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अंक Volume No: 10, संस्करण Edition No: 6; जनवरी January 2025

दि लेदर पोस्ट
The Leather Post

सीएसआईआर–केन्द्रीय चर्म अनुसंधान संस्थान
CSIR-Central Leather Research Institute

76th Republic Day Celebration at **CSIR-CLRI**

Director's Message

Greetings and Namaskar to the Stakeholders of the leather sector

Dr K J Sreeram
Director, CSIR-CLRI

लेदर पोस्ट के प्रिय पाठको,

हमारी पत्रिका के इस संस्करण में आपका स्वागत है, जहाँ हम चर्म की आकर्षक दुनिया में उतरेंगे। इस उल्लेखनीय सामग्री में एक अनूठा आकर्षण है जो फैशन के प्रति उत्साही से लेकर कारीगरों और इतिहासकारों तक, विविध दर्शकों को आकर्षित करता है। चर्म न केवल शैली का प्रतिनिधित्व करता है, बल्कि शिल्प कौशल और नवाचार की एक समृद्ध परंपरा का भी प्रतिनिधित्व करता है।

सीएसआईआर–सीएलआरआई में, हमें इस क्षेत्र में अग्रणी होने पर गर्व है, जहाँ रचनात्मक दिमाग और शोधकर्ता चर्म के पारंपरिक उपयोगों से परे जाकर इसका अन्वेषण करने के लिए एक साथ आते हैं। चर्म पोस्ट का हमारा नवीनतम अंक चर्म और उसके उत्पादों की बहुमुखी प्रकृति के बारे में जानकारी प्रदान करता है, जो समझ और प्रशंसा के लिए नई संभावनाओं को खोलता है।

नए वर्ष की शुरुआत करते हुए, हम आशा और दृढ़ संकल्प से भरे हुए हैं। सततता के प्रति हमारी प्रतिबद्धता अटल है, और हम चर्म क्षेत्र में 40 बिलियन अमेरिकी डॉलर का व्यापार हासिल करने के भारतीय दृष्टिकोण में योगदान देने के लिए उत्साहित हैं। यह महत्वाकांक्षा हमें अपने तौर–तरीकों पर पुनर्विचार करने और उन्हें नया आकार देने के लिए प्रेरित करती है, ताकि यह सुनिश्चित हो सके कि उद्योग न केवल फले–फूले, बल्कि जिम्मेदारी से ऐसा करे।

हमारे समुदाय का हिस्सा बनने के लिए धन्यवाद, और हम आशा करते हैं कि आप इस अंक की समृद्ध सामग्री का आनंद लेंगे!
पढ़ने का आनंद लें!

Welcome to this edition of our magazine, where we delve into the captivating world of leather. This remarkable material has a unique charm that appeals to diverse audiences, from fashion enthusiasts to artisans and historians. Leather represents not just style but also a rich tradition of craftsmanship and innovation.

At CSIR-CLRI, we are proud to be at the forefront of this field, where creative minds and researchers come together to explore leather beyond its conventional uses. Our latest issue of *The Leather post* offers insights into the multifaceted nature of leather and its products, opening up new possibilities for understanding and appreciation.

As we embark on a new year, we are filled with hope and determination. Our commitment to sustainability remains unwavering, and we are excited to contribute to the Indian vision of achieving a USD 40 billion trade in the leather sector. This ambition drives us to rethink and reshape our practices, ensuring that the industry not only thrives but does so responsibly.

Thank you for being part of our community, and we hope you enjoy the enriching content in this issue!

Happy Reading!

Editor-in-Chief: **Dr KJ Sreeram, Director, CSIR-CLRI**
Editor : **G Chandrasekar**
Editorial Team: **Dr R Srinivasan, Dr S Swarnalatha, M Vinodh Kumar, V Karthik**
Design **: G Sathiamoorthy**
Editorial Assistance **: K Thangarasu**
Visit: **https://clri.org** for the digital version of **The LEATHER POST**
For Feedback and Comments: Editor, The Leather Post; email: chandrag@clri.res.in

Nanocomposites from Microbial Extracts for Removing Chromium (VI) from Water

Chromium (Cr) is one of the major heavy metal pollutants used in many industries. Cr(VI) is listed as a toxic heavy metal pollutant due to its easy penetration into the cell wall, which causes bioaccumulation, carcinogenic, teratogenic, mutagenic, osteoporosis, and kidney failure in humans and animals. Several treatment techniques which are currently used to remove Cr(VI)

