हंसराज कॉलेज
दिल्ली विश्वविद्यालय
महात्मा हंसराज मार्ग,
मलकागंज, दिल्ली -110007
दूरभाष : 011-27667458, 27667747
ई-मेल : principal_hrc@yahoo.com
वेबसाइट : www.hansrajcollege.ac.in

HANSRAJ COLLEGE
UNIVERSITY OF DELHI
Mahatma Hansraj Marg
Malkaganj, Delhi – 110007
Tel.: 011-27667458, 27667747
E-mail: principal_hrc@yahoo.com
Website: www.hansrajcollege.ac.in

NAAC ACCREDITED 'A++' GRADE COLLEGE

2023-2024

Title of the event: Annual National Conference on Advances in Plant Biology (APB 2024): Innovations and Strategies for Sustainable Agricultural Productivity for Viksit Bharat@2047.

Organized by: Department of Botany, Hansraj College in collaboration with Mahatma Hansraj Malaviya Mission Teacher Training Centre (MH-MMTTC) and BOTANIQUE - The Botanical Society of Hansraj College.

Venue: Pt. Madan Mohan Malaviya Auditorium, Hansraj College

Date: Saturday,10th February 2024

Patron: Prof. Rama, Principal, Hansraj College

Vice Principal & Teacher-in-Charge: Prof. Vijay Rani Rajpal

Convenors: Dr. Pooja Jha Maity and Dr. Savita

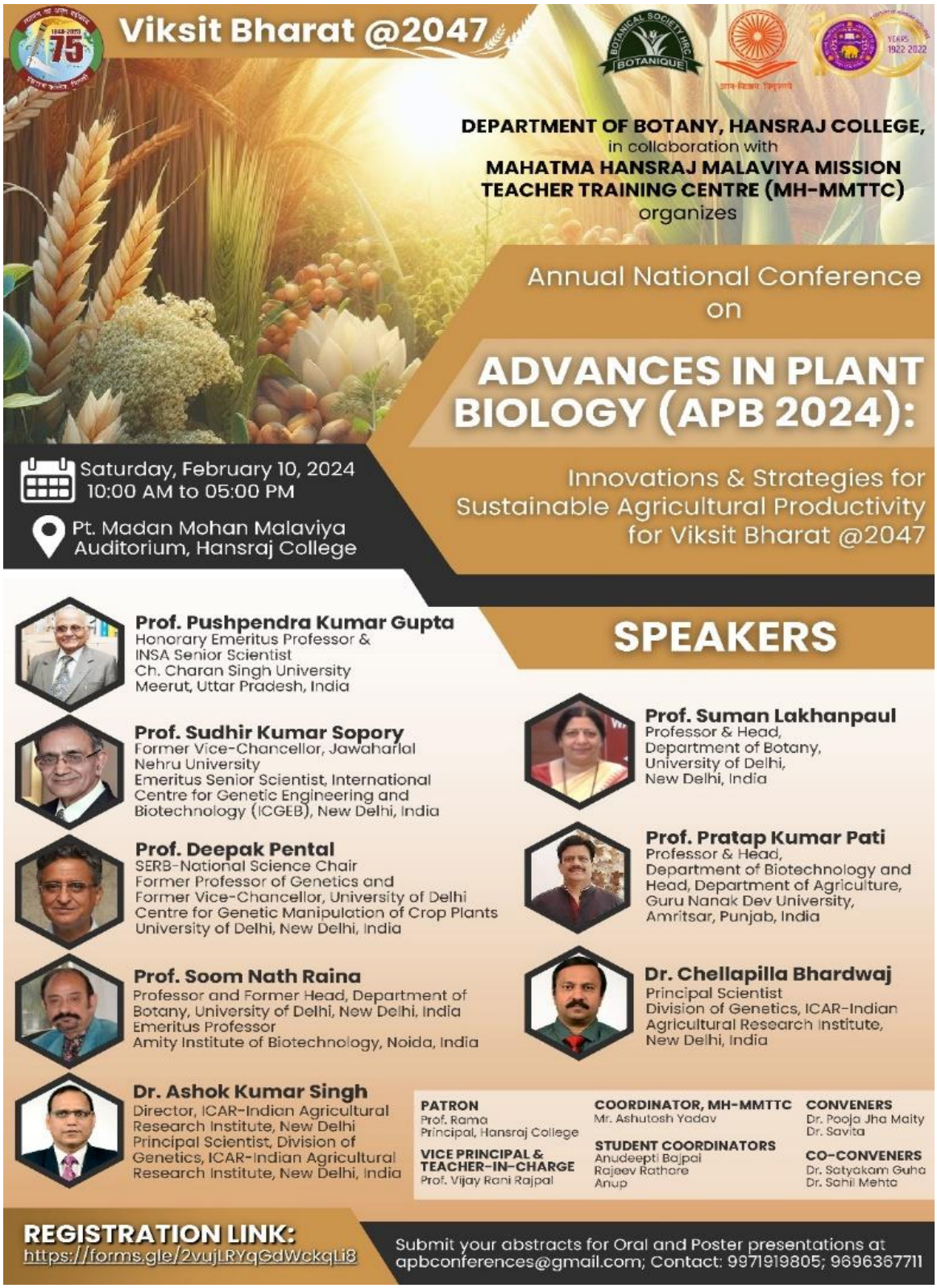
Co-convenors: Dr. Satyakam Guha and Dr. Sahil Mehta

Student Coordinators: Anudeepti Bajpai, Rajeev Rathore and Anup

Objective: To weave an intricate tapestry of agricultural evolution and innovative ideas to be able to demonstrate the importance of agriculture, providing invaluable insights into the growth, development, and environmental responses of crops, as well as the genetic modifications for higher yields to meet the goal of Viksit Bharat@2047 and to present a platform for fruitful discussions, exchange of ideas, networking opportunities, especially for encouraging young minds to formulate new solutions for the existing problems.

Number of Participants: Around 250 participants including teachers, students and research scholars from various educational institutions across India.

Inaugural session was hosted by Dr. Pooja Jha Maity. Prof. Vijay Rani Rajpal, Vice-principal and Teacher-in-Charge, gave welcome address and spoke about the conference. She welcomed all the guests and expressed her gratitude towards the eminent speakers for the event. The students of the music society, "*Swaranjli*" sang *Vandana* and DAV *gaan* to flag off the event on a musical note. Then all the invited speakers were felicitated with a shawl, a memento of Hansraj College "*Muskurate raho*", a gift mug, and as a token of sustainability a plant sapling. Abstract book of the conference was inaugurated by all the eminent guests on stage.



The first technical session was started with the plenary lecture of Prof. Pushpendra Kumar Gupta, an honorary emeritus professor and INSA senior scientist, Ch. Charan Singh University Meerut, Uttar Pradesh. He shed some light on "Recent Excitements in Biology". He elaborated on recent modern techniques like 3D chromatin (2 m DNA within 6 µM), spatiotemporal -Omics, and CRISPR for long DNA segments. He mentioned 7 technologies to watch in 2024 including deep

fake detection, brain-computer interface, and MINSTED nanoscopy. He also discussed about 3D nanomaterials and chromosomal territories. The explanation was detailed and the audiences were able to get the gist of the topic very well.

Thereafter, the second plenary lecture as given by Prof. Deepak Pental, Former Vice-Chancellor of the University of Delhi and emeritus senior scientist at the International Centre for Genetic Engineering and Biotechnology, New Delhi. His talk was focused on the past and future of agriculture, marking human migrations from Africa to Asia and plant domestication at the end of the glacial period. Further, he mentioned the history of big famines and development that have beaten Malthusian predictions, fertilizers, mechanisation, plant breeding, and management. He discussed rice breeding at IARI and advised the students that one should not be data-shy and learn the computer sciences. He further told the students about the breeding tree of *Indica* Rice *IR64*. The major pests of mustard and their glycol-resistance were elaborated and specifically, the genetic mapping in *B. juncea* biparental was marked. He concluded his talk with the editing of glucosinolate transporters (GTR) and the active use of GM mustard.

The third speaker of the 1st technical session was Prof. Ashok Kumar Singh, Director, ICAR. He discussed the history of 15 different varieties of basmati rice and the development of genetic male sterile lines. He took the audience on a journey of a high-yielding variety of rice. Starting from the breeding of basmati by M.S. Swaminathan, the dwarf gene, Pusa basmati 1 which can yield 20 quintals from a single sowing, Pusa 1121, Pusa 1509, and also Pusa 1718's bacterial guide. He in his talk explained the multiple gene pyramids and the rice root-knot nematode resistance with 35% methane emission. Lastly, he concluded that genome editing is a tool for future generations to help society and farmers maximize crop production and control crop failures.

To reaffirm the idea of Viksit Bharat@2047, the core initiative of the event, an audiovisual on Viksit Bharat was showcased that depicted the growth story of India. Moving forward, Prof. Vijay Rani Rajpal kicked off the panel discussion by asking individual speakers questions regarding the evolution of agriculture for Viksit Bharat, understanding simple breeding methods involved in advanced breeding technologies, technical partnership, NGS, bioinformatics, AI, and satellites to help plant breeding.

During the 1st technical session, a penal discussion was conducted in which 7 distinguished eminent speakers contributed their insights and expertise on the critical aspects of plant biology and sustainable agricultural productivity in the context of Viksit Bharat@2047.

