

Effect of silver nanoparticles on the stability of epoxy resin Bis GMA composite

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Many authors have been trying to develop materials with antimicrobial activity and apply them to different segments of Dentistry. Biocompatibility and significant antimicrobial activity encourage the use of silver nanoparticles in biomaterials. The aim of this study was to develop an experimental resin composite based on Bis-GMA and TEGDMA filled with silver nanoparticles at a concentration of 100ppm in order to verify its antibacterial activity against *Streptococcus mutans*. Synthesized silver nanoparticles were characterized by UV-vis (Visible Ultraviolet Spectroscopy), DLS (Dynamic Light Scattering), TEM (Transmission Electron Microscopy), microbiological test, and XRD (X-ray Diffraction) techniques. Final experimental composites were characterized by TGA (Thermogravimetric Analysis), FTIR (Fourier Transform Infrared Spectroscopy), RAMAN (Raman Spectroscopy), and a direct contact antibacterial test. Results showed nanoparticles with approximately 5 nm and crystalline orientation. Silver nanoparticles interfere in the polymerization process affecting the thermal stability of the material.