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028- CONTROL OF INFECTIONS CAUSED BY *Alternaria alternata* WITH *Trichoderma harzianum* AT DIFFERENT STAGES OF TOMATO CULTIVATION (*Solanum lycopersicum*)

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Tomato cultivation is one of the most widespread in Argentina. This is affected by various diseases, including those caused by the fungal genus *Alternaria.* It includes pathogenic species that can infect crops from planting and even cause significant post-harvest damage. The use of phytopathogen biocontrollers is a promising tool that gained a strong boost thanks to technology and coupled with the paradigm shift in society's consumption habits. In this work we evaluated the effectiveness of *Trichoderma harzianum* ITEM 3636 as an antagonist of *A. altermata*. *In vitro* evaluation tests of the antifungal activity of *T. harzianum* against *A. alternata* were carried out, and subsequently, it was evaluated on tomato seedlings germinating on agar and contemplating inoculation with *A. alternata* and co-inoculation of *T. harzianum and A. alternata.* In addition, post-harvest tests were carried out in a culture chamber, trying to determine the protective action of *T. harzianum* against *A. alternata* in fruits at commercial maturity. The statistical analysis of the data obtained was performed with the INFOSTAT software. The r^2 was 0.74, which indicates that 74% of the differences between the plates are due to the treatments used. The p value was <0.0001, which shows a positive action of the biocontrol microorganism. In the test with seedlings several parameters were evaluated and in the analysis of variance a correlation of r^2= 0.52 and a p-value < 0.0001 were obtained, which indicates statistically significant differences between the treatment inoculated only with *A. alternata* and the co-inoculated with *A. alternata* + *T. harzianum*. Finally, in the post-harvest determinations on ripe tomato fruits, it was observed that the application of *T. harzianum* delays the decomposition of the fruits, in addition to maintaining the diameter of the wounds delimited with significant differences. This work provides validity for the use of biological control agents, indicating that they constitute an effective and friendly alternative to the environment in an attempt to reduce the use of chemical products.

029- THE PROTECTIVE ROLE OF *Pseudomonas sp* PCI2 ON POST-HARVEST DETERIORATION OF TOMATO CAUSED BY *Alternaria alternataX*

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The high moisture content and water-soluble nutrients in tomato fruits make them perishable and susceptible to a number of fungal pathogens that cause postharvest rots. The *Alternaria* genus, widely distributed in nature, includes pathogenic species that can infect field crops or cause significant post-harvest damage, behaving as a facultative pathogen that is favored by stress, maturity and senescence of the host. In the tomato fruit, the conidia of the fungus germinate and penetrate through wounds and the infection remains latent until maturity, when tissues weaken. *A. alternata* infection is visualized as dark brown to black, smooth, slightly sunken, firm-textured lesions that can reach several centimeters in diameter. The application of fungicides is a common strategy used in an attempt to minimize post-harvest losses; however, this practice has caused environmental problems due to its residual toxicity, stimulated the appearance of strains resistant to active principles and generated concern for human and animal safety. A sustainable alternative is the development of products based on biological control agents. Among them, bacteria of the *Pseudomonas* genus have been reported as efficient against various fungi. In this work, the effectiveness of *Pseudomonas sp* PCI2 in suppressing diseases caused by *A. alternata* in tomato fruits was evaluated. To establish the antagonistic activity of the bacterial strain against the fungal strain, commercially ripe tomato fruits were superficially disinfected by immersion in a suspension of 2% sodium hypochlorite for 2 minutes, rinsed with sterile distilled water and then were dried by a stream of sterile air in a laminar flow chamber. Incision wounds were made on the fruits, 3 mm deep and 3 mm in diameter in the equatorial region. Immediately, 20 µl of an aqueous suspension of *Pseudomonas sp* PCI2 were applied to each of the wounds, evaluating different concentrations (10^9, 10^7 and 10^5 CFU/ml). Three hours later, 15 µl of a suspension containing 10^4 conidia/ml of *A. alternata* was applied to each wound. The fruits were kept in a chamber at 20 ºC and 95% humidity for 7 days in plastic containers protected with plastic wrap. Inoculation with the *Pseudomonas sp* PCI2 strain showed a significant decrease in the symptoms of the disease, with an average reduction of 50% in the area of the lesions, a result that was observed with all bacterial concentrations, suggesting the use of the lowest. Therefore, this microorganism can be considered as a promising tool in the biological control of *A. alternata* and suitable for the design of an effective strategy for the conservation of fruits.