

## INTISARI

Lesi bintik putih merupakan tampilan klinis awal pada gigi yang mengalami karies akibat demineralisasi. Demineralisasi merupakan kondisi terlarutnya hidroksiapatit gigi. Remineralisasi bertujuan untuk mengembalikan mineral gigi yang hilang akibat demineralisasi. Remineralisasi terjadi ketika ion kalsium dan fosfat terdeposisi ke permukaan gigi menjadi hidroksiapatit. Tulang ikan lele memiliki kandungan hidroksiapatit yang berpotensi digunakan sebagai bahan remineralisasi. Penelitian ini bertujuan untuk mengetahui efek pemberian pasta hidroksiapatit ekstrak tulang ikan lele terhadap kepadatan email berlesi bintik putih.

Sampel terdiri dari lima belas gigi premolar bebas karies yang masing-masing dibelah menjadi dua bagian. Lesi diinduksi melalui aplikasi asam fosfat 37% selama 60 detik pada permukaan servikal proksimal gigi. Sampel dibagi secara acak menjadi empat kelompok: perlakuan (pasta hidroksiapatit tulang ikan lele), kontrol positif (CPP-ACP), kontrol negatif (tanpa perlakuan), dan kontrol standar (tanpa lesi dan tanpa perlakuan). Hidroksiapatit diekstrak melalui metode *heat treatment* pada suhu 700°C selama 4 jam. Pasta diaplikasikan dua kali sehari selama enam hari. Sampel disimpan dalam saliva buatan yang diganti tiap 12 jam. Kepadatan email diukur menggunakan mikroradiograf dan dianalisis dengan uji ANOVA dan Tukey ( $p < 0,05$ ).

Hasil ANOVA menunjukkan perbedaan bermakna pada perbandingan semua kelompok. Perbandingan antara aplikasi hidroksiapatit tulang ikan lele dengan CPP-ACP tidak berbeda bermakna. Disimpulkan bahwa hidroksiapatit ekstrak tulang ikan lele bermakna meningkatkan kepadatan email berlesi bintik putih serta kemampuan hidroksiapatit tulang ikan lele dan CPP-ACP setara untuk meningkatkan kepadatan email berlesi bintik putih.

**Kata kunci:** tulang ikan lele, lesi bintik putih, remineralisasi, kepadatan email, hidroksiapatit

## ***ABSTRACT***

White spot lesions are the initial clinical manifestation of teeth affected by caries due to demineralization. Demineralization is the condition in which hydroxyapatite in the tooth dissolves. Remineralization aims to restore the lost mineral content due to demineralization. This process occurs when calcium and phosphate ions are deposited on the tooth surface, forming hydroxyapatite. Catfish bones contain hydroxyapatite, which has the potential to be used as a remineralizing agent. This study aims to determine the effect of applying hydroxyapatite paste extracted from catfish bones on the enamel density of teeth with white spot lesions.

The samples consisted of fifteen caries-free premolars, each of which was split into two parts. Lesions were induced by applying 37% phosphoric acid for 60 seconds on the proximal cervical surface of the teeth. Samples were randomly divided into four groups: treatment (catfish bone hydroxyapatite paste), positive control (CPP-ACP), negative control (no treatment), and standard control (no lesion and no treatment). Hydroxyapatite was extracted using the heat treatment method at 700°C for 4 hours. The paste was applied twice daily for six consecutive days. Samples were stored in artificial saliva, which was replaced every 12 hours. Enamel density was measured using microradiography and analyzed using ANOVA and Tukey tests ( $p < 0.05$ ).

Results of this study showed significant differences among all groups. The comparison between catfish bone hydroxyapatite and CPP-ACP showed no significant difference. It was concluded that catfish bone hydroxyapatite significantly increased enamel density in white spot lesions, and its effectiveness was comparable to CPP-ACP.

**Keywords:** catfish bone, white spot lesions, remineralization, enamel density, hydroxyapatite