ABOUT SOPHISTICATED ANALYTICAL INSTRUMENT FACILITY (SAIF)

Objectives

- Carry out analysis of samples received from academic and research institutions, industries, and other organizations.
- Provide instrumental facilities for scientists in the region to carry out measurements for research.

SOPHISTICATED ANALYTICAL INSTRUMENT FACILITY COMMITTEE (SAIF, ICAR-IIHR)

		
DR. K.S. SHIVASHANKARA Head of SAIF **Division of Basic Sciences** **Phone: 080-23086100 (Extn: 243)** **shivashankara.ks@icar.org.in**	**DR. K.V. RAVISHANKAR** Member, SAIF **Division of Basic Sciences** **Phone: 080-23086100 (Extn: 406)** **ravishankar.kv@icar.org.in**	**DR. D.K. SAMUEL** Member, SAIF **Division of Crop Protection** **Phone: 080-23086100 (Extn: 338)** **dksamuel2@gmail.com**
		
DR. D. KALAIVANAN Member, SAIF **Division of Natural Resources** **Phone: 080-23086100 (Extn: 317)** **Kalaivanan.d@icar.org.in**	**DR. ABHISHEK MANDAL** Member, SAIF **Division of Basic Sciences** **Phone: 080-23086100 (Extn: 248)** **abhishek.mandal@icar.org.in**	**MR. K.G. JEGADEESHAN** Member, SAIF **Senior Finance &Accounts Officer** **Phone: 080-23086100 (Extn: 222)** **iihraudit@gmail.com**

All the queries regarding analysis, samples, charges, payments should be sent only on **saif.iihr67@gmail.com**

HOW TO USE

External Users: University/ Colleges: You can come in-person or send your samples along with a letter from the Head / Guide on your College/Institute original letterhead duly signed and sealed for registration stating that the analysis is for research purpose to qualify for academic concession. The letter should be addressed to the **Head, SAIF, IIHR, Bengaluru.**

National Lab: You can come in-person or send your samples along with a letter from your Institute original letterhead duly signed and sealed for registration stating that the analysis is for research purpose. The letter should be addressed to the **Head, SAIF, IIHR, Bengaluru.**

Private agencies: You can come in-person or send your samples along with a letter for registration. Covering letter should be on your company original letterhead duly signed and sealed and should also consist the following undertaking: **"In any event, the content of report/bill is meant for our information only and we will not use the content of this bill/report for advertisement, evidence or litigation"**. If your letter does not contain the above undertaking then your letter and samples for analysis will not be accepted. The letter should be addressed to the **Head, SAIF, IIHR, Bengaluru**.

For any further details mail to saif.iihr67@gmail.com

Note:

- In your letter mention that "**You agree to acknowledge SAIF, IIHR-ICAR, Bengaluru, in your publications and thesis if the SAIF Instrument results are incorporated/used in them."** Kindly send us the publication reference (Journal name/volume number/names of the authors/date of issue of the publication etc) to us.
- The analytical data / spectra are provided only for research / development purposes. These cannot be used as certificates in legal disputes.
- Service charges are payable at prevailing rates.
- Samples, letter and payment should be sent in the same cover only. If Samples are received without covering letter/DD/UTR number, the samples will be sent back to the user without any further intimation/notice. Samples are not analysed till payment is received.
- If you are sending samples for multiple Analysis. Please send separate samples for each analysis.
- Please send the samples in quantity as mentioned in the brochure. Samples are not recovered, unless a special request is made.

- Unstable and explosive or hazardous compounds are not accepted for analysis.
- Services are rendered to only those users who regularly give us feed-back about the end user of the result, e.g. thesis, patent, process publication etc.
- Research fellows and students are advised to send the application and samples through their Supervisor or Head of department.
- Interpretation of results/spectra is not undertaken normally. In special cases this service can be provided on payment on extra charges.
- We do not provide any accommodation. You have to arrange on your own.

Payment:

- **The payment should be made in advance by Demand Draft (DD) in favour of:** "Director, ICAR-IIHR, Bengaluru" OR by NEFT transfer to IIHR account with following details. Beneficiary details:

The Director, Indian Institute of Horticultural Research,

Bank Account Number: 37578009241

Name of the Bank: State Bank of India

Type of Account: Current Account

IFSC No.: SBIN0041187

- **The DD/UTR number along with sample and covering letter should be sent to :** "Dr. A.N. Lokesha, Senior Technical Officer, Division of Basic Sciences, Hesaraghatta Lake Post, Bengaluru -560 089"

- **Results:** After the sample analysis is complete the results are dispatched through email only.

