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दि लेदर पोस्ट
The Leather Post

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

Dr. G Thyagarajan

GT Memorial Lecture -2025

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 लेदरपोस्ट का यह अंक प्रस्तुत करते हुए अत्यंत गर्व हो रहा है, जिसमें हम अपने कुछ अभूतपूर्व शोधों का विवरण प्रस्तुत कर रहे हैं। यह अंक इसलिए भी विशेष है क्योंकि हम त्यागराजन स्मृति व्याख्यान पर भी प्रकाश डाल रहे हैं। विगत वर्षों में, हमारे शोधकर्ताओं ने विभिन्न विषयों की सीमाओं को लांघना, ज्ञान का प्रसार और नवाचार को प्रेरित करना जारी रखा है। यह अंक हाल के कुछ सबसे प्रभावशाली कार्यों पर प्रकाश डालता है – जो एक फलते–फूलते बौद्धिक समुदाय का प्रमाण है।

इस वसंत में हमारे पूर्व निदेशक डॉ. जी त्यागराजन के सम्मान में आयोजित संगोष्ठी भी उतनी ही महत्वपूर्ण थी, जिनकी दूरदर्शिता और नेतृत्व ने आज हम जो प्रगति देख रहे हैं, उसकी नींव रखी। इस कार्यक्रम में दुनिया भर के सहकर्मी, छात्र और सहयोगी एकत्रित हुए, ताकि न केवल उनके विद्वतापूर्ण योगदान का सम्मान किया जा सके, बल्कि शोध, मार्गदर्शन और शैक्षणिक उत्कृष्टता की संस्कृति पर उनके स्थायी प्रभाव का भी सम्मान किया जा सके।

आगे के पृष्ठों को देखते हुए, हम आपको प्रस्तुत विचारों से जुड़ने के लिए आमंत्रित करते हैं। हमें आशा है कि यह अंक एक श्रद्धांजलि और उन नींवों पर निर्माण जारी रखने का आह्वान दोनों होगा जो हमें यहाँ तक लाए हैं।

पढ़ने का आनंद लें!

It is with great pride that we present this issue of Leatherpost, where we detail some of our groundbreaking research. The issue is special as we also report on the Thiagarajan Memorial Lecture. Over the past years, our researchers have continued to push boundaries across disciplines, advancing knowledge and inspiring innovation. This issue highlights some of the most compelling recent work—evidence of a thriving intellectual community.

Equally significant was the seminar held this spring in honor of Dr. G Thiagarajan, our former Director, whose vision and leadership laid the foundation for much of the progress we see today. The event brought together colleagues, students, and collaborators from around the world to honor not only his scholarly contributions, but also their lasting influence on the culture of research, mentorship, and academic excellence.

As you explore the pages ahead, we invite you to engage with the ideas presented. We hope this issue serves as both a tribute and a call to continue building on the foundations that have brought us here.

Happy Reading!

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Umbilical Cord Collagen Patches for Treating Corneal Blindness

The cornea of the eye is a transparent, protective tissue which acts as a barrier against dust and debris. The cornea provides a smooth surface for light to pass through and acts as the window to the eye. Damage to the cornea causes severe visual impairment and requires medical intervention. While corneal transplantation is the most commonly transplanted tissue worldwide, the gold standard is to stimulate functional healing of damaged tissues and organs.

