

## INTISARI

Penelitian ini bertujuan untuk mengetahui faktor pencampuran (suhu pencampuran, kecepatan putar, dan interaksinya) yang dominan terhadap sifat fisis dan stabilitas fisis sediaan krim *sunscreen* ekstrak kering teh hijau (*Camellia sinensis* L.), serta menentukan area suhu pencampuran dan kecepatan putar optimum sehingga diperoleh sediaan berkualitas secara fisis dan stabilitas.

Rancangan penelitian ini adalah kuasi-eksperimental dengan penerapan desain faktorial dua faktor, yaitu suhu pencampuran dan kecepatan putar pada level rendah dan level tinggi. Parameter yang diukur adalah sifat fisis sediaan meliputi viskositas dan daya sebar, serta stabilitas fisis sediaan setelah satu bulan penyimpanan meliputi pergeseran viskositas, perubahan distribusi ukuran droplet, dan *index creaming*. Data pengukuran dianalisis dengan metode desain faktorial dan secara statistik dengan menggunakan *Yate's treatment* (taraf kepercayaan 95%) untuk mengetahui signifikansi pengaruh setiap faktor dan interaksinya terhadap respon. Area kondisi optimum diperoleh dari penggabungan *contour plot* tiap respon (*superimposed contour plot*).

Hasil penelitian ini menunjukkan suhu pencampuran, kecepatan putar, maupun interaksinya tidak berpengaruh dominan terhadap respon daya sebar, viskositas, dan pergeseran viskositas sediaan. Berdasarkan *superimposed contour plot*, ditemukan area optimum daya sebar, viskositas, dan pergeseran viskositas yang diperkirakan sebagai proses pencampuran optimum pada level yang diteliti.

Kata kunci: optimasi, suhu pencampuran, kecepatan putar, krim *sunscreen*, ekstrak kering teh hijau (*Camellia sinensis* L.), desain faktorial

## ABSTRACT

The aims of this research were to determine the dominant factor among mixing temperature, mixing rate, and its interaction on the physical properties and physical stabilities of sunscreen cream of green tea (*Camellia sinensis* L.) dry extract, and the optimum area of that factors for producing good cream.

This research design was quasi-experimental with two factors of factorial design application, which were mixing temperature and mixing rate on low and high level. The mixing process were optimized on their physical properties (spreadability and viscosity) and their physical stabilities (shift of viscosity, shift of droplet size distribution, and index creaming) after one month storage. The data were analyzed with factorial design method and Yate's treatment (95% level of confidence) to know the significant influence statistically of each factor and its interaction on respons. The optimum area of factors was showed by superimposed contour plot as the result from merged contour plots.

The result showed that the mixing temperature, mixing rate, or its interaction did not influence spreadability, viscosity, and the shift of viscosity of these sunscreen cream. The superimposed contour plot was showed the optimum area of spreadability, viscosity, and shift of viscosity, which was estimated as optimum mixing process on the level studied.

Keywords: optimization, mixing temperature, mixing rate, sunscreen cream, dry extract of green tea (*Camellia sinensis* L.), factorial design