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QUANTITATIVE CHANGES IN THE PHYSIOLOGICAL GROUPS OF MICROORGANISMS IN RICE VEGETATION PHASES IN THE RICE FIELDS OF THE NUKUS REGION

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ANNOTATION
The article discusses the quantitative changes in the physiological groups of microorganisms in the vegetation phases of rice in the Rice fields of the Nukus region. The existence of active compounds of these elements and their entry into the soil is the result of the Activity of soil microflora. Soil microflora absorbs oxygen from the soil air in drought conditions.
KEY WORDS: *microflora, oxygen, element, soil, phase, rice, mesophyte.*

In the life of rice plants, 2 stages are distinguished depending on the requirements of environmental conditions. The first stage lasts from sowing seeds to rooting, during the time when the plant is a normal mesophyte, there is a clear need for free oxygen in the soil air, and when transplanting a mature plant adapted to water pressure soil, rerooting compounds accumulate in the soil, as well as hydrogen sulfide, which is a toxin for the plant The process of sulfate reduction is the result of the activity of sulfate-regenerating microorganisms. With the formation of 140-180 lateral roots from the beginning of root formation, an oxidation zone with well-developed breathable tissues appears at the base of the root. This zone is formed by the release of oxygen from the air into the soil through the roots. A microaerophilic zone is formed in which aerobic microorganisms develop.

The processed toxins in the soil are broken down in the root zone. The rice plant adapts to waterlogging. Based on the foregoing, there should be free oxygen in the soil in two stages of plant development, from sowing to the rooting phase and from rooting to ripening, there should not be a lack of oxygen. The floodplain flooding at the measurement stage leads to the development of regeneration processes in the soil. At the same time, the concentration of root oxygen increases rapidly.

Under anaerobic soil conditions, hydrogen sulfide is simultaneously formed from iron. Unsaturated fatty acids and other compounds form toxins that have a strong influence not only on seed germination, but also on the growth of young plants.

Germination of rice seeds begins in an environment that is sufficiently aerated and has favorable redox conditions. The first 10-15 days are used as top dressing until the roots appear. As the vegetative mass grows, many nutrients are needed: nitrogen, phosphorus, potassium, silicon, iron, zinc and others. The existence of active compounds of these elements and their entry into the soil is the result of the activity of soil microflora.

Soil microflora absorbs oxygen from the soil air in drought conditions. In addition, the microbiological and biochemical processes of the focus turn into anaerobiosis. But for the active growth of the plant, nutrition must be available all the time, otherwise the lateral root zone will be weakened. Unlike other cereal plants that have such a water system, the original root morphology is separated from the arenchymal structure of breathable tissue.

The root system is supplied with oxygen and synthesizes organic matter, which allows it to have various symbiotic relationships with soil microflora. Thus, it promotes the growth of aerobic microorganisms. Flooded soils will be distinguished by researchers from their lack of activity. Anaerobic microflora has the ability to secrete reducing substances, protect against oxygen in the center and show resistance to oxygen in the center. Ammonifiers are the leading group in terms of quantity, and the mineralization of organic substances is provided by aerobic steam from washing machines. An analysis of their dynamics shows that in our study, flooding to a certain extent reduces their development. Waterlogging of the soil leads to a rapid change from aerobic to anaerobic conditions

As a result, the nature of the biochemical and microbiological processes occurring in them changes. This negatively affects the number of ammonifying microorganisms. The dynamics of the number of ammonifying microorganisms changed significantly after the flooding of the soil. Their number decreases during the measurement period, then increases again and reaches a maximum during the transformation period. After 35x107 the amount of secondary ammonifiers decreases to a minimum, and after the removal of water it increases to 4.3x106. Nitrophytizing microorganisms are similar in their dynamics to ammonifiers.

The processes of sulfur transformation in rice cultivation have different meanings. Under anaerobic conditions, sulfate-reducing bacteria are among the most common microorganisms in nature. As a result of their activity, hydrogen sulfide is formed, which stops the growth of their numerous sulfur compounds. The absorption of nutrients due to the hydrogen sulfide root stops.

The action of hydrogen sulfide is especially reduced in the first 30 days after darkening. In the case of Karakalpakstan, the content of sulfate reducers in cultivated soils increases very slightly. In watered soils, the amount of sulfate reducers increases. When they reach the dimension level, they double. Their number increases rapidly towards the end of the measured sermon. The absence of bacteria during this period clearly indicates a horizontal movement. This is due to the decomposition of organic matter in it. With the most sulfate-reducing bacteria, before they release water, the number of sulfate-reducing bacteria rapidly decreases, especially in the non-existent horizon, as the soil begins to dry out and the air becomes stronger.

