

Sonochemical degradation of the antibiotic cephalixin in aqueous solution

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Abstract

The degradation of cephalixin in aqueous solution under ultrasound irradiation was investigated. Biodegradability of the solution was evaluated by the BOD_5/COD ratio, which was raised from zero to 0.36 after ultrasound treatment, indicating that the ultrasound irradiation process is a successful pre-treatment step to improve the biodegradability of cephalixin solution. The influences of ultrasound power and pH value on the degradation of cephalixin were studied. It was found that the optimal ultrasound power for cephalixin degradation in the system was 200 W and the rate of cephalixin degradation was maximal in the pH range of 6.5 to 8.5. The degradation kinetics of cephalixin in aqueous solution under various operational conditions was also investigated. It was found that the degradation of cephalixin follows a pseudo-first order kinetics.

Keywords: antibiotic, biodegradability, cephalixin, degradation, ultrasound