عنوان مقاله:

Antagonistic Potential of Bacillus and Pseudomonas Isolates from Wheat Rhizosphere against Gaeumannomyces graminis var. tritici and Bipolaris sorokiniana

محل انتشار:

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خلاصه مقاله:

Take-all and common root rot diseases are the important diseases of wheat that are caused by two fungi, Gaeumannomyces graminis var. tritici and Bipolaris sorokiniana, respectively. In this study, we aimed to isolate rhizobacteria Bacillus and Pseudomonas from wheat rhizosphere and evaluate their antagonistic effect against G. graminis var. tritici and B. sorokiniana. Thirty six soil samples from wheat rhizosphere were cultured and isolates were identified by bacteriological and biochemical tests. Using the dual culture method antagonistic effects of all the Bacillus and Pseudomonas isolates were tested against the target fungal pathogens. The isolates were also evaluated for volatile metabolites and sidrophore production. The polymerase chain reaction assay was performed for accurate identification of the isolates. Fifty seven Bacillus and Pseudomonas strains were isolated. Of the isolates, ۱۹ strains had antagonistic effect against the tested pathogens. Bacillus isolates had a greater antagonistic effect against the tested fungi than Pseudomonas isolates. In addition, Bacillus isolates showed a greater antagonistic effect against B. sorokiniana than G. graminis var. tritici. In this study, only ۷ isolates were able to produce volatile metabolites. Sidrophore production was detected in ۳ strains of Pseudomonas isolates. Based on the ۱۶S rRNA analysis, the ۳ strains of Bacillus and Pseudomonas were identified as Bacillus megatrium, Bacillus subtilis and Pseudomonas aeruginosa. According to majority of the isolates belonged to the Bacillus strains and some of them had a good antagonistic activity against G. graminis var. tritici and B. sorokiniana, they are .promising for biocontrol of these important pathogens

کلمات کلیدی:

Antagonistic Activity, Bipolaris sorokiniana, Gaeumannomyces graminis var. tritici, Rhizosphere, Wheat