Algae

Thallus Organization

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PPT is prepared with the help from Google, books and journals

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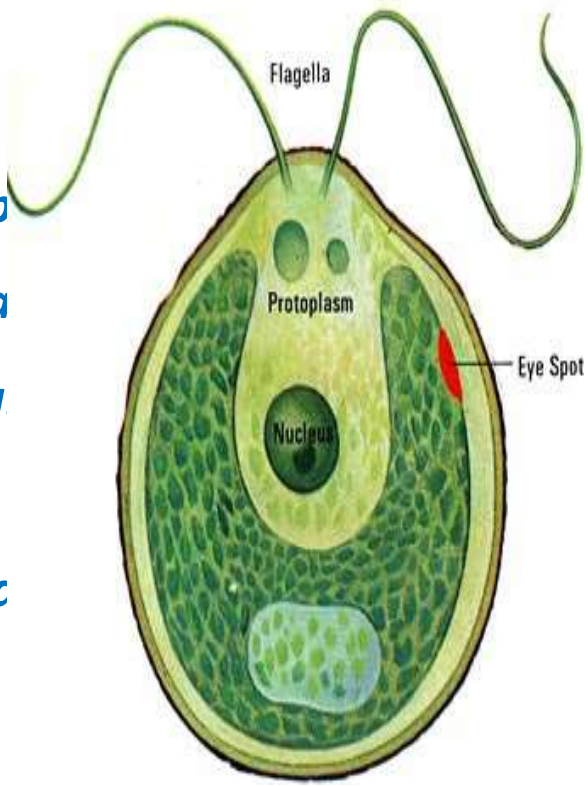
Algae exhibit great diversity in organization of plant body.

A. UNICELLULAR MOTILE FORMS

- *Unicellular motile forms are found in all major group except phaeophyceae, hodophyceaea,bacillariophycea*
- *The presence of unicellular plant body beaering mea of motility ie, flagella Eg:Chlamidomonas*
- *Flagella may be equal as in chlorophyceae or unequc as in xanthophyceae or Dinophyceae.*
- *Number of flagella may be one as in some chrysophyceae to four as in some chlorophyceae.*



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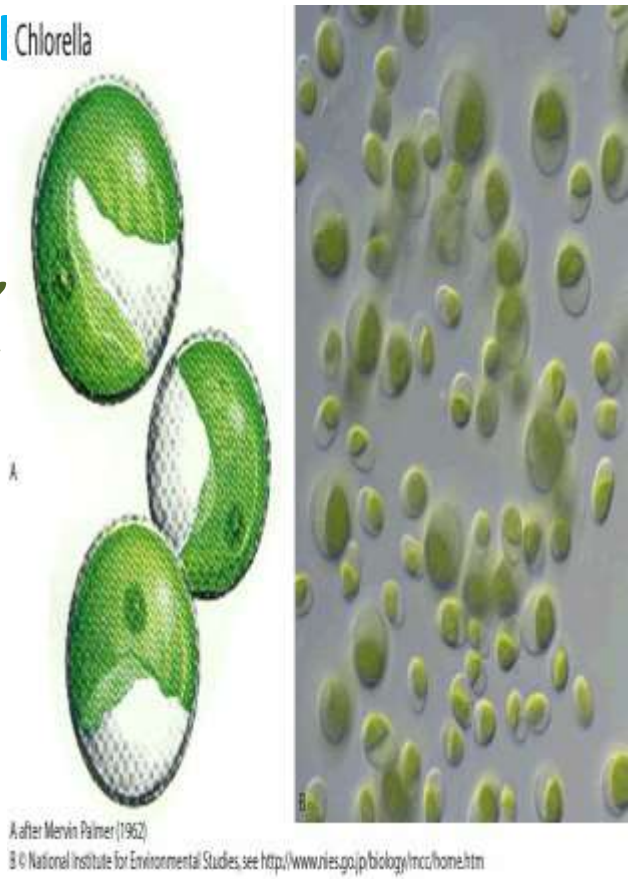
B Unicellular non – motile for



