



**Vidya Prasarak Mandal's**  
**B.N. BANDODKAR COLLEGE OF SCIENCE**  
**(Autonomous)**

**Criterion III**

**Research, Innovations and Extension**

**Key Indicator**

**3.1 Promotion of Research and Facilities**

**3.1.1.**

The institution's research facilities are frequently updated and there is a well-defined policy for promotion of research which is uploaded on the institutional website and implemented:

**INDEX**

<b>Sr. No.</b>	<b>Particulars</b>
01	Research Committee
02	Research Promotion policy
03	JBNB Journal
04	Access to e-journals and e-books
05	Bills of Instruments purchased by various Departments
06	University of Mumbai 19 <sup>th</sup> Inter-Collegiate (AVISHKAR) Research Convention 2023-24
07	Knimbus platform Bill
08	List of Journal and & PERIODICAL
09	National Conference on "Eco Pulse: Monitoring the Beats of Ecosystems"

Website Links of the Committee, Research Promotion policy Document/ JBNB Journal/ E-Journals and E Books

1. RESEARCH COMMITTEE:

<https://vpmthane.org/BNB/ResearchCommittee.aspx>

2. Provide URL of policy document on promotion of research uploaded on the website

<http://www.vpmthane.org/bnb/AQAR23-24/5.%20FINAL%20RESEARCH%20PROMOTION%20POLICY.pdf>

3. JBNB Journal

<https://vpmthane.org/BNB/Jbnb2025.php>

4. Upload the Minutes of the Governing Council/ Syndicate/Board of Management related to research promotion policy adoption

[http://www.vpmthane.org/bnb/AQAR23-24/Minutes%20of%20the%20Meeting\\_CDC\\_Research%20Promotion%20Policy.pdf](http://www.vpmthane.org/bnb/AQAR23-24/Minutes%20of%20the%20Meeting_CDC_Research%20Promotion%20Policy.pdf)

5. Access to e-journals and e-books

<http://www.vpmthane.org/opendatabase.htm>

## 1. Instrument Procured by the Departments

Sr. No.	Name of the Department	Name of research facilities/ Instrument updated/ Subscription taken	Date and Year	Cost (INR in lakhs)
1.	Biochemistry	Biotechnics Serological water Bath Double Walledfilled With High Grade glasswool Insulation HSN- 8419	29/9/2023	10290/-
2.	Biochemistry	Dybound Magnetic stirrer With Hot Plate 2 LTR(Manuali) B0615983Q8 (6Z-RXFV- X37W) HSN-8479	19/12/2023	3,459/-
3.	Biochemistry	Fixed volume micropipettes 50 micro liter HSN CODE 90318000	23/02/2024	4779/-
4.	Biochemistry	VORTEX SHAKER/CYCLO MIXER (TEST TUBE SHAKER) B09DLBPVL2 ( MIXER) HSN :84798200	01/03/2024	2,400/-
5	Micro-Biotech	Digital kitchen weighing balance	13/01/2025	189/-

# ME MEDI - EQUIP

|| Shri Ganeshay Namah ||

43/342, Unnat Nagar Part IV, M. G. Road, Goregaon (West), Mumbai - 400 104.

Tel.: 2873 6775 • Mob.: 98690 09997 • 8850219156

E-mail : bhatiashyam64@hotmail.com

GSTIN No.: 27ACLPB8483F1ZE

PAN No.: ACLPB8483F

- ✳ LAB INSTRUMENTS
- ✳ LAB CONSUMABLES
- ✳ GLASSWARES
- ✳ AUDIO / VIDEO EQUIPMENTS
- ✳ CALIBRATIONS
- ✳ WHITE GOODS

OUR BANKER - CENTRAL BANK OF INDIA - A/C NO.: 1181263793 - IFSC : CBINO282197

## TAX INVOICE

<b>BHARAT GRAHAK SAHAKARI SANSTHA MARYADIT,</b> DR. BEDEKAR VIDYA MADIR, NAUPADA, THANE -400 602.  GST NO: 27AAABB0145R1ZM	Invoice No. : <b>ME415/23-24</b>	Date : <b>09-09-2023</b>
	Challan No. : <b>CH / 504</b>	Date : <b>09-09-2023</b>
	Order No : <b>60 , 29/08/2023</b>	
	Transport : <b>HAND DELIVERY</b>	Boxes :
	L.R. No. :	Date :
	Despatch To : <b>THANE - BANDOKAR</b>	Freight: <b>PAID</b>

Sr. Code	Item Particulars	HSN	Qty.	Rate	Dis%	Unit	Amount
1	BTI-40-4 BIOTECHNICS SEROLOGICAL WATER BATH DOUBLE WALLED FILLED WITH HIGH GRADE GLASSWOOL INSULATION BETWEEN TWO CHAMBERS , FULLY S.S. CONTROLLER BY THERMOSTATIC TEMP CONTROLLER; RANGE - 5°C ABOVE AMBIENT TO 99°C, ACCU - ±2°C (SUPPLIE D WITHOUT TEST TUBE RACKS) RATING - 500WATT, SIZE - 4 RACK , DIM - 14 X 10 X 6 , CAP - 13LTR , CAT - BTI-40-4R	8419	1	8080.00		NO	8080.00
2	LID FOR 4RACK , FOR CAT - BTI-40-4R	8419	1	640.00		NO	640.00
						Gross Amount	Rs. 8,720.00
						Taxable Amount	8,720.00
						SGST 9%	784.80
						CGST 9%	784.80
						Round Off + / -	0.40
						Final Amount	Rs. 10,290.00

Rupees TEN THOUSAND TWO HUNDRED AND NINETY RUPEES ONLY

E. & O. E.

GST No. : 27ACLPB8483F1ZE

DL No.: 20B-MH-MZ6-530989, 21B-MH-MZ6-530990

For MEDI - EQUIP

I hereby certify that my registration certificate under the GST 2017 is in force on the date on which the sale of the goods specified in this Tax Invoice is made by me and that the transaction of sale covered by this Tax Invoice has been effected by me and it shall be accounted for in the turnover of sales while filing of return and the due tax, if any, payable on the sales has been paid or shall be paid.

SUBJECT TO MUMBAI JURISDICTION

Page 1 of 1

Authorised Sign.



**Tax Invoice/Bill of Supply/Cash Memo**  
(Original for Recipient)

**Sold By :**

Skybound Entrepise  
Rect/Killa Nos. 38/8/2 min, 192/22/1, 196/2/1/1,  
37/15/1, 15/2., Adjacent to Starex School, Village  
- Binola, National Highway -8, Tehsil - Manesar  
Gurgaon, Haryana, 122413  
IN

**Billing Address :**

Sayali Daptardar  
In-Charge & Assistant Professor, Department of  
Biochemistry, B N Bhandodkar College of Science  
THANE, MAHARASHTRA, 400601  
IN  
State/UT Code:27

PAN No:ADVFS9289F

GST Registration No:06ADVFS9289F1Z4

Dynamic QR Code:



**Shipping Address :**

Sayali Daptardar  
Sayali Daptardar  
In-Charge & Assistant Professor, Department of  
Biochemistry, B N Bhandodkar College of Science  
THANE, MAHARASHTRA, 400601  
IN  
State/UT Code:27

Place of supply:MAHARASHTRA  
Place of delivery:MAHARASHTRA

Invoice Number :DEL5-678

Invoice Details :HR-DEL5-1241519875-2324

Invoice Date :19.12.2023

Order Number:404-9693387-9851546

Order Date:19.12.2023

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	Skybound Magnetic Stirrer With Hot Plate 2 LTR (Manual)   B0815983QB ( 6Z-RXPV-X37W ) HSN:8479	₹1,030.51	1	₹1,030.51	18%	IGST	₹127.49	₹1,458.00
<b>TOTAL:</b>							₹127.49	₹1,458.00

Amount in Words:

Three Thousand Four Hundred Fifty-eight only

For Skybound Entrepise:

Authorized Signatory

Whether tax is payable under reverse charge - No

# TechnoCraft

ISO 9001:2015 Certified

B-002, Om Sai Aardhana CHS Ltd.,  
Ashokvan, S.V Road, Borivali [E],  
Mumbai 400 066.  
Email: [yn@technocrafts.com](mailto:yn@technocrafts.com)  
Website: [www.technocrafts.co](http://www.technocrafts.co)  
Mob. 09892061432

## INVOICE

To,  
The Principal,  
Dept. of Biochemistry,  
Bansodkar College,  
Manaswepa, Chendani Bunder Road,  
Thane West,  
Thane 400601

INV. No. INV/25/048

Dt. 23/02/24

Und. No. Telephone:

Dt. 22/02/24

Sr. No.	Item Description	Unit Price	Dis %	Qty	Total
1	Fixed Volume micropipettes 50 ul HSN CODE: 90318000	450.00	10	10	4050.00
2					
3					
4					
Grand Total: Four thousand seven hundred and seventy nine only				Total	4050.00
				Freight	free
				SGST 9 %	364.50
				CGST 9 %	364.50
				Total	4779.00

GSTIN: 27AGHP6094P12V

For TechnoCraft





Tax Invoice/Bill of Supply/Cash Memo  
(Original for Recipient)

**Sold By :**  
ELECOPTO ENTERPRISES  
#177 Railway Road Ambala Cantt.  
AMBALA, HARYANA, 133001  
IN

**Billing Address :**  
Sayali Daptardar  
In-Charge & Assistant Professor, Department of  
Biochemistry, B N Bandodkar College of Science  
THANE, MAHARASHTRA, 400601  
IN  
**State/UT Code:**27

**PAN No:**ARCPV9742M  
**GST Registration No:**06ARCPV9742M1Z1  
**Dynamic QR Code:**



**Shipping Address :**  
Sayali Daptardar  
Sayali Daptardar  
In-Charge & Assistant Professor, Department of  
Biochemistry, B N Bandodkar College of Science  
THANE, MAHARASHTRA, 400601  
IN  
**State/UT Code:**27

**Place of supply:**MAHARASHTRA  
**Place of delivery:**MAHARASHTRA

**Order Number:**403-4511890-5457114  
**Order Date:**01.03.2024

**Invoice Number :**IN-718  
**Invoice Details :**HR-1306215675-2324  
**Invoice Date :**01.03.2024

Sl. No	Description	Unit Price	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	VORTEX SHAKER/CYCLO MIXER (TEST TUBE SHAKER) B09DLBPVL2 ( MIXER ) HSN:84798200	₹2,033.90	1	₹2,033.90	18%	IGST	₹366.10	₹2,400.00
<b>TOTAL:</b>							₹366.10	₹2,400.00

**Amount in Words:**  
Two Thousand Four Hundred only

For ELECOPTO ENTERPRISES:

Authorized Signatory

Whether tax is payable under reverse charge - No



Micro - Non Recurring <sup>2</sup>  
 Tax Invoice/Bill of Supply/Cash Memo  
 (Original for Recipient)

*Entered  
26/4/25*

**Sold By :**  
 CLICKTECH RETAIL PRIVATE LIMITED  
 \*Building No. 5, BGR Warehousing Complex, Near  
 Shiv Sagar Hotel, Village Vahuli, Bhiwandi, Thane  
 BHIWANDI, MAHARASHTRA, 421302  
 IN

**Billing Address :**  
 Vedant Nikam  
 Unnati woods, phase-5, E2-204, Kavser village,  
 Ghodbander road, Thane-(West)  
 THANE, MAHARASHTRA, 400615  
 IN  
 State/UT Code:27

PAN No:AAJCC9783E  
 GST Registration No:27AAJCC9783E1Z7  
 Dynamic QR Code:



**Shipping Address :**  
 Vedant Nikam  
 Vedant Nikam  
 Unnati woods, phase-5, E2-204, Kavser village,  
 Ghodbander road, Thane-(West)  
 THANE, MAHARASHTRA, 400615  
 IN

State/UT Code:27  
 Place of supply:MAHARASHTRA  
 Place of delivery:MAHARASHTRA

Order Number:403-0841903-2198728  
 Order Date:13.01.2025

Invoice Number :BOM7-2230515  
 Invoice Details :MH-BOM7-297683823-2425  
 Invoice Date :13.01.2025

Sl. No.	Description	Unit Price	Discount	Qty	Net Amount	Tax Rate	Tax Type	Tax Amount	Total Amount
1	ATOM Digital Kitchen Food Weighing Scale For Healthy Living, Home Baking, Cooking, Fitness & Balanced Diet.   1 Year Warranty   10Kg x 1gms with 2 Batteries Included, SF400/A121, Color May vary   B083C6XMKQ ( B083C6XMKQ ) HSN:84231000	₹160.16	₹0.00	1	₹160.16	9%	CGST	₹14.42	₹189.00
	Shipping Charges	₹33.90	-₹33.90		₹0.00	9%	CGST	₹0.00	₹0.00
						9%	SGST	₹14.42	
						9%	CGST	₹0.00	₹0.00
						9%	SGST	₹0.00	
<b>TOTAL:</b>								₹28.84	₹189.00

Amount in Words:  
 One Hundred Eighty-nine only

For CLICKTECH RETAIL PRIVATE LIMITED:

*[Signature]*  
 Authorized Signatory

Whether tax is payable under reverse charge - No

*Cash received  
Vedant  
13/1/2025*

*[Signature]*  
 Head  
 Department of Microbiology  
 VPM's B.N. Bandodkar College of Science (Autonomous)  
 Thane (W)

\*ASSPL-Amazon Seller Services Pvt. Ltd., ARIPL-Amazon Retail India Pvt. Ltd. (only where Amazon Retail India Pvt. Ltd. fulfillment center is co-located)  
 Customers desirous of availing input GST credit are requested to create a Business account and purchase on Amazon in/business from Business eligible offers

Please note that this invoice is not a demand for payment

Page 1 of 1

## University of Mumbai 19<sup>th</sup> Inter-Collegiate (AVISHKAR) Research Convention 2024-25

### Avishkar Students List with Name of the Mentor

PRN	NAME	CLASS	TOPIC	Guiding Teacher
2022420199	Bhosle Shravan Santosh	T.Y.B.SC	Correlation of Daydreaming frequency and individual's lifestyle	Dr. Jui Pimple
2022420201	Yadav Khushi Ramanand	T.Y.B.SC		
2022420204	Kamble Riya Rahul	T.Y.B.SC		
2022420203	Kagzi Aamina Fakhruddin	T.Y.B.SC		
2024420113	Nanavare Om Arju	F.Y.B.SC	Stress Management and Stress relief using Mathematics	Mrs. Radhika Kunal Bamankar
2024420147	Kambli Mansi Sanjay	F.Y.B.SC		
2024420155	Jadhav Sneha Umesh	F.Y.B.SC		
2023420378	Sanap Pooja Santosh	S.Y.B.SC.	Air Quality Analysis: Trends and Predictive Insights	Mohini P. Kulkarni
2023420380	Waghela Aarti Govardhan	S.Y.B.SC.		
2023420381	Nagare Pranali Vishwanath	S.Y.B.SC.		
2023420376	Bangari Harshita Mahender singh	S.Y.B.SC.		
2023420306	Dubey Pragya Dinesh	S.Y.B.SC	Synthesis of copolymers for biomaterials used to repair bone.	Prof (Dr.) Anita Goswami-Giri
2023420233	Bhatia Urja Chetan	M.SC.PART 2	Supervisory Abuse and psychological wellbeing: A correlational study among resident doctors	Dr. Jui Pimple
2023420236	Syed Fatima Feroz	M.SC.PART 2	Effect of positive psychological interventions on mindfulness of adolescents	Dr. Jui Pimple
2023420237	Raghuram Manasi	M.SC.PART 2	Effect of fear of negative evaluation on social anxiety behaviour among young adult	
2020420153	Yadav Shraddha Salikaram	M.SC.PART 2	A correlational study between social media and the quality of sleep among youth	Dr. Jui Pimple
2023420235	Kashyap Anju Surjeet	M.SC.PART 2		
2022420262	Shah Aafaque Aalamgir	T.Y.B.SC.	Effect of Coloured light on crops cultivation in greenhouse.	Dr. Bhalchandra Kashinath Mandlekar
2023420189	Shelar Pauras Santosh	T.Y.B.SC.		
2023420188	Shelar Nairutya Surendra	T.Y.B.SC.		
2022420244	Patel Priyanka Ratilal	T.Y.B.SC.		
2024420002	Tari Sejal Harshad	T.Y.B.SC.		
2024420337	Tiwari Harsh Ashutosh	T.Y.B. SC.	Creation of Bio-manure using different cattle waste and studying its effect on Fenugreek crop.	Ms. Sakshi Dandekar
2022420464	Aaryushi Arun Singh	T.Y.B. SC.		
2023420472	Ankit Anand Pandey	S.Y.B.SC.		

