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## The Efficacy and Durability of Three Desensitising Agents for Management of Hypersensitive Teeth: An In Vitro Study

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### ABSTRACT

Dentine hypersensitivity (DH) is a brief and acute pain produced when dentine is subjected to various stimuli. The treatment for DH has been classified by mode of delivery as at-home and in-office therapy. It was proven that desensitising agents have the capacity for occluding dentinal tubules. This study aimed to evaluate the efficacy and durability of desensitising agents for the management of DH. Twelve non-carious extracted human permanent premolars were sectioned into the dentine layer. The dentine disc specimens were divided into 4 groups. Each group was applied with 8% arginine-calcium toothpaste, 0.24% sodium fluoride toothpaste, potassium nitrate toothpaste, and distilled water. A Scanning Electron Microscope (SEM) is used to evaluate the magnitude changes of dentinal tubules post-treatment with the desensitising toothpaste in terms of efficacy and durability at day 1, week 1 and week 3 after application. The data were analysed by analysis of variance (ANOVA) using the Statistical Package for the Social Sciences (SPSS) software (version 19.0). All toothpaste demonstrated significant dentinal tubule occlusions. However, 8% arginine-calcium toothpaste showed the greatest percentage of occlusion at day 1 followed by potassium nitrate toothpaste and sodium fluoride toothpaste. After 3 weeks, 8% arginine-calcium toothpaste remains the greatest percentage of dentinal tubules occlusion. The result showed that 8% arginine-calcium toothpaste is the most efficient and has longer durability than the other toothpaste. Therefore, this finding could help the patient in the selection of desensitising toothpaste in managing the DH.

**Keywords:** Dentine hypersensitivity, Desensitising agent, 8% Arginine-calcium, 0.24% Sodium fluoride, Potassium nitrate toothpaste