Microhybrid and flowable microhybrid dental resin composites measured in fracture toughness

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Abstrak

Objectives. The aim of this study was to compare the fracture toughness of a microhybrid and a flowable microhyrid resin composites. Methods. Test specimens (30x15x2)mm made of a microhybrid and a flowable microhybrid were prepared in a double torsion mould and were then polymerized for 20 seconds using a light-curing device. Taken out from the mould, the specimens were than soaked in disfilled water (37°C) for 1 hour and then fractured in a double-torsion technique. t-Test was used to test significance difference between the microhybrid and flowable microhybrid resin composites. Result. The use of double-torsion technique resulted in crack initition and crack arrest which revealed Klc of 1.14 MN/m3/2 and 1.045 MN/m3/2 for the microhybrid and the flowable microhybrid resin composites, respectively. Both resin composites were insignificantly different in the fracture toughness values showed by t–Test. Conclusions. The present study suggested that there was no significant difference between the microhybrid and the flowable microhybrid resin composites tested. It appreared that filler fraction might not affect the fracture toughness of the resin composties tested.