

## **Abstract:**

**Introduction:** *Despite the high prevalence of dental caries, there is little information on the ability of remineralization of varnish fluids containing CPP-ACP. The aim of this study is to compare the effect of fluoride varnish with and without CPP-ACP on demineralized lesion of primary dentition by measuring surface micro hardness of enamel.*

**Materials and Methods:** *In this Experimental research, 50 naturally exfoliated primary incisor teeth were taken from 6 to 10 years old children. After preparation of teeth and standard flat surfaces, synthetic demineralized lesions were made in enamel samples by immersion in demineralizing solution for 96 h in incubation. Four different fluoride varnishes, MI varnish, V varnish, Centrix varnish, Ariadent varnish were investigated; baseline surface micro hardness was measured and Vickers micro hardness grade were evaluated for each sample. After demineralization and varnish application, all samples were subjected to a pH cycle for 8 days, and the enamel surface hardness was measured after the pH cycle using a Vickers micro hardness apparatus, and the results obtained using the Paired t-test and analysis of covariance that were analyzed with SPSS software version 22.*

**Results:** *The results showed that there was a significant difference in the surface micro hardness of the primary enamel white spot lesions after using and not using varnishes. Also, fluoride varnish containing CPP-ACP (MI Varnish) improves the surface micro hardness of the enamel white spot lesions more than other non-CPP-ACP varnishes used in this study, but there is no significant difference in the surface micro hardness of white spot lesions in V.varnish groups with Centrix. Ariadent and Centrix with Ariadent.*

**Conclusion:** *Fluoride varnishes containing CPP-ACP especially MI Varnish increase the surface micro hardness of the enamel white spot lesions.*

**Keywords:** *Varnish, CPP-ACP, Micro hardness, Remineralization.*