by the formation of **Hormogonia** or the formation of special biconcave separation discs.



4. **Heterocysts and Akinetes** are not present.

# 1. *Oscillatoria*

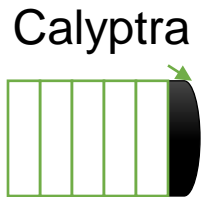
1. Filaments (Trichomes) are found in damp soil and fresh water of ponds and pools

2. They are un-branched flat and **straight without sheath**.

3. Filaments are **solitary** and form expanded slimy layers on submerged objects.

4. The **movement** of these is either microscopically **oscillating** or **gliding**.

5. The apical cell (**end cell**) is smoothly rounded or swollen and **capitates** with **calyptra** (a distinct “sheath like” membrane).



6. In most species, the length of cells is **much shorter** than their width, with or without constrictions at the cross walls.



Cells are much broader than length rectangular

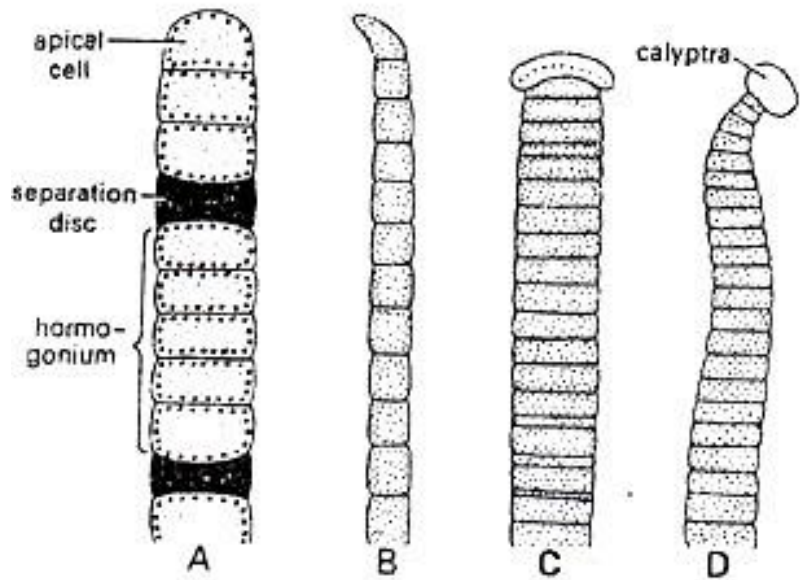
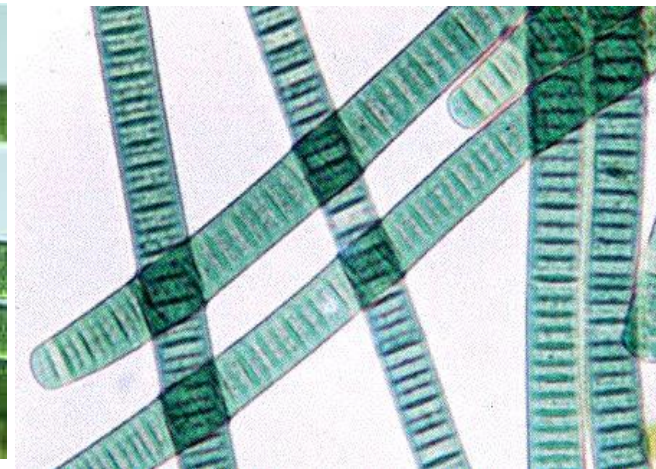
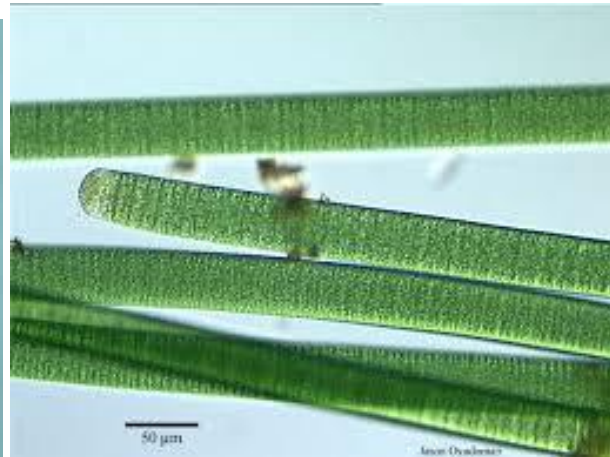
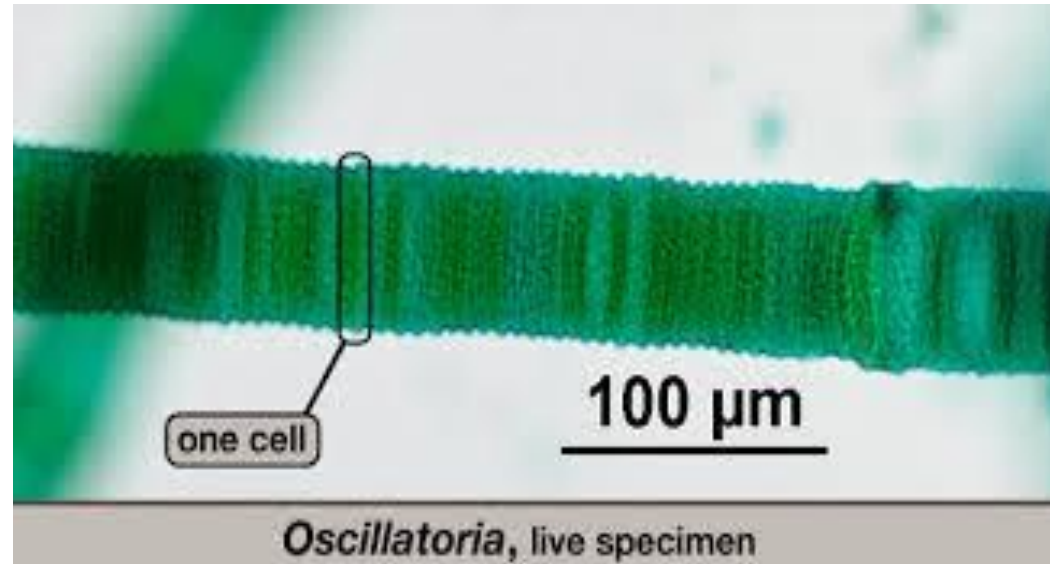
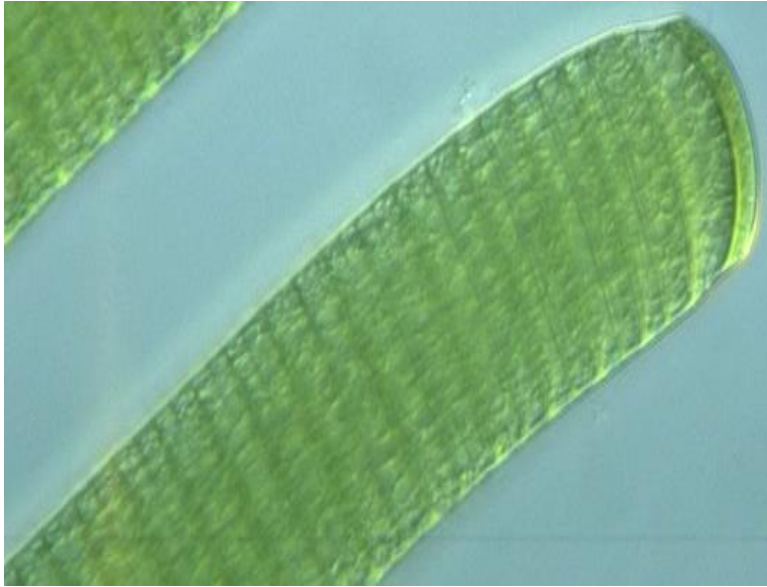


Fig. 1 (A-D) : *Oscillatoria* : Trichomes.



# *Oscillatoria* Sp.



## 2. *Phormidium* Sp.

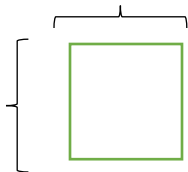
1. They are simple unbranched filaments enveloped with **mucilaginous sheath**.