ICAR-INDIAN INSTITUTE OF HORTICULTURAL RESEARCH
SOPHISTICATED ANALYTICAL INSTRUMENT FACILITY (SAIF)
Revised charges w.e.f. 24.09.2026

Sl.No.	Name of Instrument	Revised Charges (Rs.) +18% GST
1.	LC-MS/MS	Rs. 6,500/- per sample (Companies) Rs. 4,500/- per sample (Govt. R&D) Rs. 1,750/- per sample (Students)
2.	GC-MS/MS	Rs. 4,500/- per sample (Companies) Rs. 3,500/- per sample (Govt. R&D) Rs. 1,250/- per sample (Students)
3.	LC-MS/MS	Pesticide residue analysis Rs. 5,000/- per sample (Companies) Rs. 4,000/- per sample (Govt. R&D) Rs. 3,000/- per sample (Farmers/Students)
4.	GC-MS/MS	Pesticide residue analysis Rs. 10,000/- per sample (Companies) Rs. 4,000/- per sample (Govt. R&D) Rs. 3,000/- per sample (Farmers/Students)
5.	IRMS	Honey analysis Rs. 6,000/- per sample
6.	ICP-MS	**Heavy Metal analysis (Pb, As, Hg, Cr, Ni, Cd, Cu, Sn)** Rs. 3,000/- per sample (Companies) Rs. 2,500/- per sample (Govt. R&D) Rs. 2,000/- per sample (Farmers/Students) **Methyl mercury analysis by ICP-MS** Rs. 1,500/- per sample (Companies) Rs. 1,500/- per sample (Govt. R&D) Rs. 1,500/- per sample (Farmers/Students)
7.	Atomic Absorption Spectrometer (AAS) + NPK analysis	Rs. 3,500/- per sample (Companies) Rs. 2,000/- per sample (Govt. R&D) Rs. 750/- per sample (Students) **Without NPK** Rs. 500/- per sample (Students)
8.	Transmission Electron Microscope	**ICAR/SAU/SHU/Govt. R&D** EM sample observation: Rs. 1,250/- per image Block preparation & EM: Rs. 6,000/- per image **Pvt./ Industries** EM sample observation: Rs. 4,000/- per image Block Preparation & EM: Rs. 10,000/- per image

<table>
<tr><td>9.</td><td>Scanning Electron Microscope</td><td>ICAR/SAU/SHU/Govt. R&D
EM sample observation: Rs. 1,250/- per image
Pvt./ Industries
EM sample observation : Rs. 4,000/- per image</td></tr>
<tr><td>10.</td><td>CHN Analyzer</td><td>Rs. 3,000/- per sample (Companies)
Rs. 2,000/- per sample (Govt. R&D)
Rs. 1,000/- per sample (Students)</td></tr>
<tr><td>11.</td><td>Gama Chamber</td><td><table>
<tr><td>Radiation intensity (Gy)</td><td>For Students</td><td>For Govt. R&D</td><td>Companies</td></tr>
<tr><td>0 to 100</td><td>250</td><td>250</td><td>1000</td></tr>
<tr><td>100 to 500</td><td>250</td><td>500</td><td>1500</td></tr>
<tr><td>500 to 1000</td><td>250</td><td>1000</td><td>2500</td></tr>
<tr><td>>1000</td><td>250</td><td>1850</td><td>3000</td></tr>
</table></td></tr>
<tr><td>12.</td><td>GC-EAD</td><td>Rs. 15,000/- per sample (Companies)
Rs. 12,000/- per sample (Govt. R&D)
Rs. 10,000/- per sample (Students)</td></tr>
</table>

For further information, visit **https://www.iihr.res.in/iihr-saif** or e-mail at **saif.iihr67@gmail.com**

LC-MS-I

WATERS Acquity UPLC H-Class, Coupled with Acquity- TQD MS/MS

Charges per sample/type of analysis:

For Industries/commercial companies: **Rs. 6,000** + 18% GST per sample per profile.

For Govt. R & D labs: **Rs 4,000** + 18% GST per sample per profile

For students: **Rs 1,750** + 18% GST per sample per profile.

