

**DEVELOPMENT AND TESTING OF COMPOSITE PAPERBOARD BY MOLD AND  
DECKLE PAPERMAKING PROCESS USING ABACA TUXY WASTE, BANANA  
PSEUDOSTEM, AND RICE STRAW FIBERS**

A Thesis

Presented to

The Faculty of the Department of Packaging Engineering

Central Philippine University

Jaro, Iloilo City, Philippines

In Partial Fulfillment

of the Requirements for the Degree

**BACHELOR OF SCIENCE IN PACKAGING ENGINEERING**

By

Team PACKDEMIC

Barroba, Joshua Samuel V.

Castor, Kayla Millen G.

Daras, Crystal Joyce T.

Mijares, Van Daniel G.

Reynes, Ray Miguel L.



May 2022

**DEVELOPMENT AND TESTING OF COMPOSITE PAPERBOARD BY MOLD AND  
DECKLE PAPERMAKING PROCESS USING ABACA TUXY WASTE, BANANA  
PSEUDOSTEM, AND RICE STRAW FIBERS**

Joshua Samuel V. Barroba, Kayla Millen G. Castor, Crystal Joyce T. Daras,  
Van Daniel G. Mijares, Ray Miguel L. Reynes

**ABSTRACT**

This research study determined the optimum ratio of abaca tuxy waste, banana pseudostem, and rice straw fibers to produce composite paperboard using the mold and deckle papermaking process. Four sets of composite paperboard sheets with varying fiber ratios were produced: (1) 33% abaca tuxy waste, 33% banana pseudostem, and 33% rice straw, (2) 50% abaca tuxy waste, 25% banana pseudostem, and 25% rice straw, (3) 25% abaca tuxy waste, 50% banana pseudostem, and 25% rice straw, and (4) 25% abaca tuxy waste, 25% banana pseudostem, and 50% rice straw. Among the four sets, Set 3 was found to be the best formulation, and Set 4 was found to be the closest to the solid unbleached board in terms of visual appearance. Results for bending stiffness showed that only Sets 2 and 4 were found to have no significant difference with solid unbleached board. For burst strength and tear strength results, all four sets showed no significant difference with solid unbleached board. Results for water absorbency showed that only Set 3 had a significant difference with solid unbleached board.