



## CLINICAL, HEMATOLOGICAL AND MORPHOLOGICAL STUDIES ON EX SITU INDUCED COPPER INTOXICATION IN CRUCIAN CARP (CARASSIUS GIBELIO)

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The influence of increasing concentrations of copper sulphate ( $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ ) on Crucian carp (*Carassius gibelio*) was investigated. The clinical signs, the morphologic changes in the spleen and gills, and the alterations in red blood cells were analyzed. The concentrations tested were respectively 0.1, 0.5, 1.0 and 2.0 mg.l<sup>-1</sup>. Various clinical symptoms were observed resulting from damaged oxygen transport, hemorrhages being the most frequent. Also, different concentrations of copper caused three various types of anemia. Pathological alterations caused by compensatory reactions refer to the adaptation of *Carassius gibelio* to the hypoxia, caused by the pathologic changes in gills and the anemia that occurred.

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