

ABSTRAK

FORMULASI NANOKRIM MINYAK ATSIRI KAYU MANIS (*Cinnamomum burmannii*) DENGAN KOMBINASI SURFAKTAN TWEEN 80 DAN SPAN 80 SEBAGAI ANTIJerAWAT TERHADAP *Staphylococcus epidermidis*

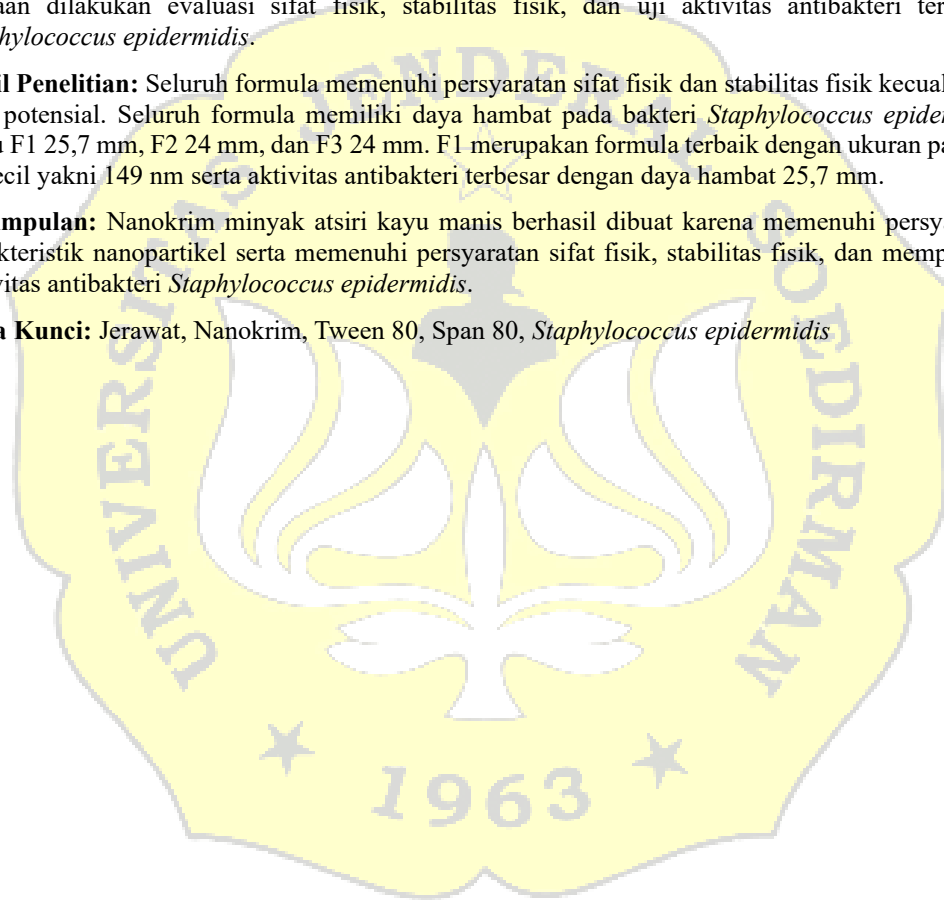
Latar Belakang: Infeksi bakteri *Staphylococcus epidermidis* menjadi salah satu penyebab jerawat. Kandungan sinamaldehida dalam minyak atsiri kayu manis terbukti memiliki aktivitas antibakteri yang kuat, akan tetapi memiliki kelarutan yang rendah dalam air, mudah terdegradasi, dan mudah teroksidasi. Nanokrim cukup efektif untuk mengatasi hal tersebut. Penelitian ini bertujuan untuk mengetahui sifat fisik, stabilitas fisik, dan aktivitas antibakteri nanokrim minyak atsiri kayu manis dengan kombinasi surfaktan Tween 80 dan Span 80.

Metodologi: Formulasi nanokrim dengan variasi konsentrasi surfaktan Tween 80 dan Span 80: F1 (10%), F2 (20%), F3 (30%) dibuat dengan metode *high-shear stirring* menggunakan *mixer*. Seluruh sediaan dilakukan evaluasi sifat fisik, stabilitas fisik, dan uji aktivitas antibakteri terhadap *Staphylococcus epidermidis*.

Hasil Penelitian: Seluruh formula memenuhi persyaratan sifat fisik dan stabilitas fisik kecuali nilai zeta potensial. Seluruh formula memiliki daya hambat pada bakteri *Staphylococcus epidermidis* yaitu F1 25,7 mm, F2 24 mm, dan F3 24 mm. F1 merupakan formula terbaik dengan ukuran partikel terkecil yakni 149 nm serta aktivitas antibakteri terbesar dengan daya hambat 25,7 mm.

Kesimpulan: Nanokrim minyak atsiri kayu manis berhasil dibuat karena memenuhi persyaratan karakteristik nanopartikel serta memenuhi persyaratan sifat fisik, stabilitas fisik, dan mempunyai aktivitas antibakteri *Staphylococcus epidermidis*.

Kata Kunci: Jerawat, Nanokrim, Tween 80, Span 80, *Staphylococcus epidermidis*



ABSTRACT

FORMULATION OF CINNAMOMUM ESSENTIAL OIL (*Cinnamomum burmannii*) NANOCREAM USING SURFACTANTS COMBINATION OF TWEEN 80 AND SPAN 80 AS ANTIACNE ACTIVITY AGAINST *Staphylococcus epidermidis*

Background: *Staphylococcus epidermidis* bacterial infection is one of the causes of acne. The cinnamaldehyde content in cinnamon essential oil has been proven to have strong antibacterial activity, however, it has low solubility in water, is easily degraded, and is easily oxidized. Nanocream is quite effective in overcoming this. This research aims to determine the physical properties, physical stability and antibacterial activity of cinnamon essential oil nanocream with a combination of Tween 80 and Span 80 surfactants.

Methods: Nanocream formulations with varying concentrations of Tween 80 and Span 80 surfactants: F1 (10%), F2 (20%), F3 (30%) were prepared using the high-shear stirring method using a mixer. All preparations were evaluated for physical properties, physical stability, and antibacterial activity against *Staphylococcus epidermidis*.

Results: All formulas meet the requirements for physical properties and physical stability except the zeta potential value. All formulas have inhibitory results on *Staphylococcus epidermidis* bacteria were F1 25,7 mm, F2 24 mm, and F3 24 mm. F1 is the best formula with the smallest particle size of 149 nm and the greatest antibacterial activity with an inhibitory result of 25,7 mm.

Conclusion: Cinnamon essential oil nanocream was successfully formulated because it met the requirements for nanoparticle characteristics and met the requirements for physical properties, physical stability, and had antibacterial activity against *Staphylococcus epidermidis*.

Keywords: Acne, Nanocream, Tween 80, Span 80, *Staphylococcus epidermidis*

