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AN ANTIFUNGAL COMPOUND PRODUCED BY *PSEUDOMONAS FLUORESCENS* PCL1606 IS INVOLVED IN THE BIOCONTROL ACTIVITY AGAINST DEMATOPHORA ROOT ROT OF AVOCADO

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The main problem of avocado crops in the South of Iberian Peninsula are diseases caused by soilborne fungi, especially by *Rosellinia necatrix* (anamorph: *Dematophora necatrix*), causing "Dematophora root rot of avocado" or "white root rot". The use of bacterial strains as biocontrol agents could be another option into the disease management of avocado. *Pseudomonas fluorescens* PCL1606 has been selected in previous works because shows antagonistic activity against a wide spectrum of soilborne pathogenic fungi and a high biocontrol ability against *R. necatrix*. Different analyses showed that this strain produced an antifungal compound not identified before, that could be involved in biocontrol. In this study, the genetic bases of the production of this new antifungal compound and its relationship with the biocontrol activity will be analyzed. For this, we have constructed mutants by using the plasmid pRL1063a, that contains a Tn5 transposon. Selection of mutants impaired in the production of the antifungal substance was performed against a target fungus in PDA plate tests. Afterwards, mutants impaired in the production of the antifungal compound were characterized and the production of antibiotics was analyzed by TLC (thin layer chromatography). Until now, we have obtained 7 mutants defective in the production of the antifungal compound, and the flanking sequences of Tn5-insertions are being analyzed. Simultaneously, we are constructing a gene library of the wild type *P. fluorescens* PCL1606 to perform complementation experiments of the mutants. The characteristics of biocontrol of these mutants impaired in the production of the antifungal compound were studied using the test system avoca-do/*R. necatrix*. For avocado biocontrol test, we obtained avocado seedling by *in vitro* techniques and we bacterized the roots with *P. fluorescens* PCL1606 or the different defective mutants. Bio-control activity was performed in an inert substract (vermiculite) as well as in a complex substract (potting soil), both infected with *R. necatrix*. The mutants impaired in the production of the antifungal compound showed a reduced biocontrol ability, suggesting an important role of this antifungal substance in the biocontrol activity of *P. fluorescens* PCL1606.