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## THE USE OF SOIL-ANTAGONISTS AGAINST PATHOGENS OF PLANT DISEASES

Rashidova M.<sup>1</sup>, Sattarova R.K.<sup>2</sup>, Khakimova N.T.<sup>3</sup>, Avazov S.E.<sup>4</sup>

Tashkent State Agrarian University, Uzbekistan

### ABSTRACT

*In article given materials about the use of soil-antagonists against pathogens of plant diseases.*

**KEYWORDS:** soil antagonists, fungal diseases, monitoring diseases, analysis, pathogens.

At the present time, a large amount of material testifies to the prospects of using antagonist microbes in the fight against plant diseases (Askarova, 1960; Abduazimova Zh.I. 2008; Kolomiya E.I. et al. 2006; Mannanov R.N. 2010, Norbekov.Zh. et al. al. 2013. Crossbard, 1953; Schul 1986). In this regard, research on the avoidance of new antagonist microbes used in this direction is acquiring a patient relevance.

To study antagonists with 7 types of plant pathogens, five strains of soil saprophytic bacteria from the collection of museum cultures of the Institute of Microbiology ANRCh3 were used. The study of the antagonistic effect of microorganisms on phytopathogenic bacteria was carried out according to the method of Cooksey Moore (1980). The studied microorganisms were grown on glucose agar, and the culture test on potato. The size of the zone of growth

inhibition of photons of the studied bacteria is determined after 48 hours. The results obtained on the action of the investigated 5 microorganisms-antagonists (Bacillus megatherium, Bacillus brevis, Streptomyces sp, pseudomonas flurecens, Bacillus thurengensis, v. 7 species of phytopathogenic microorganisms (fusarium oxysporium, Verticillium campus, malvacearum, Xanthomonas campestris var phaseoli) are presented in the table.

The table shows that the culture of Pseudomonas fluorescent and Bacillus thurengensis showed an insignificant bactericidal effect only against Erwinia caratovora, Verticillium dahlia, the culture of Streptomyces sp. It had a depressing effect on two types of phytopathogenic microorganisms Verticillium dahlia and Xanthomonas malvacearum, causing vertical withering cotton and cotton gommosis.

**Table 1**  
**Antagonistic spectrum of the studied microorganisms.**

The investigated microorganisms antagonists	Phytopathogenic microorganisms					
	Verticillium dahlia	Fusarium solani	Xanthomonas campestris	Xanthomonas phaseoli	Xanthomonas malvacearum	Erwinia caratovora
Bacillus megatherium	5		22	31	26	
Bacillus brevis		13	12			20
Streptomyces sp.	16				10	
Bacillus thurengensis	12					



*Bacillus megatherium* and *Bacillus brevis* have shown good antibacterial properties against phytopathogenic microorganisms. These had a pronounced antagonism to *Verticillium dahlia*, *Xanthomonas campestris*, *Xanthomonas malvacearum*, *Erwinia caratovora*, *Fusarium solani*, and *Fusarium oxysporium*.

All the antagonists studied by us did not show antibacterial properties to all tested phytopathogenic microorganisms, however, it should be noted that *Bacillus megatherium* and *Bacillus brevis* strains possess good antibacterial properties. they have a wider spectrum. actions

Antagonistic spectrum of the studied microorganisms. Thus, the study of the antimicrobial action of the studied microorganisms on phytopathogenic microorganisms showed that all 5 strains showed an antimicrobial spectrum to phytopathogenic microorganisms, but their spectrum of action and antibiotic activity were different.

Based on the results obtained, it can be concluded that antagonism in the studied bacteria in relation to phytopathogenic microorganisms was observed in some cases actively, in others weakly. In this regard, for further work, we have selected the most active antagonist bacteria (*Bacillus megatherium* and *Bacillus brevis*)

Data on the antibiotic activity of microorganisms indicate the possibility of using some of them to limit the infection caused by phytopathogenic microorganisms and to develop biological methods for combating plant diseases.

## CONCLUSIONS

1. The phenomenon of antagonism to phytopathogenic microorganisms manifested itself differently in all studied antagonist bacteria.
2. The highest antibiotic activity and a broad spectrum of action against the studied phytopathogens was found in the *Bacillus megatherium* and *Bacillus brevis* strains.
3. *Bacillus megatherium* and *Bacillus brevis*. These are the most active antagonists, which may be used in the future to develop biological methods for combating plant diseases.

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