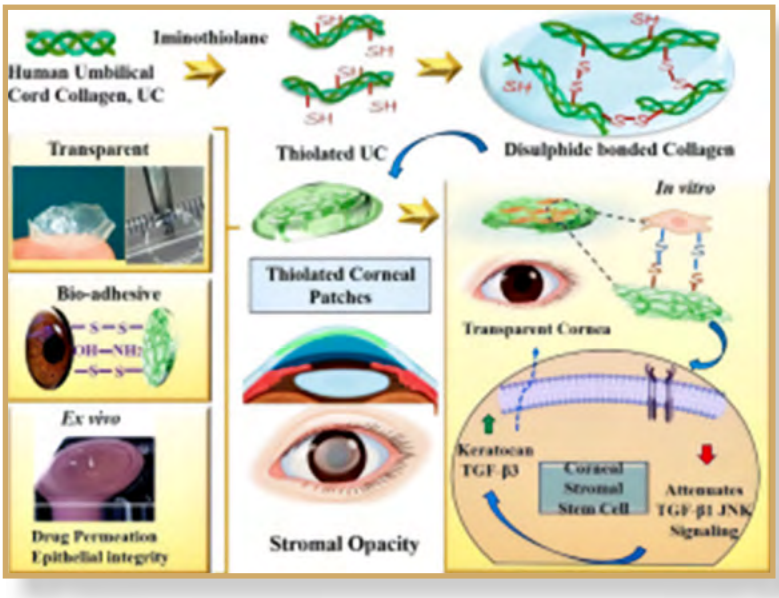
Pro-regenerative patches are used for treating corneal injuries due to their robustness and ease of use in clinical settings. In this regard, collagen-based synthetic patches act as the building blocks for corneal repair. However, issues like cross-linker toxicity, less optical clarity, and deformation instability remain unresolved. To overcome these challenges, researchers at CSIR-CLRI have employed disulfide crosslinked thiolated collagen patches (CSH) to treat corneal injuries. The functionalization of the amine group with thiol explicitly modulated the disulfide-bonded helical assembly of human umbilical cord collagen. These thiolated patches exhibit anisotropic mechanical properties, superior optics, and deformation stability. They conform to the corneal curvature, exhibit adhesiveness, and achieve sustained anti-infective therapy, eliminating frequent drug administration and reducing patient trauma.

The human umbilical cord collagen (UC) comprises abundant lysine, an essential amino acid and a building block for proteins in the body, thus has more primary amines for the process of thiolation. UC was thiol functionalized, the degree of amine substitution is high, and an increase in disulfide bonds confirms disulfide-mediated crosslinking. The resultant CSH exhibits remarkable biomechanics, adhesion strength, optical clarity, and proteolytic resistance compared to native collagen. CSIR-CLRI researchers have conducted irritation studies and ex vivo testing to evaluate the adhesion and ocular compatibility of the thiolated collagen patches. Results of human corneal stromal cells cultured on disulfide-bonded patches exhibited remarkably high viability and maintained their phenotypic characteristics. In vitro studies in human corneal stromal cells showed that the thiols mimic endogenous peptides, favouring cell adhesion and proliferation. Findings of this study show that the disulfide-bonded collagen patches can be used as an effective therapeutic strategy for stromal injury-associated blindness.

Deebasuganya Gunasekaran, Grace Felciya Sekar,Jeyakumar, Nivethitha Panneerselvam Manimegalai, Uma Tiruchirapalli Sivagnanam

Thiol-functionalized collagen patch channelises TGFβ1- JNK trafficking and reverses corneal stroma opacity,

International Journal of Biological Macromolecules, 306 (1), 2025, 141327
DOI: https://doi.org/10.1016/j.ijbiomac.2025.141327



High-performance Electrochemical Sensor for Drug Detection

Acetaminophen (paracetamol or N-acetyl-p-aminophenol) is widely used as an antipyretic and analgesic drug to reduce fever and to relieve cough, headaches, arthritis, backaches and surgical pain. An overdose of acetaminophen can lead to harmful metabolites, which can sometimes cause severe liver and kidney damage. Hence, it is highly necessary to develop efficient, sensitive, and simple analytical methods for determining acetaminophen for quality control of pharmaceutical products and medical monitoring of biological fluids such as urine, blood, and plasma, etc.

