



Cellular and stromal elements organization in the liver of grass carp, *Ctenopharyngodon idella* (Cypriniformes: Cyprinidae)

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Abstract:

Fish liver is considered as a key organ that controls various life functions. The cellular and stromal elements of liver of eighteen specimens of adult grass carp were investigated by light- and electron- microscopy and enzyme histochemistry. The liver was formed of two lobes with a long process extended from the right lobe. Serial paraffin section of the liver identified different kinds of vascular- biliary structures as follows: 1) pancreatic- venous- biliary- arteriolar tracts (P-VBAT); 2) venous- biliary- arteriolar tracts, (VBAT); 3) pancreatic- venous- biliary tracts (P-VBT); 4) venous- biliary tracts (VBT); 5) venous- arteriolar tracts (VAT); 6) isolated veins named as venous tracts (VT); 7) isolated bile ducts, named as biliary tracts (BT); 8) biliary- arteriolar tracts (BAT); 9) pancreatic- biliary tracts (P-BT); 10) pancreatic- venous tracts (P-VT). Macrophages aggregates were associated with VBT and P-BT. The hepatic parenchyma was consisted of many populations of cells. Histochemically, the hepatocytes were strongly reacted with PAS, and Best's carmine. Moreover, strong staining patterns for acid phosphatase, ATPase, and alkaline phosphatase were demonstrated in hepatocytes. The hepatic satellite (Ito) cells were observed in the space of Disse and between hepatocytes. Rodlet cells and eosinophilic granular/ mast cells were encountered in the liver of grass carp. The sinusoids were lined by fenestrated endothelial cells and Kupffer cells. Moreover, dendritic-like cells were demonstrated in the sinusoids and perisinusoidal connective tissue. The biliary duct system was constituted of bile canaliculi, ductules, and bile ducts. Telocytes with their characteristic telopodes were located around bile ducts. The current findings are offering fundamental data on histology of grass carp liver.

Keywords:

Bile duct Hepatocytes Enzymes Macrophages aggregates Ito cells

Published In:

Micron , 112 , 1-14