



EXHIBITION CUM VISITORS' ROOM



SCANNING ELECTRON MICROSCOPE



BET SURFACE AREA ANALYSER

A Monthly Insight into the ICAR-CIRCOT

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Director's Desk...

As per ICAC press release the world cotton area in 2015-16 is projected down 6% to 31.6 million hectares. This is due to low cotton prices during this cotton season and expected to persist through the rest of 2014-15. As a result the world cotton production is forecast to fall 6% to 24.6 million tonnes of fibres which is the lowest volume since 2009-10. However, the world cotton consumption is expected to increase by 2% to 24.7 million tonnes. This is the first time in five seasons where consumption overtakes productions. In India, the minimum support price system is in operation for the season 2014-15, however the majority of farmers are feeling that prices compares too low to production costs and therefore an area under cotton cultivation forecast down 5% to 11.6 million hectares. Further, due to largest area under cotton in the world and assuming same productivity as previous year, production of India could reach 6.5 million tonnes making India the number one in production of cotton in the world for second consecutive year.

The ICAR-Central Institute for Research on Cotton Technology (ICAR-CIRCOT) is actively carrying out research in the field of cotton processing and its utilization for more than nine decade with emphasis on Cotton quality evaluation, ginning, spinning and chemical and bio-chemical processing of cotton textiles & value addition to biomass. Based on the expertise gained in the field of cotton technology, ICAR-CIRCOT organized two training programs during this month. "Training on Cotton Spinning" was organized during 5th to 9th January, 2015 with the objectives to acquaint the participants with basic and advanced knowledge on cotton spinning.

The second training on the topic "Advances in Microscopy" was organized during 19th to 21st January, 2015 which is an inevitable tool for explorative and innovative research. Aptly introduced this training course (Advances in Microscopy) to introduce the academicians, researchers and industrialists with hands-on experience in sample preparation, imaging and analysis. Further CIRCOT is arranging training program on Chemical Characterization of Textile Materials and Auxiliaries in month of Feb 2015 and I appeal to all stakeholders to attend this program.

With Best Wishes.

P.G. Patil
Director



ICAR-CIRCOT, MUMBAI



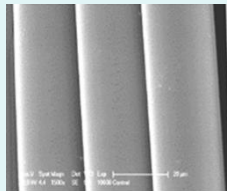
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Technology Highlights

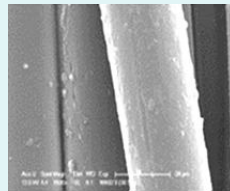
Improvement in Adhesion Properties between the Textile Substrate and Rubber using combination of Plasma & RFL

Nylon - rubber composites are mostly used for non-inflatable and inflatable applications due to superior tensile elongation and strength properties of nylon. However, the main problem associated with the use of nylon for such applications is its inability to adhere to rubber directly. To improve the adhesion to rubber, normally the nylon fabrics are treated with RFL (resorcinol formaldehyde latex). The adhesion between the rubber and the fabric is important to withstand load during the intended use of the coated fabric, so that they should not peel-off from each other, ensuring durability and long-life of the product.

The nylon fabric were treated with Atmospheric pressure plasma in helium/oxygen gas medium with the different treatment time periods. Plasma etching improves the surface roughness properties of the fabric. The surface morphology of controlled and plasma treated nylon fabric is shown in the Fig (a) and (b).



(a) Control Fabric



(b) Plasma treated fabric

There are a number of significant changes found in functional group between the plasma treated and controlled nylon fabric which was confirmed by FTIR observation. The Peel strength of rubber coated fabric was observed up to 45%, which was higher than the control fabric, whereas the tensile strength of controlled and plasma treated nylon was not significantly changes. The increased surface etching and roughness of the fabric owing to the atmospheric pressure plasma treatment, which has resulted in its superior bonding with the rubber matrix.

