

**OPTIMASI FORMULA SAMPO GEL MINYAK SERAI
WANGI (*Citronella oil*) DENGAN BASIS Na CMC (*Carboxy
Methyl Cellulose*) SEBAGAI ANTIFUNGI *Pityrosporum ovale***

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ABSTRAK

Latar Belakang: Ketombe dapat diatasi menggunakan sampo Ketoconazole namun, dalam penggunaannya yang berlebihan dapat menyebabkan ruam dan dermatitis. Permasalahan tersebut dapat diatasi dengan sampo gel minyak serai wangi sebagai alternatif pengobatan. Bahan yang dibutuhkan untuk membuat sampo gel yaitu CMC, sodium lauril sulfat (SLS), dan cocamide DEA. Untuk menghasilkan sampo gel yang memenuhi syarat dan dapat diterima oleh masyarakat, perlu dilakukan optimasi formula.

Metodologi: Optimasi dilakukan dengan metode *simplex lattice design* (SLD) dengan 3 komponen yaitu, CMC (A), SLS (B), dan cocamide DEA (C). Parameter optimasi yang digunakan yaitu viskositas, kemampuan dan stabilitas busa, persentase zat padat, dan pH. Berdasar persamaan SLD, dibuat *contour plot* dan *superimposed contour plot* untuk menentukan formula optimum. Formula optimum kemudian diuji aktivitas antifungi terhadap *P.ovale* dan dianalisis menggunakan *One way Anova*.

Hasil Penelitian: Berdasarkan *superimposed contour plot* diperoleh formula optimum dengan proporsi CMC (4%), SLS (14%), dan cocamide DEA (2%) yang menghasilkan viskositas 1142,66 cP; pH 6,16; kemampuan dan stabilitas busa 41 mL; persentase zat padat 21,49%. Sampo gel memiliki aktivitas antifungi terhadap *P.ovale* dengan kategori kuat yaitu 18,16 mm.

Kesimpulan: Formula optimum dapat diformulasikan menjadi sediaan sampo antiketombe yang memenuhi syarat sifat fisik dan stabilitas dengan basis CMC 4%, SLS 14%, dan Cocamide 2%.

Kata kunci: *Simplex Lattice Design*, Minyak Serai Wangi, CMC, Sodium Lauril Sulfat, Cocamide DEA

Abstract

OPTIMIZATION OF CITRONELLA ESSENTIAL OIL GEL SHAMPOO USING CMC (*Carboxy Methyl Celullose*) AS ANTIFUNGAL AGAINTS *Pityrosporum ovale*

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Background: Dandruff can be solved using Ketoconazole shampoo. However, in its excessive use can cause rash and dermatitis. These problems can be solved with *citronella essential oil* gel shampoo as an alternative treatment. The ingredients needed to make a gel shampoo are CMC, sodium lauryl sulfate (SLS), and Cocamide DEA. In order to produce shampoo that is qualified and acceptable to the community, it needs to be done formula optimization. The research was done by simplex lattice design (SLD) method with 3 components, i.e CMC (A), SLS (B), and Cocamide DEA (C).

Methods: The optimization parameters of gel shampoo were viscosity, ability and stability of foam, percentage of solid content, and pH. Based on the SLD model, contour plot and superimposed contour *plot* was created to determine the optimum formula. Optimum formula, then tested the antifungal activity against *P. ovale* and analyzed using One Way Anova.

Result: Based on superimposed contour plot was obtained with the proportion of CMC (4%), SLS (14%), and Cocamide DEA (2%). The result of viscosity was 1142.66 CP; pH 6.16; ability and stability of foam 41 ml; Percentage of solid content 21.49%. Gel Shampoo has antifungal acted against *P. Ovale* with a strong category of 18.16 mm.

Conclusion: Optimum formula can be formulated into antidandruff shampoo that qualify for physical properties and stability with CMC 4%, SLS 14%, and Cocamide DEA 2%.

Keyword: *Simplex Lattice Design, Citronella Oil, CMC, Sodium Lauryl Sulfate, Cocamide DEA*