



Global Excellence in Cotton Technology

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Process Protocol Developed

Lignocellulosic Biomass Hydrolysis and Microbial Enrichment by Solar Drying for Biohydrogen Production

The optimization of Microbial Electrolysis Cells (MECs) for sustainable biohydrogen production from agricultural residues relies on effective feedstock pretreatment and microbial community structure. Comparative evaluations demonstrated that enzymatic hydrolysis was a more effective pretreatment method than acid treatment for processing cotton biomass, yielding high reducing sugar concentrations of 22.15 mg/mL from cotton stalk and 20.71 mg/mL from cotton willow dust. Metagenomic profiling further revealed that the selection and treatment of inocula significantly influence dark fermentation dynamics. Pre-screening via deep stab inoculation in Differential Reinforced Clostridial Medium (DRCM) confirmed strong sulfite-reducing activity, while amplicon sequencing showed that inocula like solar-dried and heat-treated cow dung selectively enrich spore-forming fermentative bacteria such as *Clostridium* sp. while suppressing hydrogen-consuming methanogenic populations. This development shows the novel technique of enriching microbial inocula by solar drying for biohydrogen production by MEC process.

Distinguished Visitors

Dr. A.K. Nayak, DDG (NRM), ICAR, New Delhi, along with Dr. A.K. Sikka, former DDG (NRM), ICAR, New Delhi, visited the Ginning Training Centre, Nagpur, on August 23, 2026.



Edited by: S.K. Shukla, G.T.V. Prabu, C. Sundaramoorthy, Bindu Venugopal & Anand Jadhav

Award & Recognition

- Dr. Manoj Kumar received the First Prize in the Research Category of the N.K. Proteins Innovation Awards for Cottonseed and the Cottonseed Supply Chain for his research work titled “Cottonseed Hulls to Furfural: Paving the Way for Renewable Fine Chemical Production.” The award was presented by Hon’ble Shri Parshottam Rupala, former Union Minister for Fisheries, Animal Husbandry and Dairying during the 7th SEA–AICOSCA Cottonseed and Groundnut Conclave, held on 22–23 August 2026 at Rajkot, Gujarat.



- Dr. S. K. Shukla, Director, ICAR-CIRCOT, participated as a panelist in the session titled “Panel Discussion on Cotton 360°: Powering Sustainability, Profitability and Global Leadership.” He also chaired a session titled “Unlocking the Full Value of Cottonseed” during the 7th SEA–AICOSCA Cottonseed and Groundnut Conclave, held on 22–23 August 2026 at Rajkot, Gujarat.



- Dr. Manoj Kumar Mahawar received the Best Oral Presentation Award for his paper entitled “Prospects of On-Farm Seed Cotton Baling Technology for Improving the Cotton Value Chain in India” during the 38th National Convention of Agricultural Engineering of The Institution of Engineers (India), held at the Maharashtra Institute of Technology, Chhatrapati Sambhajnagar, from August 27–28, 2026.

Skill Development Program



A three-day training programme on “Spectroscopic and Chromatographic Characterization of Materials and Applications of AI Tools for Data Analysis” was organized at ICAR-CIRCOT, Mumbai, from August 17 to 19, 2026. Seven participants attended the programme.



Six day training program on “Double Roller Ginning Technology & Basics of Cotton Grading” organised at Ginning Training Centre, Nagpur, from August 3-8, 2026. Ten participants attended the program.



One day training program was organised at GTC, Nagpur on “Cotton Ginning: Research Facility Training Program” on August 05, 2026 as a part of Scientific Social Responsibility (SSR) activities of ANRF-SERB project implemented at the institute. Sixteen faculties from the Engg. colleges participated in the training program.

Awareness Program



An awareness-cum-demonstration programme on “Integrated Management of Parthenium hysterophorus” was conducted by GTC, Nagpur on August 20, 2026 at Bilawar Gondi, tehsil Katol, Dist. Nagpur. Twenty two farmers attended this program.

