ABSTRAK

Pseudomonas aeruginosa merupakan bakteri patogen oportunistik yang dapat bergerak secara *swarming* dengan menggunakan flagela dan pili tipe IV. *Swarming motility* merupakan salah satu faktor virulensi bakteri. Bunga *H. rosa-sinensis* (bunga sepatu) mengandung flavonoid dan tanin yang diduga dapat menghambat motilitas bakteri. Penelitian ini bertujuan untuk mengetahui pengaruh ekstrak bunga *H. rosa-sinensis* terhadap *swarming motility P. aeruginosa* ATCC 10145.

Uji MIC (*Minimum Inhibitory Concentration*) pada bakteri *P. aeruginosa* ATCC 10145 menunjukkan hasil MIC pada konsentrasi 4% dan MBC (*Minimum Bactericidal Concentration*) pada konsentrasi 8%. Uji *swarming motility* dilakukan pada kelompok perlakuan ekstrak konsentrasi 2%, 4%, dan kelompok kontrol negatif (akuades). Ekstrak atau akuades dicampur dengan media Luria-Bertani cair dan suspensi bakteri *P. aeruginosa* ATCC 10145, diinkubasi dengan menggunakan *shaking waterbath* pada suhu 37^0C selama 2 jam, kemudian diinokulasi pada media bakto agar 0,3% dan diinkubasi pada suhu 37^0C selama 72 jam. Radius pergerakan bakteri diukur dengan menggunakan *sliding caliper* dari titik inokulasi. Data dianalisis dengan menggunakan uji *One Way ANOVA* dan *Post Hoc LSD*.

Hasil analisis *One Way ANOVA* dan *Post Hoc LSD* menunjukkan terdapat perbedaan signifikan pada semua kelompok ($p<0,05$). Disimpulkan bahwa ekstrak bunga *H. rosa-sinensis* konsentrasi 2% dan 4% dapat menghambat *swarming motility P. aeruginosa* ATCC 10145. Ekstrak bunga konsentrasi 4% lebih efektif dalam menghambat *swarming motility P. aeruginosa* dibandingkan dengan konsentrasi 2%.

Kata Kunci : Bunga *Hibiscus rosa-sinensis, Swarming motility, Pseudomonas aeruginosa*

ABSTRACT

Pseudomonas aeruginosa is an opportunistic pathogenic bacteria which has flagella and type IV pili that responsible for swarming motility. Swarming motility is one of the bacterial virulence factors. Flower of hibiscus (*Hibiscus rosa-sinensis*) contain flavonoids and tannins may inhibit bacterial motility. This study aimed to determine the effect of hibiscus flower extract towards swarming motility of *Pseudomonas aeruginosa* ATCC 10145.

MIC test (Minimum Inhibitory Concentration) on *P. aeruginosa* ATCC 10145 showed MIC at concentration of 4% and MBC (Minimum Bactericidal Concentration) at concentration of 8%. Swarming motility test was carried out in the extract-treated group with concentration of 2% and 4%. Aquadest was used as negative control. The extract of hibiscus flowers were mixed with Luria-Bertani media and suspension of *P. aeruginosa* ATCC 10145, incubated using shaking waterbath at 37^0C for 2 hours, then inoculated onto 0,3% bacto agar and incubated at 37^0C for 72 hours. Radius of bacterial movement was measured using sliding caliper from the point of inoculation. Data were analyzed by using One Way ANOVA and Post Hoc LSD.

The results of the One Way ANOVA showed significant difference among groups ($p<0.05$). LSD test showed significant differences in all groups ($p<0.05$). It was concluded that 2% and 4% flower extracts of *H. rosa-sinensis* has ability to inhibit swarming motility of *P. aeruginosa* ATCC 10145. Flowers extracts of 4% were significantly more effective in inhibiting swarming motility of *P. aeruginosa* compared to extracts of 2%.

Keywords: Hibiscus flowers, Swarming motility, *Pseudomonas aeruginosa*