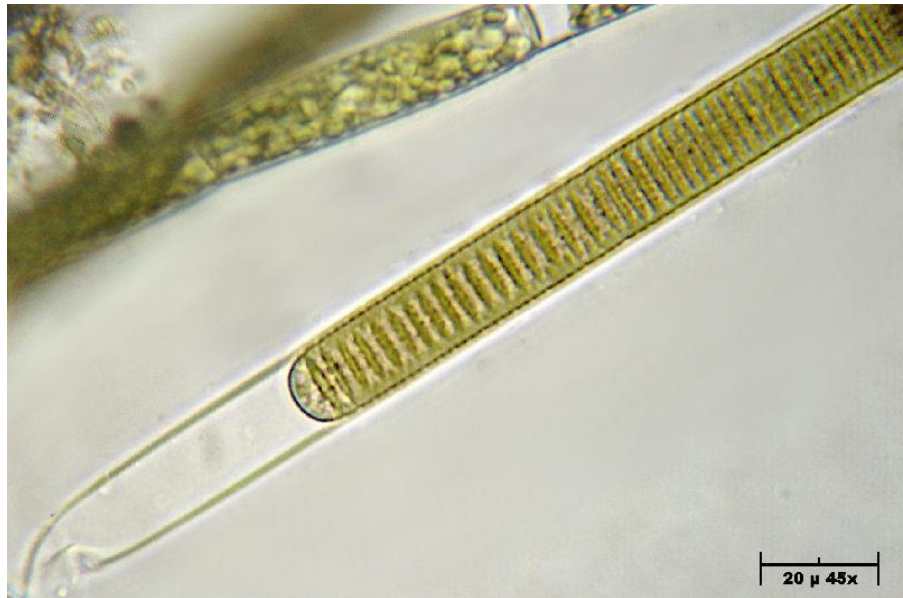
2. Filaments are cylindrical in shape except for a slight tapering in the **apical region** .

3. **Apical cell** is **conical** or **capitate** with or without **calyptra**.

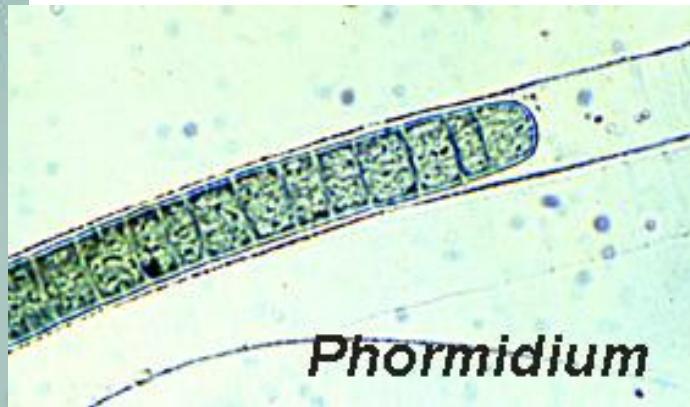
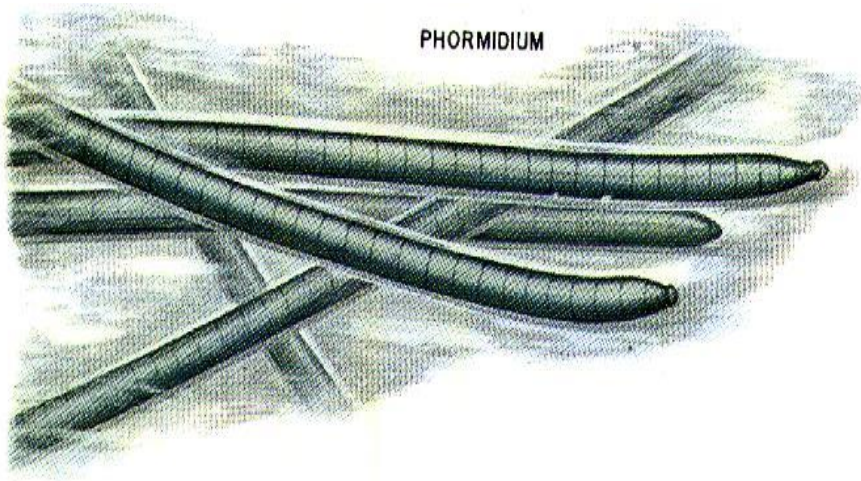
4. Individual sheaths around the filament are usually indistinct (unclear) and difficult to recognize.

