

Central Instrumentation Room (CIR)

Aim:

CIR aims at the optimized application of the instrumentation facility with quality assurance of analytical and subsequent research outcomes.

Establishment of CIR in the University

Central Instrumentation room (CIR) has been incepted in the University in 2016. An amount of Rs. 40 lakh has been spent to gather multiple instruments of common use type. It has been playing a crucial role in supporting the research activities of various Schools of University including Pharmacy, BAMS, agriculture, Engineering and veterinary.

Facilities in the Laboratory:

- The central instrumentation room presently hosts the various modern analytical instruments including
 - High Performance Liquid Chromatography
 - Dual beam UV-Visible Spectrometer
 - Refrigerated centrifuge
 - Flame photometer
 - Calorimeter

OBJECTIVES

- I. To provide basic research support to the centres of science and social science for their instrumentation requirements.
- II. To strengthen the facility with advance research instruments making it a model hub for scientific research in this region.
- III. Maintenance and upgrade of instruments in the facility as well as that at various centres in the university.
- IV. Promoting University and Industry Collaboration through essential Services for sponsored research and consultancy.
- V. To carry out analysis of samples received from faculty members of the institute and other academic institutions.
- VI. To provide facilities of modern analytical instruments to students and researchers enabling them to keep pace with developments taking place globally, publish their research findings in peer reviewed high impact factor journals and through their concerted efforts, contribute to the uplift of the society at large.



- VII To acquire and develop capability for preventive maintenance and repair of the high-end instruments.
- VIII To organize short term courses/workshops on the use and application of various instruments and analytical techniques.
- IX To train technicians for maintenance and operation of sophisticated instruments

Research support

The university has a high proportion of research students in the sciences and an active faculty of 25 in the science disciplines. The CIR is playing a vital role in meeting their equipment needs and this aspect is particularly appreciated by the newly joined faculties, who necessarily have to spend a few years initially in developing their research laboratories. CIR has been providing a major support to all the science schools with an average number of around 10 common-use type of state-of-the-art instruments covering Photometry, spectroscopy, and chromatography. Within this small span of four years of its inception, the CIR has achieved an average of 300 samples run every year with a total amount of 1500 samples completed till year. With the increase in demand due to the growing faculty strengths of science schools the year 2021 has accounted for 600 samples studied.

