

ABSTRACT

**EFFECT OF HPC-L AND HPMC 606 CONCENTRATION ON
PHYSICAL CHARACTERISTICS AND RELEASE OF BOVINE SERUM
ALBUMIN FROM MICROSPHERES**

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The aim of this study was to investigate the preparation of microspheres as potential protein carriers. Bovine serum albumin (BSA) was chosen as a hydrophilic model protein due to its known structure and ease of quantitative assay. BSA was encapsulated within hydroxypropyl cellulose low viscosity (HPC-L) and hydroxypropyl methyl cellulose 606 (HPMC 606) microspheres using spray drying method, which was called by L and M formula respectively. Both polymers have two different concentrations, low (F1L and F1M) and high concentration (F2L and F2M). The microspheres were evaluated to FTIR, DTA, morphology, particle size, moisture content, entrapment efficiency (EE), protein content, yield, release profile, and aerosolization efficiency. The FTIR spectra of protein alone and in microspheres with polymers did not show any shift in major peak, which indicated no protein-polymer interaction. The thermogram of prepared microspheres showed differences with polymers thermogram, which indicated the microspheres was formed. The spray drying method produced rough surfaced microspheres with small particle size. BSA microspheres had a high EE% and highest protein content was produced by microspheres with HPC-L polymer. The release profile of BSA from microspheres following Higuchi kinetics models. Aerodynamic diameters of microspheres ranged between 0,6 – 2,9 μm . The results demonstrated this spray dried microspheres can be explored for potential protein carriers.

Keywords : Microspheres, bovine serum albumin, HPC-L, HPMC 606