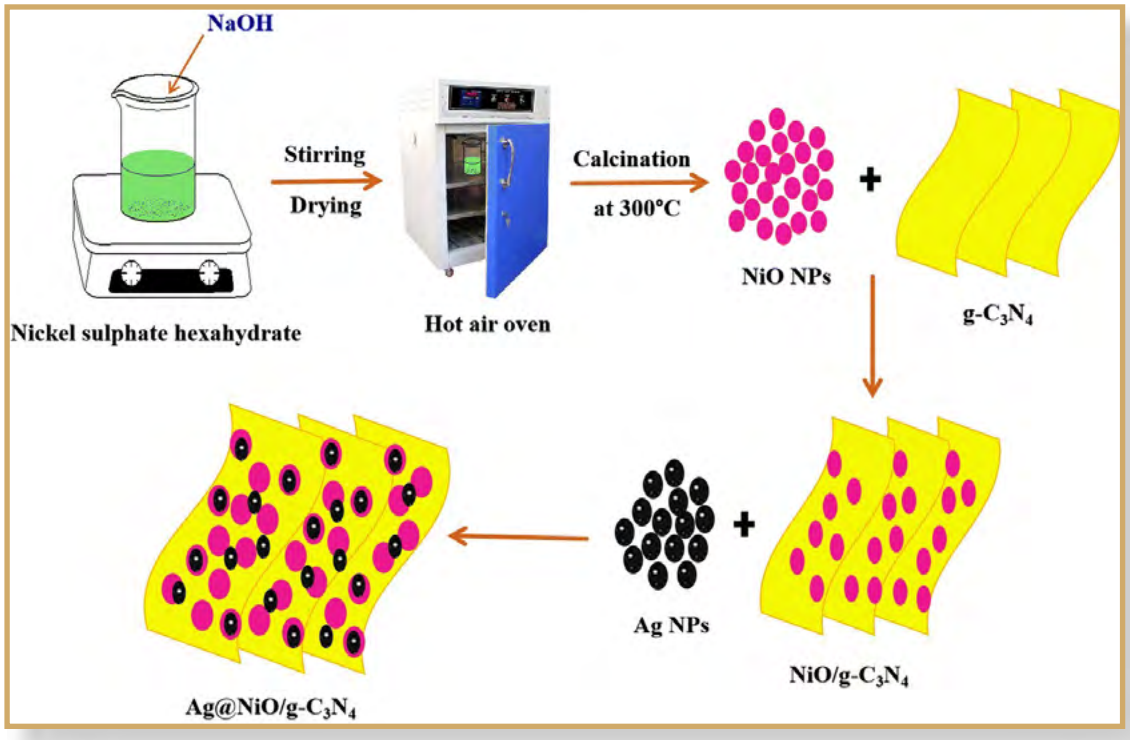
Researchers from CSIR-CLRI synthesized silver and nickel-based graphitic carbon nanocomposite via a simple hybrid technique for the electrochemical sensing of acetaminophen. The electrochemical behaviour of acetaminophen revealed that the acetaminophen was oxidized into N-acetyl-p-benzoquinone-imine and detected. The composite electrode showed improved electrocatalytic activity for acetaminophen oxidation with high sensitivity and stability, a wide range of linearity and excellent selectivity for acetaminophen detection. In addition, the synthesized nanocomposites demonstrated excellent selectivity towards acetaminophen in the presence of potentially interfering species such as glucose, ascorbic acid, uric acid, common salt, etc.

A study of the influence of different potentially interfering materials revealed that the fabricated sensor demonstrated good stability and excellent selectivity for the detection of acetaminophen. The fabrication of silver and nickel-based graphitic carbon nanocomposite sensors could be potentially applied for the detection of acetaminophen in real blood serum samples and other environmental applications.

Kanagaraj Narayanan, Krishnan Senthil Murugan and Thillai Sivakumar Natarajan

Ag@ NiO/g-C3N4 nanocomposite: an efficient and high-performance electrochemical sensor for acetaminophen detection.

New Journal of Chemistry. 2025, 49 (11),4703-15
https://pubs.rsc.org/en/content/articlehtml/2025/nj/d4nj05527f



Blue technology for Leather Technology? Yes, yet again! says CSIR-CLRI!

Marine resources being used in making leathers is not new. Fish oil-tanned chamois is one classic example. Now, researchers at CSIR-CLRI propose a novel chemical softening process by utilizing waste-derived microalgae namely Chlorella vulgaris during leather making. Yes, the traditional fatliquoring has been hinged upon only high-value animal/marine/vegetable oils of very rich human nutrition for long. Hence, this sustainable alternative connects a marine waste as a green biochemical to leather processing, setting an example of a cross-sectoral upcycled economy.