A after Mervin Palmer (1962)
B © National Institute for Environmental Studies, see http://www.nies.go.jp/biology/mcc/home.htm

- *Unicellular non – motile thalli are found in many algal groups including chlorophyceae, chrysophyceae, cyanophyceae, xanthophyceae,bacillariophyceae and rhodophyceae.*
- *They posses unicellular plant body with no flagella*

Eg: Chlorella

- *Chlorella which posses microscopic sphereical cells each with nucleus and cup shaped chloroplast.*

Eg: Synechococcus of myxophyceae

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C. MULTICELLULAR FLAGELLATED OR COLONIAL FORMS

- *These are colonial members of algae Whose cells bear flagella, colonial habitat have been developed by the other aggregation of many motile forms.*

- *Innumerable number of cells are present in the body.*

- *Colony with defenite number of cells and having constant shape and size is callaed coenobium.*

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C. MULTICELLULAR FLAGELLATED OR COLONIAL FORMS

- *Multicellular motile forms belonging to chlorophyceae, chrysophyceae and Dinophyceae Eg: Volvox*
- *In volvox, defenite number of cells are interconnected with protoplasmic connections.*

- *Coenobium is hollow and spherical.*

Eg: Ceratium and Gonyaulax of Dinophyceae

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NON - FLAGELLATED COLONIES

- *Plants bear definite number of cells and represent a coenobium. The cells are non – motile and do not have flagella. Eg: Hydrodictyon.*

- *In which the cells of net remain connected in the forms of groups of 5 or 6 forming pentagonal or hexagonal.*

- *Non – flagellated collonial habitat developed by the aggregation of unicellular non – motile cells.*

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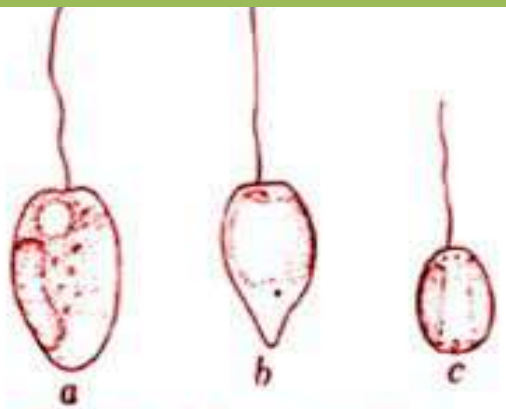
PALMELLOID FORMS



Chromulina ovalis

- *These are the collonial members of algae in which in non – moltile cells remain embeded in an amorphous gelatinous.*
- *In this form neither the number nor the shape and size is constant.*
- *Cells aggregated in mucilaginous envelop. Eg: Chlamidomonas, Chromulina*
- *According to Klebs(1886), Scroder and Virieux(1910) the mucillage in palmoid forms is secreted eigther by the protoplast of the cell or develop by gelatinization of their membraines*.

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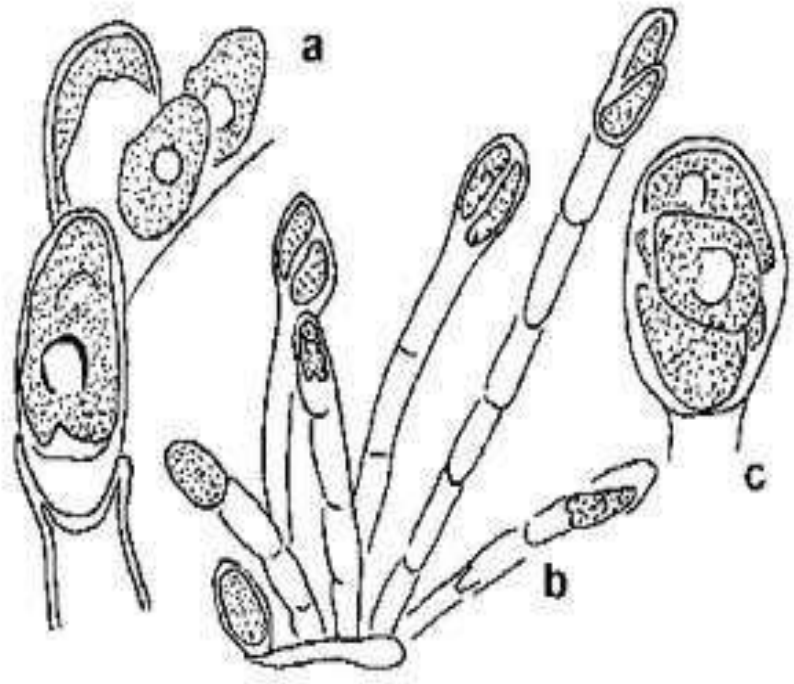
DENDROID FORMS