Panelists for Panel Discussion:

- Prof. Pushpendra Kumar Gupta, Honorary Emeritus Professor & INSA Senior Scientist, Ch. Charan Singh University, Meerut, Uttar Pradesh, India
- Prof. Deepak Pental, SERB-National Science Chair, Former Professor of Genetics and Vice-Chancellor, University of Delhi, New Delhi, India
- Prof. Soom Nath Raina, Emeritus Professor, Amity Institute of Biotechnology, Noida, Uttar Pradesh, India
- Dr. Ashok Kumar Singh, Director, ICAR-IARI & Principal Scientist, Division of Genetics, ICAR-IARI, New Delhi, India
- Prof. Suman Lakhanpaul, Professor & Head, Department of Botany, University of Delhi, New Delhi, India
- Prof. Pratap Kumar Pati, Professor & Head, Department of Biotechnology and Head, Department of Agriculture, Guru Nanak Dev University, Amritsar, Punjab, India

- Dr. Chellapilla Bhardwaj, Principal Scientist, Division of Genetics, ICAR-IARI, New Delhi, India

Overall, the penal discussion provided a platform for diverse perspectives and interdisciplinary dialogue on the theme of the conference. The first question was for Prof. P.K. Gupta which was aimed at asking about the direction of agriculture if we can meet zero hunger by 2030, and also meet the goals of Viksit Bharat@2047. To which Dr. Gupta promptly responded and took the discussion in a very meaningful direction. He answered all the questions such as whether should there be too much focus on agriculture in botany or should botany and agriculture courses be combined. He also highlighted the various important areas in botany other than agriculture that should receive equal attention. He proposed that a new syllabus of botany should take over. He emphasized that Cytogenetics, Nanotechnology, and Digitalization are all very important fields other than agriculture as they can play a major role in higher productivity. Botany students must generate more interest in other branches of science rather than just agriculture.

The second penalist was Dr. A.K. Singh. He answered several questions such as does rice development in India only focus on one variety of rice? Why not other varieties? Why do red, black, and purple varieties have poor yields? Why are we not focusing on millet for taste enhancement and higher yield? To which he very eloquently responded, that there are 10 thousand landraces of rice, he has a project on all the varieties which includes around 200 landraces, for example, kala zeera, kala namak, black rice of Manipur, and many more. He conveyed that his Ph.D. student has sequenced the genome of the black rice and improvement program on disease resistance and productivity is going on at the Indian Millet Research Institute (IMR) in Hyderabad. He also enlightened the audience about the 114 biofortified varieties of millets that he and his group have curated.

Prof. Deepak Pental was asked the following questions, i.e., Cotton is a GM crop in India. The first GM mustard was developed by his team but GM crops aren't used in India yet. Why and what should be done to promote them? He responded by forwarding the information that the Genetic Engineering Appraisal Committee (GEAC), even after conducting 10 years of different biosafety tests, India is not allowing GM crops to be introduced to the fields. Because of a lack of information and the persistence of biosafety threats, India is opposing GM. The question that is often asked of them is if GM mustard would reduce the cost of oil production. He said that the answer to this is a straight no but it will help in meeting the global shortage. He further, hypothesized that many hybrids of mustard are possible. China has more patents than India, but India has created boundaries and we are pushing ourselves to remain in it. People require a startup culture to push for changes. People from botany and agriculture must collaborate to come up with modern solutions to age-old problems of food shortages and implement new-age scientific techniques.

After him, Prof. Somnath Raina, emeritus professor at Amity Institute of Biotechnology was asked a very pertinent question on cytogenetics. Cytogenetic research is glamorous these days. How has conventional cytogenetics helped in the development of agricultural sciences and plant sciences? He gave a very thorough explanation mentioning various important factors. He mentioned that it is most important that one should know the cytogenetics of a species that is under study. Some important parameters to study and consider under cytogenetics are the zygotic chromosome number, gametic number, and basic number, as every species has a definite chromosome number and shape. One must also know whether it's advanced or primitive. Cytogenetics is very important and haploid breeding is nowhere in India, implementing that

would be a boon for cropping, especially rice and legumes. We should be on a mission to develop a haploid legume breed.

Post this, Prof. Suman Lakhanpaul was asked the following questions: As a teacher, what role does an academician play in reaching the goal of Viksit Bharat@2047? Can cues be taken from nature? Does it play a guiding role for all of us? In response, Prof. Lakhanpaul quickly pointed out the important loopholes of the curriculum and the scope of scientific advances in furthering education system. Firstly, talking about teaching and curriculum, she mentioned that the syllabus needs drastic improvements. Even the NEP syllabus needs review to include a better balance between traditional subjects such as cytology and biosystematics with modern technologies such as artificial intelligence (AI), and nanotechnology, etc. Students are the future of this country and, it's a huge responsibility of all educators to inculcate the best practices of science and knowledge in them. Moving forward, learning from nature is endless, nature taught us many things such as collaboration and resilience. Pollination of plants and insects shows positive collaboration and plants are the humble ones. They offer a lot, they hold more than 100 chemicals and benefit the perfumery industry. So, we must learn from plants and nature.

Following this, a question was asked from Prof. Pratap Kumar Pati, Head, Department of Biotechnology, Guru Nanak Dev University, Amritsar. The question was whether feeding 10 billion people by 2047 is a challenge and whether the quality of resources will be retained. The Green Revolution caused stress on resources like the water reserve and chemical engravement which are increasingly raising concerns. What are the strategies to combat such problems, especially in the state of Punjab, part of the food bowl of India? Prof. P.K. Pati replied that the mantra is farsightedness and innovation with digitalization. Necessity is the mother of all inventions. Critical thinking among students has been decreasing and they have stopped asking the right questions. There are challenges, especially for marginal land farmers, farming is not profitable, crop diversification is nil and restorative agriculture is on board. Due to MSP, only wheat and rice are grown all across and as a result, water resources are depleting. Hence, it is important that the whole system is restructured and the load of the uneducated farmers needs to be relieved, researchers should come on board and teach the farmers about crop diversification and the use of technology for making ends meet. Students and volunteers can help bridge the gap between the researcher and the farmer.

Lastly, a question was asked of Dr. Chellapilla Bharadwaj of IARI, “To kindly comment on the genomic research of India and its role in education? He replied that Genomic 1 and Genomic 2 evaluation always required a fixed approach and a better selection of germplasm and breeding methodologies. India lacks good bioinformaticians, and the quality of education must be improved and should be made more practical than theoretical.

In the end, a few questions were taken from the audience. It was thereafter concluded by Prof. Vijay Rani Rajpal that a robust and resilient farming system, sustainable crop management, and genetic manipulations will pave the way ahead for future improvements in the agricultural system. Through collaborative efforts and innovative solutions, the speakers underscored the potential to address key challenges and realize the vision of a prosperous and resilient agricultural sector.

The second technical session commenced with a talk by Prof. Suman Lakhanpaul being introduced by Prof. Monica Koul. She gave a very invigorating talk on the Phytoplasma of the plants that cause the "Hijack Phenomenon". She discussed how due to the presence of

phytoplasma, an indeterminate growth was occurring within the plant converting it into a "zombie". She told that Phytoplasma is a gram-negative bacterium and goes by the scientific name of *Candidatus* phytoplasma. The nomenclature of this bacteria is still uncertain. She further discussed the very unique characteristics of phytoplasma, such as it being a wall-less bacterium that has a uniquely small genome and a highly repetitive DNA. This bacterium contains extremely low G+C content and is also unculturable. This small organism has the unchecked power to cause diseases in 200 economically important plants such as coconut which leads to the farmers suffering great economic losses. Prof. Suman ended her talk by sharing a more hopeful insight into how the same disease-causing organism can also contribute to increasing the ornamental value of various plants.

Prof. Pratap Kumar Pati gave a talk on "Biotechnology in the Pursuit of Healthy Society". He specifically highlighted herbal medicines and the history of medicinal plants. He shared his opinion on how the cons of modern medicine have given us the room and space to welcome herbal medicines with open arms. He informed the audience about the different parts of plants being used as the source of medicine. He kept the discussion not only fascinating but also real by talking about the challenges that would be faced in this journey. For instance, to keep in check the indiscriminate exploitation of plant species is a very vital step. He shared how tissue culture is also being used in medicine synthesis. One of the specific plant species he talked about was *Withania somnifera*, commonly known as *Ashwaghandha*, which is a well-known medicinal plant and is also being thoroughly researched. Talking about food and nutritional security, he gave the classic example of the "Purple Tomato", which is anticipated to be a health booster. He also informed the students about scientists working on tearless onions. Towards the end, he even encouraged the audience to eat healthy and good food.

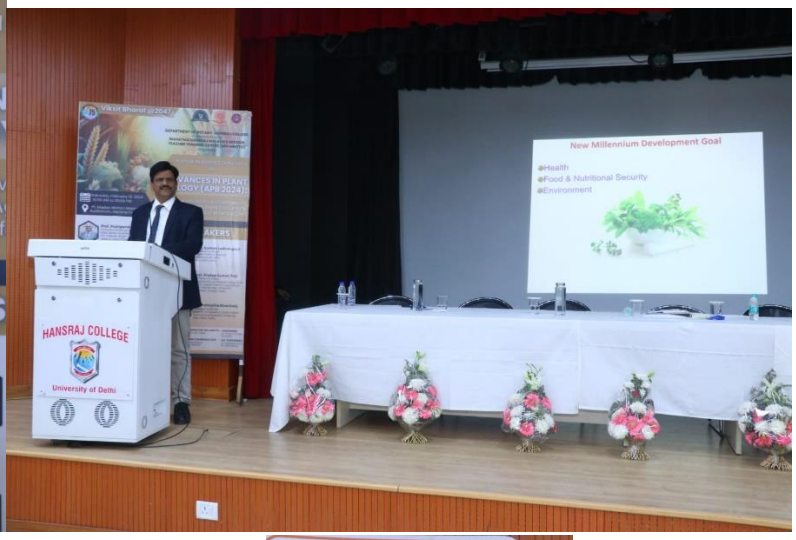
The stage was then graced with the presence of the last speaker Dr. C. Bharadwaj who introduced the audience to the concept of deployment of stress resistance genes to develop climate-resilient chickpea varieties. He talked about how the various botanists and scientists are working on creating varieties resistant to abiotic stresses. One particular stress he talked about was drought and how it affects the growth and production of chickpeas. This crop is mainly dependent on residual soil moisture and experiences drought at the end of the season. Despite the importance of the crop and its responsiveness to supplemental irrigation, many of the farmers still grow it in marginal lands as a rainfed crop. Thus, he explained how next-generation genomic approaches are very useful for developing climate change-ready crops and how for any given crop, there is a need to develop genomic resources, genetic maps, genome sequence assemblies, etc. Germplasm collection/breeding population can be phenotyped for traits of interest related to climate change and can be genotyped with high-throughput genotype technologies. GWAS, linkage mapping and QTL-Seq/BSA-Seq approaches can be used to identify diagnostic markers, and candidate genes that can be used through functional validation. Lastly, he emphasized that genomic breeding techniques such as MAS, MABC, MARS, GS, FB, and HBB can be used to develop superior varieties of crops.

