

INTISARI

Penelitian ini bertujuan untuk mengetahui efek larutan CMC 5% b/v, propilen glikol dan interaksi yang dominan dalam menentukan sifat fisik gel dan daya repelan gel, mengetahui indeks iritasi primer formula gel repelan serta mendapatkan area komposisi *gelling agent* optimum formula gel repelan minyak atsiri akar wangi. Minyak atsiri akar wangi diperoleh dari tanaman akar wangi secara destilasi uap air.

Penelitian ini merupakan rancangan eksperimental murni menggunakan desain faktorial. Digunakan 4 formula, yaitu (1) : level larutan CMC 5% b/v dan propilen glikol rendah, *a* : level larutan CMC 5% b/v tinggi, level propilen glikol rendah, *b* : level larutan CMC 5% b/v rendah, level propilen glikol tinggi, *ab* : level larutan CMC 5% b/v dan propilen glikol tinggi. Optimasi dilakukan terhadap parameter sifat fisik gel, meliputi daya sebar, viskositas, dan stabilitas sediaan dalam penyimpanan yang dinyatakan dengan perubahan viskositas yang terjadi, serta daya repelan gel terhadap gigitan nyamuk *Aedes albopictus* betina. Formula tersebut diuji keamanannya dengan uji iritasi primer metode *Draize* pada hewan uji kelinci.

Hasil menunjukkan bahwa larutan CMC 5% b/v dominan dalam menentukan daya sebar gel, viskositas gel, dan daya repelan gel, sedangkan propilen glikol dominan dalam menentukan perubahan viskositas gel. Dari *contour plot super imposed* diperoleh area optimum yang diprediksi sebagai formula optimum gel terbatas pada komposisi *gelling agent* yang diteliti. Hasil uji iritasi primer menunjukkan formula gel minyak atsiri akar wangi tidak mengiritasi.

Kata kunci : minyak atsiri akar wangi, larutan CMC 5% b/v, propilen glikol, gel, desain faktorial, repelan, iritasi.

ABSTRACT

The aims of the research were to observe the dominant effect among CMC solution 5% w/v, propylene glycol, and the interaction on determining the gel physical properties and repellent effects, to observe primary irritation index of repellent gel formulas, and to obtain the optimum composition gelling agent area from the vetiver oil repellent gel formulas. The vetiver oil was isolated from *Vetivera zizanioides* (L) Nogh with water steam distillation method.

This research was a pure experimental study based on factorial design application. Four formulas was applied, i.e. (1) : CMC solution 5% w/v and propylene glycol both in low levels, *a* : CMC solution 5% w/v in high level, propylene glycol in low level, *b* : CMC solution 5% w/v in low level, propylene glycol in high level, *ab* : CMC solution 5% w/v and propylene glycol both in high levels. Optimization were evaluated for physical properties parameters, i. e. spreadability, viscosity, and stability gel formulas storage, and for repellent effect towards female *Aedes albopictus* mosquitoes biting. Moreover, the safety aspect of gel formulas were examined using Draize method on rabbits.

The result showed that CMC solution 5% w/v dominant in determining gel spreadability, gel viscosity, and gel repellent effect, whereas propylene glycol dominant in determining the change over of gel viscosity. Based on the super imposed contour plot was gotten the optimum area, it was predicted as optimal gel formula limited composition of gelling agent that researched. Primary irritation test results showed that the vetiver oil repellent gel formulas were not irritates.

Key words : vetiver oil, CMC solution 5% w/v, propylene glycol, gel, factorial design, repellent, irritation.