

Role of fluorescent *Pseudomonas* in reduction of the use of chemical pesticides and fungicides in normal and replant sites of apple and pear

DEEP SHIKHA THAKUR, MOHINDER KAUR AND VINEET SHYAM

Department of Basic Science, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, SOLAN (H.P.) INDIA
Email : deepshikhathakur86@gmail.com; vineet.shyam@gmail.com

Phytopathogenic microbes including few fungi and bacteria have an immense effect on the agricultural productivity, greatly reducing crop yield and sometimes causing total crop loss. However, the fungicides being used have the negative effects on the environment and human health. In this context, biological control of plant diseases is gaining attention due to increased pollution concerns and is an alternative method to control pathogenic fungi. So, the current trends in agriculture are focused on reduction in the use of chemical pesticides and fungicides, compelling the search for alternatives that enhance environmental quality. Effective option is to employ the pathogen's natural enemies as biocontrol agents, which is less destructive and environmental friendly. PGPR are a group of bacteria that actively colonize plant roots and increase plant growth and yield. Among various biocontrol agents, *Pseudomonas* sp., equipped with multiple mechanisms of biocontrol of phytopathogens is being used widely. Biological control of plant pathogens is through the production of antibiotics, lytic enzyme, siderophore and HCN production. In the present study, the *Pseudomonas* spp. were isolated from the rhizosphere of apple and pear and screened for their biocontrol properties such as antifungal activity, siderophore production and HCN production. Out of 30 isolates, 15 isolates showed antifungal activity against *Fusarium* sp. and *Alternaria* spp. Maximum isolates showed siderophore production. All isolates were found to be positive for ammonia and HCN production. Taken together, results suggest that *Pseudomonas* spp. is an efficient approach to replace agrochemicals and pesticides, thereby reducing their negative effects on the environment.

Key words : Apple, Pear, *Pseudomonas*, Siderophore, Antifungal activity, Proteolytic activity

How to cite this paper : Thakur, Deep Shikha, Kaur, Mohinder and Shyam, Vineet (2013). Role of fluorescent *Pseudomonas* in reduction of the use of chemical pesticides and fungicides in normal and replant sites of apple and pear. *Asian J. Bio. Sci.*, **8** (2) : 259-266.