Newsletter | Volume 1 | Issue 3 | Feb 2026

JNANA CHETANA

Where Science meets Innovation

Shriram Research Institute

Issue Date : 10.02.2026
e-Issue Date: 12.02.2026

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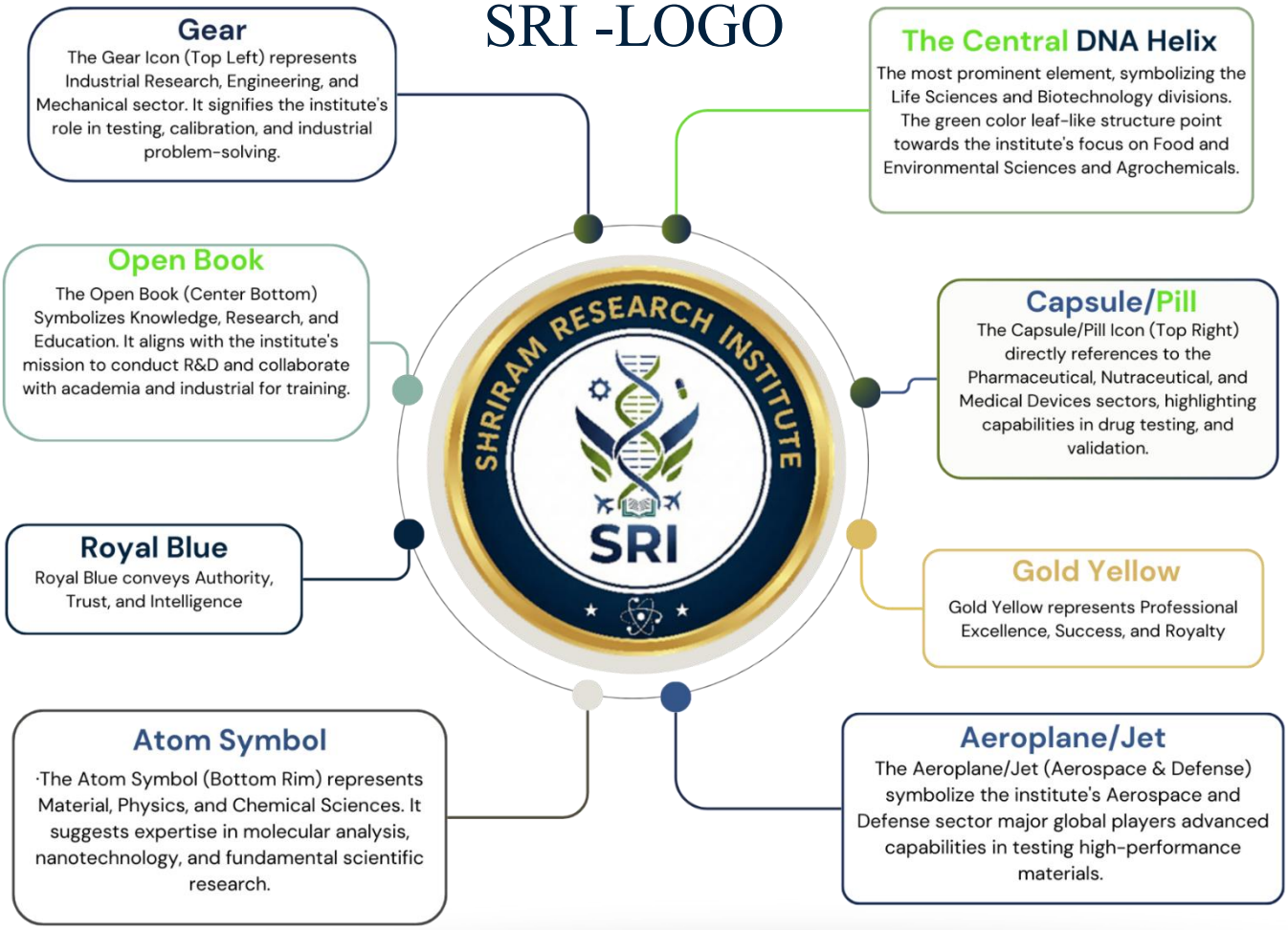
Representation of Core Competency SRI -LOGO



Vision

To be a globally respected and trusted Institute for Scientific Testing, Calibration, Research and Innovation.

Mission

- Excellence in Science
- Innovation for Industry
- Integrity in Practice
- Sustainability
- Meaningful Impact for Society.

