

Title: INTERACTION GLYPHOSATE AND PHOSPHORUS ON THE MICROBIOTA OF A SOIL PLANTED WITH TRANSGENIC SOYA

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Abstract

The increased use of glyphosate due to various applications in the same crops as well as phosphate fertilizer, can modify the soil microbiota. The objective of the study was to evaluate the interaction of glyphosate and phosphate on the microbiota of a soil with no history of glyphosate use, growing GM soy (RR) in 4 different sampling dates. The soil used in the experiment was collected in a transition forest between the Cerrado-Amazon biome near the Universidade Federal de Mato Grosso (UFMT), in the city of Sinop-MT. For this purpose colony forming units (CFU) of fungi and bacteria were counted, in addition, microbial biomass carbon (MBC). The study was conducted in a completely randomized design in a 4 x 2 x 4 factorial scheme, 4 glyphosate concentrations (0, 0.9, 45, and 90 kg ha⁻¹ acid equivalent isopropylamine salt), 2 levels of phosphorus (270 and 540 kg ha⁻¹ P₂O₅), and 4 soil sampling dates (0, 1, 10, and 40 days after treatment application) with 4 replications. In the three-way interaction, at the highest concentration of glyphosate and phosphorus after 40 days, decreased by 7.8% the number of bacterial CFU and increased MBC by 2.3 times. There was a significant reduction in fungal CFU in two-way interactions (Glyphosate*D.A.A; Glyphosate*Phosphorus) at the highest concentration of glyphosate. Under the experimental conditions, the highest concentration of glyphosate in duplicate interacting with phosphorus level was toxic to cultured bacteria and fungi, however, it did not interfere negatively on soil microbial activity.

Keywords: Bacterium, fungus, isopropylamine salt