Pseudomonas aeruginosa BACTERIAL SENSITIVITY TEST AGAINST CINNAMON ESSENTIAL OIL (*Cinnamomum burmanni*)

Maschlukhah Santi Saksina[1], Anik Nuryati[2], Dian Rahayu Perwita Sari[3]
[1,2,3]Department of Medical Laboratory Technology
Poltekkes Kemenkes Yogyakarta
Jl. Ngadinegaran MJ III/62 Yogyakarta, 55143 Telp. (0274) 374200/375228
email : maschlukhahsanti.17saksina@gmail.com

ABSTRACK

Background : *Pseudomonas aeruginosa* is a pathogen bacterial that cause nosocomial infections, the cases in Indonesia is high enough. A small percentage *Pseudomonas aeruginosa* in the human body is a normal intestinal and skin floral of human. Antibiotic is using continually can causes the increase of bacterial resistance for antibiotic. Cinnamon (*Cinnamomum burmanni*) is a herbal plant that has benefits for analgesic, stomatic, and aromatic, but also has benefits for antibacterial because contained *sinnamaldehid* (60,72 %), eugenol (17,62 %) and cumarin (13,39%).

Objective : The purpose of this research is to know the sensitivity, inhibition zone diameter average and concentration of cinnamon essensial oil (*Cinnamomum burmanni*) which has the best effect in the inhibit of *Pseudomonas aeruginosa* bacteria growth

Methode : This research is experimental laboratory with post test only control group design. 24- hour *Pseudomonas aeruginosa* were used as the research subjects which had been inoculated on MHA media and given essensial oils in various concentration of 0,5 %, 1,0 %, 1,5 %, 2,0 %. The plate was incubation for 24 hour and the inhibitory diameter zone formed was measured. This research was done in April 2020. The data was analyzed by one way anova test the continued by post hoc LSD test.

Result : The result of inhibitory diameter zone of *Pseudomonas aeruginosa* in each concentration 0,5 %; 1,0 %; 1,5 %; 2,0 % is 9,09 mm; 8,54 mm; 10,38 mm; 12,63 mm. The result of statistical analysis shower that cinnamon essensial oil has the sensitivity as an antibacterial against *Pseudomonas aeruginosa* growth.

Conclution : *Pseudomonas aeruginosa* bacteria sensitive to cinnamon essensial oil an inhibitory diameter zone of 0,5 % concentration by 9,09 mm; 1,0 % as big as 8,54 mm; 1,5% as big as 10,38 mm; 2,0% as big as 12,63 mm. 2,0% concentration is the best concentration in inhibiting *Pseudomonas aeruginosa* growth

Keywords : Sensitivity, *Pseudomonas aeruginosa*, Cinnamon essensial oil, antibacterial

UJI SENSITIVITAS BAKTERI *Pseudomonas aeruginosa* TERHADAP MINYAK ATSIRI KAYU MANIS (*Cinnamomum burmanni*)

Maschlukhah Santi Saksina[1], Anik Nuryati[2], Dian Rahayu Perwita Sari[3]
[1,2,3]Jurusan Teknologi Laboratorium Medis
Poltekkes Kemenkes Yogyakarta
Jl. Ngadinegaran MJ III/62 Yogyakarta, 55143 Telp. (0274) 374200/375228
email : maschlukhahsanti.17saksina@gmail.com

ABSTRAK

Latar Belakang: *Pseudomonas aeruginosa* merupakan bakteri patogen penyebab penyakit infeksi nosokomial, angka kejadiaannya cukup tinggi di Indonesia. Sebagian kecil bakteri *Pseudomonas aeruginosa* dalam tubuh manusia merupakan flora normal usus dan kulit manusia. Antibiotik yang digunakan secara terus menerus dapat menyebabkan peningkatan resistensi bakteri terhadap antibiotik. Kayu manis (*Cinnamomum burmanni*) merupakan tanaman tradisional yang memiliki manfaat sebagai analgesik, stomatik dan aromatik, namun juga memiliki manfaat sebagai antibakteri karena mengandung *sinnamaldehid* (60,72 %), eugenol (17,62 %) dan kumarin (13,39 %).

Tujuan: Mengetahui sensitivitas, rata–rata diameter zona hambat dan konsentrasi minyak atsiri kayu manis (*Cinnamomum burmanni*) yang memiliki pengaruh terbaik dalam menghambat pertumbuhan bakteri *Pseudomonas aeruginosa*.

Metode: Penelitian ini adalah eksperimen murni dengan menggunakan rancangan *post test only control group design*. Subyek penelitian adalah bakteri *Pseudomonas aeruginosa* yang berumur 24 jam yang telah diinokulasi pada media MHA dan diberi cakram disk berbagai konsentrasi minyak atsiri kayu manis 0,5 %, 1,0 %, 1,5%, 2,0 %. Media diinkubasi selama 24 jam dan diameter zona hambat diukur dengan jangka sorong. Penelitian ini dilaksanakan pada bulan April 2020. Analisis data menggunakan *one way anova* dilanjutkan uji *post hoc LSD*.

Hasil: Rata – rata hasil diameter zona hambat bakteri *Pseudomonas aeruginosa* pada masing – masing konsentrasi 0,5 %; 1,0 %; 1,5 %; 2,0 % adalah 9,09 mm; 8,54 mm; 10,38 mm; 12,63 mm. Hasil analisis statistik menunjukkan ada perbedaan rerata diameter zona hambat pada berbagai konsentrasi minyak atsiri kayu manis terhadapa pertumbuhan bakteri *Pseudomonas aeruginosa*.

Kesimpulan: Bakteri *Pseudomonas aeruginosa* sensitif terhadap minyak atsiri kayu manis (*Cinnamomum burmanni*), dengan rerata diameter zona hambat konsentrasi 0,5 % sebesar 9,09 mm; 1,0 % sebesar 8,54 mm; 1,5 % sebesar 10,38 mm; 2,0 % sebesar 12,63 mm. Konsentrasi 2,0% merupakan konsentrasi terbaik dalam menghambat pertumbuhan *Pseudomonas aeruginosa*.

Kata Kunci: Sensitivitas, *Pseudomonas aeruginosa*, minyak atsiri kayu manis, antibakteri