

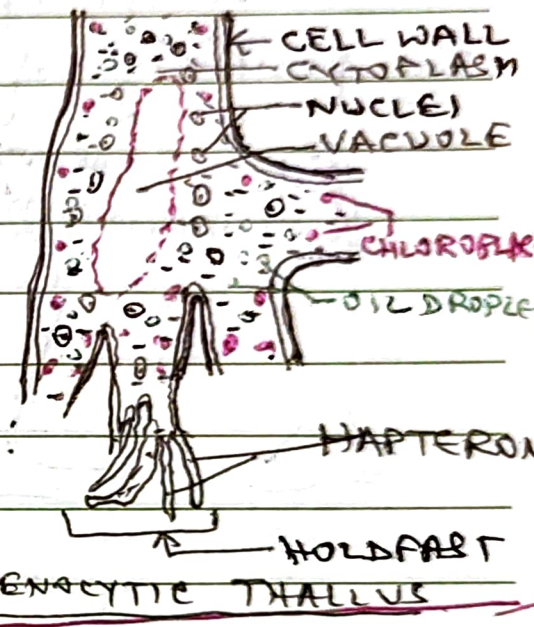
Q. Give an eye of the structure and by...

Ans. Vaucheria is a green alga belonging to class - CHLOROPHYCEAE, order - SIPHONALES and family - VAUCHERACEAE. They are mostly terrestrial. Some species are marine and some are fresh-water species.

STRUCTURE:

1. They are dark-green, felt-like plants with branched coenocytic body. Terrestrial species are attached to the soil with the help of rhizoid-like structures or branched holdfast called "HAPTERON".

2. CELL: (i) Cell wall is relatively thin, within which lies a single central vacuole that runs from one cell to another cell. Its outer layer is of pectose and inner of cellulose.



(ii) Cytoplasm: lies beneath the cell wall. It contains many small spherical chloroplasts towards the periphery of the cell wall, a no. of nuclei towards the inner side and reserve food material in the form of oil globules.

REPRODUCTION: By following method: — APPOINTMENT

Vegetative: It takes place during favourable conditions. Any part of the thallus breaks and gives rise to new plant.

OCTOBER						
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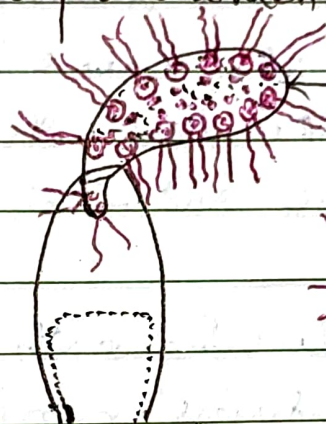
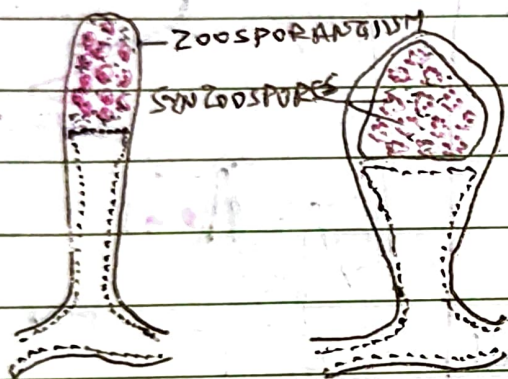
II. Asexual: B. means of several methods

... commonest method which happens during favourable conditions. All the aquatic species and some terrestrial species form multiflagellate zoospores.

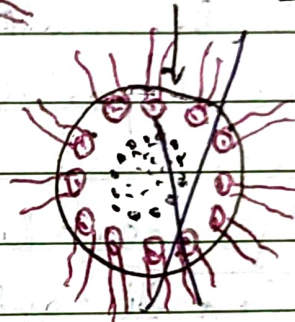
(i) Any part of the branch gets erect and swells at the distal end forming a club-shaped structure - "ZOOSPORANGIUM" in which are accumulated nuclei, cytoplasm, chloroplast, etc. A transverse septum develops which separates it from the rest of the thallus.