2022420301	Kanhurkar Shruti Sanjay	T.Y.B.SC.	Bioinsecticidal potential of <i>Jasminum grandiflorum</i> extract against <i>Sitophilus oryzae</i> L.	Dr. Nilesh Jawalkar
2021420412	Chavan Varada Ravindra	T.Y.B.SC.		
2023420443	Sawant Vedant Prashant	S.Y.B.SC.		
2023420452	Karjavkar Mayuresh Ranjit	S.Y.B.SC.		
2023420409	Khirari Nishant Madhukar	S.Y.B.SC.		
2023420367	Shirke Anuja Ajit	S.Y.B.SC.	Predictive Modelling for Crop Yield: Trends and Insights	Dr. Tukaram Vaijanath Navghare
2023420368	Rohit Rajendra Bhor	S.Y.B.SC.		
2022420136	Patil Bhargavi Mahadev	T.Y.B.SC.	Symbioponics: Enhancing the crop yield of hydroponics through synergistic action of microbial biofertilizers	Ms. Sayali Daptardar
2022420436	Shinde Ishita Suryakant	T.Y.B.SC.		
2022420252	Shinde Shreyas Naresh	T.Y.B.SC.	Comprehensive soil analysis for sustainable agriculture	Dr. Pralhad Shriram Wagh
2022420287	Bramhane Janhvi Santosh	T.Y.B.SC.		
2022420260	Kokate Kiran Popat	T.Y.B.SC.		
2022420288	Golipkar Pradnya Kashinath	T.Y.B.SC.		
2022420292	Gaikwad Sawriya Ananda	T.Y.B.SC.		
2022420066	Choudhary Pooja Sujaram	T.Y.B.SC.	Probing the Potential of Plant Growth-Promoting Rhizobacteria in Chromium-Stressed <i>Vigna radiata</i> .	Ms. Purvi Shah
2022420067	Mane Buddhabhushan Maruti	T.Y.B.SC.		
2022420068	Arenkeri Pritam Suryakant	T.Y.B.SC.		
2022420060	Gaikwad Nisha Sanjeev	T.Y.B.SC.		
202342021	Patole Gauri Shashikant	M.SC. PART II	Synthesis of silver-doped zinc oxide nanoparticles using lemon juice	Dr. Ajit Nanasaheb Bhumkar
2019420676	Yadav Aarti Omprakash	M.SC. PART II	Isolation and evaluation of piperine from black pepper and white pepper	Dr. Pralhad Shriram Wagh
2023420212	Malgankar Sonal Arun	M.SC. PART II	Synthesis of iron oxide nanoparticles using ammonium hydroxide	Dr. Ajit Nanasaheb Bhumkar
2023420216	Gaikwad Neha Govind	M.SC. PART II	Aegle marmelos fruit ash as a catalyst for the synthesis of N-Benzylideneaniline	Dr. Sandeep Santu Kahandal
2024420154	Koram Rushikesh Jagdish	F.Y.B.SC.	Mathematical foundation of Signal Processing	Mrs. Radhika Kunal Bamankar
2024420149	Shinde Ankita Ajit	F.Y.B.SC.		
<b>2024420112</b>	Gudla Akshaya Bhumaligam	F.Y.B.SC.		
2023420162	Singh Sheetal Anil	S.Y.B.SC.	Formulation and Evaluation of Natural Lipbalm and Blush Using Natural Pigments from Plant extract	Ms. Arti Manohar
2023420163	Mishra Sonam Dinesh	S.Y.B.SC.		
2023420178	Yadav Ashish Ramchandra	S.Y.B.SC.		
2022420379	Shinde Rakhi Ravikant	T. Y. B. SC.	Ash of pomegranates peels for	Dr. Rupesh Patil

			cycloalkanones and tetralones synthesis	
2023420400	Yadav Laxmi Shivshankar	S.Y.B.SC.	The impact of indoor plants concerning human health and air purification	Dr. Vinod Jamdhade
2023420416	Patil Rutuja Sham	S.Y.B.SC.		
2022420461	More Arnisha Prashant	T.Y.B.SC	Exploring the bioremediation potential of Chromium-tolerant bacteria	Dr. Ashwini Tilak
2022420401	Dubey Varsha Dinesh	T.Y.B.SC		
2022420494	Lad Mrunal Mahendra	T.Y.B.SC		
2022420080	Ray Anjali Ajay	T.Y.B.SC		
2024420022	Panchal Sanskruti Dhananjay	F.Y.B.SC.	Screening of Phytochemical and Palynological Properties of Different Honey Samples	Dr. Swarupa Agnihotri
2024420048	Sawant Tejasvi Shivaji	F.Y.B.SC		
2022420454	Jadhav Sanskruti Santosh	T.Y.B.SC	Development of biodegradable antimicrobial bandages	Dr. Pralhad Shriram Wagh
2022420332	Chavan Mrunali Mangesh	T.Y.B.SC		
2022420427	Khan Moiz Enam	T.Y.B.SC		
2022420456	Dange Nikhil Vijay	T.Y.B.SC		
2022420326	Nevrekar Shivam Vaibhav	T.Y.B.SC		
2023420163	Shinde Sneha Rajendra	S.Y.B.SC.	Ointment Formulation using Collagen Extracted from Egg Shell Membrane	Ms. Arthi Manohar
2023420160	Shaikh Shaziya tasneem Md obaidullah	S.Y.B.SC.		
2023420169	Khan Neha Rayees	S.Y.B.SC.		
2023420411	Shaikh Afreen Mohd arif	S.Y.B.SC	Plants Poisoning in the Gardens: The Human Risk Evaluation in Thane, Maharashtra	Dr. Vinod Jamdhade
2023420384	Bartan Kartiki Ganpat	S.Y.B.SC		
2023420159	Nautiyal Kirti Murtiram	S.Y.B.SC.	Designing Edible Film	Ms. Sayali Daptardar
2023420201	Singh Yashvi Amitabh	S.Y.B.SC	Extraction of essential oils and formulation of herbal natural perfume	Ms. Pooja Kanse
2023420157	Desai Nishtha Shankar	S.Y.B.SC		
2023420182	Yadav Janhavi Dinesh	S.Y.B.SC		
2023420213	Mulla Hujefa Hamid	MSC PART II	Green synthesis of nanoparticles using Neem and Tulsi leaves	Dr. Pralhad Shriram Wagh
2023420214	Mishra Jaya Rakesh	M.SC. PART II	Synthesis and characterization of nanoparticles derived from Sterculia foetida alkaloids	Dr. Anita Goswami-Giri
2023420155	Ghatkar Shravani Deepak	S.Y.BSC.	Formulation and Characterization of Edible Packaging material from fruit peels.	Ms. Shradha Pagare
2023420170	Patil Siya Mahesh	S.Y.BSC.		
2023420353	Pramanik Saikat Susanta	S.Y.B.SC	Study of Impact of Climate Change on agriculture in India	Dr. Tukaram Navghare
2023420379	Ganganahalli Sahil Manohar	S.Y.B.SC		
2023420369	Padwalkar Aditya Dilip	S.Y.B.SC		
2023420374	Nandu Harsh Nilesh	S.Y.B.SC.	Time Series Analysis of	Dr. Tukaram Navghare

2023420370	Kharwad Mamta Prithvisingh	S.Y.B.SC.	Temperature Fluctuations in India	
2023420366	Salve Harshada Suhas	S.Y.B.SC.	Analytical Study of Water Pollution Across Multiple Water Bodies	Dr.Mohini P. Kulkarni
2023420371	Attar Anam Javed	S.Y.B.SC.		
2023420354	Siddiqui Saniya Nafees	S.Y.B.SC.		
2022420284	Patil Mrunali Sharad	T.Y.B.SC.	Awareness of e-gadgets and e-waste management among UG-PG Science students	Dr. Urmila C. Kumavat
2022420244	Patel Priyanka Ratilal	T.Y.B.SC.	"Honey with Purpose" evaluating brands through quality and sustainability.	Mr. Nandkishor S Sangle
2022420262	Shah Aafaque Aalamgir	T.Y.B.SC.		
2022420303	Bodas Atharva Rucha rahul	TYBSC	Bioethanol production from coconut husk and soyabean with zero waste	Ms. Nikeeta Keni
202342045	Choughule Amol Arun	SYBSC		
2022420324	Patil Vidhi Rajesh	TYBSC		
2023420215	Magar Ruchita Santosh	M.SC. PART II	The Development Of Banana Peel/Corn Starch Bioplastic Film	Dr. Sandeep Santu Kahandal



University of Mumbai

19<sup>th</sup>  
**Aavishkar**

Inter-Collegiate / Institute / Department Research Convention  
(Zonal Round)  
Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Mr. Tiwari Harsh Ashutosh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Creation of Bio-manure using different cattle waste and studying its effect on Fenugreek crop.** in **Agriculture and Animal Husbandry** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

**Dr. Minakshi Gurav**  
OSD,  
Aavishkar,  
University of Mumbai



**Dr. Sunil Patil**  
Director,  
Department of Students' Development,  
University of Mumbai

December 11, 2024  
Ghansoli, Navi Mumbai





University of Mumbai

19<sup>th</sup>  
**Aavishkar**

Inter-Collegiate / Institute / Department Research Convention  
(Zonal Round)  
Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Ms. Ghatkar Shravani Deepak** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Formulation and Characterization of Edible Packaging material from fruit peels.** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

**Dr. Minakshi Gurav**  
OSD,  
Aavishkar,  
University of Mumbai

**Dr. Sunil Patil**  
Director,  
Department of Students' Development,  
University of Mumbai

December 11, 2024  
Ghansoli, Navi Mumbai





University of Mumbai

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## Certificate of Participation

This is to Certify that **Ms. Aaryushi Arun Singh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Creation of Bio-manure using different cattle waste and studying its effect on Fenugreek crop.** in **Agriculture and Animal Husbandry** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Ms. Panchal Sanskruti Dhananjay** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Screening of Phytochemical and Palynological Properties of Different Honey Samples in Medicine and Pharmacy Category and UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Ankit Anand Pandey** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Creation of Bio-manure using different cattle waste and studying its effect on Fenugreek crop.** in **Agriculture and Animal Husbandry** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Sawant Tejasvi Shivaji** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Screening of Phytochemical and Palynological Properties of Different Honey Samples in Medicine and Pharmacy Category and UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Nanavare Om Arjun** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Stress Management and Stress relief using Mathematics in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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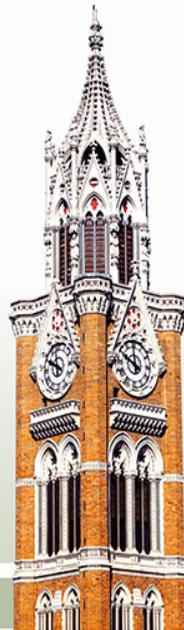
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## Certificate of Participation

This is to Certify that **Ms. Jadhav Sanskruti Santosh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Development of biodegradable antimicrobial bandages in Medicine and Pharmacy** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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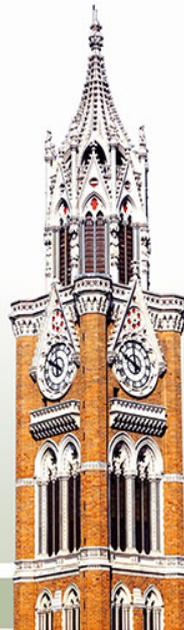
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## Certificate of Participation

This is to Certify that **Ms. Kambli Mansi Sanjay** of **B.N. Bandothkar College of Science, Thane** has participated and presented a Research Project titled **Stress Management and Stress relief using Mathematics in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Chavan Mrunali Mangesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Development of biodegradable antimicrobial bandages in Medicine and Pharmacy** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Kanhurkar Shruti Sanjay** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioinsecticidal potential of Jasminum grandiflorum extract against Sitophilus oryzae L.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Jadhav Sneha Umesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Stress Management and Stress relief using Mathematics in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Chavan Varada Ravindra** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioinsecticidal potential of Jasminum grandiflorum extract against Sitophilus oryzae L.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Sawant Vedant Prashant** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioinsecticidal potential of Jasminum grandiflorum extract against Sitophilus oryzae L.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Karjavkar Mayuresh Ranjit** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioinsecticidal potential of Jasminum grandiflorum extract against Sitophilus oryzae L.** in **Agriculture and Animal Husbandry** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Mr. Khirari Nishant Madhukar** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioinsecticidal potential of Jasminum grandiflorum extract against Sitophilus oryzae L.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Khan Moiz Enam** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Development of biodegradable antimicrobial bandages** in **Medicine and Pharmacy** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Mr. Koram Rushikesh Jagdish** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Mathematical foundation of Signal Processing** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Shinde Ankita Ajit** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Mathematical foundation of Signal Processing** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Dange Nikhil Vijay** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Development of biodegradable antimicrobial bandages in Medicine and Pharmacy** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Gudla Akshaya Bhupaligam** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Mathematical foundation of Signal Processing** in **Pure Sciences** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Nevrekar Shivam Vaibhav** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Development of biodegradable antimicrobial bandages in Medicine and Pharmacy** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Patil Siya Mahesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Formulation and Characterization of Edible Packaging material from fruit peels.** in **Engineering and Technology** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Patil Bhargavi Mahadev** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Symbiionics: Enhancing the crop yield of hydroponics through synergistic action of microbial biofertilizers in Agriculture and Animal Husbandry** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Shinde Ishita Suryakant** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Symbiionics: Enhancing the crop yield of hydroponics through synergistic action of microbial biofertilizers in Agriculture and Animal Husbandry** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Shinde Sneha Rajendra** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Ointment Formulation using Collagen Extracted from Egg Shell Membrane in Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Shaikh Shaziya Tasneem Md Obaidullah** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Ointment Formulation using Collagen Extracted from Egg Shell Membrane** in **Medicine and Pharmacy** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Patil Mrunali Sharad** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Awareness of e-gadgets and e-waste management among UG-PG Science students in Engineering and Technology** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Khan Neha Rayees** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Ointment Formulation using Collagen Extracted from Egg Shell Membrane in Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Singh Sheetal Anil** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Formulation and Evaluation of Natural Lipbalm and Blush Using Natural Pigments from Plant extract** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Shah Aafaque Aalamgir** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Effect of Coloured light on crops cultivation in greenhouse.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

**Dr. Minakshi Gurav**  
OSD,  
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University of Mumbai



**Dr. Sunil Patil**  
Director,  
Department of Students' Development,  
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Academic Year 2024-25



## *Certificate of Participation*

This is to Certify that **Ms. Mishra Sonam Dinesh** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Formulation and Evaluation of Natural Lipbalm and Blush Using Natural Pigments from Plant extract** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## *Certificate of Participation*

This is to Certify that **Mr. Pramanik Saikat Susanta** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Analytical Study of Impact of Climate Change on Crop Yields in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Ganganahalli Sahil Manohar** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Analytical Study of Impact of Climate Change on Crop Yields in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Yadav Ashish Ramchandra** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Formulation and Evaluation of Natural Lipbalm and Blush Using Natural Pigments from Plant extract** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Padwalkar Aditya Dilip** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Analytical Study of Impact of Climate Change on Crop Yields in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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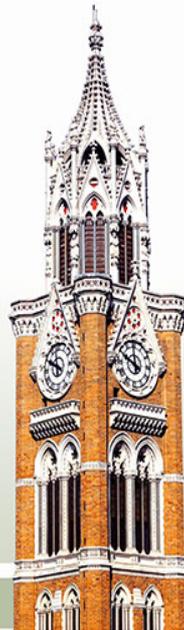
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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Mr. Bodas Atharva Rucha Rahul** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioethanol production from coconut husk and soyabean with zero waste** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## *Certificate of Participation*

This is to Certify that **Mr. Bhosle Shравan Santosh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Correlation of Daydreaming frequency and individual's lifestyle in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Yadav Khushi Ramanand** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Correlation of Daydreaming frequency and individual's lifestyle in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Choughule Amol Arun** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioethanol production from coconut husk and soyabean with zero waste** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Patel Priyanka Ratilal** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled "**Honey with Purpose**" evaluating brands through quality and sustainability. in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Kamble Riya Rahul** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Correlation of Daydreaming frequency and individual's lifestyle in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Yadav Laxmi Shivshankar** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **The impact of indoor plants concerning human health and air purification** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Patil Vidhi Rajesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Bioethanol production from coconut husk and soyabean with zero waste** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Shah Aafaque Alamgir** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled "**Honey with Purpose**" evaluating brands through quality and sustainability. in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Ms. Patil Rutuja Sham** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **The impact of indoor plants concerning human health and air purification** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Ms. Shaikh Afreen Mohd Arif** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Plants Poisoning in the Gardens: The Human Risk Evaluation in Thane, Maharashtra** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Bartan Kartiki Ganpat** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Plants Poisoning in the Gardens: The Human Risk Evaluation in Thane, Maharashtra** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## *Certificate of Participation*

This is to Certify that **Ms. Kagzi Aamina Fakhruddin** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Correlation of Daydreaming frequency and individual's lifestyle in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Shinde Rakhi Ravikant** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Ash of pomegranates peels for cycloalkanones and tetralones synthesis** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. More Arnisha Prashant** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Exploring the bioremediation potential of Chromium-tolerant bacteria** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Dubey Varsha Dinesh** of **B.N. Bandothkar College of Science, Thane** has participated and presented a Research Project titled **Exploring the bioremediation potential of Chromium-tolerant bacteria** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Nautiyal Kirti Murtiram** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Designing Edible Film** in **Medicine and Pharmacy** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Lad Mrunal Mahendra** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Exploring the bioremediation potential of Chromium-tolerant bacteria** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Ray Anjali Ajay** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Exploring the bioremediation potential of Chromium-tolerant bacteria** in **Pure Sciences** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Shinde Shreyas Naresh** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **comprehensive soil analysis for sustainable agriculture in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Choudhary Pooja Sujaram** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Probing the Potential of Plant Growth-Promoting Rhizobacteria in Chromium-Stressed *Vigna radiata* in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Mr. Mane Buddhabhushan Maruti** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Probing the Potential of Plant Growth-Promoting Rhizobacteria in Chromium-Stressed *Vigna radiata*** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Ms. Singh Yashvi Amitabh** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Extraction of essential oils and formulation of herbal natural perfume in Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Mr. Arenkeri Pritam Suryakant** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Probing the Potential of Plant Growth-Promoting Rhizobacteria in Chromium-Stressed *Vigna radiata*** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Gaikwad Nisha Sanjeev** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Probing the Potential of Plant Growth-Promoting Rhizobacteria in Chromium-Stressed *Vigna radiata*** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Desai Nishtha Shankar** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Extraction of essential oils and formulation of herbal natural perfume in Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Yadav Janhavi Dinesh** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Extraction of essential oils and formulation of herbal natural perfume in Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Dubey Pragya Dinesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Synthesis of copolymers for biomaterials used to repair bone.** in **Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Bramhane Janhvi Santosh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **comprehensive soil analysis for sustainable agriculture in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Sanap Pooja Santosh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Air Quality Analysis: Trends and Predictive Insights in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Kokate Kiran Popat** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **comprehensive soil analysis for sustainable agriculture in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Waghela Aarti Govardhan** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Air Quality Analysis: Trends and Predictive Insights in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Golipkar Pradnya Kashinath** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **comprehensive soil analysis for sustainable agriculture in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Nagare Pranali Vishwanath** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Air Quality Analysis: Trends and Predictive Insights in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Gaikwad Sawriya Ananda** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **comprehensive soil analysis for sustainable agriculture in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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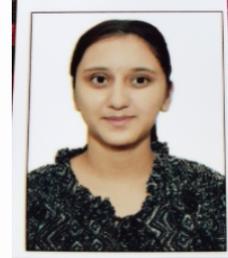




