

P4.19 Antagonistic Properties of *Bionectria* sp. 6.21 Against Plant Pathogenic Fungi

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All living organisms are subject to parasitism or competition. The study of these interactions has led to the identification of many potential opportunities for the use of living organisms to protect crops against fungal and bacterial diseases. A wide range of mycoparasites have been used for protecting a number of important soilborne plant pathogens. However, there has been little commercial success in the field, and this failure may reside in the lack of understanding of the mode of action of the antagonists. Naturally occurring new species of soil fungi should be assessed for their biocontrol ability, as naturally occurring biological control is an effective factor leading to ecological balance between pathogens and their antagonists. In this study, a *Bionectria* sp. strain 6.21 isolated from citrus rhizosphere was evaluated for its potential in inhibiting the growth of *Rhizoctonia solani* and *Pythium aphanidermatum*. *R. solani* was highly susceptible to infection by the mycoparasite. Scanning electron microscopic studies revealed that penetration of host cells is apparently accomplished by both associated with morphological changes of the host fungal cell, characterized by cytoplasm disorganization, suggesting that the mycoparasitism is one of the mode of action by which *Bionectria* sp. attacks its host. This strain showed to be able to produce endoglucanase and chitinase enzymes. *Bionectria* sp. 6.21 produced also two bioactive metabolites, with moderate to strong activity against *P. aphanidermatum* and *R. solani*. In conclusion, these results provide evidence that *Bionectria* sp. 6.21 has the potential to become a good candidate for biological control due to the different modes of action.