ABSTRACT

Gallium (Ga) is considered an important element in the semiconducting industry and as the lifespan of electronic products decrease annually Ga-containing effluent has been increasing. The present study investigated the use of biodegradable polymer powders, crab shell and chitosan, in the removal of Ga(III) ions from aqueous solution. Ga(III) biosorption was modeled to Lagergren-first, pseudo-second order and the Weber-Morris models. Equilibrium data was modeled to the Langmuir, Freundlich and Langmuir-Freundlich adsorption isotherms to determine the probable biosorption behavior of Ga(III) with the biosorbents. The biosorbents were investigated by Fourier Transform Infrared Spectroscopy, X-ray Diffraction and Scanning Electron Microscopy/ Energy Dispersive Spectra analysis.

Keywords: chitosan, crab shell powder, gallium, Langmuir-Freundlich, kinetics.

REFERENCES