5. The length of cell sides is almost equal or shorter than cell width.







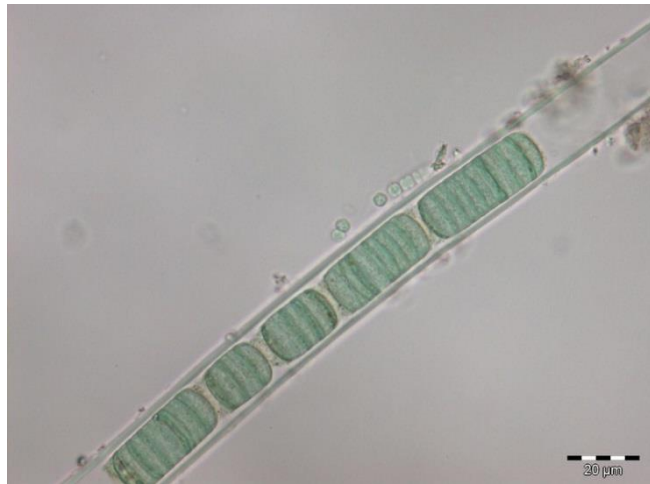
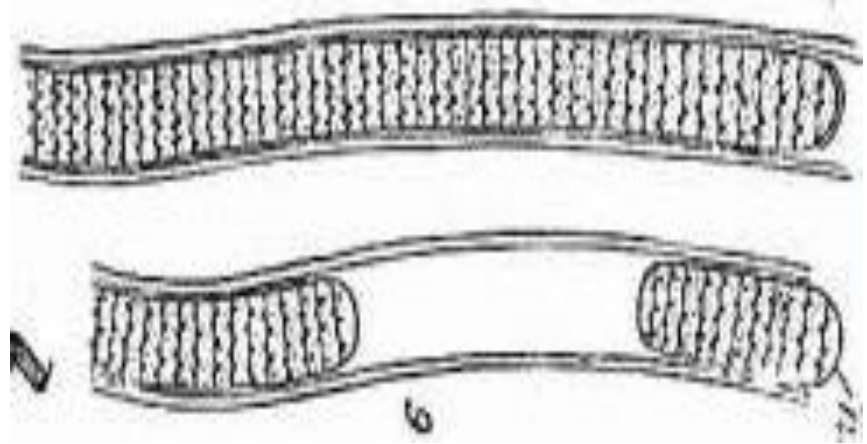


# *Phormidium Sp.*

### 3. *Lyngbya*

1. Several short **trichromes** found inside a rigid mucilage sheath.
2. Sheaths may form tangles or mats, intermixed with other phytoplankton species.
3. It is **slimy** to touch because of the mucus-like coating it produces.
4. Filaments are **cylindrical** throughout.
5. **Apical cell** in some species is tapering very slightly toward the apices, while other is similar to the apical cell of *Oscillatoria* . It has not usually capitate.

