**ABSTRACT.**

**Aim:** The purpose of this in-vitro study is to compare fracture resistance and push-out bond strength to root canal dentin using three different root canal sealers.

**Materials and Methods:** Fifty-five extracted single-rooted mandibular premolars of similar sizes were selected randomly and decoronated to a length of 14mm. Forty teeth were subjected for evaluation of fracture resistance and remaining fifteen for push-out bond strength. I) For fracture resistance, teeth were randomly divided into 5 groups (n=10) for each experimental groups and (n=5) for each control groups. In group 1, the teeth were left unprepared and unfilled (negative control), and in group 2, the teeth were left unobturated (positive control). The rest of the roots were prepared by using the ProTaper System up to a master apical file size of F3: group 3, bioceramic sealer (Endosequence BC sealer) + gutta-percha; group 4, mineral trioxide aggregate based sealer (MTA Fillapex) + gutta-percha; and group 5, epoxy resin–based sealer (AH Plus Jet) + gutta-percha. All root specimens were stored for 2 weeks at 100% humidity to allow the complete setting of the sealers. Each specimen was then subjected to fracture testing by using a universal testing machine at a crosshead speed of 1.0 mm/min until the root fractured. The force required to fracture each specimen was recorded. II) For push-out bond strength, fifteen decoronated teeth were randomly divided into 3 groups. All roots were prepared in similar way as described earlier: group 1, bioceramic sealer (Endosequence BC sealer) + gutta-percha; group 2, mineral trioxide aggregate based sealer (MTA Fillapex) + gutta-percha; and group 3, epoxy resin–based sealer (AH Plus Jet) + gutta-percha. Two horizontal sections were prepared at a thickness of 1mm ± 0.1 in the coronal parts of each root, resulting in (n=10) specimen in each group. The test specimens were subjected to the push-out test method using a universal testing machine with loading speed of 1.0 mm/min and push-out data were recorded. Data’s obtained were analyzed statistically by one-way analysis of variance (ANOVA) and the post hoc tukey test, with significance set at P < 0.05.

**Results:** There was no significant difference between groups 3, 4 and 5 (P > .05) in fracture resistance values. Whereas, groups 1 and 3 had significantly higher bond strength values than the group 2 (P < .05). However, there was no significant difference between groups 1 and 3 (P > .05) in bond strength values.

**Conclusion:** All the three root canal sealers examined in this study strengthened the prepared root canals with increased fracture resistance. MTA Fillapex had the lowest push-out bond values to root dentine compared with other two sealers used in this study.

**Key words:** Endosequence BC sealer, AH Plus Jet, MTA Fillapex, fracture resistance, push-out bond strength.