



IJIRA NEWSLETTER

Half Yearly Bulletin of Indian Jute Industries' Research Association

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From the Desk of the Director

We are happy to keep our words and bring out the second half-yearly bulletin of Indian Jute Industries' Research Association (Volume 4, Issue No 2). As envisaged in our January 2010 edition, IJIRA is slowly but steadily regaining its old status in the jute world. An international workshop was held at IJIRA on 06 May 2010 under the aegis of the Private Sector Consultative Board (PSCB) of the International Jute Study Group (IJSJG). The event was highly appreciated by international audience.

Successful mill trials on **JTM Project No 01- Development of Alternate Hydro-carbon free Light weight jute bags**, **Project No 20 - Jute-Bamboo Composites for application in rural areas** and the **MOT project, Project No 3 - Low Cost Jute Bags for food grain and sugar** have been made. Inputs received from each trial are encouraging.

Ministry of Textile, National Jute Board, Kolkata and other business agencies, through their various projects are extending help to IJIRA for the cause of jute industry. In this scenario IJIRA scientists and technologists will get more and more opportunity to devote their energy in improving the technology and to meet the requirement of modern industry. IJIRA has changed its mindset from traditional work culture to modern day work culture.

I take this opportunity to welcome suggestions from the readers to make the newsletter more informative and useful.

Col. Amitava Poddar
Acting Director

R&D Activities

JTM MMIV Projects in Progress :

JTM Project No.1 – To find alternative to Conventional Jute Batching Oil for improving spin-ability and to produce Non-toxic and Hydrocarbon free Jute products.

- Modified RBO based lubricant developed for eco-friendly processing of jute fibre.
- Pilot scale and semi-bulk scale trials carried out in a jute mill.
- Modified RBO treated hessain yarn properties and their spinning efficacy observed comparable to JBO treated yarns

JTM Project No. 4 - Manufacture of Jute Double Layer Braided Cloth by Appropriate Design Incorporation in Braiding Machine.

- Purchase order placed on M/S Bhupendra & Brothers (Machinery), Pvt Ltd, Ahmedabad for the desired braiding fabrication.
- New methodology conceptualized utilizing soft spun hairy jute yarn to develop the braiding sapling sleeves

JTM Project No. 7 - Development of Light Fast, Dyed and Finished Jute Products.

- Existing bleaching process modified with certain eco-friendly additive to achieve high last fastness.
- Light fastness of 4 was observed for dyed jute fabric.
- Strength loss of 10-15% was observed for bleached fabric (in warp & weft direction).
- Optimization of dyeing process is in progress

JTM Project No. 19 -Development of technology for manufacturing of Ramie based Products.

- Energy efficient eco-degumming technology of raw Ramie fibre developed using enzymes.
- Pilot scale trials of eco-degumming process completed.
- Pilot scale trial to spin Ramie and Jute Ramie blended yarns carried out in Jute spinning system.

JTM Project No. 20 - Development of Jute/Bamboo Composites for Application in Rural Areas.

- Jute/bamboo composites material has been developed for rural applications as replacement of wood in uses like building components, transport sector, furniture sector.
- Preparation of prototype for pilot scale trials is under progress,

JTM Project No. 23 - Development of Cold Sizing Technology of Jute Yarns.

- Three cold sizing recipes were developed and further enriched with strength enriched material.
- Performance assessment of such cold sizing recipes done at IJIRA Pilot Plant shows improvement in tensile strength of jute yarn by 18-20%, abrasion resistance by 25-30% at their optimized concentration.
- First mill trial successfully conducted in IJMA identified mill

Progress on new R & D Projects Allotted by Ministry of Textiles:

Development of Aroma Based Home Textiles.

- Literature review completed and market survey underway on aroma based textiles.
- Multiple lab level development of Jute aroma textiles has been carried out.
- Characterization of Jute-aroma textiles has been continuing using Scanning Electron Microscope (SEM)

Multifunctional Ceramic-based Nano-finishing of Outdoor Textiles by Sol-gel Method.

