

A Fast and Cost-Effective Method to Monitor Microplastics in Compost and Soiduration of Enterococcus Faecalis Penetration in Environmentally Exposed Root Canals Obturated With Lateral Condensation Technique

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Abstract : Objective: The aim of this study was to evaluate the duration of the Enterococcus faecalis (E. faecalis) penetration into the gap between root canal wall and filling material at a 3 to 6 mm distance from the cementoenamel junction (CEJ) in the dislodged temporary filling, in vitro. Material and methods: Thirty-four single root canal mandibular premolars were divided into two experimental groups (N = 15) and one negative control (N = 4). Root canals were prepared and obturated with gutta-percha using lateral condensation technique, X-ray checked, and sterilized. Leakages were set up using the modified bacterial leakage model, and E. faecalis was used as a microbial marker. Leakages were evaluated at 3 and 7 days by culturing gutta-percha and dentine drilled from a 3-6 mm distance from CEJ. Broth turbidity was recorded and compared. Result: All four negative control and the 3-day experimental group showed no broth turbidity. For the 7-day experimental group, there was 33.3% leakage. Conclusion: Penetration of E. faecalis into the gap between root canal wall and filling material at a 3 to 6 mm distance from CEJ in the dislodged temporary filling were not found at three days. However, at seven days of exposure, bacteria could penetrate into the interface of the root canal and filling materials.

Keywords : coronal leakage, bacterial leakage model, enterococcus faecalis

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