

## عنوان مقاله:

Antiphytopathogenic and Plant Growth Promoting Attributes of Bacillus Strains Isolated from Rhizospheric Soil of Chickpea

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## خلاصه مقاله:

In the present study, we aimed to screen indigenous rhizospheric Bacillus strains, capable of producing antiphytopathogenic and plant growth promoting traits. Isolate CTS-B19 and CTS-G24 exhibited quite noticeable antagonistic activity initially against Fusarium oxysporum f. sp. ciceri and Rhizoctonia bataticola, and, later, against a panel of phytopathogens. Partial 16S rRNA sequence analysis showed that the isolate CTS-B19 and CTS-G24 exhibited 99% homology with Paenibacillus polymyxa and Bacillus subtilis and the sequences were deposited in GenBank with accession numbers KF322038 and KF322037, respectively. In vitro detection for fungal wall degrading enzymes revealed that both isolates produced chitinases,  $\beta$ -1,3-glucanases, proteases and cellulases. While siderophores and catalase activities were observed only in Bacillus subtilis (CTS-G24), both strains exhibited a positive result for in vitro ammonia production. Besides, the strain CTS-B19 could also solubilize phosphate. Lytic enzymes and siderophore produced by Bacillus subtilis can be considered as potential antiphytopathogenic traits involved in the inhibition of fungal growth. Both strains exhibited either no or negligible antagonistic activity against other plant growth promoting bacteria. Additional to antagonism, plant growth promoting traits exhibited by these natural biocontrol agents may suppress plant diseases and might be applied in agriculture as an alternative to chemical pesticides and fertilizers.

## کلمات کلیدی:

Cell wall lytic enzymes, Lytic enzymes, Paenibacillus spp, Siderophore

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