

## **REPORTS**

**Department of Biochemistry**  
**Shivaji College**  
**Summer Training Program on Research Methodology 3.0**  
**(June 05-July 03, 2023)**

The summer training program on research methodology 3.0 was organized by the Department of Biochemistry, Shivaji College, University of Delhi under the aegis of DBT Sponsored Star College Scheme with the supervision of Dr. Jayita Thakur, Dr. Sunita Singh, Dr. Renu Baweja, Dr. Usha Yadav and, Dr. Abhijeet Mishra from June 05-July 03, 2023. Total 29 students participated in this program. The whole program was divided into 5 modules, the first module was taken by Dr. Renu Baweja in which she introduced the participants to research methodology and what a research proposal is all about this was followed with the assignments related to the module. The next module was conducted by Dr. Usha Yadav in which participants were given a clear view of the research and sample design, also they got to know about the literature review, how to develop a hypothesis, and what research plan they have to include in it. These 2 modules were covered in week 1. The next week was taken by Dr. Abhijeet Mishra, he gave a basic idea for the health camp, and how to collect data from that health camp and digitalization of data, this week health camp was organized on the premises of Shivaji College. This health camp includes various parameters such as Height, weight, BMI, fat percentage, visceral fat, basic metabolic rate, and body age. He also developed a scientific temperament among students with his thought-provoking questions. The next module was followed by Dr. Jayita Thakur, in which participants learn about many areas of data presentation, data processing, and statistical analysis in the field of biochemistry during the summer training program. Dr. Jayita Thakur held engaging workshops on these issues, giving a piece of insightful information and practical understanding to

students. A health camp is also organized in Miranda House for further data collection. During this 3<sup>rd</sup> week of the program students also got a chance to interact with experts like Dr. Suman Kharbanda, she gave detailed information on how to use Microsoft Excel for data analysis with Dr. Chhavi Sharma, she emphasized the significance of data input and formatting in order to conduct correct analysis. A talk with Dr. Bhupender has conducted for an insight view of Hypothesis Testing, Statistical Tests, and Secondary data analysis.

The last module of this program was taken by Dr. Sunita Singh, who conducted the session on ethical principles in research. The significance of following these principles was emphasized, particularly in terms of biosafety and ethics compliance. These sessions are more interactive with talks from different experts like Prof. (Dr) Man Singh who talks about Intellectual property rights and Patents with his in-depth knowledge, Dr. Ajay opened the discussion by emphasizing the necessity of thorough and methodical research. He emphasized the need for well-defined research topics, clear objectives, and good preparation in guaranteeing a research project's success, and at last, Dr. Arjun gave us a quick overview of the statistical analysis and briefly reviewed the questions submitted in the form of a Google form. All the modules have their own different assignments / tasks which kept the students focused. At last, this summer training program was concluded with a valedictory session in which the feedback of students was taken and the certificates were distributed.

### **The resource person of the program**

- **Dr. Jayita Thakur, Department of Biochemistry, Shivaji College, University of Delhi**
- **Dr. Renu Baweja, Department of Biochemistry, Shivaji College, University of Delhi**
- **Dr. Sunita Singh, Department of Biochemistry, Shivaji College, University of Delhi**

- **Dr. Usha Yadav, Department of Biochemistry, Shivaji College, University of Delhi**
- **Dr. Abhijeet Mishra, Department of Biochemistry, Shivaji College, University of Delhi**
- **Dr. Suman Kharbanda, Department of Commerce, Shivaji College, University of Delhi**
- **Dr. Chhavi Sharma, Department of Commerce, Shivaji College, University of Delhi**
- **Dr. Bhupender, Department of Microbiology, Swami Shraddhanand College, University of Delhi**
- **Prof. (Dr) Man Singh, School of Chemical Sciences, Central University of Gujarat**
- **Dr. Ajay, Department of Economics, Shivaji College, University of Delhi**
- **Dr. Arjun, Department of Economics, Shivaji College, University of Delhi**



**Inter College Summer Training Program**  
on  
**RESEARCH METHODOLOGY 3.0**  
June 05 – July 03, 2023

**LEARNING OUTCOMES**

Participants will:

- Learn to design a research based study and conduct review of literature
- Conduct survey based data collection and organize health camps
- Analyze data using biostatistics followed by the interpretation of data
- Report the findings of project with appropriate citations and check for plagiarism
- Interact with the experts and visit research labs

**Last date for registration: June 01, 2023\***

\* No registration fees. Limited seats available.  
Selected students will be informed through registered Email Id.  
Certificates will be issued after successful completion of the STP.

