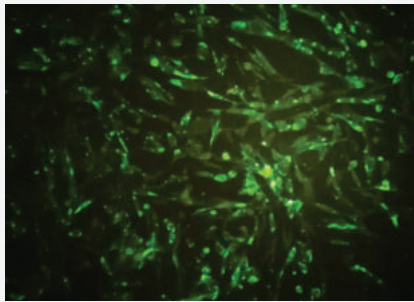


Uninfected BHK₂₁ cell line



Rabies virus multiplication
in BHK₂₁ cell line

Test Report

The test report issued by the Department of Animal Biotechnology, MVC being an NABL accredited (ISO/IEC 17025:2017) laboratory is highly credible, since it has a specific certificate number along with ILAC MRA (International Laboratory Accreditation Cooperation - Mutual Recognition Arrangement) mark which is recognized internationally for transportation of pets from India to other countries.

Cost

The cost of testing is Rs.2000/- per sample (Rs. 1695 + Rs 305 as 18% GST).

The testing charges may be sent through DD in favour of “The Professor and Head, Dept of Animal Biotechnology, MVC” or NEFT. The bank details are provided below:

The Professor and Head

Dept. of Animal Biotechnology

S.B.A/c. No. : 570502010002915

IFSC Code : UBIN0557056

Bank Name : Union Bank of India

Branch Name : MVC Vepery

Turnaround time

The sample testing results would be provided with 1 week of receipt of sample at our laboratory

For further details – Contact

The Professor and Head,

Department of Animal Biotechnology

Faculty of Basic Sciences,

Madras Veterinary College,

Chennai - 600007

Telephone No. 044-2530 4000

044-2536 9301

Attention: **Dr. P. Raja** @ 9710316741



Testing Services for Rabies Antibody Estimation in Vaccinated Pets



Rabies Diagnostic Laboratory
(ISO/IEC 17025:2017 Accredited Lab)

Department of Animal Biotechnology
Tamil Nadu Veterinary and Animal
Sciences University
Faculty of Basic Sciences
Madras Veterinary College, Chennai - 600 007

About Rabies

- ◆ Rabies is one of the most fatal diseases in man transmitted by dog bite
- ◆ There is no effective treatment for the disease
- ◆ However, rabies is 100% vaccine preventable
- ◆ If dogs / cats are protected with rabies vaccines, rabies in man can be prevented
- ◆ Estimation of rabies antibodies in serum of vaccinated dogs/cats ensures that the vaccination was effective
- ◆ This would also help to determine the timing of the vaccination
- ◆ Rabies antibody status and titres are also needed for exportation of dogs / cats to certain countries

The Department of Animal Biotechnology, MVC offers a ISO/IEC 17025:2017 accredited service for rabies antibody estimation in dog / cat sera using the Fluorescent antibody virus neutralization (FAVN) test.

What samples are to be collected for testing?

- The blood sample is to be collected from dogs or cats and serum should be separated from the blood clot, stored and transported at 4°C to reach the laboratory within 24 hrs of blood collection
- The sample should be provided with necessary information such as owner's name, address, pet's name, breed, age, sex, date of last vaccination, vaccine details, date of sample collection, date of sample sent for testing, microchip number, clinician name and details etc.
- The quantity of the serum sample needed for the assay is 600 µl

What is the test performed for assessing the protective antibody titre estimation?

Fluorescent Antibody Virus Neutralization Assay (FAVN) is performed to assess the antibody titre against rabies virus

Briefly, the serum collected from the pet is mixed with a known titre of a fixed strain of rabies virus and added to BHK₂₁ cells which support rabies virus multiplication

If sufficient titre of antibodies is not present in the serum, the fixed rabies virus would enter the cells and multiply

If sufficient titre of antibodies is present, this would prevent the rabies virus from entering the cells and further multiplication is prevented

The multiplication of the rabies virus is detected by a fluorescent labelled rabies antibody conjugate

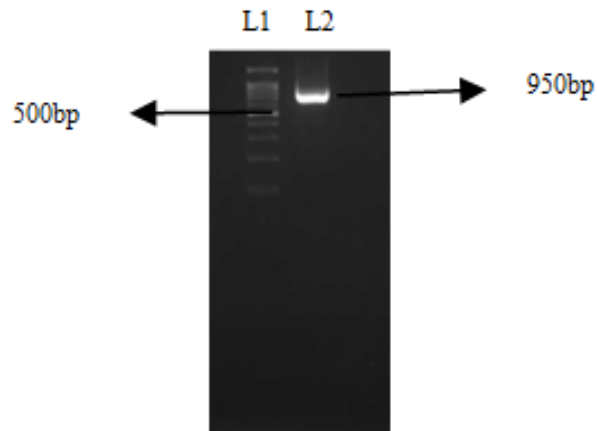
By using different dilution of the sera to be tested and comparing with the reference standards, the levels of rabies antibody present in the sera sample can be estimated

