Available online at **www.joac.info**

ISSN: 2278-1862

Journal of Applicable Chemistry

2013, 2 (1): 33-41

(International Peer Reviewed Journal)

Interaction effects of AM fungi with Rhizobacteria and Phosphate solubilizing bacteria on the growth and nutrient uptake of chilli

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Received on 17th January and finalized on 24 th January 2013

ABSTRACT

The present investigation was aimed at determining the reaction of AM fungi (Glomus intraradices) with Rhizobacteria (Psudomonas fluorescens) and Phosphate solubilizing bacteria (Bacillus megaterium) on the growth and nutrient uptake of chilli var PLR – 1. Single [T_1 - G.intraradices (Gi), T_2 - P.fluorescens (Pf), T_3 - B.megaterium (Bm)], dual [T_4 - G.intraradices + P.fluorescens (Gi + Pf), T_5 - G.intraradices + B.megaterium (Gi + Bm)], combined [T_6 - G.intraradices + P.fluorescens+ B.megaterium (Gi + Pf + Bm)] inoculums were respectively used in this experiment. Forty days old seedlings were transplanted in cement pots. The population of AM Fungi and Bacterial populations were enumerated at 45, 90 and 120 days, likewise the plant growth parameters (Number of leaves, shoot length, whole plant weight and dry weight) as well as Nutrient content (N, P. K. Na) were examined.

The maximum AM fungi colonization was recorded in single inoculation, likewise the bacterial population as well. While comparing with combined the dual treatments also produced good population of fungi and bacteria. Among these treatments, combined treatments shows superior plant growth and nutrient uptake level in chilli. When measure up with control, all other treatments created better results in plant growth and nutrient uptake. The mixed microbial inoculants were promoting the plant growth by producing such growth hormone, mineral compounds and humanizing soil conditions. In case of the single or dual treatments produced particular compounds by microbes. However, overall obviously the combined treatment was better for chilli.

Keywords: Chilli, AMF, Rhizobacteria, phosphate solubilizing bacteria, growth parameters, Nutrient content.
