

ABSTRAK

Pseudomonas aeruginosa adalah bakteri patogen oportunistik yang dapat menyebabkan infeksi berat, terutama pada pasien *immunocompromised*. Bakteri *P. aeruginosa* bergerak dengan motilitas *swimming* menggunakan flagela. Kulit buah manggis (*Garcinia mangostana L.*) mengandung senyawa flavonoid yang mampu melepaskan energi transduksi terhadap membran sitoplasma bakteri dan menghambat motilitas bakteri Gram-positif. Penelitian ini bertujuan untuk mengetahui efek ekstrak kulit buah manggis terhadap motilitas *swimming* bakteri *P. aeruginosa* ATCC 10145.

Uji MIC dengan metode serial dilusi dan turbidimetri menunjukkan MIC ekstrak kulit manggis terhadap bakteri *P. aeruginosa* ATCC 10145 adalah konsentrasi 10%. Uji motilitas *swimming* dilakukan pada kelompok perlakuan (ekstrak kulit buah manggis 10%, 15%, 20%) dan kelompok kontrol negatif (akuades). Ekstrak atau akuades dicampur dengan *brain heart infusion* dan diinkubasi pada suhu 37°C selama 2 jam. Bakteri diinokulasikan pada media *tryptone swim plates* 0,3% agar dan diinkubasi pada suhu 37°C selama 24 jam. Pengamatan dilakukan dengan mengukur radian pergerakan bakteri menggunakan *sliding caliper* dari titik inokulasi setelah pewarnaan *crystal violet* 0,1% dan dilakukan analisis statistik pada tingkat signifikansi 95%.

Hasil uji normalitas menunjukkan semua data terdistribusi normal tetapi tidak memiliki variansi yang homogen. Hasil uji *Kruskal-Wallis* menunjukkan bahwa ekstrak kulit buah manggis konsentrasi 10%, 15%, dan 20% berpengaruh menghambat motilitas *swimming* bakteri *P. aeruginosa* ATCC 10145. Disimpulkan bahwa ekstrak kulit buah manggis dapat menghambat motilitas *swimming* bakteri *P. aeruginosa* ATCC 10145 pada konsentrasi 10% serta menghentikan motilitas *swimming* pada konsentrasi 15% dan 20%.

Kata kunci: kulit manggis, motilitas *swimming*, *Pseudomonas aeruginosa*

ABSTRACT

Pseudomonas aeruginosa is an opportunistic pathogen that causes severe infections in immunocompromised patients. *Pseudomonas aeruginosa* has flagella which responsible for swimming motility. Pericarp of mangosteen (*Garcinia mangostana* L.) contains of flavonoid that has potential to release transduction energy for cytoplasm membrane and decrease Gram-positive bacterial motility. The aim of this study was to determine the effect of mangosteen pericarp extract on swimming motility of *P. aeruginosa* ATCC 10145.

MIC test with serial dilution and turbidimetry method was performed and showed that mangosteen pericarp extract 10% as the MIC concentration for *P. aeruginosa* ATCC 10145. Swimming motility test was performed on treatment (mangosteen pericarp extract concentration 10%, 15%, and 20%) and negative control group. Each tested materials were mixed with BHI and incubated at 37°C for 2 hours. Bacterial culture were inoculated into tryptone swim plates 0,3% agar and incubated at 37°C for 24 hours. Observation was done by measuring the radiant of bacterial swimming motility from the center of inoculation using a sliding caliper after staining with 0.1% crystal violet and statistical analysis conducted at 95% significant.

The result of normality test showed all treatment groups were distributed normally but the variances were inhomogeneous. The result of Kruskal-Wallis test showed that mangosteen pericarp extract concentration 10%, 15%, and 20% inhibit the swimming motility of *Pseudomonas aeruginosa* ATCC 10145. It is concluded that mangosteen pericarp extract has ability to decrease the swimming motility of *Pseudomonas aeruginosa* ATCC 10145 at concentration 10% and stops the swimming motility at concentration 15% and 20%.

Keywords: Pericarp of mangosteen, swimming motility, *Pseudomonas aeruginosa*