MÁXIMO DE 250 PALAVRAS

The use of lyophilization process to decrease the cytotoxity of bovine pericardium.

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Bovine pericardium is widely used for manufacture biological heart valves and it commercial use is highly used. Commercial procedures of bovine pericardium treatment employ the material crosslinked with glutaraldehyde and future preservation by immersing in formaldehyde solution. Chemicals highly toxic and calcification process of the valves – the most problem of failure - are attributed to these compounds. Rinses procedures are difficult to implement with the objective of diminish the cytotoxicity, they require more time than the surgeon could wait. Thinking in this point, the purpose of this work is investigating the effect of the lyophilization process in the cytotoxicity response of the bovine pericardium. Bovine pericardium was submitted to crosslink with glutaraldehyde and divided for: 1) freezing and lyophilization; 2) immersing in formaldehyde for a month, rinsed with saline solution for a week with solution changes each 2 days, lyophilized and non lyophilized; 3) rinse as pre - surgical procedure (5 changes of saline solution under vigorous shake for 15 minutes in 0.5mL saline solution). The samples were sterilized by gamma radiation at 25kGy and prepared the extract and subsequently dilution. The experimental assay was performed with CHO-k1 cells seeded in a microplate 96 wells with the extracts of bovine pericardium processes under different procedures for extract preparation. The cells viability was colorimetric determined by MTS/PMS test. Bovine pericardium treated with glutaraldehyde and lyophilized showed the best non cytotoxic result, it cytotoxicity with the extract at 100% of concentration, did not kill 50% of cultured cells. Bovine pericardium immersed in formaldehyde solution presented decrease cytotoxicity from rinsed for a week and lyophilized, rinsed for a week and non lyophilized and finally, pre - surgical procedure. This work shows that the lyophilization is a promising tool for decrease the cytotoxicity of bovine pericardium with the purpose of manufacture of cardiac valves.