

Effect of *Pseudomonas fluorescens* strain 103 integrated with phosphorus fertilizer on nutrients concentration and biological yield of two barley cultivars in greenhouse conditions

S. M. R. Ehteshami^{1*}, M. Pourebrahimi¹ and K. Khavazi²

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Abstract

In order to investigate the effect of integrated management of phosphorus (P) fertilizer and phosphate solubilizing microorganisms on nutrients concentration and yield of two barley cultivars, a factorial greenhouse experiment was carried out based on randomized complete blocks design with three replications in 2011. Treatments consisted of two barley cultivars (Bahman and Fasih) and five types of P fertilizer management (seed inoculation with *Pseudomonas fluorescens* strain 103 + 100% recommended P fertilizer, seed inoculation with *P. fluorescens* strain 103 + 75% recommended P fertilizer, seed inoculation with *P. fluorescens* strain 103 + 50% recommended P fertilizer, seed inoculation with *P. fluorescens* strain 103 + no use of P fertilizer, and no inoculation and no use of P fertilizer as control). The results showed that increasing P fertilizer application increased significantly the plant height, main stem diameter, chlorophyll *a* and *b* and biological yield of the two barley cultivars. The highest main stem height, chlorophyll *b* content, nutrients concentration and plant dry weight was obtained at seed inoculation + 100% recommended P fertilizer treatment. Maximum stem diameter and chlorophyll *a* was observed at seed inoculation + 75% recommended P fertilizer. Also, Bahman cultivar had the highest forage production as compared to Fasih cultivar. According to the results, it can be stated that integrated management of growth promoting bacteria and improves yield and nutrients' concentration.

Keywords: Integrated management, Seed inoculation, *Pseudomonas*, Chlorophyll.

1. Dept. of Agron., College of Agric., Univ. of Guilan, Rasht, Iran.

2. Soil and Water Res. Inst., Karaj, Iran.

*: Corresponding Author, Email: smrehteshami@yahoo.com