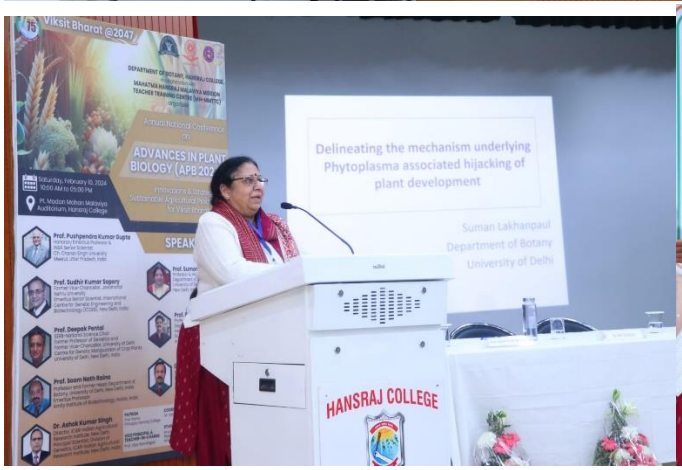
All three speakers left the audience enlightened and introduced new-age approaches to solve age-old problems. They sparked curiosity that would help create the fire of sustainability in our world.

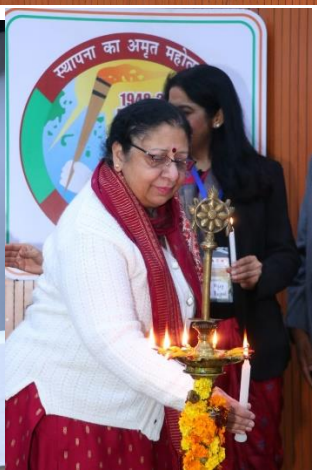
The poster presentations took place near the old seminar room, where students presented their posters to the judges (Prof. Arun Jagannath, Prof. R.C. Verma and Prof. Keshavacharyulu). Meanwhile, the oral presentations took place at the Pt. Madan Mohan Malaviya Auditorium adjudicated by (Prof. Vishnu Bhat, Prof. Shailendra Goel and Prof. Rama Rao). After the highly interactive session with all the participants and an informal open mic session, the results were announced by Dr. Ridhi Khurana with the judges for the sessions.

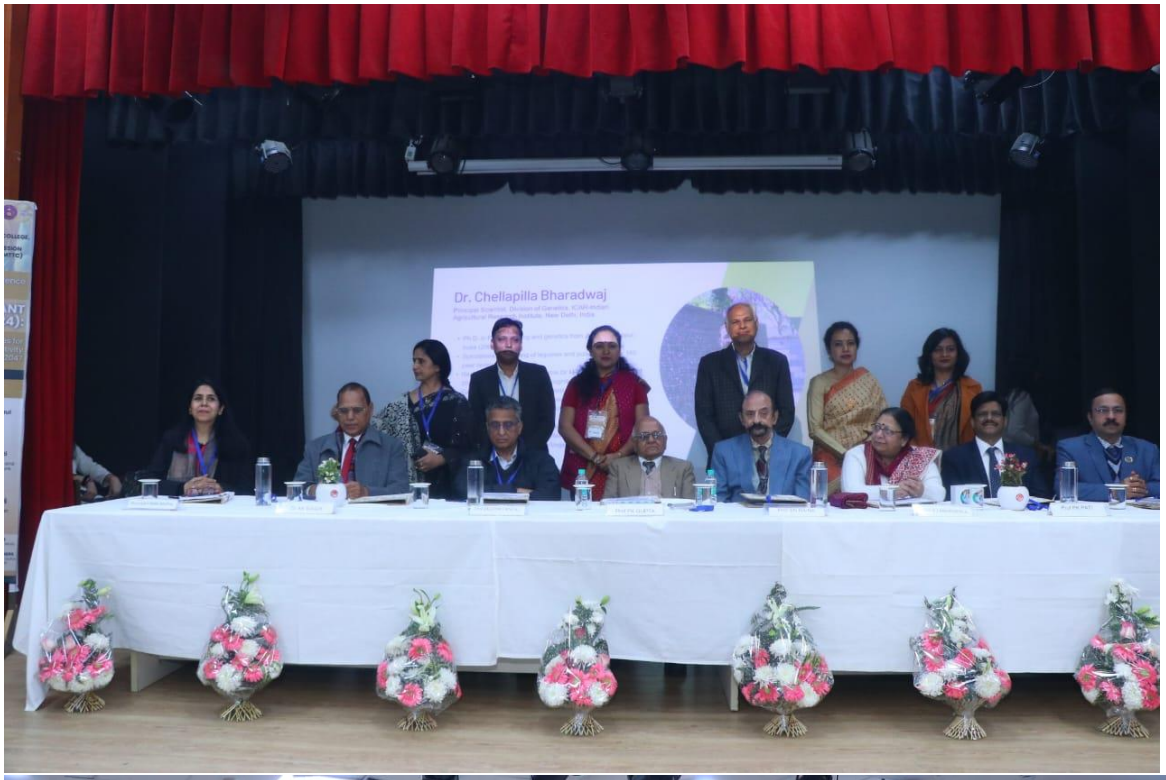
The results of the poster presentation were announced and the winners were Dr. Priyanka Pandey in the faculty category. In the Ph.D. student category, the first prize was awarded to Baljinder Singh, the second to Aayushi Jaiswal, and the consolation prize was given to Kajal Taneja. In the student category, 1st prize was awarded to Krish Sood, 2nd to Harshit Singh, and 3rd to Vaishnavi Thakur. In the Oral Presentations, Dr. Madhu Raina won the faculty best presentation award. Nabajit Kumar Borah won the Ph.D. scholar best presentation award. Amongst the students, Anchal won 1st prize and Anudeepti Bajpayee, the consolation award. Dr. Savita gave valedictory remarks and Dr. Sahil Mehta delivered the vote of thanks.

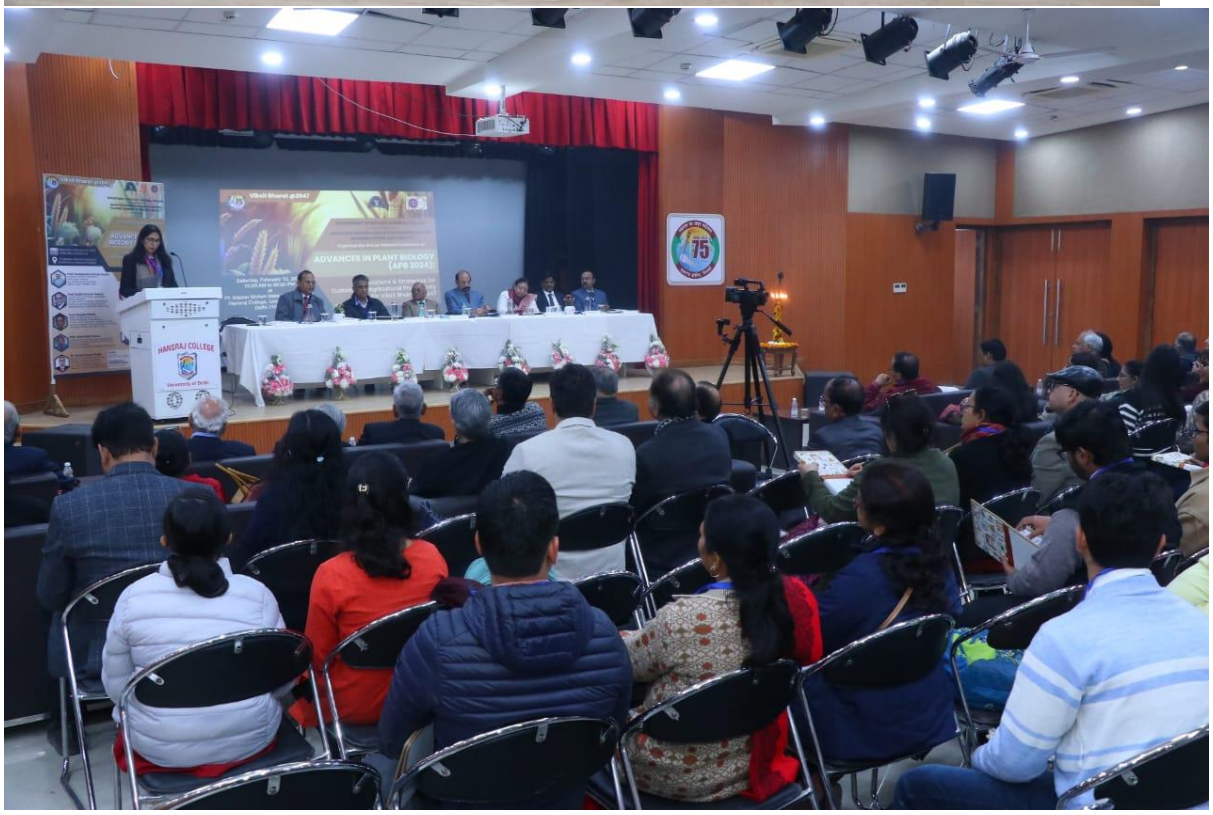
Encl.: Photos from the event, Attendance Sheet

