

An Explorer of Microbial World



Research & Development In Life Science
Biotechnology Skill School

Approved by NSDCA Vocational Educational Council

HANDS-ON TRAINING - 2025



ABOUT US

Veridian Micro Lab Pvt Ltd

Veridian Micro Lab is a leading research and development organization in the life science industry in Tamil Nadu. It will begin on September 8 th, 2020, under the auspices of the Government of India in collaboration with the Golden Jubilee Biotech Park for Women. Veridian Micro ab is a contract research lab and industrial training institution that has been certified by the National Skill Development Certificate Agency (NSDCA). It was formed with a noble purpose to assist and develop rural students with scientific development in the realm of life sciences. Our mission is to surpass client expectations while providing hands-on lab training to students as well as researchers in the bioscience field. We have collaborations with well-known institutions and experts from all around the world, including India.

Our Services in Life Science

Microbiology

Molecular Biology

Plant Biotechnology

Industrial Biotechnology

Nano Medicine

Phytochemistry

Bioinformatics

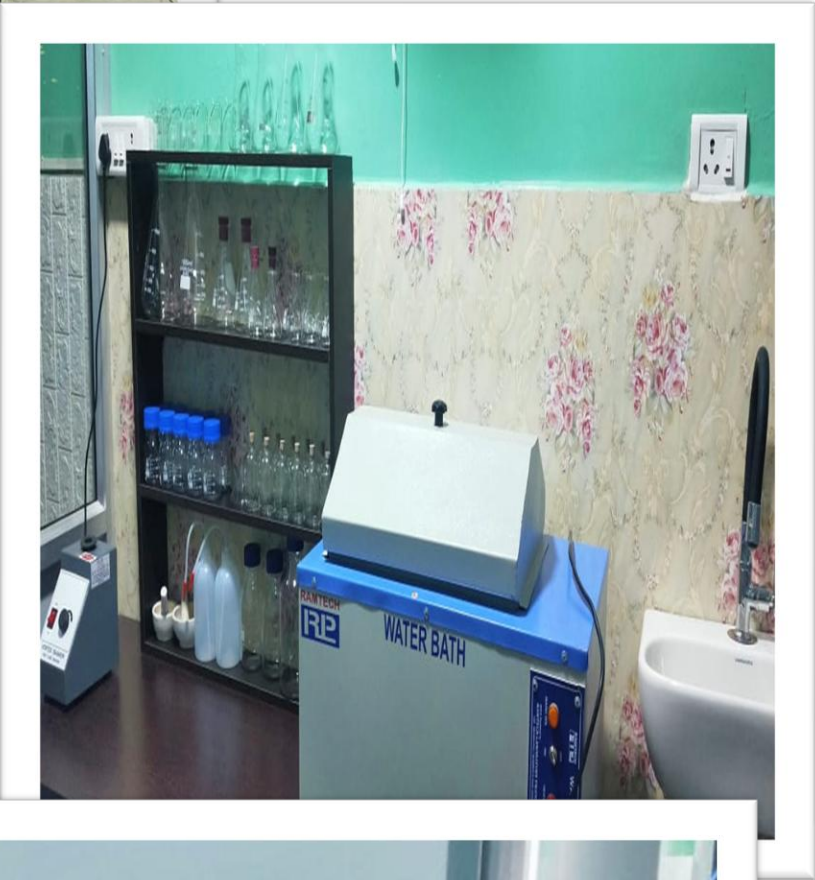
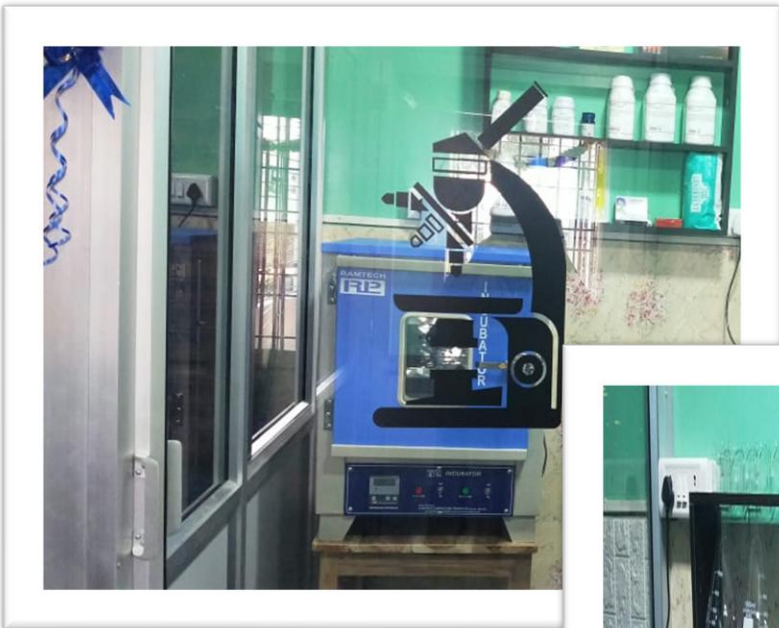
Herbal Technology

