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WANNA CHINDASRI : REMOVAL OF HEAVY METALS FROM INDUSTRIAL WASTEWATER BY BIOSORPTION USING *SACCHAROMYCES CEREVISIAE*. THESIS ADVISORS : AURAPIN EAMSIRI Ph.D., SAOVANEE DHARMSTHITI Ph.D. 84 p. ISBN 974-662-794-5

This research was carried out to investigate the removal of heavy metals from wastewater produced by the electronics industry through biosorption using *Saccharomyces cerevisiae*. The experiments were set to study the effect of yeast biomass pretreatment, initial pH of solution, biosorbent densities and co-metal ions competition of synthetics solution on heavy metals biosorption capacity and removal efficiency in batch experiments. Besides, the biosorbent regeneration in column experiments using both synthetic and industrial wastewater were also studied. Experimental samples were analyzed using AAS for heavy metals and then data were statistically processed by ANOVA and DMRT.

The results of this study revealed that biosorbent produced from *Saccharomyces cerevisiae* biomass could remove copper and lead from the industrial wastewater. The biosorption capacity and removal efficiency of copper and lead depended upon the methods of *S. cerevisiae* pretreatment, initial pH, types of metals and co-metal ions competition of mixed solution. Alkali-treated yeast gave the highest copper and lead biosorption capacity and removal efficiency, 85.8% and 89.4% respectively. Initial pH had different effects on removal efficiency of different single and mixed metals; the maximum amount of copper and lead alone including copper mixed with lead could be adsorbed at pH 7, 5-6 and 5 respectively. In terms of co-metal ions competition it was found that the biosorption capacity and removal efficiency of copper were the same in both single and mixed solution, but lead reacted differently as the removal efficiency from mixed was less than that from single solution. This indicated that the lead biosorption was reduced in the presence of copper, but lead had no effect on copper biosorption. Regarding biosorbent regeneration, it was found that biosorbent could be regenerated with slight decrease in removal efficiency.