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Investigation of the adsorption properties for the removal of heavy metals from aqueous solutions using *Delonix regia*

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The adsorption capacity of *Delonix regia* for the removal of cadmium, lead, copper, nickel and cobalt from aqueous solution was studied using batch experiment. The effect of operating parameters such as pH, contact time, ionic strength, concentration of metal ions on the process were investigated and the ability to reuse *Delonix regia* was also carried out. The studies revealed that the sorption process of *Delonix regia* for cadmium, lead, copper, nickel and cobalt is highly dependent on pH, contact time, and metal ions concentration in the solution. It also showed that the adsorption capacity decreased with increase in the ionic strength of the solution. The results from the time dependent studies showed a maximum sorption within 30 minutes of contact time and a correlation factor greater than 0.999 for all the metals investigated when the data were modelled with the pseudo second order kinetic model, while the isotherm parameters were best fitted into the Langmuir isotherm. The reusability of *Delonix regia* with different concentrations of nitric acid revealed that the sorption process was irreversible as only less than 30% recovery was achieved throughout the recovery experiment.

Biography

Bolanle Babalola is a current PhD student at Lancaster University, UK. Her area of interest is in water pollution majoring in the search for a cheap and readily available adsorbent to be used as alternative to activated carbon for the treatment of industrial wastewater. She holds a Master of Technology in Industrial Chemistry from the Federal University of Technology Akure, Nigeria.

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