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DEPARTMENT: MEDICAL LABORATORY SCIENCE

MATRIC NO: 19/MHS06/003

COURSE: BIO 102

QUESTIONS

1. Describe a named complex alga.
2. Classify plants according to Eichler’s grouping of 1883.
3. How are algae of importance to man?
4. Describe a unicellular form of algae.
5. How this unicellular alga does described in question 4 carry out its reproduction?
6. Differentiate between the two types of colonial form of algae.

ANSWERS

1. The largest and most complex marine algae are called seaweeds, while the most complex freshwater forms are the Charophyta, a division of green algae which includes, for example, Spirogyra and stonewort. Diatoms and brown algae are examples of algae with secondary chloroplasts derived from an endosymbiotic red algae
2. According to Eichler’s grouping of 1883 he classified the plant kingdom into 2 sub kingdoms they are Cryptogamae and Phanerogamae;
3. Cryptogamae (Kryptos means concealed, gamos means marriage): The cryptogams are flowerless and seedless plants. They are simple plants like algae mosses and ferns which do not produce flower, fruits and seeds. Cryptogams are considered as lower plants. Examples are Bryophytes and Pteidophyta.
4. Phanerogamae they are seed bearing plants also known as spermatophytes (sperma means seed; phyton means plant). They are higher plants the plant body is differentiated into roots, stems and leaves with well-developed vascular system. It is further divided into Angiosperm(angion means hidden,sperma means seed) it is divided into 2 classes which are Dicotyledonous plants and Monocotyledonous plants and Gymnosperm(gymno means naked ,sperma means seed) is also divided into 3 classes which are Cycadopsida, Corniferopsida and Gnetopsida.
5. How algae are important to man
6. Food foe see animals and Fishes: The algae are used as a direct source of food by several sea animals and fishes.
7. Mineral content: High mineral content, up to five 5% of the wet material, in which all the mineral elements important in human and animal physiology are found, makes sea weeds a unique supplement for a well-balanced diet. Potassium, sodium and chloride are found in the ionic form in sea weeds.
8. Food for Man: Since the pre-historic times, several sea weeds have been used as direct source of food to human beings. Several fresh water algae have also been utilised in the preparation of various kinds of food with vitamins. As we know well that the fundamental food of sea living stock are algae and they are used as food by human beings.
9. As source of Vitamin: The marine algae are the richest source of vitamins. The vitamins A, B and E are found abundantly in sea weeds. The vitamin B essentially required for the development of human body is found in great abundance in almost all Phaeophyceae. The cod liver oil is the rich source of vitamin A, which is acquired from sea weeds. Vitamin E is equally important for human beings which are found in many marine algae.
10. Medicines and Minerals: Several diseases caused by vitamin deficiency such as vitex, asthma, tooth decay, etc., may be eradicated, if flour of the sea weeds is added to the food. According to Dr. Weston, iodine is the most important element to enable the thyroid glands to secrete the thyroxin which contains 60% iodine. It controls the general development of the animal. Sea weeds are the best source of iodine for human beings.
11. Unicellular algae are plant-like autotrophs and contain chlorophyll. They include groups that have both multicellular and unicellular species;

* Euglenophyta, flagellated, mostly unicellular algae that occurs often in fresh water. They lack cell walls and can mix trophic (both autotrophic and heterotrophic). An example is Euglena gracilis.
* Chlorophyta (green algae)
* Diatoms.

1. Algae regenerate by sexual reproduction, involving male and female gametes (sex cells), by asexual reproduction, or by both ways.

Asexual reproduction is the production of progeny without the union of cells or nuclear material. Many small algae produce asexually by ordinary cell division or by fragmentation, whereas larger algae reproduce by spores.

Sexual reproduction is characterized by a process of meiosis, in which progeny cells receive half of the genetic information from each parent cell.

1. Colonial algae are algae in which cells resemble free swimming unicells form groups. They may be large elaborately interconnected as in Volvox or smaller and relatively simple as in Synura.

* Volvox colony is a hallow sphere of mucilage having 500 or more biflagellate algal cells that are equally spaced around on its outer surface.
* Synura have varied number of ovoid golden brown cells. Each cell bears two flagella, whose beatings propel the colony, through the water with a smooth rolling motion. The individual cells divide longitudinally and the colonies also divide into 2, as they grow larger.