

Isotherm, Kinetic and Thermodynamic Characteristics for Adsorption of 10-Deacetylpaclitaxel onto Sylopute

방수연, 김진현^{1,†}

공주대학교; ¹공주대학교 화학공학부

(jinhyun@kongju.ac.kr[†])

Batch experiment studies were carried out on the adsorption of 10-deacetylpaclitaxel using sylopute while varying parameters such as initial 10-deacetylpaclitaxel concentration, contact time and adsorption temperature. The experimental data were fitted to the Langmuir, Freundlich, Temkin and Dubinin-Radushkevich isotherm models. Comparison of results revealed that the Freundlich isotherm model could account for the adsorption isotherm data with the highest accuracy among the four isotherm models considered. From the analysis of adsorption isotherms, it was found that adsorption capacity increased with increasing temperature and the adsorption of 10-deacetylpaclitaxel onto sylopute was favorable. Thermodynamic parameters, such as standard enthalpy (ΔH°), standard entropy (ΔS°) and standard Gibbs free energy (ΔG°) change, were investigated. The results indicated that the process of 10-deacetylpaclitaxel adsorption onto sylopute was endothermic. 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).