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## Effect of hydroxyapatite fillers on the mechanical properties and osteogenesis capacity of bio-based polyurethane composite scaffolds

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### Abstract

A newly designed hydroxyapatite-polyurethane (HA-PU) composite scaffold was prepared by polymerizing glyceride of castor oil (GCO) with isophorone diisocyanate (IPDI) and HA as fillers. The aim of this study was to determine the effect of HA fillers on the mechanical properties and osteogenesis capacity of the composite scaffolds. The physical and biological properties of the scaffold were evaluated by SEM observation, mechanical testing, cell culture and animal experiments. The results showed that HA fillers enhanced the mechanical properties of PU composite scaffolds such as compressive strength and elastic modulus. The mechanical properties of the scaffolds were seen to increase with increase in HA loading. The compressive strength of composite scaffold with 0 wt%, 20 wt%, 40

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