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# Comparison of sulfamethoxazole and ciprofloxacin degradation by UV/$H_2O_2$ process

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**ABSTRACT**

The rate constants of sulfamethoxazole (SMX) and ciprofloxacin (CIP) degradation as well as the removal of total organic carbon (TOC) by UV/$H_2O_2$ process was investigated under various parameters including different $H_2O_2$ dosage and initial pH values. The results indicated that both SMX and CIP were efficiently removed in UV/$H_2O_2$ process and they peaked at different pH values of 3 and 7 respectively, while CIP degradation was greater than that of SMX. TOC removal was decreased with the pH values increased in the degradation of SMX in UV/$H_2O_2$ process while no significant change for CIP with the pH values raised. Based on molecular structure analysis, the transformation of both sulfonamide bond and oxazole ring N–O band in SMX were more difficult than defluorination and change of piperazine ring in CIP.

*Keywords:* UV/$H_2O_2$; SMX; CIP; Degradation; Mineralization

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