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## A Study on the Uptake Capacity of Water Plants for Heavy Metals

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### Abstract

In this study, we investigate the uptake capacity of several water plants for heavy metals (lead and cadmium) in soil of rivers which are adjacent to a industrial complex in Chunan city and located in Asan city as control. We also examine the deposition pattern of heavy metal in plants.

The results are as follows:

1. The soil of river in Chunan city was more polluted than that of Asan city. In Chunan city, mean values of lead and cadmium were  $26.224 \pm 28.037$ ,  $0.854 \pm 1.127$  respectively.
2. The Water plants examined in this study are *Sium suave* KITAGAWA, *Persicaria thunbergii* H. GROSS, *Phragmites japonica* STEUD, *Echinochloa crus-galli* Var. frumentacea WIGHT and *Persicaria hydropiper* SPACH. Both metal contents of several water plants lived in Chunan city are higher than those in Asan city.

In these plants, *Sium suave* KITAGAWA showed the highest uptake capacity for lead and cadmium. Mean values of lead and cadmium contents in *Sium suave* KITAGAWA are  $40.957 \pm 29.577$  mg/kg and  $1.930 \pm 1.076$  respectively. *Persicaria thunbergii* H. GROSS also showed a relatively high uptake capacity for both metal.

3. Correlation between metal contents in soil and water plants is high. In both cases of *Sium suave* KITAGAWA and *Persicaria thunbergii* H. GROSS, correlation coefficient are 0.605 and 0.549, respectively.

4. We analyzed lead and cadmium contents in root, stem and leave of several water plants. Both metals were deposited in root mostly. Many of both metals were also deposited in leave.

From the results, we should suggest that *Sium suave* KITAGAWA and *Persicaria thunbergii* H. GROSS could be used to reduce heavy metals from industrial waste water.