

Centre Of Excellence

**GOVERNMENT COLLEGE SANJAULI
SHIMLA-06, H.P.**

DEPARTMENT OF ZOOLOGY

REPORT

**VISIT TO CENTRAL RESEARCH INSTITUTE
(CRI), KASALI, SOLAN, H.P.**

DATE- 28 NOVEMBER 2024

Report on :- Visit to Central Research Institute (CRI), Kasauli, Solan, H.P.

On 28th November 2024

Department of Zoology organized visit to Central Research Institute, Kasauli, Solan (H.P.) under DBT Star College Scheme on 28th November 2024 with HOD Zoology Dr. Minakshi Sharma and Dr. Shweta Sharma, SLA dept. of Zoology Sh. Hemachand Sharma along with 42 students of B.Sc. 2nd and 3rd year participating in it.

The visit began with an introductory session conducted by the CRI staff. They provided an overview of the institute's history, its establishment during the British era, and its current role in producing vaccines and conducting cutting-edge research. The visit aimed to provide practical insights into vaccine development, laboratory practices, and the historical significance of CRI in combating infectious diseases.

Central Research Institute (CRI) is pioneer in the field of vaccines not only in India but in the world. Founded on 3rd of May 1905, the Institute was originally established with a mandate of research work in the field of medical and public health, manufacture of vaccines and antisera, human resource development and to act as a national referral centre for public health problems.

CRI Kasauli became the first Central Government Institute to have cGMP compliant infrastructure for DTP group of vaccine, from this facility the Institute is manufacturing and supplying DTP group of vaccine to UIP, Government of India.



B. Bhagra
(Prof. Bharti Bhagra)
Principal,
Centre of Excellence,
GDC Sanjauli, Shimla (HP)

The CRI works as a WHO collaborating centre and as an immunobiological laboratory producing vaccines for measles and polio, and DTP group of vaccines. It also provides M.Sc. Programme in Microbiology.



LABORATORY TOUR

We toured the laboratories where various stages of vaccine development are carried out. **Assistant Technical Officer Dr. Poonam** interacted with us and she spoke briefly about the institute and different goals of the Central Research Institute, Kasauli. Firstly, we visited Central Drug Laboratory which is under Ministry of Health and Family Welfare the main objectives of this laboratory is to provide leaving certificate for vaccines and serum which has been sended by different Institutes (Bharat Biotech, SIPL) for their quality and safety check. After this certification, now the vaccines and serum are to be supplied in the market. They have briefly described the procedure for certification and they also shown us testing animals like mice, guinea pig and rabbits on which these vaccines being tested firstly and conclusion is drawn from the observations like how their body is responding towards that vaccine.



They also have warehouse where they have 120 equines (horse, donkey, mule) which have been procured and donated by Army and Military corps. The warehouse at the

Central Research Institute (CRI) Kasauli, dedicated to the collection and storage of equine-derived antibodies, plays a vital role in the production of therapeutic antivenoms and other immunological products. They also have different clinical laboratories like :-

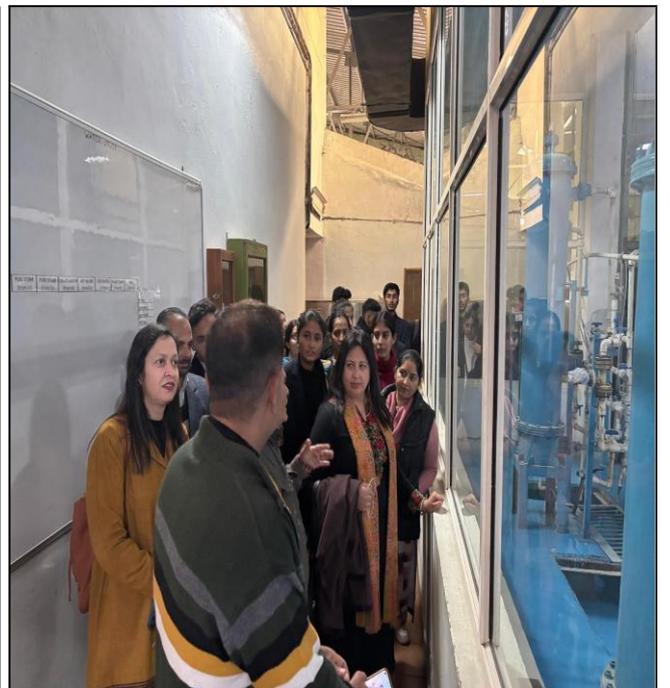
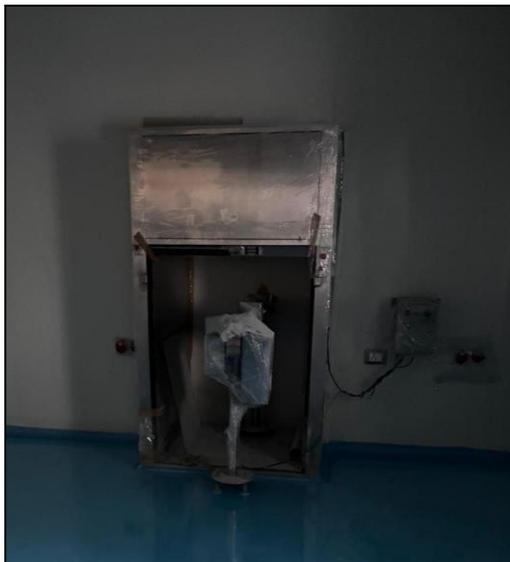
- National Salmonella and Escherichia Centre
- Rabies Research Centre
- National Polio Surveillance Centre
- Treatment Centre