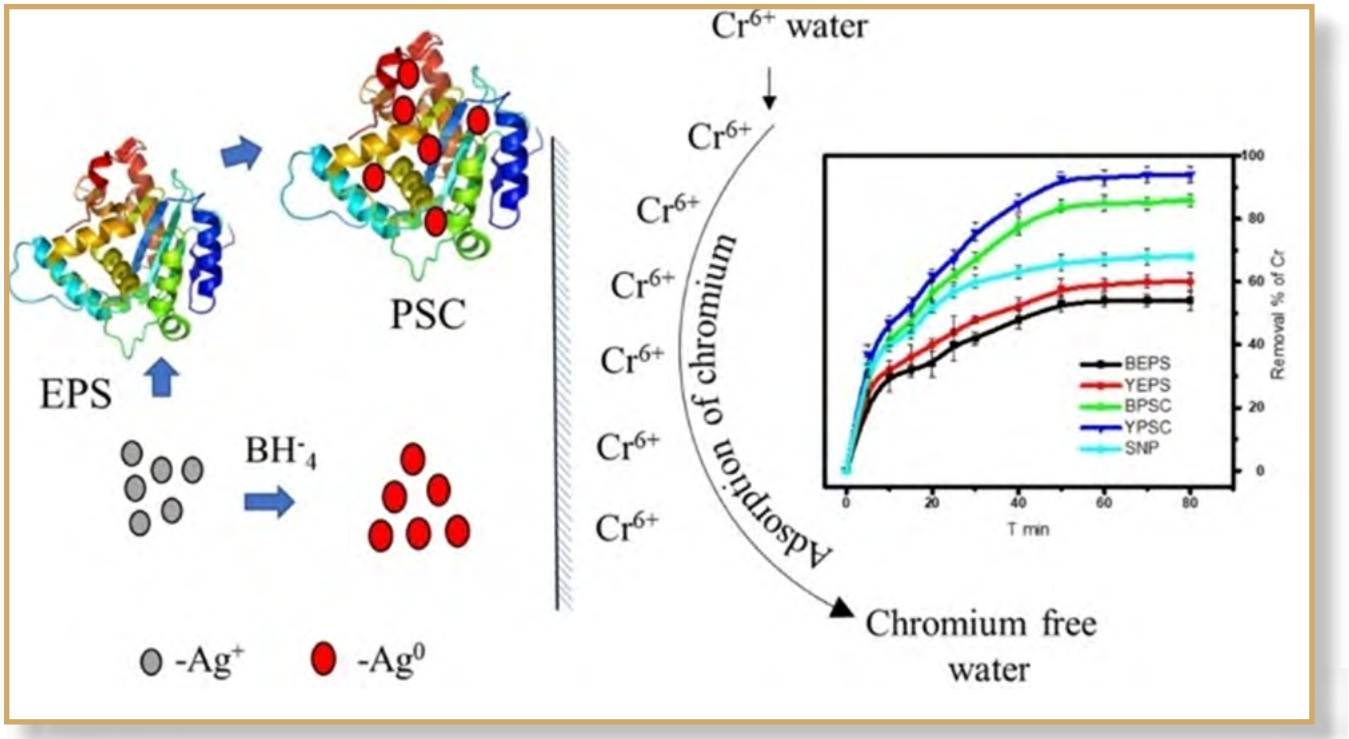
from wastewater, have their drawbacks, such as the cost of precipitation agents, high sludge volume and sludge disposal difficulties, pH dependence, high cost, membrane fouling, scale formation, high operational costs, and production of secondary pollutants as waste. Cr(VI) biosorption using free extracellular polymeric substances (EPSs) became an emerging eco-friendly technique. However, it has the disadvantages of easy washout, slow adsorption capacity, and reusability difficulties.

Researchers at CSIR–CLRI used the Exopolysaccharides (EPS) extracted from bacterial and yeast as a reducing agent to synthesis polymeric silver-EPS nanocomposites (PSC). The glucose molecules in the EPS reduce the silver to form silver nanoparticles and form nanocomposites with it. These silver-EPS nanocomposites are used for the sequestration of Cr(VI) in water. It was observed that the Bacterial EPS (BEPS), Yeast EPS (YEPS), Bacterial PSC and Yeast PSC gave average Cr(VI) removal efficiencies of 53 ± 2.56%, 58 ± 3.12%, 84 ± 1.98% and 93 ± 1.88%, respectively, in ten cycles. In the reaction of PSC with Cr(VI), Cr(VI) is adsorbed by the functional group of EPS present in PSC and the nanosilver (Ag0) oxides to Ag+ and reduces the Cr^{6}+ to Cr^{3}+. Thus, the finding of the study provides an effective treatment method for removing Cr(VI)-containing wastewater using silver–EPS-based nanocomposites.

Jothieswari M., Prabhakaran N., Arul Sona R., Swarnalatha S

Production of polymeric silver nanocomposites using microbial extracellular polymers for the effective removal of chromium (VI) from water.

ABiomass Conversion and Biorefinery 15, 3083–3097 (2025).
https://doi.org/10.1007/s13399-023-05119-3



Enhancing Bone Repair through Nanocomposite Loaded Scaffolds

Approximately 2 million bone grafting procedures are performed every year. However, there is a scarcity of donors and adverse immune reactions leading to implant rejection. Tissue-engineered bone constructs offer an effective alternative to overcome these constraints. Among them, scaffold-based implants play a critical role in bone tissue engineering. Porous 3D scaffolds are engineered to mimic the extracellular environment. Thus, they aim to improve cell adhesion, proliferation, differentiation, and migration.

