The Effectiveness of Clove Leaf Filtrate (Syzygium aromaticum) as a Repellent Against House Flies (Musca domestica) with the Space Spraying Method

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ABSTRACT

The house fly is a mechanical vector for spreading disease. The presence of flies is very disturbing human activities because it can cause diseases such as diarrhea, dysentery, and cholera. Controlling flies using chemical repellents continuously results in resistance to flies and has a negative impact on the environment. Another alternative as a bio-repellent is from clove leaves. The content of clove leaves that function as a repellent against house flies, namely: essential oils of eugenol, saponins, and flavonoids. The phytochemical results of clove leaves contain 0.72% Eugenol, 0.041% Saponin, and 0.021% Flavonoid. The purpose of this study was to analyze the effectiveness of clove leaf filtrate as a vegetable repellent against house flies.

The space spraying method was carried out with an air diffuser containing clove leaf filtrate and exposed for 6 hours. This type of study uses a simple quasi-experiment with a post test only control group design. The study was conducted at the Environmental Health Entomology Laboratory of the Health Ministry of Health, Surabaya. The study used clove leaf concentrations of 10%, 15%, 20%, aquadest control, and was replicated 6 times. The number of house flies used in each treatment was 25, so a total of 600 house flies.

The results of this study that the average flies that refused bait on the control was 28%, the concentration of 10% was 61.3%, the concentration of 15% was 84%, and the concentration of 20% was 91.3%. The results of the One Way Anova test, stated the Asymp.sig value of 0.000 <0.05, which means that there is a difference in the average number of house flies that refuse bait near the air diffuser.

The conclusion of this study is that clove leaf filtrate (Syzygium aromaticum) is effective as a repellent for house flies (Musca domestica). Further researchers are advised to use test insects or other methods to determine their effectiveness.

Keywords: *Syzygium aromaticum, Musca domestica, Repellent*

Efektivitas Filtrat Daun Cengkeh (*Syzygium aromaticum*) sebagai *Repellent* Terhadap Lalat Rumah (*Musca domestica*) dengan Metode *Space Spraying*

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ABSTRAK

Lalat rumah merupakan vektor penyebaran penyakit secara mekanis. Keberadaan lalat sangat mengganggu aktivitas manusia karena dapat menyebabkan penyakit seperti diare, disentri, dan kolera. Pengendalian lalat menggunakan *repellent* kimia secara terus-menerus mengakibatkan resistensi pada lalat dan berdampak buruk pada lingkungan. Alternatif lain sebagai *repellent* nabati yaitu dari daun cengkeh. Kandungan daun cengkeh yang berfungsi sebagai penolak terhadap lalat rumah yaitu: minyak atsiri jenis eugenol, saponin, dan flavonoid. Hasil fitokimia daun cengkeh memiliki kandungan Eugenol 0,72%, Saponin 0,041%, dan Flavonoid 0,021%. Tujuan penelitian ini adalah menganalisis efektivitas filtrat daun cengkeh sebagai *repellent* nabati terhadap lalat rumah.

Metode *space spraying* dilakukan dengan *air diffuser* berisi filtrat daun cengkeh dan dipaparkan selama 6 jam. Jenis penelitian menggunakan eksperimen semu sederhana dengan *post test only control grup design*. Penelitian dilakukan di Laboratorium Entomologi Kesehatan Lingkungan Poltekkes Kemenkes Surabaya. Penelitian menggunakan daun cengkeh konsentrasi 10%, 15%, 20%, kontrol aquades, dan dilakukan 6 kali replikasi. Jumlah lalat rumah yang digunakan setiap perlakuan adalah 25 ekor, sehingga total lalat rumah sebanyak 600 ekor.

Hasil penelitian ini rata-rata lalat yang menolak umpan pada kontrol adalah 28%, konsentrasi 10% adalah 61,3%, konsentrasi 15% adalah 84%, dan konsentrasi 20% adalah 91,3%. Hasil uji *One Way Anova*, menyatakan nilai *Asymp.sig* 0,000 < 0,05 yang berarti ada perbedaan rata-rata jumlah lalat rumah yang menolak umpan di dekat *air diffuser*.

Kesimpulan dari penelitian ini adalah filtrat daun cengkeh (*Syzygium aromaticum*) efektif sebagai *repellent* lalat rumah (*Musca domestica*). Peneliti selanjutnya disarankan untuk menggunakan serangga uji maupun metode yang lain untuk mengetahui efektivitasnya.

Kata Kunci: *Syzygium aromaticum*, *Musca domestica*, *repellent*