

ANION-EXCHANGE SEPARATION OF WHEY PROTEINS

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Three strong anion-exchange membranes (CIM QA, Q100 and HiTrap Q) and reversed-phase high-performance liquid chromatography(15 μm particle with a pore size of 300 Å) were investigated for the separation of the major proteins, which were contained in whey, such as σ -Lactalbumin, BSA and β -Lactoglobulin contained. Experiments were performed to determine the optimum mobile phase composition for separating the whey proteins using the standard chemicals of the proteins. For strong anion-exchange membranes, the mobile phase was buffer A (20 mM piperazine-HCl pH 6.4) and buffer B (buffer A + 1 M NaCl) and the linear gradient elution changes of salt concentration were applied. For Reversed-phase high-performance liquid chromatography, the mobil phase were consisted of a linear gradient of the two mobile phases of 0.1% trifluoroacetic acid in water and 0.1% trifluoroacetic acid in acetonitrile. The standard chemicals of the proteins were used to investigate the optimal mobile phase compositions with the three anion-exchange membranes. It was experimentally confirmed that HiTrap Q was the most effective to resolve the whey proteins.