Systematic of Bottom Plants, Algae and Them the Importance of Bacteria in Nature

Muhabbat Davlatova Urmanovna,

Assistant, Namangan Institute of Engineering and Technology, Namangan region, Namangan city, st. Kasansay, Uzbekistan,
E-mail: davlatovamuhabbat3@gmail.com

ABSTRACT

Bottom plants, Thallophyta - plants with a simple structure. Plants body is not divided into roots, stems and leaves. Plants originated in the early stages of the organic world. They are adapted to live in watery environments or dry places. In the course of evolution, some of them have not developed much, and until now some of them have preserved their simple structure. Beneficial plants are single-celled, colony-forming and multicellular organisms, and their bodies are called "cattana" or "thallom" because their bodies are not divided into tissues and organs.

Keywords: thallus, mycelium, autotroph, heterotroph, parasite, saprophyte, auxospore, xivchin, gamete, oogam, benthos, plankton, aerobic, anaerobic, plasmodium, sporangium, hypha, symbiosis, anabiosis, soridium, isidium.

1. Introduction. The types of plants on the globe are clearly different from each other. Such differences are seen first of all in their appearance. In addition, there are some common similarities and differences between them. The common features of all the plants on earth are seen first in the fact that they are all living organisms, and then in the fact that their bodies are made up of one or more cells. Thus, all living organisms currently differ from each other in terms of their external and internal structure, living in different conditions, growing, multiplying, spreading, etc. evolution) takes place at different stages.

Currently, taking into account the internal and external body structure, living conditions, reproduction, distribution and other similar characteristics of all plants, it has been determined and registered that there are 500,000 species of them.

Group plants such as algae, bacteria, slimes, fungi, lichens have a very simple (rootless, stemless, leafless) structure, and their bodies are called thallus (folded) or mycelium. Plants of this type are called native plants.

Mosses, plants, arthropods, ferns, angiosperms and angiosperms (or flowering plants) are called higher plants. The body of all higher plants (except some primitive higher plants) has organs such as roots, stems, and leaves. They are vegetative (growth-promoting) organs. In addition to vegetative organs, there are also reproductive organs. Plants such as mosses, ferns, plantains, and sedges reproduce by spores. That is why they are sometimes called spore plants. In open-seeded and closed-seeded plants, vegetative organs (root, rhizome, tuber, onion, leaf, etc.) perform the function of reproduction in addition to seeds.

All plants on Earth (ground and higher plants) are divided into three groups according to nutrition: autotrophs (self-feeding), heterotrophs and symbiotic organisms. Autotrophic organisms include all algae,

mosses, ferns, plankton, arthropods, open and closed seed plants.

2.Materials and methods. Autotrophic organisms take in carbon dioxide (CO_2) from the air using sunlight, and this gas in their body (or thallus) combines with water. As a result of a complex chemical reaction , an organic substance is formed in the plant body (leaf, thallus). This organic matter accumulates in the form of starch and is then consumed in the processes necessary for plant life.

Such a complex chemical process is called photosynthesis. The process of photosynthesis takes place with the participation of pigments (chlorophyll, carotene, phycocyanin, phycoerythrin, fucosanthin) that are part of the chromatophore in the cells of ground plants, and in higher plants, chlorophyll in their leaf cells - green bodies.

The formula of the photosynthesis process can be expressed as follows:

$6\ SO_2 + 6\ N_2O = S_6N_{12}O_6 + 6\ O_2 + 624$

In other words, when a plant absorbs 6 molecules, that is, 264 g of carbon dioxide, 6 molecules (180 g) of water and 674 kcal of solar energy, 1 molecule (180 g) of carbohydrates is formed, and 6 molecules (192 g) of oxygen separated.

(Sugar) Produced in chloroplast as a result of photosynthesis is polymerized with the help of enzymes and turns into starch in chloroplasts. These starch molecules are converted back into sugar by an enzyme called diastase and then distributed throughout the plant organs. This phenomenon occurs at a more comfortable temperature, that is, at night.

