SYNTHESIS OF FLUORIDE-CONTAINING VARNISH FOR DENTAL CARIES

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Fluoride-containing varnishes are applied on teeth surfaces to prevent forming of dental caries and to treat already available caries, especially in children. Dental caries is permanent damage or decay caused by the development of tiny holes in the tooth enamel due to the demineralization of the tooth. Fluoride is a mineral, and it helps in preventing tooth decay. Sri Lanka imports fluoride-containing varnishes. However, due to the economic meltdown, there are limitations on imports. It is crucial to manufacture these kinds of products locally for the development of the country. In this study, a fluoride-containing varnish is synthesized and characterized. The laboratory-synthesized varnish has 4A grade adhesion and 4.6 minutes of set-to-touch time. Furthermore, the teeth surfaces before and after applying the varnish were analyzed using Energy-Dispersive X-ray spectroscopy (EDX) and Scanning Electron Microscopy (SEM). The porous structures of the demineralized teeth are clearly observed. Fluoride adsorption to the tooth surfaces is about 5.53%.

Keywords: Dental Caries, Fluoride Varnish, Demineralization, Primary Molars, Enamel