

The comparative evaluation of the effects of quercetin, α -tocopherol, and chlorhexidine dentin pretreatments on the durability of universal adhesives

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Abstract

Objective: The aim of this study was to evaluate and compare the effects of chlorhexidine, quercetin, and α -tocopherol on the shear bond strength of universal adhesives in the short (24h) and long term (6 months).

Material and Methods: Ninety-six extracted sound molars were collected and divided randomly into four groups: control (no treatment), 2% chlorhexidine, 10% α -tocopherol, and 1% quercetin. The solutions were prepared and applied to the teeth for 60 s, followed by application of All-Bond universal adhesive and composite build-up. Half of the specimens in each group ($n = 12$) were tested for shear bond strength (SBS) after 24 h of storage and the other half were kept in distilled water for 6 months and then tested for shear bond strength. The shear bond strength test was performed and the failure modes were determined using a stereomicroscope. The data were analyzed using two-way analysis of variance and Tukey's post hoc tests with $p < .05$ as the significance level.

Results: The results of the two-way analysis of variance test showed that there was no significant difference in immediate SBS, and after 6 months, α -tocopherol had the lowest SBS in comparison to the control and CHX subgroups ($p < .05$). The t -test showed that the shear bond strength in the α -tocopherol and quercetin groups was significantly decreased after 6 months.

Conclusion: It can be concluded that the solutions used in this study had no adverse effect on immediate SBS. After 6 months, the CHX could preserve SBS in comparison to other groups.

KEYWORDS

α -tocopherol, chlorhexidine, dentin bonding agents, quercetin

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author.

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