ACTIVITY OF MICROORGANISMS IN SOIL

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Annotation:
The importance of nitrogen fixation in agriculture is great, assimilation of atmospheric nitrogen by microorganisms, biological on Earth has a major impact on the total amount of crop harvested by the way. Therefore to study the biological assimilation of atmospheric nitrogen for rural is one of the most important problems for agriculture and biology.

Keywords: Microorganism, microflora, spore aerobes, Vas.mykoides, Vas. subtilis, Vas. megatherium, Vas. mesentericus, spore anaerobes, Vas. eporogeaes, Vas putrificus, thermophilic bacteria, cocci, micrococcus albus, nitrifying, denitrifying, sulfur bacteria, fiber breaker, mold fungi, yeasts, ammonification, nitrogen fixation,azotobacterchrookokkum, nitrosamonas, pseudomonas

Most of the processes that take place in soils are caused by microorganisms in it depending on the care. For example, soil formation processes, tillage, mass fertilization, irrigation, physiological alkalinity occurring in the soil and loss of acidity, drainage of arable lands, preparation of organic fertilizers, their storage and use by the activity of microorganisms depends on.

Microorganisms also play an important role in agriculture because of their. As a result of its activity, nutrients necessary for plants accumulate in the soil, soil fertility increases, resulting in higher crop yields. The agronomist is well versed in the knowledge of microbeology, he is the life activity of microorganisms farming only if it can focus on increasing the yield of agricultural crops can properly address issues in the field.

Development of plants, soil animals and microorganisms andThe role of soil composition and trace elements in its distribution is very large. While molybdenum accelerates the nitrogen fixation process, uranium and radium are present in small amounts stimulates microorganisms. Boron activates the nitrification process, Zinc, Manganese and Arsenic affect the development of substances. Heavy metals (cadmium, lead) reduces nitrogen fixation and most stops the growth of microorganisms. Microorganisms in the external environment are mainly distributed in the soil and hydrosphere and are active. They are life continuous assimilation and dissimilation processes during activity performs. Organic and mineral for the life and activity of microbes in the soil substances, sufficient moisture, the most favorable conditions, such as protection from the sun's rays available. In different layers of soil microbes are not evenly distributed. Top microbes are rare in the stratum, because here the microbes are exposed to the rays of the sun perishes quickly. The number of microbes in the soil layer at a depth of 10-30 cm is high. The number increases significantly relative to the stratum. As the earth deepens the behavior of the microbes changes and their total number decreases, 4-5 m the soil at depth can be almost sterile. But the germs are much deeper layers. Soil composition, melting conditions, soil depending on humidity level, seasons, climatic conditions and factors. The microflora also differs in quantity and quality. A few in the soil million, even billions of bacteria. 19 g in 1 g of grave soil the presence of bacteria has been identified. According to research, 1 hectare of land is 25 cm deep the weight of the microbes extracted from the soil reached 3 tons. So, 5 g in 1 g of soil bacteria. In the soil, especially spore aerobes (Vas.mykoides, Vas. Subtilis, Vas. megatherium, Vas. mesentericus, etc.), spore anaerobes (Vas. eporogeaes, Vas,putrificus, etc.), thermophilic bacteria, pigment-forming agents, cocci (Micrococcus albus, etc.) are common. Nitrifying in the soil, denitrifying, nitrogen-fixing, sulfur bacteria, fiber-degrading, mold fungi, yeasts, simple animals, and microscopic algae.

Some of the microorganisms break down organic matter into minerals substances. These minerals are absorbed by plants, the second on the other hand, nitrogen fixers absorb nitrogen from the air and remove organic matter from it synthesizes. Thus, nitrogen circulates in nature. Nitrogen cycle in nature: through ammonification, nitrification, denitrification and nitrogen fixation processes will pass.