Heterotrophic organisms include bacteria, molds, and fungi. They live on ready-made food (organic matter).

The third group includes lichens, which are symbiotic communities of fungi and algae, and representatives of fungi living symbiotically in the roots of some higher plants.

Heterotrophic organisms themselves are divided into parasitic and saprophytic subgroups. Parasites are organisms that live at the expense of another living organism (host). Saprophytes are organisms that live in another dead (host) organism.

3. Results and discussions. Now we will briefly get acquainted with the above - mentioned bottom and high plant groups.

Thallophyta - Thallophyta

Algae

Organisms called algae are divided into groups (categories) such as blue -green, green, diatom, brown, red, chrysomonad, pyrrhophyte algae. Their life is always spent in water or in an aqueous environment. That is why they are called algae.

Blue -green algae — Cyanophyta

Blue-green algae includes 1400 representatives of the simplest unicellular, multicellular and colonial organisms. Their cell contains green coloring chlorophyll, blue and red phycocyanin, and phycoerythrin pigments, which together paint the plant blue-green. Accordingly, they are called blue-green algae.

Blue -green algae is spherical, elongated and other types, surrounded by a mucous pectin membrane from the outside. The cell is not divided into parts such as nucleus, pyrenoid, chromatophore . This shows that blue-green algae is one of the simplest organisms at the lowest stage. The appearance of such organisms and their widespread distribution on the Earth began in the Proterozoic era.

Blue -green algae reproduce by dividing the cell into two or more parts and begin to live independently. This is called vegetative reproduction.

Chroococcus, lingbia, oscilatoria, anabena, chromulina, nostoc are among the common representatives of the type.

Representatives of this type are widely distributed in nature and in various conditions. They can be found in freshwater ponds, seawater, wet or swampy soils, tree barks, flowerbed walls, stream banks, rocky environments, deserts, hot springs, snow and ice, etc. can be found. In addition, chroococcus, nostoc and other representatives of blue -green algae live together with some representatives of the group called fungi and form the group of lichens.

Diatom algae — Dtatomeae

The type of diatom algae includes 10-15,000 species of single-celled and colony-living

organisms. All are microscopic organisms. Diatom algae are round, rod-shaped, box - shaped, etc., and the skin of their cells is composed of pectin substance and is covered with sand (SiO_2) on the outside. In addition to the chlorophyll pigment, the diatom cell also contains the carotene pigment. Therefore, the color of this type of algae is yellow or brownish-yellow. Inside the diatom cell are parts like nucleus, vacuole, chromatophore and protoplasm. Most representatives live in seas, and some live in ponds, marshes or wet soils. Diatoms reproduce by cell division. In this case, the epitheca (large) and hypotheca (small) cells of the cell separate in two directions, move away from each other, and each in turn creates a new hypotheca. The cell reproduces by dividing several times during the year. After such successive divisions, at a certain time of the year, the size of the organism becomes so small that the next division is no longer possible. Then 2 of them join together and become a spore called an auxospore. After the auxospore passes the dormant period, it begins to grow and reaches its initial size. After that, another division begins.

Types of diatom algae such as Pinnularia, Cyclotella, Navicula, Melozira, Asterionella, Surirella, Tabellaria, Chaetoceros are common in nature.

A slimy substance protrudes from the cell of diatom algae, and with this the body of the organism moves slowly.

When the diatoms living in the seas die, the rock called sand or diatomite covering their bodies sinks to the bottom of the sea, forming a thick layer over several million years. Since diatomite is porous and light, it is used in heat-insulating materials, porous bricks and explosive substance - dynamite.

