

Separation Simulation of Cytosine and Guanine by 3-Zone Simulated moving-bed(SMB)

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Development of modern analytical technology results in the deciphering research in nucleotides. Separation investigations for DNA focus on the base pairs guanine and cytosine in nucleotide. This study of continuous separation technology by SMB is expected to have a large effect on the understanding nucleotide knowledge as well as on producing nucleotides quantitatively.

Guanine and cytosine separation was studied by HPLC (High Performance Liquid Chromatography) simulations with a change of sample concentration and eluent flow rate. Cytosine and guanine of high-purity were simulated by the 3 - zone Aspen simulator. The separation performance of aspen simulation and the effect of operating parameters, such as extract flow rates, switching time, feed flow rate and feed concentration, were studied under various operating conditions. Aspen simulation leading to complete separation were observed and explained theoretically.

The SMB experiment conditions were with out a feed concentration of 0.1 mg/ml, and by changing switching time. As a result, the highest raffinate cytosine purity was 98.4% and the extract guanine purity was 97.9%.