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**FORMULASI DAN MUTU FISIK GEL EKSTRAK BUNGA CENGKEH
(*Syzygium Aromaticum*) SEBAGAI AGEN ANTI-INFLAMASI SECARA IN
VIVO**

ABSTRAK

Latar Belakang: Inflamasi merupakan respons imun tubuh terhadap cedera atau infeksi yang ditandai dengan pembengkakan, nyeri, dan kemerahan. Bunga cengkeh (*Syzygium aromaticum*) diketahui mengandung senyawa flavonoid yang memiliki aktivitas antiinflamasi. Penelitian ini bertujuan untuk memformulasikan sediaan gel dari ekstrak bunga cengkeh dan mengevaluasi mutu fisik serta antiinflamasi secara in vivo.

Metode: Ekstrak bunga cengkeh diperoleh melalui metode maserasi dengan pelarut etanol 96%. Sediaan gel diformulasikan dalam tiga variasi konsentrasi ekstrak (2%, 2,5%, dan 3%), Evaluasi dilakukan terhadap karakteristik fisik sediaan (organoleptik, pH, homogenitas, daya sebar, daya lekat, dan viskositas), serta uji aktivitas antiinflamasi secara in vivo menggunakan model induksi karagenan pada kaki mencit jantan galur Balb/c. Analisis data menggunakan uji Anova

Hasil: Hasil mutu fisik sediaan gel, (pH $4,09 \pm 0,06 - 4,29 \pm 0,10$), viskositas ($24,900 \pm 2,08 - 32,950 \pm 1,42$), daya sebar ($5,28 \pm 0,21 - 5,30 \pm 0,29$), daya lekat ($1,21 \pm 0,13 - 1,30 \pm 0,08$), semua sediaan homogen gel F1, F2, F3 memiliki aktifitas untuk penghambatan edema selama 6 jam sebesar 3%, 4%, dan 5%.

Kesimpulan : Gel ekstrak bunga cengkeh memenuhi persyaratan dengan konsentrasi 3% paling efektif untuk menghambat edem.

Kata Kunci: Bunga cengkeh, Gel bunga cengkeh, Anti-inflamasi, Mutu Fisik, Flavonoid

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FORMULATION AND ACTIVITY TEST OF CLOVE FLOWER (*Syzygium Aromaticum*) EXTRACT GEL AS AN ANTI-INFLAMMATORY AGENT IN VIVO

ABSTRACT

Background: Inflammation is the body's immune response to injury or infection, characterized by swelling, pain, and redness. Cloves (*Syzygium aromaticum*) are known to contain flavonoid compounds that have anti-inflammatory activity. This study aimed to formulate a gel preparation from clove flower extract and evaluate its physical and anti-inflammatory properties in vivo.

Methods: Clove flower extract was obtained through a maceration method with 96% ethanol as a solvent. The gel preparation was formulated in three extract concentration variations (2%, 2.5%, and 3%). Evaluations were conducted on the physical characteristics of the preparation (organoleptic, pH, homogeneity, spreadability, adhesiveness, and viscosity), as well as an in vivo anti-inflammatory activity test using a carrageenan-induced model in the paws of male Balb/c mice. Data analysis using ANOVA.

Results: The physical quality of the gel preparations (pH $4.09 \pm 0.06 - 4.29 \pm 0.10$), viscosity ($24.900 \pm 2.08 - 32.950 \pm 1.42$), spreadability ($5.28 \pm 0.21 - 5.30 \pm 0.29$), and adhesiveness ($1.21 \pm 0.13 - 1.30 \pm 0.08$) showed activity for inhibiting edema for 6 hours of 3%, 4%, and 5%.

Conclusion: Clove flower extract gel met the requirements, with a concentration of 3% being the most effective for inhibiting edema.

Keywords: Clove flower, Clove flower gel, Anti-inflammatory, Physical Quality, Flavonoids