# علم الأحياء الدقيقة

# Microbiology

## *Introduction to Phycology*


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مكتب ٢ بـ ٤٥

# Plant-Like Protista-True Algae

- All are "**Eukaryotic**".
- Have cells with **nuclei.**
- Live in moist environments.
- Can be **unicellular** or **multicellular-** microscopic or over 100 meters long.

- Photosynthetic; their nutrition is plant-like.
- Almost all of them have chlorophyll ***a***, most have chlorophyll ***c***, but only a few have chlorophyll ***b***.
- They also have a variety of carotenoids and other pigments.

# Plant-Like Protista-True Algae

- Algae have a widespread occurrence:
- Aquatic habitat: marine, freshwater.
- Terrestrial habitat: deserts, soils, trees, rocks, etc
- **Some are symbiotic**
  e.g. Green Algae (Zooxanthellae) live within reef building corals.
- "Plant-like" seaweeds.
- May be filamentous, grow in **mats** or **crusts**, sheets**,** or **kelp.**

# Plant-Like Protista-True Algae

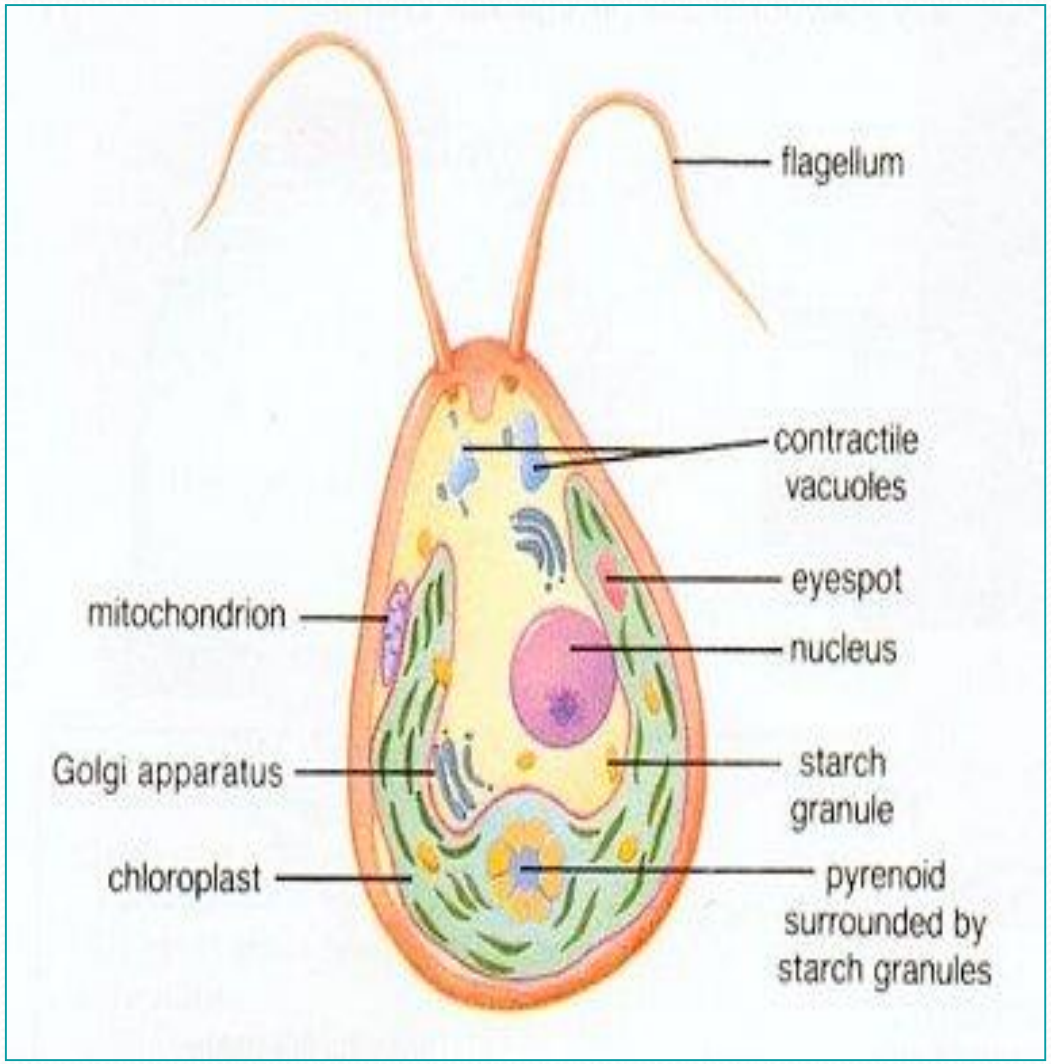
- **The most common are:**

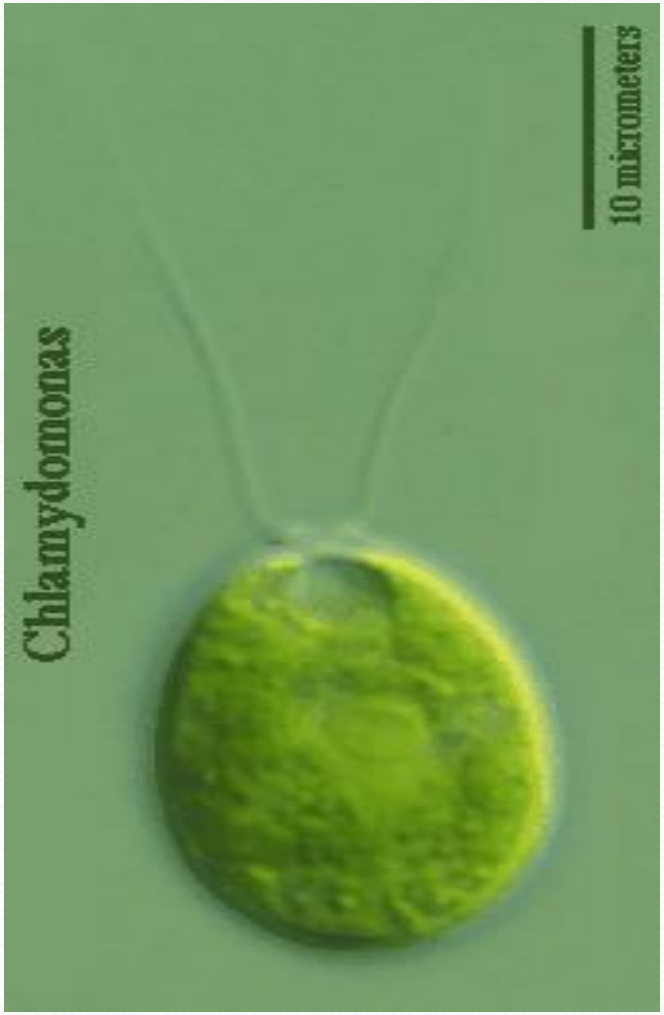
| | |
|---|---|
| Chlorophyta | الطحالب الخضراء |
| Euglenophyta | الطحالب اليوجيلينية |
| Bacillariophyta (Diatoms) | الطحالب العصوية |
| Phaeophyta | الطحالب البنية |
| Rhodophyta | الطحالب الحمراء |

# Plant-Like Protista-True Algae

- **Chlorophyta (Green algae)**: Chlorophyll- main pigment.
- Most live in fresh water, although some marine species exist.
- Cell walls are composed of cellulose.
- Green algae can be: Unicellular-"***Chlamydomonas***", Multicellular-"***Spirogyra***", and colonial- "***Volvox***".

