

**Biological control of bean rust of *Phaseolus vulgaris* by
different rhizobacteria under greenhouse conditions**

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Bean rust caused by *Uromyces appendiculatus* Pers. is one of the major pathogens in bean (*Phaseolus vulgaris*) leads to considerable crop loss annually. In order to minimise the crop loss and application of fungicides alternative plant protection methods should be developed. Biological control is one of the options in this respect. Therefore, identification of biological control agents was attempted in this study. By using a root colonizing bioassay *in vitro*, five isolates of root colonizing bacteria were selected from the bacterial pool isolated from healthy bean rhizosphere. The bacterial isolates were identified as a *Serratia* spp., a *Bacillus* spp., and three isolates of *Pseudomonas* spp. When these isolates were used in pot experiments, induction of induced systemic resistance (ISR) against bean rust caused by *Uromyces appendiculatus* was observed with only two bacterial strains. A *Serratia* spp. and a *Pseudomonas* spp., among the root colonisers were significantly ($P < 0.05$) reduced the number of uredosporic pustules in leaves compared to non-bacterised controls in bean leaves indicated the potential of ISR mounting abilities of these strains. Non-root colonisers did not induce ISR against the pathogen. These results indicate that root colonization is one of the important criteria to induce ISR.

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