

Diametral tensile strength and microstructure of hydroxy apatite photopolymer composite

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20406735&lokasi=lokal>

Abstrak

Composite of biomaterial for further hard tissue-engineering application was produced by composing HA-200 powder and photopolymer pasta at room temperature for various percent weight of HA-200. Since HA-200 is bioceramic material which is characterized by bioactive, hard and brittle, in the pure condition it is difficult to be formed into a customized geometry at room temperature. Therefore, composing into a composite form at room temperature would be a better way due to ease of forming and less expensive in processing. Various percent weight of HA-200 i.e. 10, 15, 20, 25, 30, 35 and 40 % was blended with a pasta photopolymer to be a particulate composite and UV light with the wave length of 440-460 nm has been applied to cure the composite into a solid state for less than 1 minute. To observe the composite tensile strength, the specimens were examined by diametral tensile strength (DTS) and scanning electron microscope (SEM). SEM micrographs have shown that the spiky HA-200 was distributed evenly in the matrix of photopolymer. The highest tensile strength (39.2 MPa) was achieved at 10 percent volume of HA-200 and did not give better tensile strength for higher content of HA-200 as suggested by DTS results.