

**Research Article****Biological Control of *Fusarium* Wilt Disease of Pigeonpea****Pawan Kumar Panwar, V K Gaur, S Gangopadhyay, Jagdish Bishnoi and Anand Kumar Meena**

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**Abstract**

Biological control of *Fusarium udum* Butler causing wilt disease of pigeonpea was studied *in vitro*, as well as, *in vivo*. The antagonistic reaction of 25 fungi, 3 bacteria and one actinomycete against *Fusarium udum* on Czapek's dox agar medium was observed as mild antagonist (0 to 30 per cent inhibition), intermediate (31 to 50 per cent) and antagonists (more than 50 per cent). *Trichoderma atroviride*, *T. harzianum*, *T. viride*, and *B. subtilis* gave distinct antagonistic reactions, showing clear zone of inhibition between colonies of antagonist and the pathogen. *Trichoderma atroviride*, *T. harzianum*, *T. viride*, *Aspergillus flavus*, *A. niger* and *Bacillus subtilis*, which were found to be the most potent ones in inhibiting the growth of the test pathogen, were used as biological control agent in green house conditions. *Trichoderma viride* was most effective among all antagonists in reducing wilt of pigeonpea followed by *T. harzianum*, *T. atroviride*, *B. subtilis*, *Aspergillus niger* and *A. flavus* in green house. *Trichoderma atroviride*, *T. harzianum*, *T. viride*, and *Bacillus subtilis*, which were found to be best in reducing wilt of pigeonpea in pot conditions, were used in field with organic amendments *viz.*, - FYM (10 t ha<sup>-1</sup>), vermi compost (10 t ha<sup>-1</sup>) and neem cake (0.5 t ha<sup>-1</sup>). *Trichoderma viride* was most effective with organic amendments followed by *T. harzianum*, *T. atroviride* and *B. subtilis*. The population of *F. udum* was found to be markedly reduced when the antagonists were applied in the soil. The study establishes that *T. viride* can be exploited for the biological control of wilt disease at field level.

**Key words:** Antagonists, biocontrol, *Fusarium udum*, pigeonpea, wilt disease

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