



**Biocontrol of soil born forest pathogens with local *Trichoderma* spp. and *Clonostachys rosea*
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In forest environment, the spread of pathogens compromises the ecosystem stability affecting biodiversity and forest services. A new frontier to successfully control forest pathogens is the application of locally selected biocontrol agents (BCAs).

In Italy, the project LIFE MycoRestore is dealing with the biocontrol of the causal agent of Ink Disease (*Phytophthora cambivora*) in a chestnut orchard and of Annosum and Armillaria Root Rot in a pure silver fir stand (*Heterobasidion abietinum* and *Armillaria ostoyae*) in Tuscan Apennines. Thirty-five *Trichoderma* isolates belonging to 5 different species and a *Clonostachys rosea* isolate have been isolated from both diseased areas and tested as BCAs. The inhibitory activity of each isolate against the target pathogens has been evaluated *in vitro* setting up mycoparasitism, antibiosis and competition for nutrients tests and observations. The effect of secondary metabolites secreted by each BCAs candidate have been tested *in vitro* and the BVOCs emitted detected and characterized by SPME. Dual-cultures, sporulation test and metabolic profiling by Biolog technology have been conducted on the selected isolated and the chitinase, glucanase and cellulase activities have been determined. The biocontrol effectiveness of selected BCAs is being evaluated *in planta* on chestnut and silver fir seedlings through seasonal measurements of physiological performances (gas exchanges, chlorophyll fluorescence and greenness).

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