- Literature review on Nano-Ceramic technology for outdoor textiles completed.
- Market survey on Nano-Ceramic technology is underway.
- Optimization of Sol-Gel method for sol stabilization is underway.

Development of Low Cost Jute Bags for Food-grains.

- Three new types of light weight 50 kg food grain jute bags have been prepared in one member mill.
- Detailed quality assurance shows encouraging results.
- Field trial to assess operational suitability and end use performance is awaiting.

IJSG Approved Projects:

- Development of Low Cost Nets by Netting Technology.
- Development of Rapid Test method for Determination of Unsaponifiables of Food Grade Jute Products.
- Projects are awaiting for fund allotment

Projects Under Consideration by the Ministry of Textiles:

- Development of Geo-textiles for Asphalt Overlay Application.
- Development of Fire Resistant Jute Composite Material for use in Flush Door Fabrication.

Projects Forwarded to NJB

- Development of Low Cost Dense Jute Non-Woven Fabric.
- Development of Jute-Bamboo Composites for Application in Rural Areas (Part-I) as Addendum to Development of Jute Bamboo-Composites Using Modified Cheaper Matrix Resin.
- Development of new cost effective eco-friendly lubricant on indigenously available vegetable oils (alternative to JBO/RBO).

Projects Proposal for IJIRA PSC/NERC:

To restructure IJIRA PSC/NERC, Guwahati with modern machineries and equipment, proposals have been sent to Textile Commissioner, Mumbai on:

- Development of Embroidery Training Facilities.
- Establishment of a Garment Manufacturing Training Centre – this project has been approved for implementation.
- Proposal for Augmenting Infrastructure at IJIRA-PSC, Guwahati for improving Training.

Projects Proposal sent to TIFAC:

- A project proposal on **Development of Natural Fibre Composite Based on Jute Stick-Jute Non-woven** has been forwarded to TIFAC

Projects Proposal Sponsored by Industry

- A project proposal on **Jute Materials for Use in Cigarette Filters** Submitted to Filtrona Technology Centre, UK,

Projects Proposal sent to JC's Office

- Modernization of IJIRA Pilot Plant.
- Creation of a Digital Knowledge base for Jute Sector

Projects Proposal sent to IJMA

- To develop anti-mildew process technology to reduce microbial damage in sacking fabric under baled condition.
- To develop alternative oil on based either mineral or vegetable oil and suitable additive for jute fibre processing to get better spinning performance.
- Development of electro-mechanical device for controlling irregularity in Spreader Sliver.
- Development of Electronically controlled device for Uniform application of Emulsion in Spreader/Softener.
- Design and Development of Auto leveler for Drawing Frames

Completion of Infrastructure for IJIRA PSC/NERC:

- IJIRA PSC Guwahati building at EPIP Amingaon has been completed and electrification is in progress.
- IJIRA PSC/ NERC, Guwahati, has undertaken various activities pertaining to modernization of handlooms in the North-East Region.

Future R & D Plan of IJIRA

- Bio-degradability of jute and jute products in various geo-climatic and terrain conditions
- On-line sensing of undesirable hydrocarbons in jute processing
- Ozone bleaching of jute products
- Improvement in wash fastness of dyed jute fabrics
- Development of bio-degradable based resin in for jute composite materials

Technical Service undertaken by IJIRA

- Technical support and guidance to jute mills to produce Jute Geotextiles as per standard /specific requirement particularly for Pradhan Mantri Gram Sadak Yojna..
- Technical support for construction of roads, river bank protection, railway embankment protection, slope management, fly ash management, mines spoil stabilization work etc.
- Participation in technical exhibition & seminars(IGC, Indian Road Congress & IPWE etc)
- Awareness Course on Application of JGT.
- Interactive presentation at Zilla Parishads in West Bengal.
- Demonstration, Documentation & Dissemination of research works.