(ii) All the structures ^{from} recede the cell wall and accumulate in the middle of the zoosporangium. This structure is called "ZOOSPORE".

(iii) A no. of nuclei, each with flagella, arranged at the periphery of the zoospore which is now called "SYNZOOSPORE".



Liberation of synzoospore



Germination of a zoospore

(iv) Distal portion of the sporangial wall softens to form a pore, smaller in diameter to zoospore, ^{tho} ^{it} which, squeezes out.

APPOINTMENT

② APLANOSPORES: In terrestrial species,

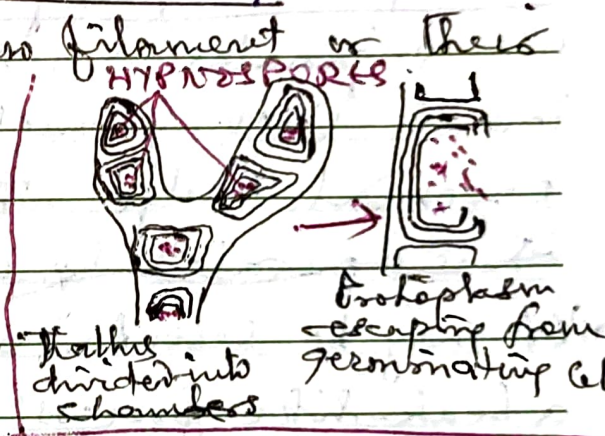
growing in the damp soil, all the contents of sporangium develop into a thin-walled, non-motile 'APLANOSPORES'. These are liberated by an irregular rupture of the aplanosporangial wall and develop new plants.



③ AKINETES: During unfavourable conditions, any part of the thallus becomes thick-walled, store reserve food materials and become ^{resistant} 'AKINETE'. With the return of favourable conditions, it germinates to form a new plant. Sometimes, it germinates while still attached to the plant.

④ HYPNOSPORES: In some terrestrial species, under unfavourable condition, a transverse segmentation of a thick wall takes place and about each segment forms 'HYPNOSPORE'. These

may germinate directly into a new filament or their contents may divide into a no. of thin-walled cysts. (ii) The protoplasm of germinating cyst escapes thr' a pore in the wall and moves in amoeboid manner. When the

