



Original Research

Spectrophotometric Evaluation of Color Changes of Nanohybrid and Microhybrid Resin-Composite Materials after Staining and Bleaching: An In Vitro Study

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Abstract

Introduction: This study evaluated the impact of coffee, tea, and Coca-Cola and bleaching with 35% H₂O₂ on nanohybrid and microhybrid resin-composite. **Methods:** Forty discs of nanohybrid and microhybrid resin-composite materials were fabricated, and their baseline color was assessed. Specimens were divided into four groups (n= 10), immersed in distilled water, tea, coffee, or Coca-Cola for 3 h/day over 40 days, followed by color evaluation. Specimens underwent bleaching with 35% H₂O₂ before the third color assessment. Color changes were measured using the CIE Lab system, and results were analyzed with a two-way analysis of variance at $P < 0.05$. **Results:** Both resin composites showed clinically unacceptable color change ($\Delta E > 3.3$) after coffee, tea, and Coca-Cola immersion. Nanohybrid discs immersed in coffee showed the highest color change. The difference between the color after bleaching and the baseline color (ΔE_3) was >3.3 for both composites in all groups except for the microhybrid composite in the Coca-Cola group. **Conclusion:** Postbleaching, specimens showed significant color enhancement; however, they did not return to baseline color levels.