

Characterization of Roselle & Kevlar hybrid Composites



A. Raveendra, Raghuram Pradhan, Ashok M R, D. Muruganandam, J.Jayapriya

Abstract: This paper center essentially around the ongoing patterns and advancements in Bio compounds as connected to the therapeutic and building industry, refering to certain models. Present research is Alkali treated along with Silane treated and untreated fibres hybrid composite was prepared and all the types of physical and chemical properties studied. All the Silane treated composite shown enhanced concert than untreated composite. Performance possessions of composite devising various tenders in textile& non textile. Silane has an added advantage both physical and chemical properties enhancement.

Keywords: Silane Treatment; Roselle; Kevlar; Hybrid Composites; Structural Bio compounds.

I. INTRODUCTION

customary polymer compounds are non-biodegradable and dirty the earth [1-3]. There is an expanding development of researchers and architects who are committed to limiting the ecological effect of polymer compound creation [4-6]. Natural impressions must be lessened at each phase of the existence cycle of the polymer compound [7-9]. Utilizing common filaments with polymers dependent on sustainable assets will enable numerous natural issues to be unraveled [10-15]. In this day and age, there is an expanding request towards part materials that are sturdy, dependable, lightweight, and with mechanical properties that are fundamentally superior to those of the customary materials. In the meantime it is best if these materials are eco-accommodating and bio-degradable [16-18]. Bio compound substantial has seemed of rewarding the vast common of the above environments. At last, the welfares of

employing bio compound substantial, its eco-accommodating wildlife and its imminent in the trade have been demonstrated with lucidity [19-21]. Fig 1 and 2 explain the composites preparation and characterization with treated and untreated fibers.

II. SPECIMEN AND EXPERIMENTAL

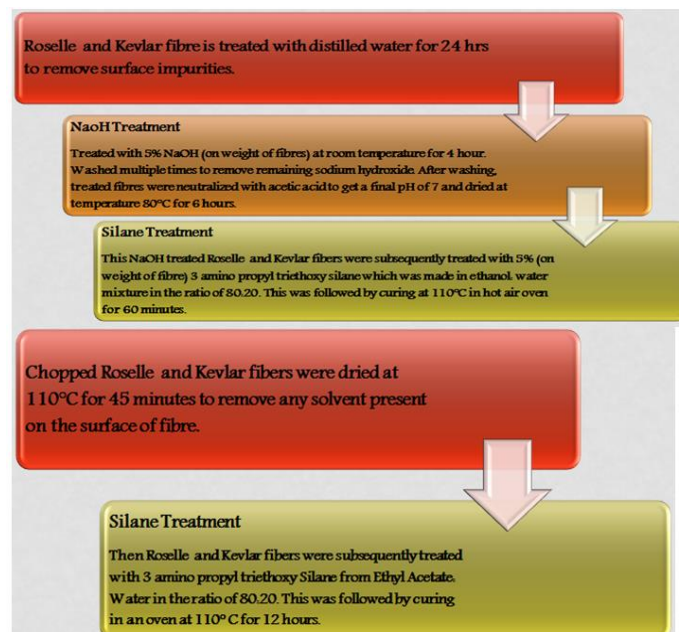


Fig 1 Surface modification of Roselle and Kevlar Fibre

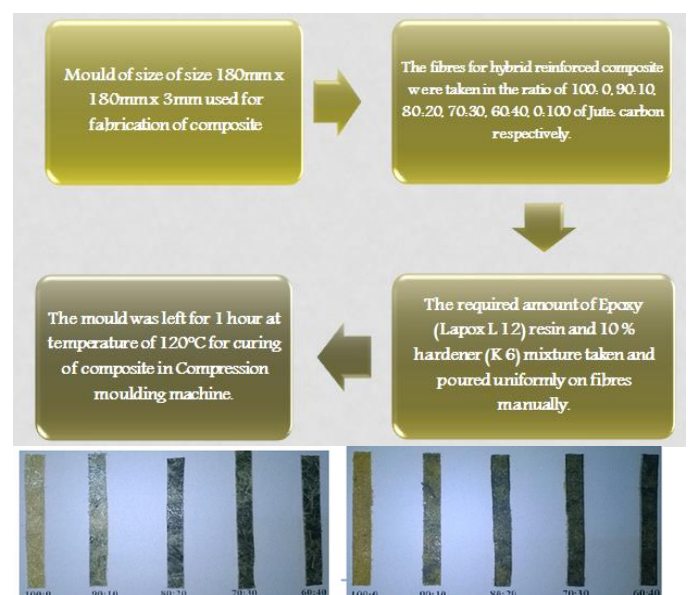


Fig 2 Mould and compound specimen preparation

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III. TEST RESULTS

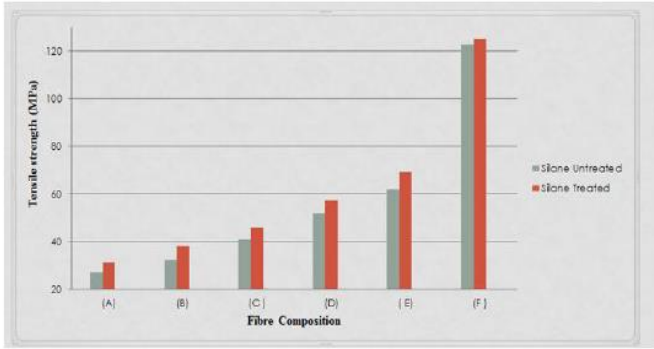


Fig 3 Effect of Silane Treatment on Tensile Strength of Roselle: Kevlar hybrid Compounds.

