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### Effect of siwak and bamboo fibers on tensile properties of self-cure acrylic resin used for denture applications

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This study was investigated to evaluate improvements in the tensile properties of self-cure acrylic resin reinforced with siwak fiber and bamboo fibers which were cut into 2, 6, and 12 mm lengths and used at three different concentrations of (3, 6 and 9 wt.%). The mixture of resin and fiber were cured at 2.5 bar and 55°C in a water bath for 30 min. The cured resin specimen tested for tensile properties (tensile strength, modulus of elasticity, elongation percentage at break) following the methods of ASTM Specification No. 638. The results illustrated that the tensile strength and modulus of elasticity tended to be improved with fiber length and concentration, the largest values of tensile strength and modulus of elasticity for specimens reinforced with bamboo fibers are ( 72.4 MPa and 5.208 GPa) while for specimens reinforced with siwak fibers are (71 MPa and 4.9 GPa) at optimum condition of weight fraction ( 9% ) and fiber length (12 mm), which was significantly higher than other formulations.

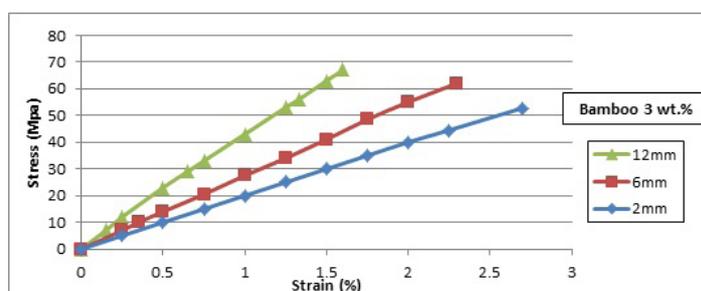


Figure 9: Stress-Strain Curve for Composite Specimen with (3wt.%) Bamboo Fibers for (2, 6 and 12 mm) Fiber Length.

#### Biography

Jawad K Oleiwi is a Faculty Member of Department of Materials Engineering at the University of Technology, Baghdad, Iraq. His fields of research interests are composite materials, biomaterials, implants, prosthetic materials and mechanical tests. He has more than 40 published papers in journals and conferences and has two patents in field of composite materials. He is the member of Iraqi Union of Engineers since 1990 and member of Iraqi Society of Nanotechnology.

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