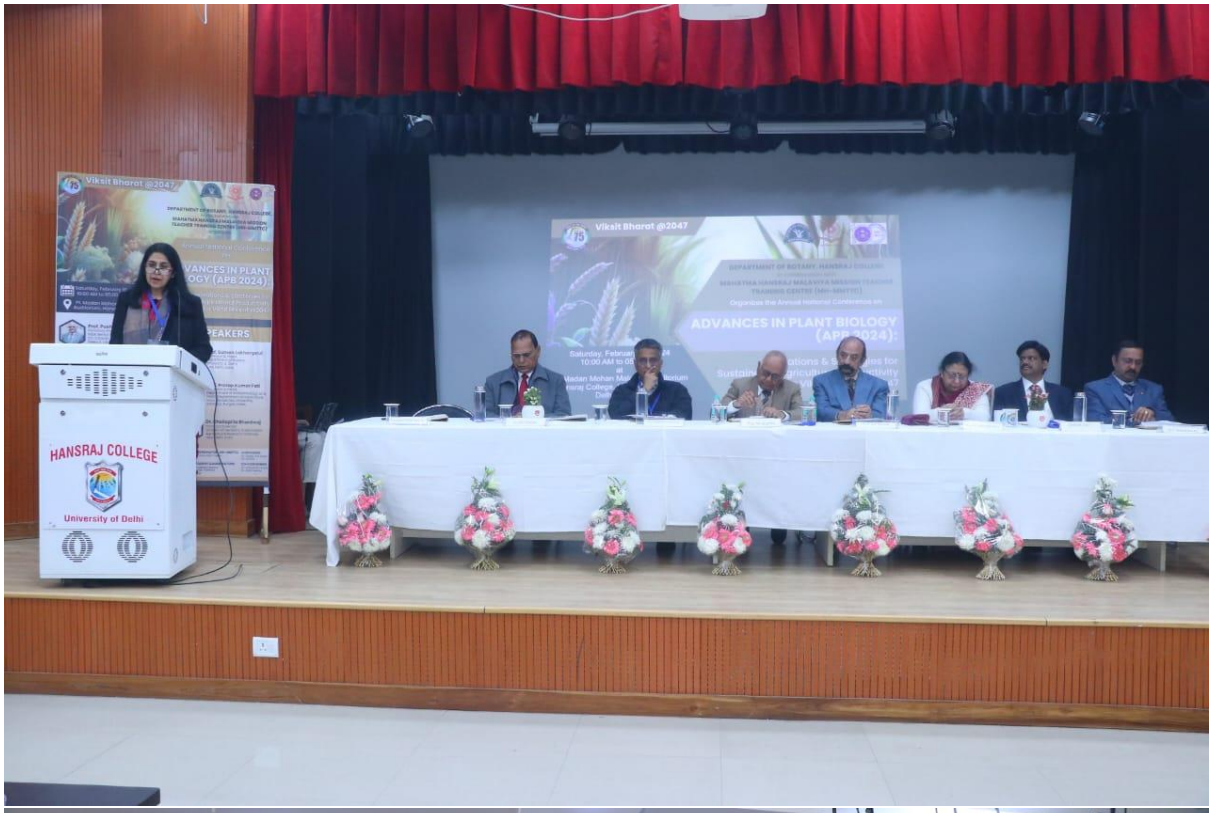


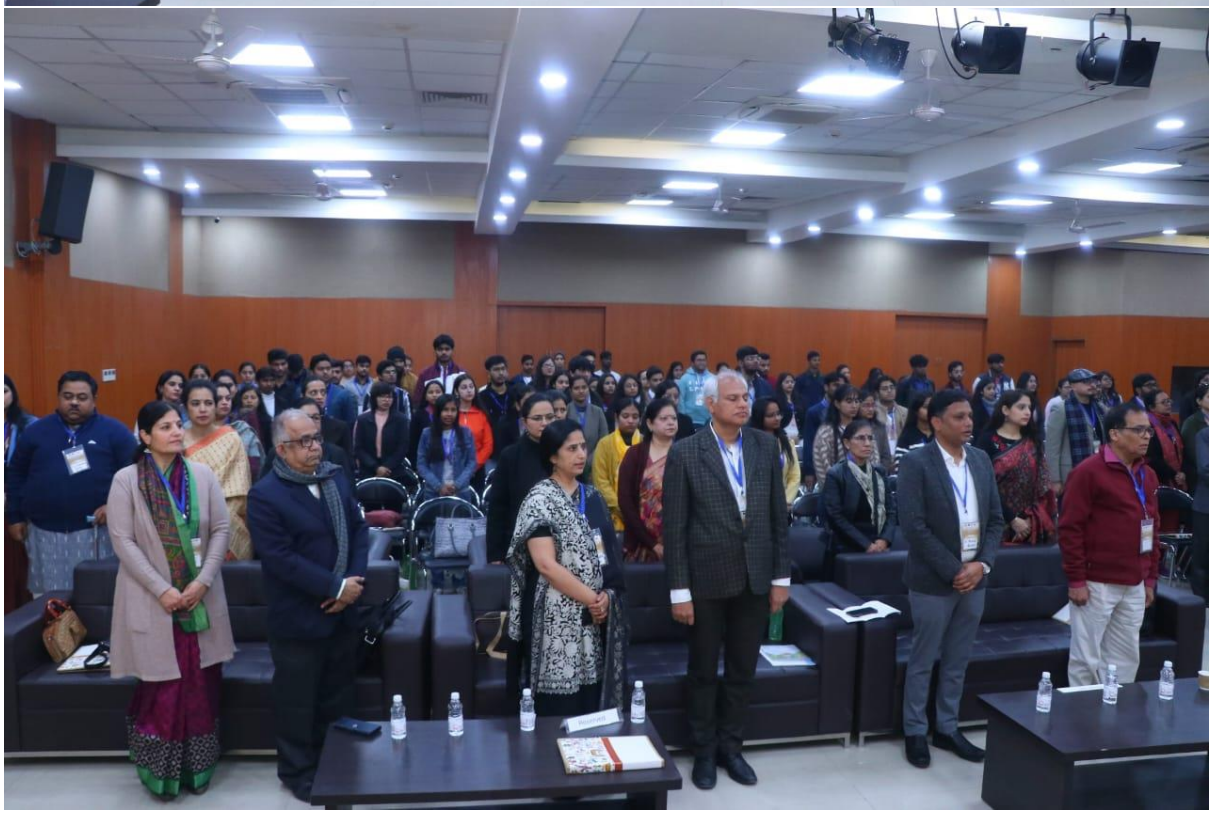




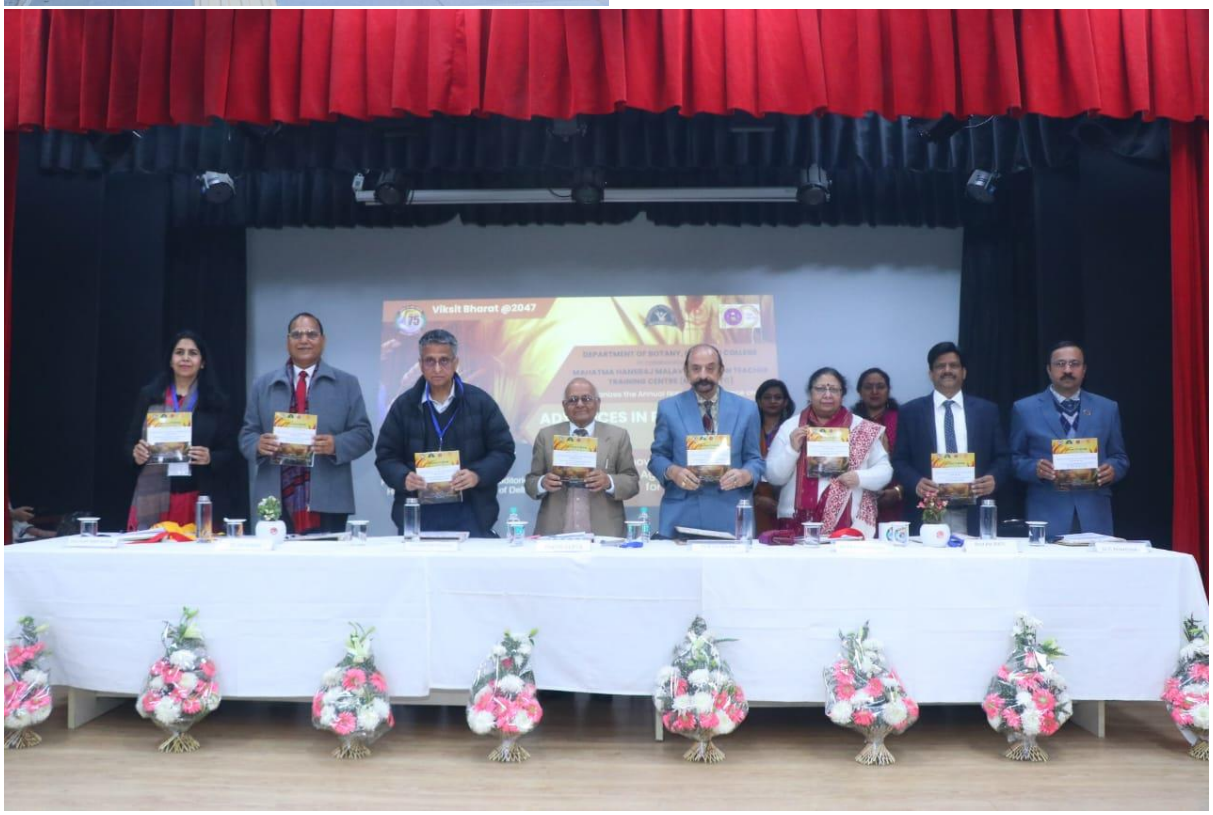

Dr. Chellapilla Bharadwaj

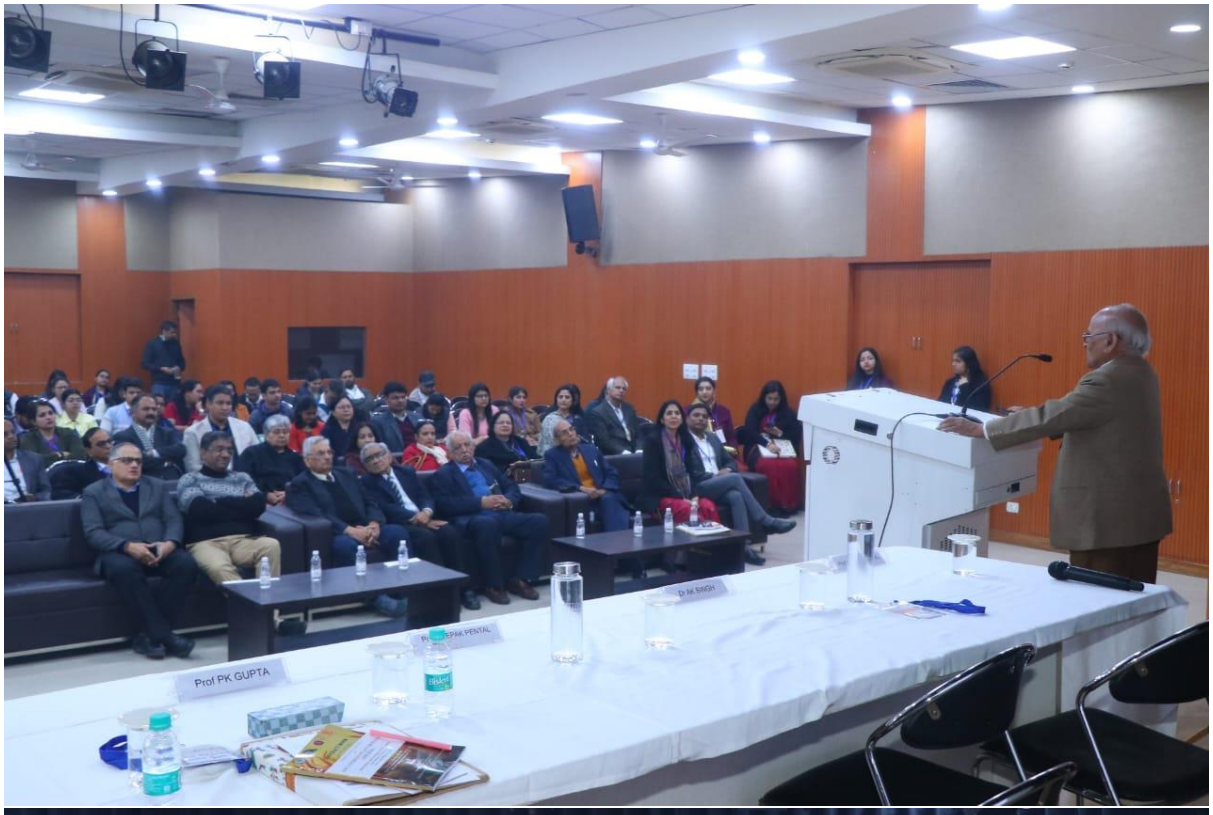