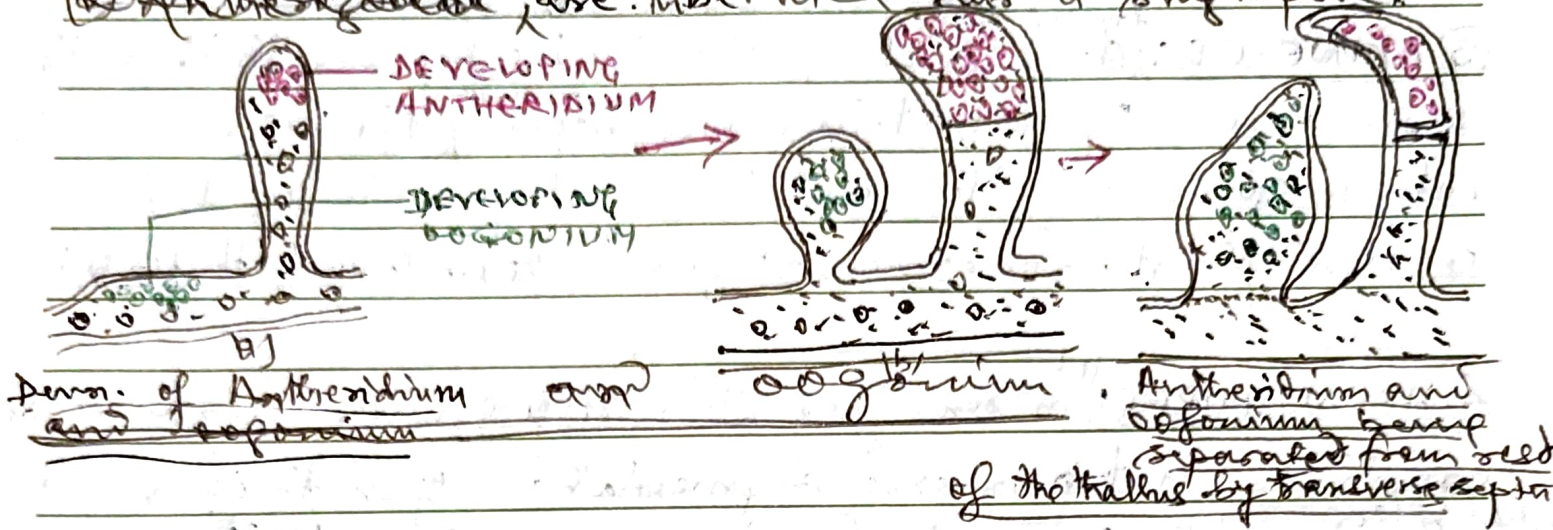


movement stops, the protoplasm becomes spherical, secretes a wall and directly develops into a filament.

III. SEXUAL: Vaucheria is asexual except one or

APPOINTMENT

Distal end of the branch producing an uninnervated, or less densely-filled with cytoplasm containing many nuclei and a few chloroplasts. (iii) The branch gets separated from rest of the thallus by a septum. (iv) The protoplast becomes divided into a no. of uninucleate fragments, each of which is metamorphosed into a biflagellate antherozoid, which are liberated thro' a single pore.



Development of Oogonium:

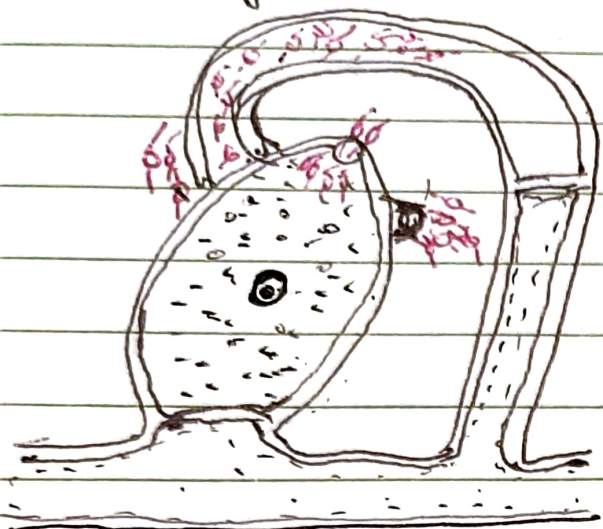
(i) It originates as a small swelling on a portion of a lateral branch (ii) Many nuclei and chloroplasts migrate into the apical bulge which ultimately becomes a spherical oogonium. ~~It is separated by a transverse septum from the main filament.~~ (iii) It may be sessile, or short-stalked (iv) Oogonium develops a beak-like process which soon gelatinizes and the contents recede slightly from the cell wall. It contains a single uninucleate egg. Rest of the nuclei migrate to the thallus. (v) Oogonium is now separated from by a transverse septum from the main filament.

APPOINTMENT

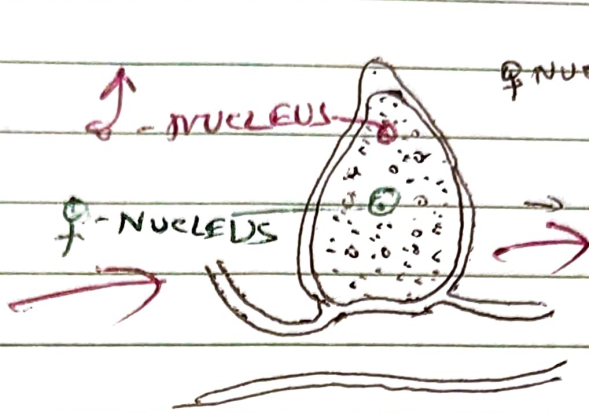
Fertilization: (i) Gelatinization of the apical wall produces an apical pore. (ii) Several antherozoids enter the oogonium thro' the apical pore but only one of them penetrates the egg. (iii) Male nucleus is smaller than the female nucleus. It grows and migrate towards the egg nucleus. (iv) When both the nuclei become equal in volume they fuse to form an "OOSPORE"