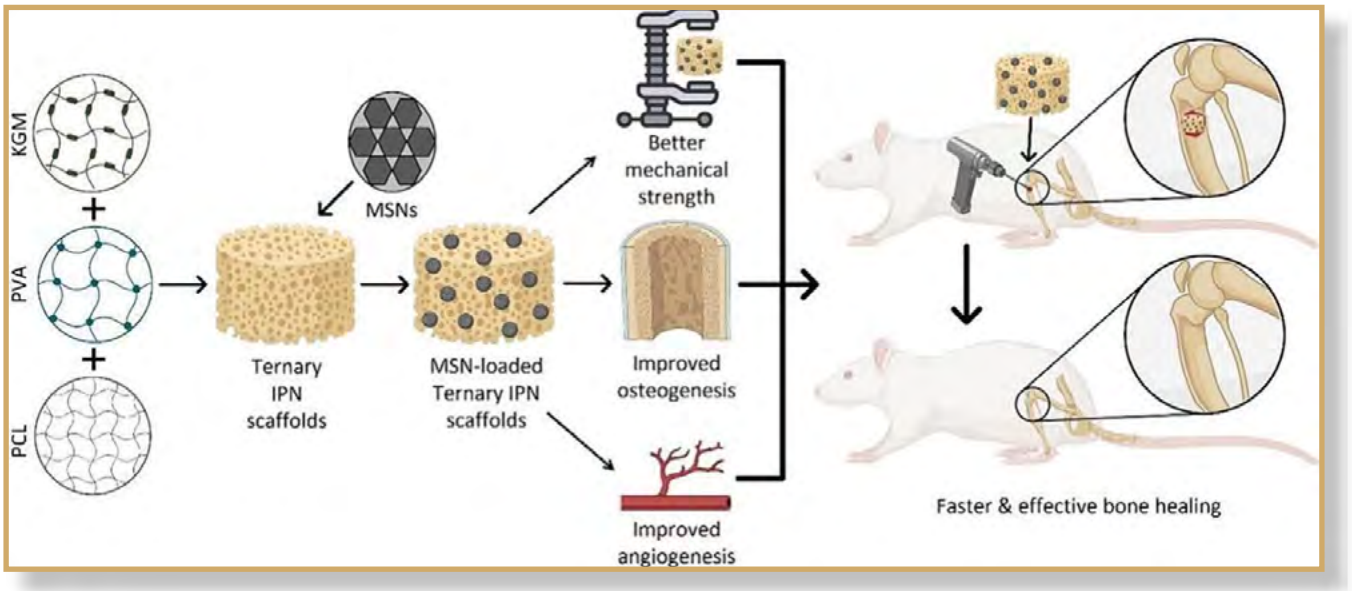
Researchers focus on developing nanocomposite 3D polymer scaffolds due to their suitable physicochemical and biological properties. In addition to mimicking the natural bone ECM, nanocomposite scaffolds help in meeting the mechanical stresses essential for bone tissue formation. However, they lack the desired mechanical strength and vascularization for enhanced bone regeneration and are not successful in clinical practice.

To overcome these limitations, researchers at CSIR-CLRI have fabricated a novel bioactive nanocomposite interpenetrating polymer network (IPN) scaffolds to treat bone defects by loading mesoporous silica nanoparticles (MSNs). These unique nanocomposite IPN scaffolds have required mechanical strength and improved vascularization. Researchers in this study used polycaprolactone (PCL), polyvinyl alcohol (PVA), and konjac glucomannan (KGM) to create bioactive IPN scaffolds incorporated with MSNs. KGM, or Konjac glucomannan, is a biopolymer that exhibits a high level of viscosity and gelation. These features contribute to increased mechanical strength and provide support for cellular therapy and wound healing. The physicochemical and mechanical properties of these scaffolds, along with in vitro cell culture studies, confirmed their enhanced osteogenesis, angiogenesis and cytocompatibility. The in vivo rat critical-sized tibial defect model confirmed the bone healing efficacy of these scaffolds. The findings of the study confirmed that these novel IPN scaffolds have high potential for bone tissue engineering applications.

