Journal of Innovations in Pharmaceutical and Biological Sciences (JIPBS)
ISSN: 2349-2759
Available online at www.jipbs.com

Research article

Isolation of antagonistic actinomycetes species from rhizosphere of cotton crop

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Key words: Rhizosphere, Antagonistic, Crowded plate, Giant colony technique, Well Diffusion method, MIC.

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Abstract

The plant microbe interaction in the rhizosphere is one of the major factors regulating the health and growth of plants. Actinomycetes are common filamentous soil microorganisms important in maintaining a satisfactory biological balance in the soil, largely because of the ability to produce antibiotics. In the present study Antagonistic Actinomycetes species was isolated from rhizosphere of cotton. Actinomycetes sps. are isolated by crowded plate method on Starch casein Agar. Eight colonies are selected and primarily screened for antagonistic nature, by Giant colony technique. Three strains with best antifungal activity were selected and further screened by Well Diffusion method. The best member with good antifungal activity was selected and named as AS II. This strain was studied for it's morphological, physiological characteristics according to Bergey's Manual and further studied by molecular characterization and was identified as *Streptomyces violatus*. The antagonistic nature of the isolated strain was determined for its anti-fungal activity by Well Diffusion method, MIC and Inhibition of phytopathogenic fungi like *A. alternata, F. moniliformae, M. phaseolina, R. solani* and *A. niger* in liquid medium. The results indicate that *Streptomyces violatus* isolated from rhizosphere of cotton has Good Antifungal activity and it was more effective against *Macrophomena phaseolina* when compared with other test fungi.