Desalination and Water Treatment
www.deswater.com

doi: 10.1080/19443994.2015.1061452

57 (2016) 13865–13877
June

Taylor & Francis
Taylor & Francis Group

Treatment of wastewater containing imazalil by means of Fenton-based processes

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Received 24 November 2014; Accepted 9 June 2015

ABSTRACT

This work studies the elimination, mineralization and detoxification through Fenton-based processes of wastewaters contaminated with the fungicide imazalil as a result of the postharvest treatment of bananas. Fe(II) and H_2O_2 concentrations were optimized for degradation of the corresponding imazalil concentrations. The activity of the imazalil degradation process was studied in deionized water and in simulated and real agro-industrial wastewaters. Results show that the water matrix had no detrimental effect on wastewater treatment when using the Fenton technique, but optimal iron content had to be increased when applying the photo-Fenton process. Even so, the optimal iron and H_2O_2 contents required for the photo-Fenton reaction were 6 times and 50% lower, respectively, than for the Fenton procedure. Solar pilot plant tests confirmed the detoxification of two agro-industrial wastewater effluents containing imazalil.

Keywords: Wastewater; Fenton; Imazalil; Banana postharvest; Ions

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