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**TRAVANCORE**

**INSTITUTE FOR  
BIOSCIENCE RESEARCH**



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🌐 [tibrresearch.in](http://tibrresearch.in)

**Management System as per  
ISO 9001:2015**

**National Accreditation for the Competence of  
Testing Equipment & Calibration Laboratories  
ISO/IEC 17025:2017  
Certificate No: QCS-2022-BNPL-23579**

**TC 1708/08 NH Bypass Road,  
Behind South Indian Bank,  
Chakai Junction, Pettah P O,  
Thiruvananthapuram-695024**

**ISO**  
9001:2015

**KERALA  
STARTUP MISSION®**

**#startupindia**

**MSME**  
MICRO, SMALL & MEDIUM ENTERPRISES  
सूक्ष्म, लघु एवं मध्यम उद्यम  
OUR STRATEGIC ALLIANCE  
Ministry of MSME, Govt. of India

## About Us

Travancore Institute is one of Leading Biotech company in South India. Our goal is to exceed customer needs and in-hand lab training to students as well as for Researchers from Bioscience Field. We have well-equipped Lab Facilities for microbiology and Nanobiotechnology studies. We have collaboration with well reputed universities and scientists all over India.

Incepted in 2018 by a team of young and proficient professionals, Travancore Institute is a young and focused Life Science company based out in Thiruvananthapuram, Kerala, with a vision to be the Technology & Knowledge partners for Indian research & Biotechnology community.

Travancore Institute endeavors to bring to researchs and students innovation-focused organizations cutting edge tools for applications across Microbiology, Herbal Medicine, Pharmacology, Molecular Genetics and much more.

## Our Mission

Work towards novel, affordable and cost-effective product development and address the existing needs in the biotech sector through sustainable processes in the biotech sector through sustainable processes and technologies

Food technology emphasizes sustainable processing, waste reduction, and affordable product development, ensuring safe, nutritious, and eco-friendly foods to meet global demand efficiently.

## Our collaborations



**Microbiologists Society Of India**  
Maharashtra



**RVS College of Arts & Science**  
Coimbatore



**Amity University**  
Mumbai, Maharashtra



**Thiagarajar College**  
Madurai



**Mohandas College of Engineering & Technology**  
Nedumangad, Trivandrum



**KSR College of Arts & Science**  
Tiruchengodu, Tamil Nadu



**Thiagarajar College**  
Coimbatore



**Baba Farid Group of Institutions**  
Bathinda, Punjab



**Sahrdaya College of Engineering & Technology**  
Kodakara, Kerala



**Noorul Islam Centre for Higher Education**  
Kumaracoil, Kanyakumari Dist.,  
Tamilnadu



**Saveetha University**  
Chennai, Tamilnadu



**VIT University,**  
Vellore, Tamil Nadu



**Vivekananda Arts & Science College for Women**  
Sankari, Salem, Tamilnadu



**Marudhar Kesari Jain College for Women**  
Tamilnadu



**Acharya Institute of Technology**  
Bangalore, Karnataka



**Vels University**  
Chennai, Tamilnadu



**SETO International**  
Thiruvananthapuram



**Vimala College**  
Thrissure, Kerala



**Mount Carmel College**  
Bangalore



**Al Ameen College**  
Edathala, Emakulam



**Karpagam Academy of Higher Education**  
Coimbatore, Tamil Nadu



**T K M College of Arts & Science**  
Kollam



**Ezhuthachan College**



**St Marry's College**  
Thrissur

## Our Facilities

- Electrophoresis unit
- PCR Thermal Cycler
- SDS Page Unit
- Western Blotting Apparatus
- Microplate Reader
- UV-Trans Illuminator
- Visible Light Illuminator
- Cooling Centrifuge
- Mini Centrifuge
- Spinner
- Laminar Air Flow
- Fungal Incubator
- Bacterial Incubator
- Dry Bath Incubator
- Dancing Shaker
- Muffle Furnace
- Hot air Oven
- Water Bath
- Soxhlet Apparatus
- Heating Mantle
- Weighing Balance
- Oil Immersion Microscope
- Digital pH Meter
- Glass Bead Sterilizer
- Magnetic Stirrer
- Photo Colorimeter
- Qubit 4- Fluorometer
- UV Cabinet
- Vortex Mixer
- Clevenger Apparatus
- Distillation Unit
- Column chromatography
- Autoclave
- Vacuum Filtration Unit
- CO<sub>2</sub> Incubator
- Kjeldahl Apparatus
- 30 Degree Celsius
- Fluorescent Microscope
- Southern Blotting Apparatus

