Production of Activated Coal from Organic Material, for the Filtering of Water of the Stream "La Mosca" in the Municipality of Guarne, Antioquia, Colombia

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Coal was made from two waste organic materials: coconut and orange peels, applying two approaches: physical and chemical activity respectively, in both cases both home-made and more technical were considered; the latter was done in the Science Lab of Ingeominas (Medellín). The activated coal was characterized through granulometry, qualitative analysis of the absorbence of color in a solution of methylene blue, microscopy of atomic force (AFM) and measurement of surface area y by means of a profilometer. The activated coal of orange peel by the home-made method (CNS) didn't turn out efficient in the filtering through water, the coal of coconut peel by the home-made method (CAS) and the coal of coconut by the more technical method (CAT) didn't show any significant difference in the absorbence of color in a solution of methylene blue. Water from the stream La Mosca was filtered with CAS y CAT and activated commercial coal (CAC), and the physico-chemical and microbiologic analysis were done to it pre and post filtered by way of comparison. It was observed that both types of coal contribute in great measure to the diminishing of muddiness and apparent color of the water, maintaining the pH values in acceptable levels. Nonetheless it is not enough to eliminate bacteria of the coliform type. The water treated in the aqueduct of Guarne turned out not apt for human consumption. Finally a prototype of a filter was designed with various layers for the optimal filtration process.

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