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## Certificate of Participation

This is to Certify that **Ms. Bangari Harshita Mahender Singh** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Air Quality Analysis: Trends and Predictive Insights in Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Shirke Anuja Ajit** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Predictive Modelling for Crop Yield: Trends and Insights in Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Rohit Rajendra Bhor** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Predictive Modelling for Crop Yield: Trends and Insights in Agriculture and Animal Husbandry** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Salve Harshada Suhas** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Analytical Study of Water Pollution Across Multiple Water Bodies in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Attar Anam Javed** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Analytical Study of Water Pollution Across Multiple Water Bodies in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Siddiqui Saniya Nafees** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Analytical Study of Water Pollution Across Multiple Water Bodies in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Nandu Harsh Nilesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Time Series Analysis of Temperature Fluctuations in India in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Kharwad Mamta Prithvisingh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Time Series Analysis of Temperature Fluctuations in India in Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Mr. Shelar Pauras Santosh** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Effect of Coloured light on crops cultivation in greenhouse.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Mr. Shelar Nairutya Surendra** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Effect of Coloured light on crops cultivation in greenhouse.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Patel Priyanka Ratilal** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Effect of Coloured light on crops cultivation in greenhouse.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Tari Sejal Harshad** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Effect of Coloured light on crops cultivation in greenhouse.** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Yadav Aarti Omprakash** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Isolation and evaluation of piperine from black pepper and white pepper** in **Pure Sciences** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Magar Ruchita Santosh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **The Development Of Banana Peel/Corn Starch Bioplastic Film in Engineering and Technology** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Malgankar Sonal Arun** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **synthesis of iron oxide nanoparticles using ammonium hydroxide** in **Pure Sciences** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Gaikwad Neha Govind** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **Aegle marmelos fruit ash as a catalyst for the synthesis of N-Benzylideneaniline** in **Pure Sciences** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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(Zonal Round)

Academic Year 2024-25



## *Certificate of Participation*

This is to Certify that **Ms. Mulla Hujefa Hamid** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Green synthesis of nanoparticles using Neem and Tulsi leaves in Medicine and Pharmacy** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

**Dr. Minakshi Gurav**  
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**Dr. Sunil Patil**  
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Academic Year 2024-25



## Certificate of Participation

This is to Certify that **Ms. Bhatia Urja Chetan** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Supervisory Abuse and psychological wellbeing: A correlational study among resident doctors in Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

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## Certificate of Participation

This is to Certify that **Ms. Syed Fatima Feroz** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **EFFECT OF POSITIVE PSYCHOLOGICAL INTERVENTIONS ON MINDFULNESS OF ADOLESCENTS** in **Humanities, Languages and Fine Arts** Category and **PG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## *Certificate of Participation*

This is to Certify that **Ms. Mishra Jaya Rakesh** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Synthesis and characterization of nanoparticles derived from Sterculia foetida alkaloids in Medicine and Pharmacy Category and PG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Raghuram Manasi** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **EFFECT OF FEAR OF NEGATIVE EVALUATION ON SOCIAL ANXIETY BEHAVIOUR AMONG YOUNG ADULTS** in **Humanities, Languages and Fine Arts** Category and **PG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

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## Certificate of Participation

This is to Certify that **Ms. Yadav Shraddha Salikaram** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **A CORRELATIONAL STUDY BETWEEN SOCIAL MEDIA AND THE QUALITY OF SLEEP AMONG YOUTH** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Patole Gauri Shashikant** of **B.N. Bandodkar College of Science, Thane** has participated and presented a Research Project titled **Synthesis of silver-doped zinc oxide nanoparticles using lemon juice in Agriculture and Animal Husbandry** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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## Certificate of Participation

This is to Certify that **Ms. Kashyap Anju Surjeet** of **B.N. Bhandodkar College of Science, Thane** has participated and presented a Research Project titled **A CORRELATIONAL STUDY BETWEEN SOCIAL MEDIA AND THE QUALITY OF SLEEP AMONG YOUTH** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Zone IV (Thane West)**.

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# *Certificate of Merit*

This is to Certify that **Ms. Sakshi R. Dandekar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Creation of Bio-manure using different cattle waste and studying its effect on Fenugreek crop.** which was submitted by her student **Mr. Tiwari Harsh** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West Zone**. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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Academic Year 2024-25

*Certificate of Merit*

This is to Certify that **Shradha Vilas Pagare** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Formulation and Characterization of Edible Packaging material from fruit peels.** which was submitted by her student **Ms. Ghatkar Shravani** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West Zone**. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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Academic Year 2024-25

# *Certificate of Merit*

This is to Certify that **Dr. Sandeep S. Kahandal** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **The Development Of Banana Peel/Corn Starch Bioplastic Film** which was submitted by his student **Ms. Magar Ruchita** in **Engineering and Technology** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West Zone**. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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# *Certificate of Merit*

This is to Certify that **Tukaram Vaijanath Navghare** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Predictive Modelling for Crop Yield: Trends and Insights** which was submitted by his student **Ms. Shirke Anuja** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West Zone**. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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# *Certificate of Merit*

This is to Certify that **Arthi Manohar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Ointment Formulation using Collagen Extracted from Egg Shell Membrane** which was submitted by her student **Ms. Shinde Sneha** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West Zone**. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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Academic Year 2024-25

# *Certificate of Merit*

This is to Certify that **Jui Pimple** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Supervisory Abuse and psychological wellbeing: A correlational study among resident doctors** which was submitted by her student **Ms. Bhatia Urja** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** Zone. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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# *Certificate of Merit*

This is to Certify that **Dr Ashwini Tilak** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Exploring the bioremediation potential of Chromium-tolerant bacteria** which was submitted by her student **Ms. More Arnisha** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West Zone**. The said Research Project is selected for 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Final Round).

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# *Certificate of Merit*

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## *Certificate of Participation*

This is to Certify that **Jui Pimple** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Correlation of Daydreaming frequency and individual's lifestyle** which was presented by her student **Mr. Bhosle Shravan** in **Humanities, Languages and Fine Arts** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## Certificate of Participation

This is to Certify that **Dr. Bhalchandra Kashinath Mandlekar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Effect of Coloured light on crops cultivation in greenhouse.** which was presented by his student **Mr. Shah Aafaque** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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*Certificate of Participation*

This is to Certify that **Mrs. Radhika Kunal Bamankar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Stress Management and Stress relief using Mathematics** which was presented by her student **Ms. Jadhav Sneha** in **Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## Certificate of Participation

This is to Certify that **Dr. Swarupa V. Agnihotri** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Screening of Phytochemical and Palynological Properties of Different Honey Samples** which was presented by her student **Ms. Panchal Sanskruti** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Inter-Collegiate / Institute / Department Research Convention

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## Certificate of Participation

This is to Certify that **Ms. Sakshi R. Dandekar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Creation of Bio-manure using different cattle waste and studying its effect on Fenugreek crop.** which was presented by her student **Mr. Tiwari Harsh** in **Agriculture and Animal Husbandry** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Shradha Vilas Pagare** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Formulation and Characterization of Edible Packaging material from fruit peels.** which was presented by her student **Ms. Ghatkar Shravani** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Dr. Nilesh B. Jawalkar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Bioinsecticidal potential of Jasminum grandiflorum extract against Sitophilus oryzae L.** which was presented by his student **Ms. Kanhurkar Shruti** in **Agriculture and Animal Husbandry** Category and UG Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Dr Pralhad S Wagh** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Development of biodegradable antimicrobial bandages** which was presented by his student **Ms. Jadhav Sanskruti** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Mrs. Radhika Kunal Bamankar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Mathematical foundation of Signal Processing** which was presented by her student **Mr. Koram Rushikesh** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Mohini Prashant Kulkarni** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Air Quality Analysis: Trends and Predictive Insights** which was presented by her student **Ms. Sanap Pooja** in **Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

**Dr. Minakshi Gurav**  
OSD,  
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University of Mumbai

December 11, 2024  
Ghansoli, Navi Mumbai



**Dr. Sunil Patil**  
Director,  
Department of Students' Development,  
University of Mumbai





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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Tukaram Vaijanath Navghare** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Predictive Modelling for Crop Yield: Trends and Insights** which was presented by his student **Ms. Shirke Anuja** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Mohini Prashant Kulkarni** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Analytical Study of Impact of Climate Change on Crop Yields** which was presented by her student **Mr. Pramanik Saikat** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Tukaram Vaijanath Navghare** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Time Series Analysis of Temperature Fluctuations in India** which was presented by his student **Mr. Nandu Harsh** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Tukaram Vaijanath Navghare** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Analytical Study of Water Pollution Across Multiple Water Bodies** which was presented by his student **Ms. Salve Harshada** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Arthi Manohar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Formulation and Evaluation of Natural Lipbalm and Blush Using Natural Pigments from Plant extract** which was presented by her student **Ms. Singh Sheetal** in **Pure Sciences** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Arthi Manohar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Ointment Formulation using Collagen Extracted from Egg Shell Membrane** which was presented by her student **Ms. Shinde Sneha** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Dr. Rupesh C. Patil** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Ash of pomegranates peels for cycloalkanones and tetralones synthesis** which was presented by his student **Ms. Shinde Rakhi** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Sayali Daptardar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Symbioponics: Enhancing the crop yield of hydroponics through synergistic action of microbial biofertilizers** which was presented by her student **Ms. Shinde Ishita** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West zone**.

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Inter-Collegiate / Institute / Department Research Convention

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Academic Year 2024-25

## Certificate of Participation

This is to Certify that **Dr. Urmila Kumavat** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Awareness of e-gadgets and e-waste management among UG-PG Science students** which was presented by her student **Ms. Patil Mrunali** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Mr. Nandkishor S. Sangle** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled "**Honey with Purpose**" **evaluating brands through quality and sustainability**, which was presented by his student **Ms. Patel Priyanka** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Ms Nikeeta Suresh Keni** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Bioethanol production from coconut husk and soyabean with zero waste** which was presented by her student **Mr. Bodas Atharva** in **Engineering and Technology** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Dr. Vinod M. Jamdhade** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **The impact of indoor plants concerning human health and air purification** which was presented by his student **Ms. Yadav Laxmi** in **Pure Sciences** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Jamdhade V M** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Plants Poisoning in the Gardens: The Human Risk Evaluation in Thane, Maharashtra** which was presented by his student **Ms. Shaikh Afreen** in **Medicine and Pharmacy** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

*Certificate of Participation*

This is to Certify that **Dr Ashwini Tilak** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Exploring the bioremediation potential of Chromium-tolerant bacteria** which was presented by her student **Ms. More Arnisha** in **Pure Sciences** Category and **UG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Sayali Daptardar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Designing Edible Film** which was presented by her student **Ms. Nautiyal Kirti** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Inter-Collegiate / Institute / Department Research Convention  
(Zonal Round)  
Academic Year 2024-25

## Certificate of Participation

This is to Certify that **Dr Pralhad S Wagh** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **comprehensive soil analysis for sustainable agriculture** which was presented by his student **Mr. Shinde Shreyas** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Ms. Purvi Shah** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Probing the Potential of Plant Growth-Promoting Rhizobacteria in Chromium-Stressed Vigna radiata** which was presented by her student **Ms. Choudhary Pooja** in **Agriculture and Animal Husbandry** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West zone**.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Ms. Pooja R. Kanse** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Extraction of essential oils and formulation of herbal natural perfume** which was presented by her student **Ms. Singh Yashvi** in **Medicine and Pharmacy** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Inter-Collegiate / Institute / Department Research Convention  
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## Certificate of Participation

This is to Certify that **Prof (dr.) Anita Goswami-giri** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Synthesis of copolymers for biomaterials used to repair bone.** which was presented by her student **Ms. Dubey Pragya** in **Humanities, Languages and Fine Arts** Category and **UG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Dr Pralhad S Wagh** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Isolation and evaluation of piperine from black pepper and white pepper** which was presented by his student **Ms. Yadav Aarti** in **Pure Sciences** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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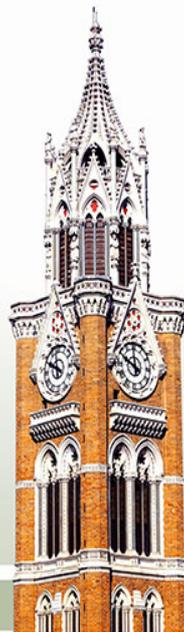
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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Dr. Sandeep S. Kahandal** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **The Development Of Banana Peel/Corn Starch Bioplastic Film** which was presented by his student **Ms. Magar Ruchita** in **Engineering and Technology** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Dr Ajit N Bhumkar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **synthesis of iron oxide nanoparticles using ammonium hydroxide** which was presented by his student **Ms. Malgankar Sonal** in **Pure Sciences** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Dr. Sandeep S. Kahandal** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Aegle marmelos fruit ash as a catalyst for the synthesis of N-Benzylideneaniline** which was presented by his student **Ms. Gaikwad Neha** in **Pure Sciences** Category and **PG Level** at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Dr Pralhad S Wagh** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Green synthesis of nanoparticles using Neem and Tulsi leaves** which was presented by his student **Ms. Mulla Hujefa** in **Medicine and Pharmacy** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11. 2024 for **Thane West** zone.

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Academic Year 2024-25

## *Certificate of Participation*

This is to Certify that **Jui Pimple** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Supervisory Abuse and psychological wellbeing: A correlational study among resident doctors** which was presented by her student **Ms. Bhatia Urja** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11. 2024 for **Thane West** zone.

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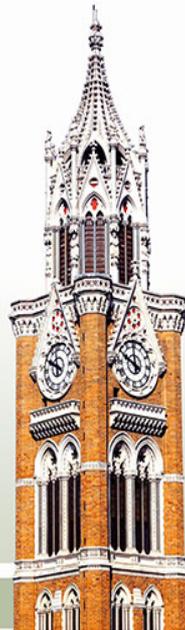
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## *Certificate of Participation*

This is to Certify that **Jui Pimple** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **EFFECT OF POSITIVE PSYCHOLOGICAL INTERVENTIONS ON MINDFULNESS OF ADOLESCENTS** which was presented by her student **Ms. Syed Fatima** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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## *Certificate of Participation*

This is to Certify that **Prof.(dr.) Goswami-giri Anita** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Synthesis and characterization of nanoparticles derived from Sterculia foetida alkaloids** which was presented by her student **Ms. Mishra Jaya** in **Medicine and Pharmacy** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11. 2024 for **Thane West** zone.

**Dr. Minakshi Gurav**  
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Aavishkar,  
University of Mumbai

December 11. 2024  
Ghansoli, Navi Mumbai



**Dr. Sunil Patil**  
Director,  
Department of Students' Development,  
University of Mumbai



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19<sup>th</sup>  
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Inter-Collegiate / Institute / Department Research Convention  
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Academic Year 2024-25

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This is to Certify that **Jui Pimple** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **EFFECT OF FEAR OF NEGATIVE EVALUATION ON SOCIAL ANXIETY BEHAVIOUR AMONG YOUNG ADULTS** which was presented by her student **Ms. Raghuram Manasi** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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Academic Year 2024-25

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This is to Certify that **Jui Pimple** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **A CORRELATIONAL STUDY BETWEEN SOCIAL MEDIA AND THE QUALITY OF SLEEP AMONG YOUTH** which was presented by her student **Ms. Yadav Shraddha** in **Humanities, Languages and Fine Arts** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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This is to Certify that **Dr. Ajit Bhumkar** of **B.N. Bandodkar College of Science, Thane** has guided a Research Project titled **Synthesis of silver-doped zinc oxide nanoparticles using lemon juice** which was presented by his student **Ms. Patole Gauri** in **Agriculture and Animal Husbandry** Category and **PG** Level at 19th Aavishkar: Inter-Collegiate / Institute / Department Research Convention (Zonal Round) organized by the University of Mumbai at J.K. College of Science and Commerce, Ghansoli, Navi Mumbai on December 11, 2024 for **Thane West** zone.