Dr. A.N. Lokesha, Senior Technical Officer

Division of Basic Sciences, **Email: saif.iihr67@gmail.com**

Ph: +91-80-23086100 Extn: 247 / 236

Specifications:

Pressure can be hold up-to 15000 psi, with flow from 0.05 ml to 0.5 ml/min PDA Detector 190nm -900nm. MS/MS Mass range scan 20amu to 2000 amu, with electro spray ionization of ESI+ and ESI-, APCI+ and APCI-

Highlights of importance and applications of instruments:

To measure the molecular wt. and their fragmentation of unknown compounds. Plants Metabolomics and phytochemicals identifications and quantification by injecting through UPLC or by direct insertion to MS/MS.

Parameters/analysis that can be analysed in the instrument:

Profiling and estimation of Phenolic acids, Flavonoids, Amino acids, Polyamines, Water and Fat soluble vitamins, Plant Hormones, Organic acids, Anthocyanins, Sugars etc.

User instructions for sample preparation:

Extraction should be done as per the standard published methodology for individual groups of compounds. A minimum of 2 ml of the extract can be sent for the LC-MS analysis. If solid samples (Plant samples/mushrooms only) are to be sent then a minimum of 10 g is needed.

GC-MS-I

Make & Model of instrument: Shimadzu Nexis GC-2030 gas chromatograph coupled with Shimadzu TQ 8040 NX ion trap mass selective detector

Charges per sample/type of analysis:

For Industries: **Rs. 4,000** + 18% GST per sample per analysis

For Govt R & D Labs: **Rs. 3,000** + 18% GST per sample per analysis

For Students: **Rs. 1,250** + 18% GST per sample per analysis

(For each sample only top 10 peaks will be identified)

Dr. A.N. Lokesha, Senior Technical Officer

Division of Basic Sciences, **Email: saif.iihr67@gmail.com**

Ph. No: +91-80-23086100 Extn: 247 / 236

Specifications:

GC- with EPC and Temperature controlled oven FID and MS Detector with TQD and Ion trap MS/MS Mass range scan 20amu to 2000 amu, with Internal and External Ionization

Highlights of importance and applications of instruments:

To measure the molecular wt. and their fragmentation of unknown volatile compounds like terpenoids, esters, alcohols, fatty acid esters, volatile acids and wax profiles of fruits, vegetables, flowers and leaves.

Parameters/analysis that can be analysed in the instrument:

Aroma and fragrance profiles of fruits and vegetable by Head space and liquid injection, Wax analysis, fatty acid profiles can be estimated using GC-MS/MS

User instructions for sample preparation:

As per the published methodology developed for individual groups of compounds.

Parameters that can be analyzed on the instrument/facility:

Flavour and aroma profile of fruits and vegetable by Head space and liquid injection, Wax analysis, fatty acid profile etc.

LCMS-II

Thermo Fisher triple quad LC-MS/MS Model -TSQ -Endura

Charges per sample/type of analysis:
RS 5,000 + 18% GST per sample

Dr. Abhishek Mandal, Scientist,

Division of Basic Sciences Email**:** abhishekmandal.iari@gmail.com

Contact No. +91-80-23086100, Extn: 248/480.

Specifications:
Dionex LC, Thermo Mass spectrometer with ESI and APCI ion sources.

Highlights of importance and applications of instruments:
The equipment can be used for trace analysis of 100 no. of pesticides standards in fruits, vegetable, cereals and water which are available in our lab.

Parameters/analysis that can be analysed in the instrument:
Trace analysis of pesticides

User instructions for sample preparation:
Samples (fruits/vegetables) of 1 kg in polythene packing to be sent and they have to be Packed in a box containing dry ice.

Parameters that can be analyzed on the instrument/facility:
Pesticide Residues

GC-MS-II

Shimadzu GCMS-TQ8040NCI

Charges per sample/type of analysis:

5,000 + 18% GST per sample

Dr. Abhishek Mandal, Scientist,

Division of Basic Sciences Email**:** abhishekmandal.iari@gmail.com

Ph. No: +91-80-23086100, Extn: 248/480.

Specifications:

Shimadzu model triple quad GCMS- TQ8040NCI with EI and CI ionization mode

Highlights of importance and applications of instruments:

The equipment can be used for trace analysis of 35 no. of pesticides (standards of which of instruments are available in our lab.) in fruits, vegetable, cereals and water

Parameters/analysis that can be analysed in the instrument:

Trace analysis of pesticides in the instrument

User instructions for sample preparation:

Samples(fruits/vegetables) of 1 kg in polythene packing to be sent and they have to be packed in a box containing dry ice.

