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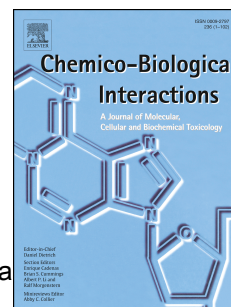
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Removal of azo dye using Fenton and Fenton-like processes: evaluation of process factors by Box–Behnken design and ecotoxicity tests

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Abstract

The conventional treatment of textile effluents is usually inefficient in removing azo dyes and can even generate more toxic products than the original dyes. The aim of the present study was to optimize the process factors in the degradation of Disperse Red 343 by Fenton and Fenton-like processes, as well as to investigate the ecotoxicity of the samples treated under optimized conditions. A Box–Behnken design integrated with the desirability function was used to optimize dye degradation, the amount of residual H_2O_2 [$H_{2O_{2residual}}$], and the ecotoxicity of the treated samples (lettuce seed, *Artemia salina*, and zebrafish in their early-life stages). Dye degradation was affected only by catalyst concentration [Fe] in both the Fenton and Fenton-like processes. In the Fenton reaction, [$H_{2O_{2residual}}$] was significantly affected by initial [H_2O_2] and its interaction with [Fe]; however, in the Fenton-like reaction, it was affected by initial [H_2O_2] only. *A. salina* mortality was

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