

**FORMULASI DAN EVALUASI SEDIAAN *HAND SANITIZER SPRAY*
FERMENTASI KOMBUCHA SARI BUAH NANAS (*Ananas comosus* L.)
SEBAGAI ANTIBAKTERI**

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ABSTRAK

Hand sanitizer spray berbahan dasar alami menjadi alternatif penting untuk mendukung kebersihan tangan. Kombucha dan sari buah nanas mengandung senyawa bioaktif yang berpotensi sebagai antibakteri dan dapat diformulasikan sebagai bahan aktif dalam sediaan *hand sanitizer* alami. Penelitian ini bertujuan untuk merumuskan dan mengevaluasi sediaan *hand sanitizer spray* berbahan aktif fermentasi kombucha dan sari buah nanas. Tujuh formula (F1–F7) dibuat dan diuji secara organoleptik, pH, viskositas, homogenitas, waktu kering, serta stabilitas melalui metode *freeze and thaw* selama 3 siklus. Evaluasi aktivitas antibakteri terhadap *Staphylococcus aureus* dilakukan menggunakan metode difusi cakram. Data dianalisis menggunakan uji ANOVA dan *Games-Howell*. Hasil menunjukkan bahwa formula F7 merupakan formula terbaik dengan kestabilan fisik dan kimia yang baik, pH normal, viskositas sesuai standar *spray*, serta tidak mengalami perubahan signifikan selama uji stabilitas ($p > 0,05$). Zona hambat aktivitas antibakteri F7 menunjukkan kategori kuat (10,3 mm) membuktikan efektivitas kombinasi kombucha dan sari buah nanas sebagai antibakteri alami.

Kata kunci: *hand sanitizer spray*, kombucha, sari nanas, *Staphylococcus aureus*

**FORMULATION AND EVALUATION OF HAND SANITIZER SPRAY
MADE FROM FERMENTED KOMBUCHA AND PINEAPPLE JUICE
(*Ananas comosus* L.) AS AN ANTIBACTERIAL AGENT**

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ABSTRACT

Natural-based hand sanitizer spray is an important alternative for supporting hand hygiene. Kombucha and pineapple juice contain bioactive compounds that have potential as antibacterial agents and can be formulated as active ingredients in natural hand sanitizer formulations. This study aims to formulate and evaluate hand sanitizer spray formulations using fermented kombucha and pineapple juice as active ingredients. Seven formulations (F1–F7) were created and tested for organoleptic properties, pH, viscosity, homogeneity, drying time, and stability using the freeze-thaw method over three cycles. Antibacterial activity against *Staphylococcus aureus* was evaluated using the disk diffusion method. Data were analyzed using ANOVA and Games-Howell tests. Results showed that formula F7 was the best formula with good physical and chemical stability, normal pH, viscosity meeting spray standards, and no significant changes during stability testing ($p>0.05$). The antibacterial activity inhibition zone of F7 showed a strong category (10.3 mm), proving the effectiveness of the combination of kombucha and pineapple juice as a natural antibacterial agent.

Keywords: hand sanitizer spray, kombucha, pineapple juice, *Staphylococcus aureus*