Consumption of JGT During 2009-10

SI No	Areas of Application	Consumption (sq.m)
1	Road Construction	12,00,500
2	River Bank Protection	1,94,222
3	Railways	65,300
4	Erosion Control	7,54,144
5	Agriculture	25,14,021
	Total consumption	47,28,187

Quality Assurance of Food Grade Jute in 2009-10

- Food Grade Jute Product was carried out for 16 Jute Mills and FGJP Converter.
- Quality of FGJP inspected, tested and certified for export is 24,800 MT
- In addition several Process Audit and Process Capability certification carried out.

A Glimpse into IJIRA Updates

IJSG Workshop Conducted at IJIRA on Development of Technology by IJIRA & SITRA

A day long seminar on **Technologies Developed by IJIRA and SITRA** was organized under the auspices by Private Sector Consultative Board (PSCB) of International Jute Study Group (IJSG) on Thursday, the 06 May 2010, at IJIRA Conference Hall. In his welcome address Shri DC Baheti, Chairman IJIRA Council of Management, who is also the Chairman of PSCB, IJSG said that IJIRA Scientist and Technologists have done commendable work in the field of jute and fibre research. Inaugural Session was chaired by Shri Manish Poddar, Chairman IJMA.

Experts from various jute industries from India, Pakistan and Nepal were present. They exchanged their views on present threat to jute industry and suggested remedial measures. The event was graced by Shri Sudripta Roy, Secretary General, IJSG, Shri Binod Kispotta, the Jute Commissioner, Government of India, Mr Humaun Mazhar, Vice Chairman, PSCB of IJSG, Mr Siddiqur Rahman, Secretary of IJSG, Col Amitava Poddar, Acting Director, IJIRA and many other eminent personalities from jute industry apart from scientific and technical staff members of IJIRA. Scientists & technologists from IJIRA, SITRA and other industries delivered presentation on (a) Eco-friendly processing & Eco-compliance of jute products and Carbon Credits for Cultivation and Processing of Jute by Dr SK Chakrabarti (b) Jute Agro textiles its Properties by Shri PK Choudhury (c) Present Status and Future Trend of Jute Composite by Dr BC Mitra and Shri Somen Das (d) Future of Jute Processing by Shri Anirudh Kajaria of Lagan Engineering Co Ltd (e) Modification in Jute Flyer Spinning Machines by Shri A Shivaramakrishnan of SITRA (f) Development of Rotor Spinning Technology for Jute by Prof LM Roy and Shri S Palit of INDICON. Shri Binod Kumar Kispotta, IAS, the Jute Commissioner,

Government of India who was the Chairman, Technical Session 2, in his speech appreciated IJIRAs contribution to the Jute industry. Concluding remarks were given by the Secretary General IJSG, Shri Sudripta Roy. He stressed that project should not be done for the sake of project but for the realistic purpose of the industry. The presentation was applauded by all the participants of the workshop.

Bureau of Indian Standards

- **BIS Meet.** 25th Meeting of Jute and Jute Products Sectional Committee, TX 03, was held at IJIRA Conference Room on Friday, 11 June 2010 at 11.00 am. The meeting was chaired by Dr KK Satpathy, Director National Institute of Research on Jute and Allied Fibre Technology (NIRJAFT), Kolkata. Besides officials from Bureau of Indian Standard, it was attended by 22 members representing organizations of the government sector, research institutes, academic institution, inspection agencies, consumer forums and manufacturers. The agenda discussed contained matters related to amendments, revisions and comments on existing standards and formulations of new standards for jute products.
- **IJIRA Representative to various Sectional Committees.** Henceforth following members will represent during various sectional committee meetings of BIS.