An antibody titre of 0.5 International Units (I.U.) is considered as protective

Antibody titres below 0.5 IU is not protective and the dog needs revaccination

FCV infections typically cause a variety of clinical manifestations, such as

- acute respiratory disease
- oral ulceration
- pneumonia and
- acute arthritis/limping syndrome (less common).



L1: 100bp DNA Ladder
L2: Positive for FCV (950bp)

What samples to be collected for testing?

The choice of the samples is

- faecal swab for FPV and
- nasal swab for FCV collected from suspected cats

How to transport the samples for testing?

The collected faecal or nasal swabs should be sent on ice to the following address so as to reach us within 24 hours

What is the test to be performed for identification of disease?

It is PCR based method for identification of the genome of FPV and FCV using specific primers

What is the cost of testing?

The cost of testing for FPV is Rs. 750/- + 18 % GST and for FCV is Rs. 900/- + 18% GST

The results would be provided with in 24 h

For further details – Contact

The Professor and Head,
Department of Animal Biotechnology
Faculty of Basic Sciences,
Madras Veterinary College,
Chennai - 600007

Telephone No. 044-2530 4000, 044-2536 9301

E-mail: hodabtmvc@tanuvas.org.in



TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY
FACULTY OF BASIC SCIENCES

DIAGNOSTIC TESTING SERVICES FOR FELINE DISEASES

A FIRST OF ITS KIND SERVICE IN INDIA



Offered by

Department of Animal Biotechnology
Madras Veterinary College
Chennai – 600 007

2021

DIAGNOSTIC TESTING SERVICES FOR FELINE DISEASES

- Having pet dogs and cats are on the increase especially during the COVID times
- The population of pet cats in India was approximately 2 million in the year 2018
- It is likely to increase to approximately 2.5 million by the year 2023
- Under these circumstances, screening cats for infectious diseases becomes a necessity so as to prevent and control these diseases



The most important pathogens in cats are Feline Panleukopenia Virus and Feline calicivirus

The Department of Animal Biotechnology, Madras Veterinary College has initiated a diagnostic service for feline diseases for the first time in India

Feline Panleukopenia Virus (FPV)

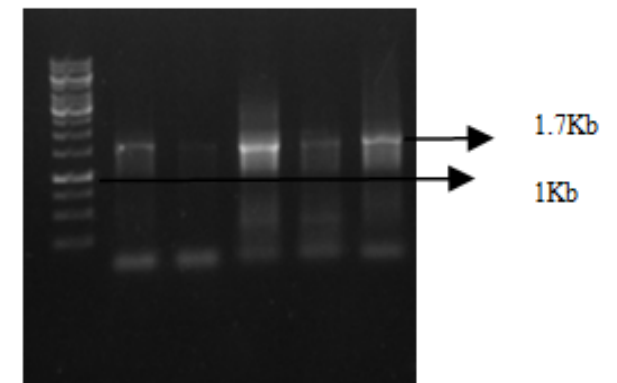
Feline Panleukopenia is a highly contagious viral disease of cats characterized by

- sudden onset of fever
- loss of appetite
- dehydration
- depression
- vomiting

- decreased numbers of circulating white blood cells (leukopenia), and
- high mortality rate

FPV is most commonly transmitted by direct contact of susceptible animals with infected cats or their secretions. It is shed from all body secretions during the active stages of the diseases but is most consistently recovered from intestine and faeces.

L1 L2 L3 L4 L5 L6



L1: 1 Kb DNA Ladder
L2, 4, 5, 6: Positive for FPV (1.7Kb)
L3: Negative template control

Feline Calicivirus (FCV)

Feline Calicivirus is a major cause of upper respiratory tract disease in cats associated with mortality rates of up to 50%.