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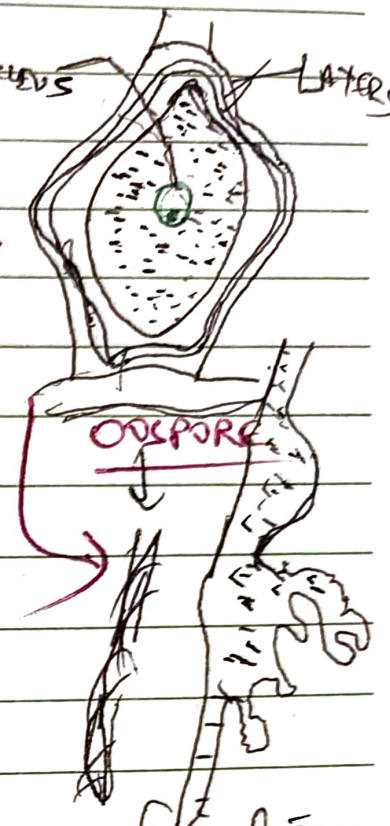
Its protoplast becomes densely filled with oil globules. ~~It~~ It rests for several months and then germinates directly into a new filament.



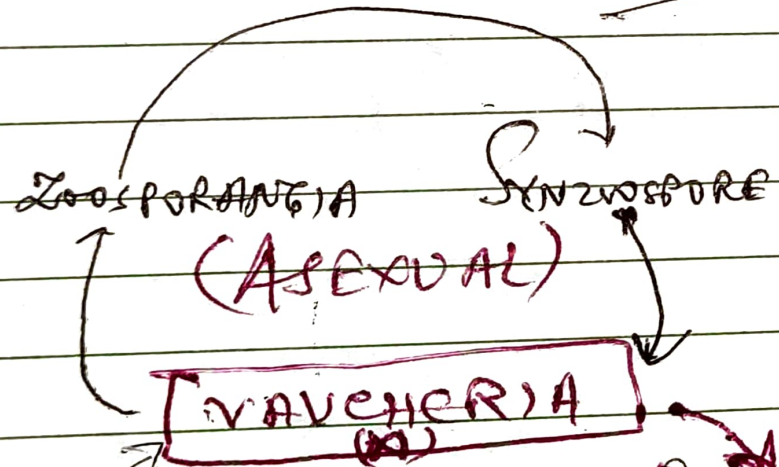
FERTILIZATION



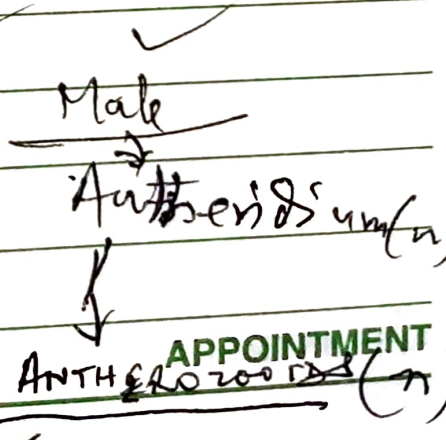
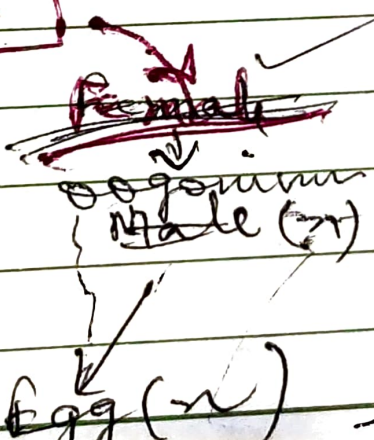
Both nuclei
~~are~~ lying
side by side.



Formation
of ~~part~~ of
new thallus.



Reduction division (SEXUAL)



ANTHEROZOIDS (n)