THE EFFECT OF BIOFUNGICIDES BASED ON RHIZOBACTERIA ON ROSES.

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Annotation: In this article, the complex action biofungicide based on Bacillus subtilis bacteria and the study of the mechanism of its antagonistic activity against the causative agent of root rot disease, as well as the justification of its effectiveness, are defined as the following tasks.

Key words. Rhizobacter, biofungicide, biological control, Baccillis subtillis, rhizosphere microorganisms, biological efficiency, biopreparation, working solution.

Relevance of the topic. The need for food security is becoming increasingly urgent as the world's population, which is currently close to 7 billion, is expected to increase to almost 10 billion or more in the next 50 years [1]. Approved by Decree No. PF-6159 of the President of the Republic of Uzbekistan dated February 3, 2021 "On the further development of the system of knowledge and innovation in agriculture and the provision of modern services" "In 2021-2025 in agriculture in the concept of priority development of the system of knowledge and innovations" "Effective use of land and water resources, increasing the productivity of agricultural crops, creation of new varieties, selection, development of seed production and nursery, introduction of scientific achievements into production, republic It is determined that the development of science based on conceptual directions such as specialization of regions for the cultivation of certain agricultural crops and food products is an urgent task.

Rhizosphere microflora. Microflora can be defined as a set of microbial genomes in a certain habitat (Bulgarelli et al. 2013). The root system is surrounded by a zone of high biological activity, that is, the rhizosphere, where many interactions between the plant and microorganisms have a strong influence on the development of the host plant cell. does (Singh et al. 2004). Therefore, the diversity of rhizosphere microorganisms is necessary to maintain the biochemical processes occurring in cells in the soil ecosystem.

Microorganism colonies living in the rhizosphere consist of several species that contain beneficial properties that affect the development of plants and make them free from phytopathogens. These microorganisms include not only plant mycorrhizal fungi, nitrogen-fixing bacteria, biocontrol agents and growth-promoting rhizobacteria (PGPR), but also harmful microorganisms as plant pathogens in the soil (Mendes et al. 2013). Colonization of this complex microflora population takes place under the influence of different amounts and types of organic compounds - exudates - released by plant roots (Haichar et al. 2008; Pérez-Jaramillo et al. 2015). Root exudate varies among plant species, varies along the root axis, and also varies in response to nutritional status, stress, and phytopathogen damage (Neumann 2007). Compounds released by roots can determine microflora composition by activating or reducing rhizosphere association microorganisms (Doornbos and Van Loon 2012). Therefore, the enrichment of specific microflora populations is related to the composition and amount of root exudates (Foster 1986; Gomez et al. 2001; Berg et al. 2002;).

Before the preliminary experiments, the research was divided into two parts based on field and laboratory experiments. Laboratory experiments were carried out in the phytopathology laboratory of the Andijan Agricultural and Agrotechnological Institute. The field experiments were carried out in the area where a rose (Rose.L) belonging to the private entrepreneur Ibrahim Rahimov, who belongs to the Chirtak neighborhood of the Izboskan district, is being cared for. This area is 1.6 hectares, and varieties of roses "Chernaya Magiya", "Papilon", "Salvidor" are grown in the area. An area of 1,700 m2 was selected for field experiments during the research. In the selected field, the variety of rose (Rose.L) "Chernaya magiya" was selected for experiments. To observe soil microflora, 3 different periods were chosen: April-May, June, July, October-November. The following media were used to grow the strains used in the study.

Placed in an orderly manner in options and returns in the field of experience. The returns in the study area were analyzed into 3 returns, and all options were compared to options 1 and 2.

1- return				2- return				3- return			
1	2	3	4	1	2	3	4	1	2	3	4
Control	Fitosporin	Fitosporin + Bacillus	Bacillus subtilis	Control	Fitosporin	Fitosporin + Bacillus	Bacillus subtilis	Control	Fitosporin	Fitosporin + Bacillus	Bacillus subtilis

B. subtilis has many direct and indirect mechanisms to increase plant growth and thus yield, including improving nutrient availability, plant growth hormone synthesis, and It plays a positive role in reducing stress in plant development through abiotic stress.

