

Green algae essay



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Green algae have many similarities to land plants. It has many variety body types and the multicellular forms do not have cells separated into tissues, which is what divides green algae from land plants. Green algae are a very diverse group of freshwater algae. Many green algae form long filaments. The cells stay attached after they divide. Spirogyra can become so numerous they form dense mats of growth in surfaces of ponds, which is called pond scum. This pond scum is interesting to see through a microscope. The chloroplasts from squeezed green algae have many distinct shapes.

In Spirogyra the chloroplast runs through the cell like a helix. Most green algae have flagellate cells during the life cell cycle, which a few of them are non-motile. The first organization for motility in green algae is unicellular. Unicellular green algae can be either motile or non-motile. Motile green algae usually reproduce asexually by mitosis and cell division. Unicellular non-motile green algae usually produce zoospores. The second type of organization is colonial. In this organization the cells join together in colonies by attaching to one another with cytoplasmic threads.

Colonial green algae can also reproduce either sexually or asexually. The third and final type of organization is filamentous. Green algae organized in this way are usually very small almost like microscopic. They can be branched or un-branched and made-up of cells with one nucleus or multiple nuclei. They have membrane-bound chloroplasts and nuclei. Some are symbiotic with fungi giving lichens. Green algae's nutrition type is photosynthetic. This means that it stores its main energy reserves as starch. Cell walls with cellulose are present in most green algae.

Biologist believes that land plants grew from ancestral green algae. Also biologists want to believe that this big diverse group can be classified as part of the plant kingdom. Green algae played a big part of the evolution of plants. Charophytes are the only other organism, other than plants, which produce pigments called flavonoids. Species in the genera Chara and Choleochaete also have reproductive traits, like flagellated sperm and non-motile eggs. These are similar to terrestrial plants. Also these groups contain the zygote in the gametophyte tissues but they do not have the sterile jacket cells found in plants.

More than 30, 000 species of algae are identified. Though algae retain chlorophyll comparable to green plants, there is absence of true roots, rhizoids and leaves. Therefore, algae are not categorized as plants.

Relatively they are considered as a different organism. The structure of algae can be simple unicellular like in the case of Micromonas. There is also complex multicellular as in Kelps. Typically, algae are found in any type of habitat; freshwater, marine water, swampy areas, moist soil and rocks.

Established on the characteristic features, there are four major types of algae, namely, cyanobacteria, green algae, red algae, and brown algae. The microscopic structure of the flagellated reproductive cells in some green algae resembles that of a plant sperm. The reproduction of algae can be discussed by two types, asexual reproduction and sexual reproduction. The asexual type refers to reproduction, which is when a new organism is made from a single parent. In a sexual type, two haploid sex cells are fused to form a diploid zygote that develops into an organism.

Asexual reproduction in algae is kind of difficult. Some unicellular forms of algae like Euglena reproduce by binary fission. That is when the parent cell divides into two similar parts. These two cells develop as organisms and are similar to the parent cell. Fragmentation is a process of asexual division in Sargassum and other algae. That is when the parent cell divides into two or more fragments that grow into new organisms. Another process of asexual reproduction in algae is by formation of spores; the species Chlamydomonas and Chlorella reproduce by this process.

Depending upon these species, the spores can be produced in normal specialized cells. They are either motile or non-motile. Although, most algae reproduce asexually, the correct environmental stimulus may start sexual reproduction. The algae have evolved numerous differences in sexual reproduction like, different types of gametes, different means of gamete transfer, and different locations of fertilization. The method of gamete formation is called gametogenesis. The comparative form of the two fusing gametes defines two categories of sexual reproduction, isogamy and heterogamy.

Isogamy is the form of sexual reproduction. The gametes produced are identical in shape, size and motility. There is no structural distinction between male and female gametes. Sets of isogametes make even themselves with their flagella poles. Then they touch after several seconds, and then the motile gametes fuse to form a single, non-motile, diploid zygote. In heterogamy, two different types of gametes are created. The male gamete, which is the sperm cell, is normally very small, highly motile and is produced in precise large numbers.

The female gamete, which is the egg cell, is much larger and non-motile. Fewer female gametes are formed but each is regularly afforded some protection. Heterogametes are also created by higher plants and animals. Green algae are very specific algae. There is a lot of information to be researched and discussed on green algae. It was also very interesting learning all the facts how they are made, the reproduction, motility, and the nutrition type. The differences between green algae and land plants are very interesting also. But there is many similarities too.