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Screening of strains for organic acids and ethanol production from crude glycerol

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In the past decade, the continuous demand for biofuels has resulted in a significant increase in biodiesel production and, consequently, concern with the destination of its main co-product, crude glycerol. In order to aggregate value to this glycerol, microbial biotechnological processes aiming the synthesis of compounds of industrial interest have been developed. In this context, the capacity of 24 bacteria isolated from Mangrove and different parts of *Paullinia cupana* were evaluated under microaerobic conditions to convert glycerol to compounds of interest. Initially, bacteria were evaluated on 1.1 mL of minimal medium supplement with 40 g/L of crude glycerol in 96-well microplates. Following, extracellular production of acetic acid, lactic acid and ethanol were measured with HPLC. Only 5 strains did not consumed more than 75% of the crude glycerol. Acetic acid production was insignificant for all strains evaluated. Highest production was 0.29 g/L (strain C4). Hong et al. using *Escherichia coli* ac-127 obtained synthesis of 1.5 g/L of acetic acid, better result to the obtained in this work, since batch process was not used. On the other hand, production of lactic acid and ethanol concentration reached 5.7 g/L and 2 g/L, respectively. Murakani et al. obtain 5.9 g/L of lactic acid final concentration with *Enterococcus faecalis*, using the same oxygen concentration and 20 g/L de crude glycerol, in 48 hours of bioprocess synthesized similar values found in this research by the D5 strain. The analyzed bacteria had the ability to synthesize products of biotechnological interest using crude glycerol as sole carbon source.

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