Synthesis of an experimental resin adhesive with the aggregate of silver nanoparticles

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Resume

Objetives. Synthesize and characterize an experimental adhesive with the addition of silver nanoparticles (nAp).

Methods. The synthesis of an adhesive system formulated with 66.6% by weight of bisphenol A glycol dimethacrylate (bis-GMA), 33.3% by weight of 2-hydroxyethyl methacrylate (HEMA), camphorquinone (CQ) and 4 1 mol % ethyl dimethylaminobenzoate (EDAB) as photoinitiator system, and 0.01 wt% butylated hydroxytoluene (BHT) (all reagents from Aldrich Chemical; St Louis, MO, USA). The inorganic silver fillers will be added to the adhesive separately (5, 10 and 20 µg/ml). A group without additional loads will be used as a control. The degree of conversion, dentin microblasting, cohesive resistance, particle distribution and antibacterial analysis will be tested.

Expected results. It is expected to observe an increase in the antibacterial capacity in the groups with the addition of nAp compared to the other groups. On the other hand, it is not expected to observe differences regarding the degree of conversion, cohesive resistance, and resistance to dentin microshearing. It is expected to observe greater nAp agglomeration in the groups with an aggregate of 20 µg/ml.

Key words. Dentin adhesive; antibacterials; silver compounds.

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