

## INTISARI

*Patch* bukal mukoadhesif daun sirih (*Piper betle L.*) merupakan sediaan yang diperuntukkan mengatasi karies gigi yang disebabkan bakteri patogen di rongga mulut, pada penelitian ini adalah bakteri *Streptococcus mutans*. Daun sirih mengandung minyak atsiri dan senyawa fenolik yang mempunyai sifat sebagai antibakteri. Penelitian bertujuan untuk mengetahui pengaruh variasi konsentrasi terhadap sifat fisik dan kimia *patch* serta mengamati aktivitas antibakteri *patch* ekstrak daun sirih.

Ekstraksi dilakukan dengan metode infundasi dan filtrat dikeringkan dengan metode pengeringan *freeze drying*. Nilai KHM dan KBM ekstrak *freeze drying* daun sirih ditentukan menggunakan metode mikrodilusi. Pembuatan *patch* menggunakan metode *solvent casting* dengan basis kitosan. *Patch* dievaluasi sifat fisik kimia dan aktivitas antibakterinya. Aktivitas antibakteri *patch* dianalisis dengan menggunakan metode *diffusion*. Hasil diameter hambat dan nilai *swelling patch* dianalisis dengan ANOVA *One Way* taraf kepercayaan 95% dan dilanjutkan test *post-hoc Scheffe*.

Hasil penelitian menunjukkan variasi konsentrasi ekstrak tidak memberikan pengaruh signifikan pada sifat fisik dan kimia *patch* yaitu, keseragaman bobot, *folding endurance*, *swelling index*, dan *surface pH*. *Patch* dengan konsentrasi ekstrak daun sirih 1%, 2%, dan 3% secara berurutan mampu menghasilkan diameter hambat sebesar 2,156 cm, 2,383 cm, dan 2,611 cm (diameter *patch* sebesar 1,8 cm). Kenaikan konsentrasi ekstrak pada *patch* mempengaruhi aktivitas antibakteri *patch* secara signifikan.

**Kata kunci:** *Piper betle L.*, *S. mutans*, *freeze drying*, *patch* bukal

## ABSTRACT

Mucadhesive buccal patches of betel leaf extract (*Piper betle* L.) is pharmaceutical preparations intended to overcome dental caries are caused by bacteria pathogens in the oral cavity, in this study is the bacterium *Streptococcus mutans*. Betel leaf contains essential oils and phenolic compounds that has antibacterial properties. The research aims to find out the effect of concentration variations to physical and chemical characteristic as well as the patch observed the antibacterial activity of patch extracts of betel leaf.

Extraction is done with methods infundation and the filtrate was dried by freeze drying method. MIC and MBC value extract of betel leaf were tested with microdilution method. The patch was prepared by the solvent casting method with chitosan as the base matrix. The characteristic and antibacterial activity of the patch were evaluated.. Antibacterial activity of patch was analyzed using diffusion method. The results of inhibition diameter and patch sweling values were analyzed by One Way ANOVA with level of confidence of 95% and continued with post-hoc Scheffe test.

The results of the study showed variations in the concentration of the extract to influenced the physical and chemical characteristic of the patch is not a significant, that is weight uniformity, folding endurance, swelling index, and surface pH. Patch with the betel leaf extract concentration of 1%, 2%, and 3% in a sequence capable of producing inhibitory diameter of 2.156 cm, 2.383 cm, and 2.611 cm (diameter patch is 1.8 cm). The increase in concentration of the extract affect the antibacterial activity of patches significantly.

**Keywords:** *Piper betle* L., *S. mutans*, freeze drying, patch buccal