

THE EFFECTIVENESS OF CITRONELLA OIL AS A DISINFECTANT IN REDUCING THE NUMBER OF ROOM AIR GERMS AT THE GAMPING II HEALTH CENTER

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ABSTRACT

Background: The air in health facilities such as health centers has the potential to be a medium for transmission of nosocomial infections due to microorganism contamination. Air quality control can be done through disinfection. Citronella essential oil contains antibacterial compounds such as citronelal, geraniol, and citronelol, so it has the potential to be a safe and environmentally friendly natural disinfectant. This study aims to determine the effectiveness of 10% citronella essential oil in reducing the number of air germs with an exposure time of 30, 60, and 90 minutes.

Objective: To determine the effectiveness of Citronella Oil as a Disinfectant in reducing the Number of Air Germs in the Room of the Gamping II Health Center, Yogyakarta

Method: This study is a pseudo-experiment with a Pretest-Posttest with Control Group design. The research was carried out in March 2025 at the Gamping II Health Center with samples of room air germs. Data analysis was conducted using paired t-test.

Results: The results showed that the average decrease in the number of air germs at 30 minutes of exposure was 796 CFU/m³ (37.90%), 60 minutes of 1,225 CFU/m³ (57.37%), and 90 minutes of 1,450 CFU/m³ (64.72%). The control group showed an average decrease of 38 CFU/m³. The results of the Paired t-test showed a significant difference between before and after treatment ($p < 0.05$). ANOVA and LSD tests showed that there was an effect of exposure time on the reduction of airborne germ counts, with significant differences between the 60 and 90 minute groups compared to controls.

Conclusion: Citronella essential oil is effective in reducing the number of air germs, with the highest effectiveness at 90 minutes of exposure.

Keywords : Lemongrass Essential Oil, Air Germs, Natural Disinfectants

EFEKTIVITAS MINYAK ATSIRI SERAI WANGI (*Citronella Oil*) SEBAGAI DISINFECTAN DALAM MENURUNKAN ANGKA KUMAN UDARA RUANGAN DI PUSKESMAS GAMPING II

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INTISARI

Latar Belakang : Udara di fasilitas kesehatan seperti Puskesmas berpotensi menjadi media penularan infeksi nosokomial akibat kontaminasi mikroorganisme. Pengendalian kualitas udara dapat dilakukan melalui disinfeksi. Minyak atsiri serai wangi mengandung senyawa antibakteri seperti sitronelal, geraniol, dan sitronelol, sehingga berpotensi sebagai disinfektan alami yang aman dan ramah lingkungan. Penelitian ini bertujuan untuk mengetahui efektivitas minyak atsiri serai wangi 10% dalam menurunkan angka kuman udara dengan waktu paparan 30, 60, dan 90 menit.

Tujuan : Mengetahui efektivitas Minyak Atsiri Serai Wangi (*Citronella oil*) Sebagai Disinfektan dalam menurunkan Angka Kuman Udara di Ruangan Puskesmas Gamping II, Yogyakarta

Metode : Penelitian ini merupakan eksperimen semu dengan desain *Pretest-Posttest with Control Group*. Penelitian dilaksanakan pada bulan Maret 2025 di Puskesmas Gamping II dengan sampel kuman udara ruangan. Analisis data menggunakan *paired t-test*.

Hasil : Hasil penelitian menunjukkan bahwa rata-rata penurunan angka kuman udara pada waktu paparan 30 menit sebesar 796 CFU/m³ (37,90%), 60 menit sebesar 1.225 CFU/m³ (57,37%), dan 90 menit sebesar 1.450 CFU/m³ (64,72%). Kelompok kontrol menunjukkan rata-rata penurunan sebesar 38 CFU/m³. Hasil uji *Paired t-test* menunjukkan perbedaan signifikan antara sebelum dan sesudah perlakuan ($p < 0,05$). Uji ANOVA dan LSD menunjukkan bahwa terdapat pengaruh waktu paparan terhadap penurunan angka kuman udara, dengan perbedaan signifikan antara kelompok 60 dan 90 menit dibandingkan kontrol.

Kesimpulan : Minyak atsiri serai wangi efektif menurunkan angka kuman udara, dengan efektivitas tertinggi pada waktu paparan 90 menit.

Kata Kunci : Minyak Atsiri Serai Wangi, Kuman Udara, Disinfektan alami