# COMPARISON BETWEEN ACTIVATED CARBON *Zea mays* HUSK BIOSORPTION ON DIFFERENT TYPES OF HEAVY METALS

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## ABSTRACT

### COMPARISON BETWEEN ACTIVATED CARBON *Zea mays* HUSK BIOSORPTION ON DIFFERENT TYPES OF HEAVY METALS

Corn husks have a high potential to be used as biosorbent of heavy metals such as copper, lead and zinc due to the fuctional group available on the surface of the adsorbent. This may be useful for the remediation of wastewaters in Malaysia which had been a problem for a long time. The objectives of this study are to compare the effectiveness biosorption of Zea mays husk on different types of heavy metals and to optimize the removal percentage of heavy metals from wastewaters by using Zea mays peel as biosorbent. Based on the study, copper (35.86%) had the highest percentage of removal when tested with the biosorbent compared to zinc (6.58%) and lead (29.82%). Therefore, copper was chosen to be used in the optimization experiment. Three paramenters were chosen for the optimization experiment which were adsorbent dosage, agitation speed and temperature. The results from this experiment showed the optimum parameters are 0.08g adsorbent dosage (40.06%), 120 rpm agitation speed (40.87%) and at 50°C temperature (43.98%). These three parameters have significant differences towards the adsorption of copper ions in the solution where the p-values are less than 0.05. These optimum parameters were then used in the batch adsorption experiment. Thus, the highest percentage removal of copper ions is 51.7% in the duration of 50 minutes. In conclusion, activated carbon *Zea mays* husks can be used as an effective biosorbent for the removal of heavy metals.