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## Techniques of liver decellularization

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### Abstract

**Background:** The growth of the number of people who need the liver transplant and the insufficiency of organ donors, have urged the advancement in bioengineering through the development of new therapeutic strategies which involve generation of functional artificial organs, obtained by the decellularization technology and creation of extracellular matrix and their subsequent recellularization.

**Material and methods:** Rat livers (n = 9) served as the object of this study which were subjected to decellularization with sodium dodecyl sulfate (SDS) solution 0.1 and 0.5% and the combination of SDS 0.1 to 0.5% and anticoagulant. Subsequently, the extraction of nucleic acids was performed according to the protocol QIAamp Blood Mini Kit (2003). The histological analysis was performed with haematoxylin-eosin (H-E) and the quantification of hydroxyproline via spectrophotometric method.

**Results:** After the liver tissue decellularization we obtained the matrix of decellularized liver. The genetical, biochemical and histological analysis revealed a better decellularization by the combined method versus the method with SDS solution only.

**Conclusions:** The quantification of nucleic acids content, hydroxyproline and the histological analysis of decellularized matrix with anticoagulant and detergent SDS method, suggested a more efficient decellularization of liver tissue segments and we achieved a decellularized bioconstruction for recellularization.

**Key words:** decellularization, recellularization, liver matrix.