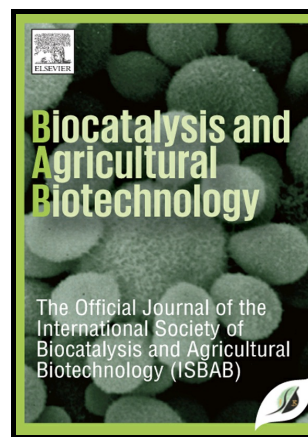


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Inoculation of Siderophore producing rhizobacteria and their consortium for growth enhancement of wheat plant

Pankaj Kumar^{1,2*}, Sachin Thakur¹, G.K. Dhingra³, Abha Singh⁴, Manoj Kumar Pal⁵, Kumar Harshvardhan⁶, R. C. Dubey⁷ and D.K. Maheshwari⁷

¹Department of Microbiology, Dolphin (PG) College of Science & Agriculture Chunnikalan, Fatehgarh Sahib, Chandigarh, Punjab, India

²Department of MLT, Pt. L.M.S. Govt (PG) College, Rishikesh, Uttarakhand, India

³Department of Botany, Pt. L.M.S. Govt (PG) College, Rishikesh, Uttarakhand, India

⁴Department of Botany, Patna University, Patna, Bihar, India

⁵Department of Life Sciences, Graphic Era (Deemed to be University), Dehradun, Uttarakhand, India

⁶Cellulose Pulp & Paper Division, CSIR-NEIST, Jorhat, Assam, India

⁷Department of Botany and Microbiology Gurukul Kangri Vishwavidyalaya, Haridwar, Uttarakhand, India

*e-mail: guptapankaj23@gmail.com

Abstract

This experiment has been designed to assess the effects of consortium and individual strain on growth promotion, biocontrol and nutrient uptake by wheat growing in Punjab. Fifteen rhizobacteria were isolated from rhizospheric soil of farmer's field of Punjab. Based on their ability to produce siderophore and strongly inhibition of phytopathogen (*Fusarium solani*), three potential plant growth promoting rhizobacteria (*Aneurinibacillus aneurinilyticus* WBC1, *Aeromonas* sp. WBC4 and *Pseudomonas* sp. WBC10) have been identified on the basis of phenotypic and genotypic (16S rRNA gene sequencing) characters. These three rhizobacteria are best in siderophore production and antagonistic property against *F. solani*. Consortium (WBC1 + WBC4 + WBC10) of three rhizobacteria significantly increased germination, root and shoot length and fresh and dry weight of wheat plant compared to single inoculation of any rhizobacteria and uninoculated control. It has been suggested that this consortium could be used for production of an effective bioinoculant for eco-friendly and sustainable production of wheat and other crops of Punjab. Consequently, we suggest to the farmers of Punjab to use this type of bioinoculants by replacing detrimental chemical fertilizers and pesticides (one of the leading cause of cancer in Punjab) and could regain their natural agro-ecosystem environment and again can be breadbasket of India. Indirectly the state of Punjab can be free from stigma of cancer state of India.

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