
(P 71) Chitosan Microparticles as Injectable Scaffolds for Tissue Engineering Applications

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Microparticles may be used as a support for the adhesion and proliferation of cells. Therefore, the combination of isolated particles and previously incubated cells on their surface may have potential to be used, in the form of a suspension with media, as an injectable scaffold in the context of tissue regeneration: one expects that the particles might agglomerate after the implantation as a consequence of cells proliferation and extracellular matrix production. With this aim, chitosan microspheres were prepared by an emulsion procedure involving cross-linking with natural chemicals. Aqueous chitosan solution was added to mineral oil, containing a surfactant to form the w/o emulsion. Then, genipin solution was added as crosslinking agent. Varying the concentrations of the different solutions involved in the process, genipin-chitosan crosslinked microparticles with diameters ranging between 150 and 200 μm were obtained. A 3D construct of these microparticles and GBMCs (goat bone marrow stromal cells) were used for “*in vitro*” cell culture. Viability, growth, adhesion, and morphology of GBMCs were evaluated. The obtained results demonstrated that the microparticles are a suitable support for cell proliferation. The best results were obtained with microparticles crosslinked with 20 mM genipin.