

## Biocontrol of *Macrophomina phaseolina* causing charcoal rot of *Phaseolus vulgaris* by *Pseudomonas* sp. PPR8

Biocontrol of *Macrophomina phaseolina* was studied using eight isolates of *Pseudomonas* spp. (PPR1-8). Among the isolate PPR8 showed 65% and 48% reduction in colony growth of the pathogen in dual culture and by CFCF (cell free culture filtrate), respectively. The isolates were fast growers, positive for catalase, oxidase and urease activities and utilized lactose and some amino acids. The isolates are IAA positive, but PPR8 was positive for cyanogens production, solubilization of inorganic and organic phosphate, potassium and zinc, produce siderophore and ACC deaminase. This strain produced extracellular chitinase and  $\beta$ -1,3-glucanase which inhibit the pathogen. 16S DNA of PPR8 was sequenced, analysed and a neighbour-joining dendrogram was generated. Phylogenetic analysis of 16S DNA sequence of PPR8 strain showed maximum sequence similarity with the species of *Pseudomonas* and recognized as *Pseudomonas* sp. PPR8 (JN225423). When *Pseudomonas* sp. PPR8 was used as inoculants in test crops, enhanced germination up to 44% with subsequent increase in grain yield by 27% over control (seeds without inoculums) was recorded. This study reveals the potential of the *Pseudomonas* sp. PPR8 to be used as a biocontrol agent against *M. phaseolina* and a good growth promoter for common bean.

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#### Key words:

Biocontrol, PGPR, *Phaseolus vulgaris*, *Pseudomonas* sp. PPR8.

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