Quadrant II - Transcript

Welcome students, I'm doctor.Professor Maria Fonseca,

Principal St. Joseph Vaz College. My topic today is

on : Paper biodiversity 01.

Paper BOC 101. The module name is Range of

Thallus Organization in Algae. The learning outcomes or

What you're going to learn at the end of the topic -l

Understand the thallus structure of different algae, we will learn

about the thallus of unicellular and multicellular

algae, summarize the classification of algae based on

Thallus organization. The outline of my presentation is

classification of algae based on thallus structure.

The structure of unicellular and multicellular algae.

As well the structure of non motile and motile algae. You must have

already gone through and know what algae. you have already studied

About the characteristics of Algae. Just a brief revision

of the same.

The plant body in algae is

always Thallus. It is not differentiated into root, stem

and leaves. Alga range in size from minute unicellular

plants to very large, highly differentiated multicellular

forms like the kelps.

The range of Thallus organization in algae may be classified as Follows: The thallus in algae may be classified or you can differentiate them into unicellular and multicellular forms. Unicellular are those that perform all the life function. All life Functions are performed by one Organism, while multicellular forms will have more than one cell which will do the functions of the whole body.

The unicellular forms may be non motile or motile. The non motile unicellular forms, We may differentiate them as on the shape as coccoid or spiral.

The coccoid unicellular forms are rounded or globular, with absence of any locomotory organ, so flagella are absent. No outgrowths are seen.

While in case of spiral filamentous forms, you have unicellular form, which is filamentous as in case of *spirulina* where the whole thallus is . spiral or coil. Now the motile unicellular forms. Since They are motile they show the presence of a locomotory organ. So we can consider them as flagellate. The Flagella are present. Now these are normal.

Oblong elongated pear, shaped as in case of *Chlamydomonas* or they

may be Rhizopodial.

Where you'll find Flagellasl are absent, cell wall absent, but

have cytoplasmic extensions.

Which helped them in amoeboid

movement. Example *Chrysoamoeba*. The multicellular forms maybe

Colonial, Filamentous, Siphonous and Parenchymatous. Now

going to the colonial forms: the meaning of a colony. Colony,

Is a number of uni cells that have come together and all these

Cells are connected together in a loose aggregate, common

mucilaginous mass. So we have many unicellular cells in a

gelatinous mass. Now they may form a coenobium. So Coenobium is nothing

but a colony of a definite number of cells, size an arrangement.

While aggregate forms their colonies, but the colony is with

cells, which are irregular or colony forming irregular

structure. The mass of these colonies may vary in shapes. Now

Under this, again we have non motile form,s where you will

find the non motile unicells have come together in a

gelatinous mass, and the number may vary, as in case of

Scenedesmus. Which have four to about 32 cells, but these are all non

motile. They do not have any locomotory organs. Then we have

the motile forms as in case of

Volvox. Where you find the whole colony is made up of cells which

are flagellate. The flagella or the locomotory organs are

Present. the number of cells are connected to each other and the

the whole colony propels with the help of these flagella. So this

is about Volvox, a motile form. Now going to the aggregate

colonial forms. In aggregate, they do not have exact

number of cells and they may form an irregular shape of

colonies. We have Pamelloid, we have Dendroid and Rhizopodial.

In Palmelloid, here you'll find the

cells, which may be motile or non

motile. Which come together and form temporary or a permanent

colony as in case of *Tetraspora*, we find it forms permanent

structure where unicells with Flagella

have come together and each of them has their own functions.

Each of them perform or live individually. Going to the

dendroid form. From the structure itself, when you see

these under the microscope, these looks like small miniature

trees. We have an example of *Dinobryon.* The way the cells are

arranged end to end and the mucilage is localized or

restricted at the base. So that is in case of dendroid that's

the difference between dendroid and palmelloid. In Rhizopodial type

type. We have examples of *Chrysidiastrum.* you'll

find the cells of these are showing cytoplasmic streaming

strands which are connected to each other by

rhizopodia, we call them

as rhizopodial forms,forming a colony with mucilaginous mass

around it. Then the filamentous

Form: Now filamentous form may be unbranched or branched.

In unbranched form.

We have forms like *Spirogyra* where you'll find the cells are arranged

end to end to form a filament.

Now these may be floating or free floating in water as in case of

Spirogyra, we find it is floating in water or you may find the

basal cell remain attached to the substratum, while the

The remaining cells form a filament. No branches here.

In branch, we may have Falsely branched. We may have Simple

branched, Heterotrichous or Pseudoparenchymatous.

The falsely branching,example is *Scenedesmus*

where you find filaments which are there sometimes are broken

And come out from the mucilaginous mass to form a

branch like structure.

So since these are not the real branches, we call them as

falsely branched. Then in simple branching we find- as in

case of *Cladophora* the basal cell is attached

to substratum, and the filament which.

are erect and will find at the cross walls there will be formation of

branches. Simple branches which leads to dichotomous type of

branching. Going to the heterotrichous type,

 Which is a slightly highly evolved type. As we see

In *Ectocarpus.* Here you will find it shows two

or different type of branching the prostate branching

 an erect branching. You

can see the prostate branching which creeps on the floor.

the erect branches will grow upward growth taking place with a single cell

and both of them are different from each other. We're going to

the pseudo parenchymatous type.

Pseudo is a false parenchymatous structure. It looks like Parenchyma

 but it is false. You will find the filaments which are

they are tightly held together forming a common mass of cells.

 but they're not real parenchyma, so in some cases as in

Polysiphonia we can see the siphons, which are there

arranged in line, but they are all pseudo parenchymatous. Then

we have the Parenchymatous forms,

we have example of *Porphyra* where you will find the whole

Thallus is made up of parenchymatous cells because the

growth is not only in one plane but the growth takes place in

different planes. Therefore it becomes foliose and flat.

You find in Siphonous also coming under parenchymatous

forms it. It's a more complex structure where you find

different types of branching and different types of structures.

Lastly the Siphonous forms. We have *Vaucheria.* Now this virtue area is a siphon

like structure where you will find there is no SEPTA

formation. There is no septation, therefore we call it aseptate.

The aerial and the prostrate thallus is seen the Thallus

Shows number of nuclei. And therefore we call it coenocytic condition.

Number of nuclei without any septa. .And you will find this in Vaucheria

The septa may be formed only where the reproductive

organs are borne.

That is about siphonous form that is

Vaucheria.

now for further reference you can refer to the

books like Pandey and others

Thank you students.