

TITLE: ANTIFUNGAL ACTIVITY OF *Diaporthe* sp. AGAINST *Fusarium graminearum*

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ABSTRACT

Phytopathogen fungi, as *Fusarium graminearum*, is responsible for fall in crop yield. The control of this problem is usually performed by applying synthetic fungicides. However, their use lead to problems for the environment and human and animal health. The use of antagonist microorganisms can be a viable and environmentally safe alternative to control these diseases by the direct competition between microorganisms in the system and/or secondary metabolites action. In this way, this study aimed evaluate the activity of methanolic extracts from *Diaporthe* sp., endophytic fungus from *Schinus terebinthifolius* leaves, against the mycelial growth of *Fusarium graminearum*. The growth of the endophytic microorganism was done in rice and potato dextrose agar (PDA) mediums. The methanolic extracts were resuspended in methanol:water (1:1) in the concentration 10 mg / mL. Each extract (100 µL) were spread with a Drigalski spatula in Petri dishes containing PDA. Mycelial discs (5 mm) of the phytopathogen were inoculated in the center of the dishes. Then, the plates were maintained at 25 ± 2 ° C with photoperiod of 12 hours. Mycelial growth of the phytopathogen was measured (two measures diametrically opposite) at 24 hours intervals until the sterile water control had fill the whole plate. The controls used were: methanolic extracts of the mediums without the inoculum, methanol and water (1:1), sterile water and carbendazim (10 ppm). The data were submitted to statistical analysis by the Tukey test with 5 % probability of error. The methanolic extract of the endophyte *Diaporthe* sp. obtained in PDA was able to inhibit 100 % of mycelial growth of the phytopathogen at all evaluated times. The differences in the measures of mycelial growth for the methanolic extracts obtained in the rice medium with *Diaporthe* sp. and without the inoculum, and for carbendazim and methanol:water solution were not significative. Metabolites produced from *Diaporthe* sp. can control *Fusarium graminearum* mycelial growth.

Keywords: Bioprospection, Antimicrobial Activity, *Schinus terebinthifolius*, Phytopathogen.