
Radicals-Catalyzed Oxidation Reactions for Degradation of Benzoic Acid

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Abstract

The presence of organic acids in aqueous waste continues to be an important environmental concern because of the odor and toxicity they impart to water. The photochemical degradation of benzoic acids (BA) which is among environmental priority pollutants, is studied in the present investigation by means of the Advanced Oxidation Processes (AOPs) namely by combinations of different oxidants and UV irradiation (UV/H₂O₂, UV/TiO₂, UV/ZnO and Fe(III)-oxalate complex). The photo-oxidative degradation was followed by studying their concentration decay over time period of exposure to UV-Oxidant combination. These observations figured out that the formation of Fe (III)-ligand complexes allows the system to more efficiently exploit the solar radiation. Thus, this paper aims at the examination of the optimum parameters which affect the photocatalytic degradation of benzoic acid.

Keywords: *Advanced oxidation process; UV/H₂O₂; benzoic acids; Hydroxyl radicals*