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Vicker'sHardness and Compressive Strength Evaluation of a Dental Composite Resin Polymerized by Conventional Light and Argon Laser

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Abstract: Introduction: This is in vitro study aimed to evaluate the micro-hardness and compressive strength using three light cure units (Halogen light ,Light emitting diode LED ,Argon laser) to cure two new widely used hybrid composite resin restorative (Composan LCM , SwissTEC).

Methods :this study was performed by using two stainless steel matrixes ,matrix with 6 mm diameter and 2 mm thickness for micro- hardness test according to ISO 4049/2000 ,and matrix with 3 mm diameter and 6 mm thickness for compressive strength test according to ISO 9917. 36 samples has been prepared divided into 12 groups and curing with irradiation time (10,20)s ,micro-hardness and compressive strength has been tested for all samples.

results : the result analyzed statisticaly by using SAS2012 ,ANOVA and T test for All studied factors showed statistically significant differences ($p<0.05$) , the samples that cured by Argon laser had the highest mechanical properties from all the composite resin tested , the mechanical properties enhanced increasing irradiation time.

Conclusions : Argon laser is more efficient for curing than Halogen light and LED, and the mechanical properties enhanced with increasing the irradiation time.

Keywords: composan LCM, swissTEC, Argon laser, micro-hardness, compressive strength.

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