

**OYSTER SHELLS (*Ostrea Edulis*) AS AN AGGREGATE IN THE
PRODUCTION OF CONCRETE PAVING BLOCKS**

Research Study

**ANGELICA L. DE GUZMAN
ASHLEY NICOLE P. GEÑEGA
RELETH MAE G. PEREGRINO**

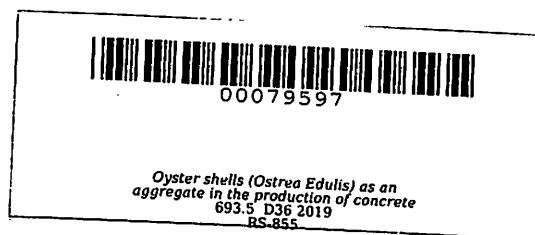
**Science High School
CAVITE STATE UNIVERSITY
Indang, Cavite**

May 2019

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PRODUCTION OF CONCRETE PAVING BLOCKS**

Research Study
Presented to the Faculty of the
Laboratory Science High School, College of Education
Cavite State University
Indang, Cavite

In partial fulfillment
of the requirements for Capstone Research



**ANGELICA L. DE GUZMAN
ASHLEY NICOLE P. GEÑEGA
RELETH MAE G. PEREGRINO**
May 2019

ABSTRACT

DE GUZMAN, ANGELICA L., GEÑEGA, ASHLEY NICOLE P., and PEREGRINO, RELETH MAE G. Oyster Shells (*Ostrea edulis*) as an Aggregate in the Production of Concrete Paving Blocks. Research Study. Science High School (General Science Curriculum), College of Education, Cavite State University, Indang Cavite. May 2019. Adviser: Engr. Cene Bago.

The study entitled “Oyster Shells (*Ostrea edulis*) as an Aggregate in the Production of Concrete Paving Blocks” was conducted from January to May 2019 at the Cavite State University and Bancod, Indang, Cavite. It aimed to produce concrete paving blocks with the use of oyster shells as an aggregate. Specifically, it aimed to; determine the physical properties of the produced concrete blocks in terms of its color and texture, determine the compressive strength of the produced concrete blocks with different proportions of crushed oyster shells as an aggregate, determine which treatment will produce the most economical proportion of the paving blocks, and determine the cost of production of the produced concrete blocks with different proportions of crushed oyster shells as replacement of fine aggregate.

The researchers used five trial mix designs of concrete with crushed oyster shells as partial replacement of fine aggregate in concrete paving blocks which varies from 25 percent, 50 percent, and 75 percent.

The samples were subjected to physical tests, color, and texture identification. The compressive strength of each blocks were also determined through the test results obtained from ASTEC Material Testing Center.

In terms of texture, the highest percentage obtained at 46.67 percent which is interpreted as moderately rough. On the other hand, it is Treatment 1 with 25 percent oyster

shells that obtained the highest percentage in terms of color which is 56.67 percent, interpreted as gray.

The results also showed that Treatment 1 with 25 percent of oyster shells as partial replacement to fine aggregate had the highest compressive strength. This showed that the different percentage of oyster shells affect the compressive strength of concrete paving blocks. Nevertheless, the compressive strength test results of the concrete paving blocks with different percentage of oyster shells as fine aggregate replacement did not meet the standard compressive strength of 8000 psi.

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**Angelica L. de Guzman
Ashley Nicole P. Geñega
Releth Mae G. Peregrino**

A research study manuscript submitted to the faculty of Science High School, College of Education, Cavite State University, Indang, Cavite in partial fulfilment for graduation under Contribution No. _____. Prepared under the supervision of Engr. Cene M. Bago.

INTRODUCTION

The Philippines is one of the countries in the world which has numerous sites suitable for oyster farming. According to Bureau of Fisheries and Aquatic Resources (n.d.) there are oyster farms located in 17 provinces within the country comprising Regions I, IV and VI. One of its major producers is the province of Cavite. However, these oyster shells are non-biodegradable and rarely used in making and designing all kinds of embellishments from beaches or resorts and other places that sell souvenir items made from shells. Considering this factor, empty shells are being disposed in the dumpsites which generates the volume of waste.

In line with this, Marlene Cemons from the website Popular Science (2017) stated that oyster shells supplant limestone as a source of calcium carbonate, which is a common ingredient in cement making.