ADVANCES IN PLANT BIOLOGY
(APB 2024)
HANSRAJ COLLEGE
University of Delhi

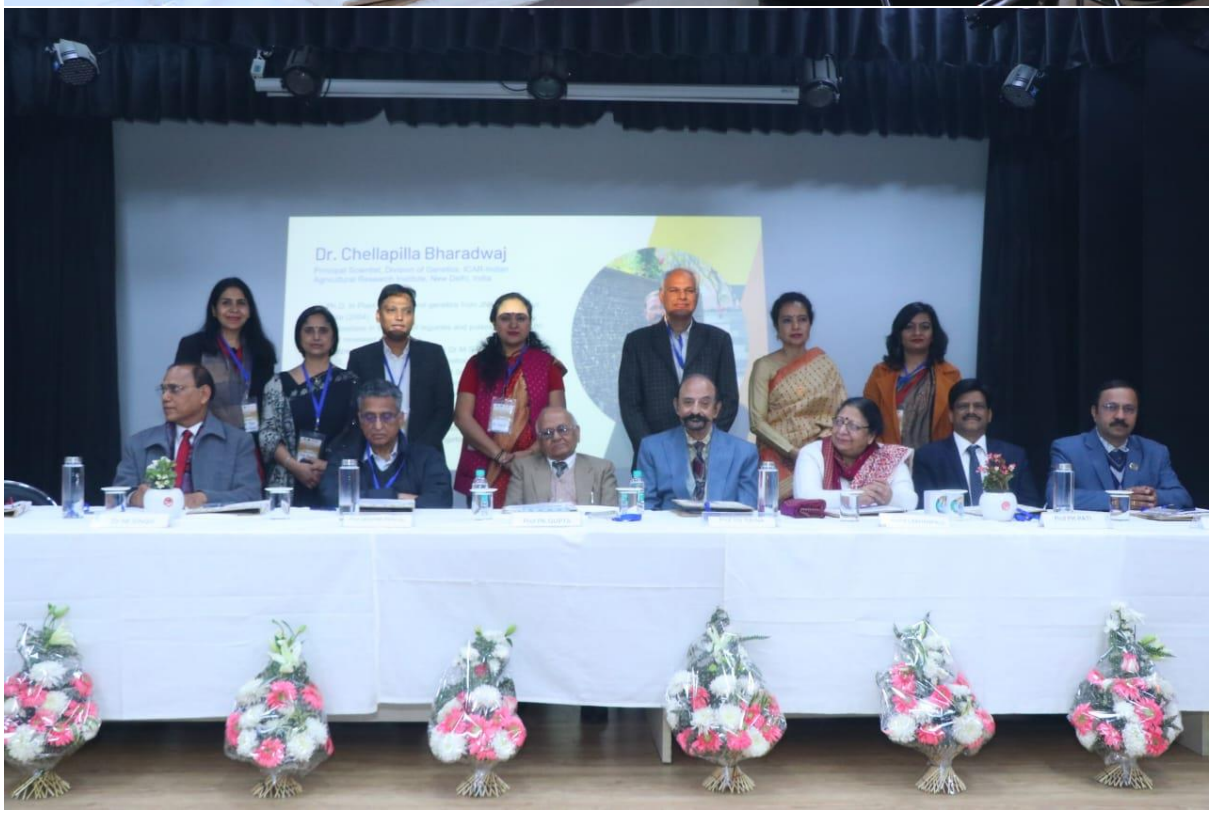

Viksit Bharat @2047
HANSRAJ COLLEGE
University of Delhi
ADVANCES IN PLANT BIOLOGY