DIAGNOSTIC SERVICE FOR PPV

Samples to be collected and sent

- * From live animals – Serum or unclotted blood on ice / gel packs
- * From dead animals - Pooled viscera including lymphoid organs in sterile container on ice / gel packs

Laboratory diagnosis

- * Extraction of DNA from suspected samples
- * VP2 gene based PCR for detection of PPV genome
- * Amplification of a 894 bp product indicates presence of PPV genome



894 bp

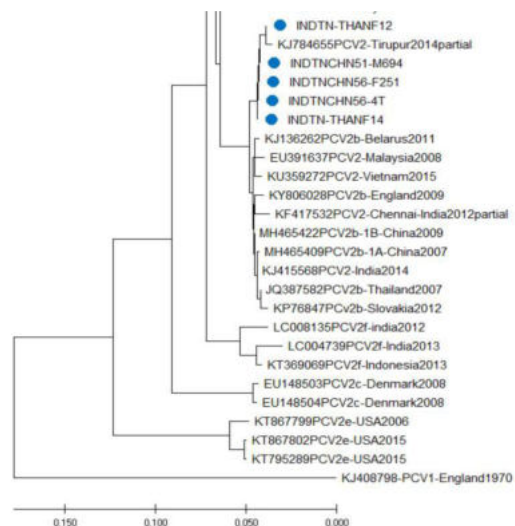
Charges for diagnosis Rs.750 + 18% GST

Turnaround time One working day

GENOTYPING SERVICE

- * If the client is interested in genotyping of PCV2 and PPV, then the PCR positive products will be further subjected to purification, sequencing and phylogenetic analysis
- * Based on the clustering, the genotype of the virus associated with the infection would be identified

PCV2 genotyping by phylogenetic analysis



Charges for Genotyping Rs.2000 + 18% GST

Turnaround time One week

The testing services being offered would be useful to

- * Veterinary Practitioners
- * Pig farmers
- * Research scholars etc.

Utility of these services

- * Confirmatory diagnosis for PCV2 and PPV infections
- * Controlling spread of infections
- * Adopting preventive measures including vaccination
- * Understanding vaccine efficacy and vaccination strategy

For sending samples and further queries please contact

Professor and Head

Department of Animal Biotechnology
Madras Veterinary College, Chennai-600007

Phone - 044-25369301

Email - hodabtmvc@tanuvas.org.in



TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY
FACULTY OF BASIC SCIENCES

DIAGNOSTIC AND GENOTYPING SERVICE FOR PORCINE DISEASES

A FIRST OF ITS KIND SERVICE IN INDIA



Offered by

Department of Animal Biotechnology
Madras Veterinary College
Chennai – 600 007

2021

Porcine disease diagnosis and genotyping services

- * In India, swine husbandry is poised for a giant leap from being a backyard vocation to becoming an organized sector.
- * Emerging diseases like *Porcine circovirus 2* (PCV2) and *Porcine parvovirus* (PPV) infections pose great threat and affects economic viability of pig husbandry.
- * Molecular diagnostic techniques allow for specific, rapid and discriminatory diagnosis of these disease conditions.

The Department of Animal Biotechnology, Madras Veterinary College, Chennai has initiated diagnostic and genotyping services for PCV2 and PPV.

Porcine circovirus 2 infection

- * Porcine circovirus 2 infections are associated with multiple clinical outcomes such as Post weaning multi systemic wasting syndrome, Porcine dermatitis and nephropathy syndrome, Porcine respiratory diseases complex and reproductive failures.
- * PCV2 has 8 distinct genotypes PCV2a, 2b, 2c, 2d, 2e, 2f, 2g and 2h.
- * Prevalent genotypes in India include PCV2a, 2b, 2d, 2g and 2f.



Weak piglets and stunted growth due to PCV-2



Abortion / mummification due to PCV-2

Porcine parvovirus infection

- * Porcine parvovirus is one of the primary causative agent associated with SMEDI (Stillbirth, Mummification, Embryonic death and Infertility) syndrome that causes marked loss to the swine industry worldwide.

- * Seven genotypes of PPV (PPV1–PPV7) have been reported in the past two decades.



