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**Solar photo-Fenton oxidation for the removal of ampicillin, total cultivable and resistant *E. coli* and ecotoxicity from secondary-treated wastewater effluents**

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**Abstract**

Urban, hospital and pharmaceutical industry wastewater effluents are among the main sources of antibiotics' and other antimicrobial agents' contamination in soil and water ecosystems, especially in countries where wastewater reuse is applied. Ampicillin (AMP), which is the first semi-synthetic broad spectrum penicillin that was released on the market in 1961 has been detected in treated wastewater effluents worldwide, at concentrations ranging from sub-ng/L up to 27 µg/L, as well as in various environmental aqueous matrices up to 13.7 µg/L, highlighting its recalcitrance to conventional biological treatment. Nevertheless, the degradation potential of AMP via advanced chemical oxidation processes, which are widely considered as promising alternatives of conventional technologies, hardly has been investigated. Thus, this study aims at

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