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ISOLATION OF SEA BUCKTHORN RHIZOSPHERE MICROORGANISMS

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Abstract
Isolation of beneficial microorganisms living in a symbiotic state around the root of a small plant under laboratory conditions and studying their diversity. Identifying phytohormone properties useful for the growth of other plants in these microorganisms.

Keywords: Retail, microorganism, microbiological analysis, nutrient medium, soil dilution, drug, phytohormonal properties.

Introduction

ACCESS

In ancient Greece, this fruit was given an interesting name: "shiny horse" - after eating it, even the smallest animals became healthy and strong, and their skin began to shine.

Sea buckthorn is one of the most useful berries on the planet, and it will benefit you from the following diseases:

• fights against colds and viruses: it contains a large amount of vitamin C, after red bell pepper and namatak, it ranks third;
• Due to the presence of group K vitamin, it controls the metabolism;
• improves blood composition and prevents its transfusion;
• improves the quality of skin, nails and hair;
• reduces the amount of cholesterol;
• reduces the amount of sugar;
• increases the elasticity of veins;
• relieves cough;
• in addition, it is considered very useful for small stomach ulcers and duodenal diseases.

Research methods. Digging up the soil around the plant root using the Litvinov method. Soil dilution method. Methods of inoculation and re-inoculation of microorganisms.

The purpose of the research is to study the micro-organisms around the roots of Sea buckthorn.

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Conducted experiments. Taking these and many other characteristics into account, we tried to determine the phytoharmonic and other characteristics of microorganisms in the rhizosphere of Usbu meaning.

We dug up the rhizosphere of the Sea buckthorn plant at a depth of 20 cm from the Chirchik river of Bostanliq district.

The rhizosphere is the localized soil environment around the root of a vascular plant that is affected by the root.

This area is a hotbed of biological activity as a result of root exudates that stimulate or inhibit the development of rhizosphere organisms.

The complex and dynamic nature of the rhizosphere is determined by the interaction of the soil, plants and organisms that make up the rhizosphere.

The rhizosphere is the point of activity between plants and microbes, plants and animals.

These partnerships can be beneficial, as in the case of N2 fixation or mycorrhizal assemblages, or detrimental, as in the case of fungi or bacteria.

Management measures such as bioremediation and biological control increase the chances of success when rhizosphere ecology is considered.

To improve plant growth and protect the environment, scientists need to better understand the rhizosphere and its effects on the organisms that live there.

Rhizosphere is a term first used by Hiltner in 1904 to describe the area of soil exposed to plant roots.

We placed the obtained soil in specially made envelopes that were previously sterilized in an autoclave. We kept the soil in the refrigerator for a day. During this time, we prepared potato and meat peptone nutrient media.

Preparation of nutrient medium for peas.

Boil 200 grams of chickpeas in 1 liter of distilled water for 1 hour. After filtering on filter paper, add NaCl salt, 2% glucose and 2-3% agar and mix. The mixture is poured into test tubes (or flasks). Sterilized in an autoclave at 0.1mPa for 10 minutes.

Meat peptone agar is prepared in meat peptone broth, in which 2-3% of agar powder and NaCl salt are added to the broth. The mixed solutions are boiled until dissolved. The mixture is poured into test tubes (or flasks). It is sterilized in an autoclave at 0.1 mPa for 10 minutes.

Isolating bacteria from soil is an important first step in many microbiology experiments. Once they are isolated, bacteria can be further analyzed to determine things, such as their species

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and their function in the soil environment. Even a tiny amount of soil can contain millions of bacteria, which makes it necessary to dilute a soil sample before isolating bacteria from the sample.

Measure 100 ml. distilled water in the graduated cylinder and add it to the sterile bottle.

Weigh out 1 g of the soil sample and add it to the bottle of distilled water. Tightly cap the bottle and shake it to thoroughly mix the solution.

Label the sterile test tubes "10^-3," "10^-4," "10^-5," and "10^-6." Add 9 ml of distilled water to each of the tubes, using one of the pipettes.

Transfer 1 ml of the solution in the bottle to the tube labeled "10^-3," using a new pipette. Cap the tube and swirl it gently until the solution is well mixed.

Transfer 1 ml of the solution in the "10^-3" test tube to the "10^-4" tube with a new pipette. Cap the "10^-4" tube and swirl to mix. Repeat this method to transfer solution from the "10^-4" tube to the "10^-5" tube and then from the "10^-5" tube to the "10^-6" tube.

