

### Biosorption of lead, copper and cadmium by waste brewery yeast

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In this study, the biosorption of Lead, Copper and Cadmium by waste brewery yeast was investigated. Yeast was widely used as a biosorbent for heavy metals since it can be obtained without costs. Waste brewery yeast used in this work was collected from a fermentation process of brewery plant. The yeast biosorbent was prepared by washing, drying and grinding. The biosorption capacity of Lead, Copper and Cadmium increased with increasing pH and the maximum uptakes were found to be 76.70, 37.95 and 10.56mg/L at pH 5.0(for Pb) and 5.5(for Cu and Cd), respectively. The Langmuir model was applied to experimental data for each metal at different temperature. Langmuir isotherm is favorable type and it represents our experimental data very well. Biosorption heat of biosorption process has been evaluated by using the Langmuir constant b, related to the energy of adsorption. The biosorption of lead, copper and cadmium is determined to be an endothermic process since increased binding occurs as the temperature is increased in the range of 15°C ~ 35°C.