## Our Courses

### HACCP Certification Course

TSI Level 3 HACCP  
TSI Level 4 HACCP  
Highfield Level 4 HACCP

### Hands on Training & Internship

Molecular Biology and Biotechnology  
Phytochemistry and Plant Biotechnology  
Microbiology  
Biochemistry  
Bioinformaticcs  
Nanotechnology  
Certificate Course on Food & Water Quality

#### With Mou (Internship)

FOOD TECHNOLOGY	- 5000 INR/Month
MICROBIOLOGY	- 5500 INR/Month
MOLECULAR BIOLOGY	- 7000 INR/Month
PHYTOCHEMISTRY	- 6000 INR/Month
NANO BIOTECHNOLOGY	- 10000 INR/Month
BIOINFORMATICS	- 7000 INR/Month

#### Without Mou (Internship)

FOOD TECHNOLOGY	- 10000 INR/Month
MICROBIOLOGY	- 10000 INR/Month
MOLECULAR BIOLOGY	- 15000 INR/Month
PHYTOCHEMISTRY	- 10000 INR/Month
NANO BIOTECHNOLOGY	- 20000 INR/Month
BIOINFORMATICS	- 10000 INR/Month

### Student Dissertation Program

We provide students with the necessary resources, mentorship, and structure to successfully complete their research projects in the various areas of life science. This program aim in developing students' research abilities and preparing them for future careers in academia, research, or other professional fields.

## Agri Products

Physico chemical  
Nutrient Composition analysis  
Agmark grading  
Pesticide residue screening  
Mycotoxins  
Naturally Occuring Toxins  
Vitamins

(Water Soluable & Fat Soluable)  
Minerals  
Heavy metals  
Microbiological analysis  
GMO testing  
Active ingredients testing (caffeine, capsaicin, curcuminoids, etc.)

## Processed Food

Nutritional profiling  
Food adulterants  
Antioxidants  
Preservatives  
Artificial sweeteners  
Fortificants  
Vitamins

(Water Soluable & Fat Soluable)  
Microbiology Analysis  
Minerals  
Fatty acid profiling  
Sterol profiling  
Pesticide residuescreening  
Antibiotics screening

Heavy metals  
Mycotoxins  
Naturally Occuring Toxins  
Melamine  
Shelf life evaluations

## Water & Beverages

Chemical analysis  
Microbiological analysis  
Pesticide residue screening  
Heavy metals  
Mycotoxins  
Naturally Occul... Toxins  
Melamine  
Volatile Organic Compounds (VOCs)  
Semi Volatile Organic Compounds (SVOCS)  
Poly Aromatic Hydrocarbons (PAHs)  
Poly Chlorinated Biphenyls (PCBs)  
Bromate and other disinfectants testing  
Water as per IS:4251

Water as per IS:10500  
Water as per IS:14543  
Water as per IS:13428  
Water as per WHO-IV edition  
Water as per USEPA  
Water as per (EU)2020/2184 & 98/83/EC  
Water as per USP/BP/EP/IP  
Virology & Parasitology Testing.  
Banned/illegal Dyes  
Approved Colors Preservatives  
Radioactivity testing

## Herbal & Nutraceuticals

Physico chemical Microbiological analysis  
Vitamins  
(Water Soluble & Fat Soluble)  
Active ingredients  
Metabolites and bi-products  
Unknown identification by  
Mass spectrometry  
GC profiling  
GC profiling  
Polyphenols  
Flavonoids  
Pesticide residues

Mycotoxins  
Heavy metals  
Shelf life studies  
Pesticides as per  
USP <561>  
Pesticides as per EU  
Plasticizers/Phthalates  
Ethylene Oxide (ETO)  
Gummies/Jellies testing for  
Melatonin, Vitamins, & Minerals

## Personal, Home Care & Packaging Material

Rysed chemical  
Viscosity  
Ingredients profiling by  
HPLC  
Heavy metals  
Nitrosamines testing  
Ethylene Oxide (ETO) & Propylene Oxide  
1,4-Dioxane  
Pesticide residues  
Antimicrobial efficacy  
Shelf life evaluations  
Minerals

