



Inoculation with selected strains of *Azospirillum* spp. replaces nitrogen in pearl millet (*Pennisetum glaucum* (L.)) in Brazilian cerrado soil

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The cultivation of pearl millet has received increasing attention as an alternative crop for mulch formation in no-till systems and as forage for livestock production, mainly in the Brazilian Cerrado fields. There are evidences of the benefic contribution of the inoculation of diazotrophic bacteria to agronomic crops as a source of nitrogen (N), including pearl millet, but there is no strains recommended for this crop in the country. Here we report the effect of inoculation of *Azospirillum* strains on pearl millet (BRS 1501) growth and nitrogen fertilizer replacement. We evaluated 20 *Azospirillum* strains (CMS01 to 20) under three doses of N (0, 30 and 60 kg N.ha⁻¹ on field condition at the Municipality of Sete Lagoas, MG State, Brazil. The crop was cultivated in plots at the field; the experimental design was randomized blocks with four replications. A basic fertilization was applied at sowing and consisted of 40 kg ha⁻¹ of urea, 400 kg.ha⁻¹ of superphosphate, 100 kg ha⁻¹ of potassium chloride and 20 kg ha⁻¹ FTE. At the flowering stage, plants were collected for determination of dry matter accumulation, concentration and content of macronutrients in the shoots. There were significant differences ($p < 0.05$) between treatments for the variables analyzed, except magnesium content. The dry matter accumulation ranged from 163 to 367g for 3 plants and N content between 3.1 to 6.84g for 3 plants. The strains CMS 7 and 11 provided shoots growth and nitrogen uptake similar to those observed with 60 kg / ha of N. Our results also suggested the role of these bacteria as plant growth promoters. We highly the importance of screening of several different strains to obtain promising bacteria for inoculant formulation, seeking replacement of the nitrogen in the pearl millet crop.