Hemalatha Kanniyappan a, Manoj Kumar Sundaram, Akhil Ravikumar, Sudip Chakraborty, A. Gnanamani, U. Mani, Naresh Kumar, Vignesh Muthuvijayan

Enhancing bone repair through improved angiogenesis and osteogenesis using mesoporous silica nanoparticle-loaded Konjac glucomannan-based interpenetrating network scaffolds

International Journal of Biological Macromolecules
Volume 279, Part 2, November 2024, 135182
https://doi.org/10.1016/j.ijbiomac.2024.135182



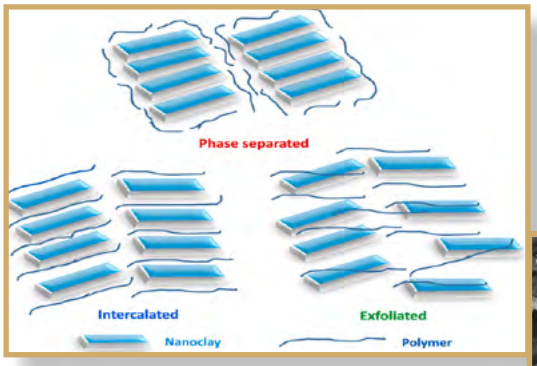
Sunn Hemp Fibre based Nano Biocomposites for Automotive Applications

Sunn hemp (*Crotalaria juncea L.*) is an Asian plant which grows widely in tropical and subtropical regions. This plant is very well known for its high level of fibre content. Many varieties of hemp plants, such as brown hemp, Indian hemp, Madras hemp, or sun hemp, are reported under the legume family (Fabaceae). It is considered to have originated in India. These plants are being used as green manure, feedstock for bio-fuel and fibre from its stem. Researcher in CSIR-CLRI in collaboration with neighbouring institutes developed an effective nano biocomposites from sunn hemp and polyester resin (PE). The chemical treatment process (H_2O_2, Ac_2O etc.,) involved, removal of hemicellulose, lignin, waxes, and other impurities to improve mechanical properties such as tensile, compressive, flexural, and impact strengths while also reducing water absorption. The objective of the study is to create high-performance nano-biocomposites by utilizing unsaturated polyester resin (PE) reinforced with pre-treated short (2cm) lengthened Sunn hemp (SH) fibres and by incorporating 5 % nanoclay (hydrophilic bentonite) through the compression molding technique. The addition of 5% nanoclay to the biocomposite significantly increased the flexural strength by approximately 165% for H_2O_2-treated SH fiber and 148% for $KMnO_4$-treated SH fiber, when compared to untreated fibers. This enhancement was achieved through phase separation, intercalation, and exfoliation between the SH fibers, polyester resin (PE), and 5% nanoclay. In particular, the H_2O_2-treated SH fiber nanobiocomposite exhibited a 43% higher flexural strength compared to its corresponding biocomposite. This study suggests that short SH fibre/PE/nanoclay nanobiocomposites could be used as effective alternatives to synthetic composites in various applications, including the aerospace industry, household products, automotive interiors and exterior components such as side panels, seat frames, central consoles, door panels and dashboards.

Gandarvakottai Senthilkumar Arumugam*, Chinnappa Arumugam, Kannan Damodharan, R. Sathish Kumar, Sathyanarayana N. Gummadi , Sarojadevi Muthusamy

Thermal and mechanical properties of high-performance polyester nanobiocomposites reinforced with pre-treated sunn hemp fiber for automotive applications le Oil: Preparation, Mechanism, and Applications.

International Journal of Biological Macromolecules, 280 (2024) 135591
https://doi.org/10.1016/j.ijbiomac.2024.135591



Sunn hemp fibre nano compositve strength

Deep Learning in CLRI – Never is Skin-Deep but Leather-Deep!

'*Steam*' engined the first Industrial Revolution; '*electricity*' flashed the second; "*Automation 1.0 and machinery*" engineered the third; and "*cyberphysical systems*" are hovering over the Fourth Industrial Revolution! Germany introduced Industry 4.0 to the world. Industry 4.0, Fourth Industrial Revolution or 4IR, AI for Industry or AI4I are interchangeably used nowadays. Industry 4.0 is associated with several emerging technologies: cyber-physical systems such as Internet of Services (IoS), Internet of Things (IoT), Big data technologies, Artificial Intelligence (including Deep learning & Machine learning), Cloud computing, Cybersecurity, Blockchain technology, Additive manufacturing (such as, 3-D printing), human-machine & machine-machine communication (such as virtual reality (VR) and augmented reality (AR)) and Autonomous robots. Yes, the 21st-century industrial revolution is literally a digital freefall! In fact, 4IR builds on the Third Industrial Revolution (1950s-2000s) and connects the value chains beyond the known realm of imagination!