Green algae — Chlorophyta

The type of green algae includes about 5,700 species of unicellular, multicellular and colonial organisms. All of their representatives have a pure green color, since their cell material contains only chlorophyll pigment . Single-celled representatives of green algae are microscopic organisms. Colony and multicellular representatives are much larger. Single-celled representatives of green algae are round, pear-shaped, elongated, multi-celled, threadlike, bushy branched, plate-like colony representatives have spherical, reticulate forms. There are also some representatives of green algae, whose size exceeds 0.5 meters, and their appearance resembles tall plants. But their form is composed of one cell, even if it looks complicated. Therefore, they are conditionally called "cellless". The cell of representatives of green algae consists of parts such as protoplasm, one or more nuclei, chromatophore, vacuole. Single-celled representatives of green algae have fins, which are used to move in water. Some representatives of the colony act in the same way. Multicellular representatives live by sticking to their place of residence (substrate).

Green algae reproduce differently. Most species reproduce vegetatively and by producing zoospores. In this case, the cell product is divided into 2-4-8-16-32-64 and even more pieces. Each piece forms a pair of hyaline cells and breaks off the mother cell and comes out, and each one forms a new cell coat and begins to live as an independent organism.

Reproduction is mainly the division of a cell or the product of cells into 2-4-8-16-32-64-128, etc., as in the process of asexual reproduction. Each fragment breaks through the mother cell sheath and emerges with a pair of hyphae and an equal number of cell products. But these released cells do not live independently, but 2 of them join each other in pairs. These fused bodies are called gametes. The product resulting from the fusion of gametes is called a zygote. These zygotes are surrounded by a thick skin and sink to the bottom of the water and spend a period of rest until favorable conditions occur. At the end of the resting period, the zygotes undergo reduction division and form 2 or 4 new bodies. These bodies are called zoospores. Zoospores begin to live as independent organisms, each forming a pair of spores.

Green algae are as common in nature as blue - green algae. Common unicellular representatives of green algae include chlorococcus, chlorella, chlamydomonas, zignema, closterium, desmidium; multicellular - ulotrix; such as cladophora, spirogyra,

edoganium, ulva or sea lettuce, khara, nitella; in the case of a colony, you can show volvox, eudorina, pandorina, water net, and, finally, "cellless" representatives - vosheria, caulerpa, acetabularia, etc.

Representatives of the type of green algae are also of great importance in nature and economy.

Brown algae - Phacophyta

The type of brown algae includes more than 900 filamentous or plate-like multicellular species that live only in the seas. Some brown algae are 20-30 cm in size, some are more than 1 m long, and some are 300-400 meters long. The cells of brown algae contain chlorophyll, fucoxanthin, and carotene pigments. Therefore, the color of organisms of this type is brown or yellowish-brown. Under the influence of sunlight, the process of photosynthesis takes place, and the cell accumulates nutrients consisting of carbohydrates such as sugar and laminarin.

The most common representatives of brown algae include ectocarpus, laminaria, dictyota, fucus, sargassum, dilofus, sphacellaria, cutleria, macrocystis, cystozira, and alaria.

Several representatives of brown algae are of great importance in various fields of economy.

Red algae — Rhodophyta

Red algae are also found in seas and oceans, and some in fresh water. Algae are very diverse in appearance and structure, and often have filamentous, plate-like forms. In most of them, the thallus seems to be divided into "stem" and "leaf" organs. 2,500 species of the genus are known. Due to the presence of a pigment called phycoerythrin in the cell chromatophore, red algae have a pure red, pink red, dark red color. In the process of photosynthesis, red algae use green and blue light from the sun.

The species of red algae such as batrachosperium, bangia, deleseria, porphyra, nemalion, callitamiion, karallina, phyllophora are the most common.

Living conditions of algae

All the algae found on the globe are studied according to their living conditions, divided into groups of plankton, benthos and soil algae.

Plankton algae are floating algae in the water layer , they consist of organisms that live at a depth of up to 100 meters in sea water and up to 10 meters in fresh water. Planktonella, flagillaria, tabellaria from diatom algae living without plankton (suspension); from green algae, pediastrum, desmidium, chlorococcus, blue-green algae, anabena, anabecopsis can be shown.