Training Programmes

Training on Cotton Spinning

A five day training programme on Cotton Spinning was organized at ICAR-CIRCOT, Mumbai from 5th to 9th January, 2015. The main objective of the programme was to update the knowledge and skills of trainee delegates in cotton spinning and cotton quality parameters, both in theory and practical mode and to keep abreast about the latest techniques and development in the spinning processes.



Group photo: Training on Cotton Spinning

The training course imparted knowledge through lectures on the aspects of cotton quality evaluation, ginning, basics of spinning technology and machineries, new and advanced spinning systems, post spinning operations, cost and financial analysis of spinning industry. The course also covered practicals on fibre testing, micro and full spinning and new spinning techniques. A spinning mill visit was also arranged.



Inaugural function of training on Cotton Spinning

The programme was inaugurated by Dr. S. K. Chattopadhyay, Director In-charge and the Course Director on January 5, 2015, at Dr. V. Sundaram Committee room, CIRCOT and the valedictory session were held on 9th January, 2015 afternoon, chaired by Dr. P. G. Patil, Director (Acting), and Dr. A. J. Shaikh, Former Director as a guest of Honour, besides the course director and all resource personnel.



Valedictory Function of Training on Cotton Spinning

Participants from private industry, National Textile Corporation and ICAR institute, attended this training programme. Certificates were distributed to all the participants and a book titled, 'Handbook of Cotton in India', published by Indian Society of Cotton Improvement (ISCI) was also given as a memento to all participants.

Training on Advances in Microscopy

A three day training programme on Advances in Microscopy was conducted from 19th to 21st January, 2015. This self-sponsored training programme was attended by ten participants from various states (Karnataka, Tamil Nadu, Himachal Pradesh, Assam and Maharashtra).



Group Photo: Training on Advances in Microscopy

The participants were from diversified background, viz., students, faculties, scientists & industry. Hands-on training was provided in the fields of polarized, fluorescence, atomic force and scanning electron microscopy. The valedictory function was held on 21st January, 2015. Dr. B. S. Bisht, Director of Birla Institute of Applied Sciences (BIAS), Bhimtal, Uttarakhand & former Vice Chancellor, GBPUA&T, Pantnagar was the Chief Guest and Dr. A. J. Shaikh, former Director and Dr. K. M. Paralikar, former Head, TTD and Fellow of Royal Society of Microscopy, Mr. R. M. Gurjar, former Head, CBPD, CIRCOT were the Guests of Honour Dr. B. S. Bisht elaborated the importance of microscopic techniques in screening of molecules having anti-cancer potential.

He emphasized the recent advances in analytical tool for pollutants identification much less than at the ppb level, high-resolution and high-speed camera, rapid detection of diseases by microscopy and the relevance of Moore's law in various technologies. He distributed certificates to the participants.



Valedictory function of Training on Advances in Microscopy

Dr. K. M. Paralikar shared his experience of working with transmission and scanning electron microscopes and highlighted the expertise at ICAR-CIRCOT in obtaining the electron diffraction patterns of cellulosic crystals that was appreciated by World renowned scientists. Dr. P. G. Patil, Director, ICAR-CIRCOT felicitated the distinguished guests and congratulated the participants of

this training program for their keen interest in learning advanced techniques.

He also elaborated the steps being taken by ICAR-CIRCOT in the introduction of such high-end training programmes for knowledge dissemination amongst industry personnels, faculty members, students and scientists.

Farmers Training at GTC Nagpur

A five days farmers training course was conducted at Ginning Training Centre (GTC), Nagpur during 27th to 31st January, 2015. There were twenty three farmers from Jalna (MS), participated in the training program. Eminent speakers with expertise in cotton production and processing delivered the lectures. The training imparted theoretical and hands on training on proper cotton picking practices, importance of fibre quality parameters, by-product utilization, marketing, cotton processing and composting from cotton stalk etc.