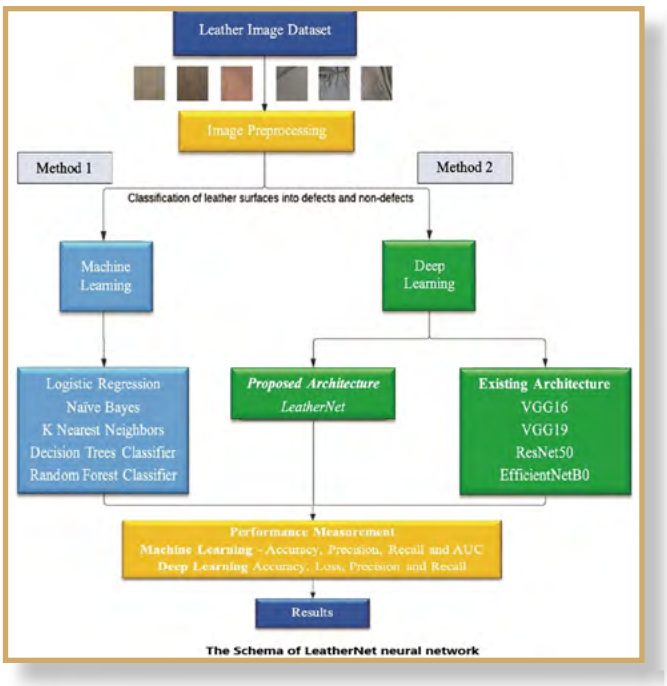
In tune with global AI trends, researchers in CSIR-CLRI propose a novel artificial intelligence-enabled '**LeatherNet**', a lightweight deep neural network for detecting leather surface defects using a leather image dataset. The work masterfully blends machine learning algorithms and deep learning approaches for distinguishing leather surfaces, thus outperforming the existing state-of-the-art methods in this domain. Till this time, the ever-varying leather surface and defects kept mastering the conventional machine learning algorithms and thus were perceived insufficient. When trained for 1500 epochs, '**LeatherNet**' neural network records the highest ever training accuracy, precision and recall of 99.78%, 99.69%, and 99.92% respectively.

AI is fast catching up with the global leather sector and is no more an allied topic in the leather symposia/ seminars. "*Trusted Data, Better Decisions: AI-Powered Grading for Global Tanneries*" and "*Redefining Leather: Using Data to Challenge Perceptions and Drive Informed Conversations*" are being considered as trailblazing topics in the global symposium at the Asia-Pacific Leather Fair (APLF) 2025 and on par with the pivotal topics such as Leather and circularity/ biodegradability, Traceability and Cleaner leather making technologies. The thriving global tanneries capitalize on AI-powered verified hide data to enhance quality management, streamlining customer specifications and leather trading. It is heartening that AI-interventions are building new levels of trust in leather manufacturing. Data-driven leather sector is synonymous with sustainability-personified leather sector!

Shubhadip Chakrabarti, Swamiraj Nithiyanantha Vasagam, Balasundaram Ananthakrishnan, Madasamy Sornam

Artificial Intelligence techniques enabled insights into Leather Defects

Indian Journal of Engineering & Materials Sciences
Vol. 31, August 2024, pp. 487-504
DOI: 10.56042/ijems.v31i4.8853



The Schema of LeatherNet neural network

Publications from CSIR-CLRI

January 2025

1	Sivaganesan, P; Ganesan, L; Subiksha, VL; Pal, S; Dam, S; Sarkar, J; Chaudhuri, S, Efficient, One-Pot, Green Syntheses of Analogues of 3,4-Dihydro-2H Pyrroles as Potential New Antifungal and Antibacterial Agents, Chemistryselect, 10 (3), 2025, 10.1002/slct.202404705
2	Kartik, R; Shelly, K; Lobo, NP, Facile preparation of solid gelatin foams by a water-lean batch foaming process, International Journal of Biological Macromolecules, 287, 2025, 10.1016/j.ijbiomac.2024.138360
3	Padmashrija, AJC; Kannadasan, S; Shanmugam, P, Synthesis of Indenoquinoxalinone-5-(furano, pyrano, and oxepino)spiro Ethers from Alkenylated Propargyl Ethers of Indenoquinoxalinone via Ring-Closing Enyne Metathesi, Synlett, 2025, 10.1055/a-2489-7403
4	Sutharsan, M; Murugan, KS; Narayanan, K; Natarajan, TS, Chitosan/Polyvinyl Alcohol/g-C3N4Nanocomposite Film: An Efficient Visible Light-Responsive Photocatalyst and Antimicrobial Agent, PROCESSES, 13 (1), 2025, 10.3390/pr13010229
5	Fatrekar, AP; Vernekar, AA, A self-assembled nanozyme featuring precise active centers and topography exhibits controlled catalytic interplay with mitochondrial protein while regulating electron flow during bioinspired oxygen reduction, Journal of Materials Chemistry A, 2025, 10.1039/d4ta06131d

Participation

Dr K J Sreeram, Director CSIR-CLRI inaugurated the new office of Leather Sector Skill Council at the CFTI Campus, Guindy, Chennai, on 10 January 2025.

DG, CSIR, address on the occasion of New Year 2025

Dr. N. Kalaiselvi, Secretary, DSIR & DG, CSIR, addressed scholars and staff of CSIR on the occasion of New Year 2025, Dr. N. Kalaiselvi revisited the achievements and significant activities during the year 2024 and spoke on the focused approach being adopted for achieving goals during 2025.

The address of the DG, CSIR was telecasted online in the Triple Helix Auditorium, at CSIR-CLRI. Staff members and research scholars attended the event.

