

SELECTION AND CHARACTERIZATION OF CANDIDATE BIOCONTROL *TRICHODERMA* STRAINS ISOLATED FROM AGRICULTURAL SOILS

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The European Commission of Food Safety decided to put efforts to reduce the use of chemical pesticides in agriculture by 50 % until 2030. Environmentally friendly approaches are required in which Microbiological agents and their products may provide an appropriate solution.

Trichoderma species are filamentous fungi degrading plant residues in soil and may also promote growth and inducing systemic resistance in plants. They are useful agents against plant pathogens – especially other fungi – through their antagonistic abilities, production of secondary metabolites, efficient competition for space and nutrients and eventually mycoparasitism.

We isolated 41 *Trichoderma* strains from carrot, tomato, pepper, batata and sweet potato fields and identified them based on the sequence analysis of a partial sequence of *tefla*. Cellulose degrading and phosphorus mobilizing enzyme activities of the isolates were measured. Based on the enzyme activities and identification data, we selected 10 strains (*T. guizhouense*, *T. afroharzianum*, *T. atroviride*, *T. virens*, *T. harzianum*, *T. rodmanii*, *T. ghanense*, *T. gamsii*) for further studies including the measurement of the effect of abiotic environmental factors, such as pH, temperature, water activity and heavy metals on mycelial growth. We also tested the production of antibiotic compounds by the isolates against Gram-positive and Gram-negative bacteria as well as their resistance to several fungicides. Biocontrol index (BCI) values and chitin degrading enzyme activity were also determined for the 10 selected *Trichoderma* strains.

Based on the data we selected several strains useful for different agricultural purposes.

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