

ABSTRACT

**SITOTOXICITY TEST OF GLUTARALDEHYDE
IN SCAFFOLD CHITOSAN GELATIN
TO VIABILITY OF BHK (Baby Hamster Kidney) - 21
FIBROBLAST CELLS (THROUGH MTT TEST)**

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Backgrounds: Scaffold chitosan gelatin were used as biomaterial implant for cartilage tissue engineering. It was used as replacement of defective cartilage and a biodegradable drug delivery system (DDS) for the administration of diclofenac sodium in treatment of osteoarthritis. Glutaraldehyde is identified as a toxic ingredient since it is able to irritate the eyes, skin and respiratory tract when consumed in high to systemic levels. To prove that, in vitro testing was carried out using the the MTT test (Methylthiazol Tetrazolium).

Purposes: To determine the toxicity results of chitosan gelatin scaffold, which crosslinked with glutaraldehyde, to BHK-21 fibroblast cells.

Methods: This study with post test only group design. The formulas contain glutaraldehyde 0%, 0.25%, 0.5%, 1%, and 2.5%. Each formula was placed in a 96 well plate that had been filled with fibroblast cell culture with 5 replications for each group and it will count percentage of living cells with the limit 60% cells still live.

Results: The results showed that the 0% glutaraldehyde concentration has a percentage of living cells of 105.672%, the 0.25% glutaraldehyde concentration has a percentage of living cells of 84.555%, the 0.5% glutaraldehyde concentration has a percentage of living cells of 84.652%, while the 1% glutaraldehyde concentration has a percentage of living cells of 82.461%. Finally, the 2.5% glutaraldehyde concentration has a percentage of living cells of 82.199%.

Conclusions: Chitosan gelatin glutaraldehyde scaffold is not toxic to BHK-21 fibroblast cells since it showed more than 60% of living cells.

Keywords: Glutaraldehyde, Toxicity, Scaffold, Crosslink, MTT assay.