

**Title: DIAZOTROPHIC BACTERIA WITH BIOTECHNOLOGICAL POTENTIAL TO INCREASE THE CORN GRAIN YIELD ON CERRADO**

**Authors** Moreira, L.L.R.<sup>1</sup>; Pinto, L.S.<sup>1</sup>; Ribeiro Neto, M.<sup>1</sup>; Jakoby, I.C.M.C.<sup>1</sup>; Souchie, E.L.<sup>1</sup>.

**Institution**<sup>1</sup> Instituto Federal Goiano - Câmpus Rio Verde (Rod. Sul Goiana Km 01, Cx. P. 66, Rio Verde - GO)

**Abstract:**

Maize (*Zea mays* L.) is a multipurpose crop, provides food for human beings, feed for animals, poultry and fodder for livestock. It is a rich source of raw material for industry where it is being extensively used for the preparation of by products like corn starch, corn oil, dextrose, corn syrup, corn flakes, cosmetics, wax, alcohol and tanning material for leather industry. Brazil ranks third in corn production as well as the second largest exporter of this crop around the world. However, the cost production of this crop is high mainly due to nitrogen fertilization. Therefore, the reduction of nitrogen fertilizer requirement through the inoculation of endophytic diazotrophic strains is strategic. This work aimed to evaluate the inoculation effect of endophytic diazotrophic strains under increasing nitrogen fertilizer doses. One field experiment was carried out at Experimental Area at IF Goiano – Câmpus Rio Verde from February to June of 2015. The hybrid DKB DKB 390 PRO 2 was cultivated in a completely randomized block, factorial scheme 4 x 4 (four nitrogen fertilizer doses: 50, 100, 150 and 200 kg ha<sup>-1</sup> of N - urea and three diazotrophic bacteria: *Azospirillum brasilense* AbV5 and AbV6 as well as two isolates – 79M6 and 79M3 obtained from the corn rhizosphere grown in a Latosol at Rio Verde, Goiás) with four replicates. An uninoculated treatment was also used. Thirty five days after emergence (DAE), five plants from each parcel were harvested and shoot, root dry matter was measured. At harvest (125 days after sowing), stalk dry matter, 1,000 grain weight and grain yield was also evaluated. No effect was observed for inoculant or nitrogen doses treatments as well as interaction between them when shoot and root dry matter at 35 DAE were evaluated. In relation to 1,000 grain weight and grain yield, there was inoculant effect since plants inoculated with *Azospirillum brasilense* AbV5 and AbV6 as well as 79M6 showed higher means compared to the others. Therefore, the 79M6 isolate is a promising diazotrophic isolate and should be further investigated to confirm its effectiveness to improving the corn grain yield under Cerrado conditions.

**Keywords:** plant growth promotion, rhizosphere, microorganisms

**Funding agency:** CNPq