ABSTRACT

Background: Large caries and erotion on dentine require coupling agents to retain composite fillings. Coupling agent used in restorative dentistry is the bonding materials. Bonding used is hydrophilic, to be able to bind with collagen and hydrophobic, to be able to bind with composites. In a recent study, scientists discovered bonding material with chemical bond. **Objective:** To analyze the difference in chemical bond strength between 4-META-based with ethanol solvent and acetone solvent resin with collagen type I. **Methods:** There are 3 groups in this study. The first group of 4-META and collagen was mixed with KBr, the group is the positive control. The second group of 4-META, ethanol, and collagen was mixed KBr. The third group of 4-META, acetone, and collagen was mixed KBr. The three groups were then pelleted and analyzed by FTIR to calculate the peak value of the carbonyl absorption band from each study group. Data were analyzed using One Way Anova and Tukey HSD test ($p < 0.05$). **Result:** Peak value of carbonyl absorption, group I: 75.15, group II: 47.91, group III: 28,18. The smaller peak value of the carbonyl absorption bands,the greater strength of the chemical bond. **Conclusion:** The chemical bond strength of the 4-META with acetone solvent is greater than with ethanol solvent in collagen type I.

Keywords: collagen type I, 4-META, acetone, etanol, FTIR, chemical bond strength