

Abstract

Assessment of the effect of accelerated aging on the surface roughness of cloud shade and nanohybrid resin composites

Abstract Introduction: Today, patients are looking for tooth-colored restorations such as laminates and composite resins. Some studies emphasize that the biggest current challenge for composites is to maintain and enhance the factors associated with tooth color coordination and restorative composites. One of the latest developments is the introduction of cloud shade composites. Due to the optical properties of their fillers, these composites have the ability to reflect the shadows of their environment. Surface roughness is considered as a very important feature for the life of restorations, where values $> 0.2 \mu\text{M}$ show a significant increase in bacterial retention. In addition, this roughness may be related to other variables. The aim of this study was to investigate the changes in surface roughness of cloud shade composites due to accelerated aging.

Materials and Methods : 28 composite disks were prepared from two types of composites with cloud shade and conventional properties and from two shades a2 and xbw. The surface roughness of the composites was investigated twice before and after accelerated aging with a profilometer. Accelerated aging included 2,000 thermocycle cycles. T-test was used to compare changes in surface roughness in a group. ANOVA test was used to compare the changes in surface roughness in the two groups.

Results : In this study, no significant changes were observed between the two types of composites in the data before accelerated aging, after accelerated aging and the difference in surface roughness. Also, the difference between classic and Bleach shades was not statistically significant.

Conclusion : In the present study, no difference was observed between cloud shade and conventional composites in terms of surface roughness. The findings of this study emphasize the importance of the presence of camphorquinone photo-initiator in the structure of composites.

Keywords : Surface roughness, Accelerated aging, cloud shade Composites.