Director, CSIR-CLRI, address on the New Year 2025

On the occasion of New Year 2025, Dr K J Sreeram, Director, CSIR-CLRI, addressed all the Staff members, Research scholars, and Students of CSIR-CLRI 1 January 2025 (Wednesday) at Triple Helix Auditorium of the CSIR-CLRI.

Director, CSIR-Central Leather Research Institute spoke on "*Redefining the standards for excellence"* through proper planning and execution. He also spoke about working "*Together for leather.*"

Workshop for

Leather Musical Instrument Fabricators

CSIR-CLRI organized a "*Workshop for Leather Musical Instrument Fabricators*" on 4 January 2025 in Madurai, as part of the ongoing CSIR-Fast Track Translation (FTT) project activities. The main objective of the workshop was to motivate artisans to use modified leather for musical instruments with improved functional properties. A musical drum made with the modified leather was displayed and tested by the artisans. Shri V Gopalakrishnan, Additional Director, Department of Arts & Culture, Govt. of Tamil Nadu graced the occasion and motivated the artisans.

76th Republic Day Celebration at **CSIR-CLRI**

CSIR-CLRI Celebrated 76th Republic Day at CSIR-Central Leather Research Institute. On the occasion, Dr K J Sreeram, Director of CSIR-CLRI, unfurled the National Flag in front of the Main Building of the Institute.

76th Republic Day Celebrations at CLRI Regional Centres

At Kolkata

At Kanpur

At Jalandhar

At Ahmedabad

FASHION TREND POOL & MODEUROP COLOUR CARDS

THE SPRING SUMMER 26 SEASON

CSIR-CLRI in association with the Council for Leather Exports (CLE), the Indian Shoe Federation (ISF) and the Indian Finished Leather Manufacturers & Exports Association (IFLMEA) and supported by the Members of the Indian Leather and Leather Products Industry have through the last three decades established an astonishing array of precious expertise, skills that had been passed down to the discerning in the fraternity.

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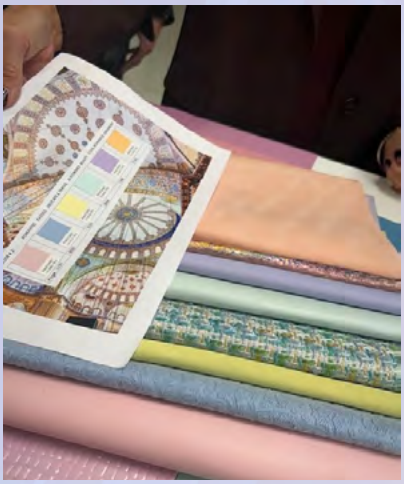
Fashion Trend Pool Colour circle meeting, held during 15-16 October 2024 at PIRMASENS, Germany and MODEUROP Colour Club Conference: held during 16 & 17 October in Heidelberg, Germany. On behalf of India, CSIR-CLRI submitted 311 leather/ colour proposals developed by 13 Tanneries was presented for the Spring Summer 26 season.

CSIR-CLRI released the FASHION TREND POOL & MODEUROP Colour Cards for the Spring Summer 26 season. To avail the Colour Card please contact, The Director, CSIR-CLRI at clriinfo@clri.res.in



CSIR-CLRI @ Fashion Trend Pool Colour circle meeting, Pirmasens, Germany

CSIR-CLRI @ MODEUROP Colour Club Conference, Heidelberg, Germany.

National VOTERS DAY 25TH JANUARY

National Voters Day Celebrations at CSIR-CLRI

CSIR-CLRI celebrated the National Voters' Day (NVD) on 24 January 2025. National Voters Day was celebrated every year to mark the foundation day of the Election Commission of India (ECI), which was established on this day in the year 1950. The main purpose of the NVD celebration is to encourage, facilitate, and maximize voter enrolment, especially the new voters. Dedicated to the country's voters, the Day is celebrated to spread awareness among them to promote informed participation in the electoral process. On the occasion, the Director, CSIR-CLRI administered the Voter's Day Pledge to the staff members and students at the Institute.

CSIR-CLRI @
INDUSTRY-INSTITUTIONS PARTNERSHIP SUMMIT

CSIR-CLRI participated at the Third Edition of Industry Institutions Partnership Summit on 30 January 2025 organised by the ICC Indian Chemical Council at Chennai. CSIR-CLRI had put up a stall and displayed the technologies developed by the Institute. The objective of the Summit was '*Synergizing Success: Bridging Tech in India's Chemical Industry*'. The summit was to bring together key stakeholders to discuss advancements and sustainable innovations driving the future of the chemical industry. Dr K J Sreeram, Director CSIR-CLRI gave a Keynote address on the topic "*Progress in the Chemical Industry: Advancements in Chemical Processes and Sustainable Innovations*".

The talk explored the latest breakthroughs in chemical processes and sustainability efforts in the industry.

