



## The influence of a natural biodegradable product on the biodegradation of crude oil polluted soil

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Crude oil pollution is a world-wide threat to environment and the remediation of crude oil polluted soil is a challenge for environmental protection research. Bioremediation is a useful method for soil remediation without second effect on soil quality and it is not an expensive technology from economical point of view. Biodegradation is the process by which organic substances are broken down by the enzymes produced by living organisms. Although biodegradation of petroleum hydrocarbons may be successfully achieved under controlled conditions, the bioremediation of polluted soils still remains a challenge. The main objective of this study is to investigate the influence of a natural biodegradable product on petroleum hydrocarbons degradation in a crude oil polluted soil. It is a laboratory experiment achieved during two years in Green House. Soil was artificially polluted with 5% and 10% crude oil and treatment applied consisted in a natural biodegradable product and bacterial inoculum. Soil polluted with 5% crude oil was treated with 50 g, respective 100 g ECOSOL/20 kg polluted soil and/or bacterial inoculum to increase the biodegradability rate and the soil polluted with 10% crude oil was treated with 100 g, respective 200 g ECOSOL/20 kg polluted soil and/or bacterial inoculum. The plant used in experiment was maize. The parameters followed during experiment were total petroleum hydrocarbons, soil reaction, total carbon, nitrogen, C/N ratio. At each phase of the study, the natural biodegradable product was found to significantly enhance the biodegradation process and detoxification of the crude oil polluted soils employed by increasing the bioavailability of the pollutants and the activity of indigenous microorganisms. During the experiment, the biodegradation rate reached higher values according with treatment.