Quick Guide to the Major Groups of Freshwater Algae

by Cathy Kilroy

Cells contain organelles (e.g., chloroplasts; nucleus) plus granules of various kinds

- **YES** → Chloroplasts usually grass green
  - **YES** → Cells store starch: positive reaction to starch test.
    - **YES** → **Chlorophyta** A very large & varied group
    - **NO** → Cells motile and change shape, many small chloroplasts.
      - **YES** → **Euglenophyta**
      - **NO** → Cells may be filamentous, many small chloroplasts → **Ochrophyta:** Tribophyceae
  - **NO** → Ornamented silica cell walls. Cells sometimes in filaments. Often motile, but no flagella. Chloroplasts brownish
    - **YES** → **Ochrophyta:** DIATOMS
    - **NO** → Cells usually with 2 furrows around the cell, perpendicular to each other. Cell wall smooth or of angular plates, sometimes with projections. Brownish chloroplasts.
      - **YES** → **Dinophyta**
      - **NO** → Chloroplasts pale-yellow to brown. Single-celled or colonial. A single flagellum, or one long and one short
        - **YES** → **Ochrophyta:** Chrysophyceae
        - **NO** → Bean-shaped single cells with two flagella (only slightly unequal) arising from a small depression or furrow
          - **YES** → **Cryptophyta**
          - **NO** → Filamentous plants usually with a complex structure, olive or pinkish chloroplasts → **Rhodophyta**
- **NO** → Filaments (trichomes), single cells or gelatinous colonies. Cell contents diffuse; granules may be present → **Cyanobacteria**

GREEN ALGAE

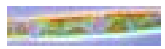
Chlorophyceae

Charophyceae

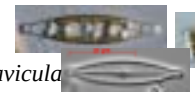
Ulvophyceae

YELLOW-GREEN ALGAE

Tribonema



Vaucheria



Navicula

Diatoma

DINOFLAGELLATES

Dinobryon

YELLOW-BROWN ALGAE

Batrachospermum

RED ALGAE

Compsopogon

Tolypothrix

Nostoc

"BLUE-GREEN" ALGAE

NIWA
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