Specialized tests  
Overall Migration  
Specific Metal Migration  
as per FSSAI  
Specific Metal Migration  
as per 15:9833  
Specific Migration as per EC 10  
Bis- Phenol-A Phthalates/DEHP  
Primary Amines  
Plastic container testing  
as per IS: 15410

## **Our Services**

### **MICROBIOLOGY**

#### **Culture Isolation**

(Isolation is an important step in microbial culture. The purpose of the isolation method is to isolate microbes from the primary population forming pure strains called colonies)

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#### **Microbial Identification**

(Microbial identification is a clear characterization of a certain microorganism through an appropriate test method able to return the name of the analyzed species)

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#### **Biochemical Assay**

(Biochemical tests are among the most important methods for microbial identification: Routine biochemical tests include tests for carbohydrate fermentation, methyl red, citric acid utilization, hydrogen sulfide production etc.)

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#### **Antimicrobial Assay**

(Antimicrobial (Anti-fungal and Anti-bacterial) assays are important tools to test and screen the inhibitory effects of myriad compounds against microorganisms before establishing their inhibitory spectra)

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#### **MIC (Minimum Inhibitory Concentration)**

(Minimum Inhibitory Concentration (MIC) Test determines the lowest concentration of an antimicrobial agent that hinders the visible growth of microorganisms in a culture medium.)

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#### **Antibiotic Production**

(Antibiotics are produced on a large scale by the fermentation process. This is a chemical process which is induced by the microorganisms in a large tank)

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#### **Enzyme Production**

Enzymes can be produced from any living organism, either by extracting them from their cells or by recovering them from cell exudates)

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#### **Bioremediation Study**

(Bioremediation is one technique to reduce environmental pollution and renew soil with the help of microorganisms and plants. The process carried out includes detoxification of toxic chemicals by cleaning the environment naturally and economically.)

## Our Services

### Fermentation (Aerobic)

Aerobic fermentation or aerobic glycolysis is a metabolic process by which cells metabolize sugars via fermentation in the presence of oxygen and occurs through the repression of normal respiratory metabolism)

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### Fermentation (Anaerobic)

(Anaerobic fermentation is a metabolic process done by bacteria and eukaryotes in the absence of air to convert carbohydrates into the products like gases, alcohol, and acids)

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### Bio film Production

Formation of biofilm is one of the major protective mechanisms of survival of microbes under stressed conditions. It is regulated by the quorum sensing (QS) and phenazine (phz) gene.)

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### Microbial Optimisation

(Microbial optimisation is a process where components of medium or different growth conditions either varied in concentration or changed so that we can get better growth of the organisms for high productivity)

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## MOLECULAR BIOLOGY

### DNA isolation (Bacteria, Fungal, Plant, Animal, Cell Lines)

(DNA isolation is a method to purify DNA by using physical and/or chemical methods from a sample separating DNA from cell membranes, proteins, and other cellular components)

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### RNA isolation (Bacteria, Fungal, Plant, Animal, Cell lines)

(RNA isolation is a method based on liquid-phase separation which helps to obtain pure RNA in aqueous phase)

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### Plasmid Isolation (Bacteria, Fungal, Plant, Animal)

(Plasmid isolation is a technique used to isolate and purify plasmid DNA from genomic DNA, proteins, ribosomes, and the bacterial cell wall.)

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### Recombinant DNA Study

Recombinant DNA technology involves using enzymes and various laboratory techniques to manipulate and isolate DNA segments of interest.)

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### Agarose Gel Electrophoresis

(Agarose gel electrophoresis is a form of electrophoresis used for the separation of nucleic acid (DNA or RNA) fragments based on their size)

## **Our Services**

### **SDS PAGE**

(SDS-PAGE is an electrophoresis method that allows protein separation by mass)

### **Native PAGE**

(Native PAGE is a technique that uses non-denatured gels for the separation of proteins. Unlike SDS PAGE, no denaturing agent is added in the preparation of gels.)