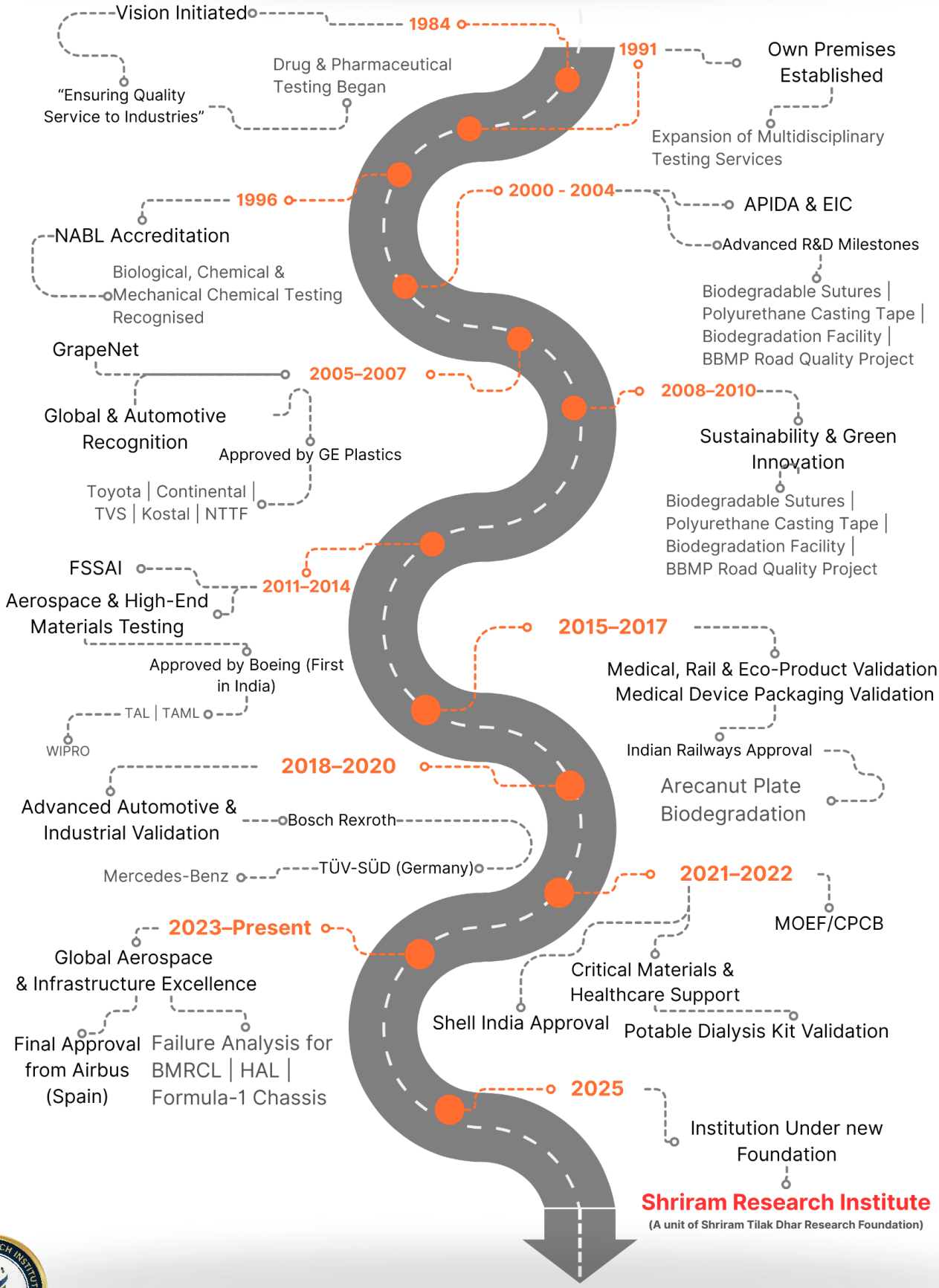
Core Values

• Excellence • Integrity • Innovation • Safety
• Customer Focus • Sustainability • Collaboration
• People Development • Societal Contribution

JNANA CHETANA

Where Science meets Innovation

SRI- A Revolutionary path Since 1984 …….



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VIJNANA LOKA - A Success Story

Septic Tank Compatibility and Environmental Safety of Dylan Multipurpose Cleaner

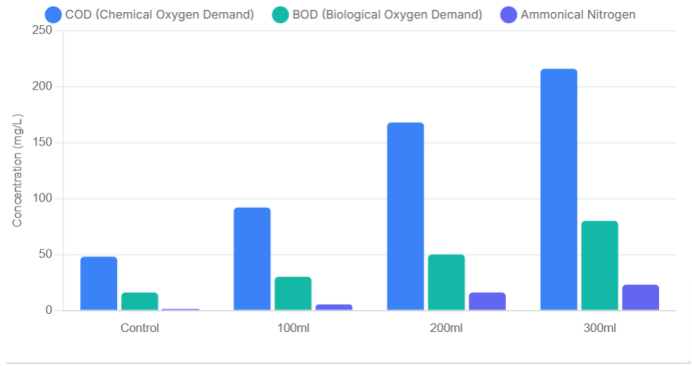
-Environmental Laboratory

Ensuring that household and institutional cleaning products are effective while remaining environmentally responsible is a growing priority for industry and regulators alike. In this context, a comprehensive septic tank compatibility study was undertaken to evaluate the environmental safety and functional performance of a multipurpose cleaner under simulated septic tank conditions. The findings offer valuable insights into how such formulations interact with wastewater systems and natural microbial processes.

The study was designed to replicate realistic septic tank environments by assessing untreated wastewater (control) alongside wastewater dosed with the cleaner at 100 mL, 200 mL and 300 mL concentrations in 200 litres of water. Standard analytical protocols (APHA, USEPA and relevant IS methods) were followed to evaluate water quality, sludge characteristics, gaseous emissions and microbiological parameters. Together, these analyses provided a holistic view of the product's environmental footprint.

Water Quality and Biodegradability Trends

One of the key observations was the stability of pH across all test conditions, remaining within a neutral range conducive to microbial activity. This is critical, as drastic pH shifts can disrupt septic tank ecosystems. Chemical Oxygen Demand (COD) and Biological Oxygen Demand (BOD) showed a clear, dose-dependent increase from control to higher dosages. Rather than indicating pollution risk, this trend reflects the introduction of biodegradable organic matter from the product. The parallel rise in COD and BOD suggests that the added organics are readily biodegradable and available for microbial breakdown, reinforcing the product's compatibility with biological treatment processes.



