

**FORMULASI TABLET HISAP EKSTRAK ETANOL DAUN SIRIH HIJAU
(*Piper betle L.*), EVALUASI KARAKTERISTIK TABLET DENGAN VARIASI
KONSENTRASI BAHAN PENGIKAT CMC-NA**

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INTISARI

Latar Belakang: Daun sirih hijau dapat digunakan sebagai pengobatan caries gigi dan juga bau mulut karena adanya kandungan minyak atsiri yang memiliki aktivitas antibakteri. Secara tradisional pengolahan daun sirih dilakukan dengan proses perebusan sehingga perlu dilakukan pengembangan dengan pembuatan formulasi tablet hisap. Tablet hisap merupakan sediaan yang praktis dan mudah digunakan. Bahan pengikat yang ada pada tablet hisap adalah CMC-Na. Adanya perbedaan konsentrasi CMC-Na dapat mempengaruhi kemampuan pengikat terutama dalam hal kekerasan dan waktu larut pada tablet.

Tujuan Penelitian: Membuat tablet hisap ekstrak daun sirih hijau dengan perbedaan variasi konsentrasi CMC-Na sebagai bahan pengikat dan mengetahui pengaruh variasi konsentrasi CMC-Na terhadap sifat fisik tablet

Metode Penelitian: Daun sirih diekstraksi dengan metode maserasi dengan menggunakan pelarut etanol 70%. Ekstrak kental yang didapatkan kemudian dilakukan analisis meliputi skrining fitokimia dan identifikasi senyawa minyak atsiri menggunakan Kromatografi Lapis Tipis (KLT). Tablet hisap dibuat dengan menggunakan metode kempa langsung dengan variasi kadar CMC-Na F1= 2,5%, F2 5%, F3= 7,5%. Analisis yang dilakukan pada penelitian ini adalah uji keragaman bobot, uji kekerasan, uji kerapuhan, uji waktu larut dan uji waktu hancur.

Hasil Penelitian: Terdapat perbedaan yang signifikan ($p < 0,05$) observasi dari semua respon yaitu (tanggap kesukaan, keragaman bobot, kekerasan, kerapuhan, waktu larut, dan waktu hancur) sehingga dilakukan uji LSD dan terdapat nilai yang tidak signifikan pada (uji kekerasan yaitu formula 1 dan 2, uji kerapuhan formula 2 dan 3)

Kesimpulan: Tablet hisap yang diperoleh dari ke 3 formulasi dengan variasi konsentrasi bahan pengikat memenuhi persyaratan sifat fisik sesuai dengan pustaka dan acuan yang digunakan. Kenaikan konsentrasi bahan pengikat diikuti dengan kenaikannya kekerasan karena bertambahnya bahan pengikat, sehingga kemampuan antar partikel semakin kuat menghasilkan granul yang kompak dan tablet yang keras.

Kata Kunci: Daun Sirih Hijau (*Piper betle L.*), Tablet Hisap, CMC-Na

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**THE FORMULATION OF GREEN BETEL LEAF (*Piper betle* L.),
EVALUATION OF THE CHARACTERISTICS OF TABLET ETHANOL
EXTRACT LOZENGES WITH THE VARIATION OF CMC-NA BINDING
CONCENTRATIONS**

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ABSTRACT

Background: Green betel leaf can be used as a treatment for dental caries as well as bad breath because of the essential oil content which has antibacterial activities. Traditionally, betel leaf processing is carried out by a boiling process, so a development is needed to be done by making the formulation of lozenge. Lozenges are preparations that are practical and easy to use. The binder in the lozenges is CMC-Na. A difference in the concentration of CMC-Na can affect its binding ability, especially in the terms of solidness and dissolving time for tablets.

Objective: This study aimed to make green betel leaf extract lozenges with different concentrations of CMC-Na as a binder and to find out the effect of the variations in CMC-Na concentrations on the physical characteristic of the tablets.

Methods: The betel leaf was extracted by applying a maceration method with the use of 70% ethanol as solvent. The condensed extract obtained was then being analyzed by doing phytochemical screening and identification of essential oil compounds using the Thin Layer Chromatography (TLC). Lozenges were made by the implementation of a direct compression method that varied in the levels of CMC-Na F1 = 2.5%, F2 5%, F3 = 7.5%. The analysis that was done in this study were a weight diversity test, solidness test, friability test, dissolution time test, and disintegration time test.

Results: There was a significant difference ($p < 0.05$) in the observation of all responses, which were the response of preference, weight diversity, solidness, friability, dissolution time, and disintegration time. Thus, the LSD test was carried out and there was an insignificant value in the solidness test of formula 1 and 2, and in the brittleness test of formula 2 and 3.

Conclusion: The lozenges that were obtained from the 3 formulations with various concentrations of binder meet the requirements for physical characteristics of the tablets based on the literature and references that were used. The increase in concentration of binder is followed by the increase of its solidness. Therefore, the ability between the particles is stronger in producing compact granules and hard tablets.

Keywords: Green Betel Leaf (*Piper betle* L.), Lozenges, CMC-Na

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