Mangalore University
ಮಂಗಳೂರು ವಿಶ್ವವಿದ್ಯಾನಿಲಯ

Accredited by NAAC

Department of Science & Technology Promotion of University Research and Scientific Excellence

DST – PURSE INSTRUMENTATION CENTRE

SINGLE CRYSTAL X - RAY DIFFRACTOMETER

SPECIFICATIONS

Model/Make: Rigaku (Saturn 724+ HG), Japan
Monochromatic Mo Kα (λ = 0.71073 Å) x-rays
Four angle κ-goniometer ; Saturn 724+ HG CCD area detector.

HIGHLIGHTS

- Cell parameters. • Structure collection and refinement.

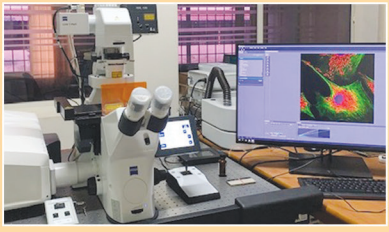
AMINO ACID ANALYZER

SPECIFICATIONS

Model/Make: Hitachi L-8900, Japan
Column: 4.6 mm ID x 60 mm L; Packed with Hitachi custom ion exchange resin;
Pump Max. discharge pressure: Delivery pressure: 0-30 MPa
Flow rate range: 0.000 - 0.999 mL/min; **Autosampler:** Direct injection method; **Sample vial capacity:** 1500 µL
Sample injection volume: 0.1 to 100 µL
Detection Wavelength: 440 nm, 570 nm.; N_2 gas.

HIGHLIGHTS

- Determination and estimation of free amino acids in Plant, Food Materials, Urine and Blood Samples.



CONFOCAL MICROSCOPE

SPECIFICATIONS

Model/Make: Zeiss LSM 880, Germany.
Laser Lines: Diode - 405, 458, 488, 514, 561, 633 nm (maximum power: 30 mW); **Fluorescence:** HXP 120 V illuminator (w/ 200 W mercury short-arc reflector lamp) ; **Detectors:** 2 Photo-Multiplier Tube (PMT), Gallium Arsenide Phosphide (GaAsP), Airyscan.

HIGHLIGHTS

- Whole tissue scanning/ Cell line scanning/ Both inverted and upright option.

GAS CHROMATOGRAPH MASS SPECTROMETER (GCMS)

SPECIFICATIONS

Model/Make:
Shimadzu, GCMS-TQ8040NX (Triple quadrupole), Japan
GC Column:
SH-Rxi-5Sil MS (Crossbone, similar to 5% diphenyl/ 95% dimethylpol)
Column dimension: 30 meter length, 0.25 mm internal dia, 0.25 um df (General purpose column)
Max. Temperature range: 320/ 350°C, Ionizer: EI
Mass range: m/z 20 to 650.

HIGHLIGHTS

- Provides quality results with exceptional reproducibility.
- Instrument with highly sensitive, stable ion source (EI) and high performance Quadrupole mass filter.
- Scan/MRM analysis mode simultaneously acquires accurate library-searchable mass spectra.
- Ultra-fast Scan speed of 20,000 u/sec.
- Provides NIST Library.

LIQUID CHROMATOGRAPH MASS SPECTROMETER (LCMS)

SPECIFICATIONS

Model/Make: Shimadzu, LCMS-8030 (Triple quadrupole), Japan
Column: C18 ; Ionizer: ESI; Mass range: m/z 160 to 1000
MS acquisition mode: Scan, SIM, MRM
DL Maximum temperature: 300°C.

HIGHLIGHTS

- LCMS-8030 is an ultra-fast Triple Quadrupole Mass Spectrometer attached with an electron spray ionizer.
- Provides research quality results on a broad range of samples.
- Ultra-fast analysis meets sensitivity and accuracy.
- Ultra-fast Scan Speed of 15,000 u/sec.
- Ultra-fast MRM and Ultra-fast Polarity Switching of 15 msec.

THERMAL ANALYSIS SYSTEM (TGA/DTA & DSC)

SPECIFICATIONS

Model/Make: TA Instruments, SDT Q600, USA
TG Sensitivity: 5-10 mg
DTA Sensitivity: 0.001°C
Temperature range: RT to 900° C
Scan rate: 1-10° C/min
Temperature Accuracy: ± 0.2° C ; Calorimetric Accuracy: ± 2%

HIGHLIGHTS

- A second generation simultaneous TGA/ DTA/DSC that provides research quality results on a broad range of samples over a wide temperature range.
- Simultaneous Thermal Analyzers measure both heat flow & weight changes in a material as a function of temperature or time.

