

### **Bioprospecting Facility (BP)**

Bioprospecting involves exploration, extraction and screening of biological diversity from commercially valuable genetic and biochemical resources. Natural products are important source of new drugs and are also good lead compounds suitable for further modification during drug development. In view of the presence of unique and rare medicinal and aromatic plants having significantly efficacious bioactive molecules, North-east India is advantageously positioned to attract investments in the area of bioprospecting. With advancement in molecular biology and availability of sophisticated diagnostic tools for screening, it has become pretty effective for pharmaceutical firms to conduct research through bioprospecting. GBP is currently equipped with different sophisticated instruments which will aid in R&D work on bioprospecting.

#### **Equipments available at Bioprospecting Facility:**

##### **Confocal microscope** TCS SP8, Leica, Germany

##### *Features:*

- Useful for 3D imaging, co-localisation studies, live-cell imaging etc.
- Blue excitation of FITC, Cy2 and GFP; Green excitation of TRITC and Cy3
- Spectral detector: HyD, GaAsP (for gated imaging), PMT (for imaging)
- Available lasers: Diode 405, Argon, DPSS 561, HeNe 633
- Power: For UV: 405 nm; For Vis: 458 nm, 488 nm, 514 nm, 561 nm, 633 nm



### **Fluorescence microscope with Camera**

Axio Observer.Z1 & Axio Cam MRC5, Carl Zeiss, Germany

#### *Features:*

- Useful for transmitted-light bright field, phase contrast, differential interference contrast and fluorescence
- Widely used in biomedical and materials applications
- Filter sets: DAPI, eGFP, Cy3
- Spectral range: 400-710 nm



### **Digital Polarimeter**

Autopol IV, Rudolph Research Analytical, USA

#### *Features:*

- Four measurement modes: Optical rotation, Specific rotation, Concentration and Specific rotation plus
- Six wavelength range available: 365, 405, 436, 546, 589 and 633 nm



### **Non-refrigerated Microcentrifuge**

MiniSpin, Eppendorf, Germany

#### *Features:*

- Maximum speed: 13,400 rpm
- Maximum RCF: 12,100xg



### **Table top centrifuge**

Centrifuge 5424 R, Eppendorf, Germany

#### *Features:*

- Maximum speed: 15,000 rpm
- Maximum RCF: 21,130xg
- Temperature range: 0° to 40°C



### **Table top refrigerated centrifuge**

Z 326 K, HERMLE Labortechnik GmbH, Wehingen

#### *Features:*

- Speed range: 200-18000 rpm
- Temperature range: -20° to 40°C



### **Deep freeze (-40°C)**

DW-40L508, Haier, Hong Kong

#### *Features:*

- Cabinet temperature range: -20°C to -40°C
- Ambient temperature: 10°C to 32°C



## Deep freeze (-86°C)

DW-86L728, Haier, Hong Kong

### Features:

- Cabinet temperature range: -40°C to -86°C
- Ambient temperature: 10°C to 32°C



## Lyophilizer

FreeZone, Labconco, USA

### Features:

- Suitable for lyophilisation of plant extract, microbial culture, polymers, etc.
- Collector temperature: -50°C
- Ice holding capacity: 6 L
- Stoppering tray-dryer available



## Dehumidifier

MSW-131, DH-15(D), Macro Scientific, Delhi

### Features:

- Protects against damage by moisture to agricultural products, lifesaving drugs, food products, electrical & electronic components, instrumentation, plastic, rubber, paper, metal and other moisture-sensitive substances



### **Rotary evaporator (5L) with Pump & Chiller**

R-215V, Buchi, Switzerland & RW 1025 G, JeioTech, Korea

#### *Features:*

- Rotation speed: 20-280 rpm
- Temperature range: 20-100 (H<sub>2</sub>O)



### **Rotary evaporator (20L) with Pump & Refrigerated Chiller**

Laborota 20 compact, Heidolph, Germany & 6106M, Polyscience, USA

#### *Features:*

- Rotation speed: 6-160 rpm
- Temperature range: 20-100 (H<sub>2</sub>O), 20-180 (oil)



### **Rotary High Vacuum Pump**

MSW-371, RVP-200, Macro Scientific, Delhi

#### *Features:*

- Useful for medium vacuum applications
- Displacement: 200 L/min



## **CO<sub>2</sub> incubator**

Forma Series II Water jacketed, Thermo Scientific, USA

### *Features:*

- Useful for animal cell culture by CO<sub>2</sub> control, facilitated with IR sensor, supported by unsurpassed temperature stability, and superior parameter recovery characteristics, with innovative continuous contamination control



