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Authors: Shuang Xue, Jijun Sun, Ying Liu, Zhaohong Zhang, Yingzi Lin, Qiang Liu



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Effect of dissolved organic matter fractions on photodegradation of phenanthrene in
ice

Shuang Xue ^{a,*}, Jijun Sun ^a, Ying Liu ^a, Zhaohong Zhang ^a, Yingzi Lin ^b, Qiang Liu ^a

^a School of Environmental Science, Liaoning University, Shenyang 110036, China

^b School of Municipal and Environmental Engineering, Jilin Jianzhu University,

Changchun 130118, China

Highlights

- ✧ The photodegradation rate of PHE in ice was greater than that in water
- ✧ Quenching effect of DOM fraction was more important to inhibit PHE photodegradation
- ✧ $^1\text{O}_2$ and $\bullet\text{OH}$ contributed 9~31% and 2~13% to PHE photodegradation rate, respectively
- ✧ HPO-A was more efficient in advancing PHE photodegradation through $^1\text{O}_2$ mechanism
- ✧ For DOM fractions, Q_{λ} well positively correlated with K_{doc} and SUVA

Abstract: The effect of dissolved organic matter (DOM) fractions on photodegradation of phenanthrene (PHE) in ice was investigated. DOM in surface water and wastewater samples was fractionated using XAD-8/XAD-4 resins into five fractions: hydrophobic acid (HPO-A), hydrophobic neutral (HPO-N), transphilic acid

*Corresponding authors.

E-mail: shxue_lnu@sina.com (Shuang Xue)

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