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To Evaluate the Effect of Biofertilizer on Plant Growth Parameter of *Triticum aestivum* (Wheat)

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Abstract

The term 'biofertilizer' or 'microbial inoculants/fertlizer' can be generally defined as a preparation containing live or latent cells of efficient strains capable of nitrogen fixation, phosphate solubilization which are used for application of seed and soil with the objective of increasing the number of such microorganisms and accelerating certain microbial processes to enhance the degree of availability of nutrients to the plants. Increasing cost of chemical fertilizers is unaffordable by small and marginal farmers. The widening gap between nutrient removal and supplies is responsible for depletion of soil fertility. By considering the threat to sustainable agriculture by the use of chemical fertilizers and human activity, there is a growing concern about environmental hazard management. Besides the above facts, the long-term use of organic fertilizers is economical, ecofriendly, more efficient, productive and accessible over chemical fertilizers to marginal and small farmers.

Keywords: *Ecofriendly, microbial inoculants, plant growth promotion, rhizosphere*

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INTRODUCTION

The excess application of chemical fertilizer will lead to higher chances of mineral loss and environmental pollution. Bacterial biofertilizer contains soil microorganisms such as bacteria, algae or fungi that increase the uptake of mineral nutrients in the plant. Biological control using microbes is an effective and environmental friendly strategy for controlling soil-borne fungal pathogens and promoting plant growth [1, 2]. To increase production and productivity, maintain soil health, reduce nutrient losses, improve soil environment and minimize energy consumption, it is necessary to use biofertilizers. Biofertilizers also help in fixing atmospheric nitrogen, dissolve soil phosphorus and stimulate plant growth through synthesis of plant growth promoting substances. The cultured microorganisms packed in some carrier material for easy application in the field are called biofertilizers. Biofertilizers are living microorganisms of bacterial, fungal and algal origin. Biofertilizers can provide an economically viable support to small and marginal farmers for realizing the ultimate goal of increasing productivity.

In the soil with poor agricultural activity, the use of plant growth-promoting Rhizobacteria (PGPR) assumes significant importance because they adapt to diverse environmental conditions, such as drought stress [3, 4], salt stress [5], high temperatures, dryness or heavy rainfall in tropical countries [6] and contaminated environments [7–9]. Although the farmers are now awaking about the importance of biofertilizers uses but still there is unawareness amongst the farmers about the facts regarding utilization, storage and handling of the product. The paramount need of agriculture sector is to come up with a user friendly and ecofriendly solution. Thus, biofertilizer developed during the present investigation could prove to be ecofriendly, cost effective and could be effectively used in agriculture practices for sustainable agriculture

