

Biology assignment

Princewill Obomate Andrea

MHS

MBBS

19/mhs01/385

1. Classify plants according to Eichler's grouping in 1883

DIVISION	CLASS
Thallophyta	i) Mycotinae (fungi) ii) Phycotinae (algae)
Bryophyta	Hepaticae
Pteridophyta	i) Filicinae (ferns) ii) Psilotinate (psilotum) iii) Equisetinae (horsetails) iv) Lycopodiinae (selaginella / lycopodium)
Spermatophy	i) Gymnosper

ta	mae(gymnosperms) ii)Angiospermae(angiosperms)
----	--

2. How are algae of importance to man?

i) Algae can be used in making fertilizers

ii) Algae are very nutritious to man because they contain high protein content and high concentrations of mineral.

iii) Algae can be used for making cosmetics and food

iv) Algae prevents goitre due to its high iodine content

v) Algae is used as a thickening agent in ice cream and shampoo

vi) Algae can be used as a fodder in fish farming

3. Describe a unicellular form of algae.

Chlamydomonas is a common example of a unicellular and motile green algae. It is found in stagnant water. It contains organelles such as flagella, contractile vacuole, mitochondria, eyespot, pyrenoid gland etc.

Chlamydomonas has a pair of flagella for movement. It is bounded by a cellulose cell wall. In the cell are spherical, contractile vacuoles for osmoregulation, cylindrically shaped mitochondria for respiration, pyrenoid gland for conversion of manufactured sugars to starch, as well as starch grains to store starch. There is an eyespot to detect light and chloroplast to help with photosynthesis.

4. How does this unicellular alga described in question 3 carry out its

reproduction?

Chlamydomonas undergoes both sexual and asexual reproduction. In asexual reproduction, the Chlamydomonas loses its flagella. It then undergoes mitotic division and gives rise to the two nuclei, within elaborated cell wall. This delimits the cytoplasm around the nuclei and two daughter cells are released. In sexual reproduction, the cell is usually under unfavorable conditions. The haploid daughter cells do not form spores in this case, they form gametes that have two different mating strain, which although structurally similar, are either positive or negative. Fusion of opposite mating strains (isogamy) occurs. This gives a diploid zygote with two sets of chromosomes.

After a period of dormancy, meiosis occurs and four haploid daughter cells are produced .

5. Differentiate between the two types of Colonial form of algae.

The two colonial forms of algae are volvox and pandorina

Volvox is a colony that shows more complex forms than pandorina. There are more cells in this colony, the number may run into thousands and are connected with cytoplasmic strands that run through the cells. Sexual reproduction in this colony is oogamous . While pandorina is a colony usually found in water bloom. The colony consists of 16 shells attached to one another . Each cell has many attributes in common

with chlamydomonas. Sexual reproduction in this colony is achieved by anisogamous pairing .

6. Describe a named complex form of alga.

Fucus is a genus of a brown coloured algae, that is often found on rocks in the inter-tidal zones of the sea shores. Its body is flattened, and it has dichotomously branched thallus with a mid rib, a vegetative apex, and a multicellular disc, which is also known as a hold fast. The hold fast is useful for securing it to the rock surface. In addition, the plant body has air bladders which help to keep the plant afloat in water. During maturity the vegetative apex becomes the reproductive apex.