



### ACTIVITY OF ARGINASE IN RHIZOSPHERE OF MAIZE INOCULATED WITH *Azospirillum*

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The activity of enzymes involved in the biogeochemical cycling of nutrients has been considered as a bioindicator capable of detecting alterations in the soil. Among those enzymes, arginase stands out. It is involved in nitrogen (N) cycling and availability for the plants. The arginase (EC3.5.3.1) catalyzes the degradation of arginine in the soil with the liberation of ammonium and it has been used to measure potentially mineralizable N in the soil. As an alternative to minimize the dependence on the importation of chemical fertilizers and the high costs associated with that practice, inoculation with associative diazotrophic bacteria associative has been used. These bacteria fix atmospheric N and liberate ammonium (NH<sub>4</sub><sup>+</sup>) to the roots of grasses. The objective of the present study was to evaluate the impact of the inoculation, with diazotrophic bacteria of the genus *Azospirillum*, on the N cycling in the maize rhizosphere, determined by the arginase enzymatic activity. The experiment was conducted in the municipal district of Sete Lagoas, Minas Gerais, in the Embrapa Maize and Sorghum experimental area, with four nitrogen levels (0, 40, 100 and 160 kg/ha, in covering), six strains (E1, E2, E3, E4, E5 and E6) and a control treatment (without N and without inoculation), distributed in a random block design, in 4x7 factorial outline, with three repetitions. Soil samples were collected for enzymatic activity analysis, by the arginine hydrolysis rate, during the flowering stage of the plants. The ammonium content was determined by colorimetry at 660 nm and express in  $\mu\text{g NH}_4\text{+g}^{-1}\text{.soil.h}^{-1}$ . Statistically significant differences were not detected ( $p>0,05$ ) for arginase activity, independent of the inoculation and N levels. It was concluded that the urease activity in the soil rhizosphere of corn plants was not influenced by the nitrogen fertilization and inoculation, at the time evaluated.

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