

ABSTRAK

Ramakrishnan. Sandhya. 2013. **Uji Potensi Ekstrak Ethanol Lada Hitam (*Piper nigrum*) Sebagai Insektisida Terhadap Kecoa (*Periplaneta sp.*) Dengan Metode Semprot** Tugas Akhir, Fakultas Kedokteran Universitas Brawijaya. Dosen pembimbing: (1) dr.Sudjari, DTM&H, MSi, SpParK (2) dr. Ngesti Lestari, SH, SpF .

Kecoa *Periplaneta sp.* dipilih karena merupakan salah satu genus kecoa yang menjadi vektor mekanis untuk beberapa penyakit seperti *Diare*, *Disentri*, *Polio*, *Hepatitis A*, dan *Cholera*. Insektisida kimiawi memiliki efektivitas tinggi dalam membunuh kecoa tetapi juga memiliki efek samping yang merugikan terhadap manusia dan lingkungan. Oleh karena itu sebaiknya digunakan insektisida alami seperti lada hitam (*Piper nigrum*) karena bersifat mudah terurai sehingga penggunaannya relatif aman. *Piper nigrum* diduga mengandung *piperine* dan *monoterpenoid*. Zat-zat ini diduga mempunyai efek insektisida. Penelitian ini bertujuan untuk menguji potensi ekstrak ethanol lada hitam sebagai insektisida terhadap kecoa *Periplaneta sp.* Penelitian ini merupakan 'penelitian *true experimental-post test only control group design*' dengan sampel yang digunakan adalah kecoa *Periplaneta sp.* Pengulangan dilakukan sebanyak empat kali dengan jumlah perlakuan sebanyak lima jenis yaitu kontrol negatif (aseton 1%), konsentrasi larutan ekstrak lada hitam sebesar 30%, 40% dan 50% dan kontrol positif. Setiap perlakuan diamati pada tujuh interval waktu yaitu pada jam 1, jam 2, jam 3, jam 4, jam 5, jam 6, dan jam 24. Hasil penelitian menunjukkan bahwa pada konsentrasi 40% dan 50%, pada waktu 24 jam, 100% kecoa mati. Didapatkan perbedaan yang signifikan dan bermakna antara konsentrasi 30%, 40% dan 50%. Hasil uji korelasi *Pearson* konsentrasi terhadap Abbot menunjukkan nilai signifikansi (*P-value*) = 0.000 ($p < 0.05$) dan koefisien korelasi (*r-value*) = 0.544. yang berarti korelasinya berbanding lurus, yang artinya semakin besar konsentrasi ekstrak, maka semakin besar jumlah kecoa yang mati. Kesimpulan dari penelitian ini adalah ekstrak lada hitam (*Piper nigrum*) mempunyai potensi sebagai insektisida terhadap kecoa *Periplaneta sp.* dan semakin besar konsentrasi dan semakin lama waktu paparan maka potensi insektisida semakin besar.

Kata kunci : ekstrak lada hitam, *Piper nigrum*, insektisida, *semprot*, *Periplaneta sp.*

ABSTRACT

Ramakrishnan. Sandhya. 2013. **The Potential Effect Of *Piper nigrum* black pepper Ethanol Extract On Cockroach (*Periplaneta sp.*) as a Insecticide Using Spraying Method.** Final Assignment, Faculty Of Medicine, Brawijaya University. Supervisors: (1) dr.Sudjari, DTM&H, MSi, SpPark (2) dr. Ngesti Lestari, SH, SpF .

Periplaneta sp. was chosen as the specimen for this study because it serves as an important mechanical vector for many diseases endemic in the developing world such as Diarrhea, Dysentery, Polio, Hepatitis A, as well as Cholera. Manmade chemical insecticides have proven to be highly effective in eradicating this pest but its negative effects upon human health and environmental safety are major drawbacks to its continued use. Hence, the search for alternative, natural substances such as *Piper nigrum*, that are both environmentally safe as well as being effective insecticides. The extract of *P.nigrum* is known to contain high concentrations of *piperine* and *monoterpenoid*. These substances are thought to have insecticidal properties. This study aims to identify the potency of *P.nigrum* ethanol extract against *Periplaneta sp.* cockroaches using a contact poison method. A true experimental study was conducted, using specimens of *Periplaneta sp.* at three concentrations of *P.nigrum* extract; 30%, 40%, 50%, with 1 negative control using aseton 1%, and also 1 positive control using 0.28% *Malathion*. The experiment was repeated four times and each repetition was observed at seven time intervals (1st hour, 2nd hour, 3rd hour, 4th hour, 5th hour, 6th hour and 24th hour). The results show that at the concentration of 40% and 50%, 100% of *Periplaneta sp.* specimens die within 24 hours. There is a significant and relevant difference between the results of the study at each concentration of the extract. A *Pearson correlation* analysis of extract concentration against the *Abbot* value shows a significant *P-value* = 0.00 ($p < 0.05$) and a correlation coefficient (*r-value*) of 0.544. The *r-value* indicates there is a strong and linear correlation between increasing concentration of extract and increasing *Abbot* value (increasing potency of insecticide). We can conclude from this study that *Piper nigrum* is a potent and effective insecticide as there is a strong and clear correlation between increasing concentration and potency of insecticidal effects.

Keywords : *Piper nigrum* extract, insecticide, spraying, *Periplaneta sp.*