

Siriporn Poltam 2012: Treatment of Paracetamol in Bangkok's Sewage by Activated Sludge Process and Its Attenuation in Receiving Canal. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Wilai Chiemchaisri, D.Tech.Sc. 137 pages.

Pharmaceutical substances have been detected in sewage treatment plant as well as receiving waters in many parts of the world. In this study, the occurrence and removal of Paracetamol were investigated in the a sewage treatment plant of Bangkok city (Din Daeng Water Environment Control Plant). It appeared that the concentrations of Paracetamol in sewage, settled sewage, effluent and disposal sludge were in ranges of 500-800 ng/L, 440-750 ng/L, and 170-288 ng/L and 14.5-18.2 ng/g dried sludge, respectively. The proximate Paracetamol levels as in the discharge water were found in the receiving canal. Paracetamol eliminated rates by the AS process were about 61-66% of which 56.6-58.7% by biodegradation and 4.5-8.4% by adsorption. In addition, batch sorption studies indicate that the sludge had high potentiality in Paracetamol adsorption in the AS process in which 15% of the adsorbed mass could be desorbed out into a clean environment. According to Freundlich equation, K_F were 0.35 and 0.2 with n of 1.255 and 1.00 for adsorption by the sludge of 2-10 μg Paracetamol/L and for desorption out from the sludge into clean water, respectively.

Student's signature

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