

ABSTRAK

PENGARUH APLIKASI EKSTRAK BIJI KAKAO (*Theobroma cacao*) TERHADAP PENCEGAHAN KELARUTAN KALSIMUM ENAMEL GIGI INSISIVUS DESIDUI YANG DIRENDAM DALAM JUS JERUK (*Citrus sinensis*) (Penelitian *In Vitro*)

WENNY AFRISA

Demineralisasi merupakan proses pelepasan mineral dari enamel gigi karena kondisi asam dalam rongga mulut. Konsumsi jus jeruk yang bersifat asam mampu memicu terjadinya demineralisasi. Strategi pencegahan demineralisasi salah satunya dengan teobromin yang terdapat dalam buah kakao. Penelitian ini bertujuan untuk mengetahui pengaruh aplikasi ekstrak biji kakao konsentrasi 15% dan 30% terhadap pencegahan kelarutan kalsium enamel gigi desidui yang direndam jus jeruk. Jenis penelitian ini eksperimental laboratoris *in vitro* dengan rancangan *posttest-only control group design*. Sampel pada penelitian ini menggunakan metode *simple random sampling*. Sampel sebanyak 27 buah gigi insisivus desidui yang dibagi menjadi 3 kelompok, yaitu: kelompok I (15%), kelompok II (30%), kelompok III (kontrol). Ekstrak biji kakao diaplikasikan selama 5 menit sebanyak 3 kali sehari selama 5 hari. Perendaman dalam jus jeruk dilakukan pada hari ke-6 selama 5 menit. Hasil rendaman sampel diukur menggunakan *Atomic Absorbption Spectroscopy* (AAS). Hasil uji AAS menunjukkan rerata nilai kelarutan terendah pada kelompok I sebesar 6,261 ppm, dan tertinggi pada kelompok III sebesar 7,682 ppm. Hasil uji *One Way ANOVA* dan *Post hoc LSD* menunjukkan perbedaan bermakna antara kelompok I dan kelompok II kemudian antara kelompok I dan kelompok III. Hasil penelitian tidak menunjukkan berbeda bermakna antara kelompok II dan kelompok III. Penelitian ini menunjukkan bahwa kelarutan kalsium gigi desidui yang diaplikasikan ekstrak kakao 15% lebih rendah dari kelompok lainnya.

Kata kunci : ekstrak biji kakao, demineralisasi, jus jeruk

ABSTRACT

THE EFFECT OF COCOA (*Theobroma cacao*) BEAN EXTRACT APPLICATION ON THE PREVENTION OF CALCIUM SOLUBILITY OF THE DECIDUOUS INCISOR ENAMEL SOAKED IN ORANGE JUICE (*Citrus sinensis*) (In Vitro Research)

WENNY AFRISA

Demineralization is the release process of minerals from tooth enamel due to acidic conditions in the oral cavity. Consumption of acidic orange juice can trigger demineralization. One of the strategies to prevent the demineralization is to use theobromine in cocoa. The aim of this study was to determine the effect of application of cocoa bean extract concentrations of 15% and 30% to prevent calcium solubility of deciduous tooth enamel soaked in orange juice. This research was conducted with experimental in vitro laboratory with a posttest-only control group design. The sample used in this study was chosen using sample random sampling method. The sample were 27 deciduous incisors which divided into 3 groups: group I (15%), group II (30%), group III (control). The samples were applied with cacao bean extract for 5 minutes 3 times a day for 5 days. Immersion in orange juice was carried out on the 6th day for 5 minutes. The results of the sample immersion were measured using Atomic Absorption Spectroscopy (AAS). The results of the AAS test showed average solubility value was the lowest in group I with 6.261 ppm, and the highest value was in group III with 7.682 ppm. The results of One-way ANOVA and Post hoc LSD test showed significant differences between group I and group II and than group I and group III. The result showed no significant difference between group II and group III. This study showed that the calcium solubility of deciduous teeth that was applied with cocoa extract of 15% concentration was lower than the other groups.

Key words : cocoa bean extract, demineralization, orange juice