### **DNA Cleavage Study**

(DNA cleavage is a reaction that severs one of the covalent sugar-phosphate linkages between NUCLEOTIDES that compose the sugar phosphate backbone of DNA. It is catalyzed enzymatically, chemically or by radiation. Cleavage may be exonucleolytic removing the end nucleotide, or endonucleolytic-splitting the strand in two)

### **PCR**

(Polymerase chain reaction (abbreviated PCR) is a laboratory technique for rapidly producing (amplifying) millions to billions of copies of a specific segment of DNA)

### **Reverse Transcription PCR**

(The reverse transcription-polymerase chain reaction test is also known as the RT-PCR test. It is a gold-standard test for diagnosing viral diseases)

### **Real-Time PCR**

(Real-time polymerase chain reaction (real-time PCR) is commonly used to measure gene expression. It is more sensitive than microarrays in detecting small changes in expression)

### **Whole Genome Sequencing**

(Whole-genome sequencing (WGS) is a comprehensive method for analyzing entire genomes)

### **ELISA (Enzyme-Linked Immunosorbent Assay)**

(ELISA is an assay technique used to detect small amounts of antibodies, antigens, peptides, proteins, glycoproteins, and viruses in biological samples.)

### **RFLP (Restriction Fragment Length Polymorphism)**

(Restriction fragment length polymorphism is a technique that exploits variations in homologous DNA sequences, known as polymorphisms, populations, or species or to pinpoint the locations of genes within a sequence.)

### **RAPD (Random Amplified Polymorphic DNA)**

(Random amplified polymorphic DNA is a PCR based technique for identifying genetic variation)

### **AFLP (Amplified fragment length polymorphism)**

(AFLP refers to a method where total genomic DNA extracted from plant tissue is digested with restriction enzymes to generate DNA fragments before puffing the DNA copying procedure of PCR)

## Our Services

### Other Molecular Biology Services

Metagenomics

Total diversity in the sample

Shotgun-pathway (Whole genome sequencing)

Transcriptomics

Gene expression

Up-regulation and down-regulation of gene expression

Digestion of PCR product with specific restriction enzyme and Purification of digested product

Transformation, Selection of recombinants by advanced PCR techniques

isolation of expression plasmid from bacterial culture

Plasmid mapping with different restriction enzymes

Competent cell preparation (Bacterial expression host)

Sequencing

Microarray

Molecular diagnosis

RAPD, RFLP, AFLP, SSR

Growth curve analysis of expression

Molecular characterization of fungus-ITS or 18S + RNA seq

Molecular characterization of bacteria-16S rRNA

MTT Assay

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### Western Blotting

(Western blotting is a laboratory technique used to detect a specific protein in a blood or tissue sample. The method involves using gel electrophoresis to separate the sample's proteins)

### BOTANY

#### Hormone Study

(Hormonal studies measure the levels of certain hormones produced by your body during your cycle.)

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#### Species Identification (Identified by Botanist)

(Species identification has traditionally been based on morphological data and implemented in dichotomous identification keys)

## Our Services

### **BIOCHEMISTRY**

#### **DPPH Assay**

(The DPPH assay is a typical off-line detection method, where the antioxidant activity is measured colorimetrically)

#### **FRAP assay (Ferric Reducing Ability of Plasma Assay)**

(The FRAP assay is used to measure the antioxidant power based on the reduction at low pH of ferric-tripyridyltriazine ( $Fe^{3+}$ -TPTZ) to an intense blue color ferrous-tripyridyltriazine complex ( $Fe^{2+}$ -TPTZ) with an absorption maximum at 583 nm.)

#### **Nitricoxide Assay**

(Nitric Oxide Assays measure nitric oxide indirectly via the breakdown products of nitric oxide (nitrite and nitrate) in cell lysates, tissue homogenates, plasma, serum, saliva, urine, and cell culture supernatants)

**Enzymatic assay (Aspartate aminotransferase (AST), Alanine aminotransferase (ALT) Acid phosphatase (ACP), Catalase (CAT), Glutamate dehydrogenase (GDH), Gamma glutamyl phosphate reductase (GPR), Glutathione reductase (GR), Glutathione S-transferases (GST), Adenosine triphosphate (ATP), Cyt P450, Amylase, Lipase, Protease)**  
(Enzyme assays are laboratory methods for measuring enzymatic activity)

#### **Antidiabetic Study (Alpha glucosidase Inhibition Assay, Alpha Amylase Inhibition Assay, Glucose Uptake Assay)**

(This study evaluated potential antidiabetic properties of selected medicinal plants.)

#### **Green Nanoparticle Synthesis**

(Microorganisms such as bacteria, yeast, fungi, algal species and certain plants act as substrates for the green synthesis of nanomaterials)

#### **Nanocomposite Synthesis**

(A nanocomposite is a multiphase material in which, in contrast to microcomposites, one of the phases has one, two or three dimensions of less than 100nm, or the composite phases have nanoscale distances between them.)