Benefits

- ✓ Starts from basics
- ✓ Clear-cut concepts
- ✓ Precise teaching
- ✓ Hands-on Training
- ✓ Work flow chart

Veridian Micro Lab is initiated with the focus on research programs and intensive thinking required to address current scenarios in biological sectors. The program at Veridian Micro Lab is one of the most innovative platform that one started mainly to upgrade the knowledge in biotechnology sectors and R&D.

Affordable product development through innovation is the key in the life science field. Research based organizations in biology needs strong focus and rapid turnaround while maintaining uncompromised quality. We want to have the best services and a healthy work atmosphere for our employees. Customers are important to a successful company; we want to cultivate good will and strategic cooperation between businesses. Our goal is to support research in every sector and to provide reliable, time-bound, accessible and customizable services to both industry and academia. We want to eradicate the quality-price barrier that directly affects the productivity of your study. With our personalized research services, we are striving to reduce the difference and make small and large industries equally competitive research services. Developing a solid basis for micro, small and medium-sized industrial research and development activities. Our programs are strengthened by a team of competent scientists guided by our research. Our portfolio diversified into emerging fields of biology includes Microbiology, Biotechnology, Biochemistry, Nano-Technology, and Bioinformatics Research Services. At the Veridian micro laboratory, we provide scientific solutions **“We mold your creativity and build your future”**. Specify your expectations and we will tailor our services in compliance with your budget.





Basics of Microbiology

Duration: 3 Days

- ✓ Good Laboratory Practice
- ✓ Culture media preparation
- ✓ Isolation of bacteria from different sources
- ✓ Morphology study
- ✓ Antibiotic susceptibility test



Microbial Techniques

Duration: 30 Days

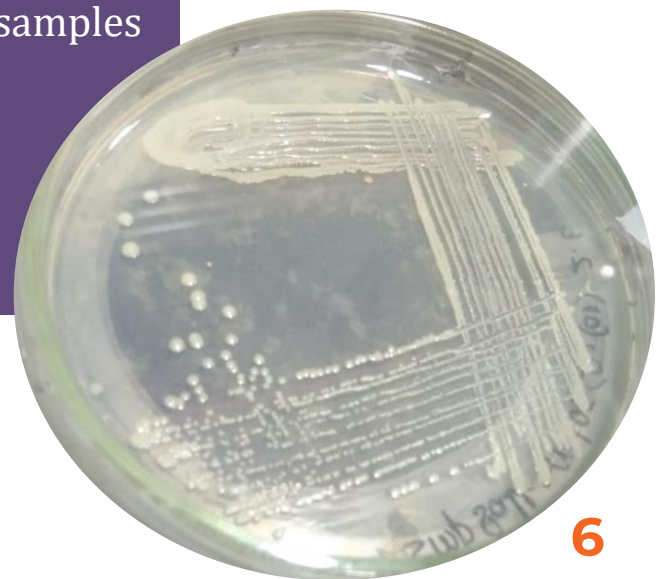


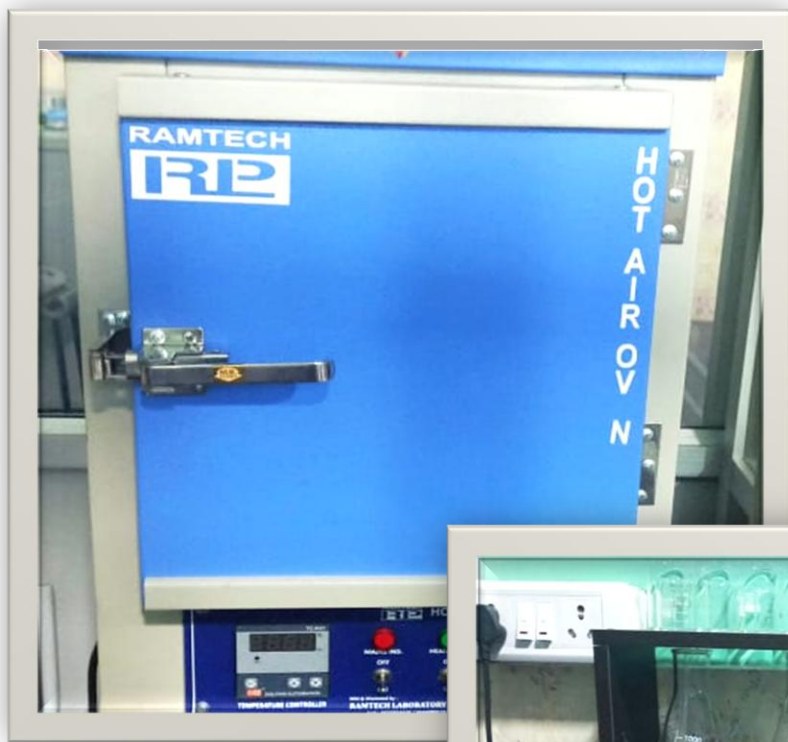
- ✓ Good Laboratory Practice
- ✓ Culture media preparation
- ✓ Bacterial Sampling
- ✓ Bacterial culture
- ✓ Gram Staining
- ✓ Bacterial confirmation