The data obtained indicate an increase in sulfate-reducing microorganisms in the soils of flooded fields. Due to the intensity of their growth, it prevents the release of water during the ripening period. In these sermons, their maximum growth is observed. If the number of sulfate reducers is counted in thousands, then 59-85 thousand cells/g of soil can reach 45 million cells/g of soil in a flooded area. They begin to multiply at the end of the growing season, and here all conditions are created for their reproduction.

Anaerobic focus is the presence of CO2-4 and the presence of organic matter. The development of sulfate-reducing bacteria in watered soil depends on the intensity of regeneration processes in the outbreak. The most regenerative situation occurs in the second half of the growing season in the soil, the number of sulfate-regenerating microorganisms increases.

The presence of sulfate-reducing bacteria in the soil depends on the presence of CO-4. Nitrophic bacteria are aerobic microorganisms. and in most cases, after waterlogging the soil, several days pass when there is already free oxygen in the center. At later dates, their number decreases, but neutrophicators, like other aerobic microorganisms, always increase in waterlogged soil. In waterlogged soils rich in potassium and sodium, the reaction time of ammonium increases. The ammonia washed into the lower layer is suitable for nitrifying bacteria formed in the process of ammonification and for the oxidation of ammonium nitrogen to nitrate. In the root zone, intensive growth is observed, in other zones the activity of intrification is moderate.

The concentration of nitrifinators is in the range of 100-14 thousand cells/g of soil. Aerobic and anaerobic nitrogen-fixing microorganisms play an important role in the biological oxidation of nitrogen. The activity of non-limbic nitrogen fixers on waterlogged soils under rice is 57–63 kg H. The quality of the soil around rice plants has a significant impact on the activity of nitrogen fixation. The data obtained show that the number of nitrogen-fixing microflora is closely related to the growth of plants in the soil. It increases as the plant grows and decreases during maturation and after planting. Under microaerophilic conditions, optimal for the survival of nitrogen fixers, it is formed when planted in soils saturated with moisture. Due to the aeration of the roots, oxygen in sufficient quantities enters the root zone and the surrounding soil.

This creates favorable conditions not only for anaerobes, but also for aerobic nitrogen fixers. In the studied soils, the largest number of anaerobes is represented by Eoutriolium buturicum, its abundance is 100-750 thousand cells/g of soil, the maximum number is in the root zone. In the previous period, Azotobacter increased by 100,000 cells/g of soil. So, they retained their name in the early days of the flood, by the time they were established, their numbers had increased to hundreds of thousands, and then stabilized. After harvesting in the Pisiu field, the content of aerobic and anaerobic nitrogen fixers decreases due to the drying of plant soils. Attention is drawn to the growth of oligotrophic microorganisms in saline soils.

The amount of ammonifiers increases due to oligotrophic organisms, which reaches 238 mln. l/g of soil in the measured amount. In the future, the density of olisobrophylls decreases somewhat, but their composition remains stable until the end of the growing season.

The activity of oligonitrophils lies in the fact that their abundance is nitrogen fixers and leads to the accumulation of nitrogen compounds in the soil. Denitrification is the only way for the formation of free nitrogen from microorganisms, which is necessary for fish nutrition. Denitrifiers are a group of bacteria that digest nitrogen gas. In watered soil, the content of denitrifiers is low; after flooding, their amount increases before flowering, then decreases and remains in small amounts even after flowering.

LITERATUREЖ

1. *Bakhieva L.A. The main factors influencing the transformation of limnic ecosystems in the South Aral Sea// Economics and Society" No. 5 (36) 2017 www.iupr.ru*
2. *Drabkova V.G. The intensity of microbiological processes in lakes of various physical and geographical zones. biol. Sciences -M., 1983.-40 p. 2. Kuznetsov S.I. Microflora of lakes and its geochemical activity. - JL: Nauka, 1970.- 434 p.*
3. *Matychenkov, D.M. Khomyakov, E.P. Pakhnenko, E.A. Bocharnikova, V.V. Matychenkov Mobile silicon compounds in the soil-plant system and methods for their determination //. VESTN. MOSK. UN-TA. SER. 17. SOIL SCIENCE. 2016. No. 3*