**PROGRAM COORDINATORS**

Dr. Jayita Thakur, Dr. Renu Baweja,  
Dr. Sunita Singh, Dr. Usha Yadav  
Dr. Abhijeet Mishra

**COORDINATOR  
STAR COLLEGE SCHEME**

Dr. Renu Baweja

**PATRON**

Dr. Shiv Kumar Sahdev  
Principal

**WHO CAN APPLY?**

UG and PG students

**REQUIREMENT:**

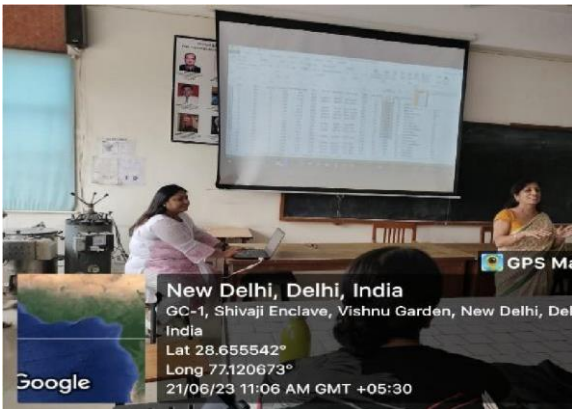
Access to Laptop/Desktop

[Click here to register](#)

Or

Scan QR code







**Department of Botany**  
**Summer Training program on**  
**“Conservation and Utilisation of Medicinal Plants”**  
**(June 12- June 20, 2023)**

Department of Botany, Shivaji College had organized a week-long Summer Training Internship Programme under the aegis of DBT Star College Scheme, entitled "**Conservation and Utilisation of Medicinal Plants**" from **June 12- June 20, 2023**.

The session on the first day was addressed by **Dr. Vijay Kumar**, on ‘**Herbal Garden and Herbarium Techniques**’, followed by a talk delivered by **Prof. Pratima Rani Sardar** (Teacher in charge). The participants were acquainted with the procedures to prepare herbarium

specimens, which was followed by a visit to the herbal garden of the college with **Dr. Devender Singh Meena**, to familiarize them with various plants of medicinal use. On the second day of the programme, the participants received hands-on training on experiments regarding Reproductive Biology of plants after a lecture session on the '**Role of Reproductive Biology in Conservation of Medicinal Plants**' by **Dr. Prabhavathi** and **Dr. Seema Talwar** as the resource persons. The third day was devoted to a session on '**Conservation of knowledge related to medicinal plants and their uses**' by **Dr. Kiran Bamel** and **Dr. Nupur Mondal**, followed by making students aware about the digital tools required to access information about traditional knowledge, modern patents and copyrights of plants available in our country. This was succeeded on the next day by a lecture session on '**Somatic Embryogenesis and artificial seeds**' by **Dr. Anuradha Mal** and **Dr. Deepshikha Chatterjee**, where the participants learnt about raising plants on artificial growth media apart from soil after preparing them. The Programme also included a trip to the **Botanical Garden of the Republic of India (BGRI, NOIDA)**, where the participants were apprised of the natural habitats and growth conditions of a wide variety of flora ranging from aquatic plants to the large trees. **Dr. Priyanka Ingle** (Scientist E and Head of Office, BGRI) led the participants to different sections of the Garden, including arboretum, Ayurvedic Herbal Garden, gave detailed account of the flora present and answered the various queries put forward by them. Participants also visited museum of BGRI displayed with collection of photographs and copy of important illustration of plants gathered from various parts of the world. **Dr. Smita Tripathi**, **Dr. Misha Yadav** and **Dr. Anurag Maurya** served as the resource persons on the penultimate session of the programme on '**Active phytochemicals in medicinal plants**', where participants were familiarised with protocols related to phytochemical analyses. On the last day of the programme, an exploratory visit to **Ayurvedic and Unani Tibbia College and Hospital, Karol Bagh, Delhi** was made. Here, **Dr. Shalini Varshney** (Dept. of Dravyaguna) and her team delivered lectures on conservation and utilisation of medicinal plants and also familiarized the participants on the same with a visit to the institute's Herbal Garden and research facilities available there.

