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LAKSANEE KANANIDHINAN : EFFICIENCY OF *Cyperus corymbosus*, *Typha angustifolia*, *Phragmites australis*, AND *Eleocharis dulcis* IN CONSTRUCTED WETLANDS FOR CHROMIUM TREATMENT OF ELECTROPLATING INDUSTRIAL WASTEWATER. THESIS ADVISOR : ASST. PROF. THARES SRISATIT, Ph.D., THESIS COADVISOR : MR.MANOP SIRIVORAKUL, 101 PP. ISBN 974-636-820-6.

The efficiency of constructed wetlands to remove chromium in electroplating wastewater was studied with four emergent plants, *Cyperus corymbosus*, *Typha angustifolia*, *Phragmites australis*, and *Eleocharis dulcis*. Nine pilot scale constructed wetlands were built, in which 5 units were used for removal study and the rest were used as the controls.

During experimental period, chromium concentration were in range of 2.824-20.926 mg/l and the average was 7.613 mg/l.

The best efficiency was found in *Cyperus* as high as 98.21% while the efficiencies of *Eleocharis*, *Typha* and *Phragmites* were 95.96, 95.90 and 94.87%, respectively. And the lowest efficiency was found in control unit, 89.13%, which was 9.1% lower than the highest efficiency, *Cyperus*.

Growth of each plant was also compared between experimental and control unit in fresh weight, dry weight and height during the experimental period but no statistically significant difference at $p=0.05$.

Accumulation of chromium in soil and plant were also studied and tended to increase with passage of time. Average of chromium in each soil pilot unit was slightly different and the highest mean was 29.156 $\mu\text{g/g}$ dry weight. In plant, *Eleocharis dulcis* showed the maximum chromium concentration, 397.150 $\mu\text{g/g}$ dry weight, at the end of the experiment, but had the lowest weight per unit. Mass balance showed that more than 90% of total chromium disappeared from the water was found in the soil.

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