

Importance of algae

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Abstract: This article provides information about types, diversity, morphological structure, reproduction methods, living environment, cellular structure, and their importance in human life and on earth.

Key words: Algae, chlorophyll pigment, chlorella, blue-green algae, diatom algae, morphological structure

Introduction:

Algae are morphologically very diverse, among them there are microscopic single-celled ones as well as representatives reaching several tens of meters. Algae are plants that live in a body state, they do not have roots, stems, or leaves. However, the body of some representatives is somewhat complicated, and the body is divided into some parts. The cell of algae is covered with a hard wall on the outside. Cell cytoplasm is located around the wall and fills the cell. The cell contains one or more small vacuoles. The number of cores can be one or more. Pigments are stored in chromatophores in the cell. The chromatophore has different forms - fog: plate-like, spiral, ribbon-like, net-like, star-like.

Algae live in fresh waters, seas and oceans, and on dry land. Their numerous microscopic swarms swim freely and form phytoplankton. It is divided into 3 groups that live in water.

1. People who live under water.
2. Those who live in water.
3. Those who live on the surface of the water.

The depth of plankton can be up to 300 m. Algae living in the water basin deeper than 300 meters are called benthos. Some algae do not lose their ability to live even at very low temperatures. It even lives in the poles and in the snow on the mountain tops. Chlorella can stain the snow in red, yellow, green, brown colors. Some representatives of chlorella can also live in air. Due to the presence of chlorophyll pigment in the cell of algae, it is an autotrophic organism in terms of nutrition. It is necessary to survive. It prepares nutrients for itself, that is, the process of photosynthesis occurs in its cells.

Some blue-green algae also live on the basis of ready organic matter, that is, they live in a saprophytic state. In addition to chlorophyll, blue-green phycocyanin pigment is found in the chromatophore of blue-green algae. Only chlorophyll pigment, which gives green color, is found in green algae. In addition to chlorophyll, diatom algae contain a diatom pigment that gives a yellow color. In addition to chlorophyll, fucoxanthin pigment, which gives brown color, is found in the chromatophore of brown algae. In addition to chlorophyll, red algae contain the pigment phycoerythrin, which gives a red color. Starch, fat, protein and starch-glycogen characteristic of animals are found in algae cells as nutrients. Glycogen is colored brown under the influence of iodine. Today, there are 75,000 types of algae on earth, and all of them are divided into 5 types:

1. Blue-green algae
2. Green algae
3. Yellow algae
4. Brown algae
5. Red algae

Algae reproduce in 3 different ways:

1. Vegetative reproduction
2. Asexual reproduction
3. Sexual reproduction

In vegetative reproduction, the cell divides and multiplies along the path of karyokinesis. Zoospores are also produced in the cell. Zoospores have hyphae. It moves in water with the help of flippers. From 4,8,16 to 64 300 spores can grow from each cell. Zoospores stop after floating in water for a few seconds or minutes. It grows and develops by leaving the hiphins.

Asexual reproduction is by zoospores or spores. For example, blue-green algae, red algae reproduce asexually with the help of spores. Asexual reproduction of green algae occurs with the help of zoospores. Zoospores and spores in asexual reproduction are formed as a result of reduction division of cells.

There are 3 types of sexual reproduction.

1. Isogamy
2. Heterogamy
3. Oogamy

In the isogamy type of reproduction, 2 morphologically similar but physiologically dissimilar gametes are added and multiplied. A gamete is a sex cell.

In heterogamous reproduction, morphologically and physiologically different gametes multiply by joining. One of these gametes is large, slow moving, and it is called Macrogamete. Type 2 is small, fast-moving, and it is called Microgamete. A microgamete is a paternal gamete, and a macrogamete is a maternal gamete.

In oogamy type reproduction, paternal and maternal genitals appear. The male sex organ is called Antheridia, and the female sex organ is called Oogamy. Spermatozoa mature in the antheridia. In oogamy, the egg cell develops. Antheridia produce spermatozoa into the water. Oogamy also produces egg cells in water. Spermatozoa join with egg cells in water. Fertilized egg cell is called Oospore. Senkovsky, Meyer, Kursanov and others investigated the growth of algae.

Useful properties of seaweed.

Blood purification: The chemical composition of seaweed is very similar to human blood plasma, so seaweed has the ability to purify the blood and balance it.

Source of calcium: Algae contains 10 times more calcium than milk and 8 times more than meat.

Alkalinization: Algae has the ability to increase the alkalinity of the blood while maintaining the acidity in moderation.

Antioxidants: Seaweeds contain lignans (phytohormones) that prevent the development of cancer and have antioxidant properties.

Seaweed (kelp). This brown seaweed is often found on ocean shores. It is often used in traditional Asian dishes. However, the beneficial effects of kelp can also be obtained from additional nutrients.

Red algae. This type of algae can be purchased whole or in the form of flakes. You can add seaweed in the form of cereal to salads, vegetable side dishes and soups.

Algae cleans the air of water from SO₂ and enriches it with O₂. Algae are food for aquatic animals. Some types of algae are also eaten by humans. For example: Laminaria - Laminaria. It is known as sea cabbage. The leaf-like part of kelp reaches up to 50 m. This part is used for food. Laminaria contains protein, fat and carbohydrates. Seaweed is also rich in vitamins. In Japan, China and other countries, the land is fertilized with algae. Because it contains N, Vr, S, and other compounds. A substance called "agar-agar" is obtained from red algae. This substance is used in the development and cultivation of bacteria in the practice of microbiology. In the food industry, it is used in the preparation of marmalade. High-quality glue is obtained from some brown algae. Algin drug obtained from algae has a mild laxative effect (alginate sodium). The remains of yellow algae are called "trepel". This substance is used in the preparation of dynamite and in the finishing of stones in construction. Therefore, it does not rot for a long time. Some species of blue-green algae, such as Anavayena and Stratanastoc, have the ability to absorb N₂ from the air. They absorb N₂ from the air and enrich the soil with N compounds. Blue-green algae, green algae, yellow algae form organic sediments in seas. These organic deposits are called sapropel. Sapropel is of great importance as a nutrient and fertilizer. An antibiotic drug called chlorella is obtained from some types of algae. Chlorella is a cure for stomach ailments, scurvy, goiter, and hypertension. A spore does not have a hyphae, it is immobile, and a zoospore is mobile.

Conclusion:

Nowadays, it is of great importance to protect water resources from various man-made influences, to ensure the stability of natural water bodies, especially to preserve the biological diversity of its flora. Canals in large cities are especially important in the formation and distribution of algae in terrestrial water bodies, and 46% of their diversity corresponds to the share of canals in large cities. In this place, comprehensive study of algae of natural water bodies, assessment of the ecological and sanitary conditions and implementation of the possibility of predicting its future condition are considered to be urgent issues of today. It is necessary to determine the condition of algoflora, i.e. algae, and to assess the level of pollution of rivers with various substances. In this regard, canals in large cities of great strategic importance are important due to their richness in algoflora species and the presence of ecological components of special importance in it. By carrying out this task, it is possible to perform important tasks such as studying the algae flora of the Siyob, Karasuv and Obi-Rakhmat canals in Samarkand, assessing the ecological condition of the water by

analyzing the indicator-saprobe species, and determining the species composition of the algal flora of these canals. Algae are important in water purification and improvement of the ecological condition of reservoirs

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