Nutrient dynamics further supported this conclusion. Ammonical nitrogen and Total Kjeldahl Nitrogen (TKN) increased with dosage, indicating the presence of organic nitrogen forms. Importantly, these parameters are central to microbial metabolism and their controlled increase points to active nutrient transformation rather than accumulation. Other critical parameters, including heavy metals, cyanide, phenols and toxic constituents, were either below detection limits or well within permissible standards, confirming the absence of harmful residues.

Sludge Stability and Nutrient Balance

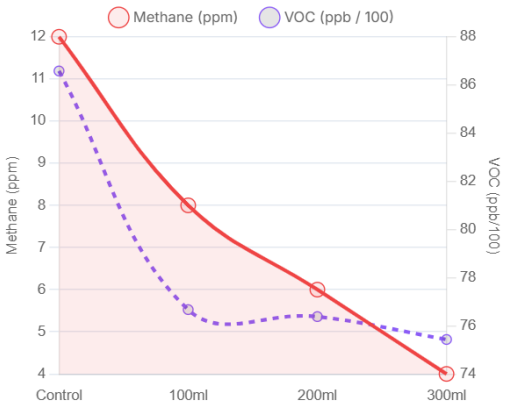
Sludge analysis revealed stable physicochemical properties across treated samples. A gradual reduction in the carbon-to-nitrogen (C/N) ratio with increasing dosage suggested enhanced microbial utilization of organic carbon. Nutrient content, bulk density and moisture levels remained within internationally accepted guideline values. The lack of heavy metal accumulation in sludge further underscored the environmental safety of the formulation, even at higher dosages.

Gaseous Emissions and System Safety

Gas monitoring is an essential aspect of septic system evaluation, as excessive or toxic gas formation can pose safety risks. The study found that methane levels were lower in treated samples compared to the control, while hydrogen sulphide and sulphur dioxide were not detected at all. Ammonia and volatile organic compounds (VOCs) were present only at low, safe concentrations. These results indicate that the product does not promote adverse anaerobic conditions or harmful gas generation within septic tanks.

Microbiological Performance and Ecotoxicity

Microbiological analysis demonstrated a significant reduction of *E. coli* and total coliforms in water samples treated with the product, with counts falling below 2 MPN/100 mL across all dosages. This highlights effective hygienic action. In sludge samples, microbial populations showed a controlled, dose-dependent reduction rather than complete inhibition, preserving beneficial microbial activity essential for septic system function. Supporting these findings, bioassay tests reported 90% fish survival after 96 hours, confirming the absence of acute aquatic toxicity.



Instrumentation

LC-MS/MS: A Powerful Tool for Modern Analytical Testing

- Dr. P. Yuvaraj

LC-MS instruments are basically HPLC/UPLC units with a mass spectrometry detector attached to it whereas LC-MS/MS is HPLC/UPLC with two mass spectrometry detectors. LC-MS separates compounds within a sample and the mass spectrometer provides mass to charge ratio data which can help provide structural identity of the compound. Applications of LC-MS range from food analysis, environmental testing, drug development work, medical device testing etc.

LC-MS/MS – How Does It Work?

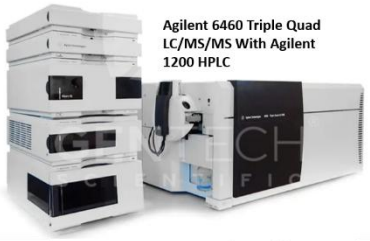
HPLC is a technique that uses high pressure to push samples through a chromatography column to separate out the compounds that make up the sample. The process of separating different compounds depends on the type of chromatography column used. When the molecules are eluted from the chromatography column they are under pressure and the continuous flow cannot be directly detected by the mass spectrometer because mass spec units operate in a vacuum and requires the liquid to be passed through an interface. The interface removes the mobile phase used in the chromatography step and transfers the analyte to the mass spectrometry unit. May different types of interfaces exist but the most commonly used interfaces are ESI, APCI, APPI, MALDI. In all these interfaces, the liquid is nebulized into a fine spray, ionized and then transferred to the mass spectrometry detector.

The different Tandem Mass Analyzers used are:

1. Single quadrupole mass analyzer, 2. Triple Quadrupole analyzer, 3. Time of flight - time of flight (TOF-TOF), 4. Quadrupole Ion trap analyzer (Quad-ion trap), 5. Quadrupole – Time of Flight (Quad – TOF), 6. Linear trap Quadrupole – Fourier Transform Ion Cyclotron Resonance (LTQ - FTICR), 7.Linear Trap Quadrupole – Orbitrap (LTQ – ORBITRAP).

LC-MS and LC-MS/MS Applications

1. **Multiresidue Pesticide Analysis** in Variety of Food Commodities, Confectionaries, Beverages Etc.,
Ensures food safety by detecting harmful contaminants such as pesticides and toxins. Furthermore, it measures vitamins, nutrients and bioactive compounds to assess the nutritional value of food products.
2. **Mycotoxins** (Aflatoxins B1, B2, G1, G2, M1, Ochratoxin A & B Etc.,)
3. **Antibiotics and Veterinary Drug Analysis**: Screening for prohibited substances, ensuring food safety by monitoring residues in meat and milk and aiding in the control of antibiotic resistance.
4. **Fortified Food Testing, Vitamins and Related Metabolites** (B9, B12, D etc.)