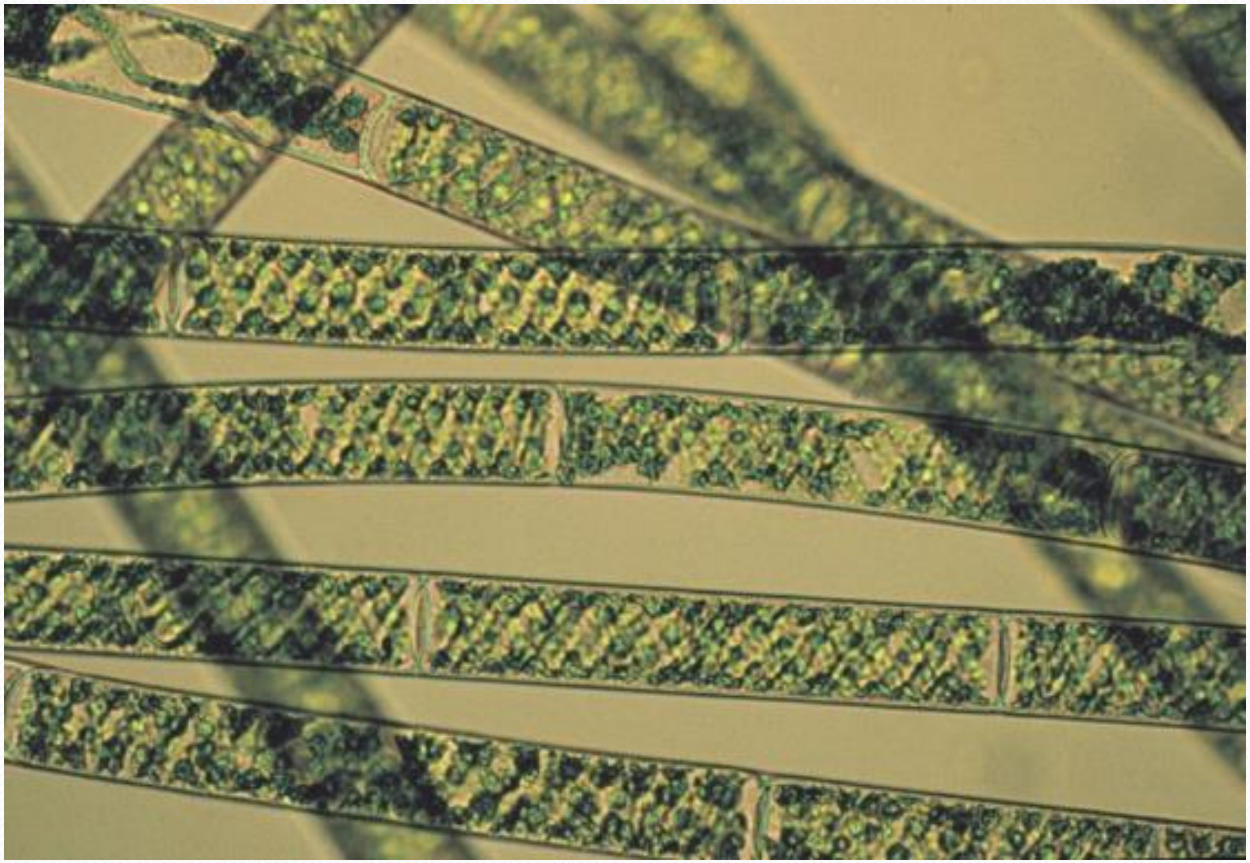
# *Chlamydomonas*



# *Volvox*

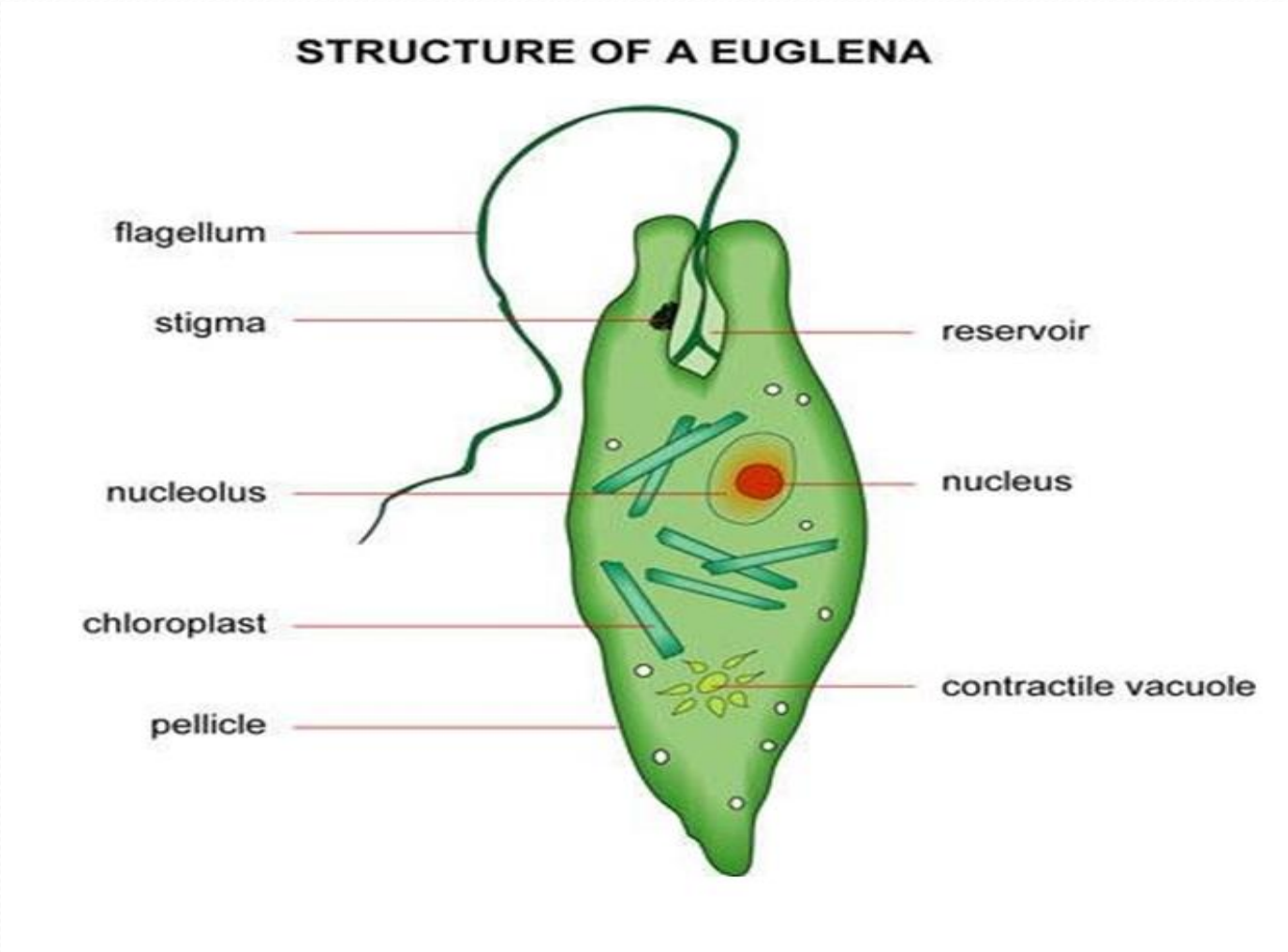
# *Spirogyra*



# Euglenophyta (Euglenoids)

- Found mostly in fresh water
- Unicellular
- Autotrophs = photosynthesis ,when there is light
- When there is no light = no photosynthesis they can be heterotrophs and can ingest food
- No cell wall = pellicle made up of protein
- They are like animals, i.e are motile having flagellum.
- They store their foods as paramylon a type of polysaccharide.

# *Euglena*


STRUCTURE OF A EUGLENA
flagellum
stigma
reservoir
nucleolus
nucleus
chloroplast
contractile vacuole
pellicle

# Bacillariophyta (Diatoms)

- Unicellular organisms of different forms- Autotrophs.
- They have silica in their cell walls.
- They can live in marine or freshwater environments.
- They contain chlorophyll as well as pigments called carotenoids, which give them an orange-yellow colour.
- Their shells resemble small boxes with lids. These shells are covered with grooves and pores, giving them a decorated appearance.
- Diatoms reproduce asexually, the two halves of the shell separate, each producing a new shell that fits inside the original half.

