Abstract :

The caster bean oil is high value in industry around of world. Also it has important role in plant medicine in pharmacy. Plant nutrition and PGPR are more important for yield production. A experiment was set up to investigate the effect of nitrogen (N), sulfur (S) fertilizer and PGPR on yield production in caster bean. This experiment was carry out in factorial as block randomize design with three replicates in research center of BaqiatollahAlazam (Chahnime) near to Zahak city in Sistan at 2011. These treatments were PGPR with three types of bacteria (non bacteria, Nitrocsen, and Super nitroplas 2 L/ha), nitrogen with three levels (0, 100 and 200 Kg/ha) and sulfur (0 and 300 kg/ha). The result show that Nitrogen effects on yield, leaf number, leaf area, fresh weight and dry weight, plant height, stem height without inflorescence, inflorescence height, number of inflorescence per plant, fresh weight and dry weight of capsules, seed yield, oil yield, biological yield, harvest index and protein levels showed a statistically significant difference. The treatment effect of bacteria on leaves (vegetative stage of five leaf), leaf (vegetative stage and flowering of eight leaf) weight (vegetative stage of five leaf) dry weight (full bloom), plant height (pre-harvest), weight capsule more height, inflorescence (flowering), the number of inflorescences per plant, harvest index and water and sulfur treatments on leaf area, fresh weight, dry weight of encapsulation, inflorescence height, number of inflorescence per plant, water content, grain yield, biological and harvest index were significant. Interaction of PGPR × S effect on leaf area, fresh weight, dry weight, dry weight of capsules, inflorescence height, number of inflorescence per plant (vegetative stage of eight leaf), water content, grain yield, biological yield and oil content and interaction of S × N had significant effect on leaf area, fresh weight (vegetative stage of five leaf), capsule dry weight, water content, grain yield and biological yield. Interaction of PGPR × N had significant effect on leaf area, fresh weight, dry weight, plant height (pre-harvest), height of inflorescence (pre-harvest), fresh and dry weight of capsules, water content, grain yield, biological yield and protein content. Finally interaction between PGPR × S × N had significant effect on bacterial leaf area, fresh weight, dry weight, dry weight of encapsulation, inflorescence height, water content, grain yield and biological yield. In addition, interaction of PGPR × S effect fresh weight, dry weight and nitrogen × bacterial has same effect on protein and no statistically differences was observed.

Keywords: Castor, PGPR, nitrogen and sulfur

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The effect of plant growth -promoting rhizobacteria, sulfur and nitrogen fertilizers on yield characteristics of caster bean (*Ricinus communis* L.) in Sistan

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