

CENTRAL ANALYTICAL INSTRUMENTATION FACILITY (CAIF)

Central Analytical Instrumentation Facility (CAIF) is equipped with sophisticated analytical instruments for scientific research in many areas, and provides analytical services to both internal users (in-house incubates) and external users (industry/academia/R&D institutes) on payment basis. Presently CAIF is having eleven (11) numbers of instruments. This facility offers training on the instruments on payment basis. It also organises short-term training programs/workshops on the various instruments available.

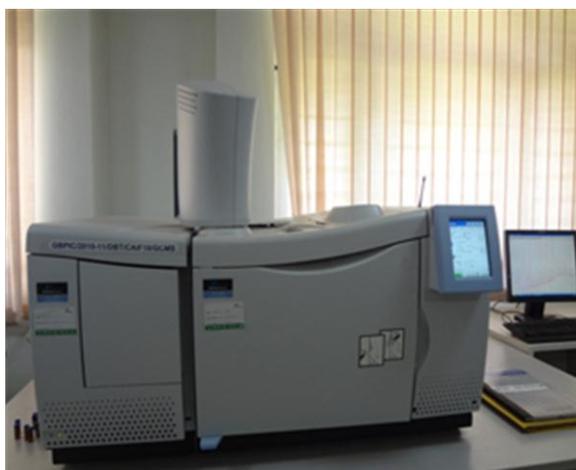
Equipments available at CAIF:

Gas Chromatography Mass Spectrometer (GCMS)

Clarus 680 GC & Clarus 600C MS, PerkinElmer, USA; Liquid Autosampler, Library Software: Turbomass NIST 2008

Features:

- Gas chromatographic separation and simultaneous Mass spectrometric analysis
- Useful for the qualitative and quantitative determination of low-molecular weight volatile samples (e.g. essential oil (plant & animal), fatty acids (FAME), pyrolytic oils, plant extracts (for aromatic hydrocarbons, flavonoids, terpenoids, steroids etc.), pesticides etc.
- Peak identification by library search with in-built library software
- Mass range: m/z 50-1000 amu



Liquid Chromatography Mass Spectrometer (LCMS)

6410 Triple Quadrupole LC/MS, Agilent Technologies, USA; Liquid Autosampler

Features:

- Liquid chromatographic separation and simultaneous Mass spectrometric analysis
- Useful for the quantification of trace organic compounds in a wide range of fields, such as pharmaceuticals, food, environment and industry, as well as macromolecules (proteins and amino acids)
- Mass range: m/z 15-1650 amu



High Performance Liquid Chromatography (Analytical)

1260 Infinity, Agilent Technologies, USA; with liquid autosampler

Features:

- Used for performing quantitative and qualitative analysis
- Detectors: PDA/FLD/RID
- Wavelength range: 190-950 nm (PDA), 1.00-1.75 RIU (RID), 200-1200 nm (FLD)



High Performance Liquid Chromatography (Preparative)

1260 Infinity, Agilent Technologies, USA; with liquid autosampler

Features:

- Useful for isolation and purification of samples
- Mass-based fraction collection
- Detectors: PDA/FLD/RID
- Wavelength range: 190-950 nm (PDA), 1.00-1.75 RIU (RID), 200-1200 nm (FLD)



Mass-directed auto-purification system

1200 Series, Agilent Technologies, USA; with liquid autosampler

Features:

- Molecular mass based liquid chromatographic separation
- Used for molecular weight and structural information
- Wavelength range: 190-900 nm (DAD detector)
- Mass range: upto m/z 2000 amu



CHNS Elemental Analyser

EuroEA3000 Elemental Analyser, Euro Vector, Italy; with solid sampler (powdered form)

Features:

- Simultaneous and fast analysis of Carbon (C), Hydrogen (H), Nitrogen (N) and Sulphur (S)
- Lowest detection limit: 0.2mg



Fourier Transform – Infrared Spectrometer (FTIR)

Nicolet iS10, Thermo Scientific, USA; with solid and liquid sampling assembly

Features:

- Used for identification of functional groups of samples
- Frequency range: $\bar{\nu} = 400-4000\text{cm}^{-1}$



UV-Vis Spectrophotometer

Specord 210 Plus BU, Analytik Jena AG, Germany; with liquid sampling assembly

Features:

- Used for qualitative and quantitative analysis in the fields of chemistry, pharmacy, medicine, food control, environment, life science etc
- Frequency range: 190-1100 nm

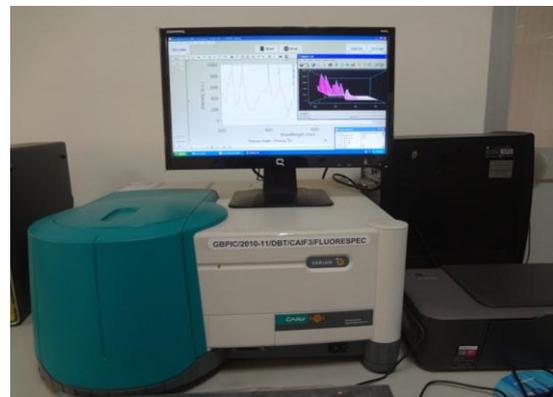


Fluorescence Spectrophotometer

Cary Eclipse, Agilent Technologies, USA; with liquid sampling assembly

Features:

- Useful for measurement of fluorescence, phosphorescence, chemi/bio-luminescence, and time resolved phosphorescence
- Useful for purity-check of phytochemicals
- Wavelength range: 200-900 nm (for both Excitation & Emission)



High Performance Thin Layer Chromatography (HPTLC)

Linomat5, CAMAG, Switzerland

Features:

- Used in different fields, as pharmaceuticals, herbals, clinical applications, food and feed stuff, cosmetics, industrial applications, environment and forensics
- Useful for trace analysis where comparatively large sample volumes have to be applied in order to reach a low detection limit



Ultracentrifuge

Optima L-100K, Beckman Coulter, USA

Features:

- Used to perform more separations in less time of high purity DNA, sub-cellular particles and virus isolations
- Maximum speed: 90,000 rpm
- Maximum g -force: 694,000 $\times g$
- Temperature range: 0-40 $^{\circ}C$



Speed vac (Vacuum Concentrator)

Concentrator plus, Eppendorf, Germany

Features:

- Useful for the evaporation of liquid or wet samples in micro test tubes, round-bottom tubes, falcon tubes, flat-bottom tubes and different plates
- Quick, efficient and gentle vacuum concentration of DNA/RNA, nucleotides, proteins and other liquid/wet samples
- Speed: 1400 rpm

