Isotherm, kinetic and thermodynamic characteristics for adsorption of paclitaxel on diaion HP-20

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Batch experiment studies were carried out for adsorption of anticancer agent paclitaxel using Diaion HP-20 with various parameters such as initial paclitaxel concentration, contact time and solution temperature. Langmuir model could account for the adsorption equilibrium data of paclitaxel with the highest accuracy among the four adsorption models considered. Base on Temkin constant and Dubinin-Radushkevich constant, this adsorption process is physical adsorption. In addition, the experimental results agreed well with the second-order adsorption model. Thermodynamic parameters, such as standard enthalpy (ΔH^°), standard entropy (ΔS^°) and standard gibbs free energy (ΔG^°) change, were investigated. The results indicated that the adsorption process was endothermic, irreversible and spontaneous. Acknowledgment This research was supported by Basic Science Research Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Education, Science and Technology (Grant Number: 2015016271).