

## ABSTRAK

**Latar Belakang:** *Klebsiella pneumoniae* merupakan salah satu penyebab utama pneumonia nosokomial dan semakin sering ditemukan dalam bentuk resisten antibiotik. Hidrosol dari bunga sepatu (*Hibiscus rosa-sinensis* L.) diketahui mengandung berbagai senyawa fitokimia yang berpotensi sebagai antibakteri.

**Tujuan:** Menganalisis efek antibakteri Hidrosol bunga sepatu terhadap pertumbuhan *K. pneumoniae* melalui penentuan Konsentrasi Hambat Minimum (KHM), Konsentrasi Bunuh Minimum (KBM), zona hambat, dan jumlah koloni bakteri.

**Metode:** Penelitian eksperimental laboratorik dengan rancangan post-test only control group design. Hidrosol bunga sepatu diperoleh melalui metode distilasi uap-air dan diuji terhadap *K. pneumoniae* pada konsentrasi 100%, 75%, dan 50%. Pengujian dilakukan menggunakan metode dilusi cair untuk menentukan KHM dan KBM, metode difusi cakram untuk mengukur zona hambat, serta metode spread plate untuk menghitung jumlah koloni bakteri.

**Hasil:** Seluruh tabung pada uji KHM menunjukkan kekeruhan sehingga KHM tidak dapat ditentukan. Pada uji KBM masih ditemukan pertumbuhan bakteri pada seluruh konsentrasi Hidrosol. Pengujian zona hambat tidak menunjukkan terbentuknya daerah bening di sekitar cakram. Perhitungan jumlah koloni bakteri menunjukkan rerata sebesar  $4,102 \times 10^8$  CFU/mL.

**Kesimpulan:** Hidrosol bunga sepatu (*Hibiscus rosa-sinensis* L.) tidak menunjukkan aktivitas antibakteri terhadap *K. pneumoniae* pada konsentrasi yang digunakan dalam penelitian ini.

**Kata kunci:** *Hibiscus rosa-sinensis*, Hidrosol, *Klebsiella pneumoniae*, antibakteri, KHM, KBM.

## ABSTRACT

**Background:** *Klebsiella pneumoniae* is one of the leading causes of nosocomial pneumonia and is increasingly encountered in antibiotic-resistant forms. Hibiscus flower hydrosol (*Hibiscus rosa-sinensis* L.), a by-product of the distillation process, contains water-soluble volatile compounds that may possess antibacterial properties.

**Objective:** To evaluate the antibacterial effect of hibiscus flower hydrosol against *Klebsiella pneumoniae* by determining the Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC), inhibition zone diameter, and bacterial colony count.

**Methods:** This laboratory experimental study employed a post-test only control group design. Hibiscus flower hydrosol was obtained through steam-water distillation and tested against *K. pneumoniae* at concentrations of 100%, 75%, and 50%. Antibacterial activity was assessed using the broth dilution method to determine MIC and MBC, the disk diffusion method to measure inhibition zones, and the spread plate method to quantify bacterial colonies.

**Results:** All tubes in the MIC assay showed turbidity, preventing determination of the MIC value. In the MBC assay, bacterial growth was observed at all tested concentrations of the hydrosol. The disk diffusion test showed no inhibition zones around the discs. The bacterial colony count revealed a mean value of  $4.102 \times 10^8$  CFU/mL.

**Conclusion:** Hibiscus flower hydrosol (*Hibiscus rosa-sinensis* L.) did not exhibit antibacterial activity against *Klebsiella pneumoniae* at the concentrations tested in this study.

**Keywords:** *Hibiscus rosa-sinensis*, hydrosol, *Klebsiella pneumoniae*, antibacterial activity, Minimum Inhibitory Concentration (MIC), Minimum Bactericidal Concentration (MBC).