

IJIRA

NEWSLETTER

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From the Desk of the Director

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Stay tuned as we pave the way for a new era in natural fiber innovation!

Dive in now!

Dr. A. K. Sharma
Director, IJIRA

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Editorial Board

- **Dr. Pradip Chakrabarti**
- **Soumita Chowdhury**
- **Partha Sanyal**
- **Ipsita Roy**
- **Apsara Nath**
- **Jitesh Kayal**
- **Kuntal Chakraborty**

Technology No. 1:

A Major Step Toward Scalable, Eco-Friendly Bamboo Fiber Production

We're proud to share the early and successful completion of our project, *"Development of Different Extraction Techniques for Long Bamboo Fibers."* Working with five bamboo species and multiple extraction methods, our team has developed high-quality fibers ideal for textile and composite applications.

All key milestones—team on boarding, machinery setup, intensive trials, and report submission—were completed with 100% success.

This achievement represents a major stride in sustainable fiber innovation and strengthens our commitment to scalable, eco-friendly material solutions.





HTHP Machine in Action

*Technology No. 2:***Proof of Concept Achieved for Enzymatic Degumming of Ramie**

Enzymatic degumming of ramie (supplied by CRIJAF) was successfully carried out, marking a key proof-of-concept milestone. The resulting long ramie fibers were processed through hackling and subsequently blended with flax fibers in a 25:75 ratio. The blended sliver underwent multiple drawing stages to ensure intimate fiber mixing, followed by roving, rove bleaching, and wet spinning.

This development demonstrates the viability of enzymatic degumming in processing ramie for high-performance blended yarns, paving the way for more sustainable and efficient fiber processing workflows.

30 lea Flax- Ramie Blended yarn was developed having RKM of 22 cN/tex



*Technology No. 3:***Innovation Spotlight: Eco-Friendly Sisal Processing Unlocks Premium Applications**

Team IJIRA is pleased to showcase a promising proof-of-concept innovation in sustainable fiber processing. Our newly developed method produces a finer, smoother sisal fiber from raw sisal (supplied by CRIJAF) with enhanced hand feel and significantly reduced coarseness—ideal for premium textiles and composite materials. The innovative process results in not only a higher-quality fiber but also a process that aligns with global sustainability goals.

This breakthrough opens up exciting opportunities for value-added, eco-friendly applications of sisal across industries—marking a major step forward in the modernization of natural fiber processing.

*Harsh Sisal Fiber**Soft Sisal Fiber*

Technology No. 4:

Innovation in Jute Weaving: Redesigned Spear Boosts Production and Quality

An innovation in jute weaving machinery has yielded impressive results. A newly redesigned heavy-duty spear, retrofitted into existing rapier looms, has led to a 14.49% increase in production while significantly reducing fabric defects—a long-standing industry challenge.

Tested successfully in industrial settings, the spear's improved design enhances operational stability and fabric quality. With growing interest from industry, this innovation is poised for wider adoption across jute mills, offering a practical path to higher efficiency and output.



Newly redesigned heavy-duty spear

*Technology No. 5:***Innovation Breakthrough: Jute Blended with Cotton for Premium Home Textiles**

A major breakthrough in jute utilization is on the horizon—a solution to a long-standing industry challenge! Through advanced modification techniques, jute fibers can now be seamlessly blended with cotton at the blow room stage, ensuring homogeneous mixing and superior yarn quality.

Yarn produced using this innovative blend is receiving positive feedback for its performance and versatility. Building on this success, IJIRA is preparing to test this innovation on large-scale, enabling the production of high-value cotton-jute blended yarns by the industry specifically designed for home textiles.

This development not only elevates the value of jute but also opens new avenues for sustainable, eco-friendly, and high-performance textile products.

*Processing of Jute**Processed Jute**Jute-Cotton blended Yarn 20's Ne*

*Technology No. 6:***Innovation Spotlight: IJIRA in collaboration with Industry Develop Bamboo-Cotton Blended Yarn for Sustainable Textiles**

IJIRA in association with an industry has successfully developed a 10s Ne blended yarn using a 30:70 ratio of bamboo and cotton fibers, marking a significant breakthrough in sustainable yarn innovation. This development validates, as a proof of concept, the compatibility of IJIRA-extracted bamboo with standard spinning systems and opens up new opportunities for eco-friendly, value-added yarns in the apparel and home textile sectors. Detail work on this topic is being planned.

