

ABSTRAK

Netrofil dikenal sebagai komponen dalam pertahanan tubuh yang memiliki peran dalam membunuh mikroorganisme dengan fagositosis. Daun suji (*Pleomele angustifolia* N.E. Brown) yang memiliki kandungan flavonoid yang diduga dapat meningkatkan aktivitas fagositosis netrofil. Tujuan dari penelitian ini adalah untuk mengetahui efek ekstrak daun suji terhadap aktivitas fagositosis netrofil setelah dipapar dengan *Streptococcus mutans* ATCC 25175.

Penelitian ini menggunakan sel netrofil yang diisolasi dari darah vena sukarelawan sehat. Kelompok kontrol dan perlakuan masing-masing dibagi menjadi sub kelompok yaitu kontrol positif (Imboost®) dan kontrol negatif (RPMI komplit), serta perlakuan (ekstrak daun suji konsentrasi 10 µg/ml, 25 µg/ml, dan 50 µg/ml). Pengujian fagositosis dilakukan dengan penambahan bahan uji dalam sumuran, lalu diinkubasi selama 4 jam pada suhu 37°C; CO₂ 5%. *Streptococcus mutans* (3×10^7 sel/sumuran) dipaparkan pada kultur netrofil (5×10^5 sel/sumuran) dan diinkubasi kembali selama 30 menit, selanjutnya dilakukan pengecatan Giemsa. Penentuan Indeks Fagositosis (IF) dilakukan dengan menghitung jumlah bakteri yang difagosit oleh netrofil pada coverslip menggunakan mikroskop cahaya perbesaran 1000x. Analisis data menggunakan one-way ANOVA dan LSD test ($p \leq 0,05$).

Hasil uji one-way ANOVA dan uji LSD menunjukkan terdapat perbedaan IF yang signifikan antarkelompok. Hal ini mengindikasikan bahwa ekstrak daun suji dapat meningkatkan aktivitas fagositosis netrofil. Peningkatan kemampuan netrofil dalam fagositosis *S. mutans* ATCC 25175 seiring dengan peningkatan konsentrasi ekstrak daun suji.

Kata kunci : Daun Suji, *Streptococcus mutans* ATCC 25175, Indeks Fagositosis

ABSTRACT

Neutrophil is known as a component of body immune that functions to kill microorganism using phagocytosis. Suji leaves (*Pleomele angustifolia* N.E. Brown) contains flavonoid which is known to be able to increase the phagocytic activity of neutrophils. The aim of this study was to investigate the effect of extract of Suji leaves on the phagocytic activity of neutrophils againts *Streptococcus mutans* ATCC 25175.

Subjects were neutrophil that isolated from median cubital venous blood from healthy volunteers. Control and treatment groups were divided into sub-groups: positive control (Imboost®) and negative control (complete RPMI), and treatment (extract of Suji leaves at the concentrations of 10µg/mL, 25µg/mL, and 50µg/mL). The phagocytic test was conducted by adding the test materials into wells and incubated within 4 hours at 37°C with 5% CO₂ atmosphere. *Streptococcus mutans* (3×10^7 cell/well) bacteria were added to the neutrophil culture (5×10^5 cell/well) then followed by another 30 minute incubation at 37°C. The cells were then stained using Giemsa. The measurement of the Phagocytosis Index (PI) was done by observing the bacterial phagocytosis by neutrophil using the 1000x magnification of light microscope. The data analysis were done by using one-way ANOVA and LSD test at significance of ≤ 0.05 .

The results of the one-way ANOVA and LSD test showed a significant difference of PI between the groups. It is concluded that the extract of Suji leaves could increase the phagocytosis activity of neutrophil. The increase of the neutrophil in phagocytosis of *S. mutans* ATCC 25175 was caused by the increase of the concentration of extract of Suji leaves.

Keywords: Suji leaves, *Streptococcus mutans* ATCC 25175, Phagocytosis Index