

ABSTRAK

Pseudomonas aeruginosa merupakan bakteri patogen oportunistik yang memiliki flagela dan pili tipe IV untuk motilitas *swarming*. Motilitas *swarming* merupakan salah satu faktor virulensi bakteri. Kulit buah manggis (*Garcinia mangostana* L.) mengandung flavonoid dan tanin yang diduga dapat menghambat motilitas bakteri. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak kulit buah manggis terhadap motilitas *swarming* *P. aeruginosa* ATCC 10145.

Uji MIC (*Minimum Inhibitory Concentration*) pada bakteri *Pseudomonas aeruginosa* ATCC 10145 menunjukkan hasil pada ekstrak kulit buah manggis konsentrasi 10%. Uji motilitas *swarming* dilakukan pada kelompok perlakuan ekstrak kulit buah manggis 10%, 15%, 20% dan kelompok kontrol negatif (akuades). Ekstrak atau pelarut ekstrak dicampur dengan BHI dan suspensi bakteri *P. aeruginosa* ATCC 10145 kemudian diinkubasi dalam *shaking waterbath* pada suhu 37°C selama 2 jam, selanjutnya diinokulasikan pada media bakto agar 0,5% dan diinkubasi pada suhu 37°C selama 72 jam. Radian pergerakan bakteri diukur dari titik inokulasi dengan menggunakan jangka sorong setelah pewarnaan *crystal violet* 0,1%. Data dianalisis menggunakan uji *One Way ANOVA* dan LSD ($p < 0,05$).

Hasil analisis *One Way ANOVA* menunjukkan perbedaan signifikan pada semua kelompok. Uji *Post-Hoc* menunjukkan perbedaan motilitas bakteri yang tidak signifikan antara konsentrasi 10% dengan 15%. Disimpulkan bahwa ekstrak kulit buah manggis 10%, 15%, dan 20% berpengaruh menghambat motilitas *swarming* *P. aeruginosa* ATCC 10145. Ekstrak kulit buah manggis 20% memiliki efek yang lebih besar dalam menghambat motilitas *swarming* bakteri *P. aeruginosa* ATCC 10145.

Kata Kunci : Kulit manggis, Motilitas *swarming*, *Pseudomonas aeruginosa*

ABSTRACT

Pseudomonas aeruginosa is an opportunistic pathogen bacteria. This bacteria has flagella and type IV pili that are responsible for swarming motility. Swarming motility is a primary factor of bacterial virulence. Pericarp of mangosteen (*Garcinia mangostana* L.) contains various components such as flavonoid and tannin were predicted to inhibit bacterial motility. The aim of this study was to determine the effect of mangosteen pericarp extract towards swarming motility of *Pseudomonas aeruginosa* ATCC 10145.

MIC (*Minimum Inhibitory Concentration*) was performed and showed 10% mangosteen pericarp extract as the MIC for *P. aeruginosa* ATCC 10145. Swarming motility test was studied on 10%, 15%, and 20% mangosteen pericarp extract-treated group. Aquadest was used as negative control. Tested materials were mixed together with BHI and suspension of *P. aeruginosa* ATCC 10145. Bacterial culture were incubated in shaking waterbath at 37°C for 2 hours and inoculated into 0,5% bacto agar, then the culture was incubated at 37°C for 72 hours. The radiant of bacterial movement was measured from the point of inoculation by using sliding caliper after 0,1% crystal violet staining. Data were analyzed by using One Way ANOVA and LSD test at the significance level of 0,05.

The result of One Way ANOVA analysis showed significant differences between groups. Post-Hoc test showed insignificant differences of bacteria motility between 10% and 15% extract-treated groups. The research concluded that 10%, 15%, and 20% pericarp mangosteen has ability to inhibit swarming motility of *P. aeruginosa* ATCC 10145, concentration of 20% caused highest inhibitory effect of swarming motility *P. aeruginosa* ATCC 10145.

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