Lyngbya



**Lyngbya Sp.**



## 4. *Spirulina Sp.*

1. It is a spirally twisted unicellular and cylindrical filament throughout and not tapering toward the apices.

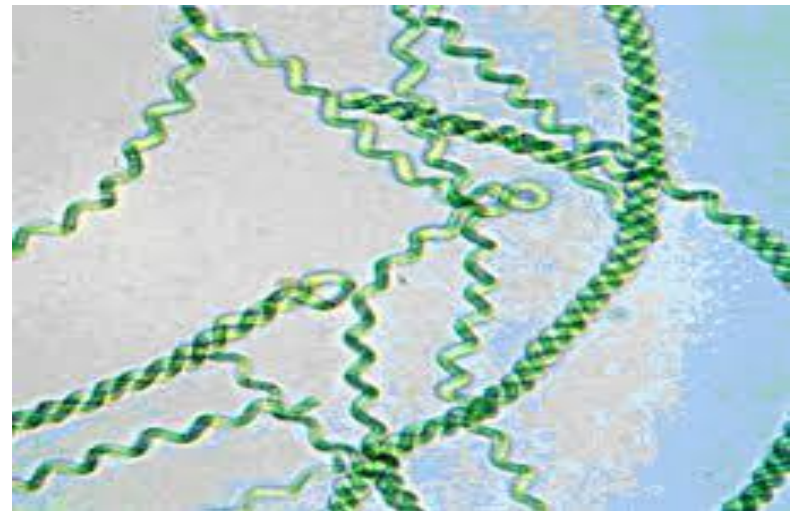
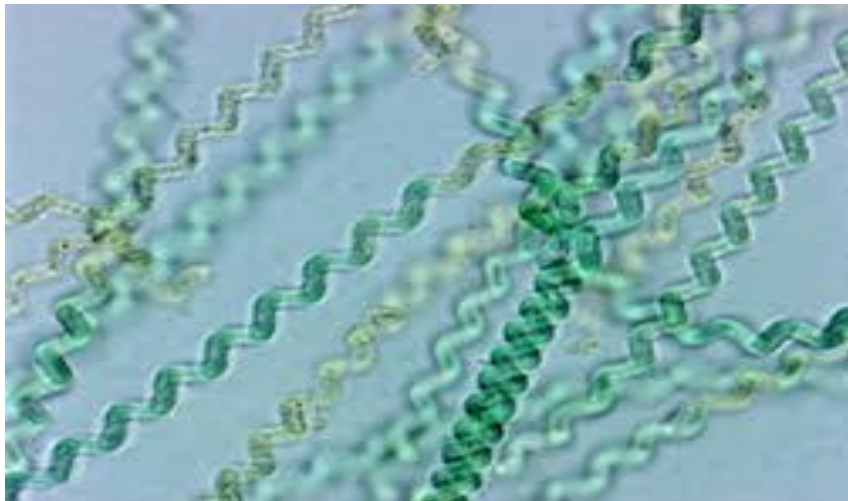
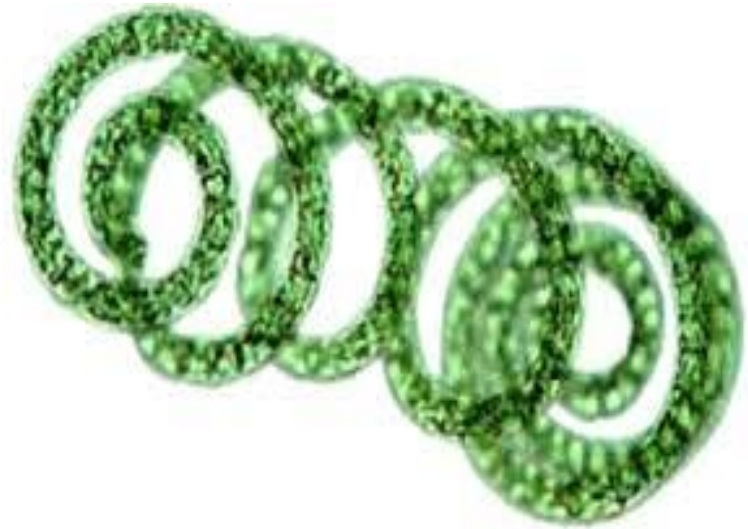
2. The spirals are usually very regular and also may be less coiled or tightly coiled.

