

INTISARI

Email merupakan bagian terkeras dari tubuh yang tersusun atas mineral anorganik berupa kristal hidroksiapatit. Proses demineralisasi menyebabkan kristal hidroksiapatit melepaskan ion kalsium dan fosfat dan terbentuknya pori-pori pada email. Ion kalsium dan fosfat dapat melekat kembali dan berdifusi ke dalam pori-pori email melalui proses remineralisasi. Remineralisasi oleh saliva terjadi secara perlahan dan memerlukan bantuan bahan tambahan untuk meningkatkan efek remineralisasi. Cangkang telur puyuh memiliki kandungan kalsium yang tinggi dan dapat dimanfaatkan sebagai bahan remineralisasi. Tujuan penelitian ini adalah untuk mengetahui pengaruh aplikasi pasta cangkang telur puyuh terhadap kadar kalsium pada remineralisasi gigi.

Lima gigi premolar satu dipotong menjadi 2 bagian, sehingga terdapat 10 sampel yang dibagi menjadi 2 kelompok. Kelompok I, gigi premolar diberi aplikasi etsa asam 37% dan diberi perlakuan dengan pasta cangkang telur puyuh selama 14 hari. Kelompok II sebagai kelompok kontrol tanpa perlakuan pasta, gigi premolar diberi etsa asam 37%. Pengamatan kadar kalsium dilakukan menggunakan *scanning electron microscope-energy dispersive X-ray spectroscopy*. Hasil dianalisis menggunakan uji *paired sample t-test* ($p < 0,05$).

Hasil penelitian menunjukkan bahwa antara kelompok kontrol tanpa perlakuan dibandingkan perlakuan terdapat perbedaan kadar kalsium yang signifikan. Berdasarkan hasil penelitian dapat disimpulkan pasta cangkang telur puyuh konsentrasi 20% signifikan dapat meningkatkan kadar kalsium pada proses remineralisasi gigi.

Kata kunci: Cangkang telur puyuh, kalsium, remineralisasi

ABSTRACT

Enamel is the hardest part of the body composed of inorganic minerals in the form of hydroxyapatite crystals. The demineralization process leads hydroxyapatite crystals to release calcium and phosphate ions and forms pores in the enamel. Calcium and phosphate ions can reattach and diffuse into the enamel pores through the remineralization process. Natural remineralization by saliva occurs slowly and requires additional agents to enhance the remineralization effect. Quail eggshells contain a high calcium content and have potential as a remineralization agent. The aim of this study was to determine the effect of quail eggshell paste on calcium levels during tooth remineralization process.

Five first premolar teeth were cut into 2 parts, resulting in 10 samples that were divided into 2 groups. Group I was treated with a acid etch 37% and followed by application quail eggshell paste for 14 days. Group II as the untreated control group, was given acid etch 37%. The observation of calcium levels was performed using scanning electron microscope-energy dispersive X-ray spectroscopy. The data results were analyzed using paired sample t-test ($p < 0.05$).

This study showed that between the untreated control compared to the treatment group there was significant difference in calcium levels. Based on the study, it can be concluded that 20% concentration of quail eggshell paste significantly can increase calcium levels during tooth remineralization process.

Keyword: Quail eggshell, calcium, remineralization