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Evaluation of Color Stability of 3 Different Single-Shade Composite Materials

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Objectives The aim of this study was to evaluate and compare the effect of coffee and a whitening mouthwash on color stability of three single-shade resin composite materials.

Methods 3 single-shade resin composites (Tokuyoma Omnicroma-OMN, Kulzer Charisma Diamond One-ONE, FGM Vittra Unique-UNQ) were tested. From each composite 10 disk-shaped (5 x 4 mm) were prepared (n = 10) samples. Each group was then divided into two subgroups (n=5); coffee and distilled water immersion. Color measurements were made at initial, first day and 7th day using a clinical spectrophotometer (VITA Easyshade) according to the CIELab color system. After 7 days of coffee immersion, all samples were immersed in whitening mouthwash (Listerine Advanced White) and shaken continuously for 60 seconds, rinsed under running water for 30 seconds. Then were placed in distilled water. After this 4-week bleaching cycle, color measurements were made. One-way analysis of variance (One-way ANOVA), Tukey post-hoc test and independent t-test statistical analyses were used to evaluate color changes (ΔE) and significance level was set as $p \leq 0.05$.

Results According to the data obtained, after one day of immersion in coffee, Group OMN 7,58(0,24)^a was significantly less colored than the other groups. After one week of coffee immersion, Group UNQ 12.83(0.66)^b was significantly more colored. After whitening mouthwash, Group OMN 7.6 (0.45)^a whitened the most and Group UNQ 11.23 (0.43)^c whitened the least.

Conclusions The use of coffee causes discoloration of composite restorations. Whitening mouthwashes without hydrogen peroxide can contribute slightly to whitening by removing superficial staining without extra whitening effect on composite restorations. The effect is lower than other professional teeth whitening methods. It can therefore be considered as a complementary treatment to prevent recurrent tooth and restoration discoloration.