

## GROWTH CURVES OF *PHOMA TRACHEIPHILA* (PETRI) KANC. ET GIK. ON LIQUID MEDIA AND TOXICITY OF CULTURE FLUIDS

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*Phoma tracheiphila* (Petri) Kanc. et Gik. is the causal agent of mal secco, a severe tracheomycotic disease of citrus in the Mediterranean area.

Since the early studies on mal secco it was suggested that metabolites secreted by the fungus are involved in the pathogenesis of the disease (Petri, 1930). A phytotoxic non specific glycopeptide, «malseccin», was isolated in Israel from culture filtrates and infected tissues and it was shown to induce some symptoms of the disease (Nachmias *et al.*, 1977; Nachmias *et al.*, 1979).

Many experimental evidences, however, indicate that different phytotoxic compounds might contribute to the symptoms expression of mal secco (Scrivani, 1954; Pennisi e Graniti, 1987). Cell wall-degrading enzymes produced by *P. tracheiphila* were also suggested as virulence factors (Graniti, 1969).

The aim of the present study was to investigate the interactions between pectic extracellular enzymes and other metabolites in determining the phytotoxicity of cultural liquids of *P. tracheiphila*.

The production of pectic enzymes was induced by growing the fungus in a substrate containing a specific carbon source. The time-course of mycelial growth, polygalacturonase activity and phytotoxicity was determined in the culture filtrates of two strains of the fungus grown on basal salt medium (Czapek Dox) supplemented with different concentrations of citrus pectin. The parameters examined were affected by the inoculum density and pectin concentration at which the cultures were started.

Both phytotoxicity and polygalacturonase activity peaked during the exponential growth of the cultures. Secondary peaks of phytotoxicity were detected in the stationary phase. The results suggest that different phytotoxic metabolites are produced at different times during the growth kinetic.

## ON THE PHYTOTOXIN FROM CULTURE FILTRATES OF *PHYTOPHTHORA NICOTIANAE*

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The root and crown rot of tomato (*Lycopersicon esculentum*) caused by *Phytophthora nicotianae* (*P. parasitica*), is a serious disease of some tomato-growing areas of Italy.