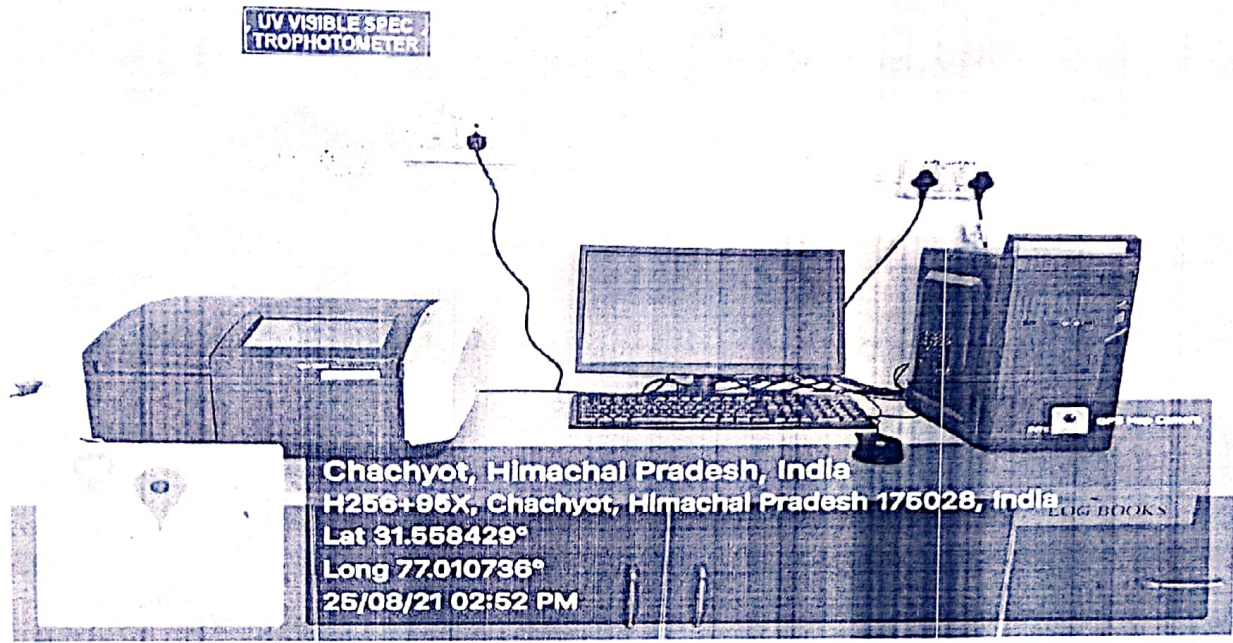
Support Facility

1. Uninterrupted Power Supply: Capacity upto 2.4 KVA for backup of High-Pressure Liquid Chromatography and UV spectroscopy.
2. Dedicated Earthings <1 Volt
3. Modular Laboratory Furniture



Sophisticated instruments of CIR

UV-Visible Spectrophotometer



Make: Shimadzu, Japan

Model: UV-1900

Date of entry to CIR :18/12/2019

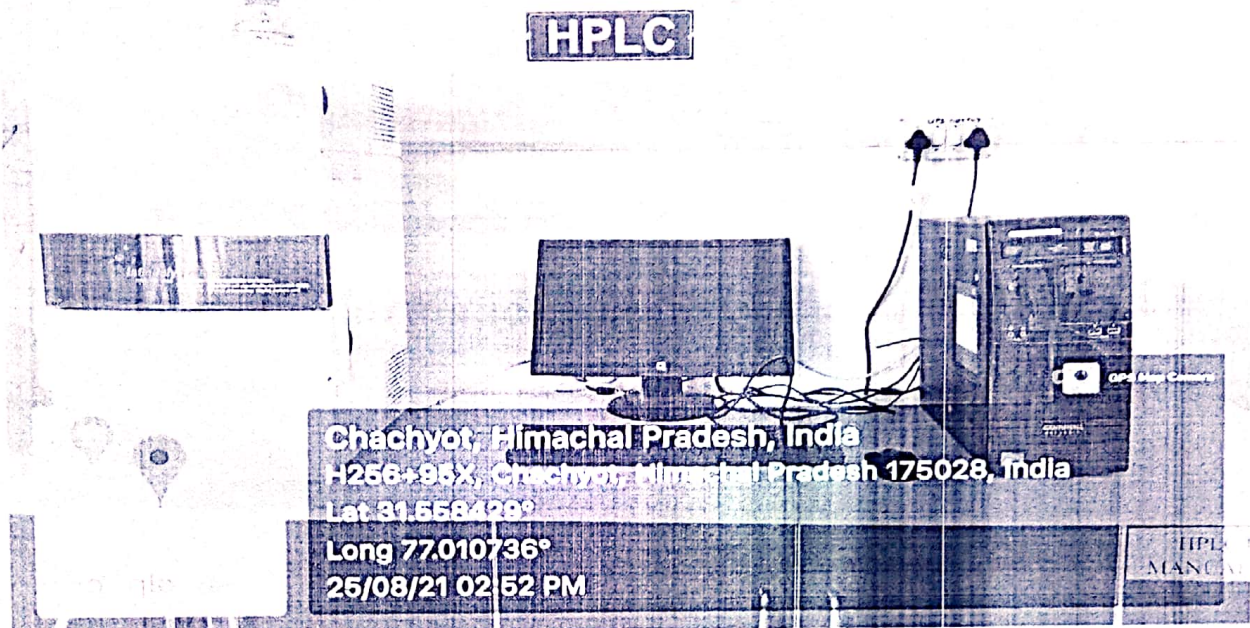
Date of Installation :17/03/2019

It is an instrument of basic need in research including life sciences and common analysis. The instrument features an adjustable slit width and features analytical measurements like full spectrum, Absorbance and kinetic modes.