Publications

Research Paper

- Sharma M, Yadav V K, Birajdar G K, Chaudhari S S (2026). Shrimp vision: Improved shrimp detection using underwater image enhancement and YOLOv8. Indian Journal of Geo Marine Sciences, 54 (09), pp. 452-464 (NAAS rating: 6.30)
- Gautam, P. V., Kushwaha, H. L., Mansuri, S. M., Singh, A. K., Bijarniya, H., & Mathangi, R. (2026). Optimization of design and operational parameters for electronic seed metering module in arid region crops. Results in Engineering, 112237. (NAAS Rating: 15.4)

Book Chapter

- Jhodkar, D., Haldkar, R., Satankar, V., & Shukla, S. (2026). Ergonomic assessment and prevention of work-related musculoskeletal disorders among manual cotton harvesting farmers in Maharashtra. Ergonomics Risk Assessment in Unorganized Sectors, 126-136. CRC Press

Conference Attended

- Dr. S. K. Shukla, Director, Dr. V. G. Arude, Dr. A. Arputharaj, and Dr. Manoj Kumar attended the 7th SEA-AICOSCA Cottonseed and Groundnut Conclave, organized by the Solvent Extractors' Association of India (SEA) and the All India Cotton Seed Crushers' Association (AICOSCA), held on 22–23 August 2026 at Rajkot, Gujarat.

MoU Signed

- An MoU was signed between ICAR-CIRCOT, Mumbai, and The Cotton Corporation of India (CCI) Ltd., Mumbai, on 01 August 2026 for conducting Skill Development Programmes for ginning personnel under MCP.
- An MoU was signed between ICAR-CIRCOT, Mumbai, and M/s MAG Solvics Pvt. Ltd., Coimbatore, on 11 August 2026 for the collaborative research project titled “Development of a Compact and Portable Instrument to Measure the Colour Grade and Micronaire Value of Cotton.”

Copyright

- Copyright for “Program for Mass Modelling of Fruits/Vegetables Blend on Physical Properties” granted No. SW-2026022860.

Educational Visits

- A group of 50 students from Tulsiramji Gaikwad-Patil College of Engineering and Technology, Nagpur, visited the institute on August 03, 2026 as part of the Scientific Social Responsibility (SSR) activities under an ANRF-SERB project being implemented at the institute.

HRD

- Dr Sheshrao Kautkar attended a 3-day training on “Spectroscopic and Chromatographic Characterization of Materials and Applications of AI Tools for Data Analysis” organized at ICAR-CIRCOT during August 17-19, 2026.
- All scientists, technical staff, research scholars attended the orientation Program on Koha Library management Software (LMS) at ICAR-CIRCOT on August 11, 2026, conducted to sensitize regarding integration of the institute's library into the Indian Digital Ensemble of Agricultural Libraries (IDEAL) network.

- Mr. Bipin Kumar, T-1 CBPD and Ms. Deepika Tambe (SRF) attended one day training session on "Arc HPLC System dos and don'ts for Next level of Audit readiness with first time right results and Lab productivity" organized by WATERS at their Mumbai based office on August 21, 2026.

Stakeholders Interaction Meet

- An interactive meeting with the representatives of industries were held on the furfural production technology developed by ICAR-CIRCOT during the 7th SEA-AICOSCA Cottonseed and Groundnut Conclave held on August 22–23, 2026, at Rajkot, Gujarat. The participants include Viswa Saravana Agro Products, Wanaparthi, Tamil Nadu; Bhumi Cottex Industry Pvt. Ltd., Jalna, Maharashtra; and Vinayaka Ginning Factory, Adilabad, Telangana.

Safety and Security Initiatives

- A fire-fighting demonstration was organized at ICAR-CIRCOT Mumbai on August 20, 2026. The institute staff participated in the programme and were provided with hands-on training and instructions on the proper use of fire-fighting equipment to extinguish fires.

