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दि लेदर पोस्ट
The Leather Post

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

International Women's 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,

हमें आपके लिए लेदर पोस्ट का एक और रोमांचक अंक लाने में खुशी हो रही है, यह एक ऐसा प्रकाशन है जो नवाचार और हितधारक संबंध के लिए हमारे जनादेश को दर्शाता है। इस संस्करण में, हम गतिविधियों की एक जीवंत शृंखला का प्रदर्शन करते हैं और नए शोध क्षेत्रों और अत्याधुनिक सुविधाओं का परिचय देते हैं। ये प्रगति आपके साथ हमारे बंधन को मजबूत करने के लिए डिजाइन की गई हैं।

हमने अपने शोध और विकास प्रयासों को सभी के लिए सुलभ बनाने के लिए व्यापक सावधानी बरती है। लेख स्पष्ट और आकर्षक तरीके से प्रस्तुत किए गए हैं। हमारा लक्ष्य हमारे योगदान के महत्व को इस तरह से संप्रेषित करना है कि व्यापक दर्शक इसकी सराहना कर सकें।

हमारा मानना है कि एक सक्रिय समुदाय को बढ़ावा देने के लिए संचार महत्वपूर्ण है। हम आपके साझा विचारों और प्रतिक्रिया की प्रतीक्षा कर रहे हैं। नेक्स्टजेन लेदर पोस्ट को आपके विचारों को प्रतिबिंबित करने की आवश्यकता है कि हम एक–दूसरे के साथ कैसे बेहतर तरीके से जुड़ सकते हैं, और इसलिए, हम आपकी प्रतिक्रिया सुनने के लिए उत्सुक हैं।

आपके निरंतर समर्थन और हमारी यात्रा का हिस्सा बनने के लिए धन्यवाद। आइए, साथ मिलकर विज्ञान और प्रौद्योगिकी तथा समाज के बीच के संबंध को समझें।

पढ़ने का आनंद लें!

We are delighted to bring you another exciting issue of *The Leather Post*, a publication that reflects our mandate to innovation and stakeholder connection. In this edition, we showcase a vibrant range of activities and introduce new research areas and state-of-the-art facilities. These advancements are designed to strengthen our bond with you.

We've taken extensive care to make our research and development efforts accessible to all. The articles are presented in a clear and engaging manner. Our goal is to communicate the significance of our contributions in a way that a broad audience can appreciate

We believe communication is key to fostering an engaged community. We look forward to your shared thoughts and feedback. The nextGen Leather Post needs to reflect your thoughts on how best we can engage with each other, and therefore, we are eager to hear from you.

Thank you for your continued support and for being a part of our journey. Together, let's explore an interface of S&T and society.

Happy Reading!

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Capsules of Leather justice! A sustainable(!) duel of dual Si-nano capsules

Multifunctional nanoparticles (MFNPs) are materials that render multiple functions but as a single nanoparticle. Designing such particles does not only need a solid scientific rationale but also an indomitable intent of sustainability and minimalism. Especially, if the MFNPs do attempt a one-pot process, reducing steps, energy and infrastructure altogether, it is no less a magic! Scientists at CSIR-Central Leather Research Institute attempt such a magic with nano-particles of SiO2 in their recent work! The team of scientists chooses very aptly Silica to function as a MFNP which is a symbol of both sustainability and minimalism, as validated by the recent surge in Silica-based sustainable publications by various teams in CSIR-Central Leather Research Institute.

In the same work, the researchers demonstrate how Silica is the best bet not just as a nano-particle but also as a nanocarrier: its abundance, material hardness, high surface area, tunable size, adjustable porous structure, mechanical robustness, chemical stability and the last but not the least, biocompatibility! With the design of the core-shell model of silica-oil core and silica shell, the scientists aim to tan and soften collagen in one go! To customize the innovation sharper, two types of silica capsules were developed: one with low oil content and amine terminals for tanning and another with high oil content and vinyl sulfone terminals for lubrication. Thus, oil-loaded Silica nanocarriers with pre-functionalized terminals of sulfone and amine reach out to the functional groups of collagen and complement thus achieving an ionic balance. Covalent bonds with collagen fibres instead of electrostatic interactions that are the chief demerit of the conventional Silica tannage, is the game changer in this Si-nano-capsule based tanning-cum-softening! Hence, the resultant leathers exhibit enhanced tensile strength, tear resistance, and softness. The intriguing innovation with its novelty outclasses the state of the art, by simply overcoming poor strength characteristics and short circuiting the material-intensive retanning and fatliquoring as in the conventional wet-white and metal-free tanning system.