#### **Dye Degradation**

(Dye degradation is any of a number of processes by which dyes are broken down, ideally into innocuous products)

## Our Services

### Anti-Inflammatory Assay

(Anti-inflammatory activity was evaluated by HRBC, H202, and BSA methods)

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### Protein Degradation

### Cox Lox Analysis

(This assay measures the inhibitory activity against 5-LOX and COX enzymes)

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## PHYTOCHEMISTRY

### Phytochemical Analysis (Qualitative) (Alkaloids, Flavonoids, Glycosides, Phenol, Tannin, Terpenoids, Steroids, Saponins etc..)

(Different qualitative phytochemical analyses are known that allow, by using standard analytical techniques, the determination of chemical groups, or compounds in aqueous extracts from different plants.)

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### Phytochemical analysis (quantitative) (Alkaloids, Flavonoids, Glycosides, Phenol, Tannin, Terpenoids, Steroids, Saponins etc..)

(All the extracts which were prepared from the various organic solvents from selected parts of plants were quantitatively analysed)

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### Soxhlet Extraction

(Soxhlet extraction is an exhaustive extraction technique widely applied to analytes that are sufficiently thermally stable.)

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### Percolation

(Percolation is the process by which water moves downward through the soil under gravitational forces)

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### Thin Layer Chromatography

(Thin Layer Chromatography is a technique used to isolate non-volatile mixtures.)

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### Column chromatography

(It is a precursory technique used in the purification of compounds based on their hydrophobicity or polarity.)

## **Our Services**

### **CYTOTOXIC STUDIES**

#### **MTT Assay**

(The MTT assay is a colorimetric assay for assessing cell metabolic activity)

#### **SRB (Sulforhodamine B Assay) Assay**

(The sulforhodamine B (SRB) assay is used for cell density determination, based on the measurement of cellular protein content.)

#### **Apoptosis Assay**

(An apoptosis assay detects and quantifies the cellular events associated with programmed cell death, including caspase activation, cell surface exposure of phosphatidylserine (PS) and DNA fragmentation)

#### **Neutral Red Assay**

(The neutral red uptake assay is a cell viability assay that allows in vitro quantification of xenobiotic-induced cytotoxicity)

#### **Antidenaturation of Albumin**

#### **Proteinase Inhibition Assay**

#### **CAM Assay**

(The CAM assay is an in vivo animal model that involves the implantation of tumor cells or patient-derived tissues on the extraembryonic membrane or CAM of the developing chick embryo.)

#### **Scratch Assay**

(The scratch assay is a simple, reproducible assay commonly used to measure basic cell migration parameters such as speed, persistence, and polarity)

#### **Phytotoxicity Analysis**

(Phytotoxicity describes any adverse effects on plant growth, physiology, or metabolism caused by a chemical substance such as high levels of fertilizers, herbicides, heavy metals, or nanoparticles. General phytotoxic effects include altered plant metabolism, growth inhibition, or plant death.)

## **Our Services**

### **Cytotoxicity Analysis (Zebra Fish)**

(The cytotoxicity test is one of the biological evaluation and screening tests that use tissue cells involve the cell growth, reproduction and morphological effects by medical devices)

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### **Biocompatibility Assay**

(Biocompatibility testing assesses the compatibility of medical devices with a biological system)

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### **Gene Expression Studies**

(Gene expression analysis is most simply described as the study of the way genes are transcribed to synthesize functional gene products)

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### **Cancer Signalling Pathway**

(Signaling pathways and molecular networks are recognized for their critical roles in executing and controlling important pro-survival and pro-growth cellular processes and are therefore chiefly implicated in the onset of cancer, and also in its potential treatment)

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## **ANALYTICAL INSTRUMENTATION**

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### **UV Spectrophotometer**

(UV-Vis spectroscopy is an analytical technique that measures the amount of discrete wavelengths of UV or visible light that are absorbed by or transmitted through a sample in comparison to a reference or blank sample.)

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### **FTIR (Fourier Transform Infrared Spectroscopy)**

(It is an analytical technique used to identify organic, polymeric, and, in some cases, inorganic materials.)

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### **Raman Spectrophotometer**

(Raman spectroscopy is an analytical technique where scattered light is used to measure the vibrational energy modes of a sample.)

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### **XRD (X-ray Diffraction Analysis)**

(X-ray diffraction analysis (XRD) is a technique used in materials science to determine the crystallographic structure of a material.)