The key highlights of the programme were the excursions to BGRI and A&U Tibbia College and Hospital, where the students received experiential learning not only about medicinal plants but also about the flora of Delhi in general.

No. of student beneficiaries: 13

Department of Botany  
**Shivaji College**  
University of Delhi, New Delhi  
*under the aegis of*  
**DBT Star College Scheme**  
*organises*  
SUMMER TRAINING PROGRAMME ON  
**CONSERVATION AND UTILISATION  
OF MEDICINAL PLANTS**

June 12th to June 20th, 2023  
10: 30 am to 5:00 pm

QR code for Registration

Register at:  
<https://forms.gle/ARJgj26JsTcq5yhs8>  
\*\*\*No registration fee to be paid

**Dr. Anuradha Mal**  
Convener  
DBT Star College Scheme  
Department of Botany

**Prof. Pratima Rani Sardar**  
Teacher in Charge and  
Co-convener, DBT Star College Scheme  
Department of Botany

**Prof. Shiv Kumar Sahdev**  
Principal

**Patron**

**Dr. Anurag Maurya and Dr. Deepshikha Chatterjee**  
Co-conveners, DBT Star College Scheme, Department of Botany



# SHIVAJI COLLEGE



(University of Delhi)

NAAC Accredited 'A' Grade

**Department of Botany**

**(Under the aegis of DBT Star College Scheme)**

Organizes

## **SUMMER TRAINING PROGRAMME**

*On*

*Conservation and Utilisation of Medicinal Plants*

June 12 - June 20, 2023

Venue: Department of Botany, Shivaji College

***Organizing Committee***

**Patron:** Prof. Shiv Kumar Sahdev, Principal (Officiating)

**Coordinator:** Dr. Renu Baweja, DBT Star College Scheme

**Convenor:** Dr. Anuradha Mal



**Co-convenors:** Prof. Pratima Rani Sardar, Dr. Anurag Maurya, Dr. Deepshikha Chatterjee

**Teacher in Charge:** Prof. Pratima Rani Sardar

**Organizing Committee:** Dr. Vijay Kumar, Dr. Prabhavathi, Dr. Smita Tripathi, Dr. Kiran Bamel, Dr. Misha Yadav, Dr. Seema Talwar, Dr. Nupur Mondal, Dr. Devender Singh Meen

PROGRAMME SCHEDULE

12 June- 20 July 2023

Day	Date	Morning Session	Topic of Talk	Resource Person	Afternoon Session	Hands On Training
Monday	12.6.2023	10:30 AM- 1:00 PM	<i>Herbal Garden and Herbarium techniques</i>	Dr. Vijay Kumar Prof. Pratima Rani Sardar Dr. Devender Singh Meena	2:00 PM onwards	<i>Visit to Herbal Garden of the College, Herbarium preparation</i>
Tuesday	13.6.2023	10:30 AM- 1:00 PM	<i>Role of reproductive biology in conservation of medicinal plants</i>	Dr. Prabhvathi V. Dr. Seema Talwar	2:00 PM onwards	<i>Experiments Related to Reproductive Biology</i>
Wednesday	14.6.2023	10:30 AM- 1:00 PM	<i>Conservation of knowledge related to medicinal plants and their uses</i>	Dr. Kiran Bamel Dr. Nupur Mondal	2:00 PM onwards	<i>Repository of traditional knowledge and other digital tools for patents and copyrights</i>
Thursday	15.6.2023	10:30 AM- 1:00 PM	<i>Somatic embryogenesis and artificial seeds</i>	Dr. Anuradha Mal Dr. Deepshikha Chatterjee	2:00 PM onwards	<i>Tissue culture technique for medicinal plants</i>
Friday	16.6.2023	10:30 AM- onwards	<i>Trip to BGRI, Noida</i>	Dr. Devender Singh Meena Dr. Anurag Maurya Dr. Deepshikha Chatterjee		<i>Compilation of Report for the Trip</i>