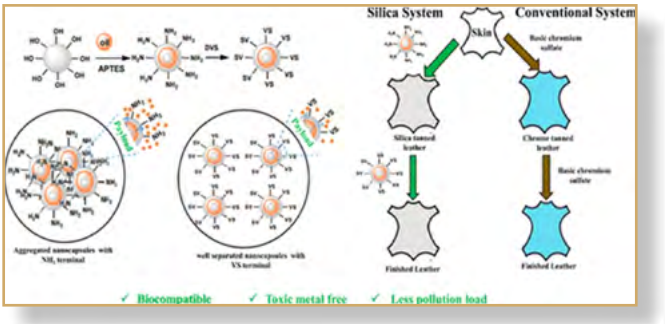
Although truly aqueous, leather processing has been a haven for multiple single-use hazardous chemicals as part of numerous unit processes having as many objectives. In that note, the Si-nano capsules with twin major objectives even pass the cytotoxicity tests proving their biocompatibility. That collagen tolerates the hazards in leather processing, should not be perceived as advantage and that too used against sustainability; Rather, the endurance of collagen should inspire sustainable pathways and only that is befitting collagen itself and leather science!

If sustainability of the matchless properties of collagen (is desire-driven) is so important, it is only sane to think that the processing of collagen to produce leathers (should be need-driven) is also sustainability-led. If the distinction between desire Vs need is understood, sustainable leather processing will no more be a mirage! Plastic is one horrible example of the above desire Vs need analogy. Let us not queue up in that zone! If plastic justice is the response to the damage caused by plastic, let us pre-empt with leather justice in spirit and action before it is high time! If the payload and delivery system in the above oil-laden Si-nanocarriers resembles rocket science and biomedical science, well, it is not mere a coincidence!

Madhan Kumar Meganathan, Sathya Sundararajan, Mohammed Abu Javid, and Sathya Ramalingam

Biocompatible Thermally Responsive Vinyl Sulfone Silica Nanocapsules as Stabilizing and Softening Agents for Metal-Free Leather Production

ACS Applied Nano Materials, 2024, 7, 10168–10181
https://doi.org/10.1021/acsanm.4c00615



High-performance Supercapacitor Activated Carbon from Strychnos Potatorum Shells

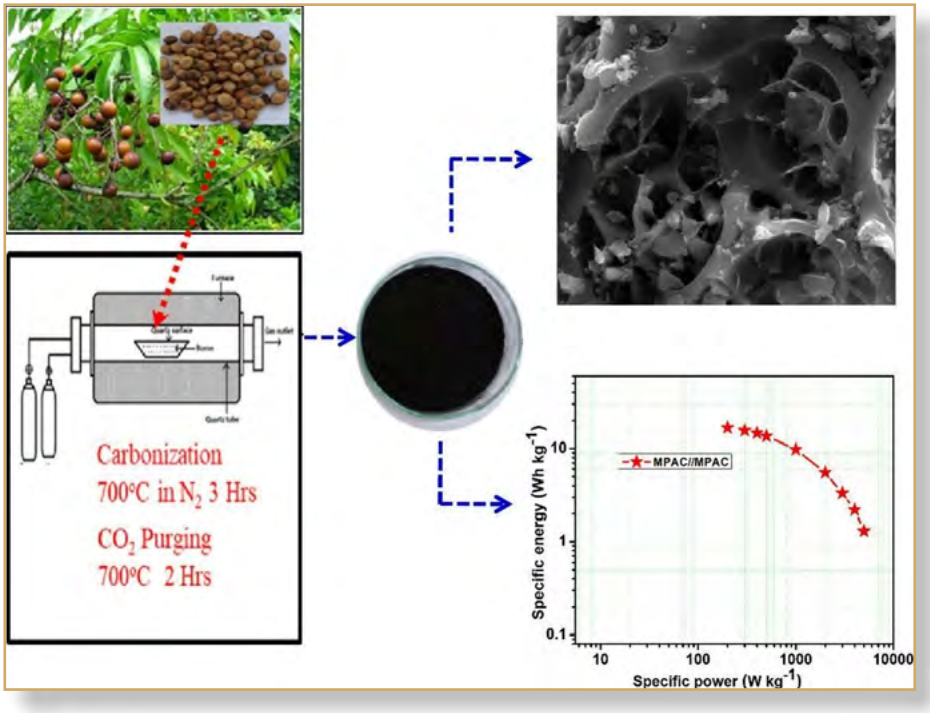
Activated carbon (AC) and graphene composites are the prominent choices for the carbon-based supercapacitor electrodes. Activated carbon is widely favoured in supercapacitor applications. Traditionally sourced from coal and wood, production of activated carbon faces challenges regarding resource scarcity, cost, and environmental impact. These constraints are prompting researchers to explore alternative sources. Due to the growing resource depletion and energy shortage, there is an urgent need for green energy storage systems based on biomass-derived carbon. Increasingly, biomass-derived carbon is becoming a promising candidate for electrode materials to be used in supercapacitors. They have the advantages of good cyclability, low cost, easy fabrication and non-toxicity. The AC produced from biomass materials been known to be of great interest for supercapacitor applications. Notably, the distinctive crystal structure inherent to biomass-based AC facilitates rapid electrolyte ion-transport within electrodes, rendering them highly promising candidates for supercapacitor electrodes. Strychnos potatorum, commonly known as "*Clearing Nut*" or "*Nirmali*," in Hindi is a tropical and subtropical plant species. The shells of the nut are a precursor for AC, offering several advantages, including abundance, high carbon content, natural porosity, favourable chemical composition, and cost-effectiveness, making it a promising choice for AC production.

