TITLE: Role of Carbonized Fish Bones of *Chanos chanos* in the Reduction of Hexavalent Chromium Concentration in Water

OBJECTIVE: To find an easier, inexpensive way to decrease the level of chromium in water using leftover bones from Bangus or *Chanos chanos*.

CURRENT STATUS: Ongoing Data Analysis (Statistical)

ABSTRACT: Chromium, particularly Hexavalent chromium or Chromium^{6+}, is one of the most common toxic substances found in Philippine waters. This chemical pollutant is usually man-made and is used extensively in many industries including tanneries, chrome-plating or electroplating processes. It is also used in the production of stainless steel, wood preservation, and textile dyes and pigments. In addition, because of its anti-corrosive properties, hexavalent chromium is used in anti-corrosion and conversion coatings. In addition, hexavalent chromium can also be found as a by-product of industrial processes and maintenance operations. Trace elements can also be found in Portland cements.

Fish is commonly included in the diet of Filipinos. The milkfish, locally known as bangus, whose scientific name is *Chanos chanos,* is the country's national fish and is the most popular fish among the masses, being prepared in a variety of dishes.

The study aims to reduce the amount of hexavalent chromium from water using carbonized fish bones from *Chanos chanos*. Quantitative tests and analysis with Atomic absorption Spectrophotometer proved that the amount of hexavalent chromium could be decreased using carbonized fish bones.

METHODOLOGY:

I. Preparation of Carbonized Fish Bone Powder

A. Collection of fish bones

The fish bones were collected and were thoroughly washed using the tap water.

B. Preparation of fish bones

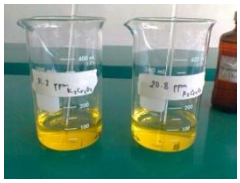
The fish bones were cleaned carefully and completely of all flesh before being boiled and removed of bits of meat again. It was then dried under the sun, cut in small pieces, and boiled before being pulverized.

C. Preparation of Carbonized fish bones powder

The pulverized fish bones were heated in an evaporating dish and alcohol lamp, and then passed through a sieved until all the carbonized bones were turned into powder.

D. Preparation of chromium solutions

We used potassium dichromate ($K_2Cr_2O_7$) and deionized water in preparing the different chromium solutions that we will use. We prepared 20.8 ppm and 31.2 ppm of chromium solutions.



E. Preparation of Set-up

Plastic bottles were collected and were used as stands for the syringes. The chromium solution with Carbonzied Fish Bone Powder was put inside these syringes.

II. Experimentation

A. **Set-up A (Effect of different contact time)**
   Different amounts of CFBP were mixed with the chromium solution separately. The number of shakes was the same. Filtrates were obtained after different contact time.

B. **Set-up B (Effect of different amount of ppm of the chromium solution)**
   Different amounts of CFBP were mixed with chromium solutions of different concentrations of chromium. The number of shakes was the same. Filtrates were obtained at the same contact time.

C. **Set-up C (Effect of number of shakes)**
   Different amounts of CFBP were mixed with the chromium solution separately. Shakes were of different numbers. Filtrates were obtained after the same contact time.

III. DATA GATHERING

The use of Atomic Absorption Spectrophotometer

We went to De La Salle University Chemical Department Analytical Laboratory for the Atomic Absorption Spectrophotometer. We tested our samples from the different set-ups. The machine read the concentration of the hexavalent Chromium in the solution.

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