ABSTRAK

PENGARUH APLIKASI *WHEY EXTRACT* SUSU KAMBING ETAWA TERHADAP KELARUTAN FOSFAT GIGI DESIDUI DALAM PERENDAMAN MINUMAN BERKARBONASI

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Demineralisasi merupakan proses hilangnya komponen mineral dari enamel gigi. Demineralisasi dapat terjadi akibat adanya kontak antara enamel gigi dengan zat asam yang terkandung dalam minuman ringan. Salah satu minuman ringan yang sering dikonsumsi oleh anak-anak adalah minuman berkarbonasi. Demineralisasi dapat dicegah melalui proses remineralisasi. *Whey extract* susu kambing etawa dan *calcium phosphopeptide-amorphous calcium phophate* (CPP-ACP) mengandung kalsium dan fosfat yang dapat mencegah demineralisasi melalui proses remineralisasi. Penelitian ini bertujuan untuk mengetahui perbedaan kelarutan fosfat gigi desidui dalam perendaman minuman berkarbonasi setelah apikasi *whey extract* susu kambing etawa dan CPP-ACP. Jenis penelitian ini adalah eksperimental laboratoris secara *in vitro* dengan rancangan penelitian *posttest-only with control group design*. Pengambilan sampel dilakukan menggunakan teknik *purposiv sampling*. Sampel berjumlah 24 gigi insisif pertama desidui rahang atas yang dibagi menjadi tiga kelompok, yaitu kelompok I sampel direndam dalam *whey extract* susu kambing etawa, kelompok II dalam CPP-ACP dan kelompok III dalam saliva buatan. *Whey extract* susu kambing etawa dan CPP-ACP diaplikasikan selama 10 menit setiap 12 jam sekali selama 14 hari. Sampel direndam dalam minuman berkarbonasi selama 5 menit. Kelarutan fosfat diukur menggunakan spektofotometer UV-Vis. Hasil penelitian dianalisis menggunakan *One Way* ANOVA dan *Post hoc* LSD. Hasil penelitian menunjukkan terdapat perbedaan yang bermakna antara kelompok I dengan kelompok III, dan kelompok II dengan kelompok III ($p<0,05$), serta tidak terdapat perbedaan yang bermakna antara kelompok I dengan kelompok II ($p>0,05$). Hasil tersebut menunjukkan *whey extract* susu kambing etawa dan CPP-ACP memiliki potensi remineralisasi yang sama. Penelitian ini menunjukkan bahwa terdapat pengaruh aplikasi *whey extract* susu kambing etawa terhadap kelarutan fosfat gigi desidui dalam perendaman minuman berkarbonasi.

Kata kunci : CPP-ACP; demineralisasi; minuman berkarbonasi; remineralisasi; w*hey extract* susu kambing etawa.
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ABSTRACT

THE EFFECT OF APPLICATION WHEY EXTRACT OF ETAWA'S GOAT MILK ON PRIMARY TEETH PHOSPHATE SOLUBILITY IMMERSION IN CARBONATED BEVERAGE

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Demineralization is a process of mineral lost from tooth enamel. Demineralization can occure due to contact between enamel tooth and acids contained in soft drinks. One of the soft drinks that is often consumed by children is carbonated beverages. Demineralization can prevent by remineralization proccess. Whey extract of etawa's goat milk and calcium phosphopeptideamorphous calcium phophate (CPP-ACP) contains calcium and phosphate that can prevent the demineralization through remineralization process. The aim of this study was to determine the comparison of phosphate solubility of primary teeth that immersion in carbonated beverage after the application of whey extract of etawa's goat milk and CPP-ACP. Type of the research was in vitro experimental laboratory with posttest-only control group design. The sampling was carried out using purposive sampling technique. The study carried out on 24 first maxillary inscisivus primary teeth which devided into 3 groups, the sample of group I immersed in whey extract of etawa's goat milk, sample of group II immersed in CPP-ACP and sample of group III immersed in artificial saliva. Whey extract of etawa's goat milk and CPP-ACP was applied 10 minutes every 12 hours for 14 days. The samples were soaked in carbonated beverage for 5 minutes. Phosphate solubility of the samples in carbonated beverage was measured using the Spectrophotometer Uv-Vis. The result were analysed using One Way Anova and Pos Hoc LSD. The result showed significant differences between group I and group III and between group II and group III ($p<0,05$), but there is not significant difference between group I and group II ($p>0,05$). These result showed that the whey extract of etawa's goat milk and CPP-ACP have the same remineralization potensial. This study showed that there is an effect of the application whey extract of etawa's goat milk on primary teeth phosphate solubility immersion in carbonated beverage.

Kata kunci : *Carbonated beverage; CPP-ACP; demineralization; remineralization; whey extract of etawa's goat milk.*

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