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Coating of Polyelectrolyte Multilayer Thin Films on Poly(S/EGDMA) HIPE Loaded with Hydroxyapatite as a Scaffold for Tissue Engineering Application

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Abstract : In recent years, interest in the development of material for tissue engineering application has increased considerably. Poly(High Internal Phase Emulsion) (PolyHIPE) foam is a material that is good candidate for used in tissue engineering application due to its 3D structure and highly porous with interconnected pore. The PolyHIPE was prepared from poly (styrene/ethylene glycol dimethacrylate) through high internal phase emulsion polymerization technique and loaded with hydroxyapatite (HA) to improve biocompatibility. To further increase hydrophilicity of the obtained polyHIPE, layer-by-layer polyelectrolyte multilayers (PEM) technique was used. A surface property of polyHIPE was characterized by contact angle measurement. Morphology and pore size was observed by scanning electron microscope (SEM). The cell viability was revealed by the 3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide (MTT) assay technique.

Keywords : polyelectrolyte multilayer thin film, high internal phase emulsion, polyhipe foam, scaffold, tissue engineering
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