# Bacillariophyta (Diatoms)

• Each new generation, therefore, produces offspring that are smaller than the parent.
• At this point, the diatom produces gametes (male/female) that fuse with gametes from other diatoms to produce zygotes (sexual reproduction). The zygotes develop into full sized diatoms that can begin asexual reproduction once more.
• When diatoms die, their shells form deposits called diatomaceous earth.
• These deposits can be collected and used as an additive to give certain paints their sparkle.
• Diatoms store their foods as oils or leucosine.

# Forms of Diatoms

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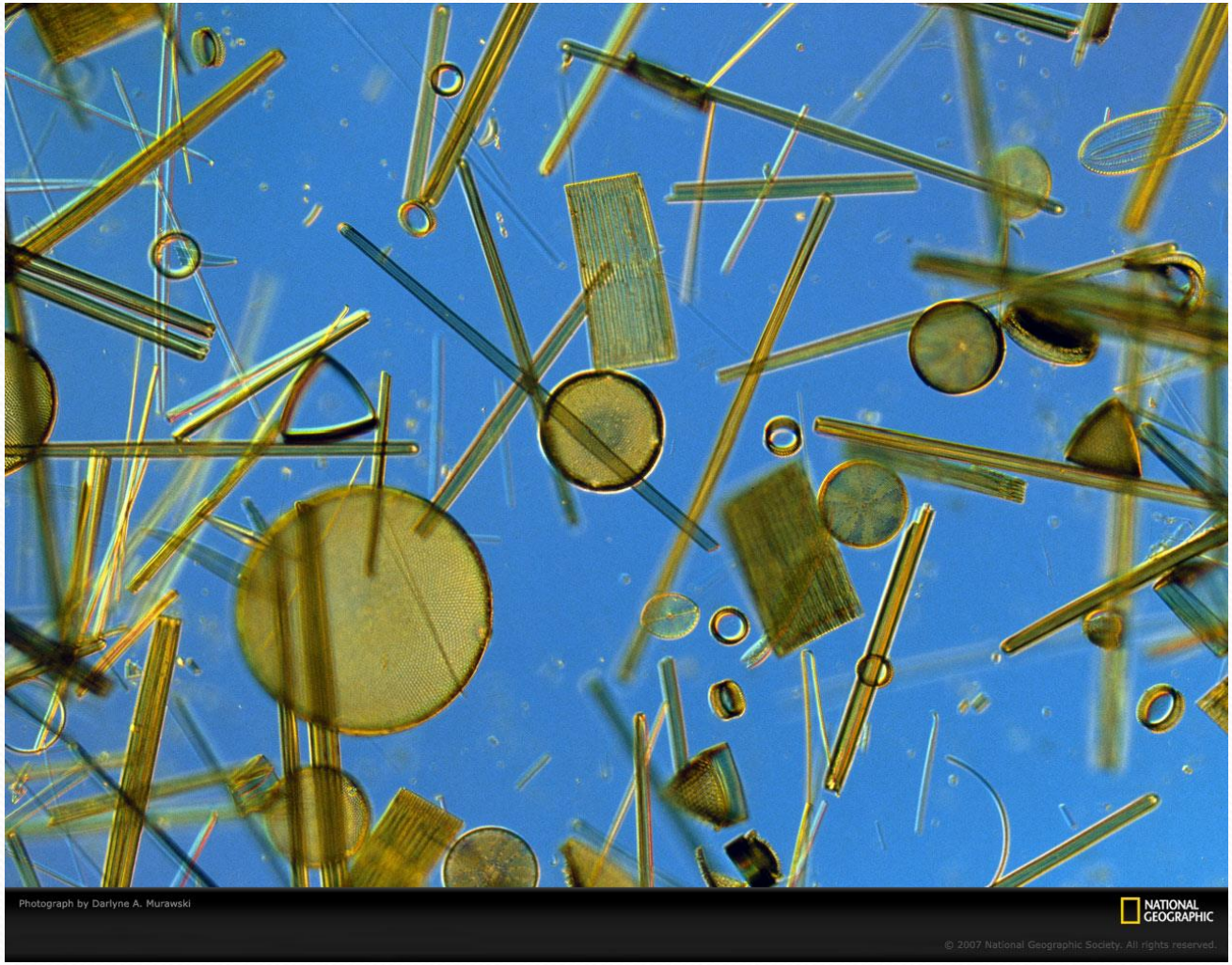

