BIOCONTROL OF PHYTOPATHOGENIC FUNGI BY AQUATIC ACTINOBACTERIA

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Background: Among microbial control agents, actinobacteria are of particular interest due to their ability to produce antimicrobial compounds and inhibit numerous phytopathogens. Effective strains have been reported in the genera *Actinomadura, Actinoplanes, Arthrobacter, Micromonospora, Rhodococcus, and Streptomyces.* Their metabolic versatility allows them to compete in root exudates and plant litter, colonize the rhizosphere and plant tissues, and form stable plant associations [2]. Aquatic actinobacteria also contribute to water quality improvement, pathogen suppression, and the health of aquatic organisms [1].
Aim of the study: This study aimed to screen actinobacteria strains isolated from the Lake La Izvor system for their ability to inhibit the growth of phytopathogenic fungi.
Materials and methods: Thirteen actinobacterial strains were cultivated for 14 days on Gause medium. Antifungal activity was evaluated by the disc-diffusion method against *Alternaria alternata, Botrytis cinerea, Fusarium solani*, and *Fusarium oxysporum* on malt-agar medium [3].
Results: The tested strains showed variable antifungal activity, with inhibition zones ranging from 8.0 to 22.0 mm. The most active against *A. alternata*, were *Actinoplanes* sp. 26, *Actinomadura* sp. 37, and *Actinoplanes* sp. 43, producing zones of 20.33–21.33 mm. Only five strains inhibited *B. cinerea*, with the highest activity shown by *Actinomadura* sp. 37 (22.0 mm). Nine strains suppressed *F. oxysporum* (8.0–17.67 mm), with maximum activity recorded for *Actinoplanes* sp. 42. Ten strains were active against *F. solani* (8.33–19.67 mm).
Conclusions: Aquatic actinobacteria belonging to the genera *Actinomadura, Actinoplanes*, and *Streptomyces* demonstrated significant potential for suppressing phytopathogenic fungi.
was to perform the antimicrobial screening of actinobacteria strains isolated from the lake system La izvor, for their ability to suppress the growth and development of phytopathogenic fungi.

Keywords: actinobacteria, antifungal activity, aquatic environment, phytopathogenic fungi.

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