

NIPA PALM (*Nypa fruiticans*) AND PLASTIC POST-CONSUMER WASTES (PCW)
AS POTENTIAL COMPOSITE BOARDS FOR BUILDING MATERIALS

A THESIS

Presented to

The Faculty of the College of Agriculture, Resources, and Environmental Sciences

Central Philippine University

Iloilo City

In Partial Fulfillment

of the Requirements for the Degree

Bachelor of Science in Agricultural and Biosystems Engineering

By

LANCE CHRISTIAN M. CABRERA

May 2024



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Lance Christian M. Cabrera

ABSTRACT

This study was conducted to utilize nipa palm fiber and plastic post-consumer wastes (PCW) as potential composite boards for building materials. This was conducted at Brgy. Cubay Jaro, Iloilo City from the month of September to December of 2023. The composite boards produced were composed of nipa palm frond fibers and PCW plastic with epoxy resin as binder in different mixing ratios. Three treatments with three replications were prepared having a weight ratio of 50:50, 60:40, and 70:30. Composite board samples were fabricated in order to test its physical and mechanical properties. Based on the results of the study, the composite board samples produced an average density of 76,183.67 mm³ and a density of 1003 kg/m³. The composite board samples produced a mean water absorption of 4.53% and were found to have no significant ($P>0.05$) difference in water absorption. The result of the study for mean thickness swelling showed a significant difference ($P<0.05$) with an overall mean of 3.36%. The result of modulus of rupture test showed a mean of 13.37 MPa and showed no significance ($P<0.05$) among the composite board samples. The empirical data showed that the overall best performing sample was composite board sample 2 which has the 60:40 wt to wt ratio with a mean water absorption rate of 4.54%, a mean result of 3.62% in thickness swelling and has a modulus of rupture results of 17.295 MPa.

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