

## INTISARI

Sifat fisik dan stabilitas fisik emulgel dipengaruhi oleh faktor proses pencampuran yaitu lama pencampuran dan kecepatan putar. Penelitian ini bertujuan untuk mengetahui signifikansi pengaruh lama dan kecepatan putar pada level yang diteliti terhadap sifat fisik dan stabilitas fisik emulgel minyak cengkeh.

Jenis penelitian adalah eksperimental murni dengan desain faktorial  $2^2$ . Level rendah dan tinggi lama pencampuran adalah 10 dan 30 menit, sedangkan kecepatan putar adalah 200 dan 500 *rpm*. Pengujian sifat fisik berfokus pada viskositas dan daya sebar, sedangkan stabilitas fisik berfokus pada pergeseran viskositas. Data dianalisis menggunakan program R-2.14.1 dengan uji *two-way* ANOVA untuk data parametrik, serta uji *Wilcoxon* untuk data nonparametrik. Analisis statistik dilakukan dengan taraf kepercayaan 95%. Organoleptis, iritasi primer, dan aktivitas antimikroba emulgel juga diamati pada penelitian ini.

Hasil analisis data menunjukkan bahwa kecepatan putar signifikan terhadap viskositas pada level rendah lama pencampuran. Lama pencampuran signifikan berpengaruh terhadap daya sebar pada level rendah kecepatan putar, kecepatan putar signifikan berpengaruh terhadap daya sebar pada level rendah maupun tinggi lama pencampuran. Lama pencampuran merupakan faktor yang dominan dalam menaikkan pergeseran viskositas. Hanya formula 1 yang memenuhi persyaratan sifat fisik dan stabilitas fisik sesuai dengan kriteria.

Kata kunci : minyak cengkeh, emulgel, lama pencampuran, kecepatan putar, desain faktorial

## ABSTRACT

Physical properties and physical stability of emulgel were influenced by mixing duration and mixing rate. The aim of this study was to determine the significancy of the effect of mixing duration and mixing rate in level studied on the physical properties and physical stability of the clove oil emulgel.

The study was a pure experimental study with  $2^2$  factorial design. Low and high level of mixing duration are 10 and 30 minute, while low and high mixing rate were 200 and 500 rpm. Testing of physical properties was focused on viscosity and spreadability, while for physical stability was on viscosity shift. Data were analyzed using the R-2.14.1 program with two-way ANOVA test for parametric data, and Wilcoxon rank sum test was used for nonparametric data. Statistical analysis performed at 95% confidence interval. Organoleptic, primary irritation, and microbial activity of emulgel were also studied.

The result of this analysis showed that the mixing rate was significantly affecting the viscosity at low level mixing duration. Mixing duration had a significant effect on the spreadability at low level of mixing rate. Mixing rate significantly affect the spreadability at low and high levels of mixing duration. Mixing duration was the dominant factor in increasing the viscosity shift response. Only formula 1 which was eligible the physical properties and stability in accordance with the criteria.

Keywords : clove oil, emulgel, mixing duration, mixing rate, factorial design.