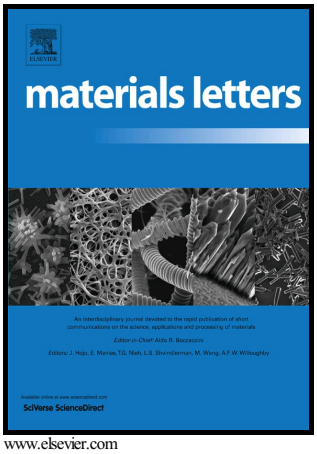

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Abdul Manaf Abdullah1, Tuan Noraihan Azila Tuan Rahim2, Dasmawati Mohamad1*, Hazizan Md Akil1, Zainul Ahmad Rajion2

1 School of Dental Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

2 School of Materials and Mineral Resources Engineering, Engineering Campus, Universiti Sains Malaysia, 14300 Nibong Tebal, Pulau Pinang, Malaysia.

*Corresponding author

Dr. Dasmawati Mohamad

School of Dental Sciences, Health Campus, Universiti Sains Malaysia, 16150 Kubang Kerian, Kelantan, Malaysia.

Phone no: +609 7675807

Email address: dasmawati@usm.my

Abstract

This research aims to evaluate the mechanical and physical properties of highly ceramic filled polyamide 12 fabricated via FDM 3D printer for potential craniofacial reconstruction application. Unfilled, as well as 30, 35 and 40 wt% of ceramics filled PA 12 filament feedstock were prepared to fabricate tensile and flexural specimens via FDM 3D printer, prior to characterization. The mechanical and physical properties of the composites were insignificantly affected by the increment of filler loading. The mechanical properties of the composites were lower than expected; however, they did exhibit high surface roughness - which is desirable for biomaterial applications.

Keywords: FDM, 3D Printing, PA 12, ZrO_2, β-TCP, filament feedstock