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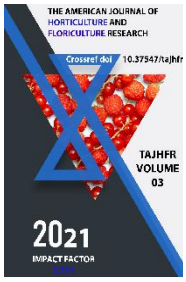

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SCREENING OF VINE TYPES GROWN IN SALTY AND DRY SOILS

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ABSTRACT

Now is the time to seek and introduce new effective microbiological and biotechnological technologies in agriculture to obtain high and environmentally friendly yields from plants that do not adversely affect human and animal health and nature in general. Therefore, in fast and sustainable agriculture, there is a need to gradually use environmentally friendly biological fertilizers that do not harm the environment, create and use biologically pure drugs based on energy microorganisms, and produce high yields from agricultural crops.

KEYWORDS

Vine, soil, azotobacter, agriculture, EshBi, Peptone, root, rhizosphere, legumes.

INTRODUCTION

The use of biological fertilizers in agriculture is the main source of ecologically clean and high quality yields of agricultural crops [6, 7]. Numerous publications devoted to the study of the microflora of the rhizosphere of legumes provide information on the effect of microflora on plant productivity [1, 4, 8].

Microorganisms in the rhizosphere not only ensure the supply of nutrients to plants, but also protect them from phytopathogens, as

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well as produce physiologically active and growth-stimulating substances. There are also data on the composition of the rhizosphere microcenosis of a number of crops, such as beans, moss, peas and cereals [7, 8].

However, research on the properties of microorganisms that stimulate plant growth and resistance to phytopathogens is of great interest. Therefore, in the context of Uzbekistan, it is important to study the microorganisms of the rhizosphere of bean plants under vines, to evaluate the development and yield of vines as a natural biofertilizer and their impact on some of their characteristics.

Legumes play a major role in the binding of molecular nitrogen in soils. However, it would be wrong to think that all types of legumes enrich the soil equally. The increase in the amount of nitrogen in the mass at the total height, and 150–200 kg of plant residues culture is lupine, red alfalfa - 180 kg alfalfa - alfalfa 300 kg - 150 kg of legumes - 50 kg of nitrogen per 1 hectare per 50 soils. However, the benefit of nitrogen in the soil for all registered species, except for cereals, is 50 - 70 kg per 1 hectare.

At present, more than 200 different plant organisms contain various nitrogen-producing microorganisms, such as nitrogen-fixing microorganisms in the root system or in their leaves. Most of them are associated with trees and shrubs.

The introduction of the term rhizosphere to science is related to the name Hiltner [5], which is derived from the Greek word rhizosphere, meaning rhiza- root sphere-area of influence (crust), a highly active part between a microorganism-plant-soil.

At present, this concept is being reconsidered and considered as a set of roots and microorganisms that colonize the soil, which have a physical and biological effect on the soil. Although it is difficult to determine the space occupied by the rhizosphere, the level between the root and the soil is 0–2 mm [2, 3] and the endorizosphere (endoderm and the bark part of the root), the rhizoplan (root surface and strongly attached to it) and the ectorizosphere (directly with the root) divided into the outermost parts connected [7].

Microorganisms that assimilate molecular nitrogen in the atmosphere are deasotrophs that have biochemical mechanisms similar to nitrogen fecalization. According to the literature, there are two main groups of microorganisms that live symbioticly with higher plants that fix atmospheric nitrogen: - Rhizobium, Bradyrhizobium, Mesorhizobium, Sinorhizobium, Azorhizobium and free-living; - Azospirillum, Pseudomonas, Agrobacterium, Klebsiella, Bacillus, Enterobacter, Flavobaterium, Arthobacter and other microorganisms, descendants of Clostridium, Azotobacter, Beijerinckia and other bacteria adapted to live freely in the soil; nitrogen-fixing phototrophic bacteria, cyanobacteria.

Based on the tasks set by the Decree of the President of the Republic of Uzbekistan dated October 29, 2007 No. 3932 [No. 17, Article 221] and the State programs for the improvement of land reclamation [No. 26, Article 338], and on amendments and additions to Article 3 of the Law of the Republic of Uzbekistan "On protection and use of flora" adopted by the Legislative Chamber on August 5, 2016 "Biotechnical measures for the protection and rational use of flora - a set of science-based measures aimed at the preservation, restoration, reproduction and rational use of flora, the preservation of the environment in which it grows" Measures were taken to implement the tasks set out in other normative and legal acts related to this activity.