A lipid-rich (28.4%) C. vulgaris biomass with an iodine value of 102 has its constituents in palmitic, linoleic, and linolenic acids. Two steps of emulsification are proposed to keep the application of C. vulgaris oil water-friendly during leather processing: Transesterification & Sulfation. Experimental leathers vis-à-vis control leather fatliquored with Turkey red oil shows significant increase in softness (64.37%), elongation at break (58.65%), tensile strength (33.16%), and tear strength (up to 182.2%). Well-lubricated and uniform fiber structures are the outcomes of this bio-based fatliquoring according to morphological studies.

Whilst tanning is responsible for the conversion of low-value by-products (animal hide/skin) into value-added leathers, only the reintroduction of fatty matter into the inter-spaces of tanned leather which is stiff and unusable otherwise, restores flexibility to the leather which was once soft and supple as a skin or hide. In fact, the raw fat/grease in the skin/hide is removed to facilitate the tanning which is the utmost unit process in leather making. The watershed points in the fatliquoring process are: Designing an emulsion of specific particle size to enable the oil droplets to penetrate the leather reaching up to the fibrils thus promoting the sliding of fibrils and prevent adhesion. Retaining the desirable minimum of moisture in leather is another underpinning paradox of fatliquoring!

Hence, one's waste can be the other's raw material! The concept of "wastes as resources" will augur circular economic pathways creating multilevel resources and valuable supply chains. All one can wish is: Novelties like the 'green' valorisation of C. vulgaris from the 'blue economy' should not be once in a 'blue' moon!

Nagabalaji V, Bindia Sahu, Yogesh Sekar, Akash Bhalla & Srinivasan SV

Revolutionizing leather treatment with emulsified Chlorella vulgaris oil: a green fatliquor alternative.

Toxicological & Environmental Chemistry, 107:6, 1095-1113,
https://doi.org/10.1080/02772248.2025.2515409

Visible Light-Responsive Photocatalyst and Antimicrobial Agent from Chitosan Derived Nanocomposites

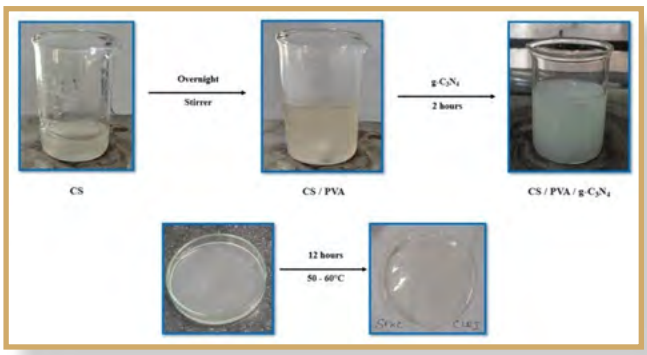
Nanocomposites are being used in many key sectors such as agriculture, health science, defence, environmental science and so on. Biopolymers are playing a major role in the formulation of innumerous products by utilizing nanotechnology. In particular, chitosan is extensively used for the formation of nanocomposites along with other combination of natural and synthetic chemicals. The researchers from CSIR-CLRI are also engaged in such area for the further exploitation of nanocomposites in the form of film. In this view, they have chosen Chitosan, Polyvinyl Alcohol (PVA) and Melamine for making a nanocomposite film. They could demonstrate the effectiveness of its photocatalytic activity and antimicrobial activity too.