Then, we met **Technical Officer Karan** which gave us brief introduction about the procedure of water distillation, purification and sterilization. He showed us different instrument that are used in demineralization and sterilization (autoclave). We also visited Centralised Sterilization and Media Centre. Centralized Sterilization and Media Centre (CSMC) streamlines the sterilization of medical instruments and preparation of media like Sodium Casein Digest Agar (SCDA). It ensures high hygiene standards and infection control, maintaining the safety and quality of equipment.



DPT LAB TOUR

As part of the visit, we toured the DPT (Diphtheria, Pertussis, and Tetanus) vaccine production lab. This tour aimed to help us understand the complex processes involved in developing vaccines that are critical for preventing life-threatening diseases. The DPT lab tour was an eye-opening experience. It allowed us to see the real-world application of scientific principles and the critical role of research and development in improving public health. Witnessing the dedication of the staff at CRI motivated us to consider careers in the biomedical field.



CONCLUSION

The visit to CRI Kasauli was an enriching experience, offering a unique opportunity to witness the intersection of history, science, and public health. The institute's dedication to improving health outcomes through research and innovation is commendable.

We are grateful to our institution for organizing this visit and to the CRI staff for their hospitality and guidance. This experience will remain a memorable and motivating part of our academic journey.



LIST OF STUDENTS

Sr. No.	Name	Roll No.	Class
1.	Arpita Vatshyan	2221730025	B.Sc. 3rd year
2.	Atul Thakur	2221730030	B.Sc. 3rd year
3.	Aditya Negi	2221720003	B.Sc. 3rd year
4.	Siddhant	2221720127	B.Sc. 3rd year
5.	Hricha Sharma	2221730064	B.Sc. 3rd year
6.	Gungun Thakur	2221730053	B.Sc. 3rd year
7.	Vineeta Negi	2221730191	B.Sc. 3rd year
8.	Ishan Thakur	2221730067	B.Sc. 3rd year
9.	Surya Kant Negi	2221730174	B.Sc. 3rd year
10.	Shreya Dogra	2221730159	B.Sc. 3rd year
11.	Himkiran Sharma	2221730063	B.Sc. 3rd year
12.	Himani Verma	2221730062	B.Sc. 3rd year
13.	Ritika Thakur	2221730135	B.Sc. 3rd year
14.	Kanika Sharma	2221730072	B.Sc. 3rd year
15.	Nityam	2221730114	B.Sc. 3rd year
16.	Mannat	2221730094	B.Sc. 3rd year
17.	Shreya Verma	2221730160	B.Sc. 3rd year
18.	Ishita	2221710007	B.Sc. 3rd year
19.	Sanjana	2221730147	B.Sc. 3rd year
20.	Shivangi	2221730157	B.Sc. 3rd year
21.	Ishansh Sanchyan	2221730068	B.Sc. 3rd year
22.	Lote Tanzin	2221730089	B.Sc. 3rd year
23.	Aditya Sharma	2221730009	B.Sc. 3rd year

24.	Yaditi Sharma	2221730192	B.Sc. 3rd year
25.	Manisha	2221730093	B.Sc. 3rd year
26.	Nishita Bhatia	2221730110	B.Sc. 3rd year
27.	Bipasha	2221730037	B.Sc. 3rd year
28.	Vineet Ronta	2231730209	B.Sc. 2nd year
29.	Nandini Verma	2231730104	B.Sc. 2nd year
30.	Tanisha	2231730187	B.Sc. 2nd year
31.	Diksha	2231730060	B.Sc. 2nd year
32.	Ved	2231730207	B.Sc. 2nd year
33.	Ayushi	2231730005	B.Sc. 2nd year
34.	Himani	2231730067	B.Sc. 2nd year
35.	Tanvi	2231730189	B.Sc. 2nd year
36.	Tripta	2231730193	B.Sc. 2nd year
37.	Aastha Rana	2231730045	B.Sc. 2nd year
38.	Vaishali Thakur	2231730198	B.Sc. 2nd year
39.	Kashish	2231730009	B.Sc. 2nd year
40.	Swapnil	2231730184	B.Sc. 2nd year
41.	Tanisha Kimta	2231730186	B.Sc. 2nd year
42.	Mehak Sharma	2231730092	B.Sc. 2nd year

