

Biosorption is a novel technique for decreasing metal ion content in the wastewater. Biosorption experiments for Cr (VI), Cu (II) were investigated in this study using bacteria isolated from the industrial effluent. The results showed that the dead cells of *Pseudomonas* sp. and *Brochothrix* sp were an efficient adsorbent of Cu (II) and Cr (VI) respectively. For Analysis, Langmuir and Freundlich adsorption isotherm were considered. Both model fitted to the experimental data however the Langmuir model fitted the experimental data better than the Freundlich model for copper and Freundlich for chromium. Adsorption was influenced by various parameters, such as the initial metal concentration, pH, and contact time etc. Studies pertaining to the assessment of the best adsorption parameters and quantitative analysis of metal uptake revealed that maximum biosorption for Cu (II) was recorded 74.20% at pH 7, while maximum biosorption at a lower pH. Several desorbing agents like EDTA, oxalic acid, citric acid etc were used for desorption. Process of which citric acid was found to be better desorbing agent. Along with that immobilization with alginate preparation maintained biosorption potential.