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"PHOTOOXIDATION OF CRUDE PETROLEUM MALTENIC FRACTION IN NATURAL SIMULATED CONDITIONS AND STRUCTURAL ELUCIDATION OF PHOTOPRODUCTS "

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### Abstract:

Photooxidation is an important process in the degradation of petroleum spilled in the marine environment. Most crude oils spilled at sea spread rapidly to form slicks with greatly increased surface area. Thus, a fundamental understanding of the effect of photooxidation on oil is a prerequisite for providing an accurate description of the recent history and potential fate of oil spilled in a marine environment. The present work describes a reliable method for evolution and studies the nature of the photoproducts and composition of the residual hydrocarbons of an oil film over the seawater. The maltenic fraction of Iranian oil was exposed to sunlight with simulated natural conditions as a film of oil over seawater. The effect of ultraviolet illumination on using a variety of techniques including GC/MS and FT-IR was examined. The saturated hydrocarbons were very resistant, but the aromatic hydrocarbons were particularly sensitive to photochemical degradation. Greater size and increasing alkyl substitution increased the sensitivity of aromatic compounds to photooxidation.

### Keywords:

Photooxidation . oil spill . infrared spectrometry . mass spectroscopy

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