

ABSTRACT NO.: 530

TITLE: Faucet-type Water-activated Carbon Filter

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Pure water is one of the most important needs for human existence. It is therefore unfortunate that something as essential to human life as pure water is no longer easily accessible. According to the World Health Organisation (W.H.O), unsafe water is not just a third-world problem; we have now reached to a point that, globally, all sources of our drinking water including municipal water systems, lakes, rivers, and even glaciers, contain some level of contamination which may be toxic. Contaminants range from naturally-occurring minerals to man-made chemicals and by-products. Even the chemicals commonly used to treat municipal water supplies such as chlorine and fluoride are toxic and are known to have significant adverse effects on the human body. Therefore, the need for pure drinking water from a viable water purification system is clear; a system capable of filtering out any unwanted material from our drinking water while still retaining its essential minerals.

The objective of this project was to design and construct a point-of-use water-activated carbon faucet-type filter using material locally manufactured in Trinidad and Tobago. The filter was made using CPVC pipes and fittings which allowed for easy filtering of both hot and cold water from a standard faucet tap. The filter media was made from dried coconut shell, which was reduced by the charcoal production method into water-activated carbon. The purity of the water existing in the filter was tested using three methods: Chloride Ion Detection, Ion Chromatography and Chlorine Iodometric Titration Method. The results showed an increased in both chloride and nitrates ion concentration after filtering but lower levels of sulphate and chlorine concentration.