

Short Communication

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Effects of environmentally friendly plant growth promoting bacteria on dry matter yield in high elevation rangelands of Turkey

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Abstract

This study was carried out on high-elevation rangelands of Erzurum, Turkey between 2011 and 2014 for four-years period. The goal of this study was to determine the effects of plant growth-promoting bacteria (PGPB) on dry matter yield of rangelands. Based on the results of our study, DM yield, resulting from most of the treatments with bacterial strains plus 50% N or 50% N+P fertilizers were higher than treatments of bacterial strains without fertilizers. Although 100% N+P and N fertilizer without bacterial strains produced higher DM yield than check plots and bacteria alone treatments, the treatments that received half of N + P fertilizer with bacteria strains were significantly higher than 100% N and 100% N+100% P fertilizer and the other treatments, except the treatments with *Pantoea agglomerans* (treatment 18) strain with half doses of N+P. Among the treatments tested, half of N fertilizer with *Pseudomonas fluorescens* T26 strain gave higher DM yield than in optimum NP fertilizer (10 kg N da⁻¹ + 5 kg P₂O₅ da⁻¹) but yield increase was not statistically different. Results of this study showed that applied half of N fertilizer with PGPB may be effective to increase DM yield of rangelands and to reduce chemical fertilizer use.

Keywords: Chemical fertilizer, Dry matter yield, Elevation, Rangeland, Plant growth promoting bacteria