Consultancy Agreements with CSIR-CLRI

A consultancy agreement was signed on 6 January 2025 by M/s. Ramsons Garment Finishing Equipment Pvt. Ltd., Bengaluru with CSIR-CLRI for studying the efficiency of the polypropylene drum in leather manufacturing processes.

A consultancy agreement was signed on 17 January 2025 by M/s. Euphoric Innovations Pvt Ltd., Coimbatore, with CSIR-CLRI for evaluating the design concepts of high-arch, normal-arch and flat-foot profiles of footwear products.

VISITS

On January 28, 2025, about 56 rural students, along with 4 faculty members, including both undergraduate and postgraduate students from the Department of Chemistry at Gonzaga College of Arts & Science for Women in Krishnagiri District, Tamil Nadu, visited CSIR-CLRI. During the visit, they interacted with the subject experts at the Institute and gained valuable insights into the science of leather process. The students got to know about leather processing techniques, polymer and inorganic chemistry, as well as healthcare-related research.

On January 20, 2025, about 40 students and 2 faculty members from BJR Agricultural College in Sircilla, Telangana, visited CSIR-CLRI. The students visited various laboratories at the Institute, and also explored opportunities available in leather science and related research areas.

Doctoral Degree Awardees

Congratulations to all the research scholars who have completed their Doctoral degree program during the Year 2024

Name of the Researcher	Title of the doctoral work	Supervisor and Department	Affiliation
 Dr Vinu Vijayan	Implications of rare earth metal nanoparticles collagen bio composites on tuneable angiogenesis for tissue regenerative applications	Dr. M.S.Kiran, Principal Scientist, Associate Professor-AcSIR Biological Materials Laboratory	University of Madras
 Ms.Moumita Mukherjee	Development, process optimization and characterization of biodegradable precursors based environment-friendly polyurethane–layered double hydroxide nanocomposites for application as footwear materials	Dr. G. Saraswathy, Supervisor Associate Professor Department of Leather Technology AC Tech Campus Anna University Chennai - 600 025. Dr. Sujata Mandal, Joint Supervisor Professor Department of Leather Technology AC Tech Campus Anna University Chennai - 600 025.	Anna University
 Ms. Sreelekshmi S Kumar	Role of Angiogenesis and Angiogenic Modulators on Browning of White Adipocytes and its Implication in Obesity	Dr. M.S.Kiran, Principal Scientist, Associate Professor-AcSIR Biological Materials Laboratory	AcSIR
 Dr. S. Senthilnathan	An approach on reverse pharmacology of Mathan Tailam and Maha Megarajanga tailam in tissue approximation	Dr. A. Gnanamani Chief Scientist Professor-AcSIR Microbiology Department	University of Madras

Name of the Researcher	Title of the doctoral work	Supervisor and Department	Affiliation
 Mr. S. Ashokraj	Genetically unnatural amino acid containing congener proteins & it's applications	Dr. N. Ayyadurai Senior Principal Scientist Professor-AcSIR Biochemistry and Biotechnology Laboratory	AcSIR
 Mrs. M. Indhu	Expanding the genetic code for targeted drug delivery	Dr. N. Ayyadurai Senior Principal Scientist Professor-AcSIR Biochemistry and Biotechnology Laboratory	AcSIR
 Mr. Inbasekar C	Studies on synthesis of chromium free tanning agents and multifunctional polymers for sustainable leather process	Dr. N. Nishad Fathima Chief Scientist Professor-AcSIR Inorganic and Physical Chemistry Laboratory	Anna University
 Mr. S. Nagaraj	Collagen-supported functionalized metal nanocomposites for visible light-driven photocatalytic water remediation	Dr. P. Thanikaivelan Chief Scientist Professor-AcSIR Advanced Materials Laboratory	University of Madras
 Mr. K. Jayaprakash	Studies on semiconductor nanomaterials	Dr. A Sivasamy Chief Scientist Professor-AcSIR Catalysis Science Laboratory	University of Madras

Name of the Researcher	Title of the doctoral work	Supervisor and Department	Affiliation
 Mrs. N. Pavithra	Design and Application of molecular probes for leathers of selected members of the bovidae family	Dr. A. Gnanamani Chief Scientist Professor-AcSIR Microbiology Department	Anna University
 Mr. N. Prabhakaran	Catalytic oxidation of volatile organic compounds in industrial wastewater using molybdenum and tungsten based heterogeneous catalysts	Dr. S. Swarnalatha Principal Scientist Environmental Science Laboratory	University of Madras
 Mr. N. Venkatesan	Tannery Solid Waste Derived Carbon for Oil/Water Separation and Energy Storage	Dr. N. Nishad Fathima Chief Scientist Professor-AcSIR Inorganic and Physical Chemistry Laboratory	AcSIR
 Mrs. P. B. Sujirtha	Arthrobacter creatinolyticus urease for biocementation, chromium remediation and biosensor development	Dr. NR Kamini Chief Scientist Professor-AcSIR Biochemistry and Biotechnology Laboratory	University of Madras
 Mr. Fathe Singh	Redox Modulatory Effects of Hennotannic Acid for Cancer Therapeutics	Dr. M.S. Kiran Principal Scientist, Associate Professor-AcSIR Biological Materials Laboratory	AcSIR

Visit to Animal Husbandry Department

A team of Scientists and Technical staff of CLRI RC, Kanpur visited *Aadarsh Pra-shikshan evam Utpadan Kendra* (Animal Husbandry Department, U.P.), Lucknow on 15 January 2025. During the meeting with the Principal and other staff members efficient ways for training and production of value added products from the dead animals brought to the centre were discussed.

