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# BOOK OF ABSTRACTS



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## **Antifungal activity of *Bacillus* sp. against *Fusarium graminearum***

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### **Abstract**

*Fusarium graminearum* Schwabe is one of the most important pathogens of wheat. The presence of this pathogen leads to loss of yield. The most common measure to control *F. graminearum* is the use of chemical compounds. Considering the constant application of compounds of the same mechanism of action, resistance to these compounds often occurs. The use of antagonistic bacteria has good potential in controlling this pathogen. In this research, the antifungal activity of antagonistic bacteria of the genus *Bacillus* on an isolate of *F. graminearum* under laboratory conditions was investigated. The inhibitory effect of 10 strains of bacteria was examined in the method of dual cultivation. Mycelia were transferred to a fresh PDA medium, and a suspension of bacteria was applied at 3 cm from the mycelial disc. After seven days of incubation at 25 °C, the inhibitory activity of specific bacterial strains against *F. graminearum* was observed. The highest percentage of inhibition was recorded in four strains of *Bacillus mojavensis* Roberts *et al.* (99/18 R-6, 31/18 RS 7-1, 31/18 RS-4 and 31/18 RS-8), in two strains of *Bacillus velezensis* Ruiz-García *et al.* (31/18 RK 1-1 and RK 3-2) and one strain of *Bacillus amyloliquefaciens* (Priest *et al.*) Borriss *et al.* 31/18 RK 1-2. The percentage of inhibition in these strains was between 30 and 40%. In two strains of *Bacillus licheniformis* (Weigmann) Chester 31/18 RS-9 and 31/18 RS-10, a percentage of inhibition of 11% and 17%, respectively, was recorded. In contrast, *Bacillus licheniformis* RS 92/17 6B did not show any inhibitory activity, according to *F. graminearum*. As this research indicates a good potential of *Bacillus* species in controlling *F. graminearum*, further research should examine their effectiveness in field conditions because the use of these bacteria would provide wheat protection without the possible risk of resistance.

*Key words: Fusarium graminearum; Bacillus; dual cultivation*