

**ANTIBACTERIAL SOAP PRODUCTION USING CRUDE AQUEOUS
LEAF EXTRACT OF AKAPULKO (*Senna alata*)**

Research Study

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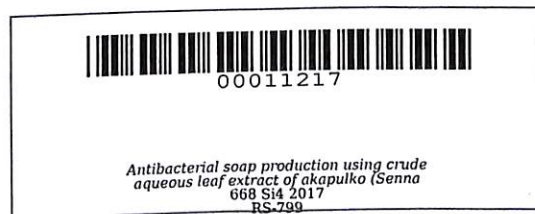
RS 668 S14 2017

May 2017

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ANTIBACTERIAL SOAP PRODUCTION USING CRUDE AQUEOUS LEAF EXTRACT
OF AKAPULKO (*Senna alata*)

A Research Study
submitted to the faculty of the
Science High School, College of Education,
Cavite State University, Indang, Cavite

In partial fulfillment
of the requirements for graduation



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May 2017

ABSTRACT

SIMBULAN, JOHN MILTON B., TIGCAL, MARIE ISABEL H. Antibacterial Soap Production Using Crude Aqueous Extract of *Akapulko* (*Senna alata*) Applied Research III Science High School, College of Education, Cavite State University, Indang, Cavite, May 2017. Adviser: Mr. Lloyd Balinado.

The study entitled “Antibacterial Soap Production using the Crude Aqueous Leaf Extract of *Akapulko* (*Senna alata*)” was conducted specifically to (1) determine the percentage yield of the crude aqueous leaf extract for each of the plants under this study (2) determine the minimum inhibitory concentration (MIC) of each of the crude aqueous leaf extracts against three skin pathogens (*i.e.* *Bacillus cereus*, *Staphylococcus aureus* and *Pseudomonas aeruginosa*) (3) identify the crude aqueous leaf extract with the greatest antibacterial activity to be used for soap production and (4) evaluate the physical properties (*i.e.* odor, color, texture and general appearance) of the produced antibacterial soap

Four locally known medicinal plants in Cavite were used in this study namely: *akapulko* (*Senna alata*), *gumamela* (*Hibiscus rosa-sinensis*), *litlit* (*Piper betle*) and *sili* (*Capsicum annum*). Leaves of these plants were air-dried, pulverized and were subjected to crude aqueous extraction. It was found out that *H. rosa-sinensis* and *S. alata* had the highest (3.07%) and lowest (0.47%) crude extract recovery percentage, respectively

Antibacterial activities of the extracts were tested using resazurin-based microtiter broth dilution method. Based on the results, *akapulko* had the most promising antibacterial activity as it inhibited the growth of *B. cereus* and *S. aureus* at 15-mg/mL concentration and *P. aeruginosa* at 30-mg/mL. It was then selected for soap production.

General physical characteristics (*i.e.* odor, color, texture and general appearance) of the resulting soap products together with a control one (*i.e.* a commercially accepted soap) were determined based on a survey participated by 30 randomly selected residents of Brgy. Bancod, Indang, Cavite. Gathered data revealed that there was a significant difference between the control and experimental soap products in terms of all parameters measured in favor of the controlled condition. However, among the experimental soap products, people preferred the soap made with 20% crude aqueous *akapulko* leaf extract.

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A research study manuscript submitted to the faculty of the Science High School, College of Education, Cavite State University Indang, Cavite in partial fulfillment of the requirements for graduation with Contribution No. _____. Prepared under the supervision of Mr. Lloyd O. Balinado.

INTRODUCTION

The use of herbal products for medicinal benefits has played an important role in nearly every culture on earth. Herbal medicine was practiced by ancient people of Africa, Asia, Europe and the Americas (Wargovich *et al.*, 2001). Over 50% of all modern clinical drugs are of natural product origin and natural products play an important role in drug development programs of the pharmaceutical industry.

The consumption of a variety of local herbs and vegetables by man is believed to contribute significantly to the improvement of human health, in terms of prevention, and/or cure of diseases because plants have long served as a useful and rational source of therapeutic agents (Roberts & Tyler, 1999).

Common skin ailments include eczema, leucoderma, ringworm, itching, wound, scabies, swelling and many others without distinct symptoms and are caused by a variety of microorganisms and uncomfortable environment (Mehalingam, 2012).