researchers at CSIR – CLRI prepared low-cost activated carbon with disordered micropores and a high surface area from Strychnos potatorum shells using CO2 as an activating agent. The preparation was through a physical activation technique. Waste biomass-derived AC have the merits of excellent conductivity and is highly porous with high-surface area. The AC material prepared by the researchers using Strychnos Potatorum shells as a biomass feedstock exhibits improved surface properties and enhanced electrochemical performance in supercapacitor application. Moreover, it maintains remarkable long-term cyclability with capacity retention. The abundance and recyclable nature of biomass sources offer significant promise as precursors for tailoring AC materials for high-performance supercapacitors.

M. Vinayagam, R. Suresh Babu*, A. Sivasamy*, A.L.F. de Barros,

Physical activation assisted porous activated carbon from Strychnos Potatorum shells for high-performance symmetric supercapacitors.

Materials Letters, 2024, 371, 136961
https://www.sciencedirect.com/science/article/pii/S0167577X24011005



Enzyme from White Rot Fungus for Removal of Dyes from Tannery Effluent

Dyes are colouring substances that chemically bind to materials to which it is applied. They are used in various industries such as pharma, textile, leather and paper. Due to inefficiency in the dyeing process, about 10% of these compounds end up in the effluent, increasing the pollution load. Bioaccumulation further causes sludge generation, pipe blockages, and corrosion, making the reuse of water difficult. Therefore, the removal of dyes from wastewater is of significant importance. Azo (–N=N–) dyes are synthetic dyes which are most widely used for the dyeing process. Azo dyes are known allergens and are carcinogenic. There are several decolourisation methods available for the removal of dyes from the effluents. Some of the widely used methods in the process are adsorption, coagulation, flocculation, membrane filtration, ozonation, electrochemical, radiolysis, bacterial, algal, fungal and advanced oxidation processes. Physical and physiochemical methods have high initial costs, toxic chemical usage, and secondary waste generation. Biological methods include the use of whole cells, heat-inactivated biomass for dye removal by adsorption and enzyme-mediated dye degradation. Biological methods are also eco-friendly and generate less sludge. Peroxidase and laccase are two enzymes extensively reported for dye remediation. a cofactor.

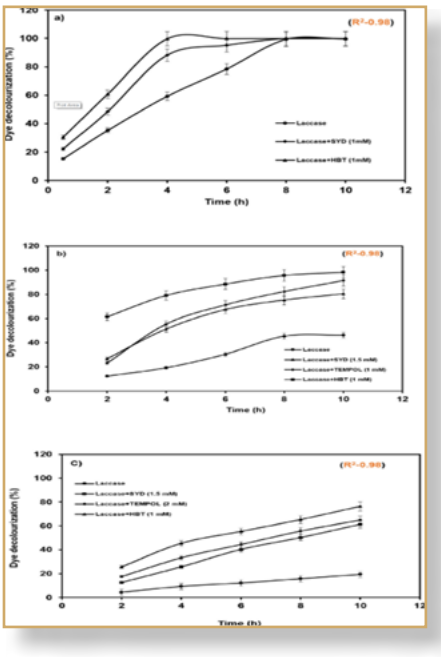
Laccase is a copper-containing metalloenzyme reported from fungi, bacteria, plants and animal sources. The major source of laccase is fungi is wood-degrading white rot fungi. It contains three copper-containing sites acting as a redox centre, catalysing the oxidation of a wide range of compounds, including dyes and drugs. Mediators are small molecules which enhance enzyme action in their presence. The major hindrance to the use of mediators is that it is expensive and makes laccase passive at high concentrations. HBT SYD and TEMPO have been reported as mediators for dye decolourisation. However, TEMPOL as a laccase mediator for dye decolourisation had not been reported.