Microbial Isolation

Duration: 30 Days

- Culture media preparation
- Microbial isolation from environmental samples or clinical or food sample
- Serial Dilution Technique
- Morphology study
- Biochemical analysis
- Colony Morphological Studies





Multi Drug Resistance

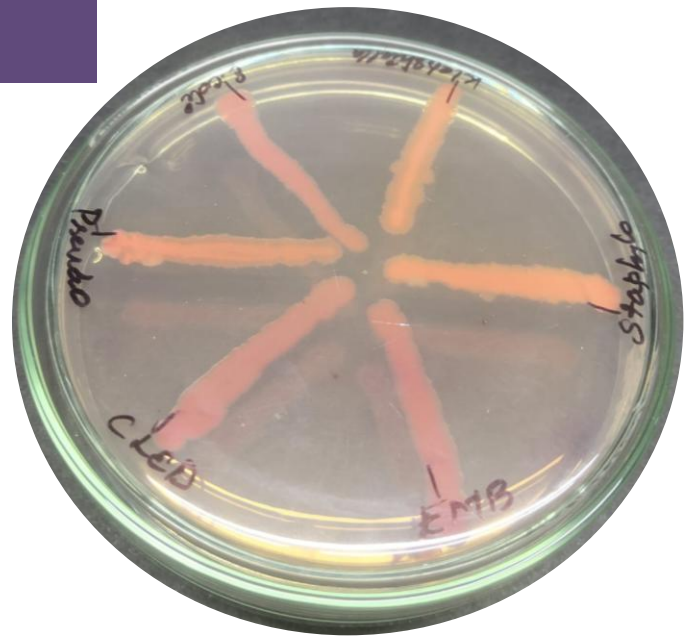
Duration: 30 Days

- ✓ Good Laboratory Practice
- ✓ Culture media selection
- ✓ Sample Collection
- ✓ Bacterial isolation
- ✓ Primary Screening
- ✓ Antibiotic Sensitivity Test

Antimicrobial Activity

Duration: 30 Days

- Culture media preparation
- Micro Dilution Technique
- Antibiotic Sensitivity Test
- Agar well diffusion Method
- Minimal Inhibitory Concentration



Endophyte Isolation

— Terrestrial and Aquatic Plants

Duration: 30 Days

- ✓ Selection of Sample
- ✓ Isolation of Endophytic Micro organism
- ✓ Secondary metabolites production from endophytes
- ✓ Extraction of secondary metabolites
- ✓ TLC profiling of secondary metabolites
- ✓ Anti-bacterial assay





METABOLITE PRODUCTION AND SCREENING

A ENDOPHYTE ORGANISM

Duration: 30 Days

- ✓ Secondary metabolites production from endophytes
- ✓ Extraction of secondary metabolites
- ✓ TLC profiling of secondary metabolites
- ✓ Anti-bacterial assay

B PLANT OR SEAWEED METABOLITES

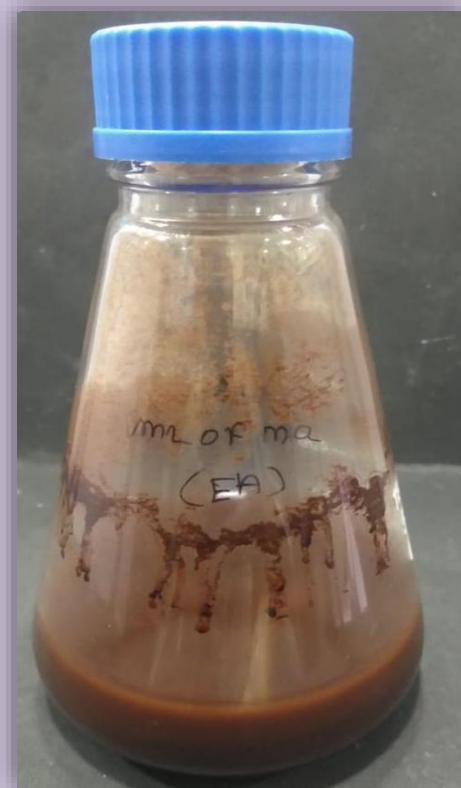
Duration: 30 Days

- ✓ Extraction of biomolecules from medicinal plants
- ✓ Phytochemical analysis
- ✓ TLC Profiling