## **Biosafety cabinet**

1300 Series Class II, Type A2, Thermo Fisher, USA

### *Features:*

- Useful for culture of microbes and/or animal cell in a sterile environment
- Useful for protection of user and environment from harmful substances and cross-contamination



## **High precision Electronic balance**

BM-22, A&D Company, Japan

### *Features:*

- Instant and smooth static elimination using a built-in fanless ionize to ensure stable weighing
- Weighing capacity: 5.1g / 22g
- Minimum weighing value: 0.001mg / 0.01mg



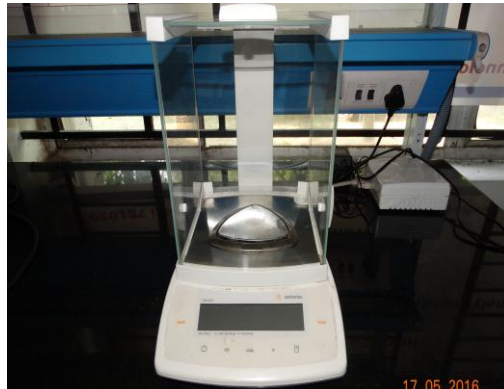


### **Semi-micro Balance**

CPA225D, Sartorius, Germany

#### *Features:*

- Capacity: 100-220g
- Readability: 0.01-0.1mg

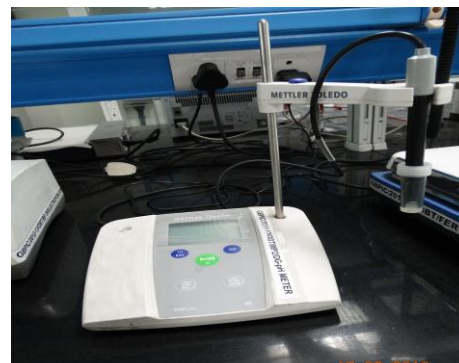


### **Digital pH meter**

FiveEasy Plus FEP20, Mettler Toledo, USA

#### *Features:*

- Useful for a wide range of applications in various areas, such as food and beverage industry, water and environmental analysis, etc.
- Fast change over between pH and mV parameters

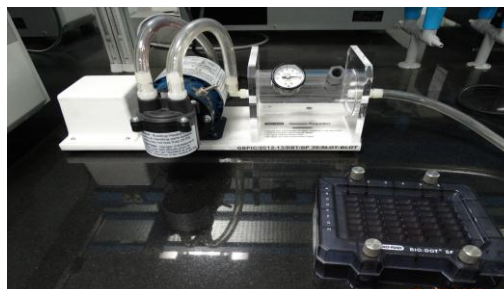


### **Slot blot apparatus**

Bio-Rad, HongKong

#### *Features:*

- Useful for easy and reproducible binding of proteins or nucleic acids in solution onto membranes in a 48-well slot format



## Sonicator

VCX 5000, Sonics, USA

### Features:

- Applicable in sample preparation, dispersion, cell lysing, desegregation, homogenization, particle size reduction, soil testing, transesterification, nanotechnology, acceleration of chemical reactions, degassing and atomization
- Probes available: 1", 1/2", 3/4", 1/8"
- Temperature probe: upto 100°C



## Gel documentation system

G:Box F<sup>3</sup>, Syngene, UK

### Features:

- Ideal for DNA, RNA and protein gel imaging



## Electroporator

Eppendorf, Germany

### Features:

- Useful for transformation of bacteria, yeast or micro-organisms with an optimum transformation efficiency of upto  $1.8 \times 10^{10}$  transformant cells/ $\mu\text{g}$  of DNA
- Available electroporation cuvettes: 1mm gap, 2mm gap, 4mm gap