Monday	19.6.2023	10:30 AM- 1:00 PM	<i>Active phytochemicals in medicinal plants</i>	Dr. Smita Tripathi  Dr. Misha Yadav  Dr. Anurag Maurya	2:00 PM onwards	<i>Phytochemical analysis of selected medicinal plants</i>
Tuesday	20.6.2023	10:30 AM- 1:00 PM	<i>Visit to Ayurvedic and Unani Tibbia College and Hospital, Delhi</i>  <i>Report Compilation and submission</i>	Dr. Shalini Varshney (Dept. of Dravyaguna, A&U Tibbia College & Hospital)  Dr. Anurag Maurya  Dr. Devender Singh Meena  Dr. Deepshikha Chatterjee	2:00 PM onwards	<i>Valedictory Session</i>

Lecture Sessions:





**Practical Sessions:**





Visit to BGRI, NOIDA



Visit to A&U Tibbia College, Karol Bagh, New Delhi



## **Department of Chemistry**

### **Inter-College Summer Training Program Report**

**15<sup>th</sup> June - 30<sup>th</sup> June 2023**

The Inter-College Summer Training Program was organized by the Department of Chemistry, Shivaji College, University of Delhi under the aegis of DBT Sponsored Star College Scheme on "Green Fabrication of Nanostructures and their Characterization" under the supervision of Dr. Rangnath Ravi from 15<sup>th</sup> June - 30<sup>th</sup> June 2023. The program convenor was Dr. P.K.Sahu and Co-Convenor Dr. Richa Arora of Department of Chemistry. Total 25 students participated in this program from different colleges of University of Delhi.

The inaugural day of the program was felicitated by Professor Sharif Ahmad and the faculty members of the Department of Chemistry. The inauguration was commenced with auspicious lamp-lighting ceremony, followed by introduction of the workshop by Dr. Bhasha Sharma. This was then followed by an interactive lecture on green fabrication of nanoparticles and a brief discussion on its applications and characterization by Professor Dr. Sharif Ahmad.

#### **About the Speaker**

Dr. Sharif Ahmad, as Pro-Vice-Chancellor (Research & Consultancy) SGT University, Gurugram, NCR-Delhi, INDIA, is a Superannuated Professor of Materials Chemistry, did his Masters (1976) and Doctoral (1981) in Chemistry from AMU, Aligarh. In recognition of his work, He was nominated as a member of the prestigious American Chemical Society for three years (2015 -2018) and had a membership of Royal Chemical Society, UK. Former Dean, Natural Science, Jamia Millia Islamia.

On the 2<sup>nd</sup> day, a lecture on green chemistry was conducted by Dr. Bhasha Sharma, followed by lecture on evolution of green chemistry and nanoparticles by Dr. Abhijeet Mishra. All the students were then given an assignment on the previous lecture. This was followed by a lecture on research protocols and publishing of articles by Dr. Rangnath Ravi. On Day 3, synthesis of iron oxide nanoparticles was introduced using co-precipitation method of  $\text{FeSO}_4$  and  $\text{FeCl}_3$ . In the 2<sup>nd</sup> week of the Summer Training Program, synthesis of iron oxide, silver oxide, bimetallic nanoparticles and composites was conducted by students divided into 5 groups of 4-5 students each, using plant extract from different sources such as mulberry leaves, champa leaves, bougainvillea petals, etc.. The samples were then collected to be characterized later.

Also a guest lecture was organised on the 9<sup>th</sup> day by Dr. Abhijeet Mishra on the green synthesis of nanoparticles.

In the 3<sup>rd</sup> week, after collecting samples from synthesis done, a visit was organised to Jamia Millia Islamia on 27<sup>th</sup> June 2023 for the characterization of the samples for each group such as UV-Visible Spectroscopy, X-Ray Diffraction, Zeta potential analyzer and FT-IR. On 28<sup>th</sup> June 2023, another visit was organised to IUAC to understand the working of various other characterization techniques like XRD, XRF, SEM and ICPMS.

The Valedictory Ceremony was then organized on 3<sup>rd</sup> July 2023 to mark the end of the workshop followed by submission of the reports by each student and also felicitation by the then Peincipal Professor Shiv Kumar Sahdev.

