

Copper Sublethal Concentrations Induces Lipid Peroxidation and Modify Fatty Acids Profile in *Gambusia holbrooki* Girard

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Farm ponds have a potential to provide alternative habitat for a wide range of wetland species, which might otherwise have disappeared due to the accelerated degradation of their natural wetland habitats. Treatments with copper sulfate are frequently used by growers in irrigation ponds to eradicate submerged vegetation and algae, This can potentially impair the conservation of aquatic fauna, because copper ions can generate excess of free radicals in the cells, causing the accumulation of reactive oxygen species, which can react with cellular components, inducing lipid peroxidation, protein oxidation and changes in the oxidative state of cell, leading finally to cell death. Furthermore, lipid peroxidation might induce significant changes in fatty acid profile, reducing PUFA content.

This work study the effect of exposure to sublethal concentrations of copper sulphate of the mosquito fish *Gambusia holbrooki*, in order to assess its possible use as biomarker of copper contamination.. The fish were exposed during 20 days to several concentrations of CuSO₄, and a control without Cu addition. At the end of the experiment, fish were sacrificed and determined Cu accumulation in their gills, lipid peroxidation and fatty acid profiles.

Exposure to sublethal doses of copper did not alter the fatty acid profile in *G. holbrooki*; however, it was observed a significant decrease in the levels of lipid peroxidation and an increase of Cu in the gills, which was water concentration dependent.

Analysis of the results suggest the existence of a protective mechanism against peroxidation, related to an increase of copper content in the gills, triggered by exposure to this element. Therefore, the idea of using these parameters in this specie as biomarkers of copper contamination should be discarded.