REMOVAL OF PHENOLIC COMPOUNDS FROM WASTEWATER USING NATURAL ADSORBENT

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Abstract

The present study was conducted in order to investigate the capability of sawdust used as an adsorbent for phenol removal in industrial wastewater. The obtained results demonstrate that activated sawdust could be used as an efficient and low-cost adsorbent for phenol removal from industrial effluents discharge. The use of low cost absorbent may also contribute to the sustainability of the surrounding environmental. The optimum conditions for the removal of phenol within the experimental range of variables studies were; 140 mg/l of initial phenol concentration, 0.4 g-0.5 g of adsorbent dose, pH value of 4 and 140 min of contact time. Under these conditions the maximum removal efficiency was 83 %. The results of isotherm data showed that the adsorption of phenol followed Freundlich isotherm. Adsorption of phenols from carbonized sawdust fits well with the pseudo-second order kinetics equation.

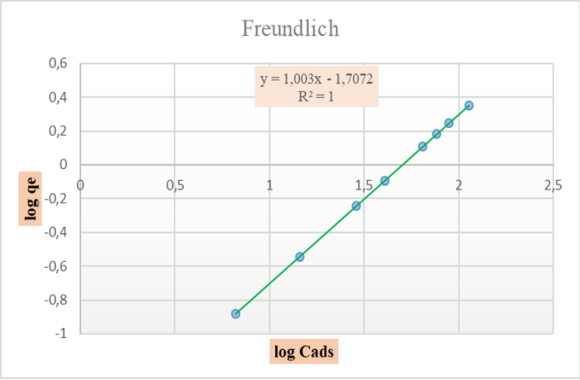

Figure 1. The linear Freudlich adsorption isotherm

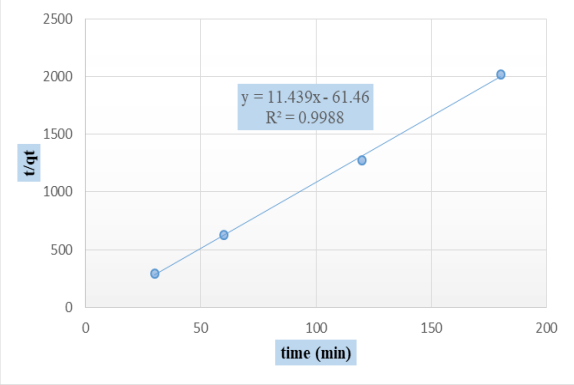

Figure 2. Pseudo-second order graph

References

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