C PROBIOTIC METABOLITES

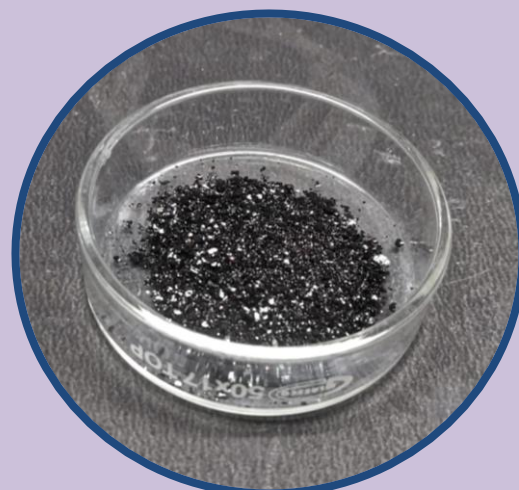
Duration: 30 Days

- ✓ Isolation of probiotic bacteria
- ✓ Secondary metabolites production
- ✓ Antimicrobial activity of probiotics secondary metabolites



SECONDARY METABOLITE

- ✓ Sample processing
- ✓ Solvents
- ✓ Extraction
- ✓ Extract processing
- ✓ Qualitative Phytochemical Analysis



DRUG DISCOVERY



Medicinal plant

Medicinal plants can be defined as the plants that possess therapeutic properties or exert beneficial pharmacological effect on the human or animal body.



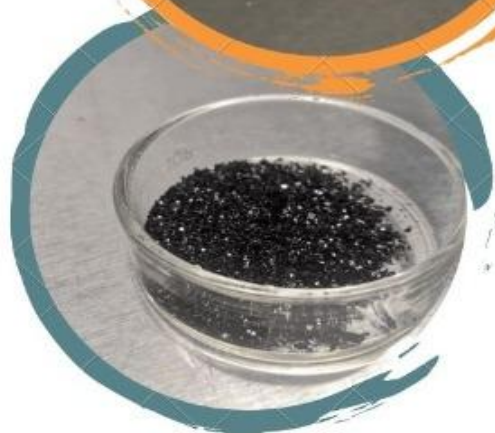
Extraction

Extraction is the crucial first step in the analysis of medicinal plants, because it is necessary to extract the desired chemical components from the plant materials for further separation and characterization.



Purification

Chromatographic techniques have significant role in natural product chemistry as well as contribute dramatically in the discovery of novel and innovative compound of pharmaceutical and biomedical importances.



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Food Microbiology



FOOD PRODUCT ANALYSIS

Duration: 30 Days

- ✓ Enumeration of microbial load of different Fruit Juices / Dairy Products
- ✓ Thin Layer Chromatography of food samples
- ✓ Enteric Micro Organism Analysis



PROBIOTICS DRINK DEVELOPMENT

Duration: 30 Days

- ✓ Preparation of starter culture
- ✓ Preparation of probiotic fruit beverage
- ✓ Physio-chemical analysis of probiotics health drink
- ✓ Characterization of probiotics bacteria



EXPLORE

The Microbial World

ISOLATION OF FOOD PATHOGEN

Some of the foodborne fungi cause infections in man and from a food safety point of view, it is mainly the mycotoxins produced by fungi contaminating food, among them vegetables, rather than the fungi themselves that are of importance.

Some food-borne illnesses could be due to fungi or their byproducts, such as poisoning by mushrooms or mycotoxins. Some fungi that contaminate or spoil food are known pathogens, such as *Alternaria*, *Aspergillus*, *Candida*, *Fusarium*, and *mucormycetes*