Researchers at CSIR-CLRI have tested TEMPOL as a laccase mediator for dye decolourisation and compared it with HBT and SYD. Researchers produced Laccase enzyme from an isolated white rot fungus, Leiotrametes flavida, which had been scaled up to 5 and 10 L in fermenters. The secreted enzyme was precipitated from the broth by ammonium sulphate precipitation, dialysed and purified to homogeneity by anion exchange chromatography. Kinetic parameters were estimated with the purified enzyme. Laccase mediator systems effective in initial decolourisation experiments were applied to tannery dye effluent, estimating the decolourisation rate and chemical oxygen demand (COD) reduction, thereby assessing the effectiveness of laccase-mediated dye decolourisation. The pure enzyme was found to be effective in decolourising Basic Red 46 (azo class), Acid Blue 9 (triarylmethane class) and Reactive Blue 21 (phthalocyanine class) in the presence of mediators TEMPOL, HBT and SYD. Laccase + TEMPOL was superior to HBT in the decolourisation of azo dye Basic Red 46, and also showed superior decolourisation efficiency and COD reduction in actual tannery dye effluent.

George Sebastian Antony,· Mannankatti Ramkumar, Sujiritha Baskaran, Negi Vikash, Krishnasamy Rajaram, Ponesakki Ganesan, Nirakulam Ayyadurai, Numbi Ramudu Kamini,

Leiotrametes flavida MTCC 12927 laccase: scaleup, purification and its application for dye decolourisation enhanced by water-soluble mediator TEMPOL

3 Biotech 15, 106 (2025).
https://doi.org/10.1007/s13205-025-04259-9



Modification of Biopolymers for Functionalized Materials

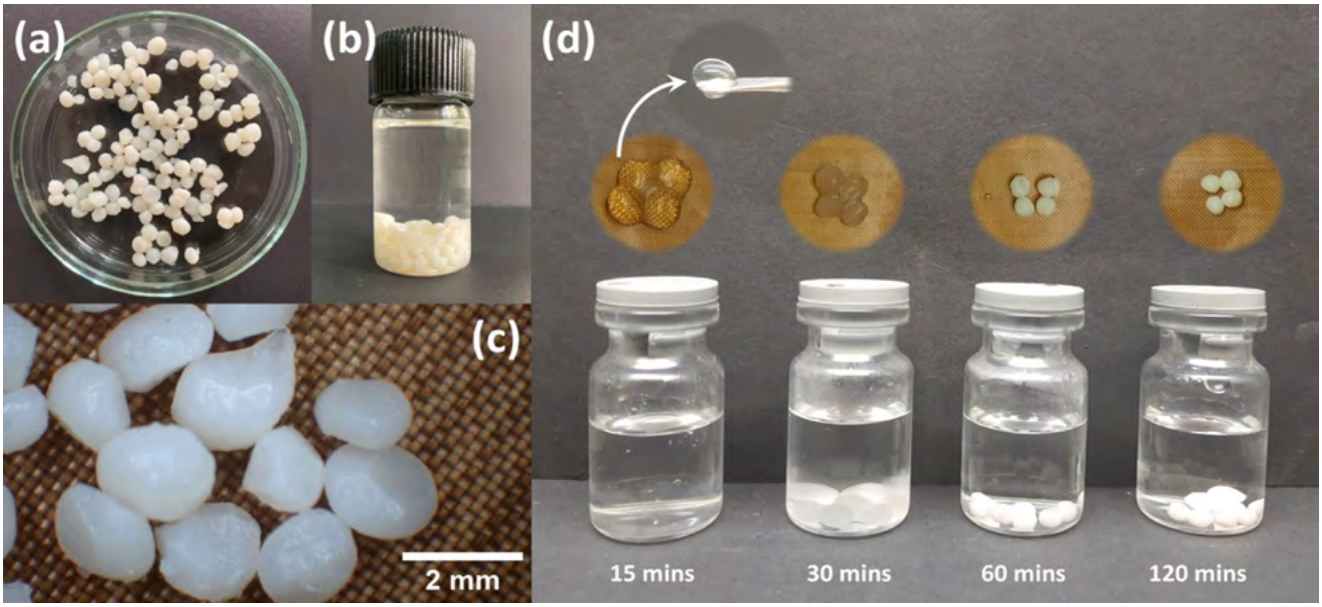
Biopolymers are naturally occurring materials which are being used as such for different applications. They may be converted or modified into various new products for further developmental work. Since these modified products are capable of exhibiting unique properties, we can carefully select reaction methodology to make new materials according to our anticipated applications, like food packaging, medical devices, drug delivery systems, and various other industries. CSIR-CLRI researchers have explored the vapour phase reaction conditions for the modification of selected biopolymers. This approach does not require any catalysts or pre-treatments, and it exploits the inherent nucleophilicity of specific functional groups present in the biopolymers.

