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### PRODUCTION AND CHARACTERIZATION OF BIOSURFACTANTS PRODUCED BY MICROORGANISMS ISOLATED FROM BRAZILIAN OILS

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Surfactants are amphiphilic molecules that comprise both hydrophilic and hydrophobic moieties, allowing the reduction the surface and interfacial tensions, as well as the formation of oil in water or water in oil emulsions. These surface-active compounds are extensively used by petroleum industries in order to reduce the capillary forces that entrapped the oil inside the reservoir. The compounds synthesized chemically, chemical surfactants, have some applicability limitations according some environmental restrictions. Contrarily, sustainable surfactants compounds can be produced naturally by microorganisms, designed by biosurfactants. The biosurfactants are a reliable alternative, since they exhibit lower toxicity, higher biodegradability, and effectiveness at extreme temperature, salinity and pH conditions. This work studies the production of different biosurfactant produced by microorganisms isolated from Brazilian oils. It was evaluated their abilities by measuring surface tensions, interfacial oil-water tensions and emulsification activities. Two *Pseudomonas* and three *Bacillus* strains demonstrated capability to grow and produce extracellular biosurfactants at 40°C. Additionally, the biosurfactants produced were characterized using different spectroscopic techniques, namely FTIR, <sup>1</sup>H NMR, ESI/MS and MS/MS, being the biosurfactants produced by *Pseudomonas* and *Bacillus* strains characterized as rhamnolipids and surfactins, respectively. The results obtained show that it is important to characterize the biosurfactants in order to understand their surface-active properties, as well as their formation of molecular aggregates: The biosurfactants chemical characterization allows the optimization of their application in bioremediation with crude oil, or in microbial enhanced oil recovery processes.