

## Abstrak

### FORMULASI SEDIAAN GEL DENGAN *GELLING AGENT* KARBOPOL DARI EKSTRAK METANOL TERPURIFIKASI DAUN BAKAU HITAM (*Rhizophora mucronata*) UNTUK TERAPI LUKA BAKAR

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**Latar Belakang:** Daun bakau hitam (*R. mucronata*) mengandung senyawa metabolit sekunder seperti flavonoid, tanin, saponin, terpenoid, dan alkaloid yang dapat berperan dalam proses penyembuhan luka bakar. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi gelling agent karbopol dari sediaan gel ekstrak metanol terpurifikasi daun bakau hitam terhadap sifat fisik dan stabilitas gel serta efek penyembuhan luka bakar.

**Metodologi:** Penelitian eksperimental yang meliputi ekstraksi dan purifikasi daun bakau hitam, formulasi sediaan gel, evaluasi sifat fisik dan stabilitas gel serta aktivitas pengobatan luka bakar. Gel ekstrak metanol terpurifikasi daun bakau hitam dibuat dengan variasi konsentrasi karbopol 0,125%; 0,25%; 0,5%, dan 1%. Gel dievaluasi sifat fisik dan stabilitas selama 28 hari serta aktivitas pengobatan luka bakar selama 7 hari. Hasil data evaluasi fisik dan sediaan gel dianalisis menggunakan *Graphpad Prism* dan luas area luka dianalisis menggunakan program *Image J*.

**Hasil Penelitian:** Variasi konsentrasi karbopol pada sediaan gel ekstrak metanol terpurifikasi daun bakau hitam dapat menaikkan viskositas dan daya lekat, menurunkan daya sebar, dan stabil pada stabilitas *freeze-thaw*. Formula III dengan konsentrasi 0,5% memiliki aktivitas luka bakar dan mengurangi luas luka sebesar 1,01 cm<sup>2</sup>.

**Kesimpulan:** Gel ekstrak metanol terpurifikasi daun bakau hitam yang memenuhi persyaratan yaitu Formula III dengan konsentrasi karbopol 0,5% serta Formula III memiliki efek penyembuhan luka bakar.

**Kata kunci :** *Rhizophora mucronata*, Gel ekstrak metanol terpurifikasi, Luka Bakar, *Image J*.

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## Abstract

### GEL FORMULATION WITH CARBOPOL AS GELLING AGENT FROM PURIFIED METHANOL EXTRACT LOOP-ROOT MANGROVE LEAVES (*Rhizophora mucronata*) FOR BURN WOUND THERAPY

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**Background:** Loop-root leaves (*R. mucronata*) contain secondary metabolites such as flavonoids, tannins, saponins, terpenoids, and alkaloids which play a role in the healing process of burns. This study aims to determine the effect of the variance of carbopol concentrations from purified methanol extract gel of loop-root mangrove leaves on the physical properties and stability of the gel and the effect of healing burns.

**Methods:** This experimental research includes extraction and purification of loop-root mangrove leaves, gel formulation, evaluation of physical properties and gel stability, and burn treatment activities. Loop-root leaves purified methanol extract gel was prepared with a variation of 0.125% carbopol concentration; 0.25%; 0.5%, and 1%. The gel was evaluated for physical properties and stability for 28 days and burn treatment activity for 7 days. The results of physical evaluation data and gel preparations were analyzed using Graphpad Prism and the area of the wound was analyzed using the *Image J* program.

**Results:** The variation of carbopol concentrations in the purified methanol extract gel preparations of loop-root leaves increased viscosity and adhesion, reduced spreadability, and was stable in freeze-thaw stability. Formula III with a concentration of 0.5% can reduce the wound area by 1,01 cm<sup>2</sup>.

**Conclusion:** The purified methanol extract gel of loop-root mangrove leaves that meets the requirements is Formula III with a carbopol concentration of 0.5% and Formula III has a burn healing effect.

**Keywords:** *Rhizophora mucronata*, Purified methanol extract gel, burn wound, *Image J*

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