

USE OF PLECO FISH "PEZ DIABLO" FOR THE SYNTHESIS OF BONE CHAR TO REMOVE FLUORIDE IN WATER

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In Mexico, there is a problem of biological invasion caused by the *Pterygoplichthys* genus commonly known as "Pleco", "plecos" or "devil fish". The wide distribution that has reached this genre began to cause environmental problems such as habitat degradation, hybridization, deterioration of water quality, and introduction of parasites. In this study, the bone char was obtained from the bones of fish pleco, by means of pyrolysis at different temperatures. The adsorption capacity of fluoride of the different bone char was compared, and the material synthesized at 500 °C was the one that removed a greater amount of fluorides from the solution, so it was used for the tests of the effect of pH and temperature, the reversibility of the adsorption process and the removal of fluorides from water for human consumption. The effect of solution pH showed that the adsorption capacity increases with decreasing the solution pH. On the other hand, the effect of temperature revealed that the adsorption capacity increases with the increase in temperature, which indicates that the adsorption is endothermic. The study of the desorption of fluorides showed that a small quantity is desorbed, therefore, the process is partially reversible. Adsorption of fluorides from well water revealed that increasing the mass of the bone char increases the adsorption capacity since there is a greater specific area and a greater number of active sites available for the adsorption of fluoride. It was concluded that bone char from pleco fish bones is an economical and viable material to remove fluorides from water.

Keywords: PLECO FISH, BONE CHAR, FLUORIDES

Acknowledgment:

RESEARCH PROJECTS CONACYT CB- 286990- 2018 AND CONACYT PN- 3947- 2018

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