INTISARI

Penambahan suatu *gelling agent* ke dalam nanoemulsi ketoprofen diharapkan dapat memperbaiki sifat fisik dan stabilitas fisik sediaan. Penelitian ini bertujuan untuk mempelajari pengaruh variasi jenis dan kadar *gelling* agent terhadap sifat fisik, stabilitas fisik, dan pelepasan obat dari sediaan. Digunakan *gelling agent* CMC-Na, *Xanthan Gum*, dan Na-Alginat masing-masing pada konsentrasi 1,5%; 2%; dan 2,5%.

Evaluasi sifat fisik dilakukan terhadap semua formula meliputi organoleptis, sineresis, homogenitas fisik, pH, daya sebar dan daya lekat serta viskositas. Pengukuran ukuran tetes dan indeks polidispersitas dilakukan untuk mengamati sistem nano-partikel. Pengujian stabilitas yang dipercepat pada suhu 40^{o}C dan kelembaban relatif 75% selama 4 minggu dilakukan untuk mengamati perubahan organoleptis, viskositas, dan pH. Studi pelepasan dilakukan terhadap seluruh gel dengan basis CMC-Na. Studi permeasi dilakukan terhadap formula dengan basis CMC-Na konsentrasi 2,5%. Evaluasi organoleptis dan homogenitas fisik dianalisis deskriptif. Sineresis, viskositas, pH, daya lekat, daya sebar, uji ukuran tetes, indeks polidispersitas, dan pelepasan obat dianalisis dengan analisis ANOVA untuk melihat perbandingan antar kelompok.

Seluruh formula nanoemulgel memenuhi persyaratan sifat fisik sediaan gel dan tidak mengalami sineresis. Perbedaan jenis dan konsentrasi *gelling agent* berpengaruh terhadap viskositas, daya sebar, daya lekat, serta pH sediaan. Penurunan viskositas dan pH terjadi pada seluruh formula gel selama studi stabilitas dilakukan. Selama uji stabilitas, pecahnya sistem emulsi terjadi pada gel dengan basis Na-Alginat. Meskipun tidak berbeda signifikan secara statistika, peningkatan konsentrasi CMC-Na akan menurunkan jumlah obat yang terlepas. Uji permeasi dilakukan terhadap gel dengan basis CMC-Na 2,5% selama 24 jam dengan rata-rata persen total obat tertranspor sebesar 0,52%.

Kata kunci: ketoprofen, *gelling agent*, nanoemulgel, transderma

ABSTRACT

The addition of gelling agent into ketoprofen nanoemulsion is expected to improve the physical properties and physical stability of the dosage. This study was conducted to evaluate the effect of gelling agent type and concentration variation to the character of physical properties, physical stability, and the release of ketoprofen from nanoemulgel. Gelling agents used on this study was CMC-Na, Xanthan Gum, and Sodium Alginat, on 1,5%; 2%; and 2,5% concentration each.

The physical properties evaluation was conducted to all formulas covering organoleptic, sineresis, physical homogenity, pH, spreadability, stickiness test, and viscosity. Droplet size and polidispersity index measurenment was conducted to evaluate the nanoparticle system. Accelerated stability test at 40^{o}C and 75% relative humidity during 4 weeks was conducted to evalute the change on organoleptic, pH, and viscosity. The drug release study was conducted on formula with CMC-Na as gelling agent. In vitro permeation study was attempted to formula with 2,5% CMC-Na as the gel base. The organoleptic and physical homogenity was analyzed descriptively, while sineresis, viscosity, pH, spreadability, stickiness study, droplet size and polidsipersity index measurenment was analayzed by two-way ANOVA to comparate between the formula groups.

The all formula comply the ideal physical properties of a nanoemulgel and has not sineresis indication. Differences in the type and concentration gelling agent influences viscosity, spreadability, stickiness, and pH of the nanoemulgel. The reduction in viscosity and pH happened to the nanoemulgel formula for a period of stability study. During the stability test, the breakup of the emulsion system was happened to gel with sodium alginat as the base. Though not statistically different, an increase in the concentration cmc-na will reduce the quantity of drug release. The permeation test with the 2,5% cmc-na based for 24 hours shows the average of total drug transported for 0,52%.

Kata kunci: ketoprofen, *gelling agent*, nanoemulgel, transdermal