

عنوان مقاله:

Prevalence of antibiotic resistant genes in selected activated sludge processes in Isfahan Province, Iran

محل انتشار:

مجله پیشرفت در تحقیقات بهداشت محیط, دوره 4, شماره 1 (سال: 1394)

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نویسنده:

Rahim Aali - Department of Environmental Health Engineering, School of Nursing and Health, Urmia University of Medical Sciences, Urmia, Iran

خلاصه مقاله:

In this study, degradation of p-chlorophenol (p-CP) was evaluated using persulfate (PS) activated zerovalent iron (ZVI) based ultraviolet (UV) in a bench scale photoreactor. The effect of operational parameters such as solution pH (3, 7, and 11), reaction time (0-60 minutes), ZVI dosage (0.15, 1.25, 0.5, 1, and 1.5 mM), PS concentration (0.5, 1.5, 2, 2.5, 3, and 4 mM), and initial p-CP concentration (0.22, 0.44, 0.88, 1.32, and 1.76 mM) were examined on the degradation of p-CP in batch experiments. The experimental results indicated that the p-CP removal rate significantly depends on operational parameters. The highest p-CP removal rate was achieved after 45 minutes ($> 0.99\%$) in pH = 3, ZVI = 1 mM, and PS = 3 mM, and with initial p-CP concentration = 0.44 mM. The results revealed that excess amount of PS and ZVI could reversely affect p-CP removal efficiency. In addition, an increase in p-CP initial concentration from 0.22 to 1.76 mM significantly decreased its removal rate. This study indicated that PS activated ZVI based UV process is practically feasible for the effective degradation of p-CP in aqueous solution.

کلمات کلیدی:

Activated sludge, Antibiotic resistance genes (ARGs), wastewater, A-B process, Extended aeration

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