

ABSTRACT

Purpose of the study: To evaluate the effects of different pH (acidic, neutral and alkaline) on microleakage of the Class V composite restoration.

Materials and Method: Class V cavities were prepared on buccal surface of human premolar, 2 mm away from cemento-enamel junction and restored with composite (3M Filtek™ Z 250) using Scotchbond™ Etching Gel and Adper™ Single Bond 2. The teeth were immersed in distilled water for one week to achieve complete polymerization and then thermocycled for 500 cycles. The specimens were dried and divided into 7 groups of 10 teeth each: group A: pH 2.5, group B: pH 3.5, group C: pH 4.5, group D: pH 5.5, group E: pH 7 (control group), group F: pH 8.5 and group G: pH 11.5. After 10 minutes immersion in respective pH solutions, specimens were dried and coated with two layers of nail varnish exposing 2 mm of enamel around the restoration. Root tips of the teeth were sealed with sticky wax. Subsequently, the specimens were immersed in 2 % methylene blue dye for 24 hours. The specimens were then washed, mounted in epoxy resin and sectioned longitudinally. Image Analyzer was used to examine the occlusal and cervical microleakage using scoring system of 0, 1, 2 and 3. Data obtained was analyzed using Chi-Squared and Fisher's Exact tests.

Results: Microleakage was present in all groups. At the occlusal margin, score 3 was seen highest only in Group A (pH 2.5) which were 60% , whereas at the cervical margin, group A (pH 2.5) and group D (pH 5.5) showed highest reading with 60% microleakage. Statistical analysis using Chi-Square and Fisher's Exact tests showed no significant difference in microleakage at occlusal or cervical margins between the pH groups with $p=0.834$ ($p> 0.05$) and 0.339 ($p> 0.05$).

Conclusions: Within the limitation of this study, it can be concluded that different pH cause no significant effect on occlusal or cervical microleakage in a Class V composite restoration.

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DECLARATION

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Title of Project/Research Report/Dissertation/Thesis ("this work")

**EFFECTS OF DIFFERENT pH ON MICROLEAKAGE OF CLASS V COMPOSITE
RESTORATION: AN *IN-VITRO* STUDY**

Field of Study: **Conservative Dentistry**

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Designation: **Supervisor/Lecturer**