



**BACTERIAL COMMUNITIES IN THE RHIZOSPHERE OF SORGHUM (*Sorghum bicolor*)  
LINES CONTRASTING FOR ALUMINUM TOLERANCE CULTIVATED IN UNLIMED AND  
LIMED SOIL**

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The Brazilian Cerrado soils are generally highly intemperic, acidic, with low fertility and raised levels of aluminum (Al), that cause various forms of stress during plant growth cycle. The toxicity of aluminum is one of the major factors responsible for low agricultural productivity in acid soils. Plants have different strategies to tolerate toxic levels of Al, and the exudation of organic acids by the roots is one of the main mechanism. As the organic acids exuded by plant roots can act directly on the soil microbial community, this effect shall be assessed on genotypes presenting differential exudation of these components. Therefore, the composition and microbial activity in rhizosphere may alter due to variations in the patterns of roots exudates according to the genotype and plant developed stages. The goal of this work was to evaluate the effect of the differential exudation of organic acids on the biodiversity of bacterias from the rhizosphere of sorghum genotypes, contrasting for the exudation of organic acids and aluminum tolerance. The experimental design was completely randomized with 12 treatments and three replications. We selected sorghum lines tolerant and susceptible to aluminum, grown in soils with high, medium and low Al saturation. Biolog and DGGE were used for metabolic and molecular characterization of the bacterial population of the rhizosphere of these genotypes. Biolog analyzes revealed that the selected genotypes showed variable metabolic activity in different Al saturations. DGGE analyzes showed differences in bacterial diversity in the rhizosphere of sorghum lines tolerant and sensitive to aluminum. However, there as a grouping according to the content of Al saturation in the soil, indicating that the saturation index of Al in the soil was the determining factor of the difference in the structure of total bacterial population of the rhizosphere.

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