Plate three samples each from the "10^-4," "10^-5" and "10^-6" tubes. Use a new pipette to transfer 1 ml of solution from the tube into a Petri plate. Add about 15 ml of nutrient agar to the plate; then put the lid on the plate and swirl gently so that the agar covers the bottom of the plate.

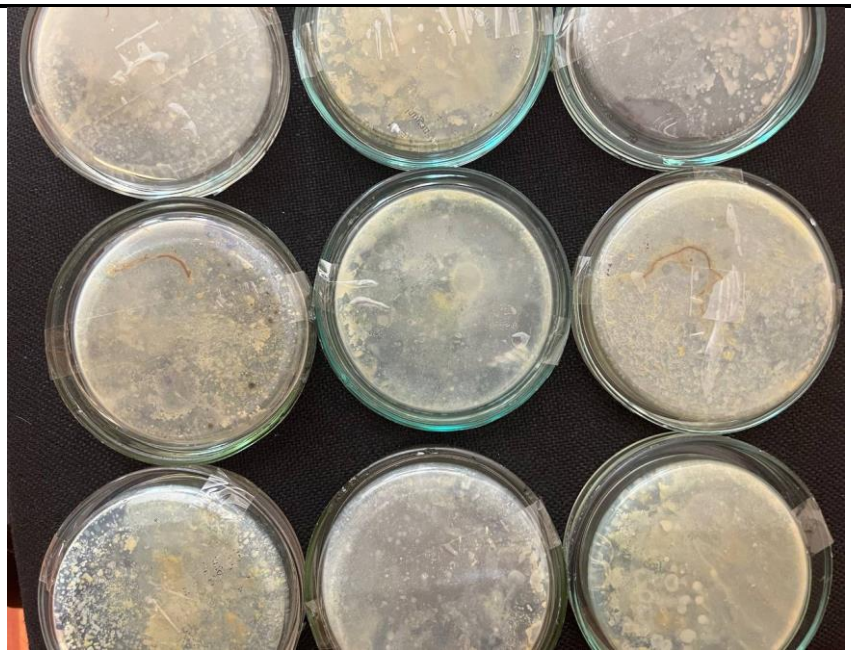
Make a control plate by putting 1 ml of distilled water into a Petri plate, using a new pipette. Add agar; put the lid on and swirl the plate.

Leave the Petri plates upright until the agar has set. Then invert the plates and incubate them—either in an incubator or at room temperature—for as little as 24 hours and up to five days.

Remove the plates from the incubator after the desired amount of incubation time. Count the bacterial colonies on plates containing about 30 to 300 colonies. Use a permanent marker to mark the colonies you have already counted in order to avoid counting the same colonies twice.

Divide the number of colonies counted by the dilution—"10^-4," "10^-5" or "10^-6"—of the soil solution for each plate. Find the number of cultivatable bacteria in the original gram of soil by averaging the results from each countable plate.

I planted suspensions in previously sterilized nutrient media in Petri dishes. After that, microorganisms grew in a thermostat at $+30C^0$ for 3-5 days.



I replanted the microorganisms 3 times to isolate pure cultures.

Spot	Sample ID	Patient ID	Organism	Score
A1	2		*Pseudomonas putida*	2.13
A2	7		*Acinetobacter johnsonii*	2.12
A3	3		*Comamonas testosteroni*	1.70
A4	21		*Acinetobacter calcoaceticus*	2.04
A5	23		*Pseudomonas putida*	2.28
A6	22		*Pseudomonas putida*	1.74
A7	30		*Bacillus cereus*	1.83
A8	29		*Acinetobacter calcoaceticus*	2.14
A9	28			1.45
A10	23		*Pseudomonas monteilii*	2.39
A11	25 1		*Acinetobacter pittii*	2.38
A12	25 2		*Acinetobacter pittii*	2.15
B1	10		*Acinetobacter pittii*	2.44
B2	14			1.61
B3	1		*Pseudomonas monteilii*	2.00
B4	18			1.67
B5	6		*Pseudomonas monteilii*	2.34
B6	8		*Comamonas testosteroni*	1.82
B7	19		*Pseudomonas monteilii*	2.37
B8	24		*Acinetobacter pittii*	2.45
B9	27			1.62
B10	11		*Pseudomonas putida*	1.85

I isolated the pure culture of the following microorganisms.

CONCLUSION

During this experience, I gained a wider understanding and information about the fact that the small plant is not well studied in our country and the role of bacteria living in its rhizosphere in a symbiotic state in the field of agriculture.

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