AN EVALUATION OF DEMINERALIZATION POTENTIAL OF QAT EXTRACTS ON SMOOTH ENAMEL SURFACE AND RESTORATION INTERFACE

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ABSTRACT

Millions of people in Yemen and East Africans countries chew qat for its amphetamine-like effects for more than 5 hours daily (Kalix, 1987). There is obscure information in the literature concerning the possible effects of this habit on enamel demineralization and at restoration interface.

Purpose of Study: To evaluate the demineralization potential of qat extracts on smooth enamel surface and restoration interface.

Materials and Method: Class V cavities were prepared on the buccal surface of thirty extracted sound premolars and were restored with a nano-hybrid composite (Grandio, VOCO, Germany). Specimens were subsequently coated with nail varnish exposing 2mm of enamel around the restoration margin and an area of 3mm x 2mm on the lingual surface. The specimens were divided into three equal groups of 10 and immersed in acid gel and qat extracts (10% and 20%) for 4 weeks. All specimens were removed and washed by deionized water. All specimens were examined by direct vision and stereomicroscope. All specimens were sectioned and immersed in distilled water for 24 hours, following which the sections were examined under polarized light microscope and demineralized area was measured using image analyzer software (Image-Pro Version 4.5). Data were subjected to two statistical procedures: One-way ANOVA and One-way MANOVA.

Results: All specimens immersed in acid gel and qat extracts (10% and 20%) exhibited demineralization on the smooth enamel and at the restoration interface. The mean depth of demineralization on smooth enamel for the acid gel group, 10% qat extract group and 20% qat extract group were 311.23µm (±71.07), 146.54µm (±33.76) and 153.89µm (±44.68) respectively. Results of the One-way ANOVA indicated that the acid gel group was significantly different from 10% and 20% qat extract groups. The One-way
MANOVA also indicated significant differences between the three groups on the different restoration interface. Acid gel showing greater outer lesion depth at coronal and cervical part of restoration. However no significant difference was found between 10% and 20% qat extract. A significant difference between acid gel and 20% qat extract was found for the coronal wall and cervical wall at restoration interfaces. However, there are no significant differences between the 10% qat extract and acid gel and between 10% and 20% qat extract (p< .05). The ANOVA indicated no significant interaction between demineralizing agent and location of lesion, but significant main effect for demineralizing agent. The location main effect, on the other hand, was not significant.

**Conclusion:** Qat extract caused significantly lower demineralization on smooth surface enamel and at restoration interface compared to acid gel.
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