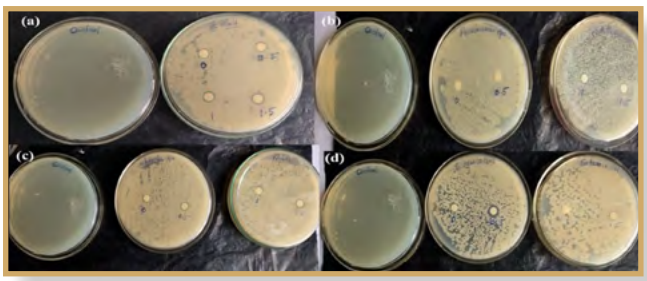
Chitosan/polyvinyl alcohol/g-C_3N_4 (CS/PVA/g-C_3N_4) nanocomposite films with different weight percentages of PVA were prepared using simple methodologies and characterized using XRD, TGA, FT-IR, DSC, FE-SEM, EDX, and elemental mapping analysis. The XRD and FT-IR results validated the nanocomposite film formation. The FE-SEM images showed the smooth surface of the composite films without any wrinkles; the smoothness of the film increased with increases in the PVA loading, and the surface morphologies of the films were largely unchanged. The EDX and elemental mapping analysis validated the presence and uniform dispersion of g-C_3N_4 within the nanocomposite film. The photocatalytic activity of the CS/PVA/g- C3N4 nanocomposite films was assessed by the degradation of rhodamine B dye (RhB) and acetophenone under direct sunlight irradiation. The order of degradation for the RhB dye and acetophenone was CS/PVA (1.0) g-C_3N_4 (95.34%, 33.33%) > CS/PVA (1.5) g-C3N4 (93.18%, 31.31%) > CS/PVA (0.5) g-C3N4 (93.02%, 29.29%) > CS/PVA (90.69%, 26.26%) > g-C_3N_4 (87.56%, 24%), respectively. Furthermore, the antimicrobial activity of the nanocomposite films was tested against E. coli, Pseudomonas sps., Klesiella sps., and Enterococcus sps. CS/PVA (1.5)/g-C_3N_4 nanocomposite film offered better antimicrobial properties than the other composite films and bare materials. These biopolymer-based nanocomposite films are giving a scope for the development of various biodegradable polymeric nanocomposites for environmental remediation and antibacterial packing applications.

Murugan Sutharsan, Krishnan Senthil Murugan*, Kanagaraj Narayanan and Thillai Sivakumar Natarajan*

Chitosan/Polyvinyl Alcohol/g-C_3N_4 Nanocomposite Film: An Efficient Visible Light-Responsive Photocatalyst and Antimicrobial Agent

Processes, 2025, 13, 229
https://doi.org/10.3390/pr13010229





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May 2025

1	Panbhukarasu, S; Vijayalekha, A; Natarajan, K; Anandasadagopan, SK; Pandurangan, AK, Integrated network pharmacology and bio-functional chitosan-hydroxyapatite scaffolds incorporating quercetin for enhanced bone regeneration in articular cartilage defects, Journal of Bioactive and Compatible Polymers, 40 (3), 248-266, 2025, 10.1177/08839115251318682
2	Venugopal, S; Khambhaty, Y, Greener route towards preparation of plant-based antifungal fatliquor for eco-conscious application during leather making, Journal of Coatings Technology and Research, 22 (3), 1099-1112, 2025, 10.1007/s11998-024-01036-w
3	Gunasekaran, D; Jeyakumar, GFS; Manimegalai, NP; Sivagnanam, UT, Thiol-functionalized collagen patch channelizes TGFβ1-JNK trafficking and reverses corneal stroma opacity, International Journal of Biological Macromolecules, 306, 2025, 10.1016/j.ijbiomac.2025.141327
4	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
5	Maharaja, P; Murugan, KP; Karthiyayini, C; Kameswari, KSB; Sudha, D; Sabarishwaran, G; Sekaran, G, Evaluation of fenton-like oxidation coupled with struvite precipitation for the enhanced treatment of Cu-contaminated ammoniacal nitrogen-rich wastewater, Journal of Environmental Management, 381, 2025, 10.1016/j.jenvman.2025.125204

Technology Transfer/Innovations

CSIR-Central Leather Research Institute develops a silk-collagen hydrogel (PASCH) using silk fibroin & lab-made collagen-like protein, activated by Vitamin B_2 & blue light—ideal for diabetic wounds & fragile skin.

