Pengaruh span 80 sebagai surfaktan dalam pembuatan mikrosfer polipaduan poli asam laktat dan polikaprolakton = The effect of span 80 as surfactant in preparation of polyblend polylactic acid and polycaprolactone microspheres

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Abstrak

Ukuran mikrosfer merupakan faktor utama penentu laju pelepasan obat. Keseragaman ukuran akan meningkatkan efesiensi dan laju dissolusi obat. Pada penelitian ini span 80 digunakan sebagai surfaktan penstabil emulsi dan pengontrol ukuran dalam pembuatan mikrosfer polipaduan poli asam laktat PLA dan polikaprolakton PCL melalui metode penguapan pelarut emulsi water-in-oil W/O. Pengaruh penambahan span 80 terhadap ukuran mikrosfer polipaduan PLA dan PCL dipelajari melalui variasi volume span 80, waktu pengadukan dispersi, dan kecepatan pengadukan emulsi. Mikrosfer yang terbentuk pada berbagai perlakuan dikarakterisasi menggunakan PSA dan FTIR.
Hasil variasi menunjukkan bahwa ukuran mikrosfer menurun seiring dengan meningkatnya volume span 80, waktu pengadukan dispersi dan kecepatan pengadukan emulsi. Ukuran mikrosfer yang dihasilkan melalui variasi volume adalah 1,128, 1,004, dan 0,764 m untuk setiap penambahan volume 0,5, 1, dan 1,5 ml. Variasi waktu pengadukan dispersi selama 0,5, 1,5, dan 2 jam menghasilkan ukuran mikrosfer sebesar 2,233, 1,918, dan 1,045 m secara berturut-turut. Variasi kecepatan pengadukan emulsi 800 rpm dan 900 rpm menghasilkan ukuran 1,178 dan 0,839 m. Bentuk fisik mikrosfer sebagian speris dan sebagian lainnya membentuk aggregat dikarakterisasi menggunakan mikroskop optik.
<hr>AbstractMicrosphere size is primary determinants of drug release rate. The microspheres of uniform size will increase efficiency and the dissolution rate of drug loaded. In this study, span 80 was used as emulsion stabilizer and size controller in preparation of polyblend polylactic acid PLA and polycaprolactone PCL microspeheres by water in oil W O emulsion solvent evaporation method. The effect of span addition on the size of PLA and PCL microspheres was studied by volume variation of span 80, stirring time of dispersion and emulsion stirring speed.
The result of variation treatment of microspheres were characterized using PSA and FTIR spectrophotometer. The variasion result showed that the particle size of PLA PCL microspheres decreased with increasing volume of span 80, dispersion stirring time, and emulsion strirring speed. Microspheres size generated through variations of volume were 1,128, 1,004, and 0,764 m for the addition volume of span 80 0.5, 1, 1.5 ml respectively. Variations of dispersion stirring time yielded size 2,233, 1,918, and 1,045 m for 0.5, 1.5, 2 h in a row. Variations in stirring speed emulsion 800 rpm dan 900 rpm resulted in size 1,178 and 0,839 m respectively. Physical forms of microspheres showed that some spherical and the other aggregates were characterized by optical microscope.