

553.68

Am1

2004

PRODUCTION OF CHALK FROM CRAB
(*Squilla serrata*) SHELLS

RESEARCH STUDY

GLEN P. AMBATA
REMERSON L. POBLETE

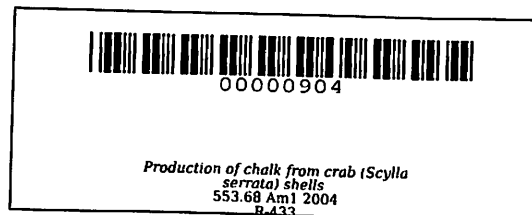
CAVITE STATE UNIVERSITY

Indang, Cavite

APRIL 2004

a
PRODUCTION OF CHALK FROM CRAB
(*Scylla serrata*) SHELLS

A Research Study Submitted to the Faculty of the
Laboratory School, College of Education
Cavite State University
Indang, Cavite



**In Partial fulfillment
of the requirement for graduation**

Glen P. ~~Ambata~~
Remerson L. Poblete

ABSTRACT

Ambata, Glen Pascual and Poblete, Remerson Layno, Applied Research III (General Science Curriculum), Laboratory School College of Education, Cavite State University, Indang, Cavite, April 2004, "Production of Chalk from Crab (*Scylla serrata*) Shells".

Adviser: Ms. Miriam C. Du
Mrs. Dulce Ramos

The research study entitled "Production of Chalk from Crab (*Scylla serrata*) Shells" was conducted at 525 P. Burgos St. Indang, Cavite from June 2003 to November 2003. This was conducted to determine if the crab shells could be used in making chalk as substitute to calcium carbonate and other chemicals. Generally, this study aimed to use crab shell in the manufacture of chalk.

Four treatments replicated three times were used in the study: T₁ (30 grams of powdered crab shells + 100 ml of cassava sap); T₂ (90 grams of powdered crab shells + 100 ml of cassava sap); T₃ (150 grams of powdered crab shells + 100 ml of cassava sap); and T₄ (210 grams of powdered crab shells + 100 ml of cassava sap). Complete Randomized Design (CRD) was used in the study. One – way analysis of Variance (ANOVA) was used to analyze the data for physical evaluation and Duncan's Multiple Range Test (DMRT) for the comparison of treatments. It was found out that T₂ got the highest score in terms of texture (mean= 4.0000), brittleness (mean=4.2111), adherence, (mean=2.7222) and in general acceptability with the mean of 2.8889. On the other hand, T₄ got the mean score of 3.1222 in terms of compactness.

Based on the results of the study, it can be concluded that crab shells can be used in the manufacture of chalk. Ninety grams of powdered crab shells: 100 ml cassava

sap is the optimum ratio needed to produce a good quality chalk. The cost of the produced chalk is almost the same as the cost of the commercial chalk.

Chalk from crab shells does not contain harmful chemicals that may cause breathing problems and skin allergies. Production of chalk from crab shells is inexpensive, simple and easy.

TABLE OF CONTENTS

	Page
BIOGRAPHICAL DATA	iii
ACKNOWLEDGEMENT	iv
ABSTRACT	vi
INTRODUCTION	1
Statement of the Problem	2
Objectives	2
Importance of the Study	3
Scope and Limitation of the Study	3
Time and Place of the Study	3
RELATED LITERATURE	4
METHODOLOGY	10
Materials	10
Methods	10
Collection and Preparation of Materials	10
Preparation of Molder	11
Preparation of Chalk	11
Experimental Design and Data Analysis	11
Treatments	11
Gathering of Data	12
Cost of Production	12
DISCUSSION OF RESULTS	13

Result of Evaluation for Texture	13
Result of Evaluation for Compactness	14
Result of Evaluation for Brittleness	15
Result of Evaluation for Adherence	17
Result of Evaluation for General Acceptability	18
Cost Production of Chalk from Crab Shells	20
SUMMARY, CONCLUSION AND RECOMMENDATIONS	
Summary	22
Conclusion	22
Recommendation	23
LITERATURE CITED	24
APPENDIX	26

List of Tables

Table 1. Sensory mean scores for texture	13
Table 1a. Analysis of variance for sensory evaluation for texture	14
Table 2. Sensory mean scores for compactness	15
Table 2a. Analysis of variance for sensory evaluation of compactness	15
Table 3. Sensory mean scores for brittleness	16
Table 3a. Analysis of variance for sensory evaluation of brittleness	16
Table 4. Sensory mean scores for capacity to adhere to board	17
Table 4a. Analysis of variance for sensory evaluation of capacity to adhere to board	18
Table 5. Sensory mean scores for general acceptability	19
Table 5a. Analysis of variance for sensory evaluation of general acceptability	19
Table 6. Cost of production	21

List of Plates

Plate no. 1: Materials	28
Plate no. 2: Grinding of crab shells	29
Plate no. 3: Sieving of powdered crab shells	30
Plate no. 4: Mixture of the powdered crab shells and cassava sap	31
Plate no. 5: Finished product	32
Plate no. 6: Evaluation of the product	33

Use of Crab (*Scylla serrata*) shells in the Production of Chalk

Glen P. Ambata
Remerson L. Poblete

A research study submitted to the faculty of Laboratory School, College of Education of Cavite State University, Indang, Cavite, in partial fulfillment of the requirements for graduation under the supervision of Ms. Miriam C. Du.

INTRODUCTION

Chalk is an indispensable writing tool used in teaching-learning process. It is a variety of fined-grained limestone that is porous, soft and also composed of minute fossil fragments of cellular organism along with larger ones and crystal of calcite. Because calcite and the fragments of the marine organism are composed of calcium carbonate, usually more than fifty percent of chalk is made of this compound and other minerals, which include quartz, various types of clay, mica, iron oxide, and pyrite. Hardness and texture ranges from very soft smooth varieties to close-grained types, while its color ranges from pure white to yellow-white due to some impurities (Cachola, 1993).

Chalk is used in the manufacture of rubber goods, paint, putty, polishing powder, Portland cement, and as a soil conditioner (Grolier Encyclopedia, 1998).

Crabs (*Scylla serrata*) are crustacean arthropods living in both fresh and salt water. One of its main body parts is a shield like shell also called the carapace. The