Parameters that can be analyzed on the instrument/facility:

Pesticide Residues

AAS (Atomic Absorption Spectrometer)

Agilent 280 FS

Charges per sample/type of analysis:

Rs. 3,500/- + 18% GST per sample (Companies)

Rs. 2,000/- + 18% GST per sample (Govt. R&D)

Rs. 500/- + 18% GST per sample (Students)

Dr.G.C. Satisha, Principal Scientist,

Division of Natural Resources, Email.: sathisha.gc@gmail.com

Phone No. +91-80-23086100 Extn: 316

Specifications:

The Agilent 280FS AA is a fast and productive flame AA system, featuring Fast Sequential operation combined with 8-lamp capability, premium optics, and UltrAA lamp looms for greater performance. The 280FS AA features automatic lamp selection, a programmable gas box, and D2 background correction, and can be fitted with a full range of AA accessories to further extend its capabilities. Able to handle multi-element suites with ease, it is ideal for micronutrient analysis for various uses viz., environmental, food, and agriculture applications.

Highlights of importance and applications of instruments:

Atomic absorption spectrophotometry (AAS) is one of the principal instrumental techniques for elemental analysis (Fe, Mn, Zn, Cu and some heavy metals) in most soil science laboratories. In AAS, atoms excited in an oxyacetylene flame absorb light at wavelengths characteristic of each element. Light absorption is proportional to the concentration of atoms in a light path. The most commonly used radiation source is a hollow cathode lamp, consisting of a tungsten anode and a cylindrical cathode sealed in a glass tube filled with neon or argon gas. Though both single-beam and double-beam instruments are available, double- beam instruments are preferred because they minimize effects of lamp emission variations, detector

sensitivity, and electronic gain. Acetylene (C_2H_2) as fuel and air or nitrous oxide (N_2O) as oxidant is commonly used. An air-Q-12 flame (2100-2400°C) is used for elements (such as calcium, magnesium) that do not form refractory compounds arid have low ionization potentials; an N_2O-C_2H_2 flame (2600-2800°C) is used for elements (such as aluminum) forming refractory compounds. More than 60 elements can be determined by AAS. Besides detection limits, factors such as matrix or interference effects are major influences on the viability of particular analyses. Problems caused by the formation of stable compounds or compounds of low volatility by the element of interest in combination with some anion can be over-come by the addition of an excess of a "competing cation" or a "releasing agent". For example, lanthanum (1000 mg/1) as chloride can be added in the determination of calcium and magnesium to remove the potential interference due to aluminum and phosphorus.

User instructions for sample preparation:

It should be clear pre-digested liquid form.

Parameters that can be analyzed on the instrument/facility:

Atomic absorption spectrophotometry (AAS) is used for elemental analysis of Fe, Mn, Zn, Cu, Ca, Mg, K, Se, Ni, Co, Pb and As.

Transmission Electron Microscope (TEM)

HT7700 Transmission Electron Microscope Manufactured by Hitachi Ltd, Japan With Power backup, computing and Imaging facilities

Charges per sample/type of analysis:
ICAR/SAU/SHU/Govt R&D

EM sample observation: Rs. 1,250/- per image

Block preparation & EM: Rs. 6,000/- per image

Pvt/Industries

EM sample observation: Rs. 4,000/- per image

Block Preparation & EM: Rs. 10,000/- per image

Dr. D.K. Samuel, Principal Scientist

Division of Plant Protection, Email: dksamuel2@gmail.com

Phone +91-80-23086100 Extn: 338

Specifications:
Magnification: ×50 - ×1,000, (low Mag mode) ×200 - ×200,000 (High Contrast mode), ×4,000 - ×600,000 (High Resolution mode)
Accelerating voltage: 40 - 120 kV (100 V/step variable)
Image output: : 8 M pixel Main Camera
640 × 480/ 1,280 × 960/ 2,560 × 1,920/ 5,120 × 3,840 pixel,TIFF (8 or 16 bit) , BMP, JPEG images. With auto nano / micron marker
Auto focus. Microtrace, Autodrive, Autophoto, features Auto-gun alignment, Live FFT display, Measurement function, Low dose and auto pre-irradiation facility
Image output in CD/DVD

Highlights of importance and applications of instruments:

The Transmission Electron microscope can image viruses and other plant pathogens. It can also image metallic nano particles. upto 300000 times primary magnification This Variable Pressure Scanning Electron Microscope can be used to image structure of bio materials upto 60000 times primary magnification

Parameters/analysis that can be analysed in the instrument:

Sample dimensions, Size distribution.