The spectrometer host the following for the analysis:

- Double cell Holder
- Flow Cell Assembly
- Peltier Cooled Thermostat

High Performance Liquid Chromatography (HPLC)



Make: Agilent USA

Model: Infinity 1220

Date of entry to CIR :07/10/2016

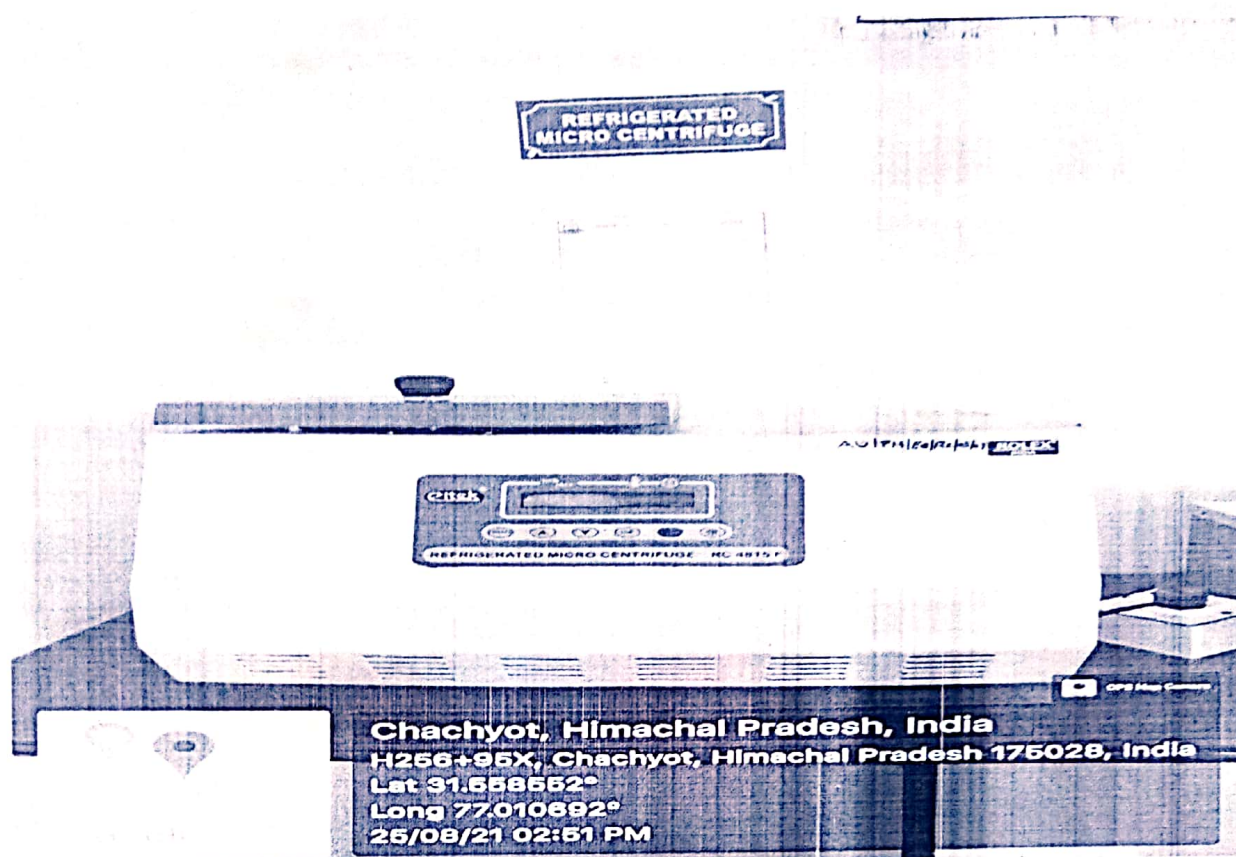
Date of Installation: 07/10/2016

The HPLC system is equipped for routine chromatographic analysis of various pharmaceutical and other related samples etc.