Sectional Committee No

Representation of IJIRA

Composition of Physical Methods of Test Sectional Committee-TXD-01

Dr Mahuya Ghosh
Shri Sandip Basu(Alternate)

Composition of Jute and Jute Products Sectional Committee -TXD-03

Shri AK Ganguli
Ms Soumita Choudhury(Alternate)

Composition of Textile Sizing, Finishing materials and Dyestuffs Sectional Committee -TXD-07

Dr SK Chakrabarti
Shri Sandip Basu(Alternate)

Composition of Geo-textiles and Industrial Fabrics Sectional Committee -TXD-30

Shri PK Choudhury
Dr Mahuya Ghosh(Alternate)

Industrial Fabric Sectional Committee TXD-33

Shri PK Choudhury
Shri DK Biswas(Alternate)

Jute Geo-Textiles

Concerted effort has been given to promote Jute Geotextile (JGT) for its wide use in road construction, river bank protection and slope stabilization works. National Rural Road Development Agency (NRRDA) has decided to construct 380 km of rural roads with the use of JGT.

JGT has been accepted by Railway Board for use in 16 different zones of Indian Railways. Hon'ble Railway Minister has suggested the railway engineers to use JGT for treatment of weak formation. Indian Railway Institute for Civil Engineers (IRICEN) invited IJIRA scientist as guest faculty to deliver lecture on JGT for their trainee officers at Pune.

Total consumption of JGT for the year 2009 – 2010 was recorded to be 47, 28,187 **sq.m.**

IJIRA PSC/ NERC Guwahati

IJIRA PSC/ NERC, Guwahati, has undertaken activities pertaining to modernization of handlooms in the North-East Region.

SAP ERP Implementation

Implementation of SAP ERP has been completed and testing of data is in progress

Inspections by IJIRA Scientists

As per NJB instructions Technologists of IJIRA carry out inspections to the Jute Mills from time to time under JTM 6.4 scheme

Visitors at IJIRA

Visit of Joint Secretary Shri Sujit Kumar Gulati, IAS

On assuming the appointment of Joint Secretary (R & D), Ministry of Textiles, Government of India, Shri Sujit Gulati, IAS, had paid his august visit to IJIRA on 14 June 2010 to acquaint himself on the ongoing R & D projects of IJIRA. Briefing along with presentation were given by the scientists of IJIRA.

Visit of IJIRA Scientist/Technologist to Composite Jute Laboratory at Bangalore

Col Amitava Poddar, the Acting Director IJIRA and Mr Somen Das, Technologist paid a visit to **Composite Jute Laboratory at Bangalore** and met the Director, Dr R Gopalan on 12 April 2010 to see their laboratory facilities. They had a discussion on the possibility of collaborative work on natural fibre composites using jute and mesta/other natural fibre reinforced composites. They have shown keen interest for a joint work.

Visit of IJIRA Scientist to NE Region on Ramie based products

Principal Investigator of Project entitled “**Development of Technology for Manufacturing of Ramie Based Products**” has visited the NE Region in order to survey the current position of Ramie cultivation, production and Ramie fibre de-gumming practices pursued at various concerned institution at NE Region. During the visit interaction have been done with scientists of different research organization and officials of various stakeholders related to Ramie fibre production and marketing. Many innovative and progressive local farmers of NE Region have shown their interest in Ramie cultivation if an assured market is available. They conveyed their problems related the ramie farming during the interaction with the IJIRA officials who have emphasized on the technology development of ramie processing and market promotion through entrepreneurs development

Annual Report 2009-2010

IJIRA Annual Report covering all activities for the year 2009-2010 has been finalised and under print.

Council Meeting

177th Meeting of the Council of Member held on 23 June 2010 at IJMA.

Review Meeting

A review meeting of all JTM projects was held on 07 May 2010, in the office of National Jute Board, Kolkata. All the Principal Investigators reported progress of their respective projects.

Library Modernization

Library automation software LibSys has been installed and data entry work is under progress. Once data entry is completed, library database can be searched through Internet using Web OPAC (Online Public Access Catalogue). Bar-code technology will be implemented to facilitate automated circulated management.