The modification of model nucleophilic biopolymers (alkaline lignin and chitosan) in their solid form with vapours of modifying agents (epichlorohydrin and allyl bromide) has been successfully demonstrated without a catalyst and solvent. This vapour-phase approach leverages the inherent nucleophilicity of specific functional groups present in the biopolymers' chemical structures, such as sodium carboxylates (–COO—Na+), sodium phenolates (Φ-O—Na+), and amines (—NH2). These nucleophilic groups readily undergo substitution reactions with the vaporised modifying agents, leading to the modified biopolymers. Among the modified biopolymers, those allylated products are identified as promising starting materials for further reactions., The vapour-phase crosslinking with epichlorohydrin proved to be an effective method for stabilising different biopolymers. Preliminary experiments have shown success in crosslinking sodium alginate, sodium carboxymethylcellulose and gelatin using epichlorohydrin vapour, indicating the broad applicability of this approach. Additionally, enhancing the design of the reaction vessel is expected to improve the efficiency, safety, and industrial scalability of the batch fuming process.

Km Shelly, Ravishankar Kartik, Raghavachari Dhamodharan*

Facile chemical modification of solid alkaline lignin and chitosan via nucleophilic substitution with organohalides in the vapor phase.

International Journal of Biological Macromolecules, 304, 2025, 140696.
https://doi.org/10.1016/j.ijbiomac.2025.140696



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March 2025

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2	Preethi, RK; Kannadasan, S; Shanmugam, P, Synthesis of Dispiro-[Indoline-3,1′-Cyclopropane-2′,3′′-Indoline]-2,2′′-Diones via Thermal [2+1] Cycloaddition Between 3-Alkylidene-7-Aza-2-Indolones and 3-Diazo-7-Aza-2-Oxindoles, European Journal of Organic Chemistry, 28 (14), 2025, 10.1002/ejoc.202401359
3	Vinayagam, M; Babu, RS; Sivasamy, A; de Barros, ALF, Improved capacitive performance of conducting polymer with incorporation of biomass derived activated carbon for supercapacitors, Diamond and Related Materials, 154, 2025, 10.1016/j.diamond.2025.112165
4	Divya, D; Mutharasan, A; Sharmila, G; Settu, M, Experimental and theoretical investigations on wavelength-specific probe for divalent metal ion detection, Scientific Reports, 15 (1), 2025, 10.1038/s41598-025-88039-8
5	Mukherjee, S; Varshashankari, V; Feba, A; Ayyadurai, N; Balamurugan, K; Shanmugam, G, Hyperstable and Fibril-Forming Collagen-Mimetic Peptides in Shortest Triple Helices: Empowering the Capping by π-systems, Biomacromolecules, 26 (4), 2171-2185, 2025, 10.1021/acs.biomac.4c01455
6	Choudhary, P; Shaw, A; Ramalingam, B; Das, SK, Nanoengineered and highly porous 3D chitosan-graphene scaffold for enhanced antibacterial activity and rapid hemostasis, International Journal of Biological Macromolecules, 306, 2025, 10.1016/j.ijbiomac.2025.141521

Dedication of New HR-TEM Facility

Dr. Ayyappanpillai Ajayaghosh, Shanti Swarup Bhatnagar Chair Professor, SRM Institute of Science and Technology, Kattankulathur, Chennai, dedicated the High-Resolution Transmission Electron Microscope (HR-TEM) facility to the scientific community in the presence of Dr K J Sreeram, Director, CSIR-CLRI. This facility enables researchers with the scope for imaging materials at the atomic scale.

