

## Bioprotective Role of Soil Borne Bacillus Strain against Selected Fungal Pathogens of Agriculture Relevance

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**Abstract :** The agriculture productivity losses due to microbial pathogens have been a serious issue in Pakistan and rest of the world. Present work was designed to isolate soil borne microorganisms having the antagonistic ability against notorious phytopathogens. From the initial collection of 23 bacterial isolates, two potent strains of Bacillus were screened on the basis of their comparative efficacy against devastating fungal pathogens. The strains AK-1 and AK-5 showed excellent inhibitory indexes against the majority of tested fungal strains. It was noted that both strains of Bacillus showed significant biocontrolling activity against *Aspergillus flavus*, *Fusarium moniliforme*, *Colletotricum falcatum*, *Botrytis cinerea*, *Aspergillus niger*, *Fusarium oxysporum*, *Phytophthora capsici* and *Rhizopus oryzae*. The strain AK-1 was efficient to suppress *Aspergillus* species and *Rhizopus oryzae* while AK-5 expressed significant antagonistic activity against *Fusarium*, *Botrytis*, and *Colletotricum* species. On the basis of in vitro assay, it can be postulated that the Bacillus strains AK-1 and AK-5 can be used as a bio-protective agent against various plant diseases. In addition, their applications as natural pesticides could be very helpful to prevent the adverse effects of chemical pesticides.

**Keywords :** biological control, Bacillus spp, fungal pathogens, agriculture

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