VAUCHERIA

Q. Describe the structure, reproduction and [illegible] of Vaucheria.

Ans → Systematic Position →

Class - Chlorophyceae
Order - Siphonales
Family - Vaucheriaceae
Genus - Vaucheria (1935)
Fritsch

Systematic Position →

Class - Xanthophyceae
Order - Heterosiphonales
Family - Vaucheriaceae
Genus - Vaucheria
Blakmann and Smith (1954)

Occurrence and structure of the Thallus

- Vaucheria usualy grows either in fresh wate or terristerial or even marine. Filamentous thallus is tubular. It includes about 40 Speci Out of that 9 species reported from India Some of them are terristerial like Vauche sessilis and Vaucheria hamata. Vaucheria amphibia grows in water as well as on land. Vaucheria sessilis and Vaucheria geminata are comman Indian species. Whi is found during winter season.

The filament of Vaucheria yellowish green, Cylindrical, tubular, branche acepted and it is attached by means of narow colourless rhizoids (Hold fast) like branches which anchorage the plant in muddy substratum.

The thallus is provided with a cell wall which is thin and composed of two layers. The outer most layer is made up of Pectose and inner layer is made up of Cellulose. Due to pectose it is smooth to touch. Inside cell wall there is prominent single central vacuole and protoplasm. Many chloroplast are present towards the inner side of the cell wall. Oil drops occurs as the reserve food material (Pyrenoid are absent). In protoplasm there in multy nucleate structure scattered. Due to is multy nucleate structure. the thallus is called Coenocytic. The entire thallus is attached with a substratum by means of colourless holdfast.

Fig →

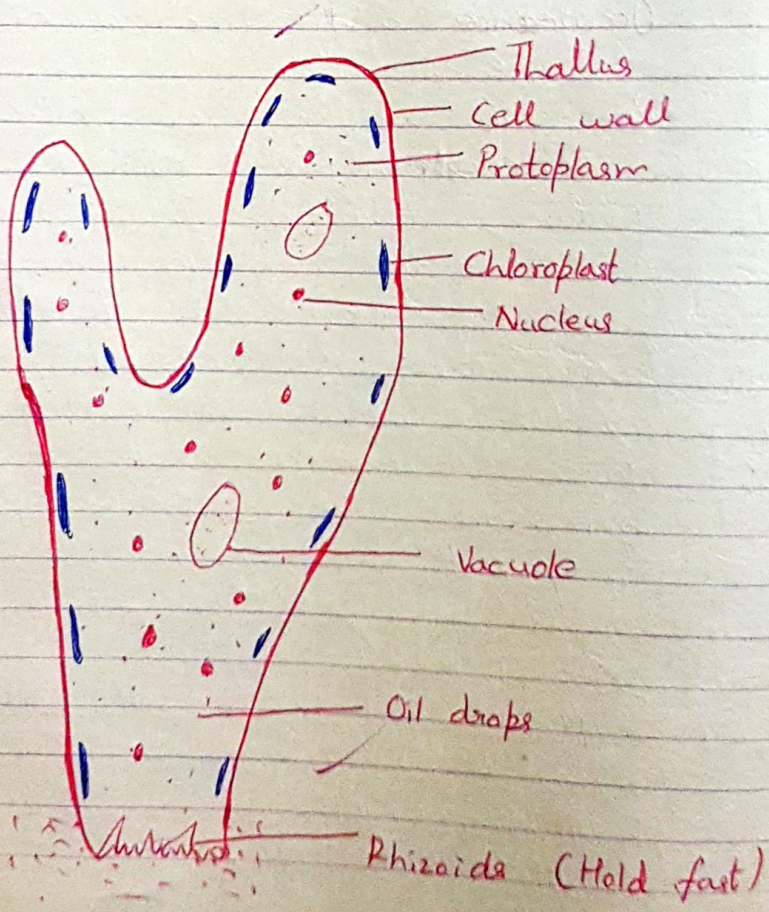

Fig - Thallus of Vaucheria in detail

Reproduction → It reproduces by three meth
They are

1. Vegetative Reproduction → Underfavourable co
it takes place by
of fragmentation of the filament. And ea
fragment by repeated cell divition develops
a new thallus of Vaucheria.

2. Asexual Reproduction → This type of reprod
may be takes p
both in favourable and Unfavourable cond
In aquatic species Asexual reproduction t
place by means of Zoospores formation und
favourable condition, And in terristerial spe
it takes place by means of Aplanospores, Akl
Hypnospores and Cyst formation under unfavou
condition.

(A) By means of Zoospores formation → The th
of the Va
-ria behave like a Zoosporangia. Where a septa
form and each Zoosporangia produce a sy
-Zoospores. A Zoosporangia is cut off from r
of the branch by means of a septa. But
before septa is form protoplasm, nuclei, plasti
etc move towards the apical portion of t
thallus. The terminal portion of this thallus
swells slightly where protoplasm, nuclei, plastic
inserted in this portion. Then a septa is fo
where zoosporangia is cut off from the par
plant. And on return of favourable condi
the dence internal centroplasm of the zoosp
-gia divides and redivides and form a

zoospores. The These form zoospores are multy nucleate, multy-flagelate and globose. So they are known as Synzoospores or Compound zoospores.

