

## Extracts of Killed *Penicillium chrysogenum* Induce Resistance Against Fusarium Wilt of Melon

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Dry fungal biomass of *Penicillium chrysogenum* (dry mycelium), a waste product of the pharmaceutical industry, was extracted with water and applied to the roots of melon plants before or after inoculation with *Fusarium oxysporum* f.sp. *melonis* (*Fom*). Seedlings (4-6 days after emergence) treated with either acidic dry mycelium extract (DME) or neutralized dry mycelium extract (NDME) were protected against challenge infection with *Fom*. A single drench with 2-5% DME applied 12-72 h before inoculation provided significant control of the disease compared with water-drenched, challenged seedlings. No protection was seen in plants treated 0-6 h before inoculation or 0-48 h after inoculation. Neither DME nor NDME (0.5-5%) had any effect on fungal growth *in vitro*, which implied that disease control *in vivo* was mediated by induced resistance. The resistance induced by DME protected melon plants not only against race 1,2, but also against the three other races of the pathogen, indicating a race-non-specific resistance against *Fom*. Both DME and NDME significantly increased peroxidase activity and free L-proline content in seedlings 12 h and 48 h after soil drench, respectively. Resistance to Fusarium wilt was significantly associated with elevated levels of peroxidase activity but not with free L-proline content. Thus, peroxidase might be involved in the defense mechanisms activated by DME or NDME.

**KEY WORDS:** *Penicillium chrysogenum*; Fusarium wilt; *Fusarium oxysporum* f.sp. *melonis*; induced resistance; peroxidase; L-proline.

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