

ABSTRAK

NADHIA NUR ALFIAH, 2022. PENGARUH VARIASI KONSENTRASI KALSIMUM KARBONAT TERHADAP MUTU FISIK SEDIAAN PASTA GIGI ARANG AKTIF CANGKANG KELAPA SAWIT (*Elaeis guineensis* Jacq) SEBAGAI PEMUTIH GIGI, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI SURAKARTA, Dibimbing oleh apt. Dewi Ekowati, M. Sc. dan apt. Ganet Eko Pramukantoro, M.Si.

Diskolorasi merupakan perubahan warna yang disebabkan penumpukan noda pada gigi. Arang aktif cangkang sawit menjadi alternatif pengatasan diskolorasi karena memiliki pori dalam jumlah besar dan berat molekul rendah sehingga mampu menembus email dan dentin. Tujuan penelitian ini adalah memformulasikan sediaan topikal pasta gigi arang aktif dengan variasi konsentrasi kalsium karbonat untuk melihat mutu fisik dan efektivitas memutihkan gigi.

Sampel gigi sapi 21 buah dibagi 7 kelompok, kelompok kontrol basis, kontrol positif (*sensatia botanicals*) dan variasi konsentrasi kalsium karbonat 25%, 35% dan 45% dengan zat aktif 12%. Uji mutu fisik meliputi organoleptis, homogenitas, pH, viskositas, daya sebar, daya lekat, tinggi busa dan stabilitas. Pengujian aktivitas menggunakan alat *shade guide vitapan classical* dengan mengukur intensitas warna. Hasil dari mutu fisik dan perubahan warna dilakukan analisis secara statistik menggunakan *one way ANOVA*.

Hasil penelitian menunjukkan bahwa variasi konsentrasi kalsium karbonat berpengaruh terhadap mutu fisik sediaan dan aktivitas pemutih gigi. Efektivitas pemutihan gigi dilihat dari nilai *mean* yang didapat. Hasil aktivitas formula 1 (25%) nilai *mean* 6,33 sedangkan formula 2 (35%) *mean* 1,66 dan pada formula 3 (45%) *mean* 6,00. Didapatkan bahwa formula 2 memberikan efek pemutihan gigi paling optimal. Hasil uji *Duncan* menunjukkan formula 2 memiliki aktivitas pemutihan gigi sebanding kontrol positif.

Kata kunci: Diskolorasi, arang aktif cangkang kelapa sawit, pasta gigi.

ABSTRACT

NADHIA NUR ALFIAH, 2022. EFFECT OF VARIATIONS OF CALCIUM CARBONATE CONCENTRATIONS ON THE PHYSICAL QUALITY OF ACTIVE CHARCOAL Toothpaste Preparations (*Elaeis guineensis* Jacq) AS TEETH WHITENING, SKRIPSI, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA. Supervised by apt. Dewi Ekowati, M.Sc. and apt. Ganet Eko Pramukantoro, M.Sc.

Discoloration is a discoloration caused by the number of stains on the teeth. Palm shell activated charcoal is an alternative treatment for discoloration because it has a large number of pores and a low molecular weight that allows it to penetrate enamel and dentin. The purpose of this study was to formulate a topical preparation of activated charcoal toothpaste with various concentrations of calcium carbonate to see the physical quality and effectiveness of whitening teeth.

Samples of 21 bovine teeth were divided into 7 groups, basic control group, positive control (sensatia botanicals) and variations in calcium carbonate concentrations of 25%, 35% and 45% with 12% active substance. Physical quality tests include organoleptic, homogeneity, pH, viscosity, spreadability, adhesion, foam height and stability. Activity testing uses the classic Vitapan shade guide tool by measuring the color intensity. The results of physical quality and color change were analyzed statistically using one way ANOVA.

The results showed that variations in the concentration of calcium carbonate affected the physical quality of the preparation and teeth whitening activity. The effectiveness of teeth whitening is seen from the average value obtained. The activity results of formula 1 (25%) have a mean value of 6.33 while formula 2 (35%) have a mean of 1.66 and formula 3 (45%) have a mean of 6.00. It was found that formula 2 provides the most optimal teeth whitening effect.

Key words : Discoloration, activated charcoal of palm shells, toothpaste.