Benthic algae are algae that live on the bottom of the water, adhering to various (substrates). The water layer is divided into 3 regions called littoral, sublittoral and elitoral. The littoral layer includes the layer from the uppermost level of rising and falling sea water to the lowest level of this water when it recedes. Some representatives of brown, red and green algae are found in this layer. The sublittoral layer includes the layer from the low water level to a depth of 40 meters and in this layer brown algae such as kelp and some representatives of red algae are found. The elytoral layer includes the water layer from 40 to 100 meters. In this layer there are mainly some species of red algae, their life lasts 2-4 years, sometimes 10-12 years.

Soil algae - includes many representatives of blue-green, green, diatom algae that live on the surface of wet soils, in the soil layer, on the bark of trees. For example, according to MM Gollerbach, 257 types of algae are registered in the soils of the CIS, of which 102 types are green, 92 are blue-green, and 53 are representatives of diatom algae.

As shown above, algae also lives in hot springs with water temperature of +75°...+93° or in snow and glaciers in the mountains.

Many algae have been found in the Caucasus Mountains at an altitude of 2,300–3,400 meters in the CIS, Novaya Zemlya, Franz Josef Land, and the snow and glaciers of similar places. The surface of the snow and glaciers in these places is often painted in different colors (blue, red, green, etc.). The color of snow and glaciers mainly depends on the types of algae living there and the amount of a pigment called hematochrome in their cell sap.

In 1929, the cause of the red snow observed in the Karachay mountain of the Caucasus was 55 types of algae, of which 26 types of diatoms, 18 types of green, 10 types of blue-green and 1 type of red algae were found. It was observed

that not only red snow, but also yellow, green, black, pink snow was observed in various snowy and icy parts, and the reason for this was different algae.

In Yellowstone Park, North America, chlamydomonas, representatives of green algae, produced green snow. Algae multiply very quickly. As a result, colored snow is formed in large areas in a short time. As a result of strong winds and storms, the snow in the mountains has been blown to the cities and villages. As a result, there was a commotion among people related to the falling of different colored snow. In the past, religious people gave a divine tone to such events and tried to carry out religious propaganda among illiterate people.

At present, it is probably known to many that the cause of such events is related to the activity of algae, as we have shown above.

The importance of algae

Algae supply aquatic animals with the oxygen gas they need to breathe and are food for these animals. Their remains are used in various fields of the economy because they are rich in various mineral elements .

Algae are good food for herbivorous fish, and are important in water transport and hydraulic engineering for determining the depth of the sea and other matters. In the food industry, species of green algae such as Ulva, known as "sea lettuce" and brown algae, known as "sea cabbage" have a very important role plays.

In medicine, the remains of algae contained in therapeutic muds play an important role in the treatment of various diseases, in obtaining iodine, in obtaining vitamins A, B, B_1, B_2, C, D, as well as representatives of brown and red algae as an anthelmintic drug plays.

Bacteria and fungi — Bacteria and Schizophyta

Bacteria are microscopic animals, mostly unicellular, colorless organisms with some filamentous branching colonies. There are 3,000-6,000 types of them that are very common.

To quickly adapt to any conditions, they live in all parts of the Earth. They are found in large quantities in the air layer up to 10 km, in soil, fresh and sea water, food products, on the surface of plant - animal - human body and in their humus remains, in mountains and ice, and in the biosphere. For example, according to some calculations, there are 100 million in 1 g of soil, several hundred in 1 cm3 of flowing water, up to a hundred million in the same volume of dirty and washed water, up to 4,500 in 1 m3 of air around large city parks in winter, and 10,000 in summer. up to 300,000 bacteria can be found in 1 m3 of air, and even in 1 cm3 of good quality milk, up to 500,000 bacteria can be found in closed buildings with no air purification.

The shape of bacteria is spherical, rod-shaped, comma-shaped, packet-shaped, coral-shaped, etc.

Bacteria have a very simple structure, their body is surrounded by a cell membrane. Inside the cell, 20-80% of the substance called nucleoprotein and other protoplasmic products are located. Thus, because the bacterial cell has a simple structure, they are considered to be among the earliest living organisms multiply by cell division. In case of unfavorable conditions, they release some of the water contained in their cells.

