

Departmental Seminar

Seminar Title	: Chromium (VI) Removal from Wastewater using Chemically Treated Peanut Shells as Adsorbent
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Venue	: Old Seminar Hall, Chemical Engg. Department
Date and Time	: 25 Nov 2024 (11:00 A.M.)
Abstract	: At excessive concentrations in water, Chromium (VI) is a severe problem in many parts of the world and is sometimes linked to cancer. The remediation of aqueous streams from heavy metals is of particular concern due to the unmanageable and persistency of heavy metals in the environment. Many heavy metal ions can be removed from a variety of water sources using practical approaches. In the current investigation, attempt has been made to remove Chromium (VI) from aqueous solutions using Peanut shells as a non-conventional adsorbent. Four types of adsorbents were prepared as derivatives of peanut shells and the adsorption process was carried out. Low-cost biochar was made from agricultural by-products (peanut shells) and utilized as a precursor for removing Chromium from wastewater using HNO ₃ , followed by pyrolysis at different temperatures. Proximate analysis and FT-IR were performed for the Characterization of the adsorbent. SEM & EDS were also done to study the pores and element present on the surface of adsorbent respectively. BET characterisation was done to know the surface area. Point of zero charge was also examined. Mine water from five different location was investigated and treatment was done using acid wash peanut shells. The chromium (VI) adsorption on peanut shells was affected by contact time, pH, and other factors. The experimental data was analyzed using pseudo first and second order kinetics. Degradation of chromium was found to be 99 percent implying that there is potential in peanut shell to be used as an adsorbent.