*Bamboo fiber**Cotton-Bamboo blending process
in Blow-room**Carded Cotton-Bamboo Sliver*

*Technology No. 7:***Driving Circularity: IJIRA Develop Flax–Ramie Blended Yarn from Process Waste**

In a collaborative effort with industry, IJIRA has successfully developed a 15.7 lea yarn using a Flax:Ramie blend (75:25)—sourced from flax scutching waste (supplied by CRIJAF) and ramie tow. This innovation marks a significant step toward waste valorization and circular fiber utilization in the natural textile value chain.

The use of flax process waste in yarn production aligns with global sustainability goals, offering a pathway to cost-effective and eco-conscious raw material sourcing. However, preliminary trials indicate that further refinement of flax waste fibers retained with sieves (approx. 25%) is essential to optimize their suitability for long-staple spinning systems.

This initiative demonstrates IJIRA's commitment to sustainable material innovation and paves the way for scalable recycling solutions in the natural fiber sector.



Spinning of Flax-Ramie blended yarn

SKILL INITIATIVES

❖ Ongoing Skilling Programme

- Jr. Supervisor in Jute Spinning (at IJIRA Kolkata): 20 Nos.
- Jute Product Stitching Operator (at IJIRA NERC): 10 Nos.
- Jute Product Stitching Operator (at Ananda Nagar, Purulia): 40 Nos.

❖ Register/shortlisted six (06) students of B.TECH in TEXTILE TECHNOLOGY of NIT Jalandhar, in the Summer Internship under GIST 2.0 of NTTM. Areas of Internship:

1. Analyze the Properties of natural fiber blended Agro-textiles / Geo-textiles
2. Characterization of bamboo fibers on different species bamboo
3. Hill slope stabilization by the application of Jute Geotextiles in North-Eastern state using the Geotextiles soil testing laboratories installed at IJIRA NERC Guwahati

❖ Events:

- ✓ Physical inspection was carried out by Shri Bikram Das, NSDC, Eastern Region on 15.05.2025 at Ananda Nagar Center, Purulia



Interaction by Shri Bikram Das, NSDC, with students at Ananda Nagar, Purulia under skilling program of PMKVY 4.0

TESTING / CONSULTANCY SERVICES

Performance of service departments–

	Physical Testing	Chemical Testing
Sample tested	35	59 (Non-FGJP)
Moisture Meter calibrated	21	-
FGJP Lot inspected & tested	-	01
FGJP Technology transfer	-	01
No. of bales of B.Twill/A.Twill bags inspected	1,55,000 approx	
Training & Consultancy provided to Mills	01	

EVENTS

- ❖ Director attended 10th Textile Advisory Group (TAG) Meeting on Cotton on 27 May 2025 at Vigyan Bhawan, chaired by Hon'ble Minister of Textiles.
- ❖ Director presented to HMoT samples of different processed natural fibers such as ramie, sisal, bamboo & their different stage of blended yarns processed stepwise.
- ❖ Director visited Indira Kala Sangeet Viswavidyalaya, Khairagarh, Chhattisgarh on 10 May 2025 to explore possibility of collaboration specially for skill development programme.
- ❖ Dr. Pradip Chakrabarti visited SKS Mill of Sharadha Terry Products Pvt. Ltd., Coimbatore for spinning of cotton bamboo blended 10s yarn on 19 May 2025.
- ❖ Smt. Soumita Choudhury, Shri Gopal Mukhopadhyay and Shri Suvankar Bej attended a meeting at IJMA on 22 May 2025.
- ❖ Smt. Soumita Chowdhury and Shri Gopal Mukhopadhyay attended a meeting on finalization of BIS Standard at IJMA on 02 May 2025.
- ❖ A technical feasibility study has been conducted by Shri Gopal Mukhopadhyay to assess productivity norms at Kamarhati Company Ltd.
- ❖ Shri Partha Sanyal along with Shri Dharmendra Kumar Singh visited Ludlow Jute Mill for garnetting of extracted bamboo fiber to investigate its effects on fiber dia.
- ❖ Shri Partha Sanyal along with Shri Dharmendra Kumar Singh visited Wellington Jute Mills for trial of Ramie-Flax blended yarn.

Innovating Natural Fibre

for
Sustainable Future

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