



UNIVERSITI TEKNOLOGI MARA

**WATER FILTER FABRICATION
USING ACTIVATED CHARCOALS**

NOOR SYAIZETTY BINTI MOHAMAD SAKDUN

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Noor Syaizetty Binti Mohammad Sakdun
Faculty of Electrical Engineering
Universiti Teknologi MARA (UiTM)
Shah Alam
Selangor

ABSTRACT

This project will present a basic design and fabrication of activated carbon from agricultural wastes (coconut shells) and other natural sources (gravel stones and sands) for water purification in rural area in Malaysia intended to satisfy the demand of clean water. The activated carbon (AC) contents produced about 80 and 90 volumes percentage of impurities removed, depending on the type of agricultural waste that used in water purification. The absorption and turbidity test were carried out that indicates the activated carbon (AC) with favourable physicochemical properties can be produced locally from agricultural wastes such as corn cobs, coconut shells and many others. Furthermore, this water purification also has higher potential to be implement in our domestic areas especially in rural areas which is important to ensure the quality of water usage in daily life which is free from hazardous material. The results that obtained are then discussed for the uses of activated carbon filter in water purification.

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CHAPTER 1

INTRODUCTION

1.1 BACKGROUND STUDY

Water is an essential element for human wellbeing and the environment in maintaining life and needed for all economic and social endeavours. Beyond meets the basic human needs, water supply and sanitation services, as well as water resource, are critical to sustainable developments [1]. There are still many rural areas in Malaysia that does not have any privilege to have a clean water supply and safe drinking water to satisfy their demand of water usage in daily life, such as in rural areas in Kelantan, Sabah and Sarawak. Out of these communities, there still depending on the water sources from dams, streams, and water from the self-dug water well near to their houses.

Most of these water sources are untreated and exposed to many contaminations as they are mixed up with soils causing the water to turn yellowish in colour and it is cannot be consumed especially for them to use for drink and cooking purpose. As a result, it may cause of water-borne diseases such as diarrhoea, hepatitis A, typhoid cholera and also guinea worm [1]. Even though our country is not rated as one of the highest rated with these cases compare to other country but there are still quite number of peoples who has these diseases. Water consumes from contaminated sources including hygiene practices and inadequate sanitation are some of the factors that contribute to water-borne diseases.

In order to solve above problem, an activated carbon (AC) is used in water purification and others natural elements. In addition, carbon is known as a substance capable of absorbing impurities in a contaminated or polluted water. An activated carbon (AC) is a name given to a group of absorbing substances of crystalline form. This activated carbon (AC) practically been used in domestic sectors especially use as a filter for home water purification systems primarily to remove the taste and odour and others sectors like commercial and industrial sectors [6]. It is also used in water de-