Agilent 6460 Triple Quad LC/MS/MS With Agilent 1200 HPLC


Waters Xevo TQ-S micro Triple Quadrupole Acquity UPLC I-Class

5. **Steroid Hormones:** Simultaneous quantification of multiple steroid hormones profile useful for diagnosing and monitoring endocrine disorders.
6. **Pharmaceuticals:** Drug discovery, development and quality control for its high speed, sensitivity and specificity in identifying, quantifying and characterizing drugs and related substances.
7.**Biochemical Screening and Genetic Disorders:** New-born screening for inborn errors of metabolism (IEMs), steroid hormone disorders like congenital adrenal hyperplasia (CAH) and can identify multiple genetic disorders with a single injection.
8.**Therapeutic Drug Monitoring and Toxicology:** TDM for optimizing drug dosages and ensuring patient safety by precisely measuring drug levels in blood.
9.**Forensic Science:** Identifying and quantifying toxic substances in cases of poisoning or overdose.
10.**Dope Testing:** High sensitivity, selectivity and speed necessary to detect a wide range of banned or illicit substances and their metabolites in biological fluids.
11.**Nitrosamines Testing:** Quantify low levels of various nitrosamines and nitrosamine drug substance-related impurities (NDSRIs) in drug substances and products, meeting FDA and EMA requirements.
12.**Packaging Material Testing:** Ensuring product safety by detecting, identifying and quantifying a wide range of chemical compounds that may migrate from packaging into food, pharmaceuticals and other sensitive products.
13.**Method Development and Validation:** The process is typically guided by regulatory requirements from agencies like the FDA, EMA, or guidelines from organizations like the ICH, SANTE.
14.**Environmental Analysis:** detecting trace amounts of pollutants, pesticides and contaminants in water, soil and air.
15.**Pharmacokinetics Analysis**
16.**Identification of Post-Translational Modification:** Glycosylation and other post-translational modifications can be analyzed by LC-MS/MS.
17.**Extractable Leachable Studies:** Plastics from pharmaceutical packaging or exposed to the drug substance or drug product during the manufacturing process could leach into the product and potentially cause toxic side effects. LC-MS/MS is a good instrument for analyzing compounds in extractable leachable studies.

SCIENTIFIC ARTICLES

Pulse Safety and Quality Evaluation: Standards, Testing and Health Impact

-C. Harathi

World Pulses Day 2026

As the global dietary landscape undergoes a paradigmatic shift toward sustainable plant-based nutrition, pulses such as lentils, beans and chickpeas have emerged as indispensable protein sources. Ensuring their quality and safety has therefore evolved beyond conventional grading into a multidisciplinary exercise encompassing analytical chemistry, food microbiology and toxicological risk assessment.

The scientific evaluation of pulses begins with the validation of their nutritional integrity. Protein content remains a primary quality marker, particularly for populations adopting meat-free diets. The Kjeldahl method continues to serve as the reference standard for protein estimation by quantifying total nitrogen and applying appropriate conversion factors. This method ensures accurate assessment of crude protein levels, which typically range from 18 - 26% depending on the pulse variety, supporting muscle maintenance and metabolic health. Complementary proximate analyses, including moisture, ash, crude fiber and fat, further establish shelf stability and nutritional balance.

Chemical safety assessment forms the second critical pillar of pulse quality assurance. Pulses are frequently exposed to agrochemicals during cultivation, making residue analysis essential. Advanced chromatographic techniques such as Gas Chromatography - Mass Spectrometry (GC-MS) and Liquid Chromatography - Mass Spectrometry (LC-MS/MS) enable the detection of multi-residue pesticides at parts-per-billion (ppb) levels. Typical monitoring confirms compliance with Maximum Residue Limits (MRLs), where most compliant samples show residues below 0.01–0.05 mg/kg. In parallel, Inductively Coupled Plasma Mass Spectrometry (ICP-MS) is employed to quantify heavy metals including lead, arsenic, cadmium and mercury. Scientifically acceptable levels generally fall below 0.1 mg/kg for lead and cadmium, safeguarding against chronic toxicity arising from soil and irrigation contamination.

Beyond chemical parameters, the biological integrity of pulses is equally critical. Improper post-harvest handling and storage - particularly under high humidity - can promote fungal proliferation, notably Aspergillus species. These fungi may produce aflatoxins, which are heat-stable, highly carcinogenic mycotoxins. Sensitive analytical methods such as HPLC with fluorescence detection or LC-MS/MS are used to ensure aflatoxin levels remain within regulatory limits, typically below 10 µg/kg for total aflatoxins as prescribed by FSSAI and Codex Alimentarius.

Pulses of the world: from modesty to excellence

Microbiological quality indicators provide further insight into hygienic handling throughout the supply chain. Total Plate Count (TPC) values below 10^5 CFU/g and yeast and mold counts below 10^3 CFU/g are generally indicative of good manufacturing and storage practices. Targeted pathogen screening for *Salmonella* spp. and *Escherichia coli*, using both culture-based methods and rapid molecular techniques, ensures compliance with zero-tolerance standards for foodborne pathogens.

Protection against economic adulteration represents another essential dimension of pulse testing. Qualitative chemical assays are routinely used to detect banned additives such as Metanil Yellow, a non-permitted synthetic dye. Additionally, microscopic and chemical tests are applied to identify adulteration with Lathyrus sativus (Kesari dal), which contains the neurotoxin β-ODAP and is associated with lathyrism when consumed chronically.

