ISSN: 1391-8796
Proceedings of 6th Ruhuna International Science & Technology Conference
University of Ruhuna, Matara, Sri Lanka
January 30, 2019

Removal efficiency of hexavalent chromium by three bacterial species isolated from chromium containing industrial effluent

Ekanayake E.M.C.K.* and Rathnayake I.V.N.

Department of Microbiology, Faculty of Science, University of Kelaniya, Kelaniya, Sri Lanka

Bioremediation of hexavalent chromium is an economically and environmentally friendly approach. In this study three species of bacteria *Micrococcus variance, Pseudomonas aeruginosa* and *Bacillus circulance* which were previously isolated from chromium containing effluent, were used to test their Cr(VI) removal efficiency. The removal percentages were tested using 5, 10, 20, 30, 40 mg/L concentrations of Cr(VI) in tris minimal medium. Diphenylcarbazide assay was used to determine the remaining Cr(VI) concentrations by measuring absorbance at 540 nm wavelength spectrophotometrically. According to results *Bacillus circulans* demonstrated the highest removal percentages of 98.16%, 78.49 %, 35.67%, 17.06%, and 5.23% for the concentrations of 5, 10, 20, 30, and 40 mg/L of Cr(VI) respectively. Moderate removal percentages of 95.64%, 54.96%, 33.57%, 11.74% and 1.98% were shown, respectively by *Pseudomonas aeruginosa*. The Lowest Cr(VI) removal percentages were observed for *Micrococcus variance* with the values of 92.26%,45.72%, 27.69 %,8.38% and 0.3% respectively.

Keywords: Chromium contamination, Cr (VI) removal, bioremediation

*Corresponding Author: Chathuekanayake91@gmail.com