

EFFECTS OF DIFFERENT KINDS OF SUGAR ON THE QUALITY  
OF THE PRODUCED CHOCOLATE BARS FROM  
CACAO (*Theobroma cacao* L.)

Research Study

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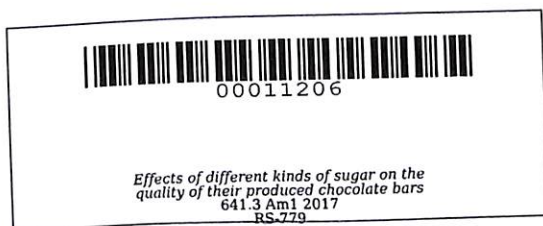
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**EFFECTS OF DIFFERENT KINDS OF SUGAR ON THE QUALITY OF THE  
PRODUCED CHOCOLATE BARS FROM CACAO (*Theobroma cacao L.*)**

A Research Study  
Submitted to the Faculty of the  
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## ABSTRACT

**AMBROCIO, JOHN CYRIL F., HERNANDEZ, JAYRUS R., SARMIENTO, COLEEN MOIRA O.** **Effects of Different Kinds of Sugar on the Quality of the Produced Chocolate Bars from Cacao (*Theobroma cacao L.*)**. Research Study (General Science Curriculum) Science High School, College of Education, Cavite State University, Indang, Cavite. May 2017. Adviser: Prof. Carmen A. Batiles.

The study entitled “The Effects of Different Kinds of Sugar on the Quality of the Produced Chocolate Bars from Cacao (*Theobroma Cacao L.*)” was conducted in order to determine the effects of different kinds of sugar on the quality of the produced chocolate bars from cacao. Specifically, the study aimed to: (1) to determine the effects of different kinds of sugar to the quality of the produced chocolate bars in terms of color, aroma, taste, general acceptability, and total sugar content of the produced chocolate bars; (2) to identify the best treatment in producing chocolate bars with different kinds of sugar; (3) to determine the level of consumer acceptability of the produced chocolate bars; and (4) to determine the cost of production of the chocolate bars. This study was conducted from August 2016 – February 2017 at the Department of Home Economics Vocational Technical Education, Cavite State University (DHEVTE, CvSU), Indang for the product standardization and sensory evaluation of the produced chocolate bars; Cavite and Central Analytical Services Laboratory of National Institute of Molecular Biology and Biotechnology (CASL-BIOTECH) in University of the Philippines, Los Banos, Laguna (UP LB) for the Total Sugar Analysis; and Tagaytay City Science National High School (TCSNHS), Tagaytay City for the consumer evaluation of the best treatment.

The treatments used in the study were T<sub>1</sub> (165 mL chocolate liquor + 750 mL fresh milk + 500 g coco sugar); T<sub>2</sub> (165 mL chocolate liquor + 750 mL fresh milk + 500 g kaong sugar); T<sub>3</sub> (165 mL chocolate liquor + 750 mL fresh milk + 500 g muscovado sugar); and T<sub>4</sub> (165 mL chocolate liquor + 750 mL fresh milk + 500 g table sugar)

Each treatment and its replications were subjected to sensory evaluation and total sugar analysis (Phenol Sulfuric Acid Method) at CvSU-DHEVTE and UP LB, respectively. The best treatment was statistically determined from the results of the sensory evaluation and total sugar analysis through the use of ANOVA. Chocolate bars with muscovado sugar is the most generally accepted because of its dark brown color, very strong chocolate aroma, and bitter sweet taste. Moreover, it has the highest mean score in the sensory evaluation and has the lowest total sugar content. Thus, it became the best treatment and was then subjected to consumer evaluation with 100 respondents from TCSNHS for general acceptability, thus resulting the chocolate bars acceptable.

For the cost of production, Treatment 1 costs Php 454.00 for 100 pieces or Php 4.54 per piece. Treatment 2 costs Php 390.00 for 100 pieces or Php 3.90 per piece. Treatment 3 costs Php 236.50 for 100 pieces or Php 2.37 per piece. And, Treatment 4 costs Php 192.00 for 100 pieces or Php 1.92 per piece.

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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 Prof. Carmen A. Batiles.

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## **INTRODUCTION**

Chocolates are one of the most famous desserts known by people. They can also be eaten as snack. Almost all people can afford to buy chocolates from the cheapest ones up to the expensive chocolates. It was considered as the “food of the gods” back then (Callebaut, 2016).

Chocolates that people eat now contain certain amount of different ingredients to make the chocolate taste good. There are different types of chocolate like milk chocolate, white chocolate, dark chocolate, and many more (Allen, 1994).

But not all people are allowed to eat much of these. Most of the chocolates produced contain a large amount of sugar. Therefore, these people were given limits to intake this food. People crave for this food.