GT Memorial Lecture -2025

The Dr. G Thyagarajan (GT) Memorial Lecture has been instituted in fond memory of Dr. G. Thyagarajan, the former Director of CSIR-CLRI, and is held every year on his birth anniversary, 2 May. The first Dr. G Thyagarajan Memorial Lecture was delivered by Dr. R.A. Mashelkar, FRS, and Former Director General of CSIR in the year 2024, commemorating the 90th Birth Anniversary of Dr. G Thyagarajan. The second GT Memorial Lecture 2025 was organised on 2 May 2025 at the Triple Helix Auditorium, CSIR-CLRI, Chennai. Dr K.J. Sreeram, Director, CSIR-CLRI, welcomed the gathering and shared the genesis of the GT Memorial Lecture with the audience. Dr. T. Ramasami, Former Secretary to the Government of India and Former Director, CSIR-CLRI, delivered the GT Memorial Lecture 2025 on "*Footsteps of Dr. G. Thyagarajan in his Lasting Legacy on CSIR*". Dr. Ramasami reflected on Dr. G. Thyagarajan's visionary leadership in shaping the CSIR ecosystem in his lecture. He thoughtfully narrated Dr. GT's remarkable journey, from an accomplished scientist and Organic Chemist to Director of three CSIR laboratories, a builder of industrial research capabilities, and a respected science diplomat.

He also highlighted the enduring lessons that CSIR can draw from Dr. Thyagarajan's extraordinary legacy. Later, Dr Sreeram presented a leather scroll with a citation to Dr. T. Ramasami. More than 100 participants, both in person and online, attended the event, comprising students, staff, alumni members from ALFA, former colleagues and the former Director, Dr B Chandrasekaran. The occasion was graced by the presence of Mr. Ashwin, grandson of Dr. G. Thyagarajan. The meeting ended with the proposal of thanks by Dr. P. Thanikaivelan, Chief Scientist and event coordinator. The event was co-sponsored by the LERIG Trust.

Short-Term Executive Skill Development Program in **Leather Footwear Manufacture**

Mr. Jaimin Kanjaria, an executive trainee from Gujarat, has completed the Short-Term Executive Skill Development Program in Leather Footwear Manufacture, conducted from 12 February 2025 to 30 April 2025 by CSIR–CLRI. The customised training focused on insole making, insole and foot-bed design, and gait analysis. During the feedback session, the trainee expressed that the program was highly beneficial in enhancing his business acumen and technical expertise, particularly in the areas of comfort footwear and leather allied products.

CLRI Regional Centre, Kanpur

A delegation from Ethiopia, comprising representatives from UNIDO, the Leather and Leather Products Industry Research & Development Centre (LLPIRDC – formerly LIDI), and other key stakeholders, visited Kanpur, India, from 07 to 09, 2025, to gain insights into best practices in effluent management and cluster operations. CLRI Regional Centre, Kanpur facilitated their visits to the CETPs and tannery units in Kanpur and Unnao region. They also visited the CLRI-CATERS testing facility at KLC Complex, Banthar (Unnao).

Visit of Parliamentary Standing Committee

The "*Parliamentary Standing Committee on Science and Technology, Environment, Forests and Climate Change*" made a study visit to CSIR-CLRI on 16th May 2025.

This Committee is one of India's Department-related Standing Committees. This Committee examines policies, budgets (Demands for Grants), and legislation related to science, technology, and environmental issues. It also holds hearings with experts and officials to assess progress and challenges. Some of the core responsibilities of the Standing Committee are to Scrutinise Demands for Grants, Examine Bills and Legislation, Monitor Policy Implementation, Conduct Hearings and Consultations, and Prepare Reports and Recommendations. The Committee submits findings to Parliament.

CSIR-CLRI in Press

An article based on the "Cooler Leather" developed by CSIR – CLRI was covered in the Times of India (TOI)

'Smart' leather helps you play it cool in summer

U.Tejonmayam
@timesofindia.com

Chennai: Throwing on a leather jacket on a chilly day helps keep you warm because it traps heat and acts as a natural insulator. Turning the tables, researchers from the city-based CSIR-Central Leather Research Institute (CLRI) and the Desert Research Centre in Cairo, Egypt, have now developed a 'cooler leather' that can be worn comfortably even on a hot day.

They achieved this by applying a coating made from a chemical derived from paraffin and porous activated carbon (PAC), which is obtained by converting leather trimming waste. The resulting smart leather maintained a surface temperature at least three degrees lower than leather coated with only PAC. The key lies in the phase-change materials (PCMs) in the coating, containing substances that absorb and release heat during transitions like melting and solidifying.

