

CLASSIFICATION OF ALGAE.

1.

Various types of classification have been given by different phylogists. The principal criteria for the primary classification of Algae are differences in pigmentation, other biochemical characteristics and the structure of organelles such as flagella. Few important classifications are given below:—

(1) CLASSIFICATION BY F. E. Fritsch (1935) —

Fritsch gave his classification in his book "The structure and reproduction of the Algae".

Considering phylogeny, affinities and inter-relationships of various forms, ~~the~~^{he} classified algae into 11 classes —

- i) Chlorophyceae
- ii) Xanthophyceae
- iii) Chrysophyceae
- iv) Bacillariophyceae
- v) Cryptophyceae
- vi) Dinophyceae
- vii) Chloromonadineae
- viii) Euglinineae
- ix) Phaeophyceae
- x) Rhodophyceae
- xi) Myxophyceae.

Now a days characters like - structure of plant body, nature of pigments, reserve food materials, methods of reproduction, occurrence, cell wall chemistry, flagellation and cellular organisations are also considered for classification.

② CLASSIFICATION BY F. E. ROUND (1965)

Round's classification was based on Christensens (1962) system. First he classified the whole algae into two groups — ~~Prokaryota~~ & Eukaryota.

A) Prokaryota :- It includes single phylum "Cyanophyta" having the class cyanophyceae.

B) Eukaryota :- This group was divided into seven phylum which are as follows —

- i) ~~Chryso~~ Chrysophyta — ④ classes are - xanthophyceae, Chrysophyceae, Haptophyceae & Bacillariophyceae
- ii) Chlorophyta — ⑤ classes are - Chlorophyceae, Oedogoniophyceae, Bryopsidophyceae, Conjugatophyceae & Charophyceae.
- iii) Euglenophyta — ① Euglenophyceae
- iv) Pyrophyta — ② Desmophyceae & Dinophyceae
- v) Cryptophyta — ① Cryptophyceae
- vi) Phaeophyta — ① Phaeophyceae
- vii) Rhodophyta — ① Rhodophyceae.

As a whole algae was classified by Round in 02 groups, 08 phylum and 16 classes.

③ CLASSIFICATION BY Chapman & Chapman (1973)

Using a combination of biochemical characters together with morphological differences, the algae were ~~classified~~ classified by them in 2 major groups.

(A) PROKARYOTA & — consists single divi. with single class.

(B) EUKARYOTA — It was divided into 10 divisions

Tab. Classification by Chapman & Chapman (1973)

	<u>Division</u>	<u>Class</u> (3)
A. <u>Prokaryota</u> -	Cyanophyta (blue green algae)	Cyanophyceae
B. <u>Eukaryota</u> -	1. Rhodophyta - (Red algae)	i) Rhodophyceae
	2. Chlorophyta - (green algae)	i) Chlorophyceae ii) Prasinophyceae iii) Charophyceae
	3. Euglenophyta - (Euglenoids)	i) Euglenophyceae
	4. Chloromonadophyta - (Chloromonads)	i) Chloromonadophyceae
	5. Xanthophyta - (yellow-green algae)	i) Xanthophyceae
	6. Bacillariophyta - (diatoms)	i) Bacillariophyceae
	7. Chrysophyta - (golden-brown algae)	i) Chrysophyceae ii) Haptophyceae
	8. Phaeophyta - (brown algae)	i) Phaeophyceae
	9. Pyrrophyta - (dinoflagellates)	i) Dinophyceae ii) Desmophyceae
	10. Cryptophyta - (Cryptomonads)	i) Cryptophyceae

(4) CLASSIFICATION GIVEN BY TRAINOR (1978)

Trainor divided the whole algae in five divisions and 13 classes. It is regarded as a good classification among the various models of classification. Details are

④

<u>Division</u>		<u>Class</u>
1. <u>Cyanophyta</u>	—	i) Cyanophyceae
2. <u>Rhodophyta</u>	—	i) Rhodophyceae
3. <u>Cryptophyta</u>	—	i) Cryptophyceae
4. <u>Chromophyta</u>	—	i) Phaeophyceae ii) Bacillariophyceae iii) Xanthophyceae iv) Chrysophyceae v) Haptophyceae vi) Eustigmatophyceae vii) Dinophyceae
5. <u>Chlorophyta</u>	—	i) Chlorophyceae ii) Charophyceae iii) Euglenophyceae

* Div. Cyanophyta includes blue green algae. It is separated due to prokaryotic nature and other features which are absent in rest of the algae.

* Div. Rhodophyta was separated due to the presence of red pigment (Phycocyanin). Here, the reserve food is Floridian starch and sexual reproduction is of oogamous type. They are also characterized by the absence of flagellated stage.

* Div. Cryptophyta is characterized by the presence of phycobilins and chl. c. Vegetative cells are motile, naked, unicellular with two equal usually anteriorly located flagella.

* Div. Chromophyta - Bi-flagellate cells with chl. a & carotenoid. Zoospores usually with tubular hairs or one flagellum.

* Div. Chlorophyta - chl. b present. Reserve food - starch. However, the inclusion

of the class Euglenophyceae in this div. is surprising

Placing of Eustigmatophyceae in Chromophyta instead of Cryptophyta is surprising