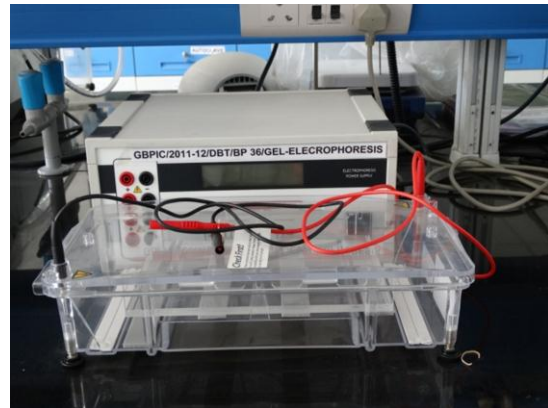


### **Gel electrophoresis unit**

HE 33 mini submarine electrophoresis unit, Hoefer, USA

#### *Features:*

- Useful for very fast separations of DNA restriction fragments in agarose gels

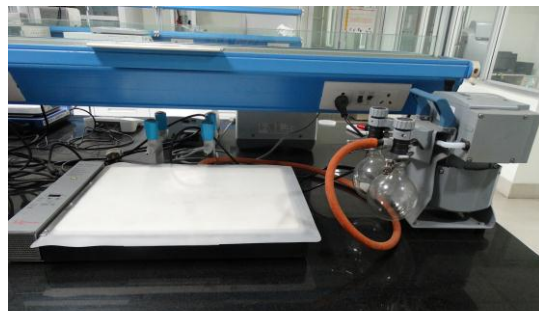


### **Gel dryer**

GD2002, Hoefer, USA

#### *Features:*

- Useful in drying of acrylamide and agarose gels



### **PCR**

SureCycler 8800, Agilent Technologies, USA

#### *Features:*

- Performs polymerase chain reaction with available programs, viz., HotStart, Touchdown etc for amplification of DNA



## Hot Air Oven with built-in Blower Fan

HERAtherm, Thermo Scientific, USA

### Features:

- Temperature range: upto 330°C with adjustable fan speed for application-related airflow in mechanical convection models (eg. drying of powders)



## Hybridization Oven

Orbitek-HiBi-2D, Scigenics, India

### Features:

- Suitable for use in radio-labelled probes, non-radioactive nucleic acid labelling and detection systems, and protein labelling & detection systems; temperature controlled oven for hybridization and incubation of northern, southern and western blots; suitable for gel processing and staining
- Temperature range: 5°C above ambient to 80°C



### **BOD incubator**

Orbitek GC-350L, Scigenics Biotech (Pvt) Ltd, Chennai

#### *Features:*

- Useful for plant growth and tissue culture studies; supports a shelf growth area of 0.3 m<sup>2</sup> with a total growth area of 0.9 m<sup>2</sup> and maximum growth height of 24 cm.



### **Incubator Shaker**

Orbitek LEBT, Scigenics Biotech, Chennai

#### *Features:*

- Ideal for culture of microorganisms
- Shaking frequency: 30-350 rpm
- Temperature range: 5°C to 80°C

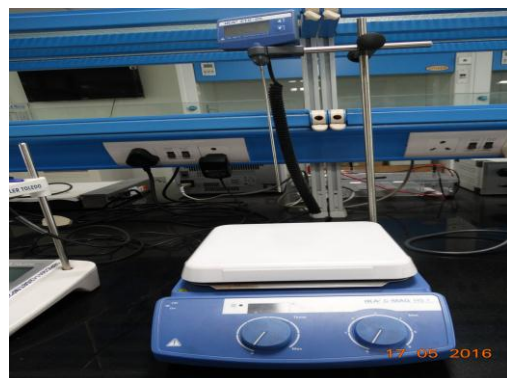


### **Magnetic stirrer with Hot plate**

C-MAG HS7, IKA, Germany

#### *Features:*

- Speed range: 100-1500 rpm
- Heating temperature range: 50-500°C

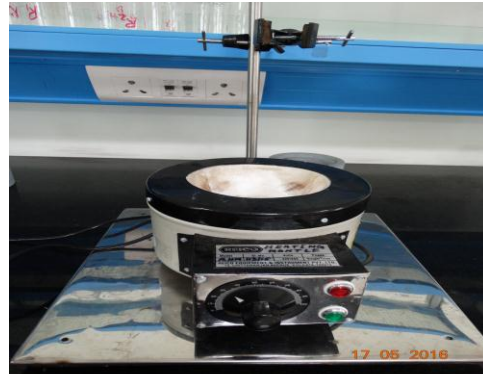


## Heating Mantle

Reico, India

### *Features:*

Capacity: 500ml, 1L, 2L



## SS Water Bath

WB-11, WB-22, Daihan

### *Features:*

- Capacity: 11 L & 22 L
- Temperature range & Accuracy: ambient +5°C ~ 100°C,  $\pm 0.1^{\circ}\text{C}$



## Vortex

Genius 3, IKA, Germany

### *Features:*

- Speed range: 500-2500 rpm



**Ice Flaker**  
SPR 80, Simag, Italy

*Features:*

- Produces flaked ice



**Glass Distillation Unit**

Borosil, India

*Features:*

- Output capacity: 1.5 L/hr
- pH 6-7
- Conductivity:  $<3 \times 10$  S/cm