The stored nutrients in the cell are accumulated, wrapped in a thick skin, and passing into a dormant spore state, it spends a period of rest. As soon as favorable conditions arise, some of them form one, two or many khivchins and move with the help of these khivchins, and the rest with the help of bending of the body are divided into 2 groups according to the way they live in oxygen (aerobic) and oxygen-free (anaerobic) environments.

Bacteria play a very necessary and important role in nature and human life. Since most of them are colorless (without chlorophyll), they live on ready-made food (heterotroph). Without bacteria , the dead parts of living organisms on Earth would have filled the entire Earth's surface, water and air space.

The best thing about the activity of bacteria is that they have the ability to quickly break down organic matter (dead remains of all plants, animals and people). Nitrogen-free organic matter (carbonated water) is decomposed by some types of bacteria as a

result of the fermentation process. The second type of bacteria breaks down nitrogenous organic matter and carries out the process of rotting. As a result of the active participation of bacteria in both processes, organic matter is decomposed to the level of mineral matter.

Some of the bacteria live in plants and animals and cause various diseases in them. Such bacteria are called pathogenic bacteria.

Slimes - Myxophyta

of a naked, multinucleated protoplasm called a plasmodium. Plasmodium is amoeba-like in form, in which sporangia are formed. Spores mature in sporangia. Spores often develop into zoospores (motile bodies). Zoospores, in turn, form a body called a myxamoeb. As a result of mutual mating of such myxamoebae, a plasmodium is formed, which is considered the vegetative body of slimes. Some species of slugs live saprophytically in old canes in shade forests, while others live parasitically on the roots of flowering plants such as cabbage.

Fungi

This type includes about 70-100 thousand species. Colorless in appearance, eats heterotroph. The external and internal structure is different. Life is similar to bacteria, but their bodies are much larger and more complex, and their cells are more perfectly structured.

The body of fungi is made up of several thin filaments, each of these filaments is called a hypha. Some of the hyphae are interconnected and form a branched vegetative body. Such a body is called a mycelium. So, the body of fungi consists of mycelium. The mycelium of simpler representatives consists of a few hyphae, and the mycelium of higher representatives consists of a large number of multicellular hyphae.

Fungi are very common on Earth. Most of them live on dead remains of plants and animals. Such fungi are saprophytic. Others are found in the bodies of living plants and animals, and live by absorbing nutrients from the bodies of these organisms with the help of their haustor organs. Fungi of this type are called parasitic fungi.

The third type of fungi live in symbiosis with plants.

Some representatives of fungi live in the roots of higher plants (especially forest trees), help their roots to spread deeper and wider, and feed on these roots themselves.

Thus, representatives of the type of fungi are composed of organisms that live in different places and under different conditions. By fungi, most people understand mushrooms that can be seen with the naked eye and are eaten as food, porcini mushrooms, etc. In fact, the type of fungi includes everything from tiny organisms that can only be seen under a microscope, to much larger fungi that consist of a leg (body) and a cap and are used as food.

The cell of fungi is surrounded by skin. In the representatives of the bottom, the cell skin is composed of pectin and, sometimes, cellulose substances, and in the representatives of the upper ones, it is composed of carbonated water (polysaccharide and chitin) mixed with nitrogenous substances.

Inside the cell, there is a protoplast with a large number (in the lower representatives) or one nucleus (in the higher representatives), one or more vacuoles, reserves of nutrients such as fat, glycogen and volutin.

Representatives of the bottom living in water often reproduce sexually. During vegetative reproduction, the vegetative (growing) body of fungi - the mycelium is broken into several pieces or the mycelium is divided into one-cell pieces.

Phycomycete fungi include white mold or mold, which often forms on bread and other fruits, and phytophthora (potato fungus), which lives as a parasite on potato crops multiply the dough, such as Penicillin and Aspergillus, which are found on all kinds of wet fruits and are used in the preparation of yellow or green penicillin medicine, and a fungus called the hard long-bodied hornworm that infects the grains of some cereal crops. s, such as edible mushrooms, belong to the group of baguette fungi.

