

TITLE: BIOLOGICAL FERTILIZERS AND PHYTOPATHOGENIC FUNGUS SUPPRESSING BACTERIA

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ABSTRACT: The application of biological fertilizers in agriculture has been used as an effective alternative in the control of phytopathogens, by stimulating the microbial flora of the soil, promoting growth of inhibitory bacteria and reducing the use of chemical products. The objective of this work was to analyze the antagonistic action of bacteria, isolated from commercial and soil biological fertilizers, on phytopathogenic fungi. The tests were carried out in the Microbiology Laboratory and in the School Farm of the North Paraná State University (FE/UENP). The biological fertilizer was obtained from a continuous liquid fermentation process, and fertilized soil was obtained from the field. Serial dilutions of the samples (biofertilizer and soil) were inoculated in Petri dishes containing TSA (Tryptone Soy Agar) and incubated at 28°C for 48 to 72 hours. 4 and 11 bacterial isolates were obtained from the biological fertilizer and fertilized soil samples, respectively. After isolation, the bacterial strains were submitted to a culture inhibition assay against 4 phytopathogenic fungi (*Fusarium solani* isolates 1 and 2, *Macrophomina phaseolina* and *Sclerotinia sclerotiorum*, isolated from cassava, bean and soybean respectively). The plates (quadruplicates) were incubated at 25°C with a photoperiod of 12 / 12h. Mycelial growth was evaluated to determine the Mycelial Growth Rate Index (IVCM) and the inhibitory effect of the isolates against phytopathogenic fungi. The results indicated that 14 out of 15 isolates showed pronounced inhibitory activity, particularly the isolate 4B. This indicates the potential for use of biofertilizers or biological fertilizers for maintenance of the chemical, physical and microbiological characteristics of the soil and its responses against phytopathogens. Thus, we conclude that these isolates synthesize metabolites involved in the control of soil pathogens, promoting the inhibition of diseases.

KEYWORDS: Biological Fertilizers, Phytopathogenic Fungi, Inhibition