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by Ozone/Hydrogen Peroxide Advanced Oxidation Process

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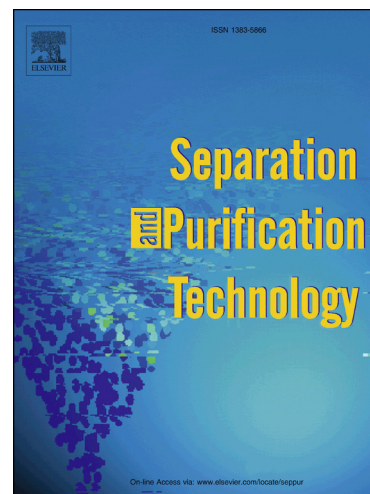
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Toxicity Reduction and Improved Biodegradability of Benzalkonium Chlorides by Ozone/Hydrogen Peroxide Advanced Oxidation Process

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Highlights

- O₃/H₂O₂ treatment degraded BACs in synthetic and wastewater matrices
- Twenty-five intermediates with six different pathways were identified
- Toxicity of BACs on freshwater algae species was removed after O₃/H₂O₂ treatment
- Biodegradability test confirms the efficacy of O₃/H₂O₂ in treating influent containing BACs

Abbreviations

AOP, Advanced oxidation process; RAS, Returned activated sludge; ANOVA, Analysis of variance; BACs, Benzalkonium chlorides; BDDA, Benzyl dimethyl dodecyl ammonium chloride; BDTA, Benzyl dimethyl tetradecyl ammonium chloride; BOD₅, Biological oxygen demand over 5 days; CCD, Central composite design; COD, Chemical oxygen demand; MSM, Minimal salt medium; RSM, Response surface methodology; SPM, Suspended particulate matter; TSS, Total suspended solid; VSS, volatile suspended solids; WWTP, wastewater treatment plants; QACs, Quaternary ammonium compounds

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