

Competitive Isothermal Adsorption Equilibria of L-Ribose and L-Arabinose on Ion-Exchange Resin of Ca²⁺ Form

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D-ribose is naturally used a form of deoxyribose as the vehicle of genetic codes in living organisms. On the other hand, L-ribose and its derived nucleosides have a potential as anti-viral agents, such as a precursor of anti-hepatitis B virus (HBV) drug. Chemical or enzymatic process for the synthesis of L-ribose had been employed and its results had been reported by several researchers. L-arabinose had been also reported the intermediate of L-ribose synthetic processes.

In this study, experiments to measure the isotherm behaviors of two L-form sugars under variable conditions were performed for the separation and the purification of L-ribose and L-arabinose using ligand-exclusion chromatography. The Dow 50WX4 (Ca²⁺ form) was employed as the separation resin. From the results, it was shown that the isotherm behaviors of L-ribose and L-arabinose interacted competitively.