

Aprovado

ASSESSMENT OF ARGINASE AND UREASE ENZYMES IN RHIZOSPHERE OF MAIZE PLANTS (ZEA MAYS L.) INOCULATED WITH AZOSPIRILLUM DIAZOTROPHIC BACTERIA

FONSECA, L.M.F.; REIS, D.P.; GUIEIRO, C.S.M.; RIBAS, R.N.R.; MATTOS, B.B.; OLIVEIRA, C..A.; MARRIEL, I.E.

CNPMS - Embrapa Milho E Sorgo (MG 424, Km 65, Zona Rural, Sete Lagoas, Minas Gerais - MG), 2 UFVJ / CSL - Universidade Federal De São João Del-Rei (Rodovia MG 424 – Km 47, Zona Rural, Sete Lagoas - MG)

Enzyme activities can play a role as a sensitive bioindicator for detecting changes due to soil use and management. The rhizosphere environment stimulates the growth and the activity of microorganisms in the soil, while arginase activity represents the microbial community metabolically active. This reflects the nitrogen fraction potentially available to plants, while the urease activity becomes cumulative in the soil. This study aimed to evaluate the impact of *Azospirillum sp.* inoculation to under the nitrogen (N) dynamics in the rhizosphere of maize plants by determining the activity of these two enzymes. The experiment was carried out by 28 treatments consisted of six *Azospirillum sp* strains (E0, without inoculation, E1; E2; E3; E4; E5 and E6) under four nitrogen levels (0; 40; 80; 160 kg.ha⁻¹ of N), as urea font, applied to soil surface . The experimental design adopted was a Randomized Blocks Design (RBD) with treatments in a split plot arrangement with four replications. The plot was the Nitrogen levels, and the subplot each kind of inoculation. The arginase and urease activities were estimated by the own hydrolysis rate, respectively. As results, there was no significant correlation among the enzymes activity analyzed. Similarly, no significant difference ($P>0.05$) for the interaction between inoculants and Nitrogen levels was detected. However, analysis indicated that the urease activity increased on rhizospheric soil according to inoculation in three of the seven tested strains independently of the nitrogen levels. Finally, the results showed that the inoculation impact on the microbes activity in the rhizospheric soil of maize plants depends of the strain adopted.