

INTISARI

AKTIVITAS LARVASIDA EKSTRAK LAVENDER (*Lavandula angustifolia*) DAN DAUN CENGIH (*Syzygium aromaticum*) TERHADAP LARVA *Musca domestica* DENGAN METODE INDIRECT CONTACT TOXICITY

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Musca domestica atau lalat rumah merupakan hama kosmpolitan yang dapat menyebarkan patogen dalam dunia kesehatan manusia dan hewan. Larva lalat rumah dapat menimbulkan kerugian berupa infestasi larva. Larvasida alami dapat digunakan untuk menghindari efek negatif penggunaan larvasida kimia. Larvasida alami dapat diperoleh dengan memanfaatkan *medicinal and aromatic plants* (MAP) berupa lavender dan daun cengkih. Penelitian ini bertujuan untuk mengetahui efek lavender dan daun cengkih terhadap larva *Musca domestica* dalam bentuk sediaan ekstrak kental dengan konsentrasi 12,5%; 25%; dan 50%. Ekstrak dibuat menggunakan metode maserasi dengan pelarut etanol 70% untuk bahan lavender dan etanol 96% untuk bahan daun cengkih. Nilai rendemen ekstrak dihitung dan diperoleh hasil 19,94% untuk ekstrak lavender dan 10,78% untuk ekstrak daun cengkih. Ekstrak lavender dan daun cengkih mengandung senyawa fenolik, flavonoid, tanin, terpenoid, dan alkaloid berdasarkan skrining fitokimia. Ekstrak diuji pada larva *Musca domestica* instar ketiga hingga 72 jam dengan metode *indirect contact toxicity*. Metode *indirect contact toxicity* dilakukan dengan mengoleskan ekstrak pada kertas saring yang diletakkan pada wadah plastik kemudian dikeringkan dengan suhu ruang. Sebanyak 20 larva per perlakuan diletakkan di atas kertas saring. Setiap perlakuan dilakukan tiga kali pengulangan. *Chlorpyrifos* 1% digunakan sebagai kontrol positif dan akuades sebagai kontrol negatif. Efek yang ditimbulkan oleh ekstrak yaitu terjadi kematian larva. Analisis data dilakukan dengan menghitung rata-rata persentase mortalitas larva, uji non parametrik *Kruskal wallis*, dan analisis probit. Hasil pengujian menunjukkan adanya aktivitas larvasida ekstrak etanol 70% lavender konsentrasi 25% dan 50% serta ekstrak etanol 96% daun cengkih konsentrasi 12,5%; 25%; dan 50%. Hasil uji *Kruskal wallis* diperoleh hasil signifikan pada keseluruhan data (*Sig. p*<0.05). Hasil penghitungan LC₅₀ ekstrak daun cengkih sebesar 44,689% dan penghitungan LC₅₀ ekstrak lavender sebesar 67,575%. Ekstrak lavender dan daun cengkih memiliki aktivitas larvasida, dengan aktivitas yang lebih tinggi pada ekstrak daun cengkih.

Kata kunci: Cengkih, larvasida, lavender, *Musca domestica*, toxicity.

ABSTRACT

LARVICIDAL ACTIVITY OF LAVENDER EXTRACT (*Lavandula angustifolia*) AND CLOVE LEAVES (*Syzygium aromaticum*) ON THE *Musca domestica* LARVAE USING THE INDIRECT CONTACT TOXICITY METHOD

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Musca domestica, or the housefly, is a cosmopolitan pest that can spread pathogens in human and animal. Housefly larvae can cause damage in the form of larval infestation. Natural larvicides can be used to avoid the negative effects of chemical larvicides. Natural larvicides can be obtained by utilizing medicinal and aromatic plants (MAP) such as lavender and clove leaves. This study aims to determine the effects of lavender and clove leaves on *Musca domestica* larvae in the form of concentrated extracts at concentrations of 12.5%, 25%, and 50%. The extracts were prepared using the maceration method with 70% ethanol as the solvent for lavender and 96% ethanol for clove leaves. The extraction yield was calculated, resulting in 19.94% for lavender extract and 10.78% for clove leaf extract. Lavender and clove leaf extracts contain phenolic, flavonoids, tannins, terpenoids, and alkaloids compounds based on phytochemical screening. The extracts were tested on third-instar *Musca domestica* larvae for up to 72 hours using the indirect contact toxicity method. The indirect contact toxicity method was performed by applying the extract on filter paper that placed in a plastic container and then dried at room temperature. Twenty larvae per treatment were placed on the filter paper. Each treatment was repeated three times. Chlorpyrifos 1% was used as the positive control, and aquadest as the negative control. The effect of the extracts was larval mortality. Data analysis was performed by calculating the average percentage of larval mortality, the non-parametric *Kruskal-Wallis* test, and probit analysis. The results showed that the 70% ethanol extract of lavender at concentrations of 25% and 50% and the 96% ethanol extract of clove leaves at concentrations of 12.5%, 25%, and 50% had larvicidal activity. The *Kruskal-Wallis* test yielded significant results for the entire dataset (Sig. $p < 0.05$). The LC_{50} calculation for clove leaf extract was 44.689%, and the LC_{50} calculation for lavender extract was 67.575%. Both lavender and clove leaf extracts exhibit larvicidal activity, with higher activity observed in clove leaf extract.

Key words: clove, larvicide, lavender, *Musca domestica*, toxicity.