

Assessment of the toxicity of crude oil in



This study is aimed at investigating the toxic effects on clams (*Sinonovacula constricta*) exposed to selected concentrations of individual crude oil: water accommodated fraction (WAF) and chemically enhanced (or dispersed) WAF (CEWAF). For this purpose, a study was performed on clams exposed to 0.04 mg L⁻¹ and 0.01 mg L⁻¹ WAF and CEWAF for 15 days, using parameters of antioxidant defense and oxidative damage. The accumulation of total petroleum hydrocarbon (TPH) in the gills of clams was dependent on time and dose, and CEWAF accumulation was higher than WAF accumulation. Exposure of clams to CEWAF oil resulted in significantly ($p < 0.05$) elevated ethoxyresorufin-O-deethylase (EROD) activity compared with exposure to controls. The level of EROD induction was concentration-related, as indicated by the induction observed in clams exposed to higher concentrations of CEWAF. Oxidative damage indicators (DNA strand breaks) were also measured in gills to assess the effects of the selected crude oil by alkaline unwinding assay. Results showed that DNA damage was significantly induced, except in the low-level groups of WAF, and different trends were detected with time of exposure. Significant correlations between TPH uptake and both EROD activity and DNA damage can be used as suitable tools for integrated levels of study on the biomarkers of crude oil exposure.

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