FORMULASI DAN EVALUASI FISIK SEDIAAN BALSAM STIK *(Stick Balm)* EKSTRAK DAUN BELIMBING WULUH *(Averrhoa bilimbi L.)*

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ABSTRAK

Balsam merupakan sediaan topikal berbentuk semisolid dengan tekstur lembut dan berminyak yang memberikan sensasi hangat saat diaplikasikan pada kulit. Inovasi bentuk stik pada sediaan ini menawarkan keunggulan berupa kepraktisan, efisiensi biaya, kemudahan untuk dibawa, serta kenyamanan penggunaan tanpa mengotori tangan. Daun belimbing wuluh *(Averrhoa bilimbi L.)* memiliki potensi untuk dikembangkan sebagai bahan aktif dalam formulasi sediaan balsam. Tujuan Penelitian: Penelitian ini bertujuan untuk memformulasikan sediaan balsam stik berbasis ekstrak daun belimbing wuluh *(Averrhoa bilimbi L.)* serta mengevaluasi sifat fisik dan stabilitas fisiknya. Metode : Penelitian eksperimental laboratorium ini menggunakan variasi konsentrasi ekstrak daun belimbing wuluh sebesar 0%b/b (F0), 2%b/b (F1), 4%b/b (F2), dan 6%b/b (F3). Evaluasi fisik sediaan meliputi uji organoleptis, homogenitas, daya sebar, daya lekat, iritasi, dan kekerasan, serta pengujian stabilitas penyimpanan (*real-time* dan *Cycling Test*). Data kuantitatif dianalisis menggunakan uji *One-Way ANOVA* pada taraf kepercayaan 95%. Hasil : Seluruh formula menunjukkan karakteristik organoleptis yang baik, berbau khas, homogen, tidak menimbulkan iritasi kulit, serta memiliki daya sebar (5–7 cm) dan daya lekat yang memenuhi syarat. Peningkatan konsentrasi ekstrak (2–6%) secara signifikan memperpekat intensitas warna dan meningkatkan kekerasan sediaan ($p < 0,05$). Hasil *Cycling Test* (6 siklus) mengonfirmasi sediaan stabil secara fisik tanpa perubahan organoleptis dan homogenitas, serta tidak terdapat perbedaan signifikan ($p > 0,05$) pada rata-rata daya sebar ($p = 0,853$), daya lekat ($p = 0,358$), maupun kekerasan ($p = 0,587$) sebelum dan sesudah pengujian.

Kata kunci : *Averrhoa bilimbi* L., ekstrak daun belimbing wuluh, semisolid, karakteristik fisik, stabilitas.

FORMULATION AND PHYSICAL EVALUATION OF *STICK* BALM PREPARATION OF BILIMBI LEAF EXTRACT (Averrhoa bilimbi L.)

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ABSTRAK

Balsam is a topical semisolid preparation with a soft and oily texture that provides a warming sensation when applied to the skin. The stick form of this preparation offers several advantages, including practicality, cost efficiency, portability, and convenient application without making the hands dirty. Starfruit leaves (*Averrhoa bilimbi* L.) have the potential to be developed as an active ingredient in balsam formulations. Objective: This study aimed to formulate a balsam stick preparation containing starfruit leaf extract (*Averrhoa bilimbi* L.) and to evaluate its physical properties and physical stability. Methods: This laboratory experimental study used varying concentrations of starfruit leaf extract, namely 0%b/b (F0), 2%b/b (F1), 4%b/b (F2), and 6%b/b (F3). The physical evaluation of the preparations included organoleptic, homogeneity, spreadability, adhesion, irritation, and hardness tests, as well as storage stability testing through real-time and Cycling Test methods. Quantitative data were analyzed using One-Way ANOVA at a 95% confidence level. Results: All formulations demonstrated good organoleptic characteristics, a characteristic odor, homogeneity, no skin irritation, spreadability within the range of 5–7 cm, and acceptable adhesion. Increasing the extract concentration (2–6%) significantly intensified the color and increased the hardness of the preparations ($p < 0.05$). The results of the Cycling Test (6 cycles) confirmed that the preparations were physically stable, with no changes in organoleptic characteristics or homogeneity. No significant differences were observed ($p > 0.05$) in the mean spreadability ($p = 0.853$), adhesion ($p = 0.358$), or hardness ($p = 0.587$) before and after the test.

Research Objective: *(Averrhoa bilimbi L.), starfruit leaf* extract semisolid, physical characteristics, stability.