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THE MAIN RESULTS AND FINDINGS

Method for detection of bacteria from the soil rhizosphere of vines and beans at the viticulture and horticulture farm "SHODLIK SHIRIN SHUHRATI" in Kattakurgan district of Samarkand region: The soil around the root of the vine was sampled from the rhizospheres. The soil around the root of the bean plant was sampled from the rhizospheres. For comparison, soil rhizosphere in the distance between the vine and the bean plant was taken from the samples.

It is taken from our soils in three different samples in a 9/1 ratio. Each sample should have 10 to 30 test tubes to dilute the soil. We sterilized these solutions by autoclaving with 9 ml of distilled water. After distillation, we take 1 g of soil and put it in the first solution at the same time we reduce the dilution concentration of the soil by taking 1 ml of diluted soil for all nine solutions. We then planted our diluted soil sample in our tenth grade sample.

We can prepare the above media by pouring 3 petri dishes for each sample.

Once the food has hardened, pour it into a thermostat and let it dry for 15-20 minutes. When no moisture remains on the inner surfaces, a soil sample diluted in a dense nutrient medium is planted.

In a dense nutrient medium in bacteriological cups, cultures are inoculated using a bacteriological ring, Pasteur pipette, and spatula. When sowing the material using a bacteriological ring, zinc is inoculated on the surface of the nutrient medium in the form of a bar, when the microbes are planted with a spatula, alcohol is passed through a flame.

A spatula is then inserted between the cup lid and the nutrient medium, the material is spread on the surface of the nutrient medium in the cup, and thus planted in three cups and placed in a thermostat at 28 0C for 48 hours. When microbes are sown in this way, they propagate evenly into the dense nutrient medium and form colonies that are visible to the naked eye.

The study of colonies formed by planting microorganisms in this way is of great help in determining the shape, surface, color of the structure of the edges, light transmission and impermeability of individual colonies in determining their type.

You can see the colonies of different microorganisms in the cup, you can also take different colonies from each and plant them on a crooked agar. In order to pour curved peptone agar or other dense nutrient medium into the test tube in a curved state, this dilute nutrient medium is diluted to 3 - 4 ml. The dense nutrient medium diluted by heat during pouring should not touch the edges of the test tubes, as when the mouth of the test tubes is closed with a cotton swab, the stopper sticks to the edge of the test tube and the stopper comes out of the mouth of the test tube with difficulty.

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Analysis of the number of microorganisms in the nutrient medium of current, bean and intermediate samples

№	Plant type	Nutrient environment	The total number of microorganisms in 1g of soil
1.	Grape	Eshbi nutrient medium	$1,2\times10^{2}\pm0,4$
2.	Beans	Eshbi nutrient medium	$1,8\times10^{6}\pm0,45$
3.	Interval	Eshbi nutrient medium	$1,2\times10^{4}\pm0,2$

In our nutrient medium, the total number of microorganisms in the soil of the vine plant is 1.2 × 102 ± 0.4.

The total number of microorganisms in the soil of the bean plant in our Eshbi nutrient medium is 1.8 × 106 ± 0.45.

In our medium, the total number of microorganisms in the intermediate sample soil is 1.2 × 104 ± 0.2.

CONCLUSION

It can be seen that in our nutrient medium, the total number of microorganisms in the soil under a vine plant that has not been planted with beans is several times less than that of a soil sample taken from the bottom of a bean plant.

Analysis of the number of microorganisms in peptone agar medium in grape, bean and intermediate samples

№	Plant type	Feeding environment	The total number of microorganisms in 1g of soil
1.	Grape	Peptone agar medium	$0,7\times10^{2}\pm0,5$
2.	Beans	Peptone agar medium	$1,1\times10^{6}\pm0,3$
3.	Interval	Peptone agar medium	$1,3\times10^{4}\pm0,32$

The total number of microorganisms in the soil of the vine plant in our peptone nutrient medium is 0.7 × 102 ± 0.5.

The total number of soil microorganisms in the bean plant in our peptone nutrient medium is 1.1 × 105 ± 0.3.

The total number of microorganisms in the intermediate sample soil in our peptone nutrient medium is 1.3 × 104 ± 0.32.

As we can see in our peptone nutrient medium, the total number and activity of microorganisms in the soil gave a lower result in our peptone nutrient medium than in the

eshbi nutrient medium. We can also see other microorganisms in our peptone nutrient medium.

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