This research project’s hypothesis is if the use of the prototype S-PRG sealer with antibacterial properties will reduce remaining microorganisms that cause infection. The purpose of this research project is, by using extracted human teeth, to evaluate the clinical applications in vitro of the prototype S-PRG sealer and to compare it with two other commercially available sealers, such as Bioceremic (BC) Sealer (Brasseler, Savannah, GA, USA) and ProRoot mineral trioxide aggregate (MTA) sealer (Dentsply, Tulsa, OK, USA). The specific aims of this research project are to evaluate (1) radiopacity of material using digital radiograph (X-rays), (2) efficacy of three dimensional fillings and dentin-material interface using micro computed tomography (µCT) technology (three dimensional X-ray), and (3) release time and concentration of critical ions from clinically simulated root canal dentin using spectrometer.