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INDUSTRIAL MICROBIOLOGY

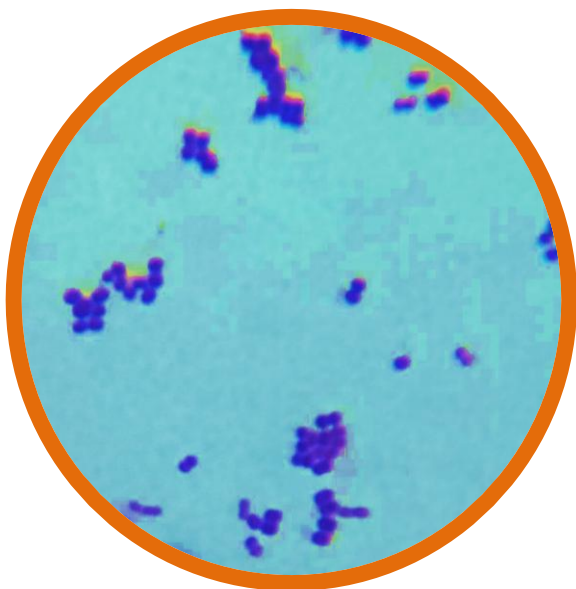
Duration: 30 Days

- ✓ Screening of industrial application-specific strains
- ✓ Extract preparation
- ✓ Bio-surfactant production
- ✓ Analysis of the bio-surfactants presence
- ✓ TLC Profiling

BIODIESEL PRODUCTION

Duration: 30 Days

- ✓ Isolation of fungi from different sources
- ✓ Broth culture preparation
- ✓ Extract preparation from mycelium
- ✓ Bio-diesel production
- ✓ TLC Profiling

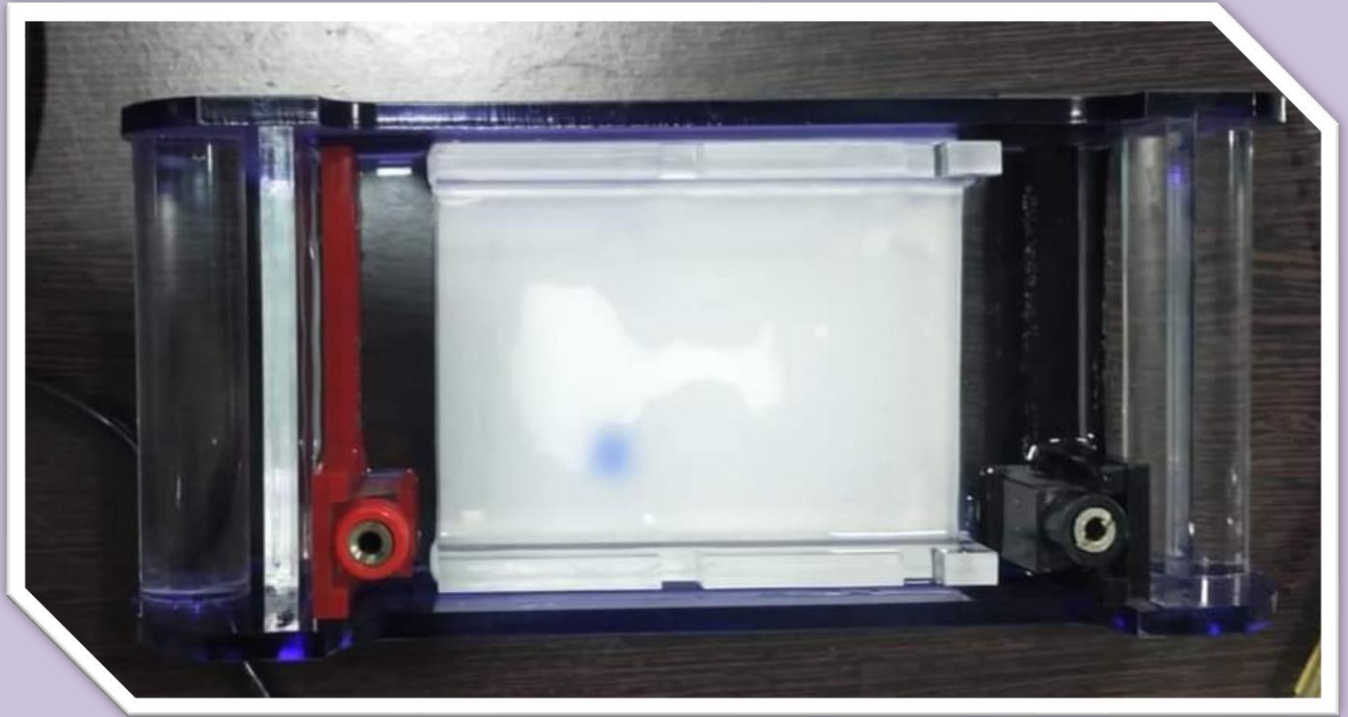


ENZYME PRODUCTION

Duration: 30 Days

- ✓ Isolation of bacteria
- ✓ Screening of industrial enzyme-producing bacterial strains
- ✓ Plate assay

