

Efek komposisi nanopartikel poly (lactic acid) dan poly (lactic-co-glycolic acid) serta penambahan surfaktan kationik didodecyldimethylammonium bromide (DDAB) terhadap rilis dexamethasone berkelanjutan = Effect of the composition of poly (lactic acid) and poly (lactic co glycolic acid) nanoparticles with cationic surfactant didodecyldimethylammonium bromide (DDAB) addition for dexamethasone long term release

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Abstrak

Teknologi pelepasan obat berkelanjutan diperlukan untuk pengobatan penyakit mata. Nanopartikel Poly Lactic Acid /Poly Lactic-co-Glycolic Acid digunakan untuk melapisi dexamethasone. Preparasi nanopartikel menggunakan metode penguapan pelarut. Polimer yang digunakan adalah PLA, PLGA 90:10, PLGA 50:50. Variasi modifikasi permukaan partikel dengan PVA, DDAB-1, PVA-DDAB-0.5, PVA-DDAB-1. Uji rilis dilakukan selama 48 hari T=45 C untuk mengetahui profil rilis nanopartikel. Nanopartikel dengan komposisi lactic acid lebih tinggi akan terdegradasi lebih lama. Untuk meningkatkan stabilitas nanopartikel di dalam vitreous, dilakukan modifikasi permukaan menggunakan surfaktan kationik DDAB

didodecyldimethylammonium bromide. Pada uji rilis DDAB, diketahui bahwa setelah 6-12 hari, DDAB pada permukaan terilis sehingga ternyata tidak stabil pada permukaan.

*Long term drug release technology is needed to treat ocular diseases. Poly Lactic Acid Poly Lactic co Glycolic Acid nanoparticles was used to encapsulate dexamethasone. Preparation of the nanoparticles used solvent evaporation method. The polymer used were PLA, PLGA 90 10, PLGA 50 50. Variation of surfactant were PVA, DDAB 1, PVA DDAB 0.5, PVA DDAB 1. Release was conducted for 48 days T 45 C . From dexamethasone release profile, nanoparticles with higher ratio of lactic acid degraded longer. To increase stability in the vitreous, cationic surfactant DDAB didodecyldimethylammonium bromide was added. From DDAB release profile, after 6 12 days, DDAB was released and proven to be unstable for surface modification.*