**DEVELOPMENT OF LOW-COST ADSORBENT FROM AGRICULTURAL WASTE FOR HEAVY METAL REMOVAL**

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This study explored the use of low-cost agricultural waste as alternatives biosorbent to treat effluents from various industrial activities namely mining, refining ores, fertilizer industries, tanneries, batteries, paper industries, pesticides etc. which are posses a serious threat to environment. Biosorption is an effective technology for the removal and/or recovery of metal ions from aqueous solutions. The major advantages of biosorption over conventional treatment methods include: low cost, high efficiency, minimization of chemical or biological sludge, regeneration of biosorbents and possibility of metal recovery. Cellulosic agricultural waste material being highly efficient, low cost and renewable source of biomass can be exploited for heavy metal remediation. Further, in this study cellulose xhantate was prepared from sugarcane bagasse (SB), an agricultural waste by-product, for the adsorption of Pb, Cu and Hg from synthetic wastewater. Preparation of cellulose xanthate was conducted by reacting carbon disulfide (CS2) and cellulose from SB under alkaline conditions. The morphological characteristics of cellulose xanthate were visualized via Scanning Electron Microscope (SEM) and the functional groups present in the biosorbent were characterized by a Fourier Transform Infrared (FTIR) spectrophotometer. The effect of degree of substitution (DS) and degree of polymerization (DP) to adsorption capacities of cellulose xanthate for Cu2+ , Pb2+ and Hg2+ were also studied.