Reported By :- Arpita Vatshyan
(B.Sc. 3rd year)



**Report: Workshop on Synthesis of Nanoferrites at Shoolini University,
Solan
Or
Industrial Visit**

Department of Physics, Centre of excellence, Govt. College Sanjauli organized a workshop cum Industrial visit for two days on 23rd and 24th September 2024, under DBT Star College Scheme at Shoolini University, to gain firsthand experience in the synthesis of nanoferrites. A group of 15 students from the Department of Physics and Chemistry along with faculty members Dr. Kirti Singha and Dr. Yogesh embarked on this academic visit. The visit or workshop was organized as part of a material science and nanotechnology course, with the goal of providing students with a deeper understanding of the synthesis techniques, properties, and applications of Nanoferrites. Shoolini University, known for its cutting-edge research in nanotechnology, offered an ideal platform for the students to explore this subject in a practical and immersive manner.

Upon arriving at Shoolini University, the students were warmly welcomed by the faculty of the Department of Nanotechnology. The day began with a brief introduction to the university's research facilities, its focus on nanomaterials, and the importance of nanoferrites in modern technology. The students were excited to explore the synthesis process and eagerly looked forward to the day's sessions.



Day 1: After a brief demonstration by Associate Professor Dr. Rohit Jasrotia of Shoolini University, the students proceeded to synthesize the soft ferrite series framed by Dr. Kirti Singha from the Department of Physics, Centre of Excellence, under the supervision of Himanshi, a research scholar at Shoolini University, guided the synthesis process using the Sol-Gel method to produce spinel ferrites. The day's activities wrapped up by 6 PM.





Day:2 The nanoferrites were successfully synthesized up to the halfway stage. Research scholar Himanshi provided a demonstration on the calcination process for the synthesized nanomaterial. The students enthusiastically prepared the mother sample, expressing satisfaction with their progress.





Overview of Nanoferrites:

The first session focused on providing students with theoretical knowledge about nanoferrites. Nanoferrites are a class of magnetic materials composed of metal oxides, commonly iron oxides, combined with other metals like cobalt, nickel, or zinc. Due to their small size and enhanced magnetic, optical, and electrical properties, they have found applications in diverse fields such as electronics, magnetic storage devices, biomedical treatments, and environmental remediation.

Introduction to Synthesis Methods:

The faculty introduced various synthesis methods used for the formation of nanoferrites. While there are several methods, such as the co-precipitation method, hydrothermal synthesis, and combustion techniques, the primary focus of the visit was on the sol-gel method, a widely used technique for synthesizing nanoferrites due to its simplicity and ability to produce high-quality nanoparticles.

Interactive Session with Experts:

Following the hands-on demonstration, the students had the opportunity to interact with the faculty and research scholars working on nanoferrites at Shoolini University. This session was highly engaging, with students asking questions about the challenges of scaling up the synthesis of nanoferrites, their applications in real-world industries, and the latest advancements in nanotechnology.

Some of the key points discussed during the interactive session included:

- The applications of nanoferrites in magnetic storage devices, MRI contrast agents, and environmental cleanup technologies.
- The advantages of the sol-gel method over other synthesis methods, such as its ability to produce uniform particles with controlled size and shape.
- The challenges in optimizing the magnetic properties of nanoferrites for specific applications.

Tour of Research Facilities:



The students were given a tour of the state-of-the-art research laboratories at Shoolini University. They were introduced to the various instruments used for advanced research in

nanotechnology, including transmission electron microscopes (TEM), atomic force microscopes (AFM), and other cutting-edge equipment. This exposure provided them with a better understanding of the tools required for conducting high-level research in nanomaterials

Reflection and Feedback:

Towards the end of the visit, the students gathered for a reflection session, where they shared their thoughts on the experience. Many expressed their excitement at being able to witness the synthesis process firsthand and interact with experts in the field. The visit had not only deepened their theoretical knowledge but also sparked interest in pursuing further research in nanotechnology.

Resource Persons: Dr. Rohit Jasrotia, Associate Professor, Shoolini University

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Ms Himashi, Research Scholar, Shoolini University

Report Compiled by: Mr. Shubham(BSc. IIIrd) (Vice President: UPSS)

Edited & Submitted By: Dr. Kirti Singha, Department of Physics

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