Assessment of the Biological Nitrogen Fixation in Soybean Sown in Different Types of Moroccan Soils

Authors : F. Z. Aliyat, B. Ben Messaoud, L. Nassiri, E. Bouiamrine, J. Ibijbijen

Abstract : The present study aims to assess the biological nitrogen fixation in the soybean tested in different Moroccan soils combined with the rhizobial inoculation. These effects were evaluated by the plant growth mainly by the aerial biomass production, total nitrogen content and the proportion of the nitrogen fixed. This assessment clearly shows that the inoculation with bacteria increases the growth of soybean. Five different soils and a control (peat) were used. The rhizobial inoculation was performed by applying the peat that contained a mixture of 2 strains Sinorhizobium fredii HH103 and Bradyrhizobium. The biomass, the total nitrogen content and the proportion of nitrogen fixed were evaluated under different treatments. The essay was realized at the greenhouse the Faculty of Sciences, Moulay Ismail University. The soybean has shown a great response for the parameters assessed. Moreover, the best response was reported by the inoculated plants compared to non- inoculated and to the absolute control. Finally, good production and the best biological nitrogen fixation present an important ecological technology to improve the sustainable production of soybean and to ensure the increase of the fertility of soils.

Keywords : biological nitrogen fixation, inoculation, rhizobium, soybean

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