After returning the favourable condition the synzoospores comes out from the zoosporan-gium. By means of a pore. And begins to germinate. At the time of germination all flagella are with drawn and secrets a double layer wall arround it. After some time the outer wall rupture and the inner wall germinate in the form of a germ tube. Ultimatly the germ tube by repeated cell divition. They develops a new thallus of Vaucheria.

Fig →

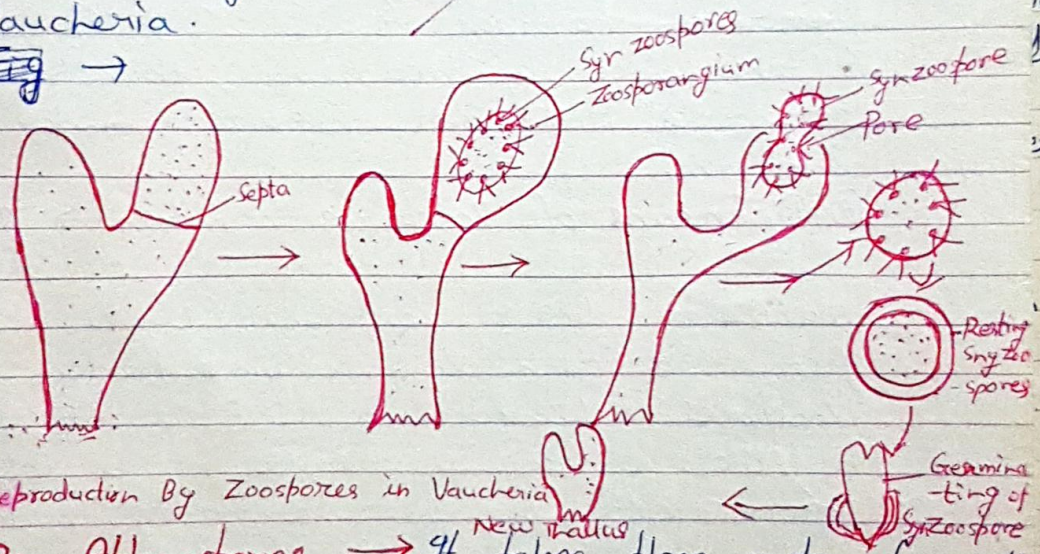

Fig - Asexual Reproduction By Zoospores in Vaucheria

(B) By Aplanospores → It takes place under unfavourable condition in terristerial plant only. They develop within Aplanosporangium. They are non-motile spores. They form like synzoospores But there is absent of flagella. On returning favourable condition each Aplanospores comes out from Aplanosprarangium. Through a pore and after taking some rest they germinate and

produce a new thallus of Vaucheria on returning favourable condition.

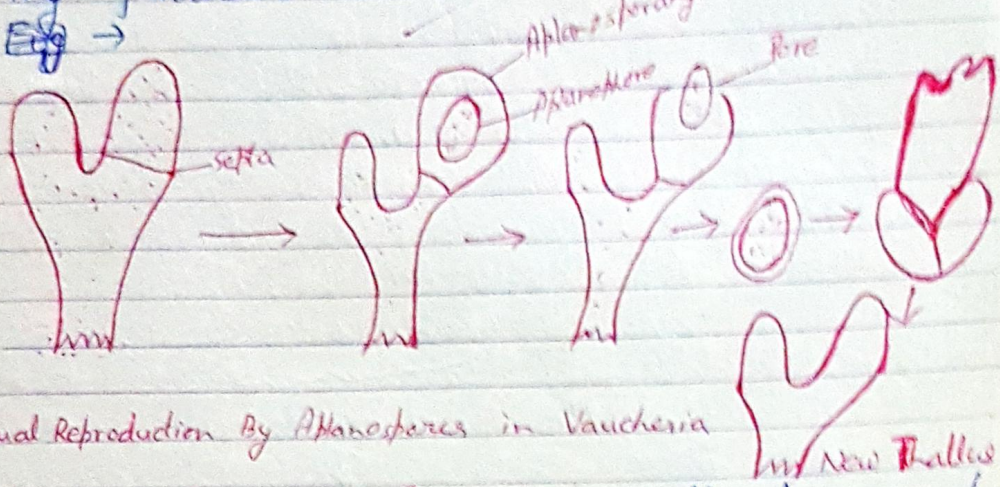

Fig- Asexual Reproduction By Aplanospores in Vaucheria

© By Akinetes formation → Akinetes may be form in any part of thallus under unfavourable condition the protoplast of the thallus divides into small parts. And each parts surrounded by thick cell wall. Which is known as Akinetes. After returning favourable condition they are detatched by a pore of the thallus and after returning favourable condition each Akinetes germinate and form a new thallus of Vaucheria. Occasionally the Akinetes may germinate, when they still of the thallus.