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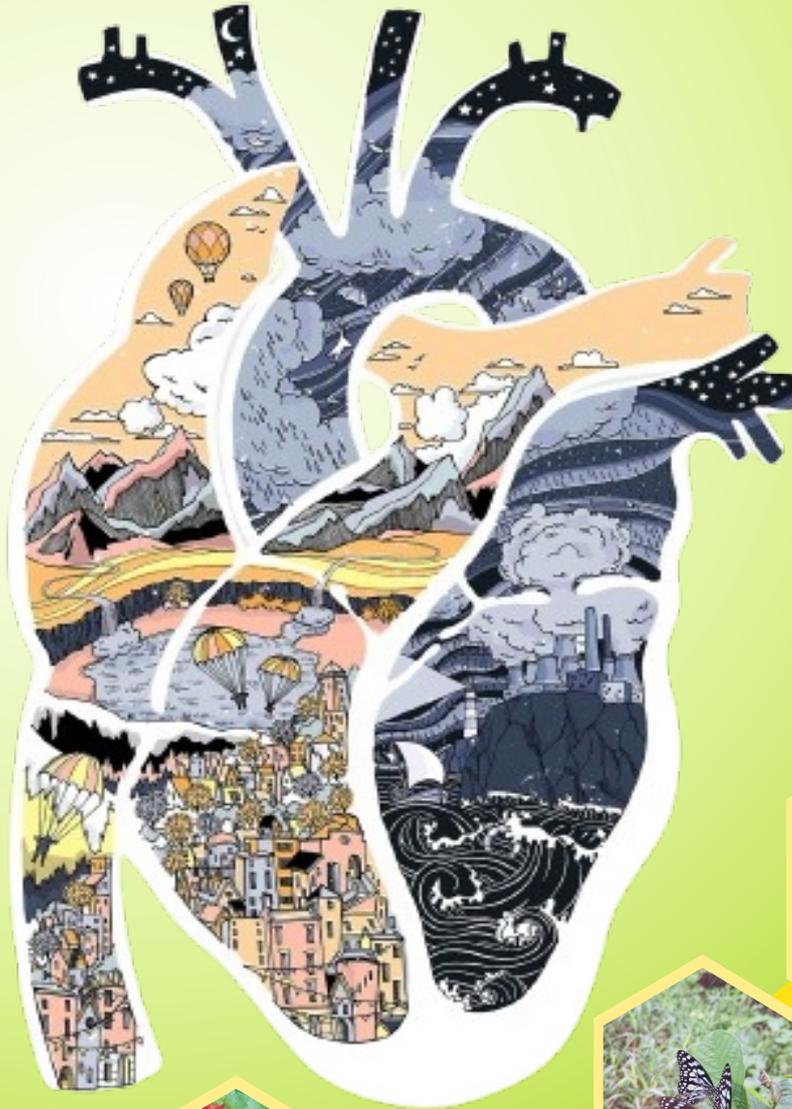
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**Vidya Prasarak Mandal's  
B.N. BANDODKAR COLLEGE OF SCIENCE,  
(AUTONOMOUS), THANE**



**National Conference  
On**

**"Eco Pulse: Monitoring Beats of Ecosystem"**

**Organized by  
Department of Botany**

**In Collaboration with**

**Thane Municipal Corporation, Thane**

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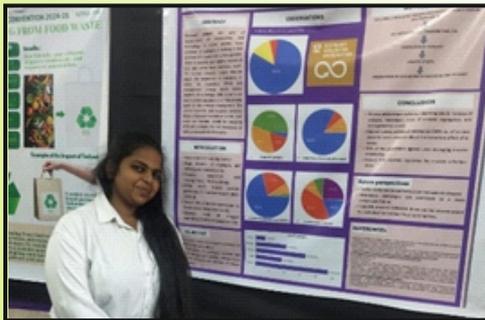
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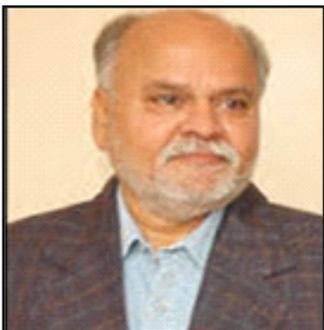
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## CHAIRMAN MESSAGE

***Dr. Vijay V. Bedekar***  
***Chairman***

*It is my great pleasure to present this abstract book on the occasion of the National Conference entitled "Eco Pulse: Monitoring Beats of the Ecosystem", organized by the Department of Botany, B.N. Bandodkar College of Science (Autonomous), Thane, on 14<sup>th</sup> and 15<sup>th</sup> February 2025.*

*Vidya Prasarak Mandal has a legacy of conducting successful International and National conferences addressing current issues in the environment, science, and society. Such educational gatherings provide an ideal platform to incubate and nurture ideas for research and innovations across various fields.*

*In the present conference, critical environmental issues will be addressed by experts and environmentalists. To maintain the balance of ecosystems, innovative solutions are essential. The exploitation of Mother Earth can be mitigated by addressing harmful practices and creating promising tools and techniques to observe and predict environmental changes.*

*In this context, research should not be limited to publication alone. We must strive to excel in creating eco-friendly products and services that benefit the environment and the ecosystem as a whole.*

*I am confident that this conference will provide a valuable platform for students, researchers, innovators, and environmentalists to share their knowledge and collaborate in developing environment-friendly products, services, and techniques to protect our planet.*



## **CHIEF CONVENOR**

**Prof. Dr. Vinda Manjramkar**

*Dear Distinguished Guests, Eminent Speakers,*

*Researchers & Participants,*

*It is my great honor and privilege to welcome you all to the National Conference on 'Ecopulse: Monitoring Beats of Ecosystem'. This conference is a testament to our collective commitment in addressing environmental challenges and fostering sustainable solutions for a better future.*

*As we stand at a crucial juncture in our global environmental journey, it is imperative to engage in meaningful discussions, share innovative research, and collaborate across disciplines. This conference provides a unique forum for academicians, industry experts, policymakers, and young researchers to exchange ideas, present their findings, and work towards practical solutions for a more sustainable world.*

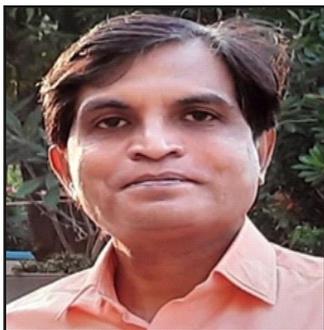
*The conference agenda is designed to cover a broad spectrum of critical topics, including climate change mitigation, biodiversity conservation, renewable energy, sustainable technologies, and environmental policies. I am confident that the knowledge shared and the connections made here will inspire future research, policy advancements, and practical initiatives that contribute to global sustainability.*

*I would like to express my sincere gratitude to our esteemed speakers, paper presenters, panelists, and delegates for their participation. A special thanks to the organizing committee, reviewers, and volunteers whose tireless efforts have made this conference a reality. Your dedication and passion for sustainability are truly commendable.*

*I encourage all participants to engage actively, exchange ideas, and collaborate beyond this event. Let us work together to build a sustainable and resilient future for generations to come.*

*Wishing you a fruitful and inspiring conference!*

*Prof. Dr. Vinda Manjramkar*



## CONVENOR

### *Prof. V.M. Jamdhade*

*On behalf of Vidya Prasarak Mandal's B. N. Bandodkar College of Science (Autonomous), Thane, I extend my heartfelt gratitude to all esteemed members, dignitaries, speakers, and contributors for their invaluable support in making this conference a grand success.*

*I sincerely thank Hon'ble Dr. Mahesh Bedekar for his constant guidance and invaluable assistance recommending distinguished speakers for this conference. A special note of gratitude goes to Prof. Vinda Manjramkar, I/C Principal and Chief Convenor of Eco Pulse-2025, for her unwavering support, insightful guidance, and meticulous arrangements, including personally coordinating with speakers to ensure their participation.*

*We are deeply honoured and grateful to Padma Bhushan Dr Madhav Gadgil for accepting our invitation to deliver a keynote address. I also extend my gratitude to the following distinguished speakers: Prof. Hanilyn Hidalgo (Philippines), Dr. Utkarsha Chavan (Mumbai), Dr. Lata Ghanshamani (Thane) Dr. Ajit Gokhale (Dombivli) and Mr. Nagesh Daptardar (Devgad).*

*We sincerely thank all sponsors, including the Lions Club, Thane Municipal Corporation Pollution Control Department, and Mrs. Manisha Pradhan. Special appreciation also goes to Prof. Anita Goswami Giri, Dr. Bhalchandra Mandlikar, Prof. Sudhir Bhosale, and Mr. Munna Bhai Bist (Ex-Corporator, TMC, Thane) for their generous support.*

*I am also deeply grateful to the advisory and local organizing committee members for their dedication and outstanding efforts during the preparatory phase of the conference. My heartfelt thanks to Dr. Bhalchandra Mandlikar, Dr. Hemant Karkhanis, Prof. Abhijit Kale, Dr. Ashwini Tilak, and Ms. Purvi Shah for their expert guidance during the workshops.*

*I extend my sincere appreciation to all authors from various parts of the state and abroad, as well as UG, PG, and Ph.D. students, for contributing their original research work to this mega event.*

*A special mention goes to Dr. Urmila Kumavat for her meticulous planning and dedication, which ensured the smooth execution of Ecopulse-2025. Under her leadership, Dr. Swarupa Aghnohotri, Mr. Rahul Ozare, Dr. Jayshri Jagtap, Mr. Avinash Burange, Mr. Vikas Rasam, Mr. Rajendra Ambhore, and Mr. Sudhir Raut made significant contributions. Our heartfelt thanks also go to the dedicated students of the Botany Department.*

*I also express my gratitude to Ms. Kadambari Manjrekar, Capt. Bipin Dhumale, Ms. Sayali Daptardar, Ms. Asba Ansari, Ms. Saloni Seth, Mr. Chetan Moyank, Ms. Ashwini Koli. If any names have been inadvertently missed, please accept my sincere apologies and heartfelt thanks.*

*I hope that Eco Pulse-2025 will deliver a powerful message on the global stage for the conservation of flora and fauna, inspiring meaningful actions to protect our ecosystem.*

*Warm regards,*

*Prof. V.M. Jamdhade*



## **ORGANIZING SECRETARY**

**Dr. Urmila Kumavat**

*With great pleasure and enthusiasm, on behalf of the organizing committee,*

*I extend a warm welcome to all esteemed delegates, speakers, researchers, and participants to the National Conference on 'Ecopulse: Monitoring Beats of Ecosystem'. This conference serves as a platform to bring together academicians, scientists, policymakers, industry experts, and students to discuss and deliberate on the pressing environmental challenges and sustainable solutions for a better future.*

*Father of the Nation Mahatma Gandhi wisely said, "The Earth provides enough to satisfy every man's needs, but not every man's greed."*

*As we navigate through an era of rapid environmental change, the need for innovative and collaborative approaches to sustainability has become more critical. Our collective responsibility is to ensure that we utilize natural resources wisely, adopt sustainable practices and work towards ecological balance. Through this conference, we aim to bring together experts, researchers, and change-makers to share insights on climate resilience, renewable energy, conservation strategies, and green technologies.*

*Let us embrace this opportunity to learn, collaborate, and take actionable steps toward a more sustainable and environmentally conscious world. As Albert Einstein once said, "We cannot solve our problems with the same thinking we used when we created them." Let us use this forum to think differently and act decisively for a better future. I wish you all an engaging, enriching, and productive conference experience. May this event serve as a catalyst for new ideas, partnerships, and impactful solutions for environmental sustainability.*

*With best regards,  
Dr. Urmila Kumavat,*

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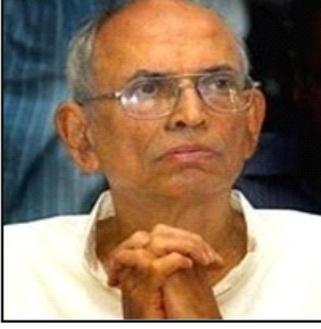
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पद्मभूषण डॉ. माधव गाडगीळ

### थडथडते नस धरतीची

३० जुलै २०२४ रोजी केरळमधील वायनाड जिल्ह्यातील मेप्पाडी, मुंडकाई, चूरळमला, अट्टमला आणि नूलपुळा या गावांवर दरड कोसळून ४०० लोकांचा मृत्यू झाला. या गावांमध्ये चहाच्या मळ्यात काम करणारे मजूर आणि त्यांचे वंशज राहत होते. या दुर्घटनेने एक महत्त्वपूर्ण प्रश्न उभा केला आहे की पर्यावरणाच्या नासाडीमुळे भूस्खलनाचे प्रमाण खूप वाढले आहे. दरड कोसळण्याच्या घटना राज्यातील विविध भागांमध्ये एकामागून एक घडत राहिल्या, ज्यामुळे लोकांचे जीवन धोक्यात आले.

१९८९ साली मावळातील भाजा गावातील भूस्खलनामुळे ३९ लोकांचा मृत्यू झाला होता, तर २०१४ मध्ये पुणे जिल्ह्यातील माळीण गावात दरड कोसळून १६० लोकांचे प्राण गेले. त्यानंतर, २०२१ साली पश्चिम महाराष्ट्र आणि कोकणातील अनेक गावांवर महापूर आणि भूस्खलनाची शोकांतिका घडली. रायगड जिल्ह्यात तळिये गावावर दरड कोसळून १२४ लोकांचा मृत्यू झाला, तर केरळातील इडुक्की आणि कोट्टायम जिल्ह्यांमध्ये देखील अनेक दुर्घटना घडल्या.

पुतुमला गावातील चहाच्या मळ्याच्या कामगारांच्या वस्तीतील दरड कोसळून पंचावन्न घरे गाडली गेली, ज्यामध्ये अनेक लोक मृत्युमुखी पडले. या घटनांचा मुख्य कारण म्हणजे डोंगर रांगेवर होणारी अयोग्य वस्ती आणि अत्यल्प वेतनावर काम करणाऱ्या लोकांची असंवेदनशील स्थिती. या दरडींच्या कारणांचा अभ्यास केल्यास खाणकाम, जंगलतोड आणि अनियंत्रित बांधकामे यांचा दुष्परिणाम मोठ्या प्रमाणात होतो.

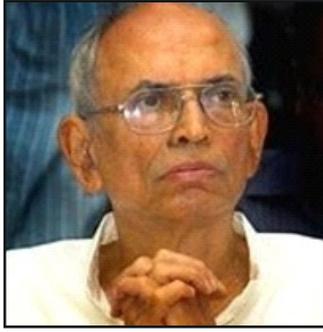
दगड खाण्याच्या कामामुळे पश्चिम घाट क्षेत्रातील पर्यावरण खिळखिळा झाला आहे, ज्यामुळे भूस्खलन आणि दरड कोसळण्याचा धोका वाढला आहे. तसेच, खाण कामामुळे निर्माण होणारे एरोसोल कण हवामानाच्या बदलाला प्रोत्साहन देतात. यामुळे पावसाच्या प्रमाणात अचानक वाढ होते, ज्यामुळे पूर येतात आणि भूस्खलनाची शक्यता वाढते. २०१० ते २०२० दरम्यान महाराष्ट्रातील सह्याद्री पर्वतरांगेत भूस्खलनाचे प्रमाण शंभर पट वाढले आहे.

कुट्टीक्कल गावाच्या दुर्घटनेनंतर स्थानिक लोकांनी दगड खाण्याविरोधात आवाज उठवला. त्यांचा युक्तिवाद आहे की खाणकामामुळे पर्यावरण नष्ट होत आहे आणि त्याचे दुष्परिणाम सामान्य जनतेला भोगावे लागतात. समाज कल्याणाचे अर्थशास्त्र सांगते की जेव्हा समाजातील विषमता वाढते, तेव्हा सामान्य नागरिकांचे कल्याण घटते. दगड खाण्याच्या उद्योगात उत्पन्न कमावणारे श्रीमंत लोक पर्यावरणाच्या नासाडीचा भार गरीब लोकांवर टाकतात.

या परिस्थितीचा परिणाम म्हणजे देशात आर्थिक विषमता वाढली आहे. श्रीमंत लोकांच्या विकासासाठी जी पर्यावरणाची किंमत दिली जाते, ती सामान्य जनतेच्या हानीच्या तुलनेत खूप मोठी आहे. यामुळे लोकशाहीत विकासाचे स्वरूप आणि पर्यावरण संरक्षणाच्या दृष्टीने जबाबदारी स्वीकारणे अत्यंत आवश्यक आहे. यासाठी, खाणींवर सखोल विचार करणे आणि त्यांचा पर्यावरणीय दुष्परिणाम आटोक्यात आणणे आवश्यक आहे, तसेच गरीब आणि सामान्य नागरिकांच्या संरक्षणासाठी ठोस पावले उचलणे अत्यंत महत्त्वाचे आहे.

सारांशात, या दुर्घटनांनी आपल्याला पर्यावरणीय समतोल राखण्याचे महत्त्व आणि त्याचे दीर्घकालिक परिणाम समजून घ्यायला भाग पाडले आहे.

पद्मभूषण डॉ. माधव गाडगीळ



## Translated Version in English

**Padmabhushan Dr. Madhav Gadgil**

### **Earth's Trembling Veins**

On July 30, 2024, a landslide in the Wayanad district of Kerala, specifically in the villages of Meppadi, Mundakai, Choorlamala, Attamala, and Noolpula, claimed the lives of 400 people. The victims were mainly workers from tea plantations and their descendants. This tragedy has raised a significant question regarding the environmental degradation that has led to an increased frequency of landslides. Landslide incidents have occurred one after another in various parts of the state, putting people's lives at risk.

In 1989, a landslide in the village of Bhaja in the Malabar area resulted in the deaths of 39 people, followed by another tragic landslide in the Malin village of Pune district in 2014, which claimed 160 lives. In 2021, several villages in Western Maharashtra and Konkan were struck by severe floods and landslides. In the Raigad district, the landslide in the village of Taliye led to the deaths of 124 people, and several such incidents occurred in the Idukki and Kottayam districts of Kerala as well.

A landslide in the settlement of tea plantation workers in Putumala village buried 55 houses, resulting in numerous fatalities. The main causes of these disasters are the inappropriate settlement patterns in the mountain ranges and the indifferent living conditions of workers employed for minimal wages. Upon analyzing the causes of these landslides, it becomes evident that mining, deforestation, and uncontrolled construction have a significant impact.

Mining activities have weakened the environment of the Western Ghats, leading to an increased risk of landslides and rockfalls. Additionally, the aerosols produced by mining contribute to climate change, promoting sudden increases in rainfall, which, in turn, leads to floods and escalates the likelihood of landslides. Between 2010 and 2020, the incidence of landslides in the Sahyadri mountain range in Maharashtra increased by 100 times.