Modern quality frameworks increasingly incorporate Polymerase Chain Reaction (PCR)-based methods for GMO screening, particularly for export-oriented markets where labeling and traceability are mandated. Together, these analytical layers form a comprehensive assurance system that extends beyond regulatory compliance.

Ultimately, this integrated testing regime scientifically validates the functional health benefits attributed to pulses. By ensuring contaminant-free status and nutrient integrity, pulses are confirmed as low-glycemic foods that aid blood glucose regulation, promote gut health through prebiotic fiber fermentation and contribute to cardiovascular risk reduction. Such evidence-based assurance firmly establishes pulses as a safe, reliable and superior cornerstone of contemporary plant-based nutrition.

A Study on the Diversity and Distribution of Herbaceous Plants in the Shriram Institute for Industrial Research, Bangalore Karnataka

-Uday kumar

In the context of sustainable industrial development, the conservation of on-site biodiversity has emerged as a critical component of environmental responsibility. Herbaceous plant species, which form the foundation of terrestrial ecosystems, play a vital role in maintaining ecological balance through soil stabilization, nutrient cycling and support of higher trophic levels. Industrial campuses, when managed with ecological foresight, can serve as important refuges for native biodiversity. The present study investigates the diversity, distribution patterns and ecological significance of herbaceous plant species within the Shriram Research Institute (SRI), also known as Shriram Institute for Industrial Research campus, Bengaluru, emphasizing the role of biodiversity conservation in industrial landscapes.

The SRI campus spans approximately four acres, of which three acres have been deliberately allocated for biodiversity conservation. This conserved area is subdivided into five ecological sectors based on vegetation structure and microhabitat characteristics. The primary objectives of the study were to assess herbaceous species composition, analyze spatial distribution patterns, evaluate ecological indices and document the medicinal importance of recorded species. Field surveys were conducted during the monsoon and post-monsoon seasons of 2024, periods known to support peak herbaceous growth and diversity in the region.

A total of 25 quadrats measuring 1 m × 1 m were randomly placed across the five sectors, ensuring representative sampling of the biodiversity area. Species identification was carried out using standard regional floras and abundance data were recorded for each quadrat. Quantitative ecological parameters, including the Shannon–Wiener Diversity Index, Simpson Dominance Index and Pielou's Evenness Index, were calculated using BioDiversity Pro software. Importance Value Index (IVI) was computed to assess species dominance based on relative density, frequency and abundance. Community similarity and clustering among sectors were analyzed using Bray–Curtis similarity indices and dendrograms.

The study documented a total of 52 herbaceous plant species belonging to 26 families, indicating considerable species richness within the conserved industrial campus. Sector-wise analysis revealed significant variation in diversity patterns. Sector 1 exhibited the highest species richness and diversity, with a Shannon–Wiener Index value of 2.87, suggesting a well-balanced and heterogeneous herbaceous community. In contrast, Sector 5 recorded the lowest diversity, likely influenced by comparatively higher anthropogenic disturbance and limited microhabitat variability. Pielou's Evenness Index values across sectors indicated moderate to high species evenness, reflecting relatively stable community structures.

Distribution pattern analysis showed that clumped distribution was the most prevalent among the herbaceous species, a common ecological strategy that enhances survival under variable environmental conditions. IVI analysis identified Calyptocarpus vialis and Alternanthera sessilis as dominant species across multiple sectors, indicating their adaptability and competitive advantage within the campus ecosystem. Radar charts further illustrated species dominance trends and sector-wise ecological variability. Bray–Curtis similarity dendrograms revealed closer floristic similarity among sectors with comparable habitat features, highlighting the influence of microenvironmental factors on community composition.

Medicinal value assessment revealed that approximately 45% of the recorded herbaceous species possess known ethnomedicinal importance. Species such as Oxalis corniculata and Euphorbia hirta are traditionally used for treating gastrointestinal disorders, skin ailments and respiratory conditions, underscoring the pharmacological potential of herbaceous flora in industrial green spaces. The presence of medicinally important species enhances the functional value of the conserved area beyond ecological benefits.

Overall, the findings demonstrate that herbaceous plant layers within industrial campuses contribute significantly to ecosystem services, including erosion control, soil fertility enhancement, biodiversity support and medicinal resource potential. The study highlights the effectiveness of intentional biodiversity planning in industrial environments and reinforces the importance of integrating ecological conservation strategies into industrial land-use management. Such initiatives not only promote environmental sustainability but also align industrial growth with long-term ecological resilience.

Continue to read : http://dx.doi.org/10.13140/RG.2.2.10991.96164

The Evaluation of a Lateral Flow Strip Based on the Covalently Fixed "End-On" Orientation of an Antibody for *Listeria monocytogenes* Detection

-Asweshvaran R.

