

Bio Composites for Substituting Synthetic Packaging Materials

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Abstract : In recent times, the world has been facing serious environmental concerns and issues, such as sustainability and cost, due to the overproduction of synthetic materials and their participation in degrading the environment by means of industrial waste and non-biodegradable characteristics. As such, biocomposites come in handy to ease such troubles. Bio-based composites are promising materials for future applications for substituting synthetic packaging materials. The challenge of making packaging materials lighter, safer and cheaper leads to investigating advanced materials with desired properties. Also, awareness of environmental issues forces researchers and manufacturers to spend effort on composite and bio-composite materials fields. This paper explores and tests some nature-friendly materials has been done which can replace low-density plastics. The materials selected included sugarcane bagasse, areca palm, and bamboo leaves. Sugarcane bagasse bamboo leaves and areca palm sheath are the primary material or natural fibre for testing. These products were processed, and the tensile strength of the processed parts was tested in Micro UTM; it was found that areca palm can be used as a good building material in replacement to polypropylene and even could be used in the production of furniture with the help of epoxy resin. And for bamboo leaves, it was found that bamboo and cotton, when blended in a 50:50 ratio, it has great tensile strength. For areca, it was found that areca fibres can be a good substitute for polypropylene, which can be used in building construction as binding material and also other products.

Keywords : biodegradable characteristics, bio-composites, areca palm sheath, polypropylene, micro UTM

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