After the tragedy in Kuttikkal village, local people raised their voices against mining. Their argument is that mining degrades the environment, and its negative consequences are borne by the general population. The economics of social welfare suggests that when inequality increases in society, the well-being of the common people deteriorates. The wealthy people involved in mining accumulate profits while placing the burden of environmental degradation on the poor.

As a result, economic inequality has risen in the country. The environmental cost paid for the development of the rich is significantly larger than the harm caused to the general population. Therefore, it is crucial to reconsider the nature of development in democracy and take responsibility for environmental protection. To achieve this, it is necessary to conduct in-depth evaluations of mining activities and minimize their environmental impact. At the same time, it is vital to take concrete steps to protect the poor and general citizens.

In conclusion, these incidents have compelled us to understand the importance of maintaining environmental balance and its long-term consequences.



**Dr Lata Kamal Ghanshamnani**

#### **ABSTRACT**

In an era of urban expansion and environmental challenges, sustainable urban development stands as a vital need. The RNisarg Foundation, established in 2016, exemplifies proactive citizenship by initiating projects that address pressing issues such as waste management and road safety. Leveraging medical expertise, the foundation fosters awareness and implements efficient resource management.

Citizens by following 3 attributes, self-awareness, self-discipline, and self-participation can bring impactful outcomes for their city.

Key initiatives include:

**Sakhi - Sustainable Menstrual Practices:** Addressing the environmental impact of non-biodegradable sanitary products, women are educated on safe menstruation and menstrual hygiene with support to using sustainable menstrual products such as menstrual cups.

With more than 1000 sessions conducted in the span of 6 years, over 10,000 women have switched to using menstrual cups.

**Smiles - Road Safety Campaign:** Aims to enhance road safety through educational programs and community participation.

**Prarambh - Zero Waste Education:** Collaborating with educational institutions to promote zero waste practices, impacting one lakh students and reaching to over 400,000 citizens.

**Biomedical Waste Management:** Over 2000 healthcare providers trained, with research published on COVID-related waste management.

**Green Pharmacy:** A project for the safe disposal of unwanted, expired, and damaged medicines. Upto 2 tons of this waste has been diverted from landfills.

**Know Your Plastic:** Workshops educating on the judicious use of plastic, promoting sustainable choices.

**Bioenzyme Production:** Advocating sustainable living through organic waste conversion and best-from-waste initiatives.

#### **Trainer courses:**

With the intention of empowering the citizens, the foundation has created various training tools.

These free, certified training programs aim at wider outreach, fostering citizens' involvement.

RNisarg Foundation's work is recognized at various levels, including accolades from public figures and academic publications. The commitment to environmental safety extends to various community strata, including sanitation workers and underserved populations. By advocating for behavioral change, the foundation aims to create a livable, sustainable city environment.

**Dr Lata Ghanshamnani**

**Co founder**

**RNisarg Foundation**

**support@rnisargfoundation.com**



**Dr. Utkarsha Manish Chavan**

**Mugger Crocodiles (Indian Marsh Crocodile, *Crocodylus palustris* LESSON 1831) of Savitri River, Mahad, Maharashtra**

Mugger Crocodile (*Crocodylus palustris*) is a species native to Indian freshwaters and backwaters. I have been specifically monitoring its population along a stretch of the Savitri River in Mahad, Maharashtra, from 2014 to 2025. Despite being historically hunted and facing population depletion, Muggers have seen recovery due to conservation efforts such as the FAO's crocodile management projects. The species is currently listed as "Vulnerable" on the IUCN Red List and enjoys the highest protection under India's wildlife protection laws.

Muggers have adapted well to human-dominated landscapes, often feeding on anthropogenic waste alongside their natural prey. While they maintain site fidelity and territorial behaviours, the proximity of human settlements along the river, where locals wash clothes and utensils or swim, creates potential for human-crocodile conflict. However, at Mahad the resources of the Savitri River, including water and fish, are shared by the Mugger Crocodiles, local communities, and livestock, making the riverine ecosystem vulnerable to anthropogenic stressors. The river at Mahad not only serves as a habitat for crocodiles but also supports subsistence fishing for the indigenous Katkari (or Kathodi) communities, who fish and collect clams in the waters despite the presence of Muggers. The Katkari community regularly fishes in the crocodile-infested waters of the Savitri. The Mugger population here appears to have become conditioned to human presence, as long as their territory is left inviolate. There seems to be a remarkable level of tolerance between the crocodiles and the people. The indigenous community is at ease with the crocodiles floating nearby in their fishing areas, likely due to a deep understanding of the reptiles' behaviour and a knowledge of how to avoid provoking aggression.



**Mr. Nagesh Daptardar**

### **Community-Led Turtle Conservation: In Sindhudurg District**

Turtles have been on our planet for over 200 million years, playing a vital role in maintaining the delicate balance of our ecosystems. However, these gentle creatures are facing numerous threats, including habitat destruction, pollution, climate change, and poaching. The situation is alarming, with many turtle species teetering on the brink of extinction.

In the face of such adversity, community-led conservation initiatives have emerged as a beacon of hope. By engaging local communities in turtle conservation efforts, we can harness their knowledge, skills, and passion to protect these incredible animals.

#### **Community-Based Conservation Initiatives**

Community-based conservation initiatives involve collaborative efforts between local communities, conservation organizations, and government agencies. These initiatives focus on empowering local communities to take ownership of turtle conservation efforts, recognizing that they are the primary custodians of their natural resources.

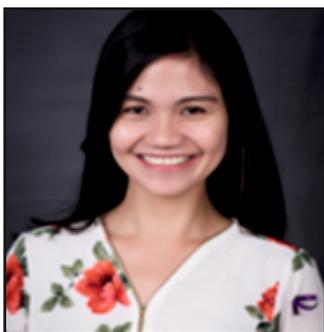
#### **Some exemplary community-led turtle conservation initiatives include:**

1. Turtle nesting site protection: Local communities are working together to protect turtle nesting sites from human disturbance, predation, and erosion.
2. Turtle-friendly fishing practices: Communities are promoting sustainable fishing practices, such as using turtle-exclusion devices, to reduce bycatch and protect turtle habitats.
3. Education and awareness: Community-led education and awareness programs are helping to dispel myths and misconceptions about turtles, promoting a culture of conservation and coexistence.
4. Community-based ecotourism: Responsible ecotourism initiatives, led by local communities, are providing economic benefits while promoting the conservation of turtle habitats and populations.

#### **Challenges and Future Directions**

While community-led turtle conservation initiatives have shown promise, there are still significant challenges to overcome.

By supporting community-led turtle conservation initiatives, we can empower local communities to take action, promote sustainable livelihoods, and protect these incredible animals for generations to come.



**Hanilyn A. Hidalgo**

**AGRI-ECOTOURISM AS A STRATEGY FOR ECOSYSTEM CONSERVATION AND MONITORING**

**Hanilyn A. Hidalgo, DBA**

**Central Bicol State University of Agriculture**

**SUMMARY**

Agritourism is gaining popularity in the Philippines as a complementary strategy to diversify the income of farmers and reduce their dependency on the sales of traditional crops. To leverage the synergy between sustainable agricultural practices and environmental stewardship, the agri-ecotourism concept was developed, benefiting both nature and local communities. A compelling example of an agri-ecotourism model is meliponitourism, which highlights stingless beekeeping as an economic, agricultural, and ecological endeavor. Meliponitourism is the integration of tourism components into meliponiculture, the art and science of raising stingless bees in artificial hives to produce honey, propolis, and pollen. This form of agri-ecotourism offers visitors a guided experience that fosters an appreciation for stingless beekeeping while providing an opportunity for nature conservation and ecological responsibility. Meliponitourism is a very promising venture for farms and rural areas and can serve as a supplementary source of income for farm households. Our research team conducted research exploring its potential in Bicol, Philippines, and Bali, Indonesia where stingless bees thrive abundantly. Beyond conservation, meliponitourism ventures contribute to sustainable rural development in the form of agri-ecotourism. Meliponiculture in Bali and Bicol presents significant potential for environment protection, social enterprise, and tourism development. The stingless beekeeping industry thrives through strong market presence, social capital, and human capital, with farmer groups providing essential support systems. While Bicol is more advanced in integrating agritourism into stingless bee farms compared to Bali, both regions benefit from meliponitourism as a strategy to engage the public and foster a sustainable entrepreneurial ecosystem. Incorporating tourism into meliponiculture serves as an effective economic diversification approach, enhancing farm productivity and promoting ethical beekeeping practices that sustain healthy stingless bee populations. However, for melitourism to reach its full potential, local and national governments must strengthen policy frameworks and provide greater industry support. Overall, Bali and Bicol have great potential for meliponitourism regarding environmental preparedness, technology awareness, and ethical mindfulness. The location of meliponaries, passion for beekeeping, and values and behavior of Balinese and Bicolano beekeepers are their greatest attributes, giving them a competitive advantage. Stingless beekeeping technology and practices need more innovation and creativity to ensure the success and sustainability of meliponitourism.

The integration of meliponitourism into the wide and diverse spectrum of agriculture, environment, and tourism allows discussion for policy development and conservation planning. Raising the awareness of the farmers about what bees can do to people, the planet, and profit can intensify its conservation benefits while providing sustainable livelihood opportunities. Meliponitourism also acts as an educational tool during bee farm visits, building awareness about the human and natural threats faced by bees and their critical role in the food value chain and food security. In conclusion, agri-ecotourism serves as a practical approach for ecosystem conservation and monitoring, with meliponitourism exemplifying its potential to balance environmental protection and economic development while ensuring economic viability.



**Dr Ajit S Gokhale**

### **Their Burden on Our Shoulders**

The presentation is about the reality of river pollution and global responsibilities of river protection. It highlights how our consumption patterns, industrial activities, and policies contribute to environmental degradation in places far off from us. It emphasizes that pollution is no longer localized to those living near rivers; globalized industries and consumption lead to significant contamination. Examples include the leather industry polluting the Ganga River, antibiotics affecting rivers in India, and fast fashion impacting waterways in Bangladesh. The principle of "Polluter Pays" is applied, urging individuals, governments, and nations to take collective responsibility for cleaning and protecting rivers everywhere on the earth.

The article also discusses solutions to water-related issues, particularly in regions prone to floods during rains and droughts in summers. By identifying and restoring old river pools that had been silted over by debris from infrastructure projects, communities have been able to reduce floods, alleviate water scarcity, and reclaim habitats for fish and wildlife. This approach transforms previously harmful sites of debris and stones into productive ecosystems with cool water, benefiting people, wildlife, and the environment.

Additionally, it critiques outdated policies that prohibit the removal of silt and debris from rivers, arguing that such rules—appropriate in pristine conditions—need revision in areas affected by modern infrastructure development. The paper underscores the need for adaptive policies and collective action to correct recent environmental damage and improve water resource management globally. And presents case studies on various projects done in India and abroad.

# HEPATOPROTECTIVE POTENTIAL AND TOXICITY IN ENICOSTEMMA AXILLARE (POIR EX LAM.) RAYNAL

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**ABSTRACT :** *E. axillare* hepatomodulation against oxidative pressure may be interceded via a drop in redundancy metabolism and interference with the product of free revolutionaries. Swertiamarin, alkaloids, steroids, triterpenoids, saponins, flavonoids, xanthenes, phenolic acids, etc. are set up in *Enicostemma*. In order to determine the cell death caused by these mechanisms, there is a want for cheap, reliable and reproducible short-term cytotoxicity and cell viability assays. A broad spectrum of cytotoxicity and cell viability assays is presently exercised in the fields of toxicology and pharmacology. The Environmental Protection Agency (EPA) defines an adverse effect as 'any biochemical, physiological, anatomical, pathological, and or behavioural revise that results in active impairment that may affect the interpretation of the entire organism. Poison also depends on the frequency of use and on the vulnerability of the existent. The hepatomodulatory response to an ethanol extract of *E. axillare* was excavated for liver injury induced by oxidative pressure and carbon dupe tetrachloride (Ccl<sub>4</sub>). The study is therefore aimed to determine antioxidant, antimicrobial and anticancer exertion of flavonoid rich fractions from the leaves of *E. axillare*. Toxicokinetic and Toxicodynamic includes the cure and attention applied, the path of administration, the mode of administration, the bioavailability, the medium of poison. Keywords Hepatoprotective, poison, EPA, oxidative pressure

**Keywords : Hepatoprotective, toxicity, EPA, oxidative pressure**

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## PERCEPTIONS OF ENVIRONMENTALLY FRIENDLY RELATIONSHIPS AMONG NEWLY MARRIED COUPLES IN INDIA

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**ABSTRACT:** This study examined newly married couples' views on green dating habits and attitudes. A quantitative questionnaire was undertaken to a sample of 100 married couples across Maharashtra between academic years 2022 and 2024. The questionnaire aimed to determine the participants' extent of insight into green dating, decide which activities are sustainable, identify preferred environmentally conscious behaviours and assess the willingness to integrate sustainability into intimate relationships. The results also indicated that most participants 65 percent knew what green dating was and that many had volunteered in nature, engaged in environmentally friendly activities and listed green gifts. The outcome of the study shows that couples with similar views about protecting the environment are more likely to behave sustainably. This type of bond will only improve their relationships and protect the environment.

**Keywords-Green dating, sustainable, couple green practices, environment.**

## GC-MS ANALYSIS OF DIETHYL ETHER EXTRACT OF *SAUROMATUM VENOSUM* (AITON) KUNTHLEAVES

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**ABSTRACT :** The *Sauromatum venosum* (Aiton) Kunth is traditionally used as medicinal plant in India. This study explores the chemical profile of *Sauromatum venosum* (Aiton) Kunth leaves through Gas Chromatography- Mass Spectrometry (GC-MS) analysis. The leaves of *Sauromatum venosum* (Aiton) Kunth were subjected for extraction using diethyl ether solvent and resultant extract was analyzed to detect the presence of various compounds. The GC-MS analysis of diethyl ether leaves extract revealed the presence of 10 different phytochemicals. The mass spectra of the compounds were compared with National Institute of Standards and Technology 14 (NIST 14) library database.

**Keywords:** *Sauromatum venosum* (Aiton) Kunth, Araceae, diethyl ether extract, GC-MS analysis.

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## ASSESSMENT OF TOXIC HEAVY METALS IN DRINKING WATER OF ULHASNAGAR CITY, MAHARASHTRA, INDIA

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**ABSTRACT :** The water quality in Ulhasnagar city is significantly affected by the presence of numerous industries, as observed data reveals contamination of drinking water with toxic heavy metals such as chromium, copper, cadmium, lead, and nickel. Among these, chromium is found in particularly high concentrations due to the widespread use of the chrome tanning process in local leather industries for dehairing and dehiding. The elevated levels of chromium and other heavy metals in drinking water pose serious health risks to humans, highlighting the urgent need to implement advanced technological solutions to maintain these toxic substances within permissible limits.

**Keywords:** Chrome tanning, Water contamination, Industrial pollution, Heavy metals, Health risks.

# EXPLORING MICROBIAL EXOPOLYSACCHARIDES: ISOLATION, EXTRACTION, AND ANTICOAGULANT ACTIVITY

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Exopolysaccharides (EPS) are extracellular biopolymers secreted by microorganisms, offering renewable, biodegradable, and biocompatible alternatives to plant- and animal-derived polysaccharides. In therapeutic applications, heparin, an animal-derived anticoagulant, is widely used but poses risks of adverse reactions. This study aims to explore microbial EPS as a potential anticoagulant alternative. Microorganisms were isolated from natural samples, and mucoid colonies were screened for EPS production. The presence of carbohydrates was confirmed qualitatively, and isolates with high EPS yield (2.5–3 g/L) were selected for further study. Solvent extraction was employed to purify EPS, and carbohydrate content exceeding 90 µg/mL was used as a selection criterion. To enhance anticoagulant activity, sulfate-containing salts were incorporated into the culture media, resulting in increased EPS production (15–20 g/L). The anticoagulant potential of the extracted EPS was assessed using blood coagulation assays. Results indicated significant anticoagulant activity, with clotting time extended by 1–1.5 seconds, while heparin exhibited a prolonged clotting effect of 2–2.5 minutes. These findings highlight the potential of microbial EPS in anticoagulant applications, although further refinement is required to enhance its efficacy. This study contributes to the ongoing search for safer, microbially derived anticoagulants, reducing dependency on animal-based products and addressing biocompatibility concerns. Future research will focus on optimizing EPS structural modifications and assessing its biomedical viability.

**Keywords :** Exopolysaccharide, microbial biopolymer, anticoagulant, heparin alternative, clotting time

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## ANTIBACTERIAL EFFICIENCY OF *JASMINUM OFFICINALE* AGAINST DENTAL PLAQUE ISOLATES

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**ABSTRACT :** All over the world many individuals are facing dental problems. One of the main reasons of dental problems is dental plaque. These plaques are the result of biofilm formation by the micro flora present in oral cavity. There are many mechanical as well as chemical methods to remove the dental plaques and improve the dental health. But these methods can lead to some side effects like discoloration of teeth, weakening of teeth, loss of taste and sometimes resistance to antibiotics. To minimize the chances of side effects, people are moving towards herbal alternatives. *Jasminum officinale* is one of the plants which is widely used in perfume and food industry due to its fragrance. One of the properties of *J. officinale* is antibacterial property. The extracts prepared using dried leaves and flowers and it showed antibacterial activity against bacteria isolated from various samples of dental plaques. The agar well diffusion assay was performed using various concentrations of these extracts showed significant activity against isolates from dental plaques.