Phase-change materials in the coating, contain substances that absorb and release heat during transitions

"This work provides an economical, eco-friendly, and efficient method for thermal energy storage. It also supports the circular economy by converting leather industry waste into a value-added product," said N Nishad Fathima, chief scientist at CLRI's Inorganic and Physical Chemical Laboratory and corresponding author of the paper published in Diamond and Related Materials.

The cooler leather can also be used in vehicle upholstery, such as in car and bike seats, researchers noted. They used n-eicosane, a paraffin-derived component, as the PCM. Leather trimming waste was first carbonised by heating under a nitrogen atmosphere at 400°C, ground with potassium hydroxide, and reheated at 700°C. The resulting black powder — porous activated carbon — was washed to remove impurities, neutralised with deionised water, and dried. The PAC, with its high surface area, served as the structural support for the PCM.

To create the coating, researchers blended and infused the PAC with n-eicosane, then added a binder and water to the mixture before spray-coating it onto the leather. "Smart leathers have shown thermoregulation properties. The PAC/n-eicosane composite we developed functions as a shape-stabilised porous carbon material ideal for thermal energy storage. It maintains shape stability, has good latent heat capacity, and excellent thermal stability," the researchers said.

PCMs are known for their high energy storage density and ability to maintain nearly constant temperatures during energy release. They are already used in intelligent textiles, buildings, telecommunications, and microprocessors. In clothing, they help keep the wearer at a comfortable temperature for longer durations.

With a high latent heat density of 242.4 joules per gram and a melting/crystallisation point close to human body temperature (36–38°C), n-eicosane is stable, chemically inert, and water-safe, making it ideal for wearable smart applications, the study said.

Innovation in Chronic Wound Care!

Chennai: Silk has long been worn on the skin.

Read more at:
http://timesofindia.indiatimes.com/articleshow/121448016.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

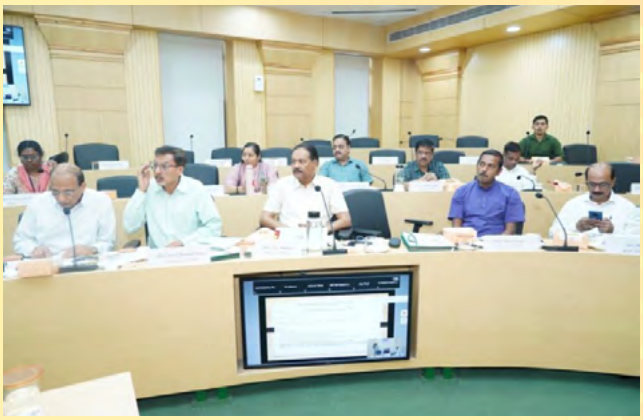
Silk has long been worn on the skin. Now, city scientists have found a way to make it help the skin heal, too. A research team at CSIR-Central Leather Research Institute (CLRI) developed a new gel by combining silk fibroin and a lab-made collagen-like protein. The gel, called PASCH (Photo-activated Silk fibroin and Collagen-like protein Hydrogel), is designed to speed up wound healing and support the body's natural repair process. Silk fibroin, extracted from silkworm cocoons, is safe for the body but does not support cell growth well. To solve this, scientists added a lab-made collagen-like protein, CLP-BS. While natural collagen aids skin repair, it comes with risks like allergies and instability. The synthetic version avoids these problems. The two proteins are bonded using visible blue light and riboflavin (vitamin B2), which safely trigger strong chemical bonds known as dityrosine crosslinks. This process helps form a stable gel without the need for UV rays or harmful chemicals. Researchers say the hydrogel can be used for diabetic wounds and burn injuries. It can be applied directly, carried easily, and stored in a regular refrigerator or even at room temperature (around 27C) without losing effectiveness.