The facility is of following configuration:

- Binary Solvent
- VWD Detector
- Columns: C-18 and C-8

REFRIGERATED MICRO-CENTRIFUGE



Make: Rolex India

Model: Eltek RC 4815F

Date of entry to CIR :18/12/2019

Date of Installation: 11/11/2011

Refrigerated centrifuges are used for samples that need a consistent range of temperature. With such centrifuges therefore: it is essential that they run at maximum speeds while still maintaining a consistent temperature. For the most part, the temperature range of refrigerated centrifuges is between -20 and -40c.

ANNUAL REPORTS OF CIR (ABHILASHI UNIVERSITY)

CIR has been created with an objective of providing a central facility of latest and advanced analytical techniques for research in various areas of science and technology. It houses several highly sophisticated and modern analytical equipments offering its users, a wide range of analytical methods techniques for chemical/material analysis/testing/characterization enabling them to keep pace with developments taking place globally. publish their research findings in peer reviewed high impact factor journals and through their concerted efforts contribute to the upliftment of the society at large. This facility is extensively used by undergraduate and post graduate students, doctoral research scholars and faculty members. Presently Research Scholars from Departments are extensively using this facility. This facility is also used for organizing short term courses/ workshops on the use and application of various instruments and analytical techniques. Various researches conducted with the help of CIR in recent 4 years are listed below annually.

RESEARCH DATA REPORT OF CIR FROM 2016-2017

In the year 2016-2017 various students and faculty utilized CIR for numerous scientific purposes which further enhance the scientific productivity of the year few important research projects are enlisted below

S. No	Research Title	Principle investigator
1	Formulation and evaluation of mouth dissolving tablet ondansetron hydrochloride using natural super disintegrating agent	Ms. Sunidhi Mahant (M. Pharmacy project)
2	To prepare and evaluate tablets of Budesonide for colon targeting drug delivery system	Ms. Anita Kumari (M. Pharmacy project)
3	Formulation and evaluation of Domperidone floating beads	Ms. Sonia (M. Pharmacy project)
4	Formulation and evaluation of Mouth Dissolving tablet of Aceclofenac	Ms. Shivalika Thakur (M. Pharmacy project)
5	Formulation and evaluation of sustained release mucoadhesive microsphere of Pantoprazole	Mr. Praveen Sharma (M. Pharmacy project)
6	Formulation and evaluation of amoxicillin trihydrate floating tablet	Ms. Poonam Kumari (M. Pharmacy project)

Beside these research projects various other research and knowledge promotion activities are done this year including various work shops lectures and handling classes for various analytical instruments are conducted to elevate knowledge of students as well as faculty for promotion of research and decrease various analytical error. Few work shops and related lectures are enlisted below

Hands-on Training Programs and Sessions Conducted:

- 1 Training for handling of HPLC by Dr. Shivali singla (Made: Agilent (Model infinity 1220) on 29th May, 2016 for nominated faculties Mr, Abhishek soni and Ms Chinu Kumari.
- 2 Talk on Sample Preparation and Experiments on Flame photometry, 26th June, 2016 by Mr. Abhishek Soni for M. Pharmacy students
- 3 Training on handling of UV/VIS -spectrophotometer single beam by Mr. Abhishek Soni on 20 September 2016 for B. Pharmacy students

Several of the internal users have acknowledged the services rendered by the CIR in their theses dissertations research publications.



RESEARCH DATA REPORT OF CIR FROM 2017-2018

In the year 2017-2018 students as well as faculty both had utilized CIR for numerous scientific purposes which further enhance the scientific productivity of the year few important research projects are enlisted below

S. No	Research Title	Principle investigator
1	Formulation and evaluation of diclofenac gel	Mr. Pankaj Kumar (M. Pharmacy project)
2	Formulation and evaluation of floating beads	Mr. Naresh Kumar (M. Pharmacy project)
3	Comparative evaluation of semi solids bases for topical use	Mr. Amit Kumar Saini (M. Pharmacy project)
4	Formulation and evaluation of sustain release azithromycin tablet	Mr. Chaman Lal (M. Pharmacy project)

Beside these research projects various other research and knowledge promotion activities are done this year including various workshops lectures and handling classes for various analytical instruments. These activities helps in promotion of research and decreases various analytical error. Few workshops and related lectures are enlisted below

Hands-on Training Programs and Sessions Conducted:

1. Training for handling of HPLC by Dr. Shivali singla (Make: Agilent (Model infinity 1220) on 10th September, 2017 for nominated faculties Ms. Shivani Thakur and Ruchika Kabra
2. Talk on Sample Preparation and Experiments on Flame photometry, 26th March, 2017 by Ms. Atul Kabra for M. Pharmacy students
3. Training on handling of UV/VIS -spectrophotometer single beam by Mr. Abhishek Soni on 16th April 2017 for B. Pharmacy students

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Research Data report of CIR from 2018-2019

In the year 2018-2019 various students and faculty utilized CIR for numerous scientific purposes which further enhance the scientific productivity of the year few important research projects are enlisted below

S. No	Research Title	Principle investigator
1	Development and validation of analytical method for the simultaneous estimation of etoricoxib and thiocolchicine in tablet dosage by UV- spectroscopy method	Ms. Nisha Kumari (M. Pharmacy project)
2	Development and validation of analytical method for estimation of Ursodeoxycholic UV- spectroscopy method	Ms. Asha Devi (M. Pharmacy project)
3	Semi synthesis and In-silico studies of betulinic acid derivatives isolated from BACOPA MONNIERI as anti-inflammatory agents	Ms. Kritika Verma (M. Pharmacy project)
4	Design, synthesis and characterization of Pectin Benzothiazole Bioconjugate	Ms. Kamini (M. Pharmacy project)
5	Design development and characterization of colon targeted microparticulate system of ornidazole	Mr. Lokesh kumar thakur (M. Pharmacy project)
6	Development and evaluation of Terbinafine loaded nano sponges for topical delivery	Ms. Neha Rana (M. Pharmacy project)

Beside these research projects various other research and knowledge promotion activities are done this year including various workshops lectures and handling classes for various analytical instruments are conducted to elevate knowledge of students as well as faculty for promotion of research and decrease various analytical error. Few workshops and related lectures are enlisted below

Hands-on Training Programs and Sessions Conducted:

1. Training for handling of HPLC by Dr. Amit Chaudhary (Make: Agilent (Model infinity 1220) on 10-11th October, 2018 for nominated faculties Mr. Arvind Kumar, Mr. Pankaj Kumar, Ms. Diksha Choudhary and Ms. Shalini Jamwal.
2. Talk on Sample Preparation and Experiments on Flame photometry, 13th November, 2018 by Mr. Arvind Kumar
3. Training on handling of UV/VIS -spectrophotometer single beam by Ms. Bhimi Kumari on 24th April 2018 for B. Pharmacy students

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Research Data report of CIR from 2019-2020

In the year 2019-2020 various students and faculty utilized CIR for numerous scientific purposes which further enhance the scientific productivity of the year few important research projects are enlisted below

S. No	Research Title	Principle investigator
1	Oxalic and malonic acid as a carbon building blocks for bioactive benzimidazole derivative synthesis and its antibacterial evaluation	Ms. Pooja Devi (Master's project)
2	Semi-synthesis and anti-microbial evaluation of benzocycloheptene derivatives from <i>Cydinus deodara</i>	Ms. Shalini Kumari (Master's project)
3	Synthesis of Pyridine derivatives from Chalcone as anti-microbial.	Ms. Shivali (Master's project)
4	Development of analytical method and its validation for estimation of Bilastine by UV spectroscopy.	Ms. Richa Agnihotri (Master's project)
5	Spectroscopic analytical Method validation and Force degradation study of terbinafine hydrochloride in methanol.	Mr. Nabham Thakur (Master's project)
6	Synthesis and <i>in silico</i> studies of pyrazoline C containing pyrrole derivatives as antimicrobial agent	Mr. Abhishek Chaudhary (Master's project)

Beside these research projects various other research and knowledge promotion activities are done this year including various workshops lectures and handling classes for various analytical instruments are conducted to elevate knowledge of students as well as faculty for promotion of research and decrease various analytical error. Few workshops and related lectures are enlisted below

Hands-on Training Programs and Sessions Conducted:

1. Training Program calibration of HPLC on 5th march 2019. Introduction to the system by Mr. Akash kumar senior engineers Agilent technology pvt ltd.
2. Training on calibration of UV (Shimadzu UV-1900) Held on 26th march 2019 for nominated faculties from each centre in science by Mr. Rakesh Sharma Engineer Toshvin India pvt ltd
3. Training Program on isocratic and gradient system of HPLC on 23th September 2019. Introduction to the system by Mr. Akash kumar senior engineers Agilent technology pvt ltd.
4. Training on do's and don'ts during handling of HPLC on 23th September 2020 by Mr. Priyankul palia Associate Professor School of pharmacy Abhilashi university

Several of the internal users have acknowledged the services rendered by the CIR in their theses dissertations/research publications.

Research Data report of CIR from 2020-2021

In the year 2020-2021 various students and faculty utilized CIR for numerous scientific purposes which further enhance the scientific productivity of the year few important research projects are enlisted below

S. No	Research Title	Principle investigator
1	Method development and validation of simultaneously estimation of fluconazole and ibuprofen by HPLC	Mr. Ashutosh Thakur (Master's project)
2	Development and validation of UV spectroscopy method for estimation of misoprostol in bulk and pharmaceutical dosage form	Mr. Happy (Master's project)
3	Development and validation of UV spectroscopy method for estimation of quercetin in unit dosage form	Mr. Hemant Kumar Verma (Master's project)
4	Development and in vitro evaluation of nano emulsion containing fast dissolving film of itraconazole.	Mr. Ashish Kumar (Master's project)
5	Development and evaluation of silver nanoparticle gel luliconazole for anti fungal activity	Mr. Ajay Kumar (Master's project)

Beside these research projects various other research and knowledge promotion activities are done this year including various workshops lectures and handling classes for various analytical instruments are conducted to elevate knowledge of students as well as faculty for promotion of research and decrease various analytical error. Few workshops and related lectures are enlisted below

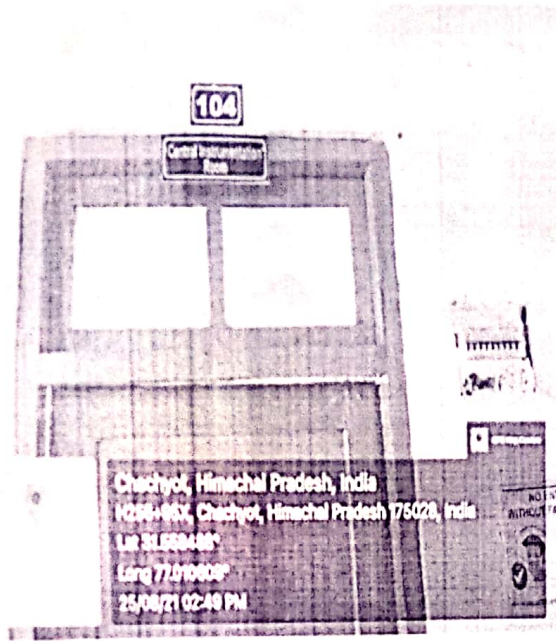
Hands-on Training Programs and Sessions Conducted:

- 1 Training Program on handling of HPLC on 5th march 2020. Introduction to the system by Mr. Akash kumar senior engineers Agilent technology pvt ltd.
- 2 Training on UV (Shimadzu UV-1900) Held on 17th march 2020 for nominated faculties from each centre in science by Mr. Rakesh Sharma Engineer Toshvin India pvt ltd
- 3 Training Program on precaution during handling of HPLC on 25th September 2020. Introduction to the system by Mr. Akash kumar senior engineers Agilent technology pvt ltd.
4. Training on do's and don'ts during handling of UV spectroscopy on 23th October 2020 by Mr. Sunny dhiman CIR in-charge Assistant professor School of pharmacy Abhilashi university

