

**TITLE:** MICROBIOLOGICAL AND PHYSICAL CHARACTERIZATION OF SOIL WITH RELEASE OF LIQUID RESIDUES OF SWINE

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## **ABSTRACT**

Brazil is the world's fourth biggest swine farming and exporter and, with the increasing in swine farming came the increment of residues that, each more time, gains more importance in the environmental context, once the pollution provoked by the inadequate management may result in serious environmental problems. Existing since the Middle Ages, one of the swine residues management practices is the utilization of these residues as animal fertilizer that, when properly managed, demonstrates a sustainable manner to swine farming, besides offering rich nutrients to the soil. This research has the aim to analyze quantitatively the bacteria in a rural soil with the release of liquid residues of pig (DLS - acronym in Portuguese) and rural soil with no release. The data collection was performed in a farm located in Jaciara County - Mato Grosso State, on December 2018. It was performed both a soil texture and particles density analysis according to the following EMBRAPA's methods: the pipette method and volumetric flask method, respectively; and heterotrophic bacteria concentration, total coliforms and *Escherichia coli* according to the Standard Methods. The results revealed that the heterotrophic bacteria concentration number was 6,2 log UFC/ml and 6,751 log UFC/ml, total coliforms number of 6,493 log NMP/100ml and 7,120 log NMP/100ml, and absence of *Escherichia coli* in soil with no DLS irrigation and with irrigation, respectively. Both the soils presented the characteristics of a sandy loam soil and particles density number of 2,60 g/cm<sup>3</sup>. The soil recovering to its previous conditions before the DLS release is owed also to its type that shows great porosity and permeability, this way, easing the nutrients' and water's percolation. Therefore, it can be concluded that the approached practice, this time, offers no risks both for the soil and for the final cultivated product due to the high soil recovering potential considering its physical characteristics, the quantity of nutrients and the *Escherichia coli* absence that the DLS offers for the cultivation.

**Keywords:** organic fertilizer, sandy loam soil.