A Simplified Chromatographic Approach to Purify Commercially Available Bovine Submaxillary Mucins (BSM)

In this study, a simple purification protocol is developed to reduce the bovine serum albumin (BSA) content in commercially available bovine submaxillary mucin (BSM). This involved purification of the BSM by one-column anion-exchange chromatography protocol resulting in BSM with greatly reduced BSA content and homogeneously distributed size, and in a high yield of 43% from BSM as received from the manufacturer. The purity and composition of commercially acquired BSM were assessed by sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE) and mass spectrometry, which verified that BSA is the most abundant nonmucinous protein component. The purification effect was evident from a significantly altered circular dichroism (CD) spectrum of BSM after anion-exchange chromatography.

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