

# **Study of agro-industrial compost to predict suppression of *Fusarium oxysporum* and *Phytophthora capsici* diseases in muskmelon and pepper seedlings respectively**

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The aim of this study was to investigate the potential use of composts obtained from artichoke sludge and different agro-industrial wastes (C1: blanched artichokes, C2: garlic wastes and C3: dry olive cake) to suppress *Fusarium oxysporum* f. sp. *melonis* (FOM) and *Phytophthora capsici* (P. capsici) in muskmelon and pepper seedling respectively.

Composts were mixed with black peat at 1:1 w:w ratios and evaluated in pot experiments. Under greenhouse nursery conditions compost C3 proved to offer the highest level of resistance against FOM, and compost C2 the highest level of resistance against *P. capsici*. On the other hand, compost C1 was conducive to both assayed pathogens. Protease, NAGase and chitinase activities were significantly higher in compost C3, as was dehydrogenase activity in compost C2. The study of microbial community structures using phospholipid fatty acid profiles showed that compost C3 may have an enriched actinomycete community. The defense-related hormones profiles (salicylic acid, abscisic acid and jasmonic acid) showed that despite their activation in seedlings as a consequence of pathogen infection, other mechanisms appear to be involved in the ability of composts to induce suppress plant pathogen attacks. These results highlight the importance of selecting the raw materials to obtain composts for controlling Fusarium wilt and Phytophthora blight and the use of specific parameters to predict compost suppressiveness against these diseases.

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