

Isolation Of Microorganisms For Biotransformation Of Glycerol Obtained From Biodiesel Production

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Researches on biofuels increased exponentially in the last five years, redirecting funds for the development and improvement of safe, renewable alternatives for fossil fuels. The production of biodiesel generates coproducts such as acylglycerols and glycerol. The recent increase in glycerol side production resulted in a drop on its price, which negatively affected food and cosmetics industries. To use this future industrial waste as the source for the production of valuable substances is the actual aim of some researches. Thus, the objective of this work is to isolate microorganisms from the soil and water of different regions of Bahia state that are capable of biotransforming or biodegrading glycerol. Conversion of glycerol to ethanol or methanol is firstly desired, since they can be used in the own biodiesel industry. Samples of semi-arid soil and a microorganism consortium were incubated and isolated in media containing only glycerol as carbon source. Three fungi and one bacterium were isolated and characterized. In vitro assay, where the microorganisms were incubated with glycerol and 2,6-dichlorophenol indophenol or TTC (Triphenil Tetrazolium Chloride) - electron acceptors - showed that an oxidative pathway is activated during glycerol biodegradation process. Their potential to biodegrade and/or biotransform glycerol was evaluated and compared to others microorganisms isolated at the laboratory using different carbon sources. The microorganisms isolated with glycerol also showed lipase and esterase activities. The products formed by the microorganisms are being identified by liquid chromatography (HPLC).