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MEDICINE AND SURGERY

19/MHS01/237

COURSE: BIO 102

**ASSIGNMENT ON ALGAE**

1. Plants according to Eichler’s grouping are given four different divisions with classes under those divisions:

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| Divisions of plants | Classes |
| Thallophyta | Phycotinae(Algae); Micotinae(Fungi) |
| Bryophyta | Mucci(Mosses); Apotinae(Liverworts) |
| Pteridophyta | Psilotinate(Psilotium); Lycocodinae(Lycopodium, Selaginella); Equisetinae(Horsetails); Filicinae(Ferns) |
| Spermatophyta | Gymnosperms(Naked seeds); Angiosperms(Enclosed seeds) |

1. Importance of algae to man:

It can be used as cosmetics.

It is a good source of iodine due to its high iodine content.

It is a source of food for man.

Seaweeds for example provide chemical compounds useful in the pharmaceutical and textile industries.

They are used as fertilizers.

They produce a good amount of the oxygen man breathes in.

1. Paramecium is a spindle-shaped unicellular alga whose body is rounded at the front and tapered at the bottom and can reach 0.33mm in length. Its body is enclosed by the **pellicle** which is an elastic structure; they are also covered with minute hair-like organelles called **cilia** which are used for locomotion and also capturing food into their **oral groove**. The unicellular organism also consists of two nuclei: a **micronucleus** for reproduction and a **macronucleus** for other cellular activities. The organism also has two vacuoles:

Contractile vacuole: used for osmoregulation.

Food vacuole: used to take in food from the cytostome and into the cytoplasm for circulation.

1. Like other ciliated organisms, the paramecium undergoes asexual reproduction by **binary fission**. Here, the micronucleus undergoes mitosis while the macronucleus amitosis. The cell then divides transversally and each copy gets a micronucleus and macronucleus. It however can also undergo sexual reproduction by **conjugation**.

In this case, opposite mating types fuse temporarily at their oral grooves and exchange genetic material. The pellicle and ectoplasm degenerates. The micronucleus of each conjugant undergoes meiosis and the haploid gametes produce are exchanged. The gametes fuse and become diploid micronucleus from which the new macronucleus is formed when the old ones get destroyed. After the exchange and forming of new micronuclei and macronuclei the conjugates separate. The micronuclei of the two daughter paramecium divide into two and the daughter paramecium mitotically divides to give eight paramecia at the end of the conjugation.

1. Colonial form of algae

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| --- | --- |
| **Pandorina** | **Volvox** |
| Consist of only 16 cells per colony | Consist of thousands of cells per colony |
| All its cells undergo division | All its cells undergo division |
| Sexual reproduction is by Anisogamous pairing | Sexual reproduction is Oogamous in nature |
| It is less complex than the volvox | It is more complex than pandorina |

1. Complex form of alga: Seaweeds

These are under the classification of algae called Brown algae and these have the most complex anatomy of all types of algae. Seaweeds have a body that is plantlike but lacking true roots stems, leaves or flowers thus referred to as a **thallus.**Its colors could be green, brown, or red. Although they do not have true stems some like the sea lettuce have fronds while others have branches with air bladders at the tips to keep the branches near a good supply of sunlight. Seaweeds are thus autotrophic and are able to produce their own food through photosynthesis. Seaweeds produce:

Asexually: by fragmentation

Sexually: by release of spores from sporophytes and these settled down to grown into new seaweed.

Seaweeds live in the ocean and mostly in the benthic zone, i.e. a place with hard surface even deep down on the ocean floor. They posses rootlike structures solely for attachment to the sea bottom or solid surfaces, they do not extract nutrients

Seaweeds also are used for medicinal purposes like treating tuberculosis, influenza, arthritis,etc.