

## **Title: DYNAMICS OF BIODIGESTORES BACTERIAL SUPPLIED WITH SWINE WASTE IN SUMMER PERIOD**

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### **Summary:**

Brazil ranks third in the world in the production of pork meat and it is the fourth largest exporter. During these production, organic waste with high pollution potential are generated. These wastes when handled and treated improperly become a source of pollution to the environment. However proper management can reduce environmental impacts by using waste as biomass for biogas production by anaerobic digestion that ultimately can be used as bio-fertilizer. This study aimed to monitor the use of continuous scale biodigesters, to assess fermenting microorganisms with emphasis on environmental microorganism elimination. An assay of anaerobic digestion in four continuous digesters laboratory scale was carried out in the summer period, with a capacity of 60 liters of pig slurry/ each held at the headquarters of Embrapa Dairy Cattle, Juiz de Fora / MG, for a period of 60 days. The slurry was diluted in water and homogenized manually until the solids content of 6 to 8%. The analyzes were carried out from time zero, 15, 30, 45 and 60 / day hydraulic retention. The rates were analyzed in Rumen Microbiology Laboratory of Embrapa Dairy Cattle. The sample was collected from time zero the initial supply, the other samples were composed by the effluent of the four digesters. In serial dilutions of 0.9% w / v NaCl, in 100 ul was withdrawn 10<sup>-6</sup> 10<sup>-1a</sup> were inoculated in culture media: Agar Eosin Methylene Blue (EMB) agar hypertonic mannitol (MAN) and bile esculin agar azide (BE / A), respectively used for the presumption of *Escherichia coli*, *Staphylococcus aureus* and *Streptococcus* sp. Microbial counts were taken from spread plate technique on mannitol salt agar medium allowed the selective isolation of pathogenic *Staphylococcus*, and growth of *Staphylococcus aureus* and *Staphylococcus epidermidis*. The bile esculin agar allowed the isolation and identification of *Streptococcus* sp group. By hydrolysis of esculin. The Eosin methylene blue agar indicated fermentative bacteria or non-lactose. On analysis it was found to reduce the bacterial population during anaerobic digestion. The results infer the elimination of pathogens likely waste, allowing the reduction of pollution potential and the health risks of waste. They were isolated for future identification molecular *Enterobacteriaceae*, *Staphylococcus* sp., And *Streptococcus*.sp.

**Keywords:** anaerobic digestion, pathogenic microorganisms, pollution potential

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