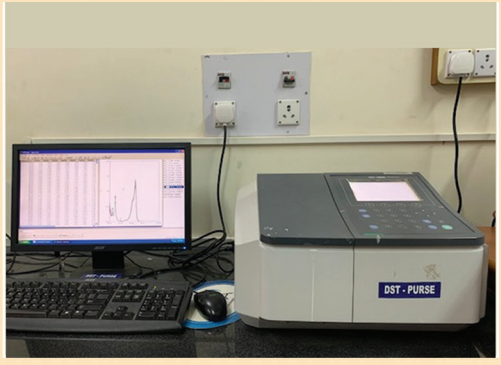
FIELD EMISSION SCANNING ELECTRON MICROSCOPE (FESEM) AND ENERGY DISPERSIVE SPECTROSCOPY (EDS)

SPECIFICATIONS

Model/Make: CARL ZEISS FESEM 03-81, Germany
Oxford Instruments Energy Dispersive Spectroscopy, UK.

HIGHLIGHTS

- A powerful instrument to study the surface morphology of nanomaterials, polymers, metal samples and other conducting samples.
- The surface can be scanned in the range of 100 µm to 20 nm.
- EDS is an attachment for the FESEM for analysing elemental composition (Carbon and above).



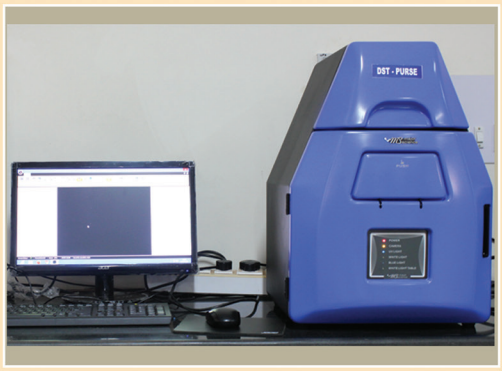
UV/ VISIBLE SPECTROPHOTOMETER

SPECIFICATIONS

Model/Make: Shimadzu UV-1800, Japan
Wavelength range: 190 nm to 1100 nm, Double Beam, Controlled through a PC with UV Probe software.

HIGHLIGHTS

- Advanced high-resolution spectrophoto-meter utilizing a precision Czerny-Turner optical system.
- Photometric Mode, Spectrum Mode, Quantitation Mode, Kinetics Mode, Time-Scan Mode, Multi-Component Quantitation Mode.



GEL DOCUMENTATION SYSTEM

SPECIFICATIONS

Model/Make: UVCI-1100, Taiwan.
Camera: High resolution 5.0 megapixel monochrome camera.
Light source: UV transilluminator
312 (302 nm (8W x 6 tubes); LED light source: 1W x 6 lamps

- Maximum sample size 28x36cm; image area 21x26 cm; with 3 modes of illumination control (trans-UV, trans white and epi-white).

HIGHLIGHTS

- Provides gel images.

ULTRA - SONICATOR

SPECIFICATIONS

Model/Make: Sidilu, India.
Ultrasonic Power: 1000 Watts peak
Timer: LED display 1-3 mins,
Timer & On/Off Keys.

HIGHLIGHTS

- Ultrasonic bath is a powerful tool for evenly dispersing nanoparticles in liquids and to break up aggregates of micron-sized colloidal particles.

POLYMERASE CHAIN REACTION ANALYZER

SPECIFICATIONS

Model/Make: 6331, Flexlid Mastercycler
Nexus Thermal Cycler (Eppendorf), Germany.

- 96 wells 0.2ml PCR tubes/one 96 well plate
- Block ramp rate: 5.0º C/sec.
- Sample ramp rate: 4.4º C/sec
- Temperature range 4-99º C/sec

HIGHLIGHTS

- To amplify DNA sequences.
- To analyze alterations of gene expression levels in tumors or other disease states.

GOLD SPUTTERING UNIT

SPECIFICATIONS

Model/Make: Planner COAT-M, India.
Sputtering Parameters:
Thickness continuously selectable from 1 to 50 nm
Drying Parameters: Vacuum level selectable from 5 Pa to 300 Pa
Process time selectable from 1 to 10 min
Average Working Distance: 40 mm; **Target Size:** 30 mm
Target Materials Supported: Au, Au/Pd.

HIGHLIGHTS

- Required to get the high resolution, best possible images in FESEM.
- Required for coating non conductive samples with gold (Gold palladium Au-Pd alloy) for SEM analysis, Pd, Ag, Carbon.

LASER PARTICLE SIZE ANALYZER

SPECIFICATIONS

Model/Make: MICROTRAC S3550, USA.
Measuring range: 0.02 µm-2.8 mm
Measuring principle: Laser diffraction
Lasers: 3x Red 780 nm ; Laser power: 3 mW nominal
Detection system: Two fixed photo-electric detectors with logarithmically spaced segments placed at correct angles for optimal scattered light detection from 0.02 to 165 degrees using 151 detector segments.
Data : Volume, number and area distributions as well as percentile and other summary data
Vacuum: Vacuum must exceed 50 CFM.

HIGHLIGHTS

- Laser diffraction measures particles of size 0.02 µm-2.8 mm.

LIQUID NITROGEN PLANT

SPECIFICATIONS

Model/Make: LN40/UC0080, NITROGENIUM Innovations and Technologies, Delhi.

HIGHLIGHTS

- Production capacity 10 Lts/day could be utilized by the researchers planning for cryo-based research below room temperature.

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