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**Bacterial Adhesion and Surface Roughness of Particulate-Filled and Short Fiber-Reinforced Composites**

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**Objectives** This work intended to assess the initial adhesion of *Streptococcus mutans* (*S. mutans*) and surface roughness of different particulate-filled (PFC) and short fiber-reinforced (SFRC) composites.
**Methods** Five PFC composites (CeramX Universal, Filtek Universal, Omnichroma, Tetric Prime and Venus Diamond) and four SFRC composites (everX Posterior, everX Flow Bulk, everX Flow Dentin and experimental packable SFRC) were tested in this study. A non-contact 3D profilometer has been employed to assess the surface roughness (Ra) of the polished specimens (using 4000-grit abrasive paper). For the bacterial adhesion test, the specimens (n=5/group) were immersed in a solution of *S. mutans* to facilitate initial adhesion. In order to determine the number of cells on the surfaces of the discs as colony forming units (CFU), the vials holding the microbial samples were aggressively agitated using a Vortex machine. Subsequently, the samples were diluted multiple times and anaerobically incubated for 48 hours at 37°C on Mitis salivarius agar plates (Difco) supplemented with bacitracin. Bacterial adherence assessment was performed using SEM. The data was analyzed using ANOVA.
**Results** All tested PFC and SFRC composites showed similar adhesion of *S. mutan*. The lowest Ra values (0.26 µm) ($p<0.05$) were found in the flowable SFRCs (everX Flow Bulk & Dentin) while the highest values ($p<0.05$) were observed in CeramX and everX Posterior (0.42 µm). Experimental SFRC had comparable Ra value (0.38 µm) than other commercial composites.
**Conclusions** The presence of short microfibers in the composite appeared to have no adverse effects on the initial adhesion of bacteria or the surface roughness.