

**Exploring the Recycling Potentialities of Cotton Fiber Waste for Development
of Innovative Sustainable Products**

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ABSTRACT

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Everyday many new textile products and technologies hit the market with very few researches and focus on waste recycling. Among the natural and synthetic fibers, cotton holds the golden throne and is expected to be the most wanted fiber in the further years to come for its unique nature and superior fiber properties. During the yarn making process cotton is cleaned several times leaving back different types of waste which are used to make very low count coarse fabrics like bed sheets and towels. Cotton being 'White Gold', even the smallest of fibers is recovered to be used for some value added product. This recovery and cleaning, leaves a final residue or trash from the spinning industry known as willow waste or willow dust. This was identified to have very few end uses and is either incinerated or thrown off in landfill. Review confirmed the fewer researches done and revealed the research gap to explore for economical and sustainable products. Hence a research was planned to experiment on the composition of willow waste, study on the existing recycling techniques available for handling this wastes and develop products, process and prototypes with sustainability as the focal point. The resultant products were compared with the standards and with the commercially available similar products in the market.

DECLARATION

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I declare that the thesis entitled “**EXPLORING THE RECYCLING POTENTIALITIES OF COTTON FIBER WASTE FOR DEVELOPMENT OF INNOVATIVE SUSTAINABLE PRODUCTS**” submitted by me for the degree of Doctor of Philosophy (Ph.D.) is the record of work carried out by me during the period from **December 2009 – December 2014** under the guidance of **Prof. S. Amsamani** and has not formed the basics for the award of any Degree, Diploma, Associateship, Fellowship or other Titles in this University or any other University or Institution of Higher Learning.

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CERTIFICATE

CERTIFICATE FROM THE SUPERVISOR

I certify that the thesis entitled “EXPLORING THE RECYCLING POTENTIALITIES OF COTTON FIBER WASTE FOR DEVELOPMENT OF INNOVATIVE SUSTAINABLE PRODUCTS” submitted for the degree of Doctor of Philosophy (Ph.D.) by Mrs. S. AISHWARIYA M.Sc., NET., is the record of research work carried out by her during the period from **December 2009 – December 2014** to the **Department of Textiles and Clothing, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore** under my guidance and supervision, and that this work has not formed the basics for the award of any Degree, Diploma, Associateship, Fellowship or other Titles in this University or any other University or Institution of Higher Learning.

Signature of the Supervisor
(Prof. S. Amsamani)

Signature of H.O.D
(Prof. N. Vasugi Raaja)

Signature of Dean
(Prof. N. Vasugi Raaja)