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**LIBRO DE RESÚMENES**





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### Metagenomic analysis of the bacterial community of the rhizosphere of maize genotypes inoculated with *Azospirillum brasilense* in Brazilian cerrado soil

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**Background:** Agricultural intensification to improve crop yield has increased the demand for nitrogen fertilizers. Currently, in Brazil, the use of inoculation technology with nitrogen fixing bacteria can reduce agricultural production costs and mitigate negative impacts of chemical fertilizers on agroecosystems. In this context, the objective was to evaluate bacterial community structure of the rhizosphere soil of maize plants inoculated with *Azospirillum brasilense* through metagenomic analysis. **Methods:** At planting, the fertilization were based on 300kg ha<sup>-1</sup> of the formulation 8-28-16 and without nitrogen fertilization in top dressing. Samples of four hybrids maize (HB1, HB2, HB3, and HB4) were evaluated in presence and absence of inoculant composed of three different strains of *Azospirillum brasilense*, in a randomized complete block design with four replicates. Total DNA from samples was extracted and the V4 region of ribosomal 16S rRNA gene was amplified with the universal primers 515F and 806R. Amplicons were then sequenced on an Illumina “MiSeq” sequencer and the readings were analyzed with QIIME program (Quantitative Insights Into Microbial Ecology) for taxonomy construction. Subsequently, analysis of variance was made of relative abundance of the phylum (greater than or equal to 3%) followed by Scott Knott test ( $p < 0.05$ ). **Results:** It was observed through the operational taxonomic units (OTUs) that eight phyla has abundance greater than 3%, being Proteobacteria (32.5%) and Actinobacteria (22.5%) the most representative phylum, besides Acidobacteria (9.6%), Bacteroidetes (7.9%), Gemmatimonadetes (7.2%), Chloroflexi (5.3%), Verrucomicrobia (5.2%) and Planctomycetes (3.4%). Significant differences between treatments were observed only for phylum Actinobacteria, with abundance between 18 and 27%, highest values were found in presence of inoculant in hybrids HB1, HB3 and HB4 with 24, 27, 6 and 23% respectively. **Conclusion:** The results suggest that *Azospirillum brasilense* produces specific changes in rhizospheric bacterial community of inoculated maize plants in cerrado.

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