### The resource person of the program

Dr. Rangnath Ravi, Department of Chemistry, Shivaji College, University of Delhi

DEPARTMENT OF BIOTECHNOLOGY  
Ministry of Science & Technology  
Government of India

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1922-2022

**SHIVAJI COLLEGE**  
NAAC Accredited Grade 'A'  
UNIVERSITY OF DELHI  
DEPARTMENT OF CHEMISTRY  
under the aegis of DBT sponsored Star College Scheme  
Organizes  
Inter-College Summer Training  
on  
**Green Fabrication of Nanostructures & their Characterization**  
15<sup>th</sup> June – 30<sup>th</sup> June, 2023

**Venue: Chemistry Lab, Shivaji College**  
**Resource Person: Dr. Rangnath Ravi**

- ❖ Only under-graduate science students can apply.
- ❖ No Registration Fee.
- ❖ Limited seats are available (25).
- ❖ Certificate to all the participants on completion of training.

**Convenor**  
Dr. P. K. Sahu

**Co-Convenor**  
Dr. Richa Arora

**Coordinator**  
Dr. Renu Baweja

**Principal**  
Prof. Shiv Kumar Sahdev

For any query, drop in a mail at [starcollegechemshc@gmail.com](mailto:starcollegechemshc@gmail.com)

## Photographs







**Department of Zoology**  
**Summer Training under the aegis of DBT Star College Scheme**  
**organized by, Shivaji College**  
**“Assessment of Physical & Mental Wellness: Clinical relevance & Remedial Measures”**

June 27 to July 5, 2023

Venue: Zoology Lab II

Number of Beneficiaries: 30 PAN India UG & PG Students

The poster is for a summer training program organized by the Department of Zoology at Shivaji College. It features the college's name and accreditation (NAAC Grade 'A' from the University of Delhi). The program title is "ASSESSMENT OF PHYSICAL AND MENTAL WELLNESS: CLINICAL RELEVANCE & REMEDIAL MEASURES", running from June 27 to July 5, 2023. Key details include: registration link (https://forms.gle/Mp45h1tX25aRYAaFA), venue (Zoology Lab 2), and a last date of June 23, 2023. A QR code is provided for registration. The organizing team consists of Dr. Deepika Yadav (Convener), Dr. Anika Das (Co-Conveners), and Prof. Manoj Kumar Sahdev (Patron). The poster also lists benefits for students: limited seats, no fee, and e-certificates.

A hands-on summer training was conducted by the faculty members of Department of Zoology under the aegis of DBT Star College Scheme from June 27<sup>th</sup> – July 5<sup>th</sup> 2023 in Zoology Laboratories I and II. A total of six modules were conducted over this duration pertaining to assessment of physical and mental wellness and to educate the students about remedial measures as well to lead a healthy and balanced life ahead. The detailed reports of modules as well as pictures of the same are as follows:

### **Module I: Hemolytic Assay [June 27, 2023]**

Resource Persons: Dr. Rakesh Roshan & Dr. Deepika Yadav

A hemolysis assay is a laboratory test used to assess the ability of certain substances to lyse or rupture erythrocytes. Hemolysis can occur due to the action of various agents, such as toxins,

chemicals, or enzymes. The assay is commonly used in medical and research settings for different purposes, including toxicity testing, drug development, immunological research, diagnostics and the study of various biological phenomena.

Students also gained hands-on experience for using micropipettes and handling equipment like cooling centrifuge, water bath, and microplate reader etc.



## Module II: Identification of Haemo-parasites [June 28, 2023]

Resource Persons: Dr. Neetu Singh

This module enhanced the understanding of the students on discrimination of morphological ambiguity of haemoparasites and also learned significant steps to prepare slide for their microscopic examination.