CSIR-Central Leather Research Institute Celebrated National Science Day on 3rd March 2025.

Dr. Ayyappanpillai Ajayaghosh, Shanti Swarup Bhatnagar Chair Professor, SRM Institute of Science and Technology, Kattankulathur, Chennai, delivered the National Science Day Lecture.

He delivered a Lecture on "*Science and Technology for Sustainable Life*" and insisted on empowering the youth to empower the nation. He also mentioned that education is the only solution, and science education plays a central role. Staff and Students participated in the National Science Day celebrations.

National Safety Week Celebrations

CSIR-CLRI joined the 54th National Safety Week being observed across India during 4-10 March, 2025. This annual observance aims to raise awareness about safety measures across industries and workplaces. It aims to promote accident prevention and ensure employee well-being. Led by National Safety Council (NSC) of India, this year's theme for National Safety Week 2025 is '*Safety & Well-being Crucial for Viksit Bharat'*. It highlights the essential role of safety in achieving a developed and progressive India.

In addition to workplace safety and overall well-being, it encourages industries and organisations to adopt higher safety standards, risk prevention strategies, and health-conscious work environments.

At CSIR-CLRI, the Safety Day Lecture was organised on 4 March 2025. Prof. Kothandaraman, R, Department of Chemistry, Indian Institute of Technology, Madras, spoke on the topic "*Batteries & Battery Safety*".

Technical Lectures delivered by CLRI Scientists on Good Laboratory Practices.

On 5th March 2025, a demo on "*Fire Prevention & Protection*" was conducted by Mr Teni Chakala John, M/s Ceasefire Industries Pvt. Ltd. spoke on fire prevention and protection at Triple Helix Auditorium, followed by a demo at Tagore Ashram, CSIR-CLRI.

62 Meeting of the Management Council of CSIR-Central Leather Research Institute

The 62nd Meeting of the Management Council of CSIR-CLRI was held on 17 March 2025. Dr K.J. Sreeram, Director, CSIR-CLRI & Chairman, of the Management Council, presided over the meeting and conducted the proceedings. Dr. K. Ramesha, Director, CSIR-CECRI and other members of the Council participated in the meeting and discussed the listed agenda items.

MAX-PLANCK LECTURE AT *CSIR-CLRI*

CSIR-CLRI, in collaboration with the Institute of Mathematical Sciences, Jointly hosted Max-Planck Lecture on 7 March, 2025, at the Triple Helix Auditorium.

Prof. Dr. Stephan Grill, Director of the Max Planck Institute of Molecular Cell Biology and Genetics, Germany, delivered an insightful lecture on "*Physics of Life.*"

In his lecture, he spoke on one of the most remarkable examples of self-organised structure formation is the development of a complex organism from a single fertilised egg. With the identification of many molecules that participate in this process, attention has now turned to capturing the physical principles that govern the emergence of biological form. Living systems are special in the sense that they structure themselves through processes that convert chemical energy into mechanical work. In this talk, he provided a brief introduction to '*Active Matter Physics*' and also discussed how the surface of a cell can generate active stresses that can drive its reshaping or the reshaping of many cells that are collectively organised into a tissue. He ended with a report on our efforts to combine active matter theory with experiments in both worms and birds to understand symmetry breaking and pattern formation in early organismal development of active living systems.

Entrepreneurial Skills in Leather Products

As a part of Women's Day Celebrations at CSIR-CLRI, successful ventures among women for entrepreneurial skills in Leather Products were recognized

Jigyasa 2.0 Science Outreach Program

As part of the Jigyasa 2.0 science outreach program, about 80 students and eight teachers from Fathima Vidya Nikethan E.M. School in Rentachintala, Palnadu District, Andhra Pradesh, visited the CSIR-CLRI on 12 March 2025. A total of 80 students and eight teachers participated in the visit.

The visiting students interacted with scientists and learned about leather science and related fields. The scientists were provided with career counselling and research opportunities.

INTERNATIONAL WOMEN'S DAY

As a part of International Women's Day Celebrations 2025, CSIR-CLRI organised a transformative one-day workshop for young women on 8 March 2025. The event focused on the theme for this year, "*For All Women and Girls: Rights, Equality and Empowerment*." Dr K.J. Sreeram, Director-CSIR-CLRI, inaugurated International Women's Day celebrations at the Institute and addressed the gathering. Scientists, Staff, Research scholars and students participated in the event.