Fig 3 shows that Tensile strength of composite specimen and it could be observed that silane treated composite posses good mechanical properties than untreated

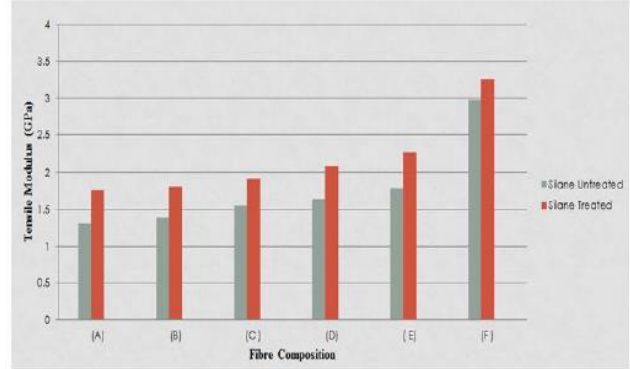


Fig 4 Effect of Silane Treatment on Tensile modulus of Roselle: Kevlar hybrid Compounds.

Fig 4 shows that Tensile modulus of composite specimen and it could be observed that silane treated composite posses good mechanical properties than untreated

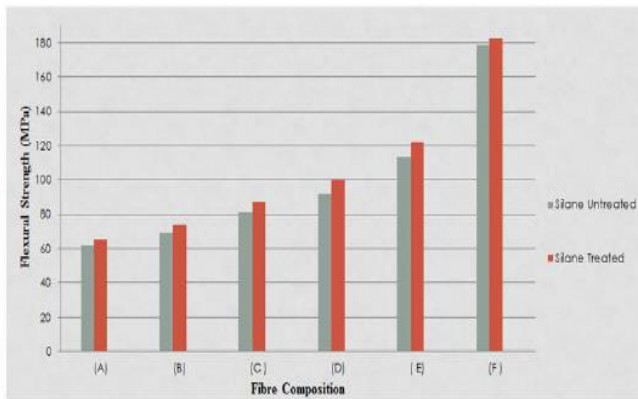


Fig 5 Effect of Silane Treatment on Flexural Strength of Roselle: Kevlar hybrid Compounds

Fig 5 shows that flexural strength of composite specimen and it could be observed that silane treated composite posses good mechanical properties than untreated

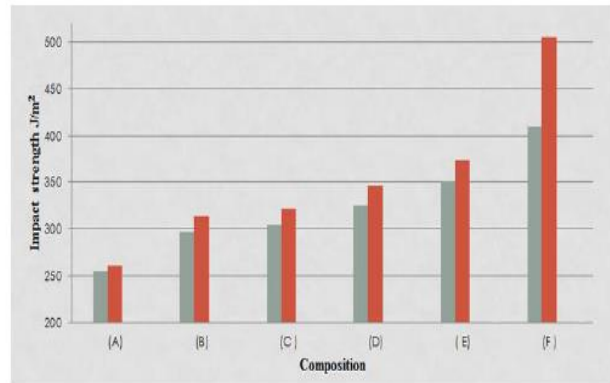


Fig 6 Effect of Silane Treatment on Izod Impact Strength of Roselle: Kevlar hybrid Compounds

Fig 6 shows Impact strength of composite specimen and it could be observed that silane treated composite posses good mechanical properties than untreated

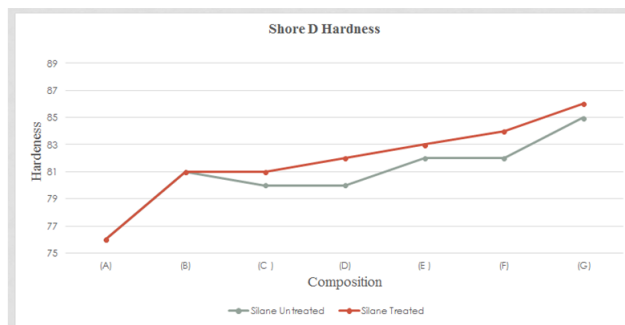


Fig 7 Effect of Silane Treatment on Hardness of Treated and Untreated Roselle: Kevlar hybrid Compounds.

Fig 7 shows that hardness values of composite specimen and it could be observed that silane treated composite posses good mechanical properties than

IV. CONCLUSION

From the Experimental Research of Silane Treatment on said Composites and the results shown in Fig 3 to 7 the following conclusion has been drawn:

- Alkali treated along with Silane treated and untreated fibres hybrid composite was prepared and all the types of physical and chemical properties studied.
- All the Silane treated composite shown enhanced concert than untreated composite.
- Performance possessions of composite devising various tenders in textile & non textile.
- Silane has an added advantage both physical and chemical properties enhancement.

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