PHOTODEGRADATION OF OCTYLPHENOL USING SIMULATED SUNLIGHT RADIATION

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Abstract: This work aims studying the photochemical behavior of octylphenol (OP) in aqueous solution exposed to simulated UV solar radiation, in lab-scale experiments. The OP photolysis was also investigated by varying different reaction parameters such as: initial pH, initial concentration of OP, reaction temperature, concentration of hydrogen peroxide, presence/absence of dissolved organic matter, HCO₃⁻, NO₃⁻ and Fe (III) ions. The results show that the degradation of octylphenol is fairly slow. The rate of OP decay increases as the initial pH of reaction solution rises from 6.58 to 8. By rising up the temperature from 15 °C to 25 °C increases the OP conversion. The effect of initial concentration is also clear, after 6 h reaction time, the removal being 9.5 % for 25.5 µM OP and 12.67 % for 15 µM OP. The increase in hydrogen peroxide and nitrate ions concentration accelerates octylphenol degradation.

Keywords: photodegradation, octylphenol, UV, radiation, alkylphenolic compounds

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