

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

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**DISSERTATION SUBMITTED IN FULFILLMENT
OF THE REQUIREMENTS
FOR THE DEGREE OF MASTER OF DENTAL SCIENCE**

**DEPARTMENT OF CONSERVATIVE DENTISTRY
FACULTY OF DENTISTRY**

**UNIVERSITY OF MALAYA
KUALA LUMPUR
MALAYSIA**

2007

UNIVERSITI MALAYA

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ABSTRACT

Millions of people in Yemen and East African 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 311.23 μ m (\pm 71.07), 146.54 μ m (\pm 33.76) and 153.89 μ m (\pm 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.

ACKNOWLEDGEMENT

I thank Allah for giving me the strength and capability to fulfill this work, and giving me the health and patience to keep going.

With much gratitude I would like to thank my supervisor the Deputy Dean, Faculty of Dentistry, University of Malaya Assoc. Prof. Dr. Noor Hayaty Abu Kasim, for her encouragement, help and efforts. Her smart advice as well as her encouragement will never be forgotten. Without her moral support, this study would not have been possible. I am also grateful for my co-supervisor the Deputy Dean, Faculty of Dentistry, University Teknologi MARA, Assoc. Prof. Dr. Rohana Ahmad for her moral support and encouragement during the early days of my study.

I am truly grateful for the head of Conservative Department, Faculty of Dentistry, University of Malaya Professor Dato' Dr. Abdul Aziz Abdul Razak for his guidance and support during my study. My thanks also extended to the head of Oral Biology Department Professor Dr. Zubaidah Hj A. Rahim for giving me support, guidance and permission to use the Oral Biology Laboratory. I also wish to thank the staff of Oral Pathology Department for their guidance to use polarized light microscope and Image Analyzer.

My thanks are also extended to staff of research lab in Faculty of Dentistry, University of Malaya for their help and guidance during my work. Special acknowledgment is also given to University of Malaya for awarding me this opportunity to carry out my research interest. I want to thank Dr. Noor Lide Abu Kasim for her help and guidance during the statistical analysis.

My deepest thanks are also extended to Professor Daranee Tantbirojn (Minnesota Dental Research, U.S.A), Professor James Wefel (Dows Institute for Dental Research, U.S.A). Dr. Adilson Ramos (Brazil), Dr. Wail Al-Omari (Jordan University of Science and Technology), Dr. Ali Al-Sharabi (Faculty of Dentistry, University of Sana'a, Yemen), and Dr. Nezar Al-Hebshi (Faculty of Dentistry, University of science and Technology, Yemen), for their helpful advice and guidance throughout my research program.

I would like to express my acknowledgment to University of Sana'a, Yemen for providing me the scholarship.

My special and warm thanks extended for my father Dr. Rashad Mohammed Al-Alimi, and my great mother without their support, prayers and unending loves, I would have never been able to even consider this study. Warm appreciation is extended to my wonderful brothers for their unlimited support and help.

Last but not least, I thank my wonderful wife for her patience and moral support throughout the period of this study.

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