

TITLE: PRESENCE OF ENTEROBACTERIACEAE AND CLOSTRIDIACEAE IN THE SOIL ACCORDING TO THE USE OF BIOFERTILIZERS OF FECES FROM GOATS AND SHEEP

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ABSTRACT:

The use of biofertilizers appears as an alternative to the use of chemical fertilizers and use of residues generated by animal production. However, the presence of possible pathogens belonging to the families Enterobacteriaceae and Clostridiaceae in biofertilizers from feces can lead to sanitary and ecological problems. Thus, it is important to characterize and evaluate the use of biofertilizers, aiming to the lower risk of contamination by pathogens of these families. The aim of this study was to quantify and analyze the presence of Enterobacteriaceae and Clostridiaceae in the soil, due to the use of biofertilizers from goat and sheep feces. In a previous work, were carried DNA extractions and 16S rRNA amplicon sequencing of the biofertilizers and the soils out under increasing doses (0, 2.5, 5, 7.5, 10%) during two vegetative cycles of *Cenchrus ciliaris* L. In the present work, the crude DNA sequences were obtained previously with the Illumina® MiSeq DNA sequencing platform and after sequencing of 16S rRNA amplicons, it was performed a quality control using FastQC software and trimming with SeqClean software. Then, the Mothur software packages were adopted for removal of chimeras and contaminants, grouping of Operational Taxonomic Units (OTUs), and alignment with the Silva database for bacterial identification. Graphs for a better visualization of the results were generated using the R software. From the sequencing of all the samples, a total of 610,864 gross sequences were obtained, remaining 340,581 after the quality tests. These were grouped into 161,420 OTUs, and assigned to 21 phyla, 51 classes, 85 orders, 163 families and 364 genera. The Enterobacteriaceae family was not identified in any of the samples, while both biofertilizers increased the soil with Clostridiaceae in different proportions, being this one more abundant in the biofertilizer sheep than in the biofertilizer goat. Among the samples treated with the biofertilizer goat, the 10% dose was the one that presented the greatest reduction of the relative abundance of Clostridiaceae in the second vegetative cycle, when compared to the lower doses. Therefore, it is recommended to use the goat biofertilizer in a dose of 10%, as this showed a reduction in the relative abundance of OTUs attributed to Clostridiaceae in the second vegetative cycle of *Cenchrus ciliaris* L.

Keywords: bioinformatics, inoculant, microbiome, rRNA 16S

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