**Keywords:** Antibacterial activity, Dental plaques, *Jasminum officinale*, Phytochemical extract.

# GREEN CHEMISTRY APPLICATIONS IN SUSTAINABLE AGRICULTURE FOR PAPAYA FARMING

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**ABSTRACT:** The advancement of sustainable agriculture emphasizes the utilization of environmentally friendly chemical processes and practices to maintain crop productivity while reducing ecological footprints. In the context of *Carica Papaya* farming, green chemistry principles play a pivotal role in promoting sustainable agricultural practices. The application of composting, natural products, and organic amendments enhances soil quality and fertility, minimizing the reliance on synthetic fertilizers. Strategies like vermicomposting, natural pest management to target specific pests, and eco-friendly fungicides reduce the need for chemical herbicides and synthetic inputs. Soil amendments support nutrient cycling, while plant growth regulators naturally enhance fruit size, sweetness, and yield. Additionally, efficient water management, along with sustainable packing and post-farming handling methods, preserves soil health, enhances productivity, and aligns with global sustainability goals. These practices not only improve crop quality but also contribute significantly to achieving a sustainable future for agriculture.

**Keywords:** GrJeen chemistry, sustainable agriculture, natural pest management, plant growth regulators, *Carica papaya*

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## Seasonal Variation in Biodiversity of AM Fungi in *Madhuca longifolia*

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**ABSTRACT :** The crucial role of Arbuscular Mycorrhizal (AM) fungi in plant growth and soil health have been well established through observational and evolutionary studies. They support plant growth by enhancing nutrient uptake and improving stress tolerance. The objective of this study was to investigate the seasonal diversity and colonization of AM fungal spores associated with *Madhuca longifolia* (Indian butter nut tree) roots in Maharashtra Nature Park (MNP), Mumbai. The study was conducted across two seasons- pre-monsoon (April–June) and monsoon (July–September). Soil and root samples were analyzed for spore diversity, root colonization rates, and the impact of environmental factors associated with these seasons on fungal distribution. The results revealed a higher diversity of AM fungal spores during the monsoon season, with the presence of *Aculospora myriocarpa*, *Glomus*, *Gigaspora*, *Macrocarpum*, and *Clarum* sp. In contrast, only *Aculospora myriocarpa* and *Glomus* were observed in the pre-monsoon period. Interestingly, despite higher diversity observed in the monsoon season, root colonization was lower (54.8%) compared to the pre-monsoon season (65%). This is most likely due to negative impact of excessive soil moisture on fungal-root interactions. The spores were found to be coated with soil particles, suggesting contamination due to pollution in the habitat. The prevalence of *Aculospora myriocarpa* across both seasons indicates its adaptability to the ecological conditions in MNP. In conclusion, this study highlights the seasonal dynamics of AM fungal communities in MNP which may be more adapted to pre-monsoon conditions.

**Keywords:** Arbuscular mycorrhizal fungi, *Madhuca longifolia*, root colonization, seasonal variation, fungal diversity, pollution impact

# EVALUATING THE EFFECTIVENESS OF VARIOUS NUTRIENT MEDIA ON SPORE GERMINATION AND GAMETOPHYTE DEVELOPMENT IN *PTERIS VITTATA*.

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**ABSTRACT:** This study aims to evaluate the effects of different nutrient media on spore germination, gametophyte development, and sporophyte proliferation in *Pteris vittata* L. The spores were cultured on several media, including Knops (KN), Knudson C (KC), and Murashige and Skoog (MS) media. The study found that the Knops basal medium resulted in the highest spore germination rate and successful gametophyte multiplication. Additionally, juvenile sporophytes were observed to proliferate effectively in Knops basal medium. The results of this study are significant for optimizing cultivation conditions for *Pteris vittata*, with implications for both research and conservation purposes.

**Keywords:** spore germination, gametophyte development, Knops basal medium, Knudson C medium, Murashige and Skoog medium.

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## PHYTOTOXIC CHARACTERIZATION AND EVALUATION OF VARIOUS FRACTIONS OF *VITEX NEGUNDO* AS BIOHERBICIDE

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**ABSTRACT:** The increasing dependence on commercial herbicides has necessitated the exploration of alternative methods for weed management. The present study investigates the phytotoxic potential of various fractions of *Vitex negundo*, a medicinal plant known for its diverse bioactive compounds. The research aims to evaluate the inhibitory effects of different solvent-based extracts on seed germination and seedling growth of selected test plants. Seed germination and seedling growth assays revealed that certain fractions significantly inhibited root elongation and shoot development in a dose-dependent manner. The findings suggest that *Vitex negundo* possesses notable phytotoxic activity, highlighting its potential use as a natural herbicidal agent in sustainable agriculture and weed management. The current study focuses on *Vigna radiata*, commonly known as moong bean, which serves as an important nutraceutical source of protein and is a staple in the Indian diet.

**Keywords:** Allelochemicals, Herbicides, *Vitex negundo*, Phytotoxicity

# HONEY WITH PURPOSE: EVALUATING BRANDS THROUGH QUALITY AND SUSTAINABILITY

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**ABSTRACT** - The determination of honey purity is critical for ensuring quality and authenticity in the food industry. This study explores various physical tests employed to assess the purity of honey. Physical properties such as colour, density, velocity of ultrasound, refractive index, PH value and added sugar are measured and analysed to determine the correlation with the purity of honey. This study uses the refractive index, ultrasonic sound velocity, cold water test, PH and Sulphuric acid test as effective methods for determining the purity of honey. Refractive index values were obtained using a spectrometer and refractometer, while ultrasonic sound velocity was measured with an ultrasonic interferometer, sulphuric acid test for identification of the sugar and PH meter used for determining the value of PH. These techniques were applied to a variety of honey samples with different company brand of honey. The results revealed a clear correlation between refractive index values and honey purity, with adulteration leading to measurable shifts in both refractive index, sound velocity and acid test. This non-destructive, cost-effective approach could serve as an efficient quality control tool for honey authenticity testing. The results from these tests can be used to establish quality standards for honey and to detect fraudulent practices in the market.

Further more research highlights importance of sustainability beekeeping practices which not only enhanced honey quality of commercial products but also plays major role as pollinators that essential for good cultivations.

**Keywords: Density, Velocity of Ultrasound, Refractive Index, PH, Sustainability Beekeeping, Pollination.**

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## SPECIES DIVERSITY, RELATIVE ABUNDANCE AND DISTRIBUTION OF AVIFAUNA IN BHANDUP PUMPING STATION

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**ABSTRACT:** Birds have proved to be an excellent indicators of biodiversity as they are easily observed. Habitat destruction in the urban areas adversely affected their survival and distribution. This study is an attempt to prepare a baseline data on avifaunal diversity with their relative abundance and species richness in Bhandup Pumping Station area. The study carried out from June 2024 to January 2025. The sampling sites were stratified based on land cover features with Random Sampling Method. A statistical tool was also used to analyse bird population. A total of 68 bird species belongs to 31 families were identified.

**Keywords: Avifauna, species diversity, Bhandup Pumping Station**

# UNRAVELING THE POTENTIAL OF WATERMELON PEELS AS DYE

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**ABSTRACT :**The global production of watermelon is 103 million tonnes out of which the waste of watermelon accounts for 40-45%. As synthetic dyes are not biodegradable and they accumulate on lands and in rivers causing ecological problems we have derived a method to extract dye from watermelon peel as no substantial research has been conducted using watermelon peel. In this study we have tried to extract the dye using different organic solvents and study its property of staining. We have washed the stained cotton cloth to check its fastness and also performed Thin layer chromatography to detect the presence of pigments responsible for the dyeing property. Different solvents such as acetone, methanol and chloroform were used for extraction in different sets where in one set the peels were boiled before extraction process with the different solvents and in second set the peels were unboiled before extraction. The results were found to be different for both the sets. The cotton cloth was successfully stained with the pigment and the range of staining differed for peels extracted with different solvents.

**Key words: watermelon peel, dyeing, chloroform**

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## “AWARENESS OF SOLAR ENERGY AS A SUSTAINABLE RESOURCE: A CROSS-GENERATIONAL SURVEY”

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1 , 2 and \* VP M's B N Bandodkar college of science, Autonomous,Thane.

**ABSTRACT-** As climate change continues to pose significant global challenges, the transition to renewable energy sources, particularly solar energy, is seen as a key solution to mitigate global warming. As the world transitions towards renewable energy, understanding the level of awareness about solar energy across different age groups is crucial for promoting its adoption.

A total of 137 participants were surveyed using a structured online questionnaire. This study explores the knowledge, attitudes, experiences, and future outlook on solar energy among individuals of various age groups ranging from 18 to 55+.

Results revealed that the 18 to 34 age group showed a high level of interest, with 84% of respondents which was high across all age group.Younger participants (18-34) displayed the most detailed knowledge about its environmental and economic advantages. In contrast, older participants (50+) were less familiar with specific benefits but showed interest in its potential for reducing energy costs. The younger generation (ages 18-34) strongly believes that solar energy will play a major role in future energy output, with 80% of this group expressing optimism about solar energy's potential to meet global energy needs. Barriers such as high installation costs, limited availability of space, dependency on weather conditions and limited knowledge were identified, among all age groups. The study suggests that increasing public education and offering stronger incentives could improve adoption rates and drive the transition to sustainable energy solutions, especially among younger generations who are more optimistic about its future impact.

**Keywords: Solar energy, Renewable energy, Sustainability, Energy Transition, Public Awareness**

# MATHEMATICAL MODELLING OF CLIMATE CHANGE EFFECTS ON ECOSYSTEM

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**Abstract :** Climate change is affecting ecosystems globally, threatening species survival and biodiversity. In this paper, we discuss the use of mathematical modelling to assess the impact of climate change on ecosystems. We use graph theory to represent ecosystems as networks of interacting species. The model will help to understand how climate change affects the balance of nature and how species depend on each other. It also shows how temperature affects the survival of species. This research shows how mathematics can help to understand and solve environmental crisis.

**Keywords:** Climate Change, Ecosystem Modeling, Mathematical Modeling, Graph Theory

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## SANITARY NAPKIN WASTE MANAGEMENT: A CRITICAL REVIEW OF ENVIRONMENTAL HAZARDS AND SUSTAINABLE SOLUTIONS

**Mr. Yash S. Pol<sup>1</sup> (M.Sc, B.Ed), Ms.Aarya Apraj<sup>2</sup>, Ms. Poonam Rathod<sup>3</sup>**

**ABSTRACT :** Sanitary napkin waste has become a significant environmental concern due to its increasing generation and improper disposal. The lack of effective waste management strategies has led to the accumulation of sanitary napkin waste in landfills and water bodies, posing serious environmental and health hazards. This study reviews the current state of sanitary napkin waste management, highlighting the environmental impacts of improper disposal, including water pollution, soil contamination, and greenhouse gas emissions. The review also explores sustainable solutions, such as composting, recycling, and biodegradable sanitary napkins, which can mitigate the environmental hazards associated with sanitary napkin waste. Furthermore, the study emphasizes the need for raising awareness, implementing effective waste management policies, and promoting sustainable practices to address the sanitary napkin waste management challenge.

**Keywords:** Sanitary napkin waste, waste management, environmental hazards, sustainable solutions, composting, recycling, biodegradable materials.

# ANALYTICAL STUDY OF IMPACT OF CLIMATE CHANGE ON CROP YIELD

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**Abstract:** India is a country of agriculture. Farming has a significant contribution in Indian economy. Due to diverse climatic conditions in India, predicting crop yields is a major challenge with available data. This study investigates the impact of climate variables viz., temperature, rainfall, CO<sub>2</sub> emissions, and extreme weather events on crop yields in India. In this study used statistical tools such as correlation and ANOVA and data analyses using Python. It is observed that moderate temperature increases can enhance yields, but extreme weather events and CO<sub>2</sub> emission reduce productivity. Weak correlations suggest higher emissions negatively affect yields due to climatic stress. Key recommendations emphasize sustainable farming practices and regional adaptive strategies to mitigate impacts. Findings aim to inform policies for resilient agricultural systems amidst climate change.

**Keywords:** Correlation Analysis, ANOVA, Temperature, CO<sub>2</sub> Emissions, Extreme Weather Events.

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## PREDICTIVE MODELLING FOR CROP YIELD IN MAHARASHTRA: TRENDS & INSIGHTS

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**ABSTRACT:** Farming is the primary sector which is foremost contributor in Indian economy. India is the second country in farm produce globally. So, season wise predictions of farm yield is a major issue that needs to be solved based on available data to help farmers for their increased income. This study focuses on predicting crop yield trends in Maharashtra for Rabi and Kharif season to assist farmers to know about future trends and demands of the crops that can contribute to their increased income. Also, a study has been conducted on India's import and export of major crops to analyse and understand the agricultural market globally. Using secondary data on area, production and yield for crop, the statistical tools like ARIMA model, LSTM were applied for analysis. Results indicate that maize yield has a consistent upward trend and it is estimated to grow in future too about 24% from the year 2023 to 2032. While, Bajra and Jowar show declining trends due to reduced cultivation and abnormal rainfall. Jowar has decreased about 40%. Recommendations include promoting maize for industrial use, reviving the production for Bajra and Jowar, improving markets access for stable crops. The study emphasizes data-driven decisions to address yield variability and gives a marketing approach to farmers by knowing the demand of significant crops in the future. Also, the study on the import and export of crops provides valuable insights for developing effective marketing strategies for the farmers.

**Keywords:** ARIMA, LSTM, Forecasting, GDP, Nutri-cereals, Global market

# TIME SERIES ANALYSIS OF TEMPERATURE FLUCTUATIONS IN INDIA

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**ABSTRACT:** In the global warming scenario, understanding temperature variations and studying them for future predictions is the need of the hour now. Key contributions to rising temperature include deforestation, which reduces carbon absorptions, and industrial urbanisation, which increases greenhouse gas emissions. With the help of statistical techniques, we can address this issue systematically and scientifically. This study analyses temperature fluctuations in India using time series data from 1901 to 2017. Statistical models like ARIMA (Autoregressive Integrated Moving Average Model) and Holt's Exponential Smoothing forecast a gradual temperature increase over time. The ARIMA Model and Holt's Exponential Smoothing forecast suggests that the temperature is expected to gradually rise over time. From 2002 to 2023, India lost 414,000 hectares of humid primary forest, exacerbating environmental challenges. From the past two decades, India's industrial urbanization has been increasing at a rate of 2.76%. In this study, we forecasted next seventeen years (2018-2040) using ARIMA (2,1,2) and Holt's Exponential Smoothing. These insights aim to support policymakers in addressing climate change impacts on ecosystems and human communities.

**Keywords:** Global warming, Temperature variations, Climate change, Deforestation, ARIMA, Holt's Exponential Smoothing.

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## MATHEMATICAL METHODS FOR RECOGNITION OF PLANT OBJECTS

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**ABSTRACT :** The purpose of this study is to show the basic model plant objects that are based on different branches of mathematics methods like analytical geometry, surface theory, graph theory and fractal geometry as well as methods for recognizing these objects. Mathematical modeling of plant objects opens up prospects for the creation of robotic complexes for harvesting and processing grain and other agricultural crops. Knowledge of the models of these objects is also necessary for the computer study of technological processes in which plant materials are involved. To study these models, we need to take into account the complexity of their structure, the real shape of the object and the ability to make adjustments. Methods of analytical geometry are suitable for constructing models of seeds of agricultural crops and leafy materials. The development of mathematics and computer technologies brings mathematical modeling of complex processes involving plant objects to a new level.

**Keywords:** Mathematical methods, plant object, Fractal geometry, Graph theory method, Matrix.

# ANALYTICAL STUDY OF WATER POLLUTION ACROSS MULTIPLE WATER BODIES

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**ABSTRACT :** Water is uniquely vulnerable to pollution. Known as a “universal solvent,” water is able to dissolve more substances than any other liquid on earth. Living world depends on water in a variety of ways. This study works towards to evaluate the water quality of the water bodies (lakes, wetlands, tanks, and ponds) and identify the most influential parameters affecting them, and pinpoint polluted hotspots in India. Utilizing the dataset from the Central board pollution control spanning 2018-2022. Multiple linear regression model is applied to analyze the relationship between water quality index with various parameter including DO, BOD, pH etc. It is observe that fitted model give better perform  $R^2$  value is closure to 1. Regression model achieved high accuracy with  $R^2$  value ranging from 0.675 to 0.93. With DO, pH and conductivity emerging as significance predictor across all water body type. The predictive model could be integrated into real time monitoring system device to provide continuous update on water quality. Farmer can use predictive model to evaluate the safety of using tank or pond water for irrigation reducing crop damage and soil contamination. This study offers valuable insights for strengthening waste water management strategies and highlight the urgent need for targeted interventions in identified pollution hotspots.

**Keywords: Multiple Linear Regression Model, Water Quality Index, Water pollution, Pollution Hotspot, Environmental Impact.**

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## ASSESSING INSECT DIVERSITY AND THEIR BIOTIC-ABIOTIC INTERACTION IN THE GODREJ MANGROVES, VIKHROLI, MAHARASHTRA

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**ABSTRACT:** Insects are most widely distributed organisms belonging to class Insecta and are classified under richest phylum- Arthropoda. They are recorded in almost every habitat. They are studied as ecological indicators, yet their interactions with other animals and plants is least studied. Present study has been conducted in Godrej Mangroves premises in Vikhroli, Maharashtra which not only consist of mangrove habitat, but also grasslands and scrublands too. Total 6 study sites were chosen randomly to cover more parts of study area, out of which 1 site was mangrove mudflat. Line-transect method is followed to collect data. Godrej Mangroves is privately owned largest mangrove forest in the world conserved since 1943. Main aim was to document diversity of insects and how they interact with environmental factors tempo-spatially. Many insects were found interacting with mealybugs. Abundance in diversity was recorded from following orders- Lepidoptera, Hymenoptera, Hemiptera, Coleoptera, Odonata and Orthoptera. Statistical analysis has been done to measure their abundance, diversity as well as their biotic-abiotic interaction in the environment.

