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Comparative study of red blood cell abnormalities in the Caspian trout (*Salmo trutta caspius*), rainbow trout (*Oncorhynchus mykiss*) and their triploid hybrids

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Abstract

Since the shape and size of red blood cells are very impotant in physiological aspects of animals siences, specially in respirations and nutrient transportation, this study was conducted to survay the changes in shape and size of red blood cell (abnormalities) in rainbow trout (*Oncorhynchus mykiss*), the Caspian trout (*Salmo trutta caspius*) and their triploid hybrids (*Oncorhynchus mykiss* ♀× *Salmo trutta caspius* ♂). Triploidy was induced in eggs using 10-min heat shock at 28ºC following 10-min post fertilization. The accuracy of ploidy induction was determined by comparison the cell size. The results from comparison of rainbow trout, caspian trout and their triploid hybrids showed that in all aspects of red blood cells such as large and small axes of nucleus and cell, axis of nucleus and cell, volume and area of nucleus except volume of cell, there is not significant differences between rainbow trout and caspian trout ($p>0.05$) but triploidy leads to a significant increase in all mentioned characters in triploid hybrids as compared to caspian trout and rainbow trout ($p<0.05$). The morphological abnormalities in the red triploid cells were noticeably higher than diploids. The most abundant types of abnormalities include poikilocytosis, macrocytosis, and incomplete cytoplasmic cells. Triploid hybrids have many alterations of hematological factors that these alterations may affect stress ful responses, immunology, health conditions, growth, and survival triploid.

Keywords: Blood, Cell, Abnormal, Incomplete cytoplasmic

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