

Classification of Algae

Basis of Classification of Algae

- 1) Chemical & physical feature of the cell wall
- 2) Nature and properties of pigments that contribute to photosynthesis.
- 3) Morphological characteristics of cells and thalli
- 4) Habitat
- 5) Flagella Number and the location of their insertion in motile cells
- 6) Reproductive Behaviour

Scientist

- | | | |
|---|----------------------------------|----------|
| ⇒ | 1) F.E. Fritsch's classification | (1935) |
| ⇒ | 2) G.M. Smith's | " (1950) |
| ⇒ | 3) Round's | " (1973) |
| ⇒ | 4) Bold & Wynne's | " (1985) |
| ⇒ | 5) Robert Edward Lee's | " (1989) |

1) F.E. Fritsch's Classification (1935)

— The most comprehensive and authoritative classification of Algae

He has Book

'The Structure and Reproduction of Algae'

F.E. Fritsch divided Algae into 11 classes on the following basis.

- Number of and Mode of attachment of flagella in the motile cells.
- Thallus Structure.
- Chemical nature of pigments.
- Reserve food materials.
- Mode of Reproduction.
- Variation in the life cycles.

11 classes are

- 1) Chlorophyceae
- 2) Xanthophyceae
- 3) Chrysophyceae
- 4) Bacillariophyceae
- 5) Cryptophyceae
- 6) Dinophyceae
- 7) Chloromonadineae
- 8) Euglenineae
- 9) Phaeophyceae
- 10) Rhodophyceae
- 11) Myxophyceae ~~Cyano~~ (Cyanophyceae)

2) Smith Classification (1950)

- Classified Algae into seven divisions.
- These divisions include one or more classes.

- 1) Chlorophyta: Chlorophyceae & Charophyceae
- 2) Chrysophyta: Chrysophyceae, Xanthophyceae & Bacillariophyceae
- 3) Phaeophyta: Dinophyceae & Desmophyceae

- 4) Euglenophyta
- 5) Phaeophyta
- 6) Rhodophyta
- 7) Cyanophyta

Bold and Wynne's Classification

— 10 Divisions

- 1) Cyanophyta (Blue green Algae)
- 2) Prochlorophyta
- 3) Chlorophyta (Green Algae)
- 4) Charophyta (Stoneworts)
- 5) Euglenophyta
- 6) Phaeophyta
- 7) Chrysophyta (Golden & Yellow green Algae)
- 8) Pyrrophyta (Dinoflagellates)
- 9) Cryptophyta
- 10) Rhodophyta

Robert Edward Lee's Classification

— Lee (1989) divided the algae based on evolution and form into evolutionary groups of algae which further divided into 15 phyla (divisions)

- 1) Prokaryotic Algae (Cyanophyta)
- 2) Eukaryotic algae with chloroplast surrounded ~~by~~ only by the two membrane of the chloroplast envelope (Glaucophyta, Rhodophyta, Chlorophyta)

3) Eukaryotic Algae with chloroplast surrounded only by one membrane of chloroplast endoplasmic reticulum (Euglenophyta and Dinophyta)

4) Algae which have two membranes of chloroplast endoplasmic reticulum (Cryptophyta & ~~Heterokontophyta~~ Heterokontophyta)

F. E. FRITSCH (1935)

11 classes Details

1. > Chlorophyceae
2. > Xanthophyceae
3. > Chrysophyceae
4. > Bacillariophyceae
5. > Cryptophyceae
6. > Dinophyceae
7. > Chloromonadineae
8. > Euglenineae
9. > Phaeophyceae
10. > Rhodophyceae
11. > Myxophyceae (Cyanophyceae)

⇒ Classification is published in his book titled "The Structure and Reproduction of Algae"