MOLECULAR BIOLOGY



Duration: 30 Days

- ✓ Isolation of genomic DNA from bacteria
- ✓ Quantification of nucleic acid
- ✓ Agarose Gel electrophoresis
- ✓ SDS - PAGE
- ✓ Protein extraction and purification

MOLECULAR BIOLOGY



Duration: 30 Days

- ✓ Isolation of genomic DNA from bacteria
- ✓ Quantification of nucleic acid
- ✓ Agarose Gel electrophoresis
- ✓ PCR

Cellulose Production

Duration: 15 Days



- ✓ Good Laboratory Practice
- ✓ Molarity / Normality Calculation
- ✓ Sample Collection
- ✓ Extraction of Cellulose Fiber
- ✓ Antimicrobial Activity

Nano Cellulose Production

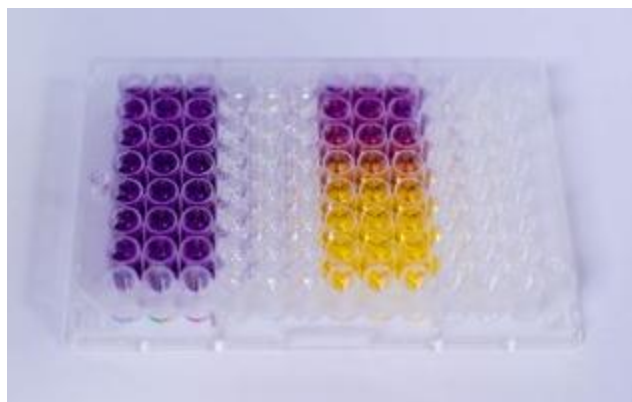
Duration: 15 Days



- ✓ Good Laboratory Practice
- ✓ Molarity / Normality Calculation
- ✓ Sample Collection
- ✓ Encapsulation of Cellulose Fiber with metals
- ✓ Antimicrobial Activity

Antioxidant ASSAY

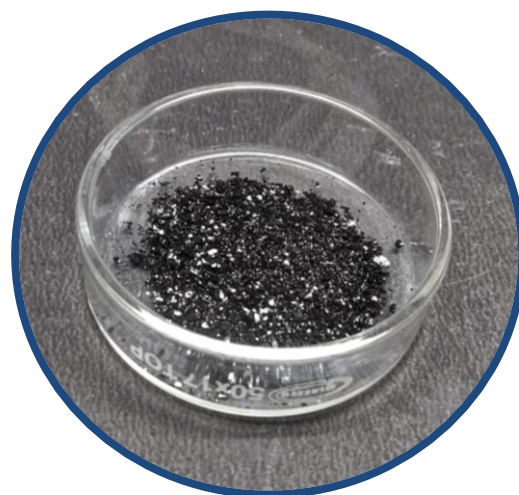
Duration: 2 Days



- ✓ Good Laboratory Practice
- ✓ Molarity / Normality Calculation
- ✓ Sample Preparation
- ✓ DPPH ASSAY

QUANTIFICATION OF PHYTOCOMPOUNDS

Duration: 3 Days



- ✓ Good Laboratory Practice
- ✓ Chemical Calculation and preparation
- ✓ Thin layer chromatography
- ✓ Percentage Calculation

Nanosponge Formulation

Duration:30 Days

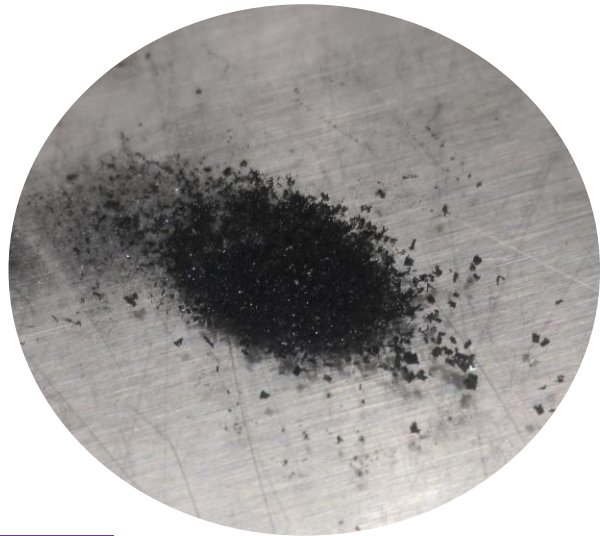
- ✓ Good Laboratory Practice
- ✓ Molarity / Normality Calculation
- ✓ Sample Collection
- ✓ Extraction of Cellulose Fiber
- ✓ Formulation of Nanosponge
- ✓ Physico chemical Analysis