The gel keeps wounds cool and moist, which supports healing and reduces discomfort. It is also biologically compatible and unlikely to trigger allergic reactions. "*The hydrogel would benefit elderly patients the most. Their skin is fragile, and frequent dressing is difficult. A self-managing gel that maintains hydration and supports healing without extra help is ideal,*" said Scientist Niraikulam Ayyadurai of the Department of Biochemistry and Biotechnology, CLRI. The team tested different silk-to-collagen ratios and found the 7:3 blend worked best. Researchers said it formed a porous gel that allowed skin cells to grow, spread, and move. It absorbed wound fluids and broke down slowly, which is helpful for deep or long-lasting wounds. The material also showed strength, flexibility, and thermal stability. The team found lab tests with human skin and blood vessel cells showed faster cell movement and growth. The gel supported quicker wound closure and boosted proteins that aid tissue repair. It also reduced inflammation and did not damage red blood cells, suggesting it may be safe for use inside the body. The team is now planning clinical studies with this and other hybrid materials developed for wound healing.
CSIR-CLRI researchers have developed a silk-collagen hydrogel (PASCH) using silk fibroin and lab-made collagen-like protein, activated by Vitamin B_2 & blue light—ideal for diabetic wounds & fragile skin.

Courtesy: The Times of India, 28 May 2025.
http://timesofindia.indiatimes.com/articleshow/121448016.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

CSIR@CLRI at Brainstorming Session on EEDC and its Sectional Committees

The Bureau of Indian Standards recently established the Environment and Ecology Division Council (EEDC), comprising 8 Sectional Committees with the objective of formulating standards in the domain of environment and ecology. Dr. S. Swarnalatha, Principal Scientist, participated in the "Brainstorming Session on EEDC and its Sectional Committees" at Bureau of Indian Standards (BIS), held on 9 May 2025 at New Delhi, as a Sectional Committee invitee. The Sectional Committee will evaluate and streamline the Scope and Composition of all the Sectional Committees under EEDC, BIS.



Integrated Membrane Technology for Wastewater Treatment

Dr. U. Sathya, Scientist, CSIR-CLRI, delivered a talk on '*Integrated Membrane Technology for Wastewater Treatment*' on 29 May 2025, for the benefit of faculty members of Chemistry from Government, Government-Aided, and Self-Financing Polytechnic Colleges under the Career Advancement Scheme (CAS). The programme was organised by the National Institute of Technical Teachers Training and Research (NITTTR), Chennai.

CSIR-CLRI at AssisTech Innovation Summit 2025, New Delhi

AssisTech Innovations Summit 2025 is India's Largest Assistive Technology Conference & Summit. Innovators, healthcare professionals, technologists, and policymakers come together to explore how cutting-edge technologies are transforming lives. This conference spotlighted the advancements in assistive devices and solutions that empower individuals with various health conditions, older persons, children with learning disorders and improve quality of life. The event was organised by Kalam Institute of Health Technology (KIHT), Department of Biotechnology, Govt. of India, during 26 - 27 April 2025 at New Delhi.

As a research institute working in the area of assistive devices for persons with locomotor disabilities especially orthotic devices for foot, ankle and knee, CSIR-CLRI participated in this national event to connect, learn, and contribute to a more accessible world.

Dr. G. Saraswathy, Principal Scientist, CSIR- CLRI, participated in the panel discussion on the topic "*Innovations in Mobility Devices and Cognitive ATs*". During the discussion, the current status of mobility devices in India in terms of accessibility, availability, and affordability was emphasised. Further, collaboration between the research institutes, industries, healthcare professionals and the end-users to bring innovations in Mobility Devices to meet the daily needs of the persons with disabilities was also discussed.

Happy Retirement

Shri KANNAN M
Finance and Accounts Officer
Finance and Accounts Section

Dr (Smt.). PARIMALA K
Medical Officer
Dispensary

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

FASHION TREND POOL & MODEUROP

Colour meetings for the season Autumn Winter 26/27

CSIR-CLRI announced the completion of FASHION TREND POOL & MODEUROP Colour meetings for the season Autumn Winter 26/27, held in Germany. The majority of the colours selected in the meetings were from India. Based on the selection, the Colour Card for the season Autumn Winter 26/27 will be released in May/June 2025.

The colour card can be availed by contacting the Director of CSIR-CLRI.

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:

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

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CSIR-CLRI

Striving for Excellence and
Global Leadership in Leather Technology

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