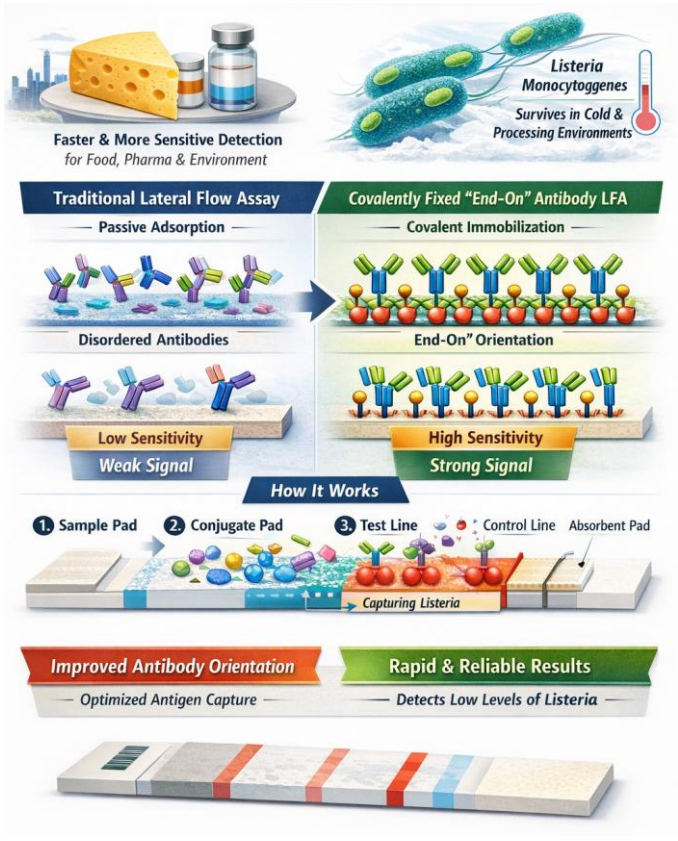
The rapid detection of *Listeria monocytogenes* remains a critical challenge for food, pharmaceutical and environmental monitoring. This pathogen is especially problematic because it can survive and even persist at refrigeration temperatures and in processing environments, creating a significant public-health risk.

Traditional culture-based reference methods (ISO 11290 / IS 14988 part 1 / FDA BAM) are reliable but relatively slow: standard workflows that include primary enrichment, selective enrichment and isolation typically require several days (commonly 3-5 days and up to 5-7 days in some workflows) to produce confirmatory results - an interval that limits rapid decision-making in modern quality-control systems. For this reason, alternative rapid methods are actively being developed and validated.

Lateral flow assays (LFAs) provide rapid, on-site readouts without sophisticated equipment, but conventional LFAs often struggle with limited sensitivity when target bacterial concentrations are low and food matrices are complex. Many reviews document these limitations and the main routes for improvement (label engineering, sample pretreatment/enrichment, flow control and immobilization chemistry).

Principle of Lateral Flow Assays (LFAs) : LFA operate on the principle of immunochromatography, where a liquid sample migrates along a porous membrane via capillary action. Target analytes bind to labelled detection antibodies in the conjugate pad and the resulting complexes are captured by immobilized capture antibodies at the test line. Accumulation of the label generates a visible signal proportional to analyte presence, while a control line confirms proper fluid flow and reagent functionality. The assay delivers qualitative or semi-quantitative results without external instrumentation.

Covalently fixed "end-on" antibody orientation addresses a core cause of poor LFA sensitivity: random adsorption can bury Fab sites or produce heterogeneous orientations that reduce antigen capture. In the end-on approach, antibodies are site-directed or covalently anchored through the Fc region (or via site-selective chemistries), which preserves Fab accessibility and reduces desorption or denaturation during storage and running.



Oriented, covalently fixed antibodies have been shown to increase antigen capture efficiency, signal strength and reproducibility in lateral flow formats. However, note that substantial LOD improvements often still require complementary measures (signal amplification, engineered labels, or sample enrichment) to match molecular methods in routine food testing.

By combining oriented, covalently fixed antibodies with other signal-enhancement strategies and appropriate sample preparation, lateral flow formats can deliver faster, more robust screening that in some contexts approaches the sensitivity of more complex assays - making LFAs more practical for food-safety and environmental surveillance.

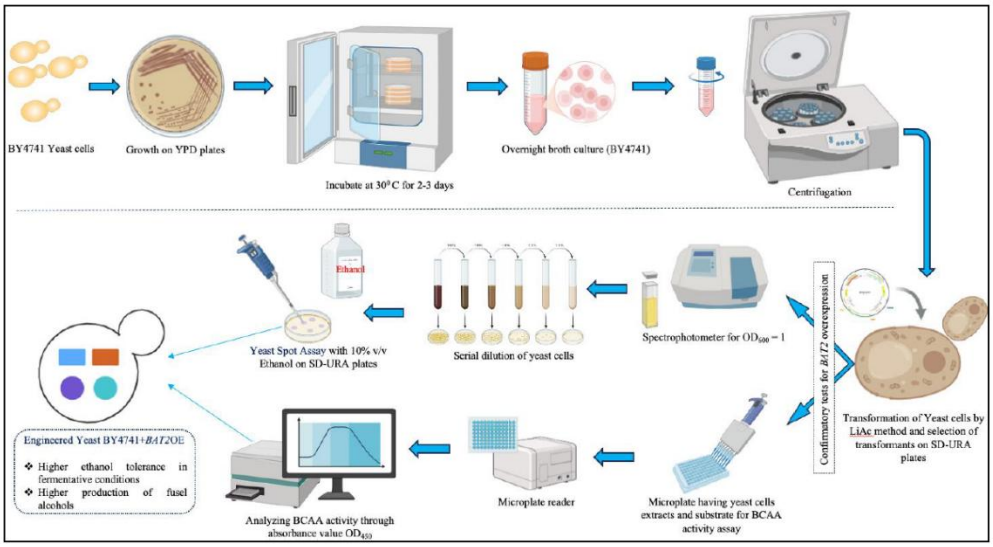
Source:

https://doi.org/10.3389/fmicb.2022.866462
https://doi.org/10.1016/j.ijfoodmicro.2018.03.024
https://doi.org/10.1007/s00216-008-2287-2
https://doi.org/10.1016/j.ymeth.2016.11.010
https://doi.org/10.1016/j.mtbio.2024.101188

Improvement of ethanol stress tolerance in Saccharomyces cerevisiae through modulation of Ehrlich pathway via overexpression of BAT2 gene

-Chandrashekhara K.N.

