



Title	Comprehensive evaluation of water sorption, solubility, degree of conversion, and long-term dentin bond strength of self-adhesive resin composites [an abstract of entire text]
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学位論文内容の要約

Comprehensive evaluation of water sorption, solubility,
degree of conversion, and long-term dentin bond strength
of self-adhesive resin composites

(自己接着性レジンコンポジットの吸水性、溶解
性、転化度、長期象牙質への接着強さの総合的評価
解析)

博士の専攻分野名称 博士 (歯学) 氏名 姚 曄
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Self-adhesive resin composites (SACs) were developed to simplify restorative procedures by minimizing the technique sensitivity of the bonding procedure. This study aimed to evaluate the microtensile bond strength (μ TBS) to dentin, water sorption (W_{SP}) and solubility (W_{SL}), and degree of conversion (DC) of self-adhesive resin composites (SACs).

The mid-coronal dentin of extracted human molars was exposed, and teeth were randomly assigned to 5 groups according to the SACs ($n = 10$): 1. FIT SA (FIT); 2. Experimental (EXP); 3. Fusio Liquid Dentin (FLD); 4. Vertise Flow (VER); 5. Constic (CON). The μ TBS was evaluated after 24 hours (24h) and 6 months (6m) storage. Failure mode and resin-dentin interface ($n = 3$) were examined using a scanning electron microscope. The W_{SP} and W_{SL} ($n = 5$), and DC ($n = 3$) were measured. The μ TBS data were analyzed using Kruskal-Wallis and Bonferroni correction for multiple tests. Water sorption data were analyzed using Welch's ANOVA and Tamhane test. Water solubility data were analyzed using One Way ANOVA and Bonferroni test. The degree of conversion data was analyzed using One Way ANOVA and the Holm-Sidak test.

FIT, EXP, and FLD produced significantly higher μ TBS median values than VER and CON after 24h and 6m ($p < 0.05$). After 6m, the μ TBS median of FIT and EXP significantly decreased ($p < 0.05$), while FLD, VER, and CON showed no significant difference ($p > 0.05$). FLD and CON exhibited lower W_{SP} than FIT, EXP, and VER ($p < 0.05$). FLD presented

the lowest ($p < 0.05$), and VER revealed the highest W_{SL} ($p < 0.05$). FIT and EXP showed the highest ($p < 0.05$), and VER demonstrated the lowest DC ($p < 0.05$).

Following the present study's design, SACs' bonding performance and physical properties remained restricted. Therefore, the application should be considered cautiously, and further clinical trials are necessary to evaluate the long-term performance.