Stillbirth / abortion / mummification associated with PPV

DIAGNOSTIC SERVICE FOR PCV-2

Samples to be collected and sent

- * From live animals - Serum, unclotted blood, nasal, rectal or vaginal swabs on ice / gel packs
- * From dead animals - Pooled viscera including lymphoid organs in sterile container on ice / gel packs

Laboratory diagnosis

- * Extraction of DNA from suspected samples
- * ORF2 gene based PCR for detection of PCV2 genome
- * Amplification of a 802 bp product indicates presence of PCV2 genome

802 bp



Charges for diagnosis Rs.750 + 18% GST
Turnaround time one working day

RESULTS TO BE PROVIDED

- ▶ Total bacterial count/bacterial load in air samples collected from specified area
- ▶ Coliform/Staphylococcus/Fastidious bacteria/Anaerobic bacterial count in the specified media
- ▶ Antimicrobial resistance profile
- ▶ Metagenomics based analysis – Bacterial diversity and abundance profile of each bacterial phylum

The turn-around time for these services would be 2 – 4 days for the total / specific bacterial counts and AMR profiling

Metagenomic analysis would take 8 – 12 weeks since it is being out-sourced

COST OF SERVICES OFFERED

1	Air sampling in a single time point + Total bacterial count	Rs. 300+250 = Rs. 550/-
2	Air sampling in a single time point + Specific count (Coliform/Staphylococcus count/Fastidious bacterial count/Anaerobic bacteria count (for each one count))	Rs. 300+500 = Rs. 800/-
3	Air sampling + Total bacterial count + Specific count + Isolation and identification of bacteria	Rs. 600+500 + 500 = Rs. 1600/-
4	Air sampling + Total bacterial count + Specific count + Isolation and identification of bacteria + ABST profile	Rs. 600+500 + 500 + 500 = Rs. 2100/-
5	Air sampling in a single time point + Metagenomics based bacterial diversity and abundance estimates (out sourced)	Rs. 300+10000 =Rs. 10300/-

PACKAGE FOR OPERATION THEATRES

1	Air sampling (4 times - two times before disinfection and 2 times after disinfection) + Total bacterial count (TBC)	Package cost Rs. 1800/-
2	Air sampling (4 times- two times before disinfection and 2 times after disinfection) + Specific count (Coliform/ <i>Staphylococcus</i> count/Fastidious bacterial count/Anaerobic bacteria count (for each one count))	Package cost Rs. 2400/-

PACKAGE FOR VETERINARY HOSPITALS

1	Air sampling (2 times - one time before disinfection and one time after disinfection) + Total bacterial count	Package cost Rs. 900/-
2	Air sampling (2 times - one time before disinfection and one time after disinfection) + Specific count (Coliform/ <i>Staphylococcus</i> count/Fastidious bacterial count/Anaerobic bacteria count (for each one count))	Package cost Rs. 1200/-

*** All the costs are excluding 18% GST**

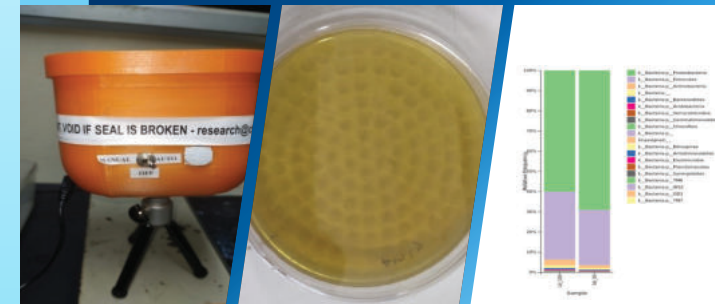
**For Sampling and Further Queries
Please Contact :**

PROFESSOR AND HEAD
Department of Animal Biotechnology
Madras Veterinary College,
 Chennai - 600 007
 Phone - 044-25369301
 e-mail: hodabtmvc@tanuvas.org.in
Attention: Dr. S.Parthiban, 9944219889,
 e-mail: parthis17@gmail.com



**TAMIL NADU VETERINARY AND
ANIMAL SCIENCES UNIVERSITY**

MICROBIAL AIR QUALITY ASSESSMENT IN VETERINARY HOSPITALS AND OPERATION THEATRES



A FIRST OF ITS KIND SERVICE IN INDIA

Service offered by
DEPARTMENT OF ANIMAL BIOTECHNOLOGY
FACULTY OF BASIC SCIENCES
MADRAS VETERINARY COLLEGE
CHENNAI - 600 007