Participation in Events

- The NABL internal audit for the year 2026 was conducted from August 11 to 13, 2026.
- The ICAR Internal Audit for the year 2025–26 and the C&AG Sub-Audit for the period 2023–24 to 2025–26 were conducted by the respective audit teams at ICAR-CIRCOT from August 17 to 21, 2026.
- Dr. A. S. M. Raja attended the third meeting of the Committee on Cotton Production and Consumption (COCPC) for the cotton season 2025–26, held in hybrid mode on July 28, 2026. The meeting was organized by the Office of the Textile Commissioner, Ministry of Textiles, Government of India.
- The ADG, IPTM Unit, ICAR, New Delhi, reviewed the annual progress of the ITMU of ICAR-CIRCOT on August 5, 2026, through online mode.
- The Internal Screening and Evaluation Committee (ISEC) meetings for the 11th Cohort were conducted in hybrid mode on August 5, 7, 12, and 20, 2026, under the chairmanship of Dr. S. K. Shukla, Director, ICAR-CIRCOT, Mumbai.
- Dr. G. Krishna Prasad and Dr. T. Senthilkumar served as external jury members for the fifth-semester students of the Textile Internship Programme at the Department of Fashion Technology, NIFT Mumbai, on August 11, 2026.
- Dr. A. S. M. Raja, Head, QEID, attended the AICRP on Cotton Review Meeting organized by ICAR-CICR, Nagpur, on August 19, 2026.

- Dr. N. Vigneshwaran, Head, CBPD, attended the 26th Sectional Committee Meeting of BIS TXD 35 on Technical Textiles for Agrotech Applications as a member. The meeting was held in online mode on August 18, 2026.
- Dr. N. Vigneshwaran, Head, CBPD, delivered a talk highlighting ICAR-CIRCOT's role in supporting the cottonseed processing industries in India at the 66th Annual General Meeting and Award Function of the All India Cottonseed Crushers' Association, held on August 21, 2026, at Walchand Hirachand Hall, Churchgate, Mumbai. Dr. Manoj Kumar and Dr. Kanika Sharma also participated in the meeting.
- ICAR-CIRCOT initiated the Inter-Laboratory Proficiency Testing (ILPT) programme, in which 21 laboratories were selected to participate. A 500 g cotton sample was dispatched to each participating laboratory for ILPT testing of Upper Half Mean Length (UHML), Uniformity Index (UI), Micronaire, tenacity, elongation, cotton colour (Rd and +b), and trash content.

Director's Participation in Important Meetings, Events and Institutional Programmes

- Participated in the 56th Foundation Day of the Cotton Corporation of India (CCI) Ltd. held on August 1, 2026, at the Maharashtra Institute of Technology (MIT), Chhatrapati Sambhajnagar, Maharashtra.
- Participated in a meeting convened by the Ministry of Information & Broadcasting on August 5, 2026, regarding the implementation of a Quick Response Mechanism for the real-time detection of fake, misleading, manipulated, and AI-generated content on social media.
- Interacted with local ginners and members of the Vidarbha Cotton Association, Nagpur, on August 10, 2026, to assess the training requirements of ginning personnel.
- Participated in an online consultative meeting with the Ginners Association and other invitees on August 20, 2026, organized by CCI Ltd. under the Mission on Cotton Productivity (Kapas Kanti).
- Participated in the 50th Foundation Day Programme of ICAR-NBSS & LUP, Nagpur, held on August 23, 2026, which was chaired by the Hon'ble Director General, ICAR.
- Participated in the 1st Project and Implementation Committee Meeting under the Mission on Cotton Productivity on August 25, 2026, organized by CCI Ltd..

Scientist Transfer

- Dr. Vinod Kumar Yadav, Senior Scientist, was transferred from ICAR-CIFE, Mumbai, to ICAR-CIRCOT, Mumbai, on July 27, 2026.

Environment-Friendly Initiatives

ICAR-CIRCOT participated in a nationwide tree plantation drive initiated by the Hon'ble Minister for Agriculture and Farmers' Welfare, Shri Shivraj Singh Chouhan, on August 12, 2026, to celebrate Hariyali Amavasya. As part of the initiative, a plantation drive was organized at the ICAR-CIRCOT Mumbai campus, where Dr. S. K. Shukla, Director, along with the staff, planted saplings. The activity was also part of the Government of India's 'Ek Ped Maa Ke Naam' campaign.



Independence Day Celebration

ICAR-CIRCOT Mumbai & regional units celebrated the 80th Independence Day on August 15, 2026



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