

**ABSTRACT**

**Background:** During chemomechanical preparation, there is generally extrusion of irrigating solution from apical foramen which can trigger inflammatory response and inhibit the healing of periapex tissues. Several irrigation device have been developed commercially for irrigation of root canal system using passive ultrasonic irrigation (PUI) and sonic agitation. **Purpose:** This study evaluated the influence of passive ultrasonic irrigation (PUI) system and agitation sonic on irrigant extrusion during root canal instrumentation. **Method:** 30 lower premolar teeth post orthodontic extraction divided into three groups: Conventional Irrigation Techniques (Control Group), Passive Ultrasonic Irrigation (Group 1) and agitation sonic (Group 2). Each irrigation techniques using EDTA 17% solution and the extrusion solution were collected in Eppendorf tube containing aquadest sterile, and the turbidity of solution result was shows the extruded. The extrusion were measured by spectrophotometer. **Result: Result:** The mean result of absorption for each control group (conventional technique), passive ultrasonic irrigation (Endo Ultra System) and agitation sonic (Eddy system) is 3, 258; 0, 249; 0, 154. The data were statistically analyzed by Oneway-Anova, Post Hoc, and Tukey HSD, it was significantly different ( $p < 0.05$ ). **Conclusion:** There was a significant difference between the group. The Passive ultrasonic irrigation (Endo Ultra System) has been shown greater extrusion than agitation sonic (Eddy system).

**Keywords:** irrigant extrusion, passive ultrasonic irrigation (PUI), agitation sonic, irrigation techniques