INTRODUCTION

- ▶ Airborne bacterial studies typify the need of follow-up actions to protect vulnerable animal and human populations and the environment.
- ▶ Airborne transmission of pathogenic microorganisms in to human or animal hosts can result in disease. Inhalation is an important route of exposure as the lungs are most susceptible to infection than the gastrointestinal tract.
- ▶ The emergence and spread of multi and pan drug resistant pathogens (superbugs), that have acquired new resistance mechanisms and threatens the ability to treat these infections with existing antibiotics, are mainly spread by aerosol route
- ▶ Prompt screening of microbes and their resistance profiles in areas like livestock farms, veterinary hospitals or operation theatres is needed to control nosocomial infections and anti-microbial resistance (AMR) dissemination.
- ▶ Clean and disinfected air spaces in veterinary healthcare facilities are highly crucial in eliminating pathogen spread and AMR emergence.
- ▶ This service offers estimation of aerosol microbial loads, AMR profiles and potential threats in the veterinary environments where clinically and sub

clinically affected animals, asymptomatic animals and humans share the common airspace.

AIR SAMPLING

A microbial air sampler is used to force air on to a basal/specific agar/broth medium (e.g. Nutrient agar) over a specified period of time. In-house designed air sampler (M/s. Chimertech Private Limited, Chennai) is used for air sampling.

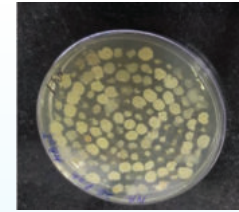
USES

- ▶ Assessing the bacterial load, composition and AMR profiles in operation theatre and large / small animal treatment areas.
- ▶ Efficacy of disinfection and fumigation methods employed in operation theatre and treatment area.
- ▶ Risk Assessment of AMR spread in human-animal interfaces

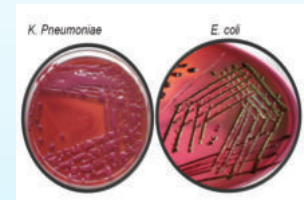
SERVICES OFFERED

- ▶ Assessment of bacterial load, composition and AMR profiles in operation theatres and hospital premises-through non-invasive air sampling
- ▶ Air samples will be collected at periodic intervals before and after disinfection or before and after treatment of cases in veterinary clinics
- ▶ Assessment in the collected air samples

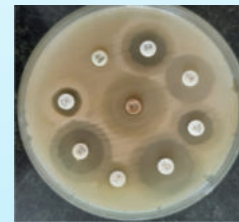
a) Bacterial load (Total count)



b) Composition (Isolation in specific / selective media)



c) AMR profile (Disk Diffusion method)



d) Metagenomics and NGS sequencing (outsourced) for identification and diversity of bacterial communities and their abundance at phylum level



- Electron transfer kinetics, and the reversibility of a reaction.
- It can be used for electrochemical deposition of thin films
- Cyclic voltammetry can be used to determine the antioxidant capacity in food and even skin.

Services offered

(I) Cyclic Voltammetry : Rs.100/-+ GST @18%

(Kindly verify with the service provider for the samples to be tested)

PAYMENT TERMS

Payment to be made immediately after testing the samples

Payment accepted in cash/DD/NEFT

The testing charges may be sent through DD in favour of "The Professor and Head, Dept. of Animal Biotechnology, MVC". For NEFT the bank details are provided below:

The Professor and Head

Dept. of Animal Biotechnology

S.B.A/c.No.: 570502010002915

IFSC Code : UBIN0557056

Bank Name : Union Bank of India

Branch Name : MVC Vepery

For sending samples and further queries

Professor and Head

Department of Animal Biotechnology

Faculty of Basic Sciences

Madras Veterinary College, Chennai - 600007.

