Effect of biocontrol agents and potassium phosphite against Phytophthora crown rot, caused by

*Phytophthora capsici*, on zucchini in a closed soilless system

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*Phytophthora capsici*, causing root and crown rot of zucchini is one of the most critical pathogen of this crop (Figure 1). Experimental biocontrol agents obtained from suppressiv compost (*Pseudomonas* sp. PB26, *F. solani* A25F and *Trichoderma* sp. TW2) and from a soilless rockwool medium (*Pseudomonas* FC7B, FC8B, FC9B mixture) and potassium phosphite, used at various concentrations and at a different number of applications, were tested to study their ability to control *P. capsici* on hydroponically grown zucchini plants.

BCAs were applied to the peat substrate, artificially infested with the pathogen, 4 to 6 days before planting, and later every five days for six times. The BCAs were compared with a commercial formulation of *Trichoderma asperellum* + *T. gamsii* (Remedier, Isagro, Milan, Italy), at the label rate of 0.25 g l⁻¹ of peat substrate and compared with the potassium phosphite fertilizer (Alexine 95PS P2O5 52% + K2O,42%, Alexine, Massò, Spain) (Figures 2 and 3).

The experimental biocontrol agents tested provided a certain degree of control leading to results comparable with those obtained with the formulated mixture of *T. gamsii* + *T. asperellum*. The co-application of the mixture of *Pseudomonas* sp. PB26 + *F. solani* A25F + *Trichoderma* sp. TW2 did not generally enhance the efficacy of the BCAs. The control provided by the here tested BCAs might be improved in IPM programmes.

Figure 1. Phytophthora crown rot of zucchini.

Figure 2. Trials carried out under greenhouse on soilless grown zucchini plants.

Figure 3. Effect of the experimental BCA treatments on Phytophthora crown rot caused by *P. capsici* on soilless grown zucchini (cv. Genovese). Standard errors and the efficacy, compared with the untreated control (E%), expressed as average of three trials.

Tukey Test (p<0.05)

*Disease severity in the untreated control as average of three trials was from 40 to 47% of affected plants.*