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Effect of salinity and temperature on the bacterial diversity shift of anaerobic batch cultures treating abattoir wastewater

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ABSTRACT

The molecular biological analyses allowed to highlight the changes of the microflora of the batch cultures with the increase of the salinity and the temperatures. The single-strand conformation polymorphism (SSCP) patterns of the bacterial diversity at different salt concentrations (0, 20, and 40 g l^{-1}) in mesophilic (37°C) and thermophilic (55°C) conditions showed that the bacterial diversity varies depending on the culture conditions. The obtained SSCP profiles at the different salt concentrations showed that there is a greater diversity in the mesophilic than the thermophilic condition. However, the bacterial diversity richness (1/*D*) and the species evenness for the mesophilic condition for all the tested salt concentrations showed firstly the maximum diversity and secondly that the species in the sample are quite evenly distributed. The increase of the salt concentration to 20 and 40 g l^{-1} at thermophilic condition decreased the bacterial diversity due to the selection pressure caused by the elevation of salinity, which eliminated the salt-sensitive species and thus reduced the community diversity.

Keywords: Abattoir wastewater; Salinity; Bacterial community; Mesophilic; Thermophilic

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