- *Dendroid means tree – like.*
- *In prasinocladus, Eebollocystis etc the plant body appears like a microscopic tree.*
- *Mucillage in such cases is restricted only locally, generally at the base of cell.*

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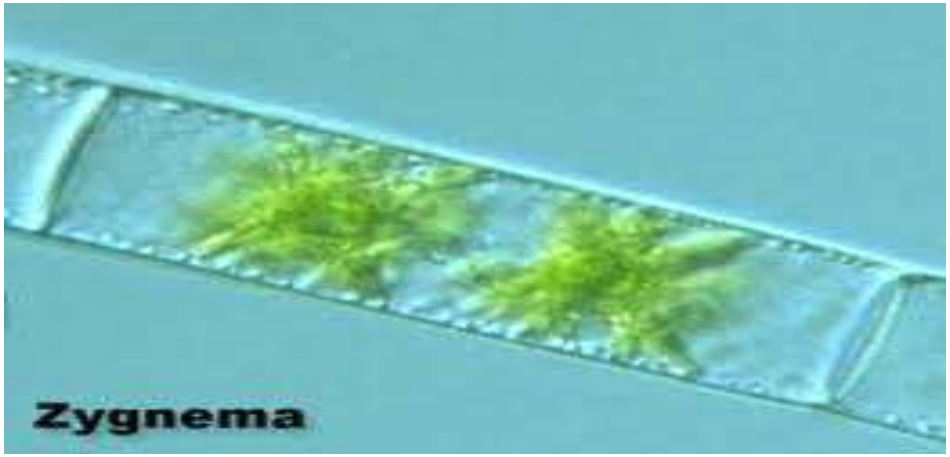
FILAMENTOUS FORMS



- *Many cells arranged one upon the other in a defenite sequence or uniseriate row constitute a filament.*

- *Filamentas may be unbranched and branched.*

- *Unbranched filament found spirogyra zyngenea, Mongeotia, Ulothrix, Oedogonium, Nostoc etc*

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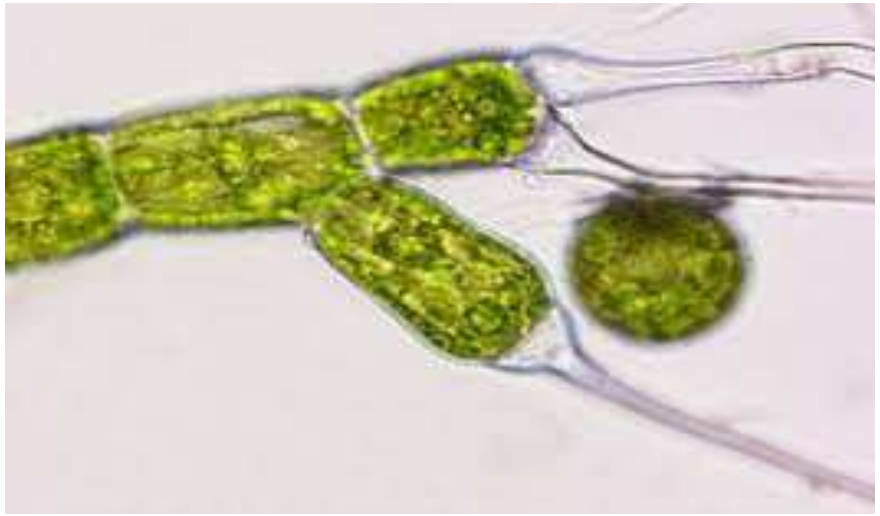
FILAMENTOUS FORMS



.In ulothrix, oedogonium etc the filaments remain attached the substratum with basal specialized cell but in zygnema, Spirogyra they are free flotting.

