

# Optimasi Kombinasi Na Alginat-Amilopektin Pati Singkong Pada Formula Masker *Peel-Off* Lempung Kaolin Dengan *D-Optimal Mixture Design*

Yuni Fatimatuz Zahroh  
Prodi Farmasi

## INTISARI

Lempung kaolin merupakan mineral alami yang mengandung aluminium silikat yang mampu mengadsorpsi sebum dan kotoran pada pori-pori wajah. Lempung kaolin dapat diformulasikan dengan kombinasi na alginat-amilopektin yang mampu membentuk gel dan film yang baik pada sediaan masker *peel-off*. Tujuan dari penelitian ini yaitu melakukan optimasi kombinasi natrium alginat dan amilopektin pada formula masker *peel-off* lempung kaolin dengan metode *D-Optimal Mixture Design*. Variabel independen pada rancangan *D-Optimal Mixture Design* yaitu natrium alginat ( $x_1, 1-3\%$ ) dan amilopektin ( $x_2, 1-3\%$ ). Sedangkan variabel dependennya adalah viskositas ( $y_1$ , cp), daya sebar ( $y_2$ , cm), serta waktu kering ( $y_3$ , menit). Data eksperimen ( $x, y$ ) dianalisis dengan ANOVA untuk menghasilkan model regresi polinomial. Dari data eksperimen yang telah analisis, didapatkan model yang signifikan ( $p < 0,05$ ) untuk ketiga respon, yaitu *linear mixture* untuk respon viskositas dan daya sebar, serta model *quadratic* untuk respon waktu kering. Formula optimal yang didapatkan yaitu kadar natrium alginat 1,091% dan amilopektin 2,909%. Hasil karakterisasi formula optimal pada uji viskositas yaitu 2092 cp, uji daya sebar sebesar 7,6 cm, uji waktu kering selama 32 menit, uji organoleptis hasil yang didapatkan bentuk kental, bau khas lempung kaolin, dan berwarna putih, uji pH yang dihasilkan yaitu 6,24. Berdasarkan hasil analisis ANOVA dan karakterisasi tersebut, disimpulkan bahwa formula masker *peel-off* lempung kombinasi natrium alginat-amilopektin yang optimal dapat diperoleh menggunakan *D-Optimal Mixture Design*.

**Kata kunci:** Masker *peel-off*, lempung kaolin, natrium alginat, amilopektin, *D-Optimal Mixture Design*

# **Optimization Of Combination Of Na Alginat-Amylopectin Starch Cassava On Peel-Off Mask Formula Clays Kaolin Using D-Optimal Mixture Design**

**Yuni Fatimatuz Zahroh**

**Department of Pharmacy**

## **ABSTRACT**

Kaolin clay is a natural mineral containing aluminum silicate that able to of adsorb sebum and dirt in the pores. Kaolin clay can be formulated with a combination of sodium alginate-amylopectin that can form a gel and film in the peel-off mask preparation. The purpose of this study is to optimize the combination of sodium alginate and amylopectin in the formulation of kaolin clay peel-off mask using D-Optimal Mixture Design. The independent variables in the design of the D-Optimal Mixture Design were sodium alginate ( $x_1$ , 1-3%) and amylopectin ( $x_2$ , 1-3%), while the dependent variables were viscosity ( $y_1$ , cp), spreadability ( $y_2$  cm), and drying time ( $y_3$ , minutes). The experimental data ( $x$ ,  $y$ ) were analyzed by ANOVA to produce a polynomial regression model. The experimental data that has been analysis, showed that the significant model ( $p < 0.05$ ) for the three responses, which were a linear mixture for viscosity response and spreadability, as well as quadratic models for the response of drying time. The obtained optimized formula was sodium alginate 1.091% and 2.909% amylopectin. The characterizations of the optimized formula of clay kaolin peel-off mask were at 2092 cp for viscosity, 7.6 cm for spreadability, 32 minutes for drying time, and pH at 6.24. Based on the results of the ANOVA analysis and characterization, it was concluded that the optimized formula of clay peel-off mask kaolin clay with sodium alginate-amylopectin can be obtained using the D-Optimal Mixture Design.

**Keywords:** peel-off mask, clays kaolin, sodium alginat, amylopectin, D-Optimal Mixture Design