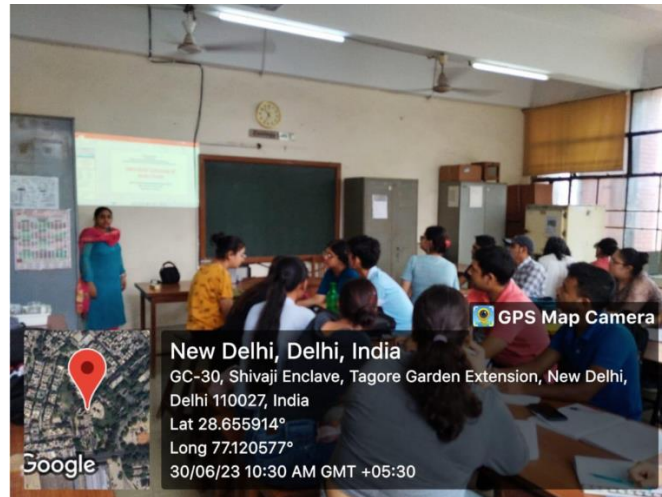


### Module III: Microbial Culturing of body fluids [June 30, 2023]

Resource Persons: Dr. Sunita Gupta & Dr. Nidhi Garg

Body fluid balance is essential for homeostasis. Body fluids can be used for the **diagnosis of any disease or medical condition**. In the current module we chose to use the body fluid saliva for conducting the experiments. **Saliva sample collection** is a simple, flexible, convenient, non-invasive, painless, economical and efficient method for obtaining DNA, RNA and for knowing the oral microbiome. This collection method will not cause any discomfort to the collectors, and is easy to be accepted, so it can maximize the sampling range of gene research. The students collected the saliva in a glass measuring cylinder and then diluted the saliva sample. This was followed by plating 100µl of the sample on LB Agar plate in the laminar flowhood and these plates were kept at 37°C in the incubator. The students then observed the culture plates the following day. Gram staining of the bacteria was carried out using the Gram staining kit (HiMedia) and both the Gram positive and Gram negative bacteria were observed under the microscope. The students were able to learn the following-

- Preparation of culture media and autoclaving.
- Pouring of culture media and preparation of LB agar plates.
- Working in laminar flow hood.
- Obtaining and processing the biological sample like saliva.
- Spreading of the biological sample on LB-agar plate.
- Gram staining of both Gram-positive and Gram-negative bacteria and their identification through the use of microscope.



#### **Module IV: Assessment of BMI, BMR, Subcutaneous Fat Deposition, Harvard Step Test & Spirometry based Lung function Test [July 3, 2023]**

Resource Persons: Dr. Aeshna Nigam & Dr. Ankita Dua

In the current era of technology where every task is just a button click away, sedentary lifestyle is leading to major disorders even in the youth of this generation. This module was an eye-opener for all students as it led to assessment of their physical well being by these tests:

- Assessment of BMI
- Assessment of BMR
- Checking for Subcutaneous Fat Deposition
- Calculating Physical Fitness Index (PFI) using Harvard Step Test
- Performing Spirometry based Lung function Tests

Students were told about the normal healthy ranges of these tests and even the ones that were border line dangerous values. They were counselled as well on how to lead a healthier lifestyle and exercise to lead healthy life.



## **Module V: Microtomy & Histopathological Study [July 4, 2023]**

Resource Persons: Ms. Nimita Kant & Mr. Manish K. Sachdeva

On day 5 of the summer training, the participants were given an introduction to Histology, which is the branch of biology which studies the microscopic anatomy of biological tissues and the 'Basics Of Microtomy: Principles & Procedures". The students were given hands on experience in handling the tissue and processing it to prepare permanent slide to observe various components of the cell. The sample and slide preparation is a crucial step for histological or cytological observation. It is essential to highlight what needs to be observed and to immobilize the sample at a particular point in time and with characteristics close to those of its living state. The students were able to gain hands-on experience in laboratory techniques, including tissue processing, embedding, sectioning, staining, and microscopy. We developed skills in using microtomes, preparing high-quality tissue sections, and performing staining procedures for visualizing cellular structures and pathological changes.



**Module VI: Measurement of depression & anxiety using Hamilton rating scale [July 5, 2023]**

Resource Persons: Dr. Jitendra K. Chaudhary & Dr. Tsewang Namgial

The lecture module relating to the measurement of depression and anxiety provided a comprehensive overview of assessment tools used in clinical practice and research. It highlighted the significance of accurate measurement in understanding and treating these mental health conditions. By discussing both self-report and clinician-rated measures, as well as specific tools for different

anxiety disorders, the resource person emphasized the need for a nuanced and multifaceted approach to assessment.

Overall, the lecture successfully provided valuable insights into the measurement of depression and anxiety, equipping the participants with knowledge that can contribute to improved understanding of anxiety and depression.



### Certificate Template:





