

FABRICATION AND ANALYSIS OF SUGARCANE FIBRE WITH COMPOSITE MATERIAL

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ABSTRACT

Natural fibre's are the most common fibres which are available on earth in various forms such as plant fibre , animal fibre , mineral fibre . Sugarcane fibre is a natural fibre which has wide range of uses in handicraft or other types of product developments such as mat, rope, food plate but with adding some resin materials and we can get a new product. As it has a property like weatherproof, UV protection, moisture absorption. Anti-oxidant and bio degradable etc., it can be used to make variety of products that help farmers economically and have wide scope to create new market. Recent studies have indicated sugarcane fibre possesses a lot of advantageous physical and chemical properties which can be used a very good raw material for the textile and packaging industry. Our aim is to fabricate sugarcane fibre reinforced composite material which is done with various proportions and to conduct various testing to analyze the various applications.

Keyword : - Sugarcane fibre, epoxy resin, epoxy hardener, mould

1. INTRODUCTION:

The use of plastic as well as the ceramic materials has increased day to day and the continuous use of these materials are polluting the environment in such a way that it is difficult to decompose since the decomposing time of plastic is larger than any other material .Even with the replacement of foil for plastics the aluminium still leads to aluminium toxicity.So we have come up with the idea of using natural fibres such as sugar cane which can be cultivated and it can decompose quickly leading to decrease in pollution in the environment . Since strength of sugarcane is well enough it can be used as replacable plates .Different proportions of sugarcane fibre with epoxy resins are done and the composition which has the best strength is chosen for fabrication.

2.LITERATURE REVIEW:

The following are some of the terminologies obtained from the journal paper:

- [1] The removal of lignin depends on the concentration of NaOH which ultimately decides the characteristics of fibers.
- [2] Mechanical behaviour of sugarcane fiber is analysed and it can be varied by using composites.
- [3] recent development of bagasse fibers reinforced polymer composites, types of matrix, processing methods, and any modification of the fiber and its applications.

3.COMPONENTS USED:

3.1 Sugar cane fibre:

It is dry pulpy residue left after the extraction of juice from sugar cane .Sugar cane is used as a bio fuel and in the manufacture of pulp and building materials.

3.2 Epoxy resin:

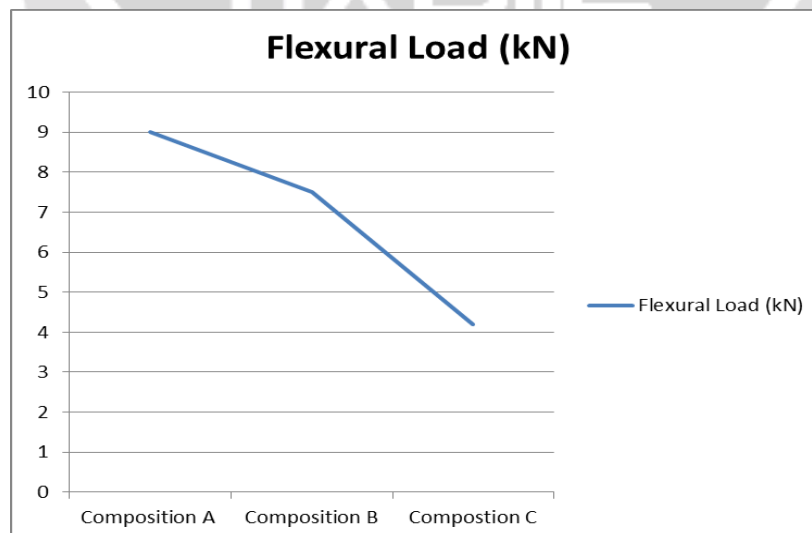
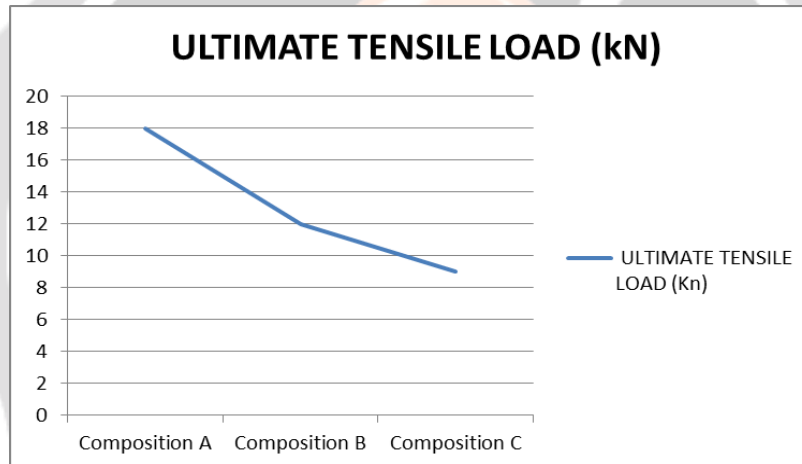
Epoxy resin are resins which consist of epoxide groups Epoxy resin can undergo homopolymerisation with itself.

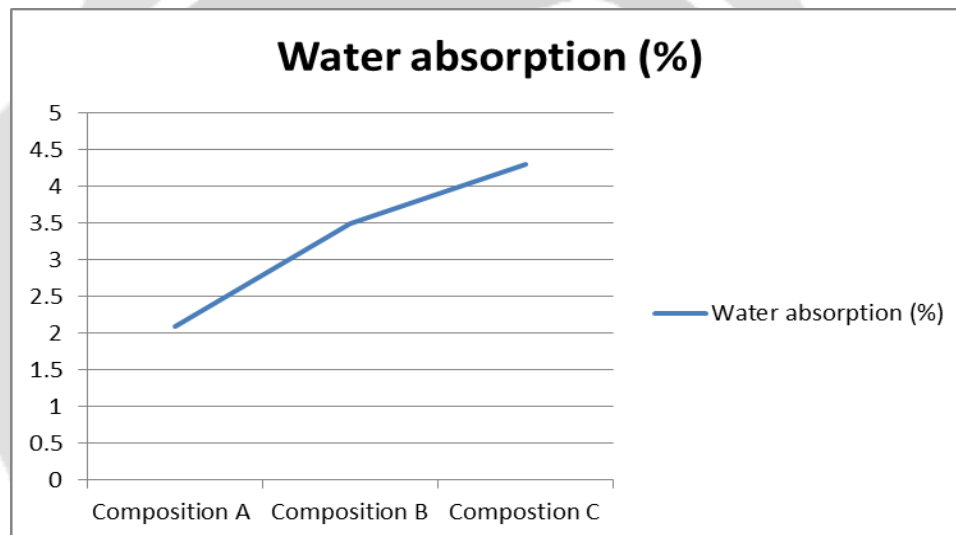
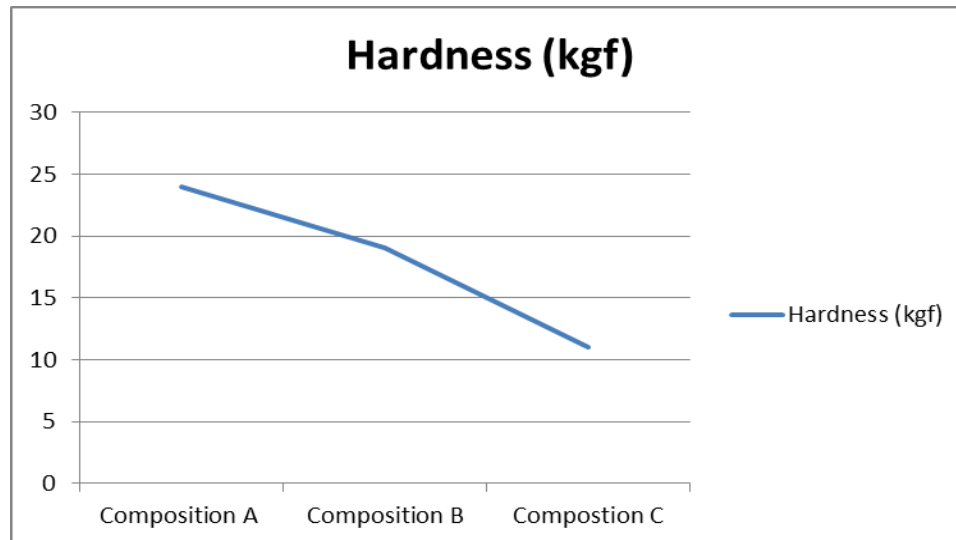
3.3 Hand layup process:

By placing a thin layer of laminated sheet at the bottom, the fibrous materials are placed above it and resins are made above it and another layer of laminated sheet is made above it and weight is placed at the top to make the plate.

4.TEST RESULTS:

The test results for the compositions A(75% fibre,25% epoxy resin), compositions B(65% fibre,35% epoxy resin), compositions C(55% fibre,45% epoxy resin) are shown below.





5.CONCLUSION:

With the help of our project we were able to find out the strength of sugar cane fibre with composite material and the

6.REFERENCES:

- [1] S.D. Asagekar And V.K. Joshi “Characteristics Of Sugarcane Fibres”
- [2] Jose Alexander Araujo And Andre Luis Christofor “The recycling of sugarcane fibre/polypropylene composites”
- [3] A. Balaji And C. Sundar Raj “Bagasse Fiber – The Future Bio Composite Material”.