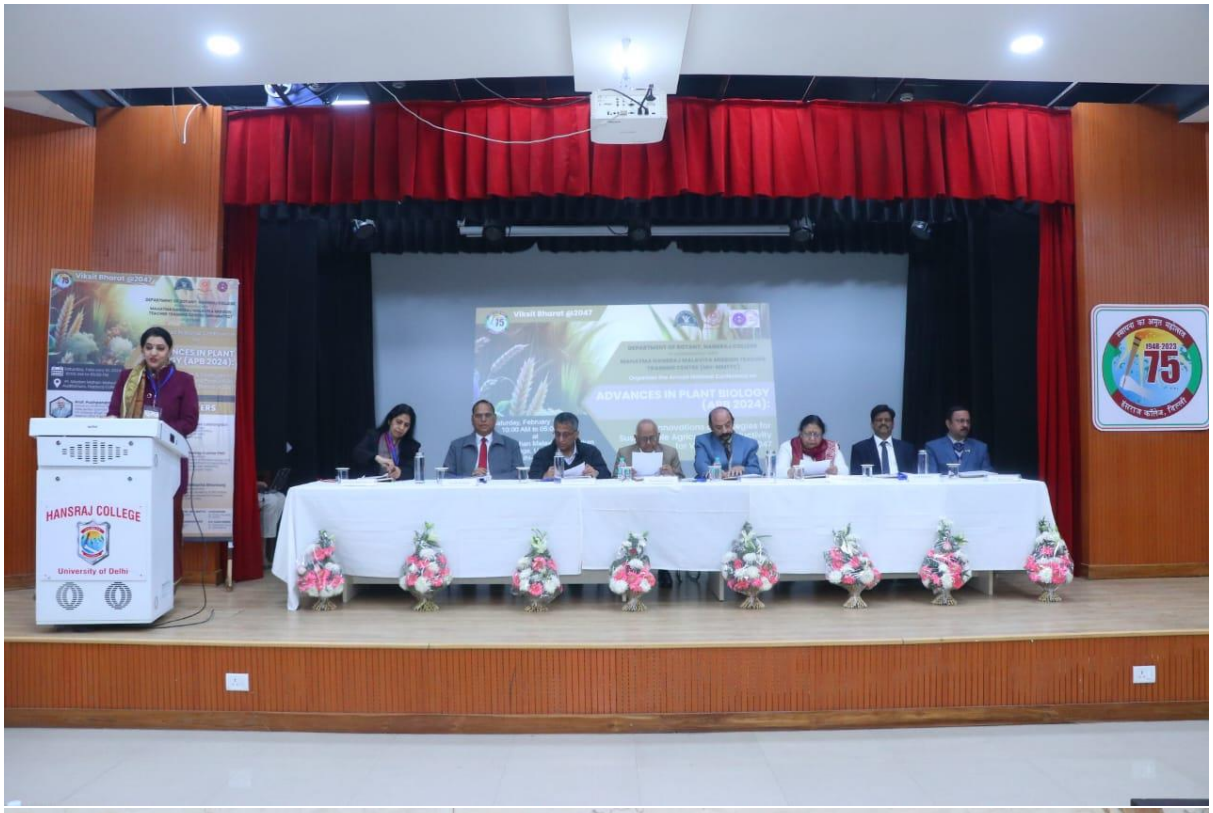


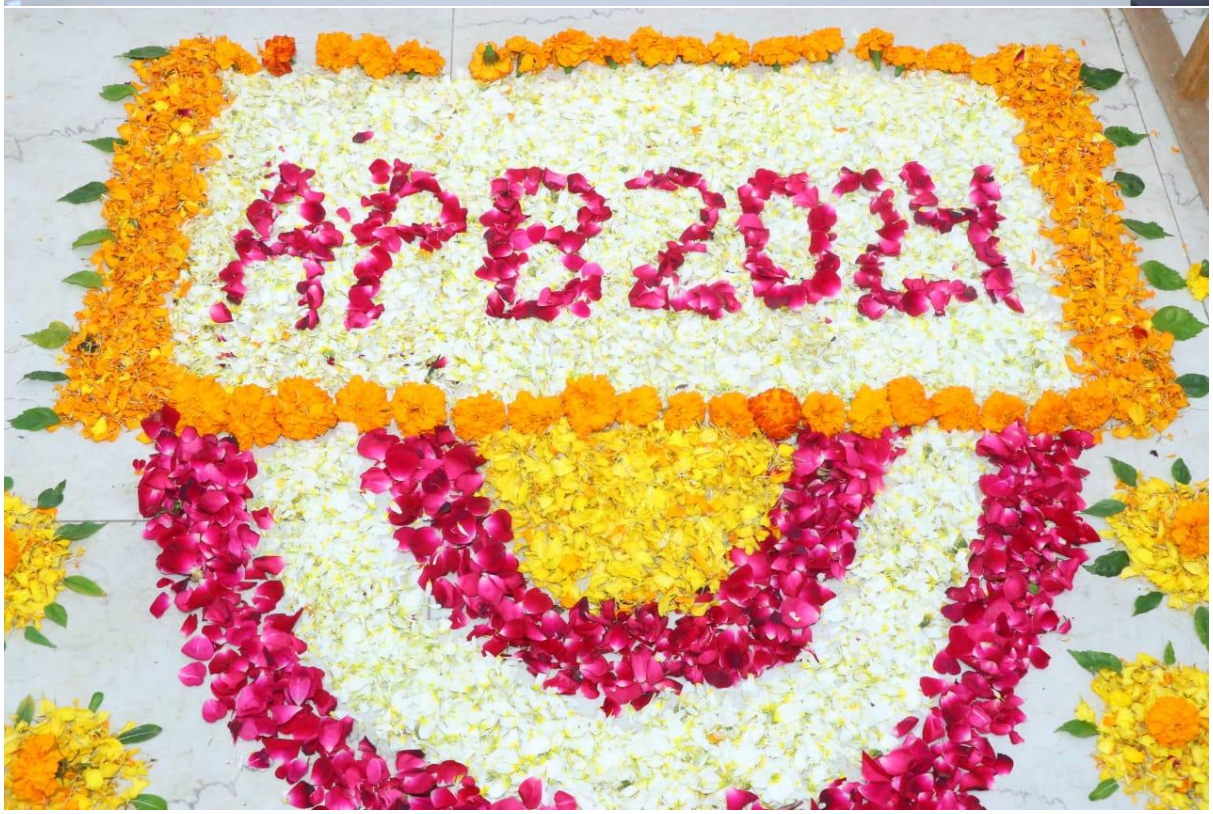

PRIDE OF HANSRAJ

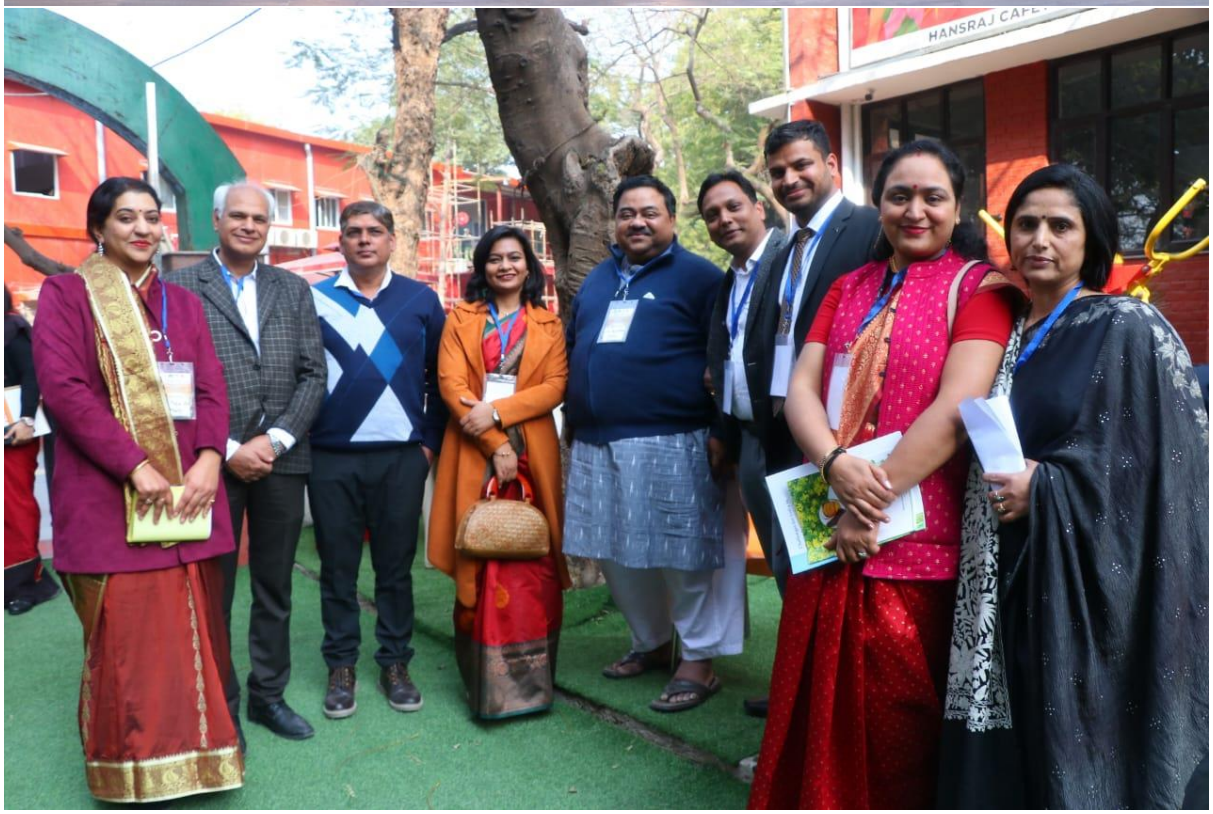

Viksit Bharat @2047


Prof PK GUPTA


Dr. Chellapilla Bharadwaj


Viksit Bharat @2047
HANSRAJ COLLEGE
University of Delhi
ADVANCES IN PLANT BIOLOGY


APB 2024


HANSRAJ


GPS Map Camera
Delhi, Delhi, India
M6H6+M4W, Mahatma Hans Raj Marg, Hansraj College, Delhi, 110007, India
Lat 28.679033°
Long 77.210464°
10/02/24 02:15 PM GMT +05:30
Google


GPS Map Camera
Delhi, Delhi, India
M6H6+M4W, Mahatma Hans Raj Marg, Hansraj College, Delhi, 110007, India
Lat 28.6791°
Long 77.210456°
10/02/24 02:21 PM GMT +05:30
Google

List of Participants (Event: Annual National Conference on Advances in Plant Biology (APB 2024); Date: 10th February 2024)

SR. NO	NAME	STATUS	COLLEGE/ INSTITUTION	EMAIL-ID
1.	Nellie Laisram	Permanent Faculty	Dyal Singh College	nellielaisram.botany@dsc.du.ac.in
2.	Geetansh	Student	Hindu college	geetanshbajaj34@gmail.com
3.	Ranjna Nagpal Koul	Permanent Faculty	Ramjas College	ranjnakoul@ramjas.du.ac.in
4.	Vanshika	Student	Miranda House	vanshika.2021.1067@mirandahouse.ac.in
5.	Amish Singh	Student	Hansraj college	amishsingh8090@gmail.com
6.	Priyanka Pandey	Permanent Faculty	Gargi College	priyyanka.pandey@gargi.du.ac.in
7.	Harshita Sharma	Student	Central University of Jammu	sharshita247@gmail.com

8.	Khushi	Student	Hansraj College	tanwarkhushi153@gmail.com
9.	Rohan Das	Student	Hansraj College	roh28119@gmail.com
10.	Ansika	Student	Hansraj college	anshika.96430@gmail.com
11.	Kartiki Upadhyay	Student	Hansraj college	Kartiki0520@gmail.com
12.	Pratyush Pritam Baruah	Student	Hansraj College	pratyushjhuman@gmail.com
13.	Tannu Yadav	Student	Hansraj College	yadavtannu02@gmail.com
14.	Gaurav Pal	Student	Hansraj College	palg03838@gmail.com
15.	Mohd. Sahil	Student	Sri Venkateswara College	sirajsahil73@gmail.com
16.	Dhruv Rathi	Student	Sri Venkateswara College	dhruvrathi106@gmail.com
17.	APARAJITA MOHANTY	Permanent Faculty	Gargi college	aparajita.mohanty@gargi.du.ac.in
18.	Maithilee Jha	Student	Hansraj college	jhamaithilee444@gmail.com
19.	Mohit Sarwan	Student	Hansraj college	mosaji00721@gmail.com
20.	Mahima karki	Student	Hansraj college	mahimamarthz223@gmail.com
21.	Krish Sood	Student	Hansraj College	krishsood366@gmail.com
22.	Suman Sharma	Permanent Faculty	Ramjas College	sumansharma@ramjas.du.ac.in
23.	Srusti Sumedha	Student	Hansraj College	sumedhasrusti1@gmail.com
24.	Anju Tanwar	Permanent Faculty	Government PG College, Ambala Cantt-133001, Haryana	anjutanwarbotany@gmail.com
25.	Utkarsh Katiyar	Student	Deshbandhu College	utkarshkatiyar024@gmail.com
26.	Babeeta C Kaula	Permanent Faculty	Zkir Husain Delhi College	dr.bckaula@zh.du.ac.in
27.	POONAM	Research Scholar	Shivaji College	bagripoonam92104@gmail.com
28.	Kuldeep Kumar Koul	Permanent Faculty	Hindu College	koul_kk@yahoo.co.in
29.	Prakhar Singh	Student	Hansraj College	prakharyadav95321172@gmail.com
30.	Riya Narayan	Student	Hansraj College	riyanarayan167@gmail.com
31.	Dr. ANKUR R BHARDWAJ	Permanent Faculty	RAMJAS COLLEGE	ankurbhardwaj@ramjas.du.ac.in
32.	Saswat Naik	Student	Deshbandhu College	saswatnaik1005@gmail.com
33.	Dr. Aditi Kothari Chhajer	Permanent Faculty	Sri Venkateswara Colege	aditi@svc.ac.in
34.	VARUN MAHESHWARI	Student	HANSRAJ COLLAGE	varunmaheshwari2003@gmail.com
35.	Akansha Jaiswal	Research Scholar	Hansraj college	akanshajaiswal25@gmail.com
36.	Ayushi Jaiswal	Research Scholar	Department of botany	jaiswalayushi43@gmail.com
37.	ANOUSHKA TIWARI	Student	SRI VENKATESWARA	anoushkatiwari4385@gmail.com
38.	Prachi Khola	Student	Hansraj College	prachikhola@gmail.com

