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19/MHS01/202 (MBBS)

BIO 102 ASSIGNMENT

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DIVISION	CLASS
i. Thallophyta	Phycotinae (Algae), Mycotinae (Fungi)
ii. Bryophyta	Hepaticae (Liverworts), Musci (Mosses)
iii. Pteridophyta	Psilotinae (Psilotum), Lycopodiinae (Lycopodium, Selaginella), Equisetinae (Horsetails), Filicinae (Ferns)
iv. Spermatophyta	Gymnospermae (Gymnosperms), Angiospermae (Angiosperms)

2. IMPORTANCE OF ALGAE TO MAN

- i. Brown algae yields Alginic acid which is used to stabilize emulsions and suspensions; found in products such as syrup, ice cream and paint.
- ii. Different species of red algae provide agar and carrageen used for the preparation of various gels used in scientific research.
- iii. Algae have high iodine content therefore prevent goitre.
- iv. Certain species of algae are harvested for food and cosmetics in the far East.

3. UNICELLULAR FORM OF AN ALGAE

Chlamydomonas represents the unicellular form of green algae. It is found in stagnant water usually ^{along} with other forms. Flagella are the structures for mobility. The ~~nucleus~~ cell is bounded by a cellulose cell wall; contains organelles e.g. nucleus, mitochondria, stigma (eyespot), cup-shaped chloroplast, pyrenoid e.t.c. The nucleus carries the genetic programme of the cell. The stigma is for photoreception. The mitochondria mediate the elaboration of energy molecules. The pyrenoid processes manufactured sugar into starch.

4. The ~~alg~~ chlamydomonas carries out its reproduction either asexually (vegetative reproduction) or sexually.

Vegetative reproduction results in production of daughter cells in which the amount and quality of genetic material in the nucleus of the mother cell is maintained in the daughter cells. This kind of cell division which maintains the quantity and quality of genetic material is called mitotic divisions. In chlamydomonas, a cell about to divide loses its flagella. The cell undergoes mitotic division leading to two nuclei, cell walls are elaborated which delimit cytoplasm around each nucleus.

For the sexual reproduction in chlamydomonas, it starts by aggregation of cells in a colony under favorable conditions. The cells pair by their posterior (flagellated) ends. The cytoplasm of the pairing cells fuse and the flagella are lost. The two nuclei fuse to produce a single cell with 2n nuclear material. The zygote secretes thick cell wall called a zygospore and may remain dormant in that state for sometime. After karyogamy sometimes, the zygote undergoes two successive cell divisions to release products known as haploid zoospores.

5. <u>Pandorina</u>	<u>Volvox</u>
i. Has lesser cells in the colony than volvox	Has more cells in the colony than pandorina
ii. It is evolutionary less advanced than volvox	It is more evolutionary more advanced than pandorina
iii. Presence of flagellated ends	Absence of flagellated ends
iv. Shows lesser levels of differentiation and specialisation.	Shows greater levels of differentiation and specialisation.

6. FUCUS:

A genus of brown algae whose species are often found on rocks in the intertidal zones of the sea shores. The plant body is flattened, dichotomously-branched thallus with a mid rib, a vegetative apex, and a multi-cellular disk with which plant is attached to rock surface. The plant body also has air bladders to enable it float on the water. Sexual reproduction is oogamous. Sex cells are produced in the conceptacles which have openings on the surface of the thallus. Various species of fucus exist; vary in size from a few centimetres to about 2 metres in length.