

INTISARI

STUDI IN VITRO PELEPASAN KURKUMIN MENGGUNAKAN FILM PEKTIN-KITOSAN DENGAN PENGEMULSI ASAM PALMITAT

Oleh

Heni Octaviani

09/283430/PA/12554

Penelitian mengenai pelepasan kurkumin dari film pektin-kitosan dengan penambahan pengemulsi asam palmitat telah dilakukan. Penelitian ini bertujuan untuk mengetahui pengaruh komposisi kurkumin, komposisi asam palmitat, konsentrasi etanol dalam pelarut bufer fosfat, dan pH pelarut terhadap pelepasan kurkumin. Film dibuat dengan melarutkan pektin dengan akuades, lalu ditambahkan kitosan dan asam asetat 1%, kemudian setelah larut campuran ditambahkan asam palmitat. Kurkumin ditambahkan ketika semua bahan telah larut. Penyerapan air (*swelling*) dan efisiensi enkapsulasi (EE) film pektin-kitosan teremban kurkumin, dikaji pada penelitian ini. Pelepasan kurkumin dilakukan dengan merendam film dalam pelarut yang divariasikan selama rentang waktu 6 jam. Konsentrasi pelepasan kurkumin diukur dengan spektrofotometer UV-Vis.

Hasil penelitian menunjukkan bahwa pelepasan kurkumin dipengaruhi oleh komposisi kurkumin yang termuat, komposisi asam palmitat pada film, etanol dalam pelarut bufer, dan pH pelarut. Model kinetika reaksi yang sesuai dengan penelitian ini adalah model Korsmeyer-Peppas karena koefisien determinasi (R^2) yang mendekati 1. Pelepasan kurkumin paling optimal dilakukan oleh film yang memuat kurkumin 200 ppm dan 5 mg asam palmitat, menggunakan perbandingan pelarut bufer fosfat/etanol 80:20 pada pH 7.

Kata kunci: kitosan, pektin, asam palmitat, pelepasan kurkumin

ABSTRACT

IN VITRO STUDY OF CONTROLLED RELEASE OF CURCUMIN FROM PECTIN-CHITOSAN FILMS USING PALMITIC ACID AS EMULSIFIERS

By

Heni Octaviani

09/283430/PA/12554

The release of curcumin from pectin-chitosan films that have been emulsified using palmitic acid has been studied. The aim of this research was to determine the effect of curcumin loading, palmitic acid composition, ethanol concentration in solvent phosphate buffer, and pH of solvent. The films were made by mixing of pectin solution in distilled-water, chitosan solution in 1% of acetic acid solution and palmitic acid. Curcumin was added when all materials were mixed completely. Water absorption (swelling) and encapsulation efficiency (EE) in curcumin-loaded pectin-chitosan films were also determined. Curcumin release had been studied by immersing film in various of solvents for 6 hours. The concentration of curcumin released was measured using UV-Visible spectrophotometer.

The results showed that the release of curcumin was influenced by loaded curcumin content in film, palmitic acid content in film, ethanol content in buffer solution, and pH of solvent. The most fit kinetic model for this experiment was of Korsmeyer-Peppas because coefficient of determination approached 1. The optimum condition for release of curcumin was achieved by film at 200 ppm of curcumin concentration and 5 mg of palmitic acid addition at 80:20 of phosphate buffer/ethanol in pH 7.

Keywords: chitosan, pectin, palmitic acid, release of curcumin