

Coconut Coir Experimental Process for Producing an Alternative Block Toy Compound

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Abstract

Currently, children’s block toys use solid wood, processed wood and Medium-Density Fiber board (MDF). MDF is a mixture of sawdust that is held together with wax, resin and formaldehyde and has been widely used to produce children’s toys. MDF are heavy and found to be health hazardous especially to children. This research focuses on the process of transforming the waste from the coconut coir/husk as an alternative to the current unsafe materials into toy block. The coconut coir/husk is creatively processed to produce children toy block that are soft, lightweight, cheap, harmless for children to use and environmental friendly. The process involved treatment of insignificant waste and transforming it into a competitive product, thus reducing mass pollution by the coconut farmers and open burning of coconut coir/husks.

Keywords: Coconut coir; Coconut husk; Children block toy.

1. Introduction

Coconut tree is commonly known to make many products. In the book of “Replanting the Tree of Life, towards an International Agenda for Coconut Palm Research” [1], stated that coconut tree has many functions and acts as an important tree to the local people. According to [1], the coconut tree is named “the Tree of Life” because almost every part of the coconut tree can be used to make precious products for the locals.

Research based on coconut studies had been done in many countries to seek the potential usage of coconut tree [2-3]. Apart from the many usage of the coconut tree, many research also ventured into a more scientific studies to help increase the versatility of the coconut tree especially the coconut coir/husk. [4] looked at the production process of coir and coir products; [5] experimented coconut peat to find alternative artificial soil ingredient for the earthworm toxicity testing. [6] investigated the use of Coco Coir Polypropylene as thermal insulator and [7] developed paper using coir fibers as a product packaging.

In Malaysia, coconut coir/husk is mostly considered useless and are usually thrown out by coconut farmers. Farmers dispose coconut coir by burning which resulted in the air pollution. One of the efforts to fully utilize the unwanted coconut coir is processing the coir/husk into useful material that can be commercialized and produced an alternative material for children’s toy block. Many children’s toys heavily depend on wood material, processed wood and dangerous substances like MDF. The use of these substances can affect children safety factor due to the nature of the material is too hard and heavy. Even though there are many research conducted on coconut coir/husk, the experimentation on the potential of coconut coir/husk as a softer and safer block toys for children

have yet to be ventured. Therefore, a material from coconut coir/husk is proposed using a simple and cost saving process.

2. Materials and Method

The materials involved are only coconut coir/husk, boric acid, latex and formic acid. The coconut coir/husk were obtained from Borneo Coconut Fiber Sdn Bhd in Asajaya. Methods used in this process are based on a standard practice whereby boric acid is used to prevent the coconut coir/husk from fungal infection and termites.

A few stages involved in the processing of the coconut coir/husk into the toy compound. The first stage is the processing of the raw material which are divided into the treatment of the coconut coir/husk and the treatment of the coir fiber. The final process is the process in producing the new material for the block toy.

Figure 1 below is the experiment flowchart of how the coconut coir/husk is processed into the block toy.

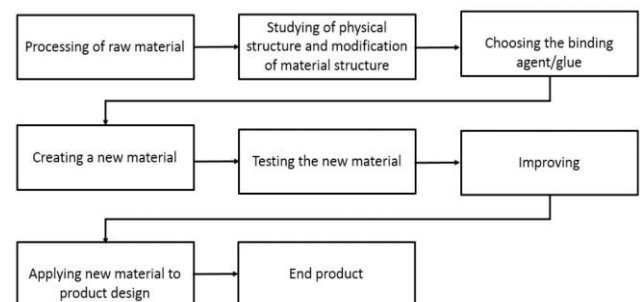


Fig. 1: Experiment flowchart