## 5. *Arthrospira Sp.*

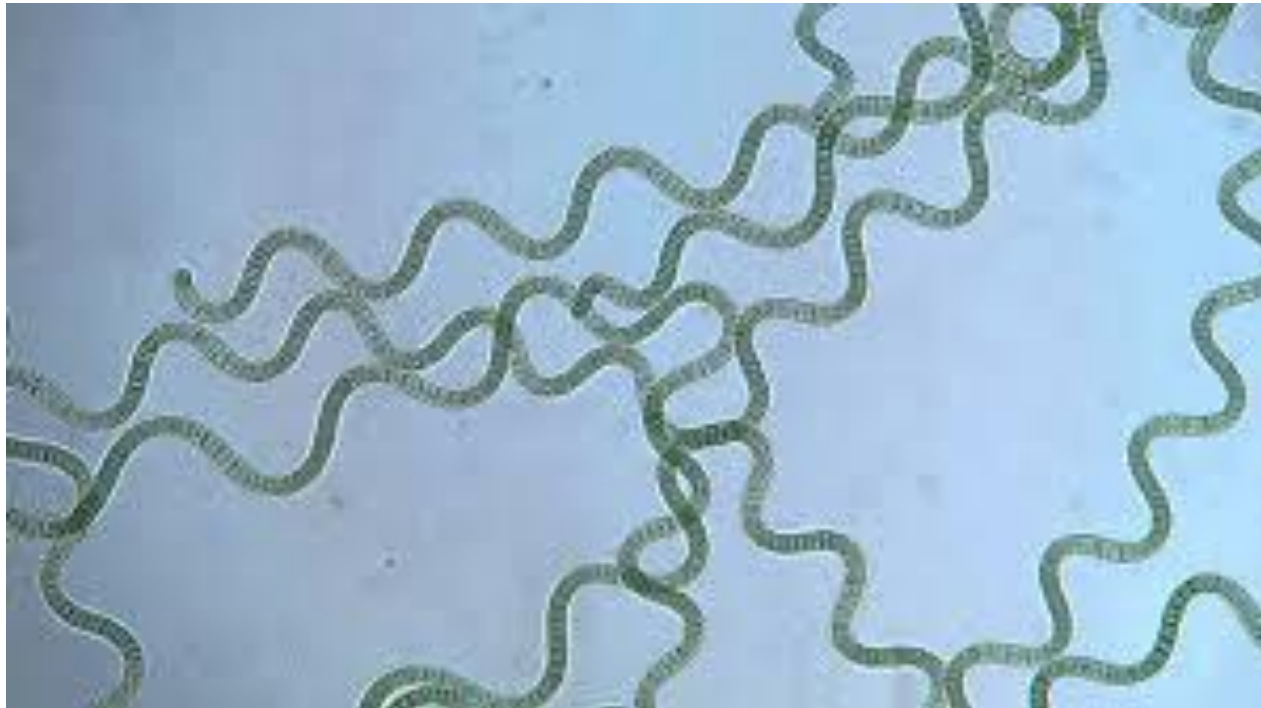
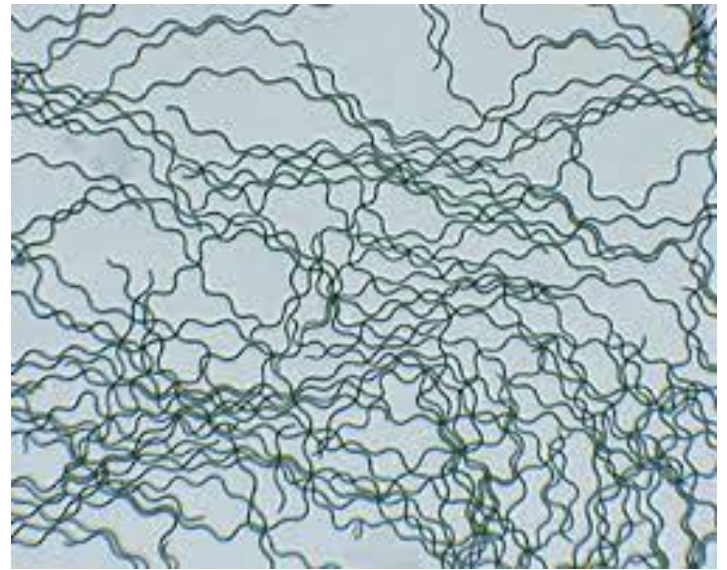
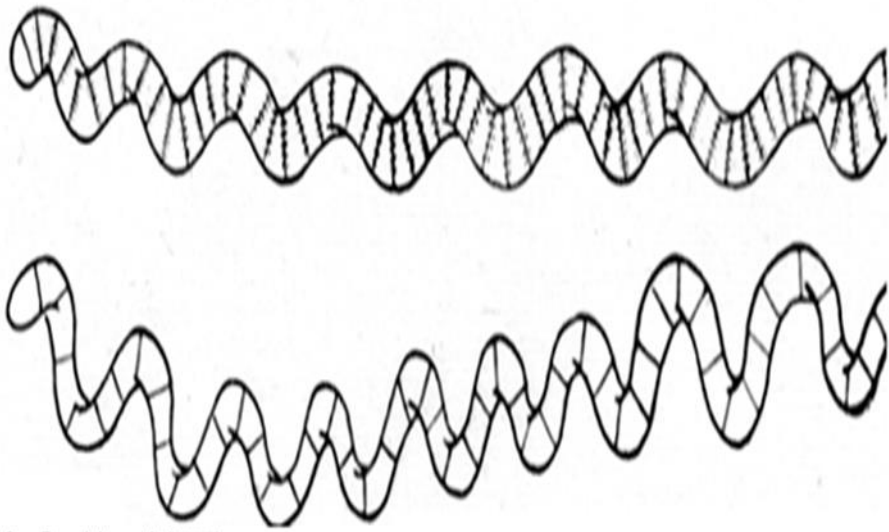
1. It is very similar to *Spirulina*, but it is a multicellular filament.

2. The spirals are usually irregular.





***Spirulina* Sp.**



***Arthrospira* Sp.**

# Q & A