

Weed bacterial endophytes are effective biocontrol agents of *Agrobacterium* spp. and *Pectobacterium* spp. and promote growth of tomato plants

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Summary. In the present study, we processed native plants growing in a fallow field for isolation of bacterial endophytes. Taxonomical position of bacteria and their beneficial effects to the plants were determined. Seventeen strains were selected from a group of 73 isolates on the basis of origin, colony morphology and antagonistic properties and were characterized by 16S rRNA gene sequence and phylogenetic analyses. These strains were assayed in vivo against pathogenic strains of *Agrobacterium* spp. and *Pectobacterium* spp. Their ability to improve plant growth was also evaluated.

The Gram positive *Bacillus amyloliquefaciens*, *B. cereus*, *B. methylotrophicus*, *B. pumilus* and *Curtobacterium flaccumfaciens* and the Gram negative *Pseudomonas brassicacearum* bacteria were identified. The *Bacillus* and *Pseudomonas* were shared among five plant species while *C. flaccumfaciens* was isolated only from *Euphorbia* species. Biocontrol activity of endophytic strains was evaluated on potato disks inoculated with *Pectobacterium* spp. and on tomato plants grown in sterile soil, root-bacterized with endophytes and stem inoculated with *Agrobacterium* spp. A reduction of rot symptoms caused by *Pectobacterium* spp. on three

potato varieties treated with *Bacillus* spp. strains was observed. *B. methylotrophicus* strain OS4 was able to strongly reduce gall development induced by *Agrobacterium* spp. and to determine 100% germination of tomato seeds compared with 75,5% of control. *P. brassicacearum* strain PS1 actively enhanced tomato seed germination and was able to determine marked increase of all plant growth parameters analyzed. These results indicate that native plants harbour various endophytic bacterial species that possess interesting biocontrol and growth promotion activities.

Keywords: *Bacillus* spp., *Pseudomonas brassicacearum*, PGP, native plants.