

**PRACTICAL SYNTHESIS OF A NON IONIC AND
BIODEGRADABLE DETERGENT FROM COCONUT
OIL USING CHICKEN LIVER**

Research Study

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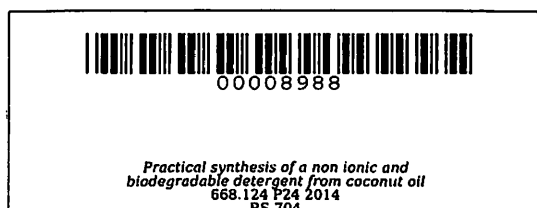
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**PRACTICAL SYNTHESIS OF A NON IONIC AND BIODEGRADABLE
DETERGENT FROM COCONUT OIL USING
CHICKEN LIVER**

**A Research Study
Submitted to the Faculty of the
Science High School, College of Education
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**In partial fulfillment
of the requirements for graduation**



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ABSTRACT

PARRILLA, ARVIN JOHN L., VICEDO, CARL JHOSUA A., RAMOS, JOANNA RAE D., Practical Synthesis of A Non-Ionic and Biodegradable Detergent from Coconut Oil Using Chicken Liver. Research Study (General Science Curriculum), Science High School, College of Education, Cavite State University, Indang, Cavite. April 2014. Adviser: Dr. Ammie P. Ferrer.

The study was conducted from December 2013 to February 2014 at the Research Center and Department of Biological Science in Cavite State University to practically synthesize a non ionic and biodegradable detergent from coconut oil using chicken liver. Specifically, the study aimed to: 1. determine the mobile phase that allowed the better resolution of the synthesized biodegradable detergent between 10% methanol in Dichloromethane and 2% acetic acid in methanol; 2. identify the chicken liver fraction that showed enzymatic activity for the synthesis of the biodegradable detergent; and 3. determine the TLC profile of the visualized enzymatic reaction products in comparison with the reactants.

Coconut oil and can be used in the practical synthesis of a non-ionic and biodegradable detergent. Results showed that 2 % acetic acid in methanol allowed the better resolution of the synthesized biodegradable detergent. The retention factors of the reactants sorbitol, soap and coconut oil using 2% acetic acid in methanol as mobile phase were 0.76, 0.21, and 0.34, respectively. The retention factors of the reactants sorbitol, soap and coconut oil using 2% acetic acid in methanol as mobile phase were 0.70, 0.09, and 0.37, respectively. The presence of a unique spot with a retention factor of 0.89 and 0.81 indicates the synthesis of the sorbitol fatty acid ester. The chicken liver fraction

showing activity in the synthesis the sorbitol monoesters are the supernatant from 30 % ammonium sulfate saturated and supernatant after 70 % ammonium sulfate saturation.

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INTRODUCTION

Throughout the history of our civilization, the need for efficient washing of skin and clothes pushed many inventors and scientist to create many types of substances that facilitated that need. Because modern detergents found their footing only after the rise of technology and chemistry of 20th century, our ancestors focused their attention on production of various soap (Soap History, 2012).

Detergent covers both soaps and synthetic cleaning compounds as distinguished from soap. The basic raw materials used in the production of soap are coconut oil or palm oil with caustic soda. The ingredients used in the manufacture of detergents are the petroleum derivative hard alkyl benzene (HAB) and the natural coco fatty alcohol derived from coconut oil.

To date, the production of detergents using coco fatty alcohol is not popular compared to the manufacture of detergent bars from hard alkyl benzene. The majority of