Ethanol serves a dual role in yeast fermentation, functioning both as a primary metabolic product and as a potent stress factor that negatively impacts cellular physiology at elevated concentrations. In *Saccharomyces cerevisiae*, high ethanol levels compromise membrane integrity, alter enzyme activity, disrupt redox balance and impair nutrient transport, ultimately leading to reduced cell viability and fermentation efficiency. These adverse effects pose a major challenge in industrial bioethanol and alcoholic beverage production, where yeast cells are frequently exposed to prolonged ethanol stress. Consequently, enhancing ethanol tolerance in yeast has become a critical objective for improving industrial fermentation performance.



One promising strategy for improving ethanol tolerance involves metabolic engineering of amino acid catabolic pathways that contribute to stress adaptation. The present study focuses on the role of the *BAT2* gene, which encodes a cytosolic branched-chain amino acid aminotransferase in *S. cerevisiae*. BAT2 plays a key role in the Ehrlich pathway, a metabolic route responsible for the conversion of branched-chain amino acids such as leucine, isoleucine and valine into corresponding higher alcohols, also known as fusel alcohols. These metabolites are known to influence membrane fluidity and stress response mechanisms in yeast.

Overexpression of the *BAT2* gene was found to significantly enhance the production of higher alcohols, indicating increased flux through the Ehrlich pathway. This metabolic shift was positively correlated with improved tolerance to ethanol stress, suggesting a functional link between branched-chain amino acid metabolism and stress resistance. The increased synthesis of higher alcohols may contribute to adaptive membrane remodeling or act as signaling molecules that activate stress-responsive pathways, thereby improving yeast survival under high ethanol conditions.

The findings demonstrate that *BAT2* overexpression not only alters metabolic output but also enhances cellular robustness during ethanol exposure.

By reinforcing the Ehrlich pathway, yeast cells appear better equipped to cope with ethanol-induced damage, maintaining higher viability and fermentation efficiency.

This highlights the importance of amino acid metabolism in regulating stress tolerance beyond its traditional role in flavor compound formation.

Overall, this study provides valuable insights into the metabolic basis of ethanol tolerance in *S. cerevisiae*. Engineering the Ehrlich pathway through *BAT2* overexpression represents a promising metabolic engineering strategy for developing yeast strains with improved resistance to ethanol stress. Such strains could offer significant advantages for industrial fermentation processes, including bioethanol production and high-gravity brewing, where ethanol toxicity remains a major limiting factor.

Continue to read :
https://doi.org/10.25303/212rjbt062070

YUVA VICHARA

Carbon Dots that Offer Protection against Harmful Laser Light

With the rapid expansion of high-power laser technologies in industry, research and medicine, developing materials that protect human eyes, sensitive detectors and optical systems from intense irradiation has become a priority in photonics. Among emerging candidates, carbon dots (CDs)-nanoscale carbon particles with a bright optical response, low toxicity and simple synthesis-are gaining traction due to their potential in tunable photonics and optical limiting applications. Recent studies highlight significant strides toward practical CD-based laser protection materials.

Carbon Dots: Versatile Nanomaterials with Optical Functionality

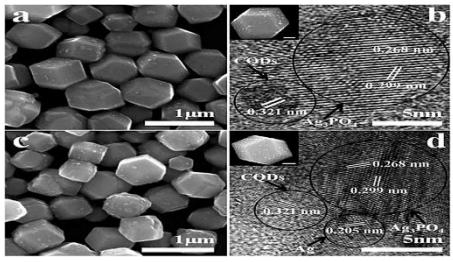
Carbon dots are zero-dimensional carbon nanomaterials, typically smaller than 20 nm, featuring tunable fluorescence and a broad optical response. Unlike traditional semiconductor quantum dots that contain heavy metals, CDs boast low cost, eco-friendly synthesis and excellent photostability. These traits make them attractive for diverse applications across sensing and optoelectronics. Comprehensive reviews have documented the explosive growth of CD research, emphasizing how their size and surface chemistry influence both linear and nonlinear behavior.

Toward Laser Protection: Nonlinear Optical Responses

Optical limiting refers to a material's ability to transmit low-intensity light while progressively reducing transmission at high intensities-a key requirement for passive laser protection. CDs have shown promise here due to strong Two-Photon Absorption (TPA) and Excited-State Absorption (ESA). Recent experimental studies investigated dual-emitting CDs with broad visible and near-infrared (NIR) responses, showing saturable absorption at low pulse energies and energy dissipation at higher intensities. Such nonlinear response is critical for preventing device damage.

The Future of Smart Protection: Adaptive Photonic Shielding

As laser systems evolve toward higher peak powers, the next frontier lies in adaptive photonic shielding. CD-based composites function as "intelligent" guards that remain transparent until the millisecond a threat is detected. Researchers are now engineering thin-film coatings for integration into cockpit canopies and advanced tactical eyewear. These biomass-derived films offer a sustainable, lightweight alternative to heavy inorganic crystals, providing a defense layer that preserves visual clarity while instantly neutralizing high-intensity optical surges.



a) SEM and (b) HRTEM images of CDs/Ag_3PO_4 complex photocatalyst. (c) SEM and (d) HRTEM images of CDs/Ag/Ag_3PO_4 complex photocatalyst

Why CDs Matter for Photonic Safety

Broad Spectral Response: Dual-emissive CDs interact with a wide range of laser wavelengths.

