Highly Porous Regenerated Bacterial Cellulose Scaffolds for *in vitro* Tissue Regeneration

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This study reports the fabrication of highly porous regenerated bacterial cellulose (rBC) scaffolds through solution casting and porogen leaching method. The scaffolds fabrication was carried out through dissolution of BC in N-methylmorpholine N-oxide (NMMO) followed by subsequent addition of NaCl microcrystals as porogens. The mixture was quickly casted into molds followed by hardening and solvent and porogen leaching in a water bath at ambient temperature. Field Emission Scanning Electron Microscopy (FE-SEM) confirmed the microporous nature of the scaffolds. Animal fibroblast cells adhered and proliferated well on the rBC scaffolds while cell toxicity assay confirmed their nontoxic nature. Alkaline phosphatase (ALP) activity and Alizarin red staining (ARS) revealed osteogenic differentiation of animal osteoblasts on the scaffolds. These results demonstrate our rBC scaffolds as potential candidate for future tissue regeneration applications.