Nano particle Production

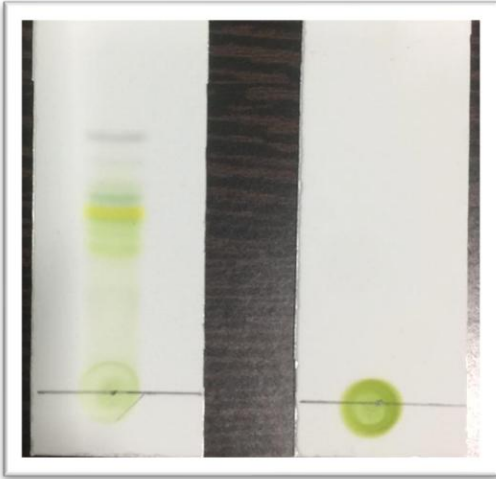
Duration: 30 Days

- ✓ Preparation of extract
- ✓ Molarity / Normality Calculation
- ✓ Preparation of Various concentration of metals
- ✓ UV Absorbance
- ✓ Antimicrobial Activity



Herbal Technology

Duration:30 Days



- ✓ Sample selection and preparation
- ✓ Solvent Extraction
- ✓ Liquid – Liquid Extraction
- ✓ Solid – liquid Extraction
- ✓ Crude extract Preparation
- ✓ Thin layer chromatography
- ✓ Antimicrobial activity – bacterial; fungal

Herbal Gel Production

Duration: 30 Days

- ✓ Preparation of plant material
- ✓ Extraction of plant crude using various solvent
- ✓ Qualitative Analysis
- ✓ Gel formulation
- ✓ Antimicrobial Activity



GEL FORMULATION USING MEDICINAL PLANT



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NATURAL REMEDIES ARE MORE ACCEPTABLE IN THE BELIEF THAT THEY ARE SAFER WITH FEWER SIDE EFFECTS THAN THE SYNTHETIC ONES. HERBAL FORMULATIONS HAVE GROWING DEMAND IN THE WORLD MARKET. HERBAL MEDICINES IS STILL THE MAINSTAY OF ABOUT 75-80% OF THE WORLD'S POPULATION, MAINLY IN DEVELOPING COUNTRIES, FOR PRIMARY HEALTH CARE BECAUSE OF BETTER CULTURAL ACCEPTABILITY, BETTER COMPATIBILITY WITH HUMAN BODY AND LESSER SIDE EFFECTS. HERBAL MEDICINES CONSIST OF PLANT OR ITS PART TO TREAT INJURIES, DISEASE OR ILLNESSES AND ARE USED TO PREVENT AND TREAT DISEASES AND AILMENTS OR TO PROMOTE HEALTH AND HEALING.

Pigment Production

Duration: 30 Days

- ✓ Good Laboratory Practice
- ✓ Isolation of the pigment-producing organism
- ✓ Purification and Selection of the organism
- ✓ Extraction of Pigment
- ✓ GCMS Analysis and Interpretation

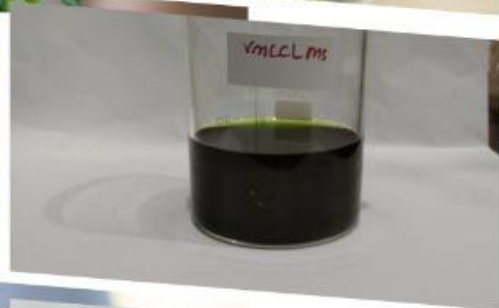
Lipid Extraction

Duration: 30 Days

- ✓ Preparation of plant material
- ✓ Extraction of lipid using various solvent
- ✓ Qualitative Analysis
- ✓ Antimicrobial Activity



QUANTIFICATION OF PHYTOCHEMICALS



IMPORTANCE OF PHYTOCHEMICALS

Medicinal plants form an important component of flora and are widely distributed in the world. The pharmacological evaluation of substances from plants is an established method for the identification of lead compounds which can result to the development of novel and safe medicinal agents. Medicinal plants are composed of some certain organic compounds called phytochemicals which produce definite physiological actions in the human body and these bioactive substances include but are not limited to tannins, alkaloids, terpenoids, steroids and flavonoids.

