BIO102 ASSIGNMENT

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PHARMACY

1. Classify plants according to Eichler’s grouping of 1883

Eichler classified the plant kingdom into two sub-kingdoms; Cryptogamae and Phanerogamae.

* Cryptogamea are flowereless and seedless plants. They are simple and flowerless plants like algae mosses and ferns which do not produce flowers, fruits and seeds. They are considerd as lower plants.
* Phanerogamae are seed bearing plants. They are also known as spermatopytes. Thery are higher plants. The plant body is differentiated into roots, stem and leaves with well developed vascular system. Examples are angiosperm and gymnosperm.

1. How are algae of importance to man?

* As a source of agar in the production of icecream, jellies,etc
* It is used in the manufacture of iodines
* Alginic acid and mannitol which is used in the production of dyes, buttons and combs.
* It is used as fertilizer
* It is used as food for man

1. Describe a unicellular form of algae

Unicellar form of algae are also called acellular algae as they functioas complete living organisms. Unicellular forms are common in groups of algae except Rhydophceae, Phyaeophcaea and Charophyceae. The unicells may be motile or non-motile. The unicells may be motile or non-motile.

The rhizopodial forms lack rigid cell wall and have cytoplasmic projections that help them in amoeboid movement, e.g., Chrysamoeba (Chrysophyceae, Rhizochloris (Xantho- phyceae). The flagellated unicells resemble the motile gametes and zoospores. The flagella func­tion as the organ of locomotion varying in num­ber and type in different groups. The flagellated unicells are found in many groups of algae, e.g., Phacotus and Chlamydomonas of Chlorophyceae. Euglena of Eugleno- phyceae etc.

b. The non-motile cells may be spiral filament as found in Spirulina (Cyanophyceae). The coccoid unicellular algae are the simplest forms of algae found in Cyanophyceae, Chlorophyceae etc., e.g., Gloeocapsa, Chlorella

1. How does the unicellular alga described in question 3 carry out its reproduction.

Asexual reproduction is the production of progeny without the union of cells or nuclear material. Many small algae reproduce asexually by ordinary cell division or by fragmentation, whereas larger algae reproduce by spores. Some red algae produce monospores (walled, nonflagellate, spherical cells) that are carried by water currents and upon germination produce a new organism. Some green algae produce nonmotile spores called aplanospores, while others produce zoospores, which lack true cell walls and bear one or more flagella. These flagella allow zoospores to swim to a favourable environment, whereas monospores and aplanospores have to rely on passive transport by water currents.

However, cell division or fission is the simplest method of reproduction for the unicellular forms of algae it is often called binary fissions found as found in chylamadonas. In this method the two vegetative cells divide mitotically into two daughter cells, those finally divide into new individuals. Their reproduction is asexual.

1. Differentiate between two forms of colonial form of algae

Volvox and synura

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| Volvox i. A Volvox colony is a hollow sphere of mucilage having 5000 or more biflagellate algal cells that are equally spaced around on its outer surface.  ii. Reproduction is both sexual and asexual | Synura i. They 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 two, as they grow larger. Therefore few cells in colony  ii. Reproduction is sexual |

1. Describe a named complex form of alga

Spirogyra is a long and slimy unbranched, filamentous fresh water alga with a very fine filament. It forms a green floating mass of slippery threads which makes it call pond-scum or water silk. Randhawa reported that Spirogyra genus includes about 289 species and the study of various Spirogyra species is essentially important as it plays a great role in the natural food cycle. It is commonly found in fresh water such as pools, ponds, lakes and ditches.