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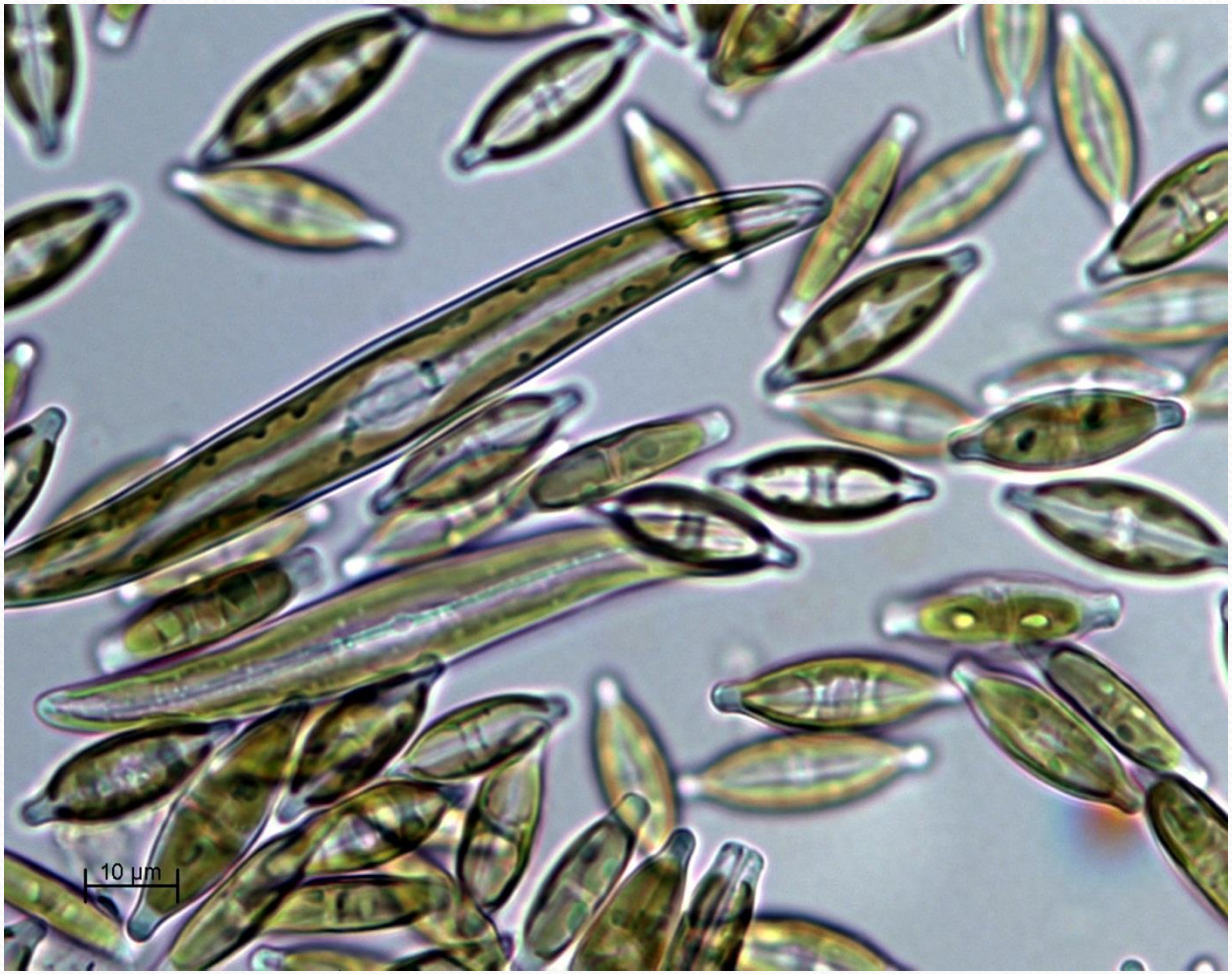

# QUESTIONS??