

Preparation of osteoconductive scaffold prepared by sintering chitosan/PCL dual microspheres and surface modification

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Chitosan is a biomaterial excellent in biocompatibility and suitable for drug delivery system for sustained release rate. However, its fast biodegradation rate and low mechanical properties hinders further utilization. The objective of this study is to construct an osteogenic scaffold using a biodegradable polymer poly(ϵ -caprolactone) which possesses a high stress and excellent processability. A chitosan microsphere-embedded PCL for drug delivery system was prepared and used for the construction of osteoconductive scaffold using sintering method. The physical properties of the scaffold were varied by controlling porosity, temperature and salt quantity. We also witnessed that the biocompatibility and osteoconductivity of the chitosan/PCL dual scaffold can be improved by surface modification using calcium phosphate.