EBSCO (**Textile Technology Complete**) online database has been subscribed, which provides extensive coverage of the scientific and technological aspects of textile production and processing. It contains indexing and abstracting of periodical titles, and titles drawn from sources such as books, conferences, theses, technical reports and trade literature. This database also includes full text for journals, books and monographs.

Facilities Available at Pilot Plant

1. Preparation of

- a) Yarn of Various Counts
- b) Sliver from Carding /Drawing
- c) Spool/cop of various counts
- d) Beaming /warping from jute yarn.
- e) Weaving

- f) Ply Yarn of Various Counts
- g) Bleaching & Dyeing of Yarn/Fabric
- h) Stitching of Various Quality on Jute Fabric
- i) Lock Stitch
- j) Herakle Stitch
- k) Hemming Stitch

2. 3-D / 2-D Drawings of Models of Machineries and their parts using CADD System

IJIRA developed a 'Moisture Meter' with the system of thermo-ionic valve in the year 1962, which has been modified to Transistorized version with spike or flat (with circular area of contact electrode which is standardised by the Bureau of Standards IS 9119. IJMA has been requested to circulate the information to the mills

Testing Facilities available at IJIRA

Chemical

1. TKP (Tamarind Kernel Powder)
2. Copper Content in Jute Samples
3. JBO Analysis
4. Hydrogen Peroxide Strength
5. Unsap Matter Content of Food Grade Jute Products
6. RBO Analysis
7. Emulsifier
8. Emulsion Stability
9. Oil content in yarn/fabric:
 - a) Elemental analysis of Jute (Micro & Macro elements)
 - b) Fibre identification in blends
 - c) Viscosity of Size paste
10. Colour Fastness to:
 - a) Light
 - b) Washing
 - c) Rubbing
 - d) Perspiration
11. Group Analysis of dyestuff
12. Water – Repellence Test
13. Fire Retardant Test

Biological

1. Mildew Test of Jute Samples
2. Rot-Proof Test
3. Microbial Load on Jute Products
4. Water Analysis
5. Damage Count of Jute Products

Physical Testing

1. **Sliver:**
 - a) Mass per unit length
 - b) Fibre Length
 - c) Fibre Fineness
 - d) Fibre Length Distribution
 - e) Irregularity (Weight CV %)
2. **Fibre:**
 - a) Length
 - b) Fineness
 - c) Bundle Tenacity
 - d) Brightness
 - e) Flexural Rigidity
3. **Yarn:**
 - a) Count
 - b) Strength
 - c) Elongation
 - d) Twist
 - e) Abrasion Resistance
4. **Fabric:**
 - a) Construction
 - b) Strength
 - c) Thickness
 - d) Ballistic Work of Rupture (B.W.R)
 - e) Abrasion Resistance
 - f) Flexural Rigidity (stiffness)
 - g) Fibre Shedding (on abrasion)
 - h) Crease Recovery
 - i) Water Permeability
5. **Bag:**
 - a) Weight
 - b) Dimension
 - c) Seam strength
 - d) Drop test.
6. **Card/Gill Pin:** Impact strength (shear)
7. **Moisture Regain % Calibration and**
8. **Certification of Transistorized Moisture Meter**

Composite Laboratory	Geo-Textiles
<ol style="list-style-type: none"> 1. Flexural Strength & Modulus 2. Tensile Strength & Modulus 3. Impact Strength 4. Water absorption % for 2 and 24 hrs 5. Boiling water absorption % 6. Thickness Swelling % for 2 and 24 hrs 7. Density 8. Brabender Plastic-order for study of melt blend Rheology 	<ol style="list-style-type: none"> 1. Mass per unit area 2. Ends x Picks /dm 3. Thickness 4. Width 5. Apparent Opening Size (AOS) 6. Grab Tensile Strength 7. Wide Width Tensile Strength 8. Bursting Strength 9. Water Permeability 10. Index Puncture 11. Cone drop puncture 12. Copper Content 13. Bitumen Content 14. Trapezoidal Tear Strength

