

Pengaruh Penambahan Eucalyptus Oil pada Sediaan Gliserosom-Kapsaisin terhadap Penetrasi Menggunakan Sel Difusi Franz = Effect of Eucalyptus Oil Addition to Glycosome-Capsaicin Preparation in terms of Penetration by Franz Diffusion Cells

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Abstrak

Kapsaisin (8-methyl-N-vanillyl-trans-6-nonenamide) merupakan senyawa aktif utama pada ekstrak cabai genus *Capsicum* yang diketahui memiliki aktivitas terapeutik sebagai analgesik dan anti-inflamasi. Pada aplikasinya, kapsaisin seringkali dikombinasikan dengan minyak esensial seperti eucalyptus oil yang mengandung senyawa terpen. Namun, minyak esensial telah dilaporkan memiliki kemampuan dalam meningkatkan penetrasi suatu obat sehingga dapat mempengaruhi kadar kapsaisin yang terpenetrasi melalui kulit. Penelitian ini bertujuan untuk menganalisis pengaruh eucalyptus oil terhadap penetrasi Gliserosom-Kapsaisin. Preparasi Gliserosom-Kapsaisin dilakukan menggunakan metode hidrasi lapis tipis. Gliserosom-Kapsaisin yang dihasilkan berbentuk sferis, memiliki struktur unilamellar dengan ukuran partikel sebesar $60,42 \pm 0,131$ nm, PDI $0,133 \pm 0,002$, dan zeta potensial sebesar $-33,9 \pm 0,153$ mV. Uji penetrasi dilakukan secara *in vitro* menggunakan sel difusi Franz dengan membran kulit abdomen tikus terhadap Gliserosom-Kapsaisin tanpa eucalyptus oil dan Gliserosom-Kapsaisin dengan penambahan eucalyptus oil pada konsentrasi 0,25%; 0,5%; dan 0,75%. Hasil uji menunjukkan bahwa konsentrasi eucalyptus oil berkorelasi positif dengan jumlah kumulatif dan fluks obat. Konsentrasi eucalyptus oil 0,75% memiliki jumlah kumulatif dan fluks yang paling tinggi.

.....Capsaicin (8-methyl-N-vanillyl-trans-6-nonenamide) is the main active compound in chili extract which is known to have therapeutic activity as an analgesic and anti-inflammatory. In its application, capsaicin is often combined with essential oils such as eucalyptus oil that contain terpene compounds. However, essential oils have been reported to have the ability to increase the penetration of a drug so that it can influence the levels of capsaicin that penetrate through the skin. This study was conducted to examine the influence of eucalyptus oil on Glycosome-Capsaicin penetration. Glycosome-Capsaicin preparation was carried out using the thin layer hydration method. The resulting Glycosome-Capsaicin is spherical in shape, has a unilamellar structure with a particle size of $60,42 \pm 0,131$ nm, PDI of $0,133 \pm 0,002$, and zeta potential of $-33,9 \pm 0,153$ mV. Drug penetration test was carried out *in vitro* using Franz diffusion cells with rat abdominal skin membrane. The cumulative amount of penetrated drug and flux of Glycosome-Capsaicin without eucalyptus oil and Glycosome-Capsaicin with the addition of eucalyptus oil at a concentration of 0,25%; 0,5%; and 0,75% were evaluated. Results showed that the concentration of eucalyptus oil tended to correlate positively with the cumulative amount of penetrated drug and transdermal flux. Eucalyptus oil at 0,75% exhibited highest cumulative amount of penetrated drug and transdermal flux.