# OPTIMASI PASTA GIGI EKSTRAK DAUN KENIKIR (*Cosmos caudatus Kunth*) DENGAN BAHAN PENGIKAT KOMBINASI XANTHAN GUM DAN Na-ALGINAT MENGGUNAKAN METODE *SIMPLEX LATTICE DESIGN*

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## INTISARI

**Latar Belakang:** Pasta gigi merupakan salah satu produk yang berfungsi untuk menjaga kesehatan mulut. Pada penelitian ini digunakan ekstrak daun kenikir dengan bahan pengikat kombinasi na alginat dan xanthan gum, yang berfungsi untuk menyatukan komponen bahan-bahan dan membentuk massa pasta yang memiliki viskositas sesuai.

**Tujuan Penelitian:** Penelitian ini bertujuan untuk mengetahui karakteristik dari pasta gigi dengan kombinasi bahan pengikat na alginat dan xanthan gum menggunakan metode *simplex lattice design* sehingga menghasilkan karakteristik pasta gigi yg a*cceptable*.

**Metode Penelitian:** Ekstraksi daun kenikir dengan metode maserasi menggunakan pelarut etanol 96%. Metode *simplex lattice design* digunakan untuk optimasi formula pasta gigi berdasarkan variasi bahan pengikat na alginat dan xanthan gum. Pasta gigi ekstrak daun kenikir optimum diuji dengan uji T-*test one sample* dengan perbandingan formula optimum prediksi metode *simplex lattice design* dengan *software design expert* versi 7.

**Hasil Penelitian:** Tidak ada perbedaan yang signifikan (p>0.05) dari semua respon yaitu respon pH, daya busa, *ekstrudability*, dan viskositas antara formula optimum pasta gigi yang diprediksi menggunakan SLD dengan yang diformulasikan. Karakteristik pasta gigi respon pH, daya busa, *ekstrudability*, dan viskositas memiliki interaksi antara dua komponen na alginat dan xanthan gum.

**Kesimpulan:** Formula pasta gigi ekstrak daun kenikir didapatkan formula optimum pada perbandingan na alginat dan xanthan gum (1,971: 0,029).

**Kata Kunci:** pasta gigi, kenikir, na alginat, xanthan gum, (SLD)

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# OPTIMIZATION OF TOOTHPASTE EXTRACT OF KENIKIR (*Cosmos caudatus* Kunth) WITH COMBINATION OF XANTHAN GUM AND Na-ALGINATE AS BINDER USING SIMPLEX LATTICE DESIGN METHOD

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## *ABSTRACT*

***Background:*** Toothpaste is one product that serves to maintain oral health. In this study, kenikir leaf extract was used with a combination of sodium alginate and xanthan gum as a binder, which functions to unite the components of the ingredients and form a paste mass that has the appropriate viscosity.

***Objective:*** This study aims to determine the characteristics of toothpaste with a combination of sodium alginate and xanthan gum binders using the *simplex lattice design* method so as to produce acceptable toothpaste characteristics.

***Method:*** Extraction kenikie was carried out by maceration method using 96% ethanol as solvent. The simplex lattice design method was used to optimize the toothpaste formula with 8 formulas based on variations in the binder of sodium alginate and xanthan gum. The optimum kenikir leaf extract toothpaste was tested by using a *one sample T-test* with the optimum formula for predicting the simplex lattice design method with *software design expert* version 7.

***Result:*** There was no significant difference (p>0.05) of all responses, namely pH response, foaming power, *extrudability*, and viscosity between the predicted optimum toothpaste formula using SLD and the one formulated. The characteristics of toothpaste, pH response, foaming power, *extrudability*, and viscosity have interactions between the two components of Na alginate and Xanthan Gum.

***Conclusion:*** Kenikir leaf extract toothpaste formula obtained the optimum formula in the ratio of sodium alginate and xanthan gum (1,971 : 0.029).

**Keywords :** paste, kenikir, na alginate, xanthan gum*, (SLD)*

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