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HISTOCHEMICAL EVIDENCE FOR COPPER ACCUMULATION IN THE KIDNEYS OF LOGGERHEAD SEA TURTLE HATCHLINGS FROM DALYAN BEACH, TURKEY

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Abstract:

Heavy metals, such as copper (Cu) and zinc (Zn) have toxic effects on marine organisms. In this study, Cu accumulation in the kidneys of loggerhead hatchlings from Dalyan Beach, MUĞLA, Turkey was investigated using orcein histochemical technique. Cu associated proteins were seen as dark purple deposits mostly in the apical portions of the cells of the lining epithelium and also in the tubules' lumen of some proximal convoluted tubules (PCT) and distal convoluted tubules (DCT) as extruded structures. Some of the hatchlings from different nests laid by different mothers showed HIGH-density of Cu in PCT and DCT, whereas the others showed low-density. Our histochemical results have shown that Cu is maternally transferred to the hatchlings, the amount of transferred Cu depends on the amount of Cu accumulated by the female sea turtle, and the density of the metals in the tissues can be used to estimate the pollution status of the water.

Keywords: Cu Accumulation, Caretta Caretta, Dalyan Beach, Heavy Metal, HistoCHEMISTRY