New Discovery of Eco Plyfibre via Pineapple Leaf and Recyclable Plastic for Future Sustainability

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Fibre-reinforced polymeric composites have received widespread attention for the past decades because of their high specific strength and modulus.Pineapple leaf fibre is rich in cellulose,relatively inexpensive and abundantly available has the potential for polymer reinforcement.Pineapple leaf fibre at present are a waste product of pineapple cultivation.HDPE is the most recognized recyclable plastic and is used to make detergent bottles, shampoo and conditioner bottles,and many other non-food items.According to U.S. National Park Service; Mote Marine Lab, Sarasota, FL,these plastics take around 450 years to decompose in the environment which will contribute to the earth's waste disposal problem.The initial idea was to recycle waste materials into a green project which can increase the environmental friendliness.This project is designed as an alternative to replace the role of wood in industry. The process of designing this project began with detailed on related fields and a prototype was designed and later constructed. This project was started by extracting the pineapple leaves fibres and collecting the HDPE bottles from houseware waste.Internal mixer machine was used to mix the materials well at 180 °C for 10 minutes.The mixture was compressed in the hot and cooling compressor machine.Specimens with same sizes were produced and cut into specific measurement for tests. The result shows that it resist water,anti-termide,high flexibility,strong yet flawlessly shiny surface.Furthermore, with its simple design and durable structure which contribute to its cost effectiveness and environmental friendliness, it can be applied in other industries of wood-based manufactured,board production and furniture.

Awards Won:
Third Award of $1,000