According to the relation of the element nitrogen, microorganisms are divided into different groups divided into Some assimilate proteins and peptones, while others absorb nitrates, the third absorbs ammonia, the fourth absorbs atmospheric nitrogen. Protein and if peptones are assimilated after proteolysis (decomposition) and deamination, a complete mixture of amino acids is directly broken down, some representatives nitrates, most of which absorb ammonia. Plants are free in the atmosphere cannot assimilate nitrogen directly. Therefore, they are only mineral nitrogen compounds: uses ammonium and nitrogen salts. Nitrogen in nature The reserve is very large. Nitrogen makes up 4/5 of the atmospheric air. 180,000 tons of nitrogen in surface air. In organisms living on Earth and the amount of nitrogen is 20-25 billion tons. A podzol soils If 6,000 kg of nitrogen per 1 hectare of tillage layer, such plants assimilate nitrogen is only 1%. It is a good harvest even once from nitrogen crops will not be enough to get either. About 15 of the living things that live on the planet. There are 20 billion tons of nitrogen, and on average per hectare (30 cm layer) of soil 5–15 tons of nitrogen.

Release of proteolytic enzymes as a result of ammonification process mineralization of nitrogenous organic matter under the influence of microorganisms occurs. Most of the nitrogen in the soil (99%) is absorbed by plants non-humus (humus, organic fertilizers, plants, animals and microorganisms residues). As a result of the ammonization process, they become plants becomes assimilated. Proteins are bacteria that decompose in the soil, as well as decomposed by actinomycetes and mold fungi to form NH3 does. Ammonia is accompanied by simple acids formed during ammonification reacts to form water-soluble salts of ammonium. This form of ammonia is easily absorbed by plants. Some of the ammonia formed during the ammonification process is absorbed by plants when assimilated, the remainder is oxidized to nitric acid during nitrification.

Nitrifiers are highly sensitive to organic matter. EspeciallyNitrosamonas bacteria are very sensitive. However, there is little organic matter in the environment the more it accumulates, the slower the growth of bacteria, if the amount of organic matter further increases, the bacteria stop growing completely. Nitrifiers are swampy occurs in all soils except soils. If the soil is dry, when lime is added to them, nitrifiers begin to develop there as well. Podzol in soils the nitrification process takes place mainly in the tillage layer of the soil. Black in the plowed layer of the soil this process is intensive, even at a depth of 50 cm the process takes place. Nitrifiers are also sensitive to soil moisture. Dry they do not grow well even when the soil moisture is too high. The denitrification process is the opposite of the nitrification process, in which the bound nitrogen is released back into the atmosphere. This process is direct and indirect. Because molecular nitrogen is formed from nitrates as a result of extremely different processes can be. In direct denitrification, nitrates are separate from denitrification in indirect denitrification, if returned due to the vital activity of a group of bacteria only nitric acid interacts with amino acids and as a result molecular nitrogen is formed.

Direct denitrification in nature is soil manure in nature and the vital activity of denitrifying bacteria common in water bodies occurs due to. A certain amount of nitrogen from the soil as a result of denitrification 330 million tons of soil will be lost as a result of denitrification. Nitrogen leakage detected.Azotobacterchrookokkum bacterium through nitrogen fixation processes binds molecular nitrogen (N2) to the atmosphere and converts it into nitrogenous compounds. Nitrogen fixers also include some members of the genus Pseudomonas. These are more are aerobic bacteria common in northern soils. Recent years Studies have shown that members of the Klebsiella genus are also nitrogen-fixing. They are gram-negative, peritrix, facultative anaerobic plates. They are resistant to even the lowest pH environment and are

distributed in forest podzol soils. Decomposition of organic matter in the soil depends on climatic conditions, soil type and may vary depending on the agronomic methods used. For example, In the gray soils of Central Asia, ammonification proceeds very rapidly because of the moisture in the spring enough, the temperature will be much higher. In contrast, temperatures are lower in the northern regions these processes are very slow because they are. In black and chestnut soil zones both decompose organic matter slowly.

The annual nitrogen demand of terrestrial plants is 100-110 million tons. organized reaches It is estimated that 100-110 plants per year on the surface million tons of nitrogen. With mineral fertilizers, only 30% nitrogen is applied to the soil falls. If by 2030, the world will have 110 million people a year. Tons of nitrogen fertilizers If the yield is doubled, the yield is 200 from the soilmln. tons of nitrogen. That is why microbiological processes are importantremains important.

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