ABSTRAK

Daun suji (*Pleomele angustifolia* N.E. *Brown*) memiliki kandungan flavonoid yang diduga dapat meningkatkan aktivitas fagositosis makrofag. Makrofag merupakan komponen dalam sistem imun yang berperan dalam membunuh mikroorganisme dengan fagositosis. *Pseudomonas aeruginosa* merupakan bakteri Gram negatif yang banyak ditemukan pada kondisi sistem imun yang rendah dan dapat memperparah periodontitis. Tujuan dari penelitian ini yaitu mengetahui efek ekstrak daun suji terhadap kemampuan makrofag dalam fagositosis bakteri *P. aeruginosa* ATCC 9027.

Makrofag diisolasi dari peritoneal Sprague Dawley, makrofag dimasukkan pada sumuran yang telah diberi *coverslips*, dalam media RPMI yang mengandung penicillin-streptomycin, fungizone and 10%. Makrofag dipapar dengan ekstrak daun suji konsentrasi 10 mcg/ml, 25 mcg/ml, dan 50 mcg/ml, kontrol negatif (RPMI), kontrol positif (Imboost), dan diinkubasi selama 4 jam. Setelah dicuci dengan RPMI, ditambahkan bakteri *P. aeruginosa* ATCC 9027 dan diinkubasi kembali selama 30 menit, selanjutnya dilakukan pengecatan dengan giemsa 10% selama 15 menit. Bakteri yang difagositosis makrofag dihitung dengan mengamati mikroskop cahaya perbesaran 1000x.

Analisis data *one-way* ANOVA dan LSD *test* menunjukkan hasil IF yang signifikan ($p<0.05$) antar kelompok. Disimpulkan bahwa, peningkatan konsentrasi ekstrak daun suji 10 mcg/ml, 25 mcg/ml, dan 50 mcg/ml berpengaruh meningkatkan aktivitas fagositosis makrofag terhadap bakteri *P. aeruginosa* ATCC 9027. Peningkatan kemampuan makrofag dalam fagositosis *P. aeruginosa* ATCC 9027 seiring dengan peningkatan konsentrasi ekstrak daun suji. Efektivitas daun suji meningkatkan aktivitas fagositosis makrofag pada *P. aeruginosa* ATCC 9027 lebih rendah dibandingkan kontrol positif.

Kata kunci: Daun Suji, Makrofag, *Pseudomonas aeruginosa*, Indeks Fagositosis

ABSTRACT

Suji leaves (*Pleomele angustifolia N.E. Brown*) contains flavonoid that may be able to enhance the phagocytic activity of macrophages. Macrophages are known as a component of immune system that functions to kill microorganism by phagocytosis. *Pseudomonas aeruginosa* is a Gram-negative bacterium that is commonly found in a low immune system condition thus, involves in the severity of periodontitis. The purpose of this study was to determine the effect of Suji leaves extract on the phagocytic activity of macrophages of *P. aeruginosa* ATCC 9027.

Macrophages were isolated from the peritoneal Sprague Dawley. The cells were cultured in wells that is equipped with coverslips and with RPMI media containing penicillin-streptomycin, fungizone and 10% FBS for 24 hours in a CO_2 incubator. The macrophages were treated either with 10 mcg/ml, 25 mcg/ml, 50 mcg/ml suji leaves extract, negative control (RPMI), and positive control (Imboost) and incubated for 4 hours. After washed with RPMI, *P. aeruginosa* ATCC 9027 was then added and incubated for 30 minutes. The cells were then stained with 10% Giemsa for 15 minutes. Bacteria which phagocyted by macrophages was observed under 1000x magnification light microscope.

One-way ANOVA and LSD *test* showed significant results ($p<0.05$) among groups. It can be concluded that Suji leaves extract (10 mcg/ml, 25 mcg/ml, and 50 mcg/ml) increased the phagocytic activity of macrophages against *P. aeruginosa*. Phagocytosis macrophages against *P. aeruginosa* ATCC 9027 increase in concentration dependent manner. The effectiveness of Suji leaves extract in increasing phagocytic activity of macrophages against *P. aeruginosa* was lower than the positive control.

Keywords: Suji Leaves, Macrophages, *Pseudomonas aeruginosa*, Phagocytosis Index