Annexure I
Article in Times of India, Ahmedabad
Friday, April 10,2015

Banana fibre fabric may usher new fashion trend

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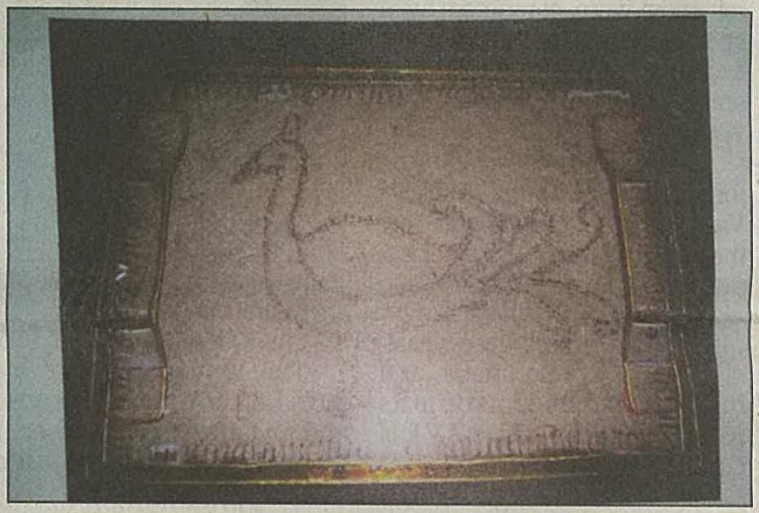
Vadodara: A fabric made out from banana fibre could well be the next green apparel of the future. Researchers at MS University's department of clothing and textile have designed woven and non-woven fabrics of the fibre obtained from pseudo stem of the banana plant. The fabric, say researchers, can be cheaper than cotton and linen if produced on a mass scale.

"We have been successful in making woven and non-woven fabrics from the banana fibre. We treated the long length banana fibres with chemicals and oils to soften it to make it more flexible. After the treatment, the fibres were cut into staple length and twisted with semi-synthetic or regenerated fibres to develop a range of fabric," said Amrita Doshi, who conducted the study under the guidance of professor Anjali Karolia.

"The strong and durable banana fibres are creamy white to brown in colour. Fabrics made out of the fibre possess good luster, light weight and have faster moisture absorption. This woven fabric looks similar to linen," Doshi told TOI.



A serving tray made from banana fibre

The biodegradable fabric will be substantially cheaper than cotton and linen if produced at mass scale. It can also be blended with cotton and dyed into beautiful shades with natural and synthetic dyes to make it a fashionable apparel, she added.

"We are presently working on softening the banana fibres by treating them with enzymes and chemicals. The softened banana yarn can be prepared on charkha and it will cater to the niche market till mass production happens," said Ankita Shroff, who was also a part of the study.

Paper, handicrafts, mats and home décor products have also been prepared from the banana fibre. A blended fabric can also be woven from variety of yarns that include viscose, modal and excel.

"We have collaborated with Textile Research Application Development Center of Aditya Birla Group to develop and promote the fabric," said Karolia.

Annexure II

Loksaata,Vadodara Talk

Tuesday, 17 January 2017

TALK

TUESDAY 17 JANUARY 2017 VADODARA

• Ditch New Year's Resolutions Day

Most of us don't stick to our resolutions past January. And today, if that's how you want it to be, is the day you can ditch those resolutions you swore yourself to.

It's ta ta cotton, hello banana khadi

MS University researcher Amrita Doshi's five-year study leads to linen-like fabric made from banana fibre

• Sayoree Ray

Banana is all set to give tough competition to cotton and linen fabrics. Wondering how would that be? Thanks to a researcher from MS University. Amrita Doshi has – after five years of extensive research – come up with a fabric made from banana fibre. Her banana khadi fabric seems like a good alternative to cotton and perfect for scorching summers.

We all know that banana is one of the most nutritious fruits and is also extremely easy on the pocket. But apart from the edible portion, a banana's stem is often seen as useless and adds to litter. Enthused with the idea to use this stem to create something meaningful, Amrita took up an ardouus quest to make sense of the waste. She ended up unearthing hidden wonders of this fruit that no one had explored till now.

Amrita says, "Banana is the second most important food crop grown in India. Every year around a billion tonnes of banana plant stems are thrown away after harvesting of the fruit. Banana fibres are extracted from this roadside thrown biomass using a machine called Raspador. Being the dry matter of the plant, banana fibres have excellent strength and are thin, which helps in producing high-quality fabrics."

"The fibres have to be processed further into textiles with right amount of chemical recipes to soften the fibre. The thinner the fibre, the more versatile it becomes and easier to weave. And after the banana yarns are woven on a *charkha*, we can create varieties of handlooms and handloom products," adds Amrita, from the Department of Clothing and Textiles in Faculty of Family and Community Sciences.

Amrita conducted the study under the guidance of Professor Anjali Karolia. It took her five years to conduct the study for understanding the strength and durability of banana fibres. As banana fibres are creamy and brown in colour, the fabric has a fine lustre, is light in weight and has the ability to absorb moisture faster.

Amrita supports the importance of the fibre and says, "The fibre has immense potential. In the coming years, banana yarn can replace cotton and linen fabrics with banana khadi. I and my team are working on it and have also applied for a patent so that paper, handicrafts, mats and home decor items can be also prepared from the fabric in the future."

Anjali says, "I see the fabric as a good material to use in daily wear. Till now, it was only used to weave sacks but thanks to this research we will soon be able turn it into a textile. We have been working since 1998 along with research institute to make yarn out of banana fibre. The highlight of the study is that the material is made using waste and no trees are cut, no leaves are harmed and no fruits or flowers are wasted."

"The fabric is a little expensive as a one-metre piece can cost up to Rs1,200. But we are trying to minimise the rate by experimenting on chemical recipes to soften the fibre. So, it can be used into regular dressing," Anjali says.

The researcher and her guide are trying to figure out ways to ensure the fabric can be manufactured for commercial purpose.

"We want to work out a way to start producing this fabric on a medium scale so that designers and fashion houses can think of it and use it while designing their collection," Amrita says.

Annexure III

Patent Application

FORM 5
THE PATENTS ACT, 1970
(39 OF 1970)
&
The Patent Rules, 2003
DECLARATION AS TO INVENTORSHIP
[See section 10(6) and rule 13(6)]

1. NAME OF APPLICANT(S) (i) AMRITA DOSHI

hereby declare that the true and first inventors of the invention disclosed in the complete specification filed in pursuance of our application numbered 17158 dt. 5/11/2015 are

2. INVENTOR(S)
   (a) NAME : (i) MS. AMRITA DOSHI &
   (ii) PROF. ANJALI KAROLIA

   (b) NATIONALITY Both Indian

   (c) ADDRESS (i) 14, Shreeji Shraddha Society
   Water Tank Road
   Karelibaug, Vadodara – 390 006

   (ii) Dept. of Clothing & Textiles
   Faculty of Family and Community Sciences
   The Maharaja Sayajirao University of Baroda
   Opp. Sayaji Garden, Vadodara – 390 002

Dated this 3rd day of November 2016

Signature: -
Name of the signatory: - Amrita Doshi

3. I, Prof. Anjali karolia assent to the invention referred to in the above declaration, being included in the complete specification filed in pursuance of the stated application,

Dated this 3rd day of November 2016

Signature of the additional inventor: -
Name of the signatory: - Prof. Anjali Karolia through her
POA Mr. Anshul Shah
(original POA is attached h/w)

To, The Controller of Patent
The Patent Office at Mumbai