**Keywords: Insect, Mangrove, interactions, biotic-abiotic, diversity**

# THE HIDDEN HEALTH RISKS OF READY-TO-EAT FOODS: A CRITICAL REVIEW

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**Abstract:** Ready-to-eat foods have become a staple in modern diets, offering convenience and accessibility. However, the high levels of unhealthy ingredients, artificial preservatives, and processing techniques used in these foods pose significant health risks. This review critically examines the literature on the health effects of ready-to-eat foods, highlighting the links to obesity, chronic diseases, nutrient deficiencies, and mental health problems. The role of ingredients, manufacturing processes, lifestyle factors, and socioeconomic influences are also explored. The findings underscore the need for increased awareness, improved nutrition labeling, and stricter regulations to mitigate the adverse health impacts of ready-to-eat foods.

**Key words:** ready to eat food, preservatives, health hazard

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## SYMBIOPONICS: ENHANCING THE CROP YIELD OF HYDRPONICS THROUGH SYNERGISTIC ACTION OF MICROBIAL BIOFERTILIZER.

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**ABSTRACT :** The research investigates the use of coco peat enriched with Plant Growth-Promoting Bacteria (PGPB) in hydroponic systems to enhance plant growth. The study introduced Phosphate-Solubilizing Bacteria (PSB) and Azotobacter, both individually and as a consortium, to evaluate their effects on plant performance in a soilless environment. Isolated PSB is thought to aid in solubilizing inorganic phosphates, while that of Azotobacter to contribute in nitrogen fixation thereby enhancing plant growth. Experiments were conducted in controlled hydroponic setups, monitoring various physical parameters that indicate plant growth. The results demonstrated that the consortium significantly improved plant growth in both the application methods. Both, seed coat method and spray method showed promising results. The synergistic action of PSB and Azotobacter contributed to the better performance of the plant in the hydroponic setup.

In view of these positive outcomes, the research is aimed to increase the yield of variety of plants, including vegetables. The aim is to evaluate the adaptability and effectiveness of the consortium in diverse plant species under controlled hydroponic conditions. This study underscores the potential of microbial biofertilizers as a sustainable and eco-friendly alternative to chemical fertilizers in hydroponics. This approach aligns with the goals of modern agriculture to achieve higher productivity while minimizing environmental impact.

**Keywords:** Hydroponic, phosphate solubilizing bacteria, azotobacter, consortium, sustainable agriculture.

# **SPIRULINA: A SUSTAINABLE SOLUTION FOR WASTEWATER TREATMENT AND HEAVY METAL EXTRACTION**

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**ABSTRACT :** Wastewater contaminated with heavy metals harms aquatic life and humans. Toxic substances like lead, mercury, and arsenic accumulate in water, causing health issues, including cancer and neurological damage, through the food chain. Spirulina is a type of microalgae, a tiny, single-celled organism that grows in water. It's rich in nutrients, including proteins, vitamins, and minerals, making it a popular dietary supplement. Spirulina is also known for its ability to absorb and remove heavy metals and pollutants from water, making it a valuable tool for wastewater treatment. This study investigates the efficacy of *Spirulina platensis* in removing heavy metals from wastewater. A novel Spirulina-Based Heavy Metal Removal System was designed and tested, demonstrating significant removal of heavy metals from contaminated wastewater. The system's efficiency, scalability, and sustainability make it a promising solution for wastewater treatment and environmental remediation with potential applications in industrial, agricultural, and municipal wastewater treatment, contributing to a more sustainable environment.

**Key words:** Heavy metals, Spirulina, wastewater treatment, sustainable environment.

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## **ETHNOVETERINARY HERBAL KNOWLEDGE OF PLANTS USED TO TREAT LIVESTOCK DISEASES IN RAIGAD DISTRICT, MAHARASHTRA.**

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**ABSTRACT:** A comprehensive field research survey was conducted in 2023–2024. The Raigad district of this study envisaged the use of 41 plant species in 44 genera belonging to 33 families. The representatives of Fabaceae, Asteraceae, Euphorbiaceae and Zingiberaceae lead with three each, followed by Annonaceae, Lamiace, Moraceae, Solanaceae and Amaranthaceae with two each and the rest with one each. The Factor for Informants' Consensus (FIC) and Fidelity Level (FL) were used for the quantitative analysis. In this study, 470 people from 21 provinces (NN= = 5) participated in interviews. The fidelity level (FL) of each species was calculated using data obtained through scientifically based surveys and interviews. Aloe vera Mill., Curcuma aromatica L., Musa paradisiaca L. and Ocimum sanctum L. are the categories with the highest FL values, and Butea monosperma (Lam.), Cyamopsis tetragonoloba L. had the lowest relative frequency of citations (RFC ). ) with 26.59 and Curcuma aromatica L. had the highest value with 98.93. The traditional medicine practitioners and locals of Raigad region used plants to cure diarrhea, dysentery arthritis, eye damage, skin diseases, milk problems, wounds, broken bones, fever and other diseases in animals.

**Keywords-:** Fidelity level, RFC, livestock, ethnomedicine, ethnoveterinary.

## **PLANTS POISONING IN THE GARDENS: THE HUMAN RISK EVALUATION IN THANE, MAHARASHTRA**

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**ABSTRACT:** Poisonous plants are particularly useful in making medicines when properly extracted and combined with other chemicals. However, they are also highly toxic when administered, inhaled or consumed in toxic quantities and can harm humans and other animals. This study focuses on the occurrence and study of poisonous plants in Thane district, Maharashtra, India in 2023 and 2024. During its field study, 16 plant families, 25 genera and 25 species were observed. In the current study, they were found to be poisonous, rich in toxic flora, which has significant impacts on human and animal health. Botanical names, families and local names for plant species as well as toxic components were recorded.

**Keywords** – Toxic. Thane. Latex, Irritation, Vomiting, Toxic

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## **EXPLORING THE BIOLOGICAL ACTIVITIES OF SCHIFF BASE BENZILMONOHYDRAZONE METAL COMPLEXES**

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**ABSTRACT:** Due to hydrazones anti-bacterial, anti-fungal, anti-cancer, anti-depression and anti-viral properties, hydrazone become active substance in pesticides discovery. Hydrazone used in stable complexes in coordination chemistry, and its metal complexes used in various formulations in pharmaceuticals. The metallic hydrazone compounds act as catalyst used in various organic complex reactions. Due to its numerous medicinal properties hydrazone become highlighted in last decades. The present review made attention towards the new drug delivery development process, it's aromaticity in organic chemistry, pharmaceutical formulations and molecular biology in relation to hydrazone and its metal complexes.

**Key words:** - Hydrazones, Coordination chemistry, Biological activity, Metal complexes, Schiff Base.

# CHEMICAL PILLARS OF AN INDIAN ARTILLERY SYSTEM

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**ABSTRACT:** The project “Chemical Pillars of an Indian Artillery System” investigates the critical role of chemistry in three major components of India’s defense infrastructure: Dhanush Howitzer, MiG-29 fighter jet, and INS Vikramaditya aircraft carrier. This research focuses on the advanced materials and chemical compositions that enhance their performance, durability, and operational efficiency, emphasizing India's strides toward indigenization and self-reliance in defense technology. The study explores the chemical compositions and thermal management mechanisms essential for the functionality of these systems. It examines specific alloys utilized in artillery components and evaluates the heat resistance properties of materials deployed in high-performance defense structures. Data was gathered through literature review, graphical analysis, and technical specifications. The findings highlight the significance of advanced materials, including steel, aluminum, and titanium alloys, in enhancing resilience and operational efficiency under extreme conditions. This research not only reflects advancements in Indian defense technology but also underscores the pivotal role of material science in ensuring combat readiness across land, air, and sea. Furthermore, the insights from this study contribute to a deeper understanding of the intersection between chemistry, materials science, and defense engineering, demonstrating how chemical principles play a crucial role in supporting national security and modern warfare strategies.

**Key Words :- Indian Artillery, Dhanush Howitzer, MiG-29 Fighter Jet, INS Vikramaditya, Steel Alloys, Aluminum Alloys, Titanium Alloys, Composite Materials ,Explosives (TNT, RDX), Aviation Fuel (JP-8, Jet A-1) ,Heat Release, Combustion Process, Propulsion System, Cooling Systems**

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## NUMBERS, MIGRATION AND ACTIVITY PATTERNS OF FLAMINGOS IN BHANDUP PUMPING STATION.

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**ABSTRACT:** The ecology of flamingos in Bhandup Pumping Station was studied from June 2024 to December 2024. Flamingos were observed for more than sixty hours during this period, with feeding, resting and preening combined comprising the major activities of adults and immatures. Time spent in resting and feeding activity by adults and immatures were observed during the study period. Time spent on other activities usually was less for both the age groups. The flamingo’s immigration and emigration was also observed during study period. Habitat conditions in the study area were did not appear threatened, however the potential for disturbance exists as increasing number of visitors and industrial presence nearby.

**Keywords: Activity patterns, migration, behaviors, flamingos, Bhandup Pumping Station**

# SUSTAINABLE DYEING PRACTICES FOR TEXTILE INDUSTRIES IN THANE

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**ABSTRACT:** The textile industry in Thane faces environmental challenges due to traditional dyeing methods that involve high water consumption and chemical use, leading to water pollution and waste. This study explores sustainable dyeing practices, including natural dyes, low-impact synthetic dyes, and waterless dyeing technologies. It highlights local initiatives and case studies that showcase the shift towards eco-friendly alternatives. While cost and technological barriers exist, the findings suggest that sustainable practices reduce environmental harm and offer long-term economic benefits, improving the sustainability and compliance of the local textile sector.

**Keywords:** Textile industry, Sustainable dyeing practice, Water consumption, Eco-friendly alternatives, Natural dyes, Technological challenges, Water pollution, Chemical waste

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## STUDY OF TOXIC FLORA AND THEIR EFFECTS ON LIVESTOCK HEALTH IN YADGIR DISTRICT, KARNATAKA, INDIA

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**ABSTRACT:** A field research survey was conducted in 2023–2024. Plants naturally provide the nutrition and oxygen that plant-based cattle and humans need. However, there have been significant economic losses as well as additional health risks such as liver disease, reproductive loss and adverse effects from poisonous plants, which have proven to be a significant risk to cattle operations, particularly in Karnataka, India. This research examines the impact of poisonous plants on animal health in Yadgir district, India. A survey of 150 cattle showed a connection between outbreaks of poisoning, lack of feed and drought. The study found eight poisonous plants that caused cardiovascular and gastrointestinal problems in cattle. Among the deadly poisonous plants that have been identified is Abrus, Sorghum, Calatropis, Thevetia, Nerium, Datura and Lantana. The aim of the documentation are improved animal husbandry techniques and future studies on animal food security.

**Keywords:** Toxin, livestock, Yadgir, Poisonous, Cattle, diseases

# HARMONIZING THE PULSE OF SOIL WITH THE HELP OF A POWERFUL BOOSTER OF BLACK GOLD VERMICOMPOST, A LIVE FERTILIZER

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**ABSTRACT:** In the year 1950-60 Chemical fertilizers ushered the green revolution but turned up as mixed blessings for life. It boosted food productivity but reduced nutritional value. It deteriorated soil fertility over the years by killing soil organisms useful for renewing natural fertility and reduced the biological resistance in crops. Although the world is attempting organic farming by using all possible compost fertilizer, it is not competitive enough to regain the loss encountered by the soil over the years. In this research we have prepared the vermicompost using fresh cow/buffalo dung and Red Wiggler (*Eisenia fetida*) earthworms. Fresh cow/buffalo dung is earthworm's highly nutritious food which contains vast beneficial bacteria and fungi colonies. Red worm castings contain a high percentage of humus which helps soil particles form into clusters to create channels for the passage of air and improve the capacity to hold water. This vermicompost assures the absence of hazardous elements and provides humus, organic matter, micro-organisms, major nutrients like Nitrogen(N), Phosphorus(P), Potassium(K), Manganese (Mn), Calcium (Ca), Magnesium (Mg), etc., Micronutrients like Boron(B), Zinc (Zn), Copper (Cu), Iron (Fe), for the improvement of soil fertility and regeneration.

Our findings recommend that the vermicompost prepared by using fresh cow/buffalo dung and Red Wiggler (*Eisenia fetida*) earthworms will function as a booster for improvement of the health of soil. The results after using this vermicompost have been seen in the form of improved health of plants and hence it promises harmonizing the very pulse of soil.

**Keywords:** Vermicompost, Red Wiggler (*Eisenia fetida*)

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## “WATER QUALITY MONITORING - STUDY OF SEASONAL VARIATION OF DIATOM POPULATION AND THEIR CORRELATION WITH PHYSICOCHEMICAL PARAMETERS OF SAKHARE DAM, DAHANU TALUKA OF PALGHAR DISTRICT, MAHARASHTRA”.

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**ABSTRACT:** Diatoms are unicellular aquatic organisms that constitute a substantial taxonomic division of phytoplankton. Various environmental conditions impact the diatom population. This revealed that diatom density was highest in the summer and lowest in the post-monsoon period. Temperature, PH, turbidity, hardness, alkalinity, dissolved oxygen, biological dissolved oxygen, chemical dissolved oxygen, phosphate, chloride, nitrate-nitrogen, nitrite-nitrogen, ammonia-nitrogen, and silicate are some of the physicochemical characteristics used in water quality testing. Structure of diatoms also affected by quality of water. The diversity of diatoms in a water body helps to assess water quality. Water's physicochemical properties influence diatom diversity by promoting the growth of certain species. In this investigation, 120 water samples were taken from three separate dam locations in the early morning. In the present study, the diversity and density of freshwater diatom species were investigated during January 2022 to December 2022. The samples were subjected to acid wash treatment followed by microscopic observations.

**Keywords:** Diatom, physicochemical parameters, diversity, Sakhare Dam

## PHYSIOLOGICAL STUDY OF FENUGREEK AT MICROGREEN AND WELL DEVELOPED STAGE

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**ABSTRACT :** The physiological investigation is undertaken to compare the amount of photosynthetic pigments and activity of enzymes in fenugreek at microgreen and well developed stage. The amount of total chlorophyll is more at microgreen stage than well developed. At the same time, activity of enzyme nitrate reductase is also enhanced at microgreen stage. The amount of carotenoids and activity of peroxidase enzyme is slightly low compared to well grown fenugreek. Present observations indicate that at initial stages of plant growth, mechanism of photosynthesis and nitrogen metabolism is significantly high to achieve full growth and development. At microgreen stage, slight decrease in the defensive metabolite carotenoid and enzyme peroxidase shows disease and stress controlled phase of a life cycle of the plant.

**Key words: Microgreen, Well developed Fenugreek, Photosynthetic pigments, Enzymes**

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## SCREENING OF PHYSIOLOGICAL AND PALYNOLOGICAL PROPERTIES OF DIFFERENT HONEY SAMPLES

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**ABSTRACT :** The present investigation was undertaken to study palynological and physicochemical properties of commercially available six different types of honey. From prehistoric times honey is known for its medicinal properties. Because of sweet taste, its natural organic and inorganic contents it is recommended to cure various health problems. Pollen grains are vital ingredient of a natural honey. In present work, variation in pollen numbers among investigated honey samples was observed. Lowest amount of pollen grain was reported in Baidyanth honey and highest in Phonda Ghat and Jungle honey. Physicochemical properties such as pH, electrical conductivity and free acidity of honey samples were also tested. Correlation was noticed between pH, electrical conductivity and free acidity of honey samples. Low pH (4.8 and 4.5), high electrical conductivity (0.9 and 0.35 ms/cm) and high free acidity was observed in Jungle honey and Phonda Ghat (4.46 and 1.4 meq/kg) respectively. On the contrary high pH (4.2, 4.2, 4.6 and 5.4), low electrical conductivity (0.152, 0.223, 0.16 and 0.214 ms/cm) and low free acidity (1.6, 1, 0.93 and 0.6 meq/kg) were reported in Dabar, Saffola, Patanjali and Baidyanath honey respectively. Above study concludes that low pH, high number of pollen grains, high electrical conductivity and free acidity in Phoda Ghat and Jungle honey are important medicinal properties which are possessed in these honey samples.

**Key words: Honey, Pollen grains, pH, Electrical activity and free acidity**

## COUNTING WINGS: A COMPARATIVE REVIEW OF BUTTERFLY SURVEY METHODS

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**Abstract:** Butterflies are a vital part of the ecosystem, acting as both pollinators and indicators of environmental health. To study butterfly diversity, researchers have used different types of butterfly count methods. This review looks at different techniques used to count butterflies, aiming to understand which methods work best in various settings. The goal is to identify the strengths and weaknesses of these approaches, compare their effectiveness, and suggest the best practices for future studies. Methods like Pollard Walks, Point Counts, Mark-Recapture with Brownian Motion, Aerial Nets and Baited Traps, Sweep Sampling, and Opportunistic Sampling were all considered. Structured methods, such as Pollard Walks and Mark-Recapture, provide detailed data but can be time-consuming and require more resources. In contrast, simpler methods like Sweep Sampling and Opportunistic Sampling are quicker and easier to carry out, though they might miss some species or introduce bias. This review shows that the choice of method depends on the objectives of the study as well as habitat and available resources. As such, future research should prioritize the integration of multiple methods to gain a more complete understanding of butterfly diversity.

**Keywords:** Butterfly diversity, sampling methods, sweep sampling, opportunistic sampling, point count, Pollard count, mark-recapture method.

