Title: COUNTABLE AND UNCOUNTABLE SOIL BACTERIAL COMMUNITY UNDER INTEGRADE PROCUTION SYSTEM AT A TRANSITION BIOMES FROM SAVANNA AND AMAZON

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Abstract:

The integrated production systems have been pointed as a sustainable alternative in use of land, therefore, study the microorganisms from soil is remarkable, since they play an important participation under the aspects of physic and chemical properties from soil. The objective of this study was to evaluate the impact of integrated agricultural production systems through the bacterial soil communities in a transition area of Savanna and Amazon rainforest with the aid of two methodologies. The experimental field belongs to Embrapa Agrosilvopastoral (Sinop/MT) and three monoculture (Eucalyptus (E), Crop (C), Pasture (P)), seven integrated systems (C-PI, P-CI, CEI, PEI, CEI-PEI, PEI-CEI, ECPI) arranged in four blocks were evaluated plus a Native forest and Fallow as area of reference. The treatment Pasture had held only haymaking. Soil samples were collected at depth 0-10 cm with Dutch Auger in the wet and dry season in 2012. The number of colony forming units (CFU) was performed and quantified by serial dilution on TSA culture medium and the molecular analysis was performed with Denaturing Gradient Gel Electrophoresis (DGGE). The highest CFU was in the integrated system during the rainy season. By orthogonal contrasts, the ECPI was responsible to make difference compared at the other integrated systems with a probability of 3%. In the rain, both references areas had lower CFU and the Fallow differed among five treatments. The DGGE analysis grouped in both seasons the exclusive systems with each other and separately the ECPI with the references areas. Even with only two years of experimental deployment it was possible to detect changes in soil bacterial community under management systems, illustrating the benefits that integrate systems can contribute to promote a sustainable agriculture.

Key words: integrated crop-livestock-forest, CFU, DGGE.