

Distribution and ecological risk assessment of plasticizers in the Chao Phraya Delta, Gulf of Thailand

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Abstrak

Preceding monitoring reports indicated that di (2-ethylhexyl) phthalate (DEHP), a common plasticizer, was found in the samples of suspended sediment and water collected from the lower part of Chao Phraya River. In this continuing study, the suspended sediment and water samples from the Chao Phraya Delta were collected twice a year in January and July during January 2011 - July 2013. The analyses were performed for both DEHP and Diethyl Phthalate (DEP). Overall results showed that concentrations of both DEHP and DEP in the water samples were relatively higher than those in the suspended sediment samples. The concentrations of DEHP and DEP from all sampling periods in the water samples ranged from 1.58 - 27.55 µg/L and from 0.64 - 2.59 µg/L, respectively, whereas the concentrations of DEHP and DEP from all sampling periods in the suspended sediment samples ranged from 0.01 - 26.82 mg/g and from 0.01 - 1.93 mg/g, respectively. The concentrations of both DEHP and DEP in both suspended sediment and water samples were relatively higher in the samples collected during lower discharge period of the Chao Phraya River in July. The results indicated that sediment transport system could play an important role in the dispersion of both DEHP and DEP. The ecological risk assessment indicated that for the current level of contaminations the risk did not exceed the acceptable level.