In B. subtilis nutrient availability improvement, many important plant nutrients, such as nitrogen, phosphorus, and iron, are in soluble forms that are difficult for plants to assimilate in the soil, and therefore can be pre-fortified by rhizobacteria or transformed into soluble forms. participates in the further improvement of the demand for substances in the development of plants through teeth (Hayat et al. 2010). Plants, for example, cannot use atmospheric nitrogen directly, but depend on external assistance provided by microbial symbionts

Root, stem and leaf samples of diseased plants were taken, herbarium was prepared and mycological examination was carried out in laboratory conditions. The samples were first placed on special grids and washed in running water for two hours, and then the samples were washed in Tween 80 solution for 30 seconds, 0.5% sodium hypochlorite (NaOCl) for 30 seconds, 50% water and 50% alcohol (96%) for 30 seconds in sterile water for 1 minute. KDA was planted in nutrient medium and grown for 3-5 days in an artificial climate chamber at 25-26 0 C (pictures 3.2.2-, 3.2.3-, 3.2.4-, 3.2.5-).

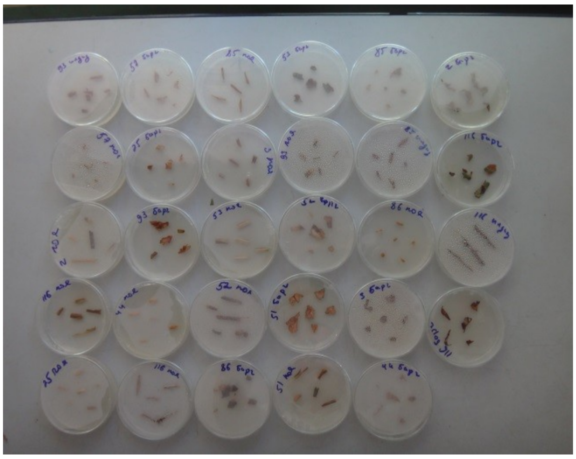

Figure 3.2.1. Samples of fungal colonies grown on day 1

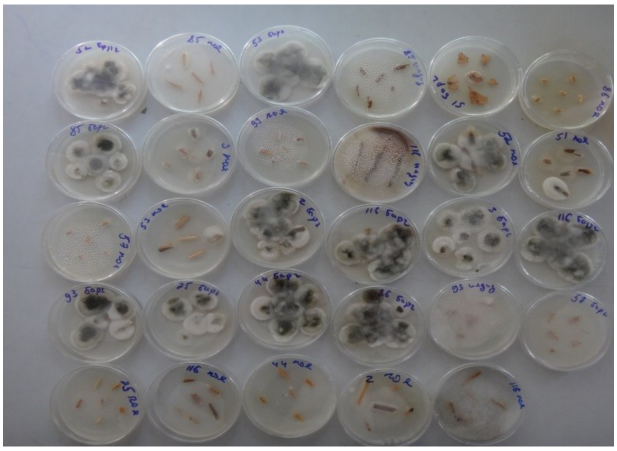

Figure 3.2.2. Samples of day 5 cultured fungal colonies

Limiting the development of phytopathogens based on biological methods and combating various biotic and abiotic factors of the environment is an important task of modern agrobiotechnology. It is known that biofungicides are a means of regulating plant ontogeny. Therefore, they are widely used in agriculture to increase the efficiency of agrocenoses and resistance to adverse environmental conditions.

Phytohormones synthesized by bacteria in biological preparations prepared on the basis of microorganisms have a number of advantages over chemical substances; they are relatively cheap, easy to use, safe for humans, animals and beneficial insects, do not have a mutagenic effect, are easily used in existing technologies for growing and protecting crops, do not have a negative impact on the environment.

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