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EVALUATION OF DIFFERENT FORMS OF CANNULATION FOR WHOLE PORCINE HEART DECELLULARIZATION

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Tissue bioengineering comprises a pioneering approach for biomaterial research and development for regenerative medicine. This technique consists in remove all cells from tissue or the entire organ, preserving extra cellular matrix proprieties, such as fibronectins, laminins, elastin, and mainly collagen fibers. Here, we aimed establish an easy and low-cost whole hog swine heart decellularization protocol. Swine hearts were cannulated by aorta or coronary vessels, washed with EDTA (0.01%) or PBS (0.1M) buffers, perfused with 2% or 4% SDS concentration in bioreactor pump at flow rate of 10, 50, and 400 mL/min. Decellularized hearts scaffolds were firstly macroscopic analyzed for their texture and consistence. Then, microscopic analysis was performed to evaluate their structural quality. To date, we have standardized a protocol that appears macroscopically efficient but aggressive to ECM, supporting new information on process concentration, volume, and pressure.