

## **Abstract**

Rhizosphere bacteria have a beneficial impact on plant growth and development due to improvement of mineral nutrition. In order to elucidate the effect of *azotobacter chroococcum* and *pseudomonas fluorescence* on nitrogen and total and inorganic phosphorus concentrations in plants a pot experiment was carried out. Soybean (*Glycine max.* L) plants were cultivated on soil-sand mixture. A set of plants was subjected to water stress conditions of 35% WHC (water holding capacity) at flowering stage and other one grown under normal moisture of soil, 70% WHC. Experimental results revealed that the application of phosphorus alone or in combination with rhizobacteria did not change the concentration of nitrogen in leaves, but it was observed an increase of nitrogen contents in roots. The same trend was demonstrated in pattern of total phosphorus concentration in soybean parts. The utilization of suspension of microorganisms and phosphorus increased significantly the concentration of inorganic phosphorus under normal as well as under insufficient moisture level. Thus, biofertilizer application could be considered as a strategy to attenuate negative effect of drought through stimulation of nutrients contents in soybean.

**Key words:** *Glycine max.*, nitrogen, phosphorus, rhizobacteria, water stress