39.	Anjali Singh	Student	Maitreyi College	singhanju1205@gmail.comcom
40.	Mukesh Ramola	Student	Amity University Noida (U.P.)	mukeshramola000@gmail.com
41.	SANCHAYEETA PARASHAR	Student	Ramjas College	Sanchayeetaparashar04@gmail.com
42.	Nidhi Kumari	Research Scholar	Department of Botany	nkenex@gmail.com
43.	Prerna	Student	Gargi college	prernaghangas9@gmail.com
44.	Anshupa Behura	Student	Sri Guru Tegh Bahadur Khalsa College	behuraabhilipsa@gmail.com
45.	Babita Pandey	Student	Sri Guru Tegh Bahadur Khalsa College	bp849768@gmail.com
46.	Shubham khurana	Student	Hansraj College	shubhamkhurana17903@gmail.com
47.	Aryan sharma	Student	Hansraj college	sharmaryan1800@gmail.com
48.	Anshika patel	Student	Hansraj	patelanshika875@gmail.com
49.	Savita Hans	Student	Hansraj College	hanssavita272@gmail.com
50.	Shivani Singh	Student	Hansraj college	shivanisingh04032002@gmail.com
51.	Anshika patel	Student	Hansraj college	Chikupanditofficial@gmail.com
52.	Chelsy Sharma	Student	Amity Institute of Biotechnology, Amity University, Noida, Uttar Pradesh	sharma.chelsy30@gmail.com
53.	Abdul Saood Khan	Student	Hansraj College	saoodabdul786@gmail.com
54.	Guniyal Raina	Student	Amity Institute of Biotechnology	guniyalraina20@gmail.com
55.	Harmeet Kaur	Permanent Faculty	SGTB Khalsa College	harmeet.ahden@gmail.com
56.	Anshika Arren	Student	Hansraj college	www.anshikaarren@gmail.com
57.	AMIT KUMAR	Student	Hansraj	jhaamit2507@gmail.com
58.	Inderdeep Kaur	Permanent Faculty	Sri Guru Tegh Bahadur Khalsa College	kaurid2006@gmail.com
59.	Gurpreet Kaur	Permanent Faculty	SGTB Khalsa College	gpbotany@gmail.com
60.	Rekha Kathal	Permanent Faculty	Daulat Ram College	rkathal14@gmail.com
61.	Anand Kumar Pushker	Permanent Faculty	Ramjas College	anandpushker@ramjas.du.ac.in
62.	Arya Gupta	Student	Amity University/Amity Institute of Biotechnology	aryagupta120103@gmail.com
63.	Rishav Mangar	Student	Zakir Husain Delhi College	rishavmangar1911@gmail.com

64.	Vaishnavi	Student	Hansraj college	vaishnavikumarthakur@gmail.com
65.	Saumya gupta	Student	Sgtb khalsa college	saumyagupta1014@gmail.com
66.	Ritu	Student	Hansraj College	ritubadgujar12@gmail.com
67.	Gursheen kaur	Student	Sri Guru Teg Bahadur Khalsa College	gursheenkaur828@gmail.com
68.	Shruti Aggarwal	Student	Sri Guru Tegh Bahadur Khalsa College	saggarwal.0305@gmail.com
69.	Mohd Anas	Student	Hansraj college	anasmbdoc@gmail.com
70.	Kalsoom fatima choudhary	Student	Hrc,du	kalsoomfatima2004@gmail.com
71.	Uttam Kumar	Student	Hansraj College	uttamk956@gmail.com
72.	Jyotsna Bora	Student	Amity University Noida	jyotsna.bora@s.amity.edu
73.	Mani Priya	Student	Hansraj College	manihrc888@gmail.com
74.	Juhi Gupta	Student	Hansraj College	juhiguptag987@gmail.com
75.	Trisha Sarkar	Student	Hansraj College	trisha.me.046@gmail.com
76.	APEKSHITA SINGH	Permanent Faculty	AMITY UNIVERSITY	apek28@gmail.com
77.	Khyati	Student	Hansraj College	khyatirawat186@gmail.com
78.	Sunandini Dev Singh	Student	Hansraj College	sunandinids@gmail.com
79.	Manisha	Research Scholar	National Institute of Plant Genome Research	yadav.manisha671@gmail.com
80.	Saloni Bahri	Permanent Faculty	Miranda House	saloni.bahri@mirandahouse.ac.in
81.	Madhu Bajaj	Permanent Faculty	Miranda House	madhu.bajaj@mirandahouse.ac.in
82.	Shambhavi Krishna	Student	Miranda House	shambhavi.2021.200@mirandahouse.ac.in
83.	Samriddhi Chaturvedi	Student	Miranda House	samriddhi.2021.232@miramdahouse.ac.in
84.	Brijmohan Singh Bhau	Permanent Faculty	Central University of Jammu	bsbhau@cujammu.ac.in
85.	Jasaraj Loktongbam	Student	Hansraj College	jasaraj5210@gmail.com
86.	Jyoti Sharma	Student	Amity Institute of Nanotechnology	jyoti.sharma3@s.amity.edu
87.	Komal Shri Chandra	Student	Amity Institute of Nanotechnology	Komal.chandra3@s.amity.edu
88.	Ruchitra Gupta	Permanent Faculty	Gargi College	ruchitra.gupta@gargi.du.ac.in
89.	Kajal Taneja	Research Scholar	Department of Botany	kajaltaneja52@yahoo.com
90.	Shubham Suman	Student	Hansraj	shubh4m1127@gmail.com
91.	Kartiki Bhatnagar	Permanent Faculty	Ramjas College	kartiki.bhatnagar@gmail.com
92.	Tanvi Garg	Student	Hansraj college	tanvigarg116@gmail.com
93.	Simran Jit	Permanent Faculty	Miranda House	simranjit@mirandahouse.ac.in

94.	Gurumayum Suraj Sharma	Permanent Faculty	Hindu College	gurumayumsuraj@gmail.com
95.	Neeti Mehla	Permanent Faculty	Ramjas College	neetidhaka@gmail.com
96.	Dr.Poonam Sabrwal	Permanent Faculty	Govt.College Chamba H.P.	poonamriddham777@gmail.com
97.	Chanchal Kumari	Research Scholar	Amity University	chanchal.iari@gmail.com
98.	Rashmi Rani	Student	Hindu College	rashmibusinessonly02@gmail.com
99.	SHAGOLSHEM YAIPHABEE CHANU	Student	HINDU COLLEGE	shagolshemyaiphabee@gmail.com
100.	Dhananjay Raturi	Student	Amity University, noida	dhananjayraturi02@gmail.com
101.	Divya Mohanty	Permanent Faculty	Hindu College	divyamohanty13@gmail.com
102.	Khwaish Itkaan	Student	Hansraj College	khwaishitkaan5@gmail.com
103.	Prabhakar bisht	Student	Hansraj college	prabhakarbisht9310@gmail.com
104.	Kavyanjali Joshi	Student	Hansraj college	kavyanjalijoshi29@gmail.com
105.	Parth	Student	Hansraj College	tiwariparth774@gmail.com
106.	Aarna mishra	Student	Hansraj College	aarna0917@gmail.com
107.	Himani Sharma	Student	Hansraj College	himanisharma0675@gmail.com
108.	Anudeepti Bajpai	Student	Hansraj College	anudeepti.bajpai@gmail.com
109.	Aditi Singh	Student	Hansraj College	aditisingh6947@gmail.com
110.	ABHIJEET MEENA	Student	Hansraj College	abhijeetmeena2004@gmail.com
111.	Kesavacharyulu Khandavilli	Temporary Faculty	Central Silk Board	keshavk2000@gmail.com
112.	Deepika Kandoi	Permanent Faculty	Sharda University	kandoideepika@gmail.com
113.	Dr. Madhu Raina	Permanent Faculty	Sri Venkateswara College	madhu@svc.ac.in
114.	Anjali Kumari	Student	Hansraj College	anjali18541001@gmail.com
115.	Shikha Singh	Student	Hansraj	cshikha720@gmail.com
116.	Muthabathula' Prajna	Permanent Faculty	Sri Venkateswara College	prajna.muthabathula@gmail.com
117.	Barkha Parihar	Research Scholar	Central University of Jammu	tjbarkha07@gmail.com
118.	Renuka Agrawal	Permanent Faculty	Miranda House	renuka.agrawal@mirandahouse.ac.in
119.	Samantha Vaishnavi	Permanent Faculty	Central University of Jammu	samantha.bot@cujammu.ac.in
120.	Rakesh Chandra Verma	Permanent Faculty	Vikram University	rakeshcverma@yahoo.com
121.	Atul Arya	Research Scholar	Department of Botany	arya84613@gmail.com
122.	SATYAWADA RAMA RAO	Permanent Faculty	SSBSR, SHARDA UNIVERSURYM	srrao22@yahoo.com
123.	Ravindra Kumar	Permanent Faculty	Hindu College	ravijnu@gmail.com
124.	Jaiveer malik	Student	Hansraj college	jaiveermalikchem@gmail.com
125.	Deepak Gupta	Student	Hansraj college	dg044878@gmail.com

