

**The Effect of Four Types of  
Photo-Activation Devices on Flexural  
Strength of Two Types of Composite  
Restorative Resins  
(in vitro study)**

A thesis

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## ABSTRACT

The purpose of this in vitro study was to evaluate the influence of different photo activation devices on the flexural strength of two types of composite restorative materials.

For this purpose, four light curing sources were used with different light intensities & irradiation times.

1. Argon laser (laser physics) with 20 seconds exposure time.
2. Conventional QTH (Astralis 5) with 40 - seconds exposure time.
3. Plasma arc (Flipo) with 10 - seconds exposure time.
4. Soft start (Degulux) with 40 - seconds exposure time.

The resin based micro filled hybrid composite (glacier) and less filled flowable (wave) composite were used to fabricate the specimens.

Aluminum mould was fabricated according to the ISO 4049 (1988) to make the specimens for flexural strength investigation with dimensions 25 mm length, 2mm width and 2mm depth.

For each type of light curing source ten specimens were made.

The flexural test procedure was performed with three point bending equipment using a fixture & an instron machine with cross head speed of 0.5 mm/ min to fracture the specimens.

The results indicated that curing of microfilled hybrid (glacier) composite with the four different types of light curing modes produce a flexural strength property significantly better than curing of flowable (wave) composite.

The use of different light curing sources, argon laser, QTH, PAC, and soft start result in different mean values of flexural strength but these differences statistically not significant.