UNIVERSITI TEKNOLOGI MARA

THE EFFECTIVENESS OF CEIBA PENTANDRA AS AN ALTERNATIVE SUSTAINABLE MATERIAL FOR PACKAGING DESIGN

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ABSTRACT

Lack of information, knowledge and resources is a fundamental matter faced by most entrepreneurs of Ceiba Pentandra (kapok) in Malaysia. In addition to having no specific management system, and knowing the quality level and other potential benefits offered, most assume that working on kapok based businesses is just how the village business is able to provide an additional monthly income. However, the deterioration of income is increasingly felt by entrepreneurs due to difficulties in obtaining resources. This makes the various parties working to find solutions. Consequently, the study aims to explore the possibility of using kapok as a new source for the production of packaging material as well as researching its effectiveness of sustainable development in Malaysia. The problem of resource shortages cannot be solved solely by providing more land for the development and management of Ceiba trees. There is an urgent need for innovation, among them by producing more quality-based products to meet the needs and modern urban life such as producing comparable alternative material of paper. Therefore, the researcher takes the emphasis and examines the effectiveness of kapok as an alternative material for packaging design. This study is a novel based on different approaches in extracting fiber cap along with repeated fibers through a quasi-experimental procedure as method of research study. The actual testing process of producing new types of materials for packaging through three phases of experiment procedures. The objectives of first procedure CE1 is to investigate that kapok paper was successfully can produced compare to sample A. Whereas the second experiment TGE2 incorporates kapok and blending repeated fibers can produce kapok papers and tested comparable to sample A. While, in procedure P2E1-3, the aim to produce Kapok papers that fulfill the packaging requirements, compares to Sample B, C and D as represent characteristics of packaging types known as primary, secondary and tertiary. The findings was proved that kapok fibers potentially used as an alternative material in producing sustainable material for packaging design. The successful of the kapok-based experimental procedures, are also explores on the combination between theory of 7 Model Optimal Packaging Design and Cradle to Cradle Concept, that previously studies separately. It is also expected to produce a comprehensive study in new process (Y) that can use as guideline in designing for sustainable packaging effectively while the knowledge contributes on research evaluation of packaging design as consider to Japanese Exquisite Design concept. As conclusion, this study was importance as conducted in area of Art and Design domain. This study also establish a packaging design and characterizes the further packaging types. The potential of kapok fiber as alternative source for packaging materials production through Quasi-Experimental procedures are follow to ISO standards and tested with TAPPI standard accordantly. Therefore, the significant of research study was potentially contributed to various parties especially to public, researcher, academician and manufacturer in order to improve our quality of future.

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