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MARINE MICROBIOLOGY

Duration: 30 Days

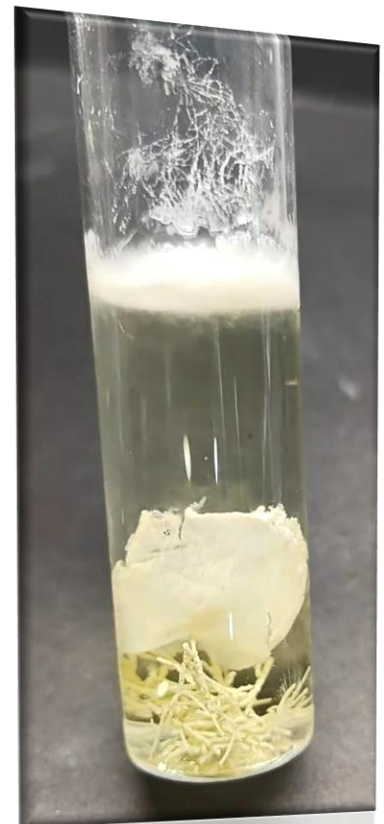


- ✓ Isolation of microorganism from marine source
- ✓ Identification of Micro organism
- ✓ Screening and application

Isolation of Halophiles

Duration: 30 Days

- ✓ Isolation of Halophiles from different sources
- ✓ Broth culture preparation
- ✓ Extract preparation from mycelium
- ✓ Mass production
- ✓ TLC Profiling
- ✓ Application of isolated organism

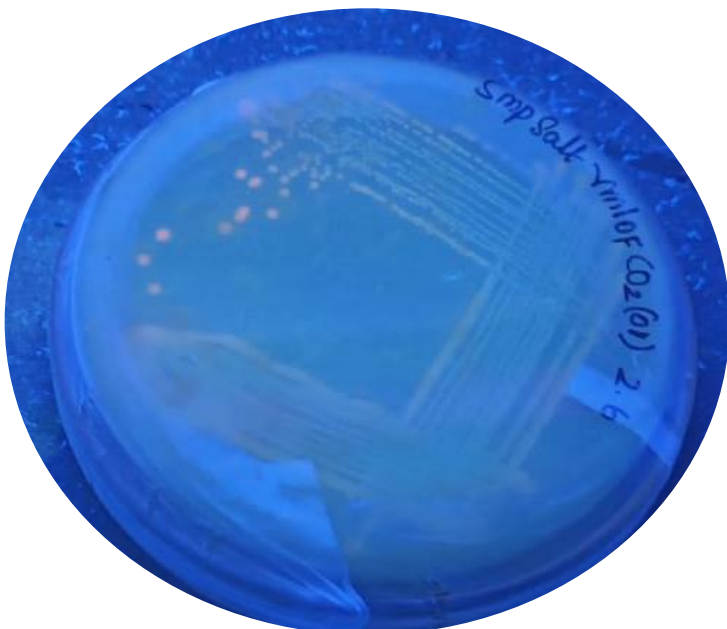


Oil Degradation

- ✓ Isolation of bacteria
- ✓ Screening of oil degradation bacterial strains
- ✓ Oil Degradation assay

Duration: 30 Days

25



Bioinformatics studies

- ✓ BLAST Analysis
- ✓ Pubmed literature survey report
- ✓ NCBI GenBank sequence submission
- ✓ Phylogeny tree construction
- ✓ MEGA, Clustal W
- ✓ Protein modelling and function prediction
- ✓ Protein- protein interaction
- ✓ Target prediction for test compounds
- ✓ Molecular docking
- ✓ 3D Visualization of docked protein-ligand file analysis (H-Bond interaction, pi-pi bond, hydrophobic interaction analysis)
- ✓ ADMET Prediction

Duration: 30 Days

Data Interpretation

Duration:3 Days

- ✓ 16S rRNA sequencing
- ✓ 18S rRNA / ITS Region sequencing
- ✓ GCMS
- ✓ Fatty acids methyl esters (FAMES) profiling
- ✓ MTT Assay

Microbiological Quality Control

Duration:30 Days

Water , Air , Soil



Clinical Biochemistry

Duration:3 Days

- ✓ Lipid Profile (TC, HDL, VLDL, Cholesterol)
- ✓ Fasting Plasma Glucose (GOD, POD)
- ✓ Total Cholesterol
- ✓ Plasma Lipid
- ✓ Lipid Glycation
- ✓ Insulin Resistance and sensitivity
- ✓ C Peptide Assay
- ✓ HbA1C
- ✓ ELIZA Test



Clinical Microbiology

Duration:3 Days

- Culture media preparation
- Micro Dilution Technique
- Antibiotic Sensitivity Test
- Agar well diffusion Method
- Minimal Inhibitory Concentration



Veridian Micro Lab Pvt Ltd

Biotechnology Skill School

TN/2021/CC6031100020



Our programs are ideal for

- Students seeking industry-ready skills
- Professionals seeking career advancement
- Individuals seeking a career change

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Lab Assistant

Eligibility

Candidates who completed class 10 or 12, Any lifescience including zoology, botany, biochemistry, genetics, microbiology, and other related disciplines UG, PG Students

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