User instructions for sample preparation:

1. Leaf Dip Preparations.

The sap neds to be extracted and applied on TEm grids, After addition of PhosphoTungstic Acid or Uranyl Acetate stain, The sample needs to be washed and dried. This can be imged within a day.

2. Ultrathin sectioning

The sample needs to be fixed with Osmium tetroxide or Glutaraldehyde or Paraformaldehyde and then needs to be dehydrated in an alcohol series. Followed by Embeding in Epoxy resin blocks, The cured blocks would then be cut in a Ultramicrotome using glass blades. The cut sections ned to be in 40 – 50 na1nometers (nm) thick, The sections would need to be stained and imaged after drying. Time requirement will be 2 weeks.

Parameters that can be analyzed on the instrument/facility:

Nano / Miro structure, morphological

Scanning Electron Microscope (SEM)

TM3030Plus Scanning Electron Microscope manufactured by Hitachi Ltd, Japan

With Power backup, computing and Imaging facilities

Charges per sample/type of analysis:

ICAR/SAU/SHU/Govt. R&D

EM sample observation: Rs. 1,250/- + 18% GST per image

Pvt./ Industries

EM sample observation: Rs. 4,000/- + 18% GST per image

Dr. D.K. Samuel, Principal Scientist

Division of Plant Protection, Email: dksamuel2@gmail.com

Phone +91-80-23086100 Extn: 338

Specifications:

15 to 120,000x
Signal select Observation mode
5 kV/15 kV, Back Scattered electrons / Secondary Electron or Mix (30 % BSE: 70% SE) detector
With Conductor/ Standard/ Charge-up Reduction modes

Maximum sample size 70 mm diameter.
Auto start, Auto focus, Auto brightness/contrast
Image Size: 640x480 pixels, 1,280x960 pixels as BMP, TIFF, JPEG
Auto Micron marker
Turbomolecular pump
Image output in CD/DVD

Highlights of importance and applications of instruments:

The Transmission Electron microscope can image viruses and other plant pathogens. It can also image metallic nano particles. upto 300000 times primary magnification This Variable Pressure Scanning Electron Microscope can be used to image structure of bio materials upto 60000 times primary magnification

Parameters/analysis that can be analysed in the instrument:

Sample dimensions, Size distribution

User instructions for sample preparation:

As the Instrument has Variable Pressure Detector, the samples need to be stuck on 2 sided conducting adhesive copper tape on an aluminium stub. If needed a carbon coat can be done using the Vacuum evaporator to increase controst. Staining using Phospho Tungstic Acid needs to be done for higher magnifications. The imaging can be done immediately.

Parameters that can be analyzed on the instrument/facility:

Nano / Miro structure, morphological

CHNS Elemental Analyzer

ElementarVario Micro Cube (Germany)

Charges per sample/type of analysis: For analysis of CHN and S content

Rs. 3,000/- + 18% GST per sample (Companies)

Rs. 2,000/- + 18% GST per sample (Govt. R&D)

Rs. 1,000/- + 18% GST per sample (Students)

Dr. G. Selvakumar, Principal Scientist

Division of Natural Resources, E-mail : selvakumar.g@icar.org.in

Ph. No. +91-80-23086100 Extn. 328

Specifications:

High temperature combustion: quantitative sample digestion at up to 1200 °C (1800 °C at the point of combustion when tin foil is used). This is the prerequisite for 100% recovery also with samples difficult to combust. Jet injection of oxygen directly to the sample leads to highest oxygen concentrations at the point of combustion and low gas consumption. Largest weighing range: from micro (<1 mg) to macro (800 mg soil) sample weight, depending on requirements up to 20 mg organic matter. Temperature programmed Desorption (TPD): Separation of gaseous components with one TPD column for perfect separation without peak overlap. Automated optimization

Highlights of importance and applications of instruments:

The analysis only takes a few minutes, no aggressive or toxic chemicals are used, Helium carrier gas.

User instructions for sample preparation:

Samples have to dried thoroughly and fine ground to be able to pass through a 0.2 mm sieve.

Parameters that can be analyzed on the instrument/facility:

The equipment can be used for the analysis of CHN and S from soil, compost, plant samples, etc.

