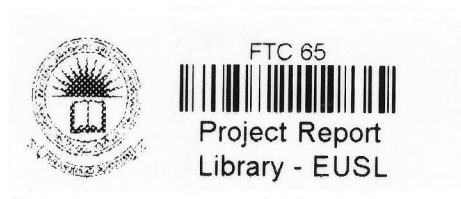


**DEVELOPMENT OF DISINFECTING BIOPLASTIC  
SOAP CHIP USING CASSAVA (*Manihot esculenta*)  
STARCH AND ORANGE PEEL POWDER**



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## ABSTRACT

There is a trend of increasing usage of bioplastic soap due to the biodegradable, pharmaceutical, and disinfectant properties and adverse effects on the environment. Bioplastic is a biodegradable material that comes from renewable sources and can be used to decrease the problem of plastic waste that is strange to the planet and polluting the environment. This present study aims to create was creating an antiseptic soap chip that can be easily carried around in everyday life while minimizing environmental damage.

The main importance of this study is to produce the disinfecting hand soap chip with develop an easy-to-use eco-friendly soap chip with antiseptic properties that can be used against Corona disease. Nowadays, no matter how many soaps and liquids there are for hand washing, they are difficult to carry around easily. Other materials such as soapboxes, bottles, polythene bags are needed to store and carry them. There are many benefits to creating a soap chip like this. This has the advantage of destroying germs on the hands, making them easier to handle and less harmful to the environment. This soap chip dissolves in water when used. One soap chip can be used only once. There are made from natural materials like Cassava starch so there are no adverse effects.

This research was conducted in my home. In this experiment, a bioplastic chip was mainly made by using Cassava starch. Then initially Cassava starch was prepared. After making Cassava Starch, a bioplastic was made. Finally, the soap mixture was prepared and the bioplastic chip was immersed in it and then left to dry.

The Biodegradability of Bioplastic chips was analysed using the Soil Burial Test. The chips were buried into the ground at 8cm depth; the burial duration difference

(1,2,3 and 4 days). Earlier to burial, the initial mass (mass before degradation) was determined. The final mass (mass after degradation) of the bioplastics was analysed afterwards. The mean value was measured by four samples.

Water soaking test was used to measure the Moisture Absorption of the Chips. Previously dried Bioplastic chips were used for that. The moisture absorption details of bioplastic chips were obtained by soaking them in water for 24 hours. After the bioplastic were dried with a cloth and immediately weighed.

Soap sample were analysed for physio chemical (pH and Moisture Content) characteristics in home. The average government approved pH for hand soap is 9-10 pH. pH value of the Soap was measured by using Litmus Papers.

Orange peel powder were used as an antiseptic in making this hand soap.

After preparing the bioplastic chip, the soil burial test was used as a preliminary test to measure its biodegradability. Data from four samples were obtained in four days. In third day, the degradation increased with a very small decrease in thickness, and by the fourth day it was completely degraded. Chips that were a little thicker were found to take a while to degrade.

The water soaking test was used to test the moisture absorption of bioplastics. It was found that 50% of the water was absorbed within 24 hours.

The litmus paper test also confirmed that the pH of the soap mixture was between 9-10.

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