Investigating the optimal conditions of primary cell culture of kidney tissue from Caspian white fish (*Rutilus kutum*) using explant method

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Received date: 2018.11.13
Reception date: 2019.04.21

Abstract

Cell culture involves a process where cells from different types of tissues are replicated in vitro Tissue culture and development of the cell lines from fish is used to isolate viruses, toxicology, Oncology, cellular physiology and gene expression. In this study, primary cell culture of kidney were prepared using a total of 10 Rutilus kutum with average weight of 12 ± 1 g and the mean length of 11 ± 1 cm were by explanting method. Tissue Pieces were explanted in cell culture flasks containing L-15 medium with antibiotics (penicillin, styrpthomycin) under different temperature conditions (21, 24 and 28 °C) and fetal bovine serum levels (5, 10 and 20%) then cultured in two ranges ofpH (6.8 and 7.2). The results showed that the preparation of primary cell culture of kidney tissue of Caspian white fish (Rutilus kutum) at 24 °C and 20% of the fetal bovine serum was better than other treatments and the cell migration rate was calculated as 88.37%. So far, 8 passages from these cells have been carried out, which could lead to the production of a cell line from the kidney of Rutilus kutum in the near future.

Keywords: Primary cell culture, Kidney tissue, *Rutilus kutum.*