Participation in ICCIG at IIM Ahmedabad

CLRI Regional Centre, Kanpur participated in the Fifth International Conference On Creativity And Innovation With Grassroots (ICCIG) organized at IIM, Ahmedabad during 28-30 January, 2025 by GIAN, Honey Bee Network and IIMA along with other national and international organisations. During the session on "*Creating Enabling Ecosystem for Grassroots Innovations: Mind to Marke*t". Shri Abhinandan Kumar, Scientist-In-Charge, made an oral presentation on "*CSIR-CLRI in the service of micro and small enterprises*".

Market Survey for PPE Kit

Dr. Krishnaraj K, Chief Scientist and Dr. Maheshkumar J, Scientist were on a visit to Kanpur for their survey related to industrial gloves and personal protective gears made out of leather. Regional Centre, Kanpur facilitated their visit to various manufacturing units and households in Kanpur-Unnao region to collect relevant data related to the survey.

Activities at CLRI Regional Centre, Ahmedabad

Mr. Parth Patel, CEO of M/s. Hanuzzi Furniture, Ahmedabad, visited CLRI Regional Centre, Ahmedabad along with his team on 21 January 2025. During the interaction with the staff, he sought for the technical support of CSIR-CLRI for finishing leather materials used in the furniture.

CLRI Regional Centre, Ahmedabad provided technical expertise to M/s. Younishbhai Putawala & Sons, Ahmedabad in making wallets, Key Chains, Visiting cards.

Smt. Krishnaveni Bhasker
Senior Principal Private Secretary
Administration - Director's Office

Happy Retirement!

Shri. K Kuppan
Section Officer(G)
Administration - EI

The Director and Staff wish them a happy and healthy retired life

CSIR-Central Leather Research Institute

(CSIR Integrated Skill Initiative Training Programme)

CSIR-CLRI announces the commencement of the following placement oriented courses

Leather Processing

- Post Graduate Diploma Programme in Leather Technology
- Diploma in Leather Processing
- Short Term Executive Skill Development Programme in Leather Processing
- Integrated Skill Development on Quality Control Methods in Leather Manufacture
- Computerized colour Matching for Leather manufacturing

Leather and Leather products

- Post Graduate Diploma Programme in Leather Products Technology
- Quality and Visual Inspection of Leather and Leather Products
- Skill Training Programme in Leather and Leather-like materials for Emerging Entrepreneurs
- Short Term Executive Skill Development Programme in Leather Upholstery Manufacture
- Course in Fashion Design and Development for Leather Lifestyle Products

Leather Goods and Garments

- Diploma in Leather Goods Manufacture
- Short Term Executive Skill Development Programme in Leather Goods Manufacture
- Training Programme in Leather Goods Design (Manual and CAD)
- Diploma in Leather Garment Manufacture
- Short Term Executive Skill Development Programme in Leather Garments manufacture
- CAD for Garments

Allied Science courses

- Bioinformatics Associate/ Analyst
- Quality Control Chemist – Microbiology
- QA Chemist Equipment Validation - Life Sciences
- Nuclear Magnetic Resonance (NMR) Spectroscopy Analyst
- Quality Assurance Chemist
- Leather Biotechnologist
- Enzyme Technologist
- Structural Analytical Technologist
- rDNA Technologist

Leather Allied Sectors

- Short Term Executive Training Programme on Occupational Health and Safety for Leather and Allied (Product) Industries
- Short Term Executive Training Programme on Testing and Calibration for Leather Sector
- Repair, restore and maintenance of leather products
- Short Term Executive Training Programme on Waste Management for

Footwear

- Diploma in Footwear Manufacture
- Short Term Executive Skill Development Programme in Footwear manufacture
- Training programme in GAIT Analysis
- CAD for Footwear

Please visit https://clri.org/training.aspx for online / offline submission of duly filled in application

CSIR-CLRI 75

For more info:

Website : https://clri.org/training.aspx

Chennai : +91 44 24437109 / chord@clri.res.in ; Kolkata : +91 33 23292381 / clrikol@clri.res.in ;
Jalandhar : +91 18 12651306 / clrijal@clri.res.in ;
Kanpur : +91 512 2986936 / clrikpr@clri.res.in ; Ahmedabad : +91 79 25840352 / clriahd@clri.res.in

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