Phone: 044-2536 9301; Email: hodabtmvc@tanuvas.org.in

Kind attention

Dr.S.Meignanalakshmi

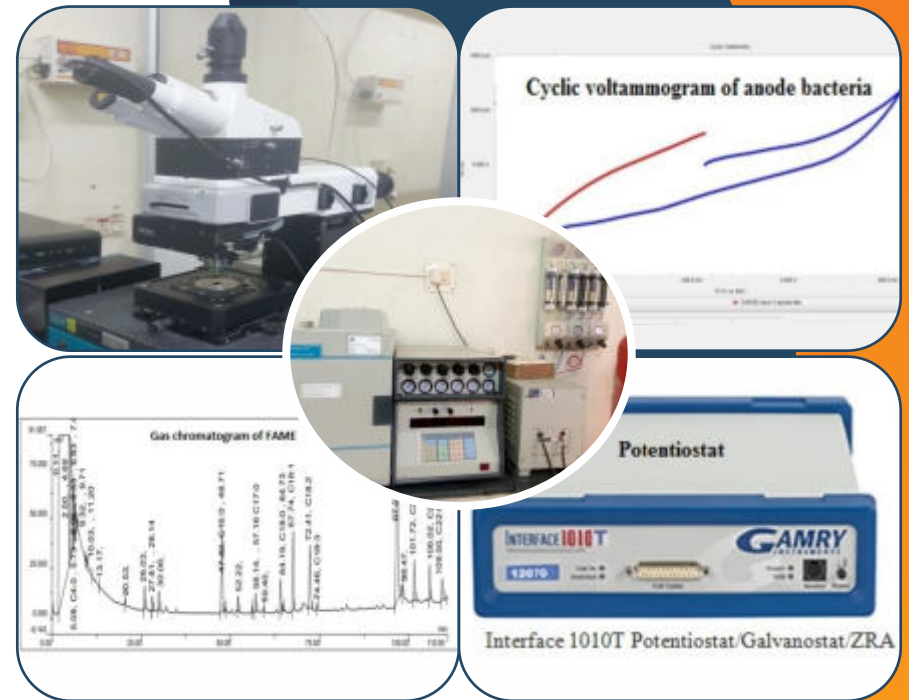
Mobile: 9884317730; Mail ID: smeignanalakshmi@gmail.com



TAMIL NADU VETERINARY AND ANIMAL SCIENCES UNIVERSITY



TESTING SERVICES FOR RAMAN SPECTROSCOPY, GAS CHROMATOGRAPHY AND POTENTIOSTAT



Department of Animal Biotechnology
Tamilnadu Veterinary and Animal Sciences University
Faculty of Basic Sciences
Madras Veterinary College, Chennai - 600 007

I. RAMAN SPECTROSCOPY

Raman spectroscopy is a non destructive chemical analysis technique which provides detailed information about chemical structure, phase and polymorphism, crystallinity and molecular interactions.

Features of Raman spectroscopy

- Laser wavelength - 532nm upto 55mW
- Resolution - 1cm⁻¹ or 3cm⁻¹ depending on the grating
- High sensitivity EMCCD
- 50 × 50mm stage
- Reflected light
- Image stitching

Applications of Raman Spectroscopy

- Food analysis
- Drug identification
- Feed analysis
- Adulterants detection
- Pollution detection
- Water analysis
- Chemical identification
- Microplastic detection

Services Offered

Raman Spectroscopy

- (i) Students: Rs.1000/- + GST at 18%
- (ii) Academic Institute: Rs.2000/- + GST at 18%
- (iii) Industry: Rs.3000/- + GST at 18%

Turnaround time: One day

Kindly verify with the service provider for the samples to be tested with respect to wavelength and processing method)

II. GAS CHROMATOGRAPHY

- Gas chromatography differs from other forms of chromatography in that the mobile phase is a gas and the components are separated as vapors.
- It is used to separate and detect small molecular weight compounds in the gas phase.

- The sample is either a gas or a liquid that is vaporized in the injection port. The mobile phase for gas chromatography is a carrier gas, typically helium, because of its low molecular weight and chemical inertness.
- The pressure is applied and the mobile phase moves the analyte through the column. The separation is accomplished using a column coated with a stationary phase.
- Gas chromatography at the Dept of Animal Biotechnology has two detectors
 1. Flame Ionization Detector
 2. Thermal Conductivity Detector

Services Offered

Gas Chromatography

- (i) Gas analysis: (Hydrogen or methane): Rs.750/- + GST at 18%
- (ii) Volatile Fatty acids: Rs.1000/- + GST at 18%
- (iii) FAME (Fatty acid methyl esters analysis including Omega 3 fatty acid/DHA (Docosahexaenoic acid)/ALA(alpha-linolenic acid): Rs.1000/- + GST at 18%

Turnaround time: One day

Kindly verify with the service provider for the samples to be tested with respect to column and processing method)

III. CYCLIC VOLTAMMETRY (CV)

Cyclic voltammetry (CV) is an important and widely used electroanalytical technique in many areas of chemistry. Potentiostats can perform cyclic voltammetry.

Features of potentiostat are (Interface 1010T)

Maximum Current	- ± 100 mA
Maximum Applied Potential	- ± 5 V
EIS - 10 μHz	- 20 kHz

Applications

- Electrochemical activity analysis of bacteria
- It is often used to study a variety of redox processes, to determine the stability of reaction products, the presence of intermediates in redox reactions