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Trichoderma sp Native from Chili Region of Poanas, Durango, Mexico Antagonist against Phytopathogen Fungi

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Abstract: Problem statement: Presence of *Trichoderma* spp. in agricultural soils decrease incidence of diseases by phytopathogen fungi. Sanity diagnostic require to know if exist beneficial microorganism and what agricultural practices help to their propagation. **Approach:** Samples (30) were taken from soils and sick plants of ten sites in four localities of Valley of Poanas. *Phytophthora capsici* Leo, *Rhizoctonia solani* Kühn and *Trichoderma* sp were isolated in agar V8 and were identified by microscopy. **Results:** In the 30 samples analyzed the presence of *Phytophthora capsici* Leo and *Rhizoctonia solani* Kühn was determined. Two isolations of *Trichoderma* sp were obtained from soil, they had antagonist activity against to *P. capsici* and *R. solani* on agar-V8 medium and showed chitinase activity. Sugar production in chitinase (10 $mg.mL^{-1}$) by crude extract of *Trichoderma* growth in basal medium more chitin was determined. The average of sugar production from strains were 0.1175 and 0.1125 $mg.mL^{-1}$ and standard deviations were 0.0567 and 0.0567 in four repetition. Interviews were applied to fifty farmers about cultivars and cultivation practices. At least seven types of chili were cultivated in the region of the Valley of Poanas, inorganic fertilization, irrigation systems by channel, gates and pumps were used. One hundred percent of farmers reported diseases of Damping off and Phytophthora root. Biocides were not used to control these diseases. **Conclusion:** The natural presence of *Trichoderma* spp was detected in Valley of Poanas, but some practices as inorganic fertilization and irrigation system can be contributing to propagation of phytopathogen fungi.
Key words: Damping off, Phytophthora root rot, chitinase activity, phytopathogen fungi, *Trichoderma* spp, *Capsicum annuum*, sick plants, antagonist microorganism, antagonist activity