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## HOUSEHOLD PESTICIDE PRACTICES: A SURVEY OF USAGE AND HEALTH IMPACTS IN JAWSAI, AMBARNATH

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**ABSTRACT:** This study investigates household pesticide use and risk awareness in Jawsai Gaon, Ambarnath, Maharashtra, India, a region experiencing seasonal pest pressures, particularly from mosquitoes and cockroaches. The research aimed to identify commonly used pesticides, explore residents' perceptions of pesticide effectiveness and health impacts, and analyze environmental implications. A survey of households was conducted, utilizing mobile data collection and documentation of pesticide products. The survey covered pest prevalence, pesticide use, perceived effectiveness, reported health issues, and household pesticide expenditure. Results revealed mosquitoes and cockroaches as prevalent pests. While most respondents perceived pesticides as effective, health risk awareness was mixed. Some believed pesticides posed no significant health risk, while others reported health issues, mainly eye irritation and breathing discomfort. The study documented specific pesticide products used, enabling identification of common ingredients and formulations. This research highlights the need for increased public awareness regarding potential health effects. While residents generally find pesticides effective and are satisfied with pest control efforts, promoting safer pest management is crucial. Further research could explore long-term health impacts and evaluate integrated pest management strategies.

**Keywords:** Household pesticides, Risk awareness, Public health, Ambarnath.

# BRIDGING KNOWLEDGE SYSTEMS: INTEGRATING INDIGENOUS AND SCIENTIFIC APPROACHES FOR WILDLIFE CONSERVATION

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**ABSTRACT :** Wildlife management can benefit from combining local indigenous knowledge (LIK) and modern scientific approaches (MSA). Indigenous communities have valuable knowledge about nature, developed over generations, while science provides advanced tools and methods. This paper compares the strengths and challenges of both approaches, focusing on their role in protecting biodiversity, resolving human-wildlife conflicts, and restoring habitats. It also highlights examples of successful collaborations, like community-led conservation projects, and discusses challenges such as cultural differences and misunderstandings. The study suggests that blending both approaches can lead to better conservation results by balancing ecological needs and involving local communities. It calls for policies that encourage cooperation between indigenous people and scientists.

**Keywords:** Indigenous knowledge, scientific approaches, wildlife management, biodiversity, habitat restoration, community conservation, sustainability

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## “GREEN SYNTHESIS OF COPOLYMERS FOR BIOMATERIALS IN BONE REPAIR AND REGENERATION”

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**ABSTRACT:** The synthesis of copolymers for biomaterials has gained significant attention in green chemistry as an eco-friendly approach to bone repair and regeneration. This study emphasizes the development of biocompatible and biodegradable copolymers using sustainable methods that minimize environmental impact. Green polymerization techniques, such as solvent-free synthesis and the use of bio-based monomers and catalysts, were employed to achieve copolymers with tailored mechanical, chemical, and biological properties suitable for bone tissue engineering. Bioactive components promoting osteoconductivity and cell adhesion were incorporated into the copolymer matrix. The structural and chemical properties were characterized using spectroscopic, thermal, and mechanical analyses, ensuring minimal use of hazardous reagents. Preliminary in vitro studies demonstrated excellent cytocompatibility, while in vivo assessments showed significant bone repair and regeneration. This research underscores the potential of green copolymer synthesis as a sustainable and effective solution for orthopedic applications, aligning with the principles of green chemistry.

**Keywords :** Biodegradable biomaterials, Sustainable polymerization, Eco-friendly biomaterials Cytocompatibility, green chemistry

## AWARENESS OF E-GADGETS AND E-WASTE MANAGEMENT AMONG BNB UG-PG STUDENTS

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**ABSTRACT :** Electronic gadgets play a vital role in today's fast paced society. E-gadgets like laptops, cellphones, microwaves, smartwatches, smart TV, etc. are gifts of development of engineering and technology. But in recent decades huge purchases of e-gadgets by common people and corporate industries is inviting a novel problem of e-waste and its management. If left in-noticed, it may lead to contamination of our pristine sources of land and water with hazardous waste. The current research project inquires about the awareness of e-gadgets, e-waste, its hazardous effects and management among undergraduate and postgraduates science students of a college. The research presents extensive statistical analysis of responses obtained through a well structured questionnaire. The results indicated that a significant number of college students (82%) are aware about hazardous chemicals released by e-waste. About 70% strongly agree that e-waste management is necessary while 40.3% students prefer to support the e-waste collection drive. The science curricula and organization of e-waste collection drives immensely contribute to this. Such study can be also extended to non-science streams and may become useful for designing different strategies for the awareness as well as management of e-waste which will minimize heavy metal pollution in the ecosystem. It will be equally important for fulfilling sustainable development goals given by the UN agenda 2030.

**Keywords: e-gadgets, heavy metal pollution, e-waste management, questionnaire**

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## EVALUATION OF PHYTOCHEMICAL POTENTIAL OF AVICENNIAMARINA BY HISTOCHEMISTRY

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**ABSTRACT :** *Avicennia marina* (Forssk.) Vierh. is commonly known as the grey or white mangrove. It is a vital species within mangrove ecosystems, renowned for its ecological significance and potential medicinal applications. *A. marina* has been traditionally utilized in various cultures, it has been employed in Persian folk medicine for treating smallpox lesions. Scientific investigations of methanol extracts of *A. marina* demonstrated significant inhibitory activity against Herpes Simplex Virus (HSV) and moderate activity against Human immunodeficiency Virus (HIV). Additionally, the plant exhibits anti-glycation properties, which are beneficial in managing diabetes and Alzheimer's disease. Ecologically, *A. marina* plays a crucial role in coastal protection, sediment stabilization, and serving as a nursery for various marine species. For current research work, leaves of the *Avicennia marina* plant were collected from the Thane Creek area which is presently facing a high degree of pollution caused by domestic as well as industrial waste. Therefore detailed phytochemical and heavy metal detection had been carried out by histochemical study of leaves. The study revealed the presence of almost all phytochemicals and its storage site i.e. different leaf tissue. Safety to use leaf tissue as medicine was also ensured by absence of heavy metals. The presence of different secondary metabolites in the said plant indicates the high medicinal potential of leaves of the plant for prospective drug development.

**Keywords: *Avicennia marina*, histochemical tests, secondary metabolites, heavy metals**

# SYNTHESIS AND CHARACTERIZATION OF NANOPARTICLES DERIVED FROM *STERCULIA FOETIDA* ALKALOIDS

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**Abstract:** This study presents the synthesis and characterization of silver nanoparticles derived from alkaloids extracted from *Sterculia foetida* fruit powder. Utilizing a green synthesis approach, the nanoparticles were fabricated and characterized using UV-Vis spectroscopy, FTIR, and SEM techniques. This eco-friendly and cost-effective method aligns with principles of environmental sustainability, offering an alternative to conventional nanoparticle synthesis. The study investigates the potential applications of the synthesized nanoparticles in drug delivery, antimicrobial activity, and environmental remediation. The findings underscore the significance of integrating natural resources with nanotechnology to address critical scientific and societal challenges effectively.

**Keywords :** Alkaloids, nanoparticles, *Sterculia foetida*, green synthesis, antimicrobial, environmental remediation, nanotechnology, natural resources, drug delivery.

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## PLANTS POISONING IN THE GARDENS: THE HUMAN RISK EVALUATION IN THANE, MAHARASHTRA

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**ABSTRACT:** Poisonous plants are particularly useful in making medicines when properly extracted and combined with other chemicals. However, they are also highly toxic when administered, inhaled or consumed in toxic quantities and can harm humans and other animals. This study focuses on the occurrence and study of poisonous plants in Thane district, Maharashtra, India in 2023 and 2024. During its field study, 16 plant families, 25 genera and 25 species were observed. In the current study, they were found to be poisonous, rich in toxic flora, which has significant impacts on human and animal health. Botanical names, families and local names for plant species as well as toxic components were recorded

**Keywords – Toxic, Thane, Latex, Irritation, Vomiting**

# PRELIMINARY PHYTOCHEMICAL ANALYSIS OF *SALVADORA PERSICA* L. BY HISTOCHEMICAL METHOD

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**ABSTRACT:** *Salvadora persica* Linn., commonly known as miswak (tooth brush) tree. It is widely distributed in the arid regions of India and often on saline soils. Traditionally tender shoots of *S. persica* are used for oral hygiene and are well-supported by scientific research, highlighting its antimicrobial and anti-inflammatory effects. The fresh leaves of this plant are eaten as salad and are used in traditional medicine for cough, asthma, scurvy, rheumatism, piles, and other diseases. However detailed phytochemical analysis of leaves has not been carried out by earlier researchers. Hence through present work leaves of *Salvadora persica* L. were studied with respect to microscopy and preliminary phytochemical detection by histochemical methods. Additionally, heavy metal analysis was also done to understand the level of contamination as the said plant was procured from the Thane creek area. Thane creek is Asia's largest creek harbouring wide biodiversity but currently facing severe pollution due to addition of sewage water and industrial waste. This study revealed that leaves of *Salvadora persica* were full of almost all types of phytochemicals primarily stored in parenchymatous tissue of midrib region. The absence of heavy metals allows use of leaves for therapeutic purposes. The current project work can be extended to assess various pharmacological actions which in turn may develop new herbal drugs.

**Keywords:** *Salvadora persica* Linn., histochemical tests, secondary metabolites, heavy metals

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## QUALITATIVE ESTIMATION OF PHYTOCHEMICALS FROM MICRO GREENS AND SPROUTS

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**ABSTRACT :** Micro greens are immature edible leafy greens with a higher concentration of phytonutrients than in mature leaves, which makes them a novel functional food. This research featured phytochemical properties of sprouts and micro greens. Aqueous extracts of sprouts and micro greens are used for qualitative estimation of phytochemicals. Total six species was selected for phytochemical estimations viz. Spinach (*Spinacia oleracea* L.), Green Amaranthus (*Amaranthus viridis*), Red Amaranthus (*Amaranthus cruentus* L.), Lettuce (*Lactuca sativa* L.), Methi (*Trigonella foenum-graecum* L.) and mustard (*Brassica juncea* (L.) Czern.). The screening test inferred the presence of alkaloids, terpenoids, glycosides, steroids, tannins, flavonoids, phenols, carbohydrates, proteins, polyphenols, phytosterols in both sprouts and micro greens. Micro greens exhibited the overall best phytochemical contents appearing as the most promising species to be consumed as a functional food among those analyzed.

**Keywords:** Micro greens, Sprouts, Phytochemicals

# UNDERSTANDING TEMPERATURE AND HUMIDITY DYNAMICS IN MUMBAI: A SIX-MONTH DATA ANALYSIS

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**ABSTRACT :** This research presents a detailed monthly analysis of temperature and humidity in Mumbai City from July to December 2024. Utilizing half-hourly data collected from local weather station (wunderground.com), the study aims to characterize seasonal variations and identify key trends in the city's climate. The study found a distinct pattern where elevated humidity levels, especially in the monsoon, corresponded with higher discomfort indices, indicating the potential impact on human well-being and public health. Conversely, the post-monsoon period (October–December) was marked by a gradual decline in humidity and more stable temperature conditions. A detailed statistical analysis, reveals a strong inverse relationship between temperature and humidity during the monsoon period, while post-monsoon data suggests a weaker correlation.

Understanding local climate patterns is critical for urban areas like Mumbai, where rapid urbanisation and environmental changes can significantly impact public health, infrastructure and energy consumption. Temperature and humidity are two key elements of weather that influence not only daily life but also long-term climate trends. The results align with established research on tropical climate regions, where a clear pattern of high humidity during the monsoon is common. Previous studies in nearby regions have reported similar temperature ranges and seasonal humidity fluctuations, reinforcing the accuracy of the findings in this study. By examining the relationship between temperature and humidity, this study seeks to provide insights into the region's climate dynamics.

**Keywords: Climate Trends, Mumbai Climate, Seasonal Variations, Weather Patterns**

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## FORMULATION AND CHARACTERIZATION OF EDIBLE FOOD PACKAGING FROM FRUIT PEELS

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**ABSTRACT :** Statistics show that approximately 20-30% of peel waste is generated from fruit-based industries and household kitchen and has led to a big nutritional loss. Also Globally, around 400 million metric tons of plastic waste are generated annually. As a solution we have formulated a biodegradable, edible, bioplastic packing material, which serves as protection barrier for food products. Edible packaging are derived from renewable resources such as proteins, polysaccharides and lipids. The film was used to package tea powder, noodle spices which on boiling dissolved completely. Characterization included Quantitative analysis of reducing sugars by Reducing sugar by DNSA, TMC, flavonoids and alkaloids, antimicrobial activity of the components and ensure safety and quality of product, Solubility analysis, and oil permeability testing. Additional functional properties can be incorporated by adding bioactive compounds, which can enhance the food safety and quality. The use of this Green Technology will help in preventing one of the major problems throughout the world, that of waste disposal. Furthermore, the packaging materials which are invasive to the ecosystem are increasingly replaced by the biodegradable materials attracting the society towards the creation of green.

**Keywords: edible packaging material, green technology, biodegradable, orange peels**

## AGRICULTURAL BY-PRODUCTS

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**ABSTRACT :** The development of biodegradable materials from organic waste is becoming a key area of focus. One such innovative approach is the formulation of biofoams, biodegradable materials using natural resources such as soy chunks and watermelon peels. These materials provide a solution to improve waste management, decrease waste and being an environmentally friendly alternative for conventional plastics. Watermelon peels are high in cellulose and polysaccharides, and soy, high in proteins, provide potential raw materials for the production of environmentally beneficial bio-based products. The biofoam is formulated by combining the soya chunks and watermelon peels along with binders and plasticizers to form a cohesive material. The resulting biofoam exhibits potential for use in sustainable applications such as biodegradable packaging, agricultural films, and compostable containers. This study highlights the feasibility of utilizing soy chunks and watermelon peels as a viable source for creating biodegradable biofoams.

**Keywords: Biofoam, biodegradable, watermelon peels, soya chunks, bio-based products.**

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## AUDITING ENERGY AND UNLOCKING ITS POTENTIAL: A CASE STUDY

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**Abstract :** An energy audit is a process of assessing and analyzing the energy usage and inefficiencies and to implement conservation measures to meet rising demand sustainably. In 2024, global energy demand surged by approximately 4% while India's per capita electricity consumption has risen to 1,395 kWh. Data reports it will continue growing by 2% per year, making it necessary to take measures. The project included onsite vigilance assessing energy consumption levels by counting the number of equipments, and usage of high and low power consumption devices. Walkthrough assessment was done of selected locations from a restricted area in the BN Bandodkar College. Record of inefficiencies and usage was logged on a regular basis. The energy consumption in the area was audited to be 65.4 units per day taking only tube lights into consideration, which solely sums up to an approximate expenditure of Rs.9,000 a month. Thus, identification of energy usage and wastage was done for which conservation measures were recommended that could lead to potential cost savings while also raising awareness about sustainable energy use. The insights and data obtained from this restricted area can be extrapolated to a larger scale, such as the entire institution, by implementing the recommended measures on a broader level. This case study highlights how small interventions can lead to substantial long term improvements in sustainability.

**Keywords: Energy, conservation, audit.**

# GREEN CHEMISTRY APPLICATIONS IN SUSTAINABLE AGRICULTURE FOR PAPAYA FARMING

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**ABSTRACT:** The advancement of sustainable agriculture emphasizes the utilization of environmentally friendly chemical processes and practices to maintain crop productivity while reducing ecological footprints. In the context of *Carica Papaya* farming, green chemistry principles play a pivotal role in promoting sustainable agricultural practices. The application of composting, natural products, and organic amendments enhances soil quality and fertility, minimizing the reliance on synthetic fertilizers. Strategies like vermicomposting, natural pest management to target specific pests, and eco-friendly fungicides reduce the need for chemical herbicides and synthetic inputs. Soil amendments support nutrient cycling, while plant growth regulators naturally enhance fruit size, sweetness, and yield. Additionally, efficient water management, along with sustainable packing and post-farming handling methods, preserves soil health, enhances productivity, and aligns with global sustainability goals. These practices not only improve crop quality but also contribute significantly to achieving a sustainable future for agriculture.

**Keywords:** Green chemistry, sustainable agriculture, natural pest management, plant growth regulators, *Carica papaya*

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## EFFLUENT TREATMENT IN INDUSTRIAL SECTORS: PROCESSES, CHALLENGES, AND ENVIRONMENTAL IMPACT

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**ABSTRACT:** Effluent Treatment Plants (ETPs) play a critical role in industries by treating hazardous industrial effluents, ensuring the neutralization of toxic chemicals, and preventing environmental degradation. This study examines the physical and chemical characteristics of raw industrial effluents and their treatment through primary and secondary processes. In primary treatment, various parameters such as pH, color, temperature, Chemical Oxygen Demand (COD), Biochemical Oxygen Demand (BOD), Total Dissolved Solids (TDS), and Dissolved Oxygen (DO) are monitored. Treatment steps include screening, pH neutralization, coagulation, and flocculation. Acidic and alkaline effluents are neutralized using HCl and NaOH, followed by coagulation with alum and flocculation using polyelectrolyte solutions. The treated effluent then flows to the primary settling tank, where suspended solids settle and sludge is disposed of per regulatory guidelines. Supernatant from the settling tank proceeds to the Moving Bed Biofilm Reactor (MBBR) for secondary biological treatment. Industries in the TTC belt operate ETPs at moderate efficiency; however, due to hazardous waste generation and high raw water consumption, proper segregation before treatment is necessary. Industrial wastewater often contains contaminants such as heavy metals, oils, pesticides, and organic pollutants, which pose risks to human health, aquatic ecosystems, and agriculture. Improper disposal of effluents contributes to severe pollution, leading to waterborne diseases like typhoid, cholera, and hepatitis. Addressing these challenges requires stringent wastewater treatment and sustainable management practices to mitigate long-term environmental risks.

**Keywords:** COD, BOD