Characterization of agriculture wastes based activated carbon for removal of hydrogen sulfide from petroleum refinery waste water

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ABSTRACT
Hydrogen sulfide (H2S) (aq) is one of the most toxic pollutants in petroleum refinery waste water. It is very harmful to human health and causes environmental and economic problems. The removal of H2S (aq) from a simulated petroleum refinery waste water using activated carbons produced from agricultural by-product such as, coconut shell (CNS), palm kernel shell (PKS), and wood sawdust (WSD) were investigated. The activated carbons obtained from the CNS, PKS, and WSD were chemically activated using KOH. The prepared ACs was characterized using SEM/EDX, FTIR, BET, and TGA. Comparative studies between all the three adsorbents for the removal of H2S (aq) from the simulated waste water were carried out. The adsorption studies revealed that modified PKS-based activated carbon (ACPKS) has shown best performance for the removal of H2S (aq). It can be concluded that ACPKS has an effective adsorbent for the removal of H2S (aq) from simulated waste water.

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