INTISARI

Gingivitis merupakan inflamasi gingiva reversibel yang disebabkan akumulasi plak. Plak yang mengandung bakteri dan produk metabolismenya memicu neutrofil bermigrasi ke area infeksi yang jumlahnya memuncak di hari ke 2 – 4. Flavonoid dalam Patikan Kerbau (*Euphorbia hirta)* menghambat produksi prostaglandin dan leukotrien, degranulasi neutrofil, serta menginduksi apoptosis neutrofil. Tujuan penelitian ini untuk mengetahui pengaruh konsentrasi spray nanoenkapsulasi Patikan Kerbau (*E. hirta*) dalam kitosan dan hari pengamatan terhadap jumlah neutrofil pada proses penyembuhan gingivitis *Rattus norvegicus.*

Subjek penelitian terdiri dari empat puluh lima *R. norvegicus* jantan berusia 2 – 3 bulan yang telah diinduksi gingivitis menggunakan metode ligasi pada area servikal insisivus sentralis rahang bawah. Induksi gingivitis dilakukan dalam kondisi tikus teranestesi menggunakan Ketamin HCl 10 mg/kg BB dan Xylazin 2 mg/kg BB. Subjek dibagi menjadi lima kelompok, yaitu kelompok kontrol negatif (etanol 0,1%), perlakuan (spray nanoenkapsulasi *E. hirta* dalam kitosan konsentrasi 10%, 20%, dan 30%), dan kontrol positif *iod glycerin* 2%). Spray diaplikasikan tegak lurus insisivus sentralis rahang bawah sebanyak 0,3 ml berjarak 1 cm. Perhitungan dan pengamatan jumlah neutrofil dilakukan pada hari perlakuan ke – 3, 5, dan 7 menggunakan mikroskop Optilab® perbesaran 480x dan tiga lapang pandang kemudian dihitung reratanya. Data rerata jumlah neutrofil dianalisis menggunakan uji *two way ANOVA* dan *post hoc LSD* dengan tingkat signifikansi 95%.

Hasil uji *two way ANOVA* menunjukkan nilai $p<0,05$ antar kelompok, hari pengamatan, dan interaksi antara kelompok dengan hari pengamatan, sehingga hipotesis diterima. Berdasarkan hasil tersebut, dapat disimpulkan bahwa terdapat pengaruh konsentrasi spray nanoenkapsulasi Patikan Kerbau (*E. hirta*) dalam kitosan dan hari pengamatan terhadap jumlah neutrofil pada proses penyembuhan gingivitis *Rattus norvegicus.*

Kata kunci : gingivitis, patikan kerbau, neutrofil, spray nanoenkapsulasi

ABSTRACT

Gingivitis is a reversible inflammation of gingiva clinically marked by edema, eritema, and bleeding on probing. Gingivitis is caused by accumulation of plaque that induce migration of neutrophil to infection area as initial response of inflammation and reach its highest number on second until fourth day. Patikan Kerbau (*Euphorbia hirta*) contain flavonoid which had ability to inhibit prostaglandin and leucotrien production, degranulation of neutrophil, and induce apoptosis of neutrophils. This study aimed to determine the effect of concentration the Patikan Kerbau (*E.hirta*) nanoencapsulation spray in chitosan and the time of observation on the number of neutrophils in healing process of gingivitis in *Rattus norvergicus*.

Forty five male *R. norvegicus* with ligature-induced gingivitis were used in this study. Gingivitis induction was carried out in anesthetized rat using Ketamine HCl 10 mg/kg BW and Xylazin 2 mg/kg BW. Subjects were divided into five groups consist of negative control (0,1% ethanol), treatment groups (the Patikan Kerbau (*E.hirta*) nanoencapsulation spray in chitosan 10%, 20% dan 30%), and positive control (iod glycerin 2%). Spray was applied parallel to the central incisors of mandibulla as much as 0,3 ml within 1 cm. Neutrophils were observed and calculated from three different microscope fields at 480x magnification on day 3, 5, and 7. Two way ANOVA and post hoc LSD test were used to analyzed the mean different of neutrophils between groups. P value <0,05 were considered as statistically significant.

Result of two way ANOVA test showed p value<0,05 between groups, between time of observation on the number of neutrophils, and interaction between groups and time of observation, so the hypothesis was accepted. From the results of the research can be concluded that there is a effect of concentration the Patikan Kerbau (*E. hirta*) nanoencapsulation spray in chitosan and the time of observation on the number of neutrophils in healing process of gingivitis in *Rattus norvergicus*.

Keywords : gingivitis, patikan kerbau, neutrophil, spray nanoencapsulation