IMPORTANCE OF USEFUL MICROORGANISMS IN PLANT DEVELOPMENT

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Abstract: A number of tasks have been defined in terms of expanding the production of environmentally friendly products, protecting plants from external stress.

Key words: Microorganism, epiphytic bacteria, Pseudomonas sp, Bacillus subtilis.

Microorganisms living on the surface of plants today are not accidental, but are formed on the basis of mutual relations between microbes and plants, if necessary, on the basis of the laws of these relations. in plant organs, the formation of microorganism species specific for individual species, and this process changes dynamically during plant vegetation, the growth conditions of this plant, and a number of biotic and abiotic factors affect it determined. So, it has been determined that the characteristics of epiphytic microorganisms change depending on the change in the environment.

A change in the ecological situation in the region where the plant grows leads to the transformation of the quantitative and qualitative composition of microorganisms, which leads to a change in the biotic relations between them. Along with other factors that ensure the immunity of plants, epiphytic bacteria serve as the first barrier protecting plants from saprophytic, conditionally pathogenic and pathogenic microorganisms that come from the external environment, which shows how urgent this problem is and shows that it is promising. The first attempt to determine the role of epiphytic bacteria in the life of plants was made by Ya.P.Khudyakov in 1944, and continued 25 years later in 1969 by Yu.M.Voznyakovskaya. After that, articles began to be published about microorganisms living in the above-ground part of various perennial plants (Delova, 1973; Zvyaginsov, 1993; Yevsev, 2004; etc.) candidate thesis on the role of microflora was also defended (Grodnitskaya, 2005). Microorganisms interact with environmental factors and play a key role in regulating nutrient cycling. Microorganisms play an important role in nitrogen fixation, phosphate solubilization, carbohydrate and sulfur metabolism and control the biogeochemical cycle. The growing part of plants is quickly covered with microorganisms. Microbes appear on the surface of plants even in conditions where it is not allowed for microorganisms to fall from the air or to be transported by insects. Interestingly, not only motile bacteria, but also mycobacteria, yeasts, and non-motile microorganisms like sardines are found. Only some of them have special devices for spreading. For example, yeasts belonging to the genus Sporobolomyces have the ability to throw their ballistospores far. In order to determine the high adaptability of epiphytic microorganisms to volatile phytoncides of plants, they were studied in comparison with soil saprophytes and some root microflora in the presence of these phytoncides. Different microorganisms have been found to be resistant to phytoncides of birch (Pinus silvestris) and turnip (Raphanus sativus). As mentioned above, it was observed that microorganisms living in the phyllosphere are the most resistant to these phytoncides, root microflora is less resistant, and finally, the most sensitive and less resistant type of microorganisms are non-epiphytic microorganisms. Some microbiota are representatives of several ecological groups at once. One of such microorganisms are bacteria belonging to the genus Bacillus. They are the predominant microorganisms both in the rhizosphere of plants (rhizosphere) and on the surface of their above-ground parts (epiphyte). Among them, members of the genus Bacillus living in the rhizosphere are better studied. Representatives of bacteria belonging to the genus Bacillus differ from other bacteria in their viability in external environmental conditions and tolerance to various anthropogenic influences. This is helped by the fact that bacilli have various biological activities: they synthesize phytohormones, antibiotics, enzymes, toxins and

other metabolites. Bacteria belonging to the genus Pseudomonas are distinguished from some microorganisms by their resistance to external abiotic influences. Bacterial strains belonging to this genus also have high antagonistic properties. It is used against diseases caused by phytopathogenic micromycetes and bacteria. It has been found to reduce the disease by 86.7% when used against root rot diseases in cereals. It has also been found that bacterial strains belonging to this species form ice crystals in cold climates and protect the plant from cold and increase the plant's immunity. In highly saline soils and plants, the dominance of bacteria belonging to the genus Pseudomonas was observed.

References:

1. Azimovich A. U., Sultonuvich B. K., Zokirovna M. M. “Streptokokk avlodiga mansub bakteriyalarning patogenlik xususiyatlarining tahlili” //Talqin va tadqiqotlar ilmiy-uslubiy jurnali. – 2022. – Т. 1. – №. 13. – С. 95-101.

2. Annayeva, D. (2022) “Cichorium intybus lisolation of endophytic microorganisms from plants and identification of biotechnological potential” Eurasian Journal of Medical and Natural Sciences, 2(6), 54–61. извлечено от https://www.inacademy.uz/index.php/EJMNS/article/view/1755

3. Annayeva, D. G. Y., Azzamov, U. B., & Annayev, M. (2022). Oddiy sachratqi (cichorium intybus l) o‘simligidan endofit mikroorganizmlar ajratib olish. Oriental renaissance: Innovative, educational, natural and social sciences, 2(5-2), 963-972.https://cyberleninka.ru/journal/n/oriental-renaissance-innovative-educational-naturaland-social-sciences

4. Giyosovna, S. D. (2023). “Oddiy sachratqi (cichorium intybus l) o’simlik qismlaridan endofit bakteriyalarning sof kulturalarini ajratish usullari” Новости образования: исследование в XXI веке, 1(6), 387-393. http://nauchniyimpuls.ru/index.php/noiv/article/view/3573

5.Shodiyeva, D. (2023). Sanoat mikrobiologiyasining biotexnologiyadagi ahamiyati. golden brain, 1(2), 116-120.