Gamma Chamber 5000

GAMMA CHAMBER 5000 is a compact, portable, self, - shielded type of a Co-60 Gamma Irradiator. Its design conforms to American National Standards ANSI-N 4~3. L, 1977 for Safe design and use of self contained D1y Source Storage Garruna lrrad1ator (category - I). Atomic Energy Regulato1y Board *(AERB),* India, approves it as Type B (U) package for safety in transport of radioactive material. It also meets the IAEA regulations for tl1e safe transport of radioactive material as per safety series - 6, l 985(as amended in 1990). The Unit is designed to house 518 Tl3q (14000 Ci) of Cobalt-60 source and it provides An Irradiation volume of about 5000 c.c. Approximately. The doubly encapsulated sealed radioactive sources are used in cylindrical form, which are completely contained in a dry container called flask unit. The sealed sources are shielded at all times and human access to it and the volume undergoing irradiation is not physically possible in its designed configuration. The irradiation chamber is located in vertical shaft (Drawer). The shaft moves up and down with the help of a drive system, which enables exact positioning of the irradiation chamber in the center of the radiation field. Access holes of 8 mm diameter are provided in tl1e vertical shaft for introduction of service sleeves for gases, RTD censer etc. for temperature measurement inside irradiation zone.

Charges per sample/type of analysis:

Radiation intensity (Gy)	For Students	For Govt. R&D	Companies
0 to 100	200	200	750
100 to 500	200	400	1,250
500 to 1000	200	750	2,000
>1000	200	1,500	2,500

Dr. D. Kalaivanan, Senior Scientist

Division of Natural Resources, Email: kalaivanan.d@icar.org.in

Phone: +91-80-23086100 Ext No.: 317

Specifications:

Maximum Co-60 source capacity	518 TBq (14000 Ci)
Dose rate at maximum capacity	~ 9 kGy/hr (0.9 Mega Rad/hr) at the center of sample chamber
Dose rate uniformity	+25% or better radially; -25% or better axially
Irradiation volume	5000cc approx.
Size of sample chamber	17.2cm (dia) X 20.5cm (ht)
Shielding material	Lead & stainless steel
Weight of the unit	5600 kg. approx.
Size of unit	125cm (l) X 106.5cm (w) X 150cm (ht)
Timer range	6 seconds onwards

Highlights of importance and applications of instruments:

Gamma Chamber is a versatile equipment for research studies in many fields such as:

- Radiobiology
- Preservation of tissue grafts
- Mutation breeding
- Food preservation
- Sterile male insect technique
- Biological and genetic effects of radiations
- Radiation chemistry
- Radiation effects on materials
- Radiation sterilization
- Modification of properties of materials

Gamma Chamber can also be used in many other research applications which require irradiation of materials with ionizing radiations to varying doses.

Parameters/analysis that can be analysed in the instrument:

Irradiation of materials (Plant, Insects, Food etc.,) with ionizing radiations to varying doses

User instructions for sample preparation:

NA

Gas Chromatography- Electroantennogram Detector (GC-EAD)

Agilent-Syntech (7890B-IDAC4)

Charges per sample/type of analysis:

Rs. 15,000/- + 18% GST per sample (Companies)

Rs. 12,000/- + 18% GST per sample (Govt. R&D)

Rs. 10,000/- + 18% GST per sample (Students)

Dr. Kamala Jayanthi, P.D., Principal Scientist,

Division of Plant Protection, Email: jaiinsect@gmail.com

Ph. No: 080-23086100 Extn: 306

Specifications:

EAD:4-channel USB acquisition controller, micromanipulator, Stimulus controller unit:EAG AND GC/EAD signal recording and analysis Program: effluent conditioning assembly; Narishige pipette puller for glass Electrode preparation.

GC:0 to 60-psi capillary inlet system with EPC for split/splitless operation, Flame ionization detector (FID) for packed and capillary columns, Open lab CDS Chemstation software for control.

Highlights of importance and applications of instruments:

The instrument could be use in discovery of chemical molecule responsible for insect attraction, aggregation, repellence and insect ecological behaviour.

Parameters/analysis that can be analysed in the instrument:

Electrophysiological response recording

User instructions for sample preparation:

1. The insect specimens should be alive and active for next preparations.
2. Antennae need to be cut as per desired experimental aim.
3. The cut antennae need to be fixed on the wire electrode using the conductive gel
4. The probe to be fixed to the micromanipulator and the allowed to stabilize for few minutes.
5. The chemical compound eluted from GC column is allowed to flow on to antennae for recording electrophysiological response via recording program.

Parameters that can be analyzed on the instrument/facility:

1. Electro physiological response of insect antennae can be record for various chemical compounds