- *Branched filamentous are found in chladophoro, phecothamnion etc.*

- *In some genera of myxophyceae such as scytonema, false branching is observed.*

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HETEROTRICHOUS FORMS

- *"Hetero" means differenciated and "trichous" denote filament.*
- *In some algae plant body exhibit more than one type of filament and thus represent heterotrichous habit.*
- *It is characterestic feature of chaetophorales of chlorophyceae.*
- *In general, the plant body of prostrate system develop an erect system of filaments. The errect system is called primary projecting , this may be devided into many branches is secondary projecting system and tertiary projecting system. Eg: Erythrotrichia, Draparnaldia,Tilopteris*

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SIPHONOUS FORMS

- *In siphonous forms the plant siphon body enlarges considerably without the formation of any septa because the presence of many nuclei ie,coenocyte.*
- *A large central siphon like vacuole is present in the thallus.*

- *This algal thalli are found only in some chlorophyceae and xanthophyceae. Eg: Voucheraria- coenotypic plant (boby encloses a siphon like vacuole.), Botrydium, Valonia, Codium,Bryopsis.*

Botrydium

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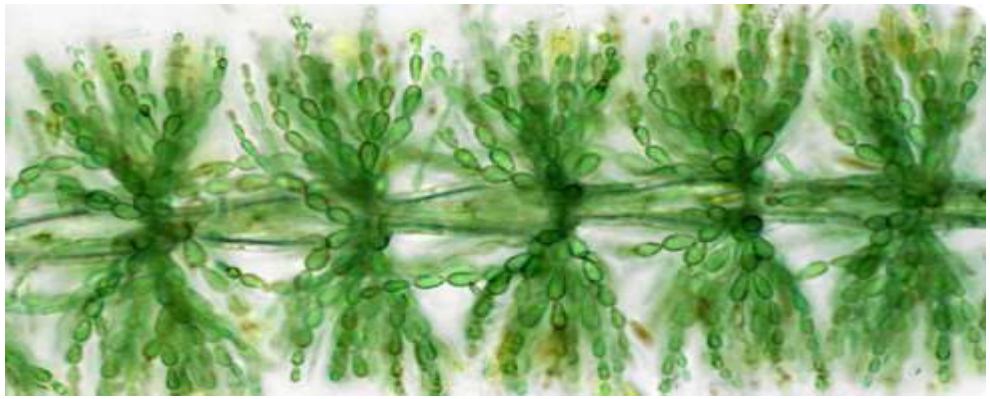
UNIAXIAL FORMS



- *Uni means one and axial pertains to axial.*
- *In some rhodophyceae, plant body is made up of such pseudo parenchymatous thalli and there is present on the main axis and all other side branches. Eg: Batrachospermum*
- *Uniaxial forms of thalli must have been originated from the filamentous habit during the cource of evolution.*

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MULTIAXIAL FORMS

- *Multi stands for more than one and axia pertains to axis.*
- *In some algae the thallus construction present a number of threads in close juxtaposition giving the appearance of more than one axis.*
- *Different filament of the central and side axis form more or less a compact cortex. Eg: Codium, Polysiphonia, Nemalion*

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PARENCHYMATOUS FORMS

- *Abundant septation of filament in two or more planes results in the formation of parenchymatous body in some algae.*
- *Such plants may ultimately be foliose and flat (Ulva) or tubular (Entermorpha).*

Eg: Chara, Porphyra, Dictyota, Sargassum

THANKS