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Transmission Electron Microscopic Studies thrombocytes of *Clarias gariepinus* (Magur Fish)

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Abstract

The thrombocytes of magur fish under transmission electron microscope were spherical to oval in shape. Small rounded vacuoles were arranged in periphery of the cytoplasm. Few electron dense body were seen in periphery of the cytoplasm. Cytoplasmic organelles like mitochondria and ribosome were evident in the cytoplasm. The nucleus was slightly heterochromatic. The euchromatin was mostly situated in central part in the form of patches however, heterochromatin was mostly seen in the periphery of the nucleus. The nucleus was highly intended and showed pleomorphism. The shape of the nucleus varied from bean shaped, horse shoe shaped and human embryo shaped. The horse shoe shape nucleus was more common. Double membrane bound nuclear membrane was well visible with well distinct nuclear pore.

Keywords: Mangur fish, thrombocytes, Transmission electron microscopy

Introduction

The quantification thrombocytes is extremely difficult. The leukocytes and thrombocytes show morphological variation in different species. The ultrastructural morphology of thrombocytes have been documented in roadside hawk (Santos *et al.* 2003) [4], in kadaknath fowl (Yadav 2011) [6] and in sheep by Kumar (2012) [2]. In spite of large quantum of literature available on deferent species the report on magur fish is not available, the reports on transmission electron microscopic studies. Hence the present study was conducted.

Material and Methods

Two milliliter of blood was taken from the tail vein of magur fish in sterilized and siliconized tube containing EDTA as anticoagulant and centrifuged at 3000 rpm for 30 minutes. The excess of plasma was drained off leaving a small amount over the buffy coat. Then 2-3 ml of modified Karnovsky's fluid was poured along with the sides of test tube drop by drop without disturbing the buffy coat for fixation and formation of buffy coat plug. The buffy coat plug was taken out of the tube with the help of hooked needle or wire and placed in petri-dish containing phosphate buffer. The plug was cut into thin and small slices of approximately 1 mm thickness. The samples were submitted in phosphate buffer at pH 7.2 to the electron microscopy facility at AIIMS, New Delhi for further processing and sectioning of the blood cells for the transmission electron microscopic studies. The samples were dehydrated in graded acetone solutions and embedded in beam capsule. Ultrathin sections of 60-80 nm thickness were cut and stained in alcoholic uranyl acetate and lead citrate. These sections were then placed on grids and examined under electron microscope.

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Results and Discussion

The thrombocytes of magur fish under transmission electron microscope were spherical to oval in shape. Small rounded vacuoles were arranged in periphery of the cytoplasm. Few electron dense body were seen in periphery of the cytoplasm. However, Santos *et al.* (*loc.cit*) in roadside hawk described two types of thrombocytes, elliptical and spherical. Mehta *et al.* (2013) [3] reported that in pig platelets were elongated, oval or circular in outline. In goose the cell membrane at places showed puffiness. Techangamsuwan *et al.* (2010) [5] reported that thrombocytes were the smallest circulating blood cells with small pseudopodia and many cytoplasmic microtubular structures in Irrawaddy River Dolphin. Cytoplasmic organelles like mitochondria and ribosome were evident in the cytoplasm. The nucleus was slightly heterochromatic. The euchromatin was mostly situated in central part in the form of patches however, heterochromatin surrounds the periphery of the nucleus. The nucleus was highly intended and showed pleomorphism. The shape of the nucleus varied from bean shaped, horse shoe shaped, human embryo shaped. The horse shoe shape was more common. Double membrane bound nuclear membrane was well visible. Nuclear pore was well distinct.



Transmission electron photomicrograph of thrombocytes of magur fish Uranyl acetate and lead citrate X 40000

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