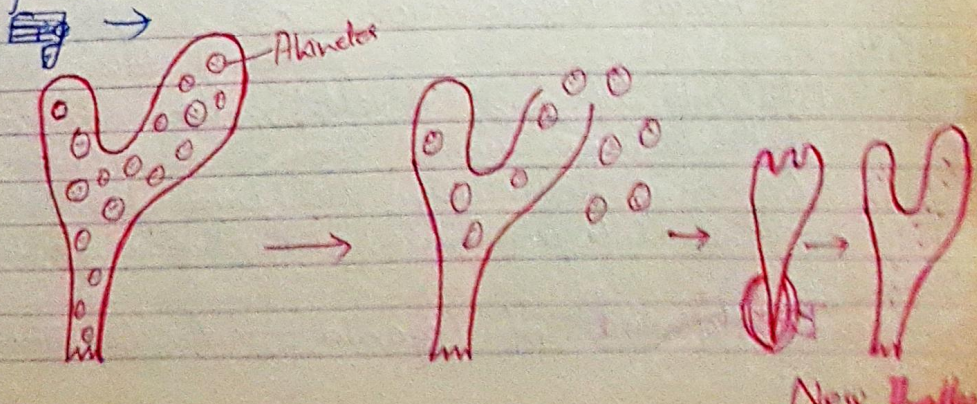

Fig- Asexual Reproduction by Akinetes in Vaucheria

④ By Hypnospores or Cyst formation → Under unfavourable condition the protoplasm of the thallus gets divided into a square like chamber which form thick wall and each part is known as Hypnospore. After returning favourable condition they germinate directly and forms a new thallus of Vaucheria.

Some times each Hypnospore may be broken of into a number of thin minutes cells. That cell are known as Cysts. These cysts escapes out through a pore of the thallus and germinate immediatly to form a new thallus of Vaucheria under-favourable condition.

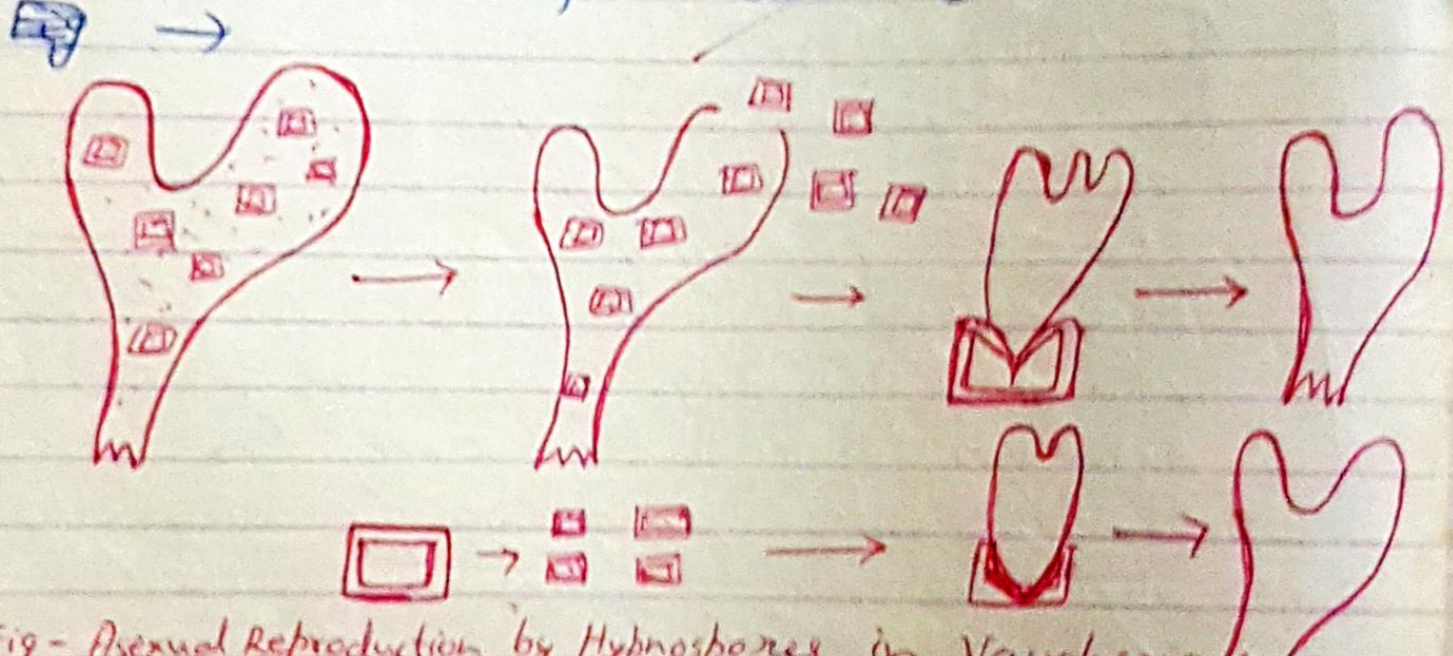

Fig - Asexual Reproduction by Hypnospores in Vaucheria