**Processing of a bio-sourced material and determination of its properties: compound of recycled polymer reinforced with vegetable stocks from non-food biomass residues**

<http://garj.org/full-articles/processing-of-a-bio-sourced-material-and-determination-of-its-properties-compound-of-recycled-polymer-reinforced-with-vegetable-stocks-from-non-food-biomass-residues.pdf?view=download>

**Abstract:**

The eco-material and bio-sourced material field has been enjoying a strong growth driven by tougher environmental regulations. The major challenge in this field relates to the replacement of the classical synthetic reinforcements (carbon, glass, kevlar,..) by natural reinforcements. In this approach, this study aims at using biomass residues from ginned cotton and plastics at end-of-life in order to develop streamlined functional structures. A compound of recycled polystyrene reinforced with cotton husks is produced by plastic injection. This study presents the mechanical and physical properties of this material. An Finite Element modelling of the behaviour of this material is developed with a view to optimizing its manufacturing and its properties. The interest is to develop recyclable materials from polluting biomasses with no market value to minimize their environmental impact while giving them a second life for various applications such as the production of vehicles’ inner fittings, casings of cell phones, computers, photocopiers, etc. Bio-sourced materials, recycled polymers, compound, cotton husks.