Nonlinear Strength: TPA processes contribute to effective attenuation at high intensities.

Eco-friendly and Scalable: CDs can be synthesized from biomass and waste via low-energy routes.

Material Tunability: Surface modification and doping allow for fine-tuning of NLO properties.

Conclusion

Carbon dots are emerging as a versatile platform for optical limiting. With tunable emission and green synthesis, they are positioned at the forefront of photonic safety. Continued interdisciplinary efforts will accelerate their transition from the lab to real-world applications.

Source: DOI: 10.1007/s10895-026-04707-6
10.1021/acscentsci.0c01306
10.3390/nano13212869
10.3390/ma17010042
10.3390/nano14060533
10.1515/gps-2021-0006

Highlights / important Events – SRI

- A series of institutional meetings were conducted on 13–14 October 2025 with leading industries and research organizations in Coimbatore and Tirupur to explore mutual business and collaboration opportunities.
- The SRI-B formulation has successfully passed Trial I. Currently, Trial II is underway, involving 25 farmers each who are conducting large-scale field validations respectively grape and pomegranate crops.
- Kannada Rajyotsava Day was celebrated at SRI-B on 29 November 2025, highlighting cultural engagement within the institution.
- Hands-on HPLC training program was organized on 22 December 2025 to strengthen practical analytical skills among academic participants.

Namma New Team Namma Pride – New employee in SRI

Rakesh V C
Drug & Pharma

Abhishek V
Calibration

Volukula Pravallika
Environmental

Vinod B
Human Resource

Muthuvel
Environmental

Ranjitha C S
Food & Farm

Sir Chandrasekhara Venkata Raman (C. V. Raman)

Sir Chandrasekhara Venkata Raman, popularly known as C. V. Raman, was one of India's greatest physicists and the first Asian to win the Nobel Prize in Physics (1930). Born on 7 November 1888 in Tiruchirappalli, Tamil Nadu, he showed exceptional brilliance from a young age. Raman is renowned for discovering the Raman Effect in 1928, which laid the foundation for Raman Spectroscopy, a vital tool in science and industry. A strong believer in self-reliance and original thinking, he founded key institutions such as the Indian Academy of Sciences and the Raman Research Institute. 28 February is celebrated as **National Science Day** in his honour.

Issue 02 quiz's answer

Which instrument uses both chemical and physical principles to identify unknown compounds?

Ans.: GC-MS

Jnana Chetana

Editorial Team

1. Mr. S. Manicka Vasagam : Chairman
2. Dr. K.N. Chandrashekara : Convener
3. Mr. D. Nagaraj : Member
4. Mr. K.M. Nagendra Kumar : Member
5. Dr. Guru Prasad, V. : Member
6. Mr. Asweshvaran R. : Member
7. Ms. Pooja, T. : Member
8. Mr. Jeevan, C. : Member

SRI-B Forthcoming Events

- A practical training programmed for the MoU-signed institute, scheduled in February 2026. The workshop will focus on core principles, operational aspects and real-world applications through interactive and hands-on sessions.
- Meeting of the Quality Manager with Client and Vendor to Discuss Quality Requirements and Coordination - March 2026
- As part of Women's Day celebrations in March 2026, successful woman entrepreneur will be invited to share her journey and insights.
- Hands-on Training on Applications of GIS & Remote Sensing in Horticultural Crop Studies on March 2026

Shriram Research Institute

Paper-based packaging solutions tested under real-world conditions

Comprehensive paper and paper product testing by Shriram Research Institute (SRI), delivering end-to-end analytical and R&D support across regulated packaging sectors.

Industries We Serve

- Food Packaging
- General Chemicals Packaging
- Automotive Packaging
- Aerospace Packaging
- Electrical & Electronics Packaging.

Test Parameters and Specifications

Physical & Mechanical

- Grammage (GSM)
- Thickness & Bulk
- Tensile Strength (MD/CD)
- Tear Resistance
- Burst Strength
- Folding Endurance
- Compression Strength
- RCT, ECT, FCT
- Ply Bond Strength

Barrier & Performance

- Water Absorption (Cobb Test)
- Water Vapour Transmission Rate (WVTR)
- Air Permeability
- Grease Resistance
- Oil & Fat Resistance
- Moisture Content

Chemical & Safety testing

- pH of Paper
- Aqueous Extract
- Heavy Metals (Pb, Cd, Hg)
- Fluorescent Whitening Agents
- VOCs & SVOCs
- Residual Solvents
- Toxic Elements Migration

Electrical | Automotive | Aerospace Packaging Tests

- Electrical Insulation Properties
- Dielectric Strength
- Dust & Fibre Shedding
- Chemical Resistance
- Thermal Stability
- Packaging Integrity under Stress Conditions

Why Quality Testing Matters

- ✓ Ensures safety & compliance
- ✓ Protects product integrity
- ✓ Safeguards brand reputation

Key Advantages of Testing at SRI

- Decades of R&D Expertise
- State-of-the-Art Labs
- Global Standards Compliance
- Trusted by Industry Leaders

COMPLIANCE

Test Specifications followed will be IS, ISO, ASTM, FSSAI, IEC, TAPPI and other International Standards.

080-35000500 mktg@shriraminstitute-blr.org

https://shriramscientific.com/