

**[P101] EFFECT OF BIOLOGICAL AND CHEMICAL PHOSPHATE FERTILIZERS ON THE NODULATION AND NITROGEN FIXATION ON MEDICAGO SCUTELLATA CV ROBINSON**

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With regard to inevitable role of rhizobium coexistence bacteria and legume plant roots on the fertilization improvement, enhancing soil conditions and reducing chemical fertilizer application and study about effective factors in improving these activities would be required. Thus, to study the biological phosphorus and super phosphate triple fertilizers influence on nodulation and nitrogen fixation of *Medicago scutellata* cv. Robinson, an experiment was carried out as a factorial form in randomized complete block design with three replications in the agricultural department of Shahed University in 2016. In which super phosphate triple fertilizer was used in four levels (0, 75, 150, 225 kg/ha) and biological phosphorus fertilizer of Barvar 2 was applied in two levels (with inoculation and without inoculation, with biological phosphorus). The results showed that inoculation treatments (with biological phosphorus and phosphoric fertilizers amount of 75 and 150 kg/ha) has included largest amount of nodule dry material, nodule group length, nodule group diameter, nodule number in root, root dry matter, nodule dispersion in root and nitrogen percent in growing body or part of plant. The lowest of these characters has belonged to without inoculation treatment as amount of zero and 75 kg/ha of phosphoric super phosphate triple fertilizers. The results also showed that there is a significant difference between inoculation treatments with different levels of phosphoric fertilizer in most characters, such that more phosphor increasing in an inoculation with biological phosphorus (inoculation treatment and phosphoric fertilizer amount of 225 kg) provided decreasing trend in some characters, while in treatments without using biological phosphorus with phosphor concentration increases in all characters led to increase.

**Keywords:** Biological phosphorus, Phosphate fertilizer, Nodulation, Nitrogen fixation, *Medicago scutellata*, cv. Robinson