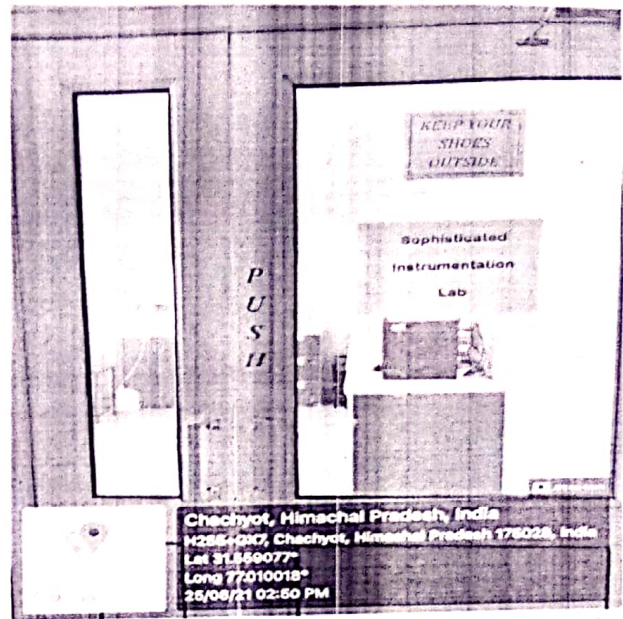
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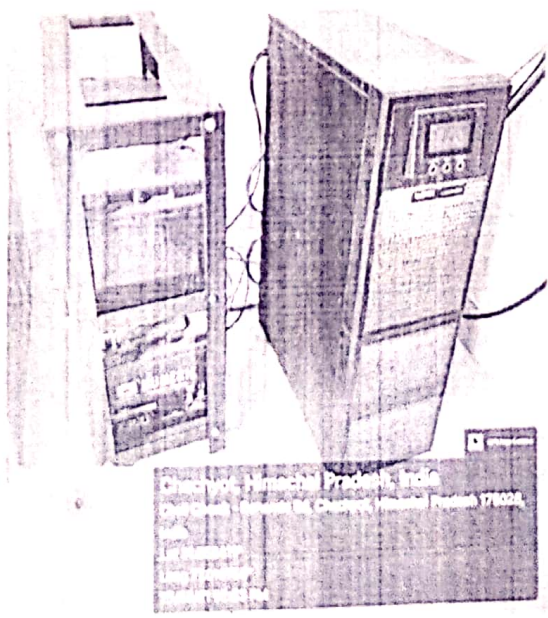
ANNEXURE:
GEO TAGGED PHOTOS OF CIR



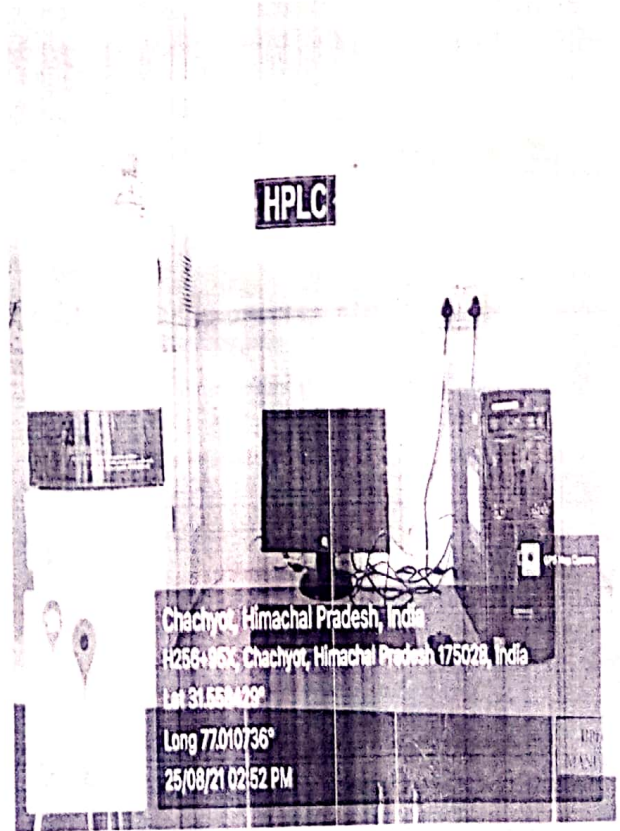
(Entry of CIR)



(Entry of Sophisticated instrumentation room)



(UPS for sophisticated instruments)



(HPLC)