

TITLE: MICROBIOLOGICAL PARAMETERS AND RESISTANCE PROFILE OF BACTERIA IN SWINE WASTEWATER

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ABSTRACT:

The use of swine wastewater (SW) in agricultural soils has been a practice commonly used due to these effluents present high concentration of chemical species, which can act as nutrients in agriculture. However, little information exists regarding the risk of microbial contamination in the environment for this type of effluent. In this study, we evaluated the presence of bioindicators and pathogenic microorganisms in swine wastewater along the main systems of anaerobic treatment. We analyzed samples of swine wastewater of properties that use the systems of treatment with biodigester and bioesterqueira. The results indicated that the treatment system biodigester, indicated only elimination of molds and yeasts in the last stage of treatment. In addition, there was the elimination of any genre or group of bacteria analyzed. However, it is important to note that, despite this system of treatment does not eliminate the bacterial microorganisms, there was a significant reduction in the group of strict aerobic along the different stages of treatment. In the group of anaerobes, there was no significant difference for the coliforms. However, there was an increase in the count of the *Listeria* and *Staphylococcus*. The results indicated that also have significant reduction for the aerobic at different stages. On the other hand, in this case it was observed the elimination of molds and yeasts, but only significant reduction. The treatment process of waste from swine production in primary systems was not capable of eliminating the groups analyzed. Microbiological analyzes demonstrate the presence of different indicators and pathogens, such as coliform bacteria, *Salmonella* sp., *Listeria* sp., *Staphylococcus* sp. and *Pseudomonas* sp. in different systems of treatment. The results of this study in relation to the prevalence of *Enterococcus faecalis* were expected, since these microorganisms are present in the gastrointestinal tract of animals endothermic and, thus, are eliminated via the feces. The gastrointestinal tract of pigs is quoted as natural reservoir of *Enterococcus faecalis*, in this way, it justifies its elimination in feces as a source of infection to other animals and humans. There was no elimination of pathogens in any system of treatment. It is suggested a disinfection process at the end of those systems in order to use the effluents to irrigate agricultural soils and to avoid environmental contamination and therefore sanitary issues.

Keywords: anaerobic treatment, enterobacteria, environmental risk, microbial pollution, pathogenic microorganisms.

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