House fungus, which actively participates in the rotting of old wooden buildings, pods that live parasitically in the trunks of mulberry, walnut, almond, willow, etc. trees, grain crops, as well as barley, wheat, oat, Black fungus, which produces not grain, but powder like pot black,

on the ears of millet, oats, and weeds such as reed, gumai, ajrig, yellow spots, powdery mildew on the leaves and stems of these plants. rust fungi that produce powders, white fungus that grows under trees in forests and is used as food, cap fungi such as champignon, boletus, gruzd, Siroezhka, maslyonok, poisonous cap fungi such as porcupine, mushroom, representatives with basidia belongs to the group of fungi.

4. Conclusion. A natural group of the plant world with a unique original structure. There are about 30,000 species. They are composed of the coexistence of green and blue-green algae with fungi (capsular and basidia). Depending on their external appearance, lichens are divided into groups called leafy, sticky and bushy, and according to their internal structure, they are divided into homomeric and heteromeric. Homeomeric lichens have a relatively simple structure and live mainly on rocks and sometimes on tree bark. Heteromeric lichens have a more complex body structure, they are leafy and bushy. The hyphae that make up the thallus of lichens are composed of a hydrocarbon substance called lichenin, and these hyphae excrete lichenic acids. These acids play an important role in giving the plant a different color, protecting it from the sun and allowing air to enter the body of lichens.

Lichens are very common plants in nature. They are also found in conditions where other plants cannot live. Thus, lichens grow on different substrates (stones and rocks, deserts and steppes, barks of trees and shrubs, etc.) in different parts of the globe - from the Arctic to the Antarctic, on plains and mountain hills.

Reproduction of lichens is typical of the reproduction of algae and fungi, that is, by the simple division of the cells of the algae that make up the lichens, and fungi by the formation of spores (vegetative) will appear. In addition, leafy and bushy representatives of lichens reproduce by forming soridia (special outgrowths) on their bodies, and sticky lichens by forming isidia (coral-shaped outgrowths).

Ziconora, which is found in large quantities in the deserts of Africa and Arabia and is blown by strong winds in those places and creates the phenomenon of "raining flour" from the sky, is very common in the tundra zone and is the main fodder for reindeer. considered as "deer moss" or cladonia (Cladonia), cetraria (Cetraria), parmelia (Parmelia), peltigera (Peltigera), which grows in the tundra and is used in the preparation of various medicines and vitamin "C" in perfumery, cologne and lichens used in making perfumes, lichen and canor used for obtaining litmus and dyes, Porreola common in the Azores and ochrolechia common in the tundra are the most common representatives of lichens.

References

1. Burigin I. A., Jongurazov F. Kh. Botany. Tashkent, "Teacher", 1977.
2. Vasiliev A. I. i second. Botany: morphology and anatomy of plants. M., "Prosveshchenie", 1988.
3. Zhukovsky P. M. Botany. M., 1982.
4. Tikhomirov F. K. Botany. M., 1968.
5. Khrjanovsky I. G., Ponomarenko S. F. Botany. M., "Colossus", 1988.
6. Khrjanovsky I. G. Course obshchey botanist. Ch. 1, M., 1982
7. Hamdamov I. et al; - Basics of Botany. Tashkent, "Mehnat", 1990.
8. Artikova R., Murodova S.S. Agricultural biotechnology.Training manual. Tashkent, Publishing House" Science and technology", 2010 - Twenty-two b's.
9. Zuparov M.A. and others. Agricultural Biotechnology (a study guide for laboratory training). Toshdau publishing house, 2016. - 98 b.
10. Davrav Q.D. and et al. Agricultural biotechnology. Methodical guide. Tashkent, 2000y. - 156 b.
11. Davrav Q.D. Biotechnology: scientific, practical and methodological bases. T.: 2008. -214 b.