

Application of cross-linked soy protein isolate with resorcinol films for release studies of naturally occurring bioactive agent with antiproliferative activity

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Abstract

The potential of soy protein isolate films as a release system for naturally occurring antiproliferative agent was investigated. The soy protein isolates was cross linked with resorcinol and the resorcinol content was varied between 10-30 %. The release study was monitored over a period of 24 h at a pH of 7.4. Different kinetic release models were used to determine the mechanism of release of bioactive agent from the films. The release profiles of the SPI films of selected degree of cross-linking were anomalous (non-Fickian) and case II transport, with n values in the range of 0.97-1.01. The degree of cross-linking provided an effective means of regulating the release rate of the SPI films, and hence potential for use as drug release system. These films were further characterized by Fourier transform spectroscopy (FTIR), spectroscopy, scanning electron microscope (SEM), X-ray diffraction (XRD) and thermogravimetric analysis (TGA) which confirmed the successful incorporation of curcumin onto the films.