Abstract: Background and Objectives: The aim of the present study was to evaluate the antibacterial activity of endodontic sealers of different bases in an in vitro study.

Materials and Methods: The sealers to be tested were grouped as Group I- Glass ionomer based sealer (Ketac Endo Applicap), Group II- Polydimethyl Siloxane based sealer (Gutta Flow), Group III- Zinc oxide eugenol sealer, Group IV- Urethane Dimethacrylate resin based sealer (Endo Rez) and Group V- Control. For the direct contact test, the sealers were mixed and placed on the side wall of microtitre plate wells. A 15 μL bacterial suspension was placed on the tested material samples. Bacteria were allowed to directly contact the sealers for 70 minutes at 37°C, after which we added fresh broth. These were designated as ‘A’ wells. 20 μL was transferred from these A wells to an adjacent set of 3 wells containing fresh medium (200 μL) which were designated as ‘B’ wells and the bacterial growth was then spectrophotometrically measured in both A wells and B wells every 20 min for 20 hours. The mean zones of inhibition were measured.

Results: A measurement of turbidity that is based on the kinetics of bacterial growth, with the help of a spectrophotometer. The sealers evaluated in this study showed different inhibitory effects. Zinc oxide Eugenol based sealer was the least effective against Enterococcus faecalis, whereas Glass ionomer based and Polydimethyl Siloxane based sealers were effective only for a short period.

Conclusions. The antibacterial activity of the endodontic sealers have direct relation with the mixing and testing times. All sealers exhibit bactericidal effect when freshly mixed.

Antibacterial activity; Endodontic sealer; Spectrophotometer; Enterococcus faecalis.

Presentation: Poster