

ABSTRACT

Profile of Compressive Strength And Degradation Rate of Implant With Bio ceramic-Polymer Composite For Osteomyelitis

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Bioceramic-polymer composites are biodegradable and often used as bone implant. Aspects of biocompatibility, biodegradability and mechanical strength is very important in order to meet the clinical suitability of the use of bone implant biomaterials. This literature review research aims to compare the profiles of the compressive strength and degradation properties of implants with various bioceramic-polymer composites. Literature searching were carried out on databases, such as Google Scholar, Unair Repository, and Researchgate. The inclusion criteria included original articles published from 1999 until 2020 with English or Indonesian languages that provided data on the value of compressive strength and/or degradation rate of bioceramic-polymer composites. Twenty eight articles that meet inclusion criteria were reviewed. It was found that the use of bioceramic-polymer composites which is able to produce the best compressive strength value among several other bioceramic-polymer composites is Bioactive glass-CHT/GEL with compressive strength of cortical bones around 203-374 MPa. Meanwhile, bioceramic-polymer composites that are able to produce long time degradation are HAp-PLLA and β -TCP-Poly (L-Lactide-co- ϵ -Caprolactone) with degradation time almost one year (52 weeks). The differences in the results of the composite compressive strength values are caused by several factors, *i. e* type and composition of the bioceramic-polymer used, preparation method during drying, and use of cross-linking agents. Meanwhile, factors that can affect differences in the degradation time of the composites *i.e* type and composition of the bioceramic-polymer used and use of cross-linking agents.

Keywords : Bioceramic-Polymer Composite, Osteomyelitis, Compressive Strength, Degradation rate