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The Effect of Salinity on Symbiotic Nitrogen Fixation in Alfalfa and Faba Bean

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Abstract : The use of nitrogen fertilizers inevitable consequence, the increase in the nitrate content of water, which may contribute to the production of nitrite and the formation of carcinogenic nitrosamines. The nitrogen fertilizer may also affect the structure and function of the microbial community. And the fight against eutrophication of aquatic environments represents a cost to the student statements. The agronomic, ecological and economic legumes such as faba beans and alfalfa are not demonstrated, especially in the case of semi-arid and arid areas. Osmotic stress due to drought and / or salinity deficit, nutritional deficiencies is the major factors limiting symbiotic nitrogen fixation and productivity of pulses. To study the symbiotic nitrogen fixation in faba bean (Vicia faba L.) and alfalfa (Medicago sativa L.) in the region of Biskra, we used soil samples collected from 30 locations. This work has identified several issues of ecological and agronomic interest. Evaluation of symbiotic potential of soils in the region of Biskra; by trapping technique, show different levels of susceptibility to rhizobial microflora. The effectiveness of the rhizobial symbiosis in both legumes indicates that air dry biomass and the amount of nitrogen accumulated in the aerial part, depends mainly on the rate of nodulation and regardless of the species and locality. The correlation between symbiotic nitrogen fixation and some physico-chemical properties of soils shows that symbiotic nitrogen fixation in both legumes is strongly related to soil conditions of the soil. Salinity disrupts the physiological process of growth, development and more particularly that of the symbiotic fixation of atmospheric nitrogen. Against by phosphorus promotes rhizobial symbiosis.

Keywords : rhizobia, faba bean, alfalfa, salinity
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