Group Photo: Farmers Training at GTC Nagpur

Meetings

(1) Meeting of CRP on Natural fibres

(a) The meeting of Consortia Research Project (CRP) on Natural fibres was held on 5th January, 2015 under the chairmanship of Dr. S. Sreenivasan in the presence of Dr. A. J. Shaikh, former Director, CIRCOT, Dr. P. G. Patil, Director, CIRCOT, Dr. R. P. Nachane, former Head, QEID, CIRCOT and all scientists of CIRCOT, to discuss the projects to

be implemented by CIRCOT under CRP-Natural fibres. Based on the suggestions, Research projects are modified to achieve the desired results.



CRP on Natural fibres project meeting with CIRCOT scientist

(b) The meeting of all lead centres involved in CRP on Natural fibres was held during 15th to 17th January, 2015 at Dr. V. Sundaram Committee Room, CIRCOT, Mumbai under the chairmanship of Dr. S. Sreenivasan, former Director, CIRCOT, in the presence of other experts Dr. A. J. Shaikh, former Director, CIRCOT, Dr. R. H. Balasubramanya, former Head, CBPD, CIRCOT, Dr. K. M. Paralikar, former Head, TTD, CIRCOT and Dr. P. G. Patil, Director, CIRCOT, to discuss and finalise the technical programme of the projects.



CRP on Natural fibres project meeting with all Principal Investigator's

The meeting was attended by all the PI's of the individual project from CICR (Nagpur), CIRCOT, CRIJAF (Barrackpore), NIRJAFT (Kolkata), CSWRI (Avikanagar) and IIHR (Bangaluru) besides all the scientist of CIRCOT.

(2) Advisory Committee Meeting for Upgradation of Ginning Training Centre

The high level meeting was held at GTC, Nagpur during 12th & 13th January, 2015 to discuss regarding upgradation of the GTC to International centre catering to the research and training on ginning and biomass management.



Advisory Committee Meeting for upgradation of GTC

The meeting was chaired by Dr. P. G. Patil, Director, CIRCOT. The members of advisory the committee includes Dr. R. P. Kachru, former ADG (PE), Dr. S. Sreenivasan, former Director, CIRCOT, Dr. A. J. Shaikh, former Director, CIRCOT, Dr. R. H. Balasubramanya, former Emeritus Scientist, CIRCOT, Dr. G. R. Anap, Ginning Consultant. Dr. C. D. Mayee, former ASRB Chairman and Agricultural Commissioner of India was also present as special Invitee. An interactive discussion took place on establishment of International Ginning Training Centre at Nagpur. The committee also inspected the land at GTC, Nagpur as well as CICR, Nagpur and deliberated the vision, mission and mandate of new centre.

Consultancy

Consultancy on Nano Finishing

A MoU was signed by ICAR-CIRCOT with Prof. R. Timothy, NIFT, Chennai on 14th January, 2015 for consultancy to carrying out research work in the field of nano finishing of cotton textiles, their evaluation and analysis. Dr.V.S. Subramanian, Former Chairman of

Quinquennial review Team of CIRCOT was also present on this occasions.



Prof. R. Timothy (NIFT), Dr. P. G. Patil (Director), Dr. V. Subramanian, Dr. Ashok Kumar Bharimalla (I/C, Head TTD) and Dr. N. Vigneshwaran (Sr.Scientist) seen while MoU signing.

Exhibitions

1) Exhibition at 102nd Indian Science Congress held at Mumbai

The institute participated in the 102 Indian Science Congress held at the Mumbai University from January 3 - 7, 2015 and exhibited the technologies developed by the Institute at the ICAR Stall. Exhibition stall was visited by Shri Harshvardhan, Union Minister of Science and Technology, who inaugurated the 'Pride of India' exhibition. Many senior dignitaries from DRDO, central government, Maharashtra government, industries, heads of institutions, colleges, teachers and students from colleges and schools, some of the farmers from interior Maharashtra visited the stall and showed interest in the institute's technologies and training programs. ICAR Stall won the Best Design pavilion Award for its attractive and informative display on all facets of agriculture.