126.	JASPREET KAUR	Permanent Faculty	MAITREYI COLLEGE	jkaur@maitreyi.du.ac.in
127.	Harshit singh	Student	Hansraj college	harshitsingh508@gmail.com
128.	Aman	Student	Sri Aurobindo college	yo.thats.meaman@gmail.com
129.	Mansi Verma	Permanent Faculty	Hansraj College	mansiverma@hrc.du.ac.in
130.	Ayanna Bhardwaj	Student	Sri Aurobindo college	ayannabhardwaj2004@gmail.com
131.	Prerna	Student	Sri Aurobindo college	15012004prerna@gmail.com
132.	Anil Kumar Mavi	Permanent Faculty	Sri Aurobindo College University of Delhi	amavi_botany@aurobindo.du.ac.in
133.	Arpit Karan	Student	Hansraj College	arpitkaran2312@gmail.com
134.	Aanchal	Student	Hansraj College	aanchal1583@gmail.com
135.	Misha Yadav	Permanent Faculty	Shivaji College	drmishadu@gmail.com
136.	Anirban Goswami	Student	Hansraj College	anirbangoswami19ngn@gmail.com
137.	Dr. Himanhsu Shukla	Research Scholar	Independent Researcher	himanshu1000@rediffmail.com
138.	Shaifali Sethi	Student	Hansraj College	sethishaifali9@gmail.com
139.	Pratyush Kashyap	Student	Hansraj College	pratyushkashyap2003@gmail.com
140.	Shreya Jha	Student	Hansraj College	jhashreya0909@gmail.com
141.	Shamsiya kousar	Student	Hansraj college	banoof746@gmail.com
142.	Shubham Prakashdutt Mamgain	Student	Hansraj College	shubhammamgain52@gmail.com
143.	Sakaldev Paswan	Student	Hansraj college	paswansakaldev646@gmail.com
144.	Vansh Garg	Student	Hansraj College	vanshgarg726@gmail.com
145.	Anup	Student	Hansraj College	anupcuet@gmail.com
146.	Priyanka Atri	Research Scholar	Guru Nanak Dev University Amritsar Punjab	priyankaabot.rsh@gndu.ac.in
147.	Ankit Kumar	Student	Hansraj college	kumar110202ankit@gmail.com
148.	Gulshan Bhagat	Research Scholar	Guru Nanak Dev University, Amritsar	gulshanbhagat29@gmail.com
149.	Aditi Verma	Student	Hansraj College	aditiaditiv08@gmail.com
150.	Navdeep Kour	Research Scholar	Guru Nanak Dev University, Amritsar	navdeepkourbio@gmail.com
151.	Ankit Kumar	Student	Shivaji College	ankittiwary88598@gmail.com
152.	Sharda Mahilkar Sonkar	Permanent Faculty	Miranda House	sharda.sonkar@mirandahouse.ac.in
153.	Sujata Sengupta	Permanent Faculty	Miranda House	sujata.sengupta@mirandahouse.ac.in
154.	Kushal	Student	Hansraj college	kushbhati5@gmail.com
155.	Shreya Proch	Research Scholar	Central University of Jammu, Samba, J&K	sproch41@gmail.com

156.	S.Gautam	Student	Shivaji College	gautastiko1612@gmail.com
157.	Smita Jain	Permanent Faculty	Sharda University	smita.jain@sharda.ac.in
158.	Palak	Student	Shivaji College	palak.krishnaz@gmail.com
159.	PRATIMA VERMA	Research Scholar	DEPT. OF BOTANY	vpratima96@gmail.com
160.	Astha Jaiswal	Student	Hansraj College	asthajaiswal255@gmail.com
161.	Sheen Tickoo	Student	Hansraj college	tickoosheen@gmail.com
162.	Vrinda Sharma	Research Scholar	Central University of Jammu	vrindasharma2106@gmail.com
163.	Kiran Bamel	Permanent Faculty	Shivaji College	kbamel@yahoo.in
164.	ABHISHEK SINGH	Student	Hansraj college, Delhi University	abhisheksinghabhibela@gmail.com
165.	Sachchidanand Tripathi	Permanent Faculty	Deen Dayal Upadhyaya College	snt191@gmail.com
166.	Rajkumari Sanayaima Devi	Permanent Faculty	Deen Dayal Upadhyaya College	sana.rajk@gmail.com
167.	Ayushi Tiwari	Student	Hansraj College	ayushitiwari.1912@gmail.com
168.	Anita Thakur	Adhoc Faculty	Acharya Narendra Dev College	anitathakur@andc.du.ac.in
169.	Geetika Kalra	Permanent Faculty	Acharya Narendra Dev college	geetikakalra@andc.du.ac.in
170.	Swayam Saxena	Student	Zakir Husain Delhi College	swayamsaxena2306@gmail.com
171.	Shaurya	Student	Shivaji College	id.shaurya54@gmail.com
172.	Urvashi Khatiyan	Research Scholar	Department of Botany	urvashikhatiyan.44@gmail.com
173.	Seema Talwar	Permanent Faculty	Shivaji College	seematalwar@shivaji.du.ac.in
174.	S Ananya	Student	Acharya Narendra Dev College	s.ananya191200@gmail.com
175.	Rohit Yadav	Student	Hansraj college	rohit11062005@gmail.com
176.	Harshita Tripathi	Student	Zakir Husain Delhi College	tripathiharshita090@gmail.com
177.	Kamal Kanojia	Student	Hansraj College	kanojiakamal03@gmail.com
178.	Harshita Mahara	Student	Zakir Husain Delhi College	harshitamahara5@gmail.com
179.	Ruchi Vir	Permanent Faculty	Zakir Husain Delhi college	ruchivir@zh.du.ac.in
180.	Nisha Sogan	Permanent Faculty	Deshbandhu College	nsogan@db.du.ac.in
181.	SOURAV SINGH DEO	Permanent Faculty	Deshbandhu College	sdeo@db.du.ac.in
182.	Aparna Nautiyal	Permanent Faculty	Deshbandhu College, University of Delhi	anautiyal@db.du.ac.in
183.	Afshar Ajmeri	Student	Acharya Narendra Dev College	afsharajmeri@gmail.com
184.	Shruti Gupta	Student	Hansraj College	sgstudy8989@gmail.com
185.	Ashi verma	Student	Hansraj college	ashi.adhistra@gmail.com

186.	Simar Malhotra	Student	Hansraj college	smmalhotra10@gmail.com
187.	Stuti Sehrawat	Student	Zakir Husain Delhi College	stuti7722@gmail.com
188.	Anubhuti Angral	Student	Hansraj College	anubhutiangral@gmail.com
189.	Aayush pandey	Student	Sri Aurobindo college	pandeyaayush846@gmail.com
190.	Santosh Kumar Mishra	Permanent Faculty	Sharda University, Greater Noida	skmiet@gmail.com
191.	Yukti Tripathi	Student	Amity Institute of Biotechnology	yuktitripathi2601@gmail.com
192.	Charu Bisht	Research Scholar	GB Pant University of Agriculture & Technology, Pantnagar, Uttarakhand	charubisht3096@gmail.com
193.	Nabajit Kumar Borah	Student	Amity Institute of Biotechnology	nabajitkrb@gmail.com
194.	Pallavi Bhatt	Student	Gargi college	bhattpallavi349@gmail.com
195.	Dhritiparna Das	Student	Hansraj College	djjaan4444@gmail.com
196.	Anjali shah	Student	Amity Institute of Biotechnology	20shahanjali@gmail.com
197.	Tribeni Sharma	Student	Shivaji College, University of Delhi	sharmatribeni2021@gmail.com
198.	Deeksha Sharma	Student	Amity institute of biotechnology	deekshasharma946@gmail.com
199.	Imran Khan	Student	Hansraj College	imrankhan2015.ik39@gmail.com
200.	Vishakha Raj	Student	hansraj college	iamvishakharaj@gmail.com
201.	Nitin Kumar	Student	Hansraj College	nitinkumar58406@gmail.com
202.	Muskan Arya	Student	Hansraj college	muskanarya5817.12e@gmail.com
203.	Vipin	Student	Hansraj college	indoriyavipin829@gmail.com
204.	Ayush Kumar Singh	Student	Hansraj College	ilmf3000@gmail.com
205.	Gurjeet Kaur	Permanent Faculty	SGTB Khalsa College	gurjeet@sgtbkhalsa.du.ac.in
206.	Molly Dua	Student	Amity University	molly.dua@s.amity.edu
207.	Kshitiz Jha	Student	Amity Institute Of Biotechnology	jhakshitiz38@gmai.com
208.	Priyanka	Student	Hansraj college	priyankakadian13935@gmail.com
209.	Somya	Student	Hansraj College	allawadhisomya@gmail.com
210.	Priyanka Kumari	Student	Hansraj College	ayushkomal2018@gmail.com
211.	Muskan	Student	Hansraj College	muskanbgz@gmail.com
212.	Kuber Kumar Sahoo	Student	Hansraj college	kuber57777@gmail.com
213.	Aditi jain	Student	Zakir husain delhi college	ajaditi121jain@gmail.com
214.	Abhishek Kanojia	Student	Department of botany	Abhishek.ak0447@gmail.com