**Abstract**

Batch equilibration studies were performed to determine the sorptive ability of Hg(II) ions over coconut shell carbon (CSC). The Hg(II) - CSC system was investigated as a function of variable parameters viz., dosage of the carbon, reaction time between the sorbate and sorbent species, initial concentration of the Hg(II) ions, initial pH of the medium and effect of temperature. The optimum condition for Hg(II) removal was found to be at pH 6. The kinetic data of the system were verified using pseudo-first order and pseudo second order model. The equilibrium data followed the Langmuir and Freundlich isotherm models. Sorption capacity of Hg(II) on CSC increased with increase in temperature and the thermodynamic parameters showed that the sorption process was feasible, spontaneous and endothermic under studied conditions. Adsorption studies imply that CSC to be a promising efficient adsorbent material for the removal of Hg(II) from aqueous solutions.