Shri Harshvardhan, Union Minister of Science and Technology at ICAR Exhibition Stall

(2) Farm to Finish Expo 2015- Exhibition stall at Coimbatore

ICAR-CIRCOT Regional unit Coimbatore participated and exhibited CIRCOT Technologies in “Farm to Finish Expo 2015” organised by SIMA and held at CODISSIA trade fair complex, Coimbatore during 9th to 12th January, 2015. Visitors from Trade, Industry, college students visited the CIRCOT stall.



Mr.K. Selvaraj Secretary General, SIMA Coimbatore at ICAR-CIRCOT stall.

Presentation on foreign Deputation

Dr. P.G. Patil, Director, CIRCOT presented the deputation report and his experience with the staff with regard to the training imparted on “Post-Harvest Technology of Cotton and By-Product Utilization” under Cotton Technical Assistance Program at Uganda and Malawi. Er. Ashok Kumar Bharimalla and Shri V.G. Arude were also highlighted the experiences of this training.

National Road Safety Week

ICAR-Central Institute for Research on Cotton Technology, Mumbai has observed the 26th National Road safety week (11th to 17th January, 2015).



Mr. V. S. Bidwe, Senior Asst. Deputy Controller of Civil Defence, Mumbai addressing the audience on Road Safety

In the welcome address Dr. P. G. Patil, Director of the institute highlighted the history of road development and present road statistics in India and Asia–pacific region. A workshop was arranged in which the eminent speakers, Shri V .S. Bidwe, Deputy Controller of Civil Defence, Mumbai, Shri S. B. Bagat, Senior Asst. deputy Controller of Civil Defence, Mumbai and Shri M. K. Mahtre, Asst. Deputy Controller of Civil Defence, Mumbai addressed the gathering on the issues related to road safety. A video film related to road safety and ill effects of violation of road safety rules was shown to the audience. The meeting ended with vote of thanks by Dr. S .K. Dey, Senior Scientist, CIRCOT, Mumbai.

Republic Day Celebration

The institute celebrated the 66th Republic Day at the Headquarters, Mumbai on 26th January, 2015. Dr. P.G. Patil, Director (Acting) hoisted the tricolor flag. Flag hoisting was followed by cultural programme presented by the children of the staff members.



Hoisting of national flag by Director, CIRCOT



Children Performing Cultural programme

Swachh Bharat Mission

Awareness program (Padyatra) around Five Gardens, Matunga Area:

The staff of the Institute took out a padyatra from the institute through the Matunga area carrying with the banners and placards to create awareness in the citizens for a cleaner India. The institute staff members formed a human chain and removed the old files from the basement area of MS building for disposed on 27th January, 2015.



ICAR-CIRCOT Padyatra through Matunga, Mumbai

Hindi Teaching Scheme



Hindi learning class

Under the Hindi Teaching Scheme, four staff members in Prabodh, nine in Praveen and one in Pragya are undergoing training at the Institute from January 15, 2015.

ISO 9001:2008 Internal Audit at ICAR-CIRCOT, Mumbai

CIRCOT is an ISO 9001:2008 accreditation certified institute. In this connection an internal audit covering all the divisions/sections of the institute was conducted from 12th January 2015 to 13th January 2015. A group of qualified auditors along with Management Representative and Member Secretary- ISO implementation unit of the institute were deputed to carry out the audit.

Shaheed Diwas

As per the Govt. of India directives, two minutes silence was observed from 11.00 – 11.02 a.m. on January 30, 2015 in the memory of the martyrs who had laid down their lives for liberating the country from foreign rule.

Director's Visit

Director's visit to Cotton Research Station & CIRCOT QEU'S

Dr. P. G. Patil, Director, CIRCOT visited Navsari & Surat during 23rd to 25th January, 2015. He visited the banana pseudostem processing facility for extraction of fibres and paper making at Navsari Agricultural University (NAU) at Navsari (Gujarat) on 23.01.2015 and had a discussion with Dr. C.J. Dangaria, Hon'ble Vice-Chancellor, NAU, Navsari, Dr. A.N. Sabalpara, Director of Research and Dr. Jayesh Patel, Scientist.

He also visited quality evaluation unit of CIRCOT at Surat for its review and had a meeting with cotton scientist of main Cotton Research Centre of NAU at Surat and visited the high density cotton fields at university farm.



Dr.P.G Patil, Director, CIRCOT visited High density Cotton field at NAU, Surat

Visit of Dignitaries

1. Dr. B.M. Khadi, Director of Research UAS, Dharwad visited Nano Cellulose pilot plant



Dr. B. M. Khadi, visited Nano Cellulose pilot plant at CIRCOT, Mumbai

2. Dr. Vijay Mehta, former Vice-Chancellor DBSKKV, Dapoli visited the ICAR-CIRCOT. He was taken around different laboratories of the institute.



Dr. Vijay Mehta, visited Nano Cellulose pilot plant at CIRCOT, Mumbai

3. Dr. B. S. Bisht, Director of Birla Institute of Applied Sciences (BIAS), Bhimtal, Uttarakhand & Former Vice Chancellor, GBPUA&T, Pantnagar visited CIRCOT and was the Chief Guest for the valedictory session of Training Programme on Advances in Microscopy held on 21st January 2015.

Student's Visit

Students Visit at GTC Nagpur

A group of students from S.B. Jain International School, Nagpur visited GTC on 20th January, 2015. Dr. S.K. Shukla, Officer I/C, GTC, Nagpur explained about the cotton processing to the students.



Students Visit at GTC Nagpur

*Student's Visit at Coimbatore Regional Station
Demonstration of HVI and AFIS for evaluation of major cotton fibre quality parameters were explained to 15 PhD students from Department of Plant Breeding and Genetics, TNAU, Coimbatore on 23rd January, 2015.*

Seminar/Conference/Workshop

- 1. Dr. P.G. Patil, Director (Acting) and Dr.N.Vigneshwaran, Sr. Scientist attended the 102nd Indian Science Congress organized at Mumbai during 3rd to 7th January, 2015.*
- 2. Dr. S. K. Shukla, Dr. V. Mageshwaran and Miss Varsha Satankar, Scientists of GTC attended 12th International and 70th All India Textile Conference organized at Nagpur by the Textile Association (India) Vidarbha Unit held on 17th and 18th January, 2015.*

Award and Recognition

- 1. The Textile Association (India) has conferred the honour of Fellow of Textile Association Award to Dr.P.G.Patil*
- 2. Director, CIRCOT and was awarded during the 70th All India Textile Conference held at Nagpur on 17th January, 2015.*
- 3. The ICAR Pavilion at 102nd Indian Science Congress 2015 in Mumbai won the Best Design Pavilion Award for its attractive &*

informative display. The award was conferred by Honorable Governor of UP Shri Ram Naik, in presence of Union minister of Railways Shri Suresh Prabhu and other dignitaries. ICAR-CIRCOT also displayed CIRCOT's Technologies, Products etc.

Personnel

- 1. Shri Rahul Urme, supporting staff has been transferred to ICAR-CIRCOT, Mumbai from Regional Unit at Guntur.*
- 2. Shri S.D. Gurav, skilled Supporting Staff got retired on 31st January, 2015 from ICAR-CIRCOT, Mumbai.*

Upcoming Events

- 1. Training programme on "Chemical Characterization of Textile Materials & Auxiliaries" during 23rd to 27th February, 2015.*
- 2. Training Programme on "Advances in Textile Characterisation" during 16th to 20th March, 2015.*



ADDRESS FOR CORRESPONDANCE

The Director

ICAR-Central Institute for Research on Cotton Technology

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