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RESIDUAL MONOMER DETERMINATION OF DENTAL RESINS WITH DIFFERENT PHOTOINITIATORS

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The aim of this study was to determine the amount of residual monomers [triethylene glycol dimethylacrylate (TEGDMA) and 2,2-bis[4-2(2-hydroxy-3-methacryloxypropoxy) phenyl] propane (BisGMA)] in dental resins prepared with different photoinitiators using high performance liquid chromatography (HPLC). Three experimental resins were manipulated by varying the photoinitiators: I-) camphorquinone(CQ)/amine, II-) phenylpropanedione(PPD)/amine, III-) PPD+CQ/ amine. Two different light sources were used for photoactivation of the resins: halogen lamp (Demetron LC/SDS Kerr- USA) and LED (Poly 600/Kavo- Brazil), with 600 mW/cm^2 during 40 seconds. Specimens (n=6) of each experimental resin were immersed in acetonitrile (5 mL – 24 h). Monomers were detected by UV absorbance at 210 nm, on a C18 (NST) column. The separation was performed using phase A – water + triethylamine + acetic acid pH 4 and phase B – acetonitrile, at a flow rate of 1.0 mL min^{-1} by using a gradient run (40-85% – 17 min at 55°C). The concentration of residual monomer in each sample solution was calculated using the respective linear regression equation from the calibration graphs. The determination of the residual monomer (wt.%) of samples (n=3) from the same specimen was performed and hence a mean residual monomer value for that specimen was calculated. Resin I achieved the best result and the resin II the worst result for the amount of residual monomers released. The halogen lamp had the similar behavior in the three resins; however the LED had the best overall result in the resin I and the worst result in the resin II. Resins with camphorquinone as photoinitiator, with or without the association of PPD showed lower amounts of residual monomers release.

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SYNTHESIS AN DENTAL MONO

Viol

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Although the dental ma times, the major com diglycidyl methacrylate triethyleneglycol dimeth materials, one of the m reduce polymerization composites.[1] Among th and enamel has req monomers or phospho which are capable to fo the other hand, the con employed in accessible to create polymer ne composite resins, efficie To provide a better adh functionalized monome data concerning the sy be tested in formulatio concerning the photop UV irradiation investig conversion and polym together with some pro mechanical parameters

Acknowledgement: This 0164.

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