CLBA2012
8 e 9 de novembro
Rio de Janeiro, Brasil
Associação Brasileira de Adesão e Adesivos - ABAA
Associação Portuguesa de Adesão e Adesivos - APAA
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Influence of the use of fluorescing dyes on mechanical properties of adhesive systems

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The aim of the present study was to evaluate the influence of the Rhodamine B fluorescent dye addition in cohesive strength (CS), elastic modulus (E), and flexural strength (FS) properties of two bonding agents: Scotchbond Multipuporse Plus and Clearfil Protect Bond. Thus, 0,16 mg/ml of fluorescent dye was mixed directly in the bond bottle of the adhesive systems investigated and two groups for each system adhesive were tested based on the presence or not of the dye. For analysis of CS (n=10) beam-shaped specimens were prepared and ultimate micro-tensile strength was measured at a crosshead speed of 5 mm/min. For FS and E measurement (n=5), bar-shaped specimens were evaluated using three-point bending. Data were statistically analyzed using one-way ANOVA, and Tukey's post-hoc test. No significant differences in all mechanical properties evaluated were found. The concentration of 0,16 mg of Rhodamine B dye used in this study did not affect the physical proprieties of the adhesives systems so as the interpretation data. Therefore the adhesives labeling with this fluorescent agent for confocal microscopy analysis can be well indicated in dental materials researches revealing a variety of information about bonded restorations.