Workshop on Career Opportunities for Women

On International Women's Day, CSIR-CLRI conducted a one-day workshop on the career opportunities for women, especially in career opportunities for women, especially in the Engineering discipline. Participants were briefed about various career opportunities, permanent and temporary positions, at the Institute. Further information on various advertised positions in CSIR-CLRI, required qualifications and the mode of recruitment was provided. Students from SSN College of Engineering and Tagore Engineering College attended the program.

Footwear for Healthcare program

On International Women's Day, Footwear for Healthcare program was conducted at CSIR-CLRI on 8 March 2025. Further a one-day workshop "*Understanding Sophisticated Instruments"* was also hosted on the theme "*Understanding Sophisticated Instruments*" for aspiring women.

Around 95 enthusiastic women college students attended the workshop and had a rare opportunity to witness the cutting-edge instrumental techniques at various departments of CSIR-CLRI. This workshop gave an exposure to the aspiring women students to various advanced scientific tools and their real-world applications.

International Women's Day Celebrations 2025:
Yoga for Body, Mind, and Soul

During the workshop, the following topics were covered:

- Introduction to Yoga
- Prioritising your set
- Prioritising happiness
- Working towards Sontosnam
- Yoga for busy people
- Simple asanas for better health
- Breathing
- Mindfulness and meditation

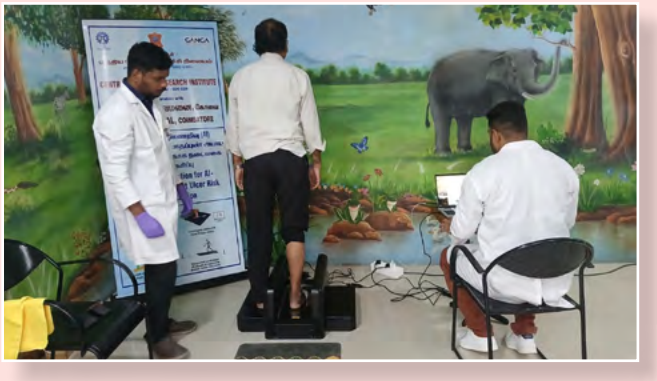
An Interactive Session on Diet & Nutrition with the expert was also organised to mark the International Women's day on 11 March 2025 at Triple Helix Auditorium, CSIR-CLRI.

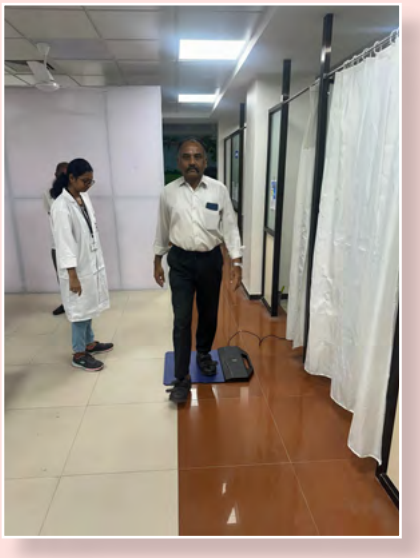
Dr A Karthiga, Department of Clinical Nutrition, Shriher (DU) gave a lecture demonstration on the topic "*Fuel Your Body Right: Diet & Nutrition for a Healthier You*!" On 12th March 2025, a Fitness Walkathon for all women staff and students was organised at CSIR-CLRI. On 14th March 2025, Self-Defense program for all women staff and students were also organised.

Therapeutic Footwear and Diabetic Foot Ulcer Classification

CSIR-CLRI and CSIR-Central Scientific Instruments Organisation, Chandigarh, have undertaken a joint project for the '*Development of Customized Therapeutic Footwear and Classification of Diabetic Foot Ulcer Risk using Gait Abnormalities*'.

As part of this study, CSIR-CLRI launched a data collection initiative to study gait abnormalities and diabetic foot ulcer risk. Using AI-driven gait analysis and plantar pressure mapping, this research will enable early detection, customized therapeutic footwear, and improved mobility for diabetic patients. Scientists and the technical team from the Institute had a discussion with the doctors and the Dean of the Government. Medical College and Hospital, Ramanathapuram, started collecting data at Ganga Hospital, Coimbatore, Tamil Nadu.





Visit of the Institute Innovation Council, Dr B.R. Ambedkar NIT Jalandhar

Students and Faculty from the Institute Innovation Council, Dr B.R. Ambedkar NIT Jalandhar, visited the CLRI Regional Centre, Jalandhar, on the occasion of National Science Day to get insights into leather and allied research areas. Dr. S V Srinivasan, Scientist-in-Charge, briefed the students and delivered a lecture on effluent and solid waste management. Shri. V.Karthik, Principal Scientist, delivered a lecture on leather processing and products. Dr. P. Sudhakara, Principal Scientist, spoke on the requirements of standard protocols for testing of leather and leather products. Dr.Mozhiarasi V, Scientist at the centre, presented on waste treatment technologies with special focus on group activity, on waste management plan building. Demonstration of the facilities at the Centre was followed by a visit to the tannery.

Khalsa College of Veterinary and Animal Sciences, Amritsar visited CLRI RC-Jalandhar.

Students and faculty from Khalsa College of Veterinary and Animal Sciences, Amritsar visited CSIR-CLRI Regional Centre, Jalandhar on 26 March 2025.
The visiting students were briefed about the standard protocols required for testing leather and leather products, and a group activity on waste treatment technologies, focusing specifically on energy and nutrient recovery. After the demo on various research facilities at the Institute, they visited the tannery to gain further insights.

Visit of Rajiv Gandhi Ground Water Training Institute in Raipur, Chhattisgarh

A goup of 29 newly recruited Officer Trainees from the Central Ground Water Board, based at the Rajiv Gandhi Ground Water Training Institute in Raipur, Chhattisgarh, visited CSIR-CLRI on 3 March 2025 to observe the effectiveness of the recharge structures constructed on the CLRI Campus. On 10 March 2025, a group of 35 newly recruited Officer Trainees from Batch II of the Central Ground Water Board visited CSIR-CLRI to observe the recharge structures.

Visit of Student from Krishna District, Andhra Pradesh

About 90 students and 10 teachers from Krishna District in Andhra Pradesh visited CSIR-CLRI for a study tour. They visited various research facilities at the Institute and interacted with the scientists and researchers.

AWARDS & RECOGNITION

Ms. Liya Babu, Research Scholar from the Biochemistry & Biotechnology Laboratory, CSIR-CLRI participated in the 2nd International Conference on '*Emerging Concepts in Biotechnological Innovations' organized by the Department of Biotechnology*, FSH, SRM Institute of Science and Technology, Kattankulathur, during 26-28 February, 2025. She was selected for the Budding Scientist Award at the conference.

Mr. Loganathan T, Scientist, CSIR-Central Leather Research Institute, participated in the National Conference on Sustainable Science and Technology for Viksit Bharat March 6 - 7, 2025 @ CSIR-IMMT, Bhubaneswar, Odisha. His paper *Antimicrobial Footwear Insock for School Students' Hygiene* has been conferred the Best Oral Presentation Award in this conference.

AWARDS & RECOGNITION

Ms. Smriti Mukherjee, Senior Research Fellow (DST INSPIRE), , Organic & Bioorganic Chemistry Laboratory, CSIR-CLRI, received a FLASH TALK Award with a cash prize at the "*Indian Biophysical Society Meeting*", organized by Indian Institute of Technology Madras (IITM), during 6-9 March, 2025. She spoke on "*Engineering Collagen Mimicry with Short, Hyperstable Collagen-Mimetic Peptides via Terminal π-capping.*"


INDIAN BIOPHYSICAL SOCIETY MEETING
Indian Institute of Technology Madras, March 6-9, 2025

Flash Talk Award

presented to

SMRITI MUKHERJEE

CSIR-Central Leather Research Institute

Engineering Collagen Mimicry with Short, Hyperstable Collagen-Mimetic Peptides via Terminal π-Capping

Computational Biology and Chemistry

Prof. Sudipta Maiti
President, IBS
BITS Hyderabad

Prof. Athi N Naganathan
Conference Convener
IIT Madras

Dr. Ayyadurai N, Senior Principal Scientist, Biochemistry & Biotechnology Laboratory, CSIR-CLRI was awarded with "*ASC-Masila Vijay Award in the High-Impact Research Publication*" by the The Academy of Sciences, Chennai, on 18 March, 2025.

Ms. Rasmi Morajkar, Research Scholar from Inorganic & Physical Chemistry Laboratory, CSIR-CLRI, has been selected for participation in the prestigious 74th Lindau Nobel Laureate Meeting to be held in Germany from 29 June 2025 to 4 July 2025

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

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For more info:

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