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Poster Abstract - D.43

PROTECTION OF MICROPROPAGATED PLANTS AGAINST INFECTION BY *RHIZOCTONIA* SPP BY USING THE PLANT GROWTH-PROMOTING BACTERIUM *AZOSPIRILLUM BRASILENSE* Sp245

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An interesting approach for protecting micropropagated plant material from early infections by the pathogens and to reduce chemical inputs is the use of biocontol measures, during plant propagation and/or at planting. Enhanced micropropagation may be due to direct or indirect actions of beneficial microorganisms (Monler et al 1998) with an improvement of plant perfomances under stress enviroments where microorganisms can be employed as plant protecting (Biocontrol Agents, BCA) or plant growth promoting rhizobacteria (PGPR).

PGPR of the genus *Azospirillum* have been extensively used as inoculum for crops phytostimulation (Dobbeleare et al., 2001; Basaglia et al., 2003; Russo et al., 2005) which entails the nitrogen fixation and the phytormones production, particularly auxin-related compounds such as indole-3-acetic acid (IAA) (Steenhoudt and Vanderleyden 2000; Dobbelaere et al., 2001). Most informations on the phytostimulation activity of *Azospirillum* has often been derived from studies regarding cereals. The results reported here show the positive effects of *A. brasilense* Sp245 inoculum observed during micropropagation of *Prunus cerasifera* L. clone MrS2/5. *In vitro*-derived shoots of MrS2/5 clone, propagated on Murashige and Skoog (MS) medium, were inoculated at root level with wild-type *A. brasilense* strain Sp245 leading to better both *in vitro* rooting of explants and biomass production with the respect to the non-inoculated explants. Moreover, the Sp245 strain induced apical growth during the post in vitro acclimatation phase. In addition, Sp245 strain was able to protect the MrS2/5 clone during the acclimation phase against *Rhizoctonia* attacks with a more than 90% of plant survival against the 0% of the control. *Rhizoctonia* is a phytopathogenic fungus causing the damping-off disease responsible of important economic loss in the plant micropropagation. *In vitro* studies confirmed the biocontrol activity of the Sp245 strain against *Rhizoctonia* fungus.

Based on these experiments, it can be concluded that the *A. brasilense* Sp245 inoculation, by improving both the radication phase (increased % of rooting and biomass production) and the acclimatation phase (phytopatogenic biocontrol and apical activity), may represent a useful tool to enhance micropropagation response of *Prunus cerasifera*.

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