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A THESIS ENTITLED

STUDIES ON PRETREATMENTS OF BAST FIBERS AND UTILIZATION OF THEIR PROCESSING WASTES VIA CHEMICAL MODIFICATION

PRESENTED BY

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ABSTRACT

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Title of thesis: Studies on Pretreatments of Bast Fibers and Utilization of their Processing Wastes via Chemical Modification

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This work aims at finding non-traditional uses for bast fibers. Jute fiber was bleached and then graft copolymerized with methacrylic acid with the aim of increasing its carboxyl content. The so obtained jute fibers could be used successfully in separating dyes and heavy metals from wastewater.

Retted and semi-retted flax fibers were scoured and bleached. The so obtained flax fibers were applied in reinforcing epoxy resin. The measurements showed improvement in the mechanical properties of the composite by successive treatments of flax fibers.

Key Words: Jute, Bleaching, Grafting, Adsorption, Flax, Composite

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SUMMARY

Summary

Studies on Pretreatment of Bast Fibers and Utilization of their Processing Wastes via Chemical Modification

Increased competition from synthetic fibers has affected all natural fibers. Massive investments have been made by giant petro-chemical complexes to escalate the production of synthetic fibers. Polyamide, polyester and polyolefins have invaded cordage technology, which was once the sole preserve of hard fibers. Armed with such irresistible advantages as cheapness, lightness, durability and steady domestic supply, synthetic fibers are matching on. Facing with this sort of challenge, the producers of long vegetable fibers (bast fibers) are loosing ground.

There are only two major drawbacks that may curb the further invasion of synthetic fibers on areas of domestic and industrial usage. These are: -

- Their flammability and tendency to produce toxic gases on combustion.
- Difficulties of disposal, which can cause gigantic environmental pollution in further years.

Long vegetable fibers are not as prone to catching fire as are some synthetic fibers; in addition, they burn with less smoke and lethal gases. In the matter of environmental pollution, natural fibers pose no real problems, since they will blend into the soil when they are ultimately thrown away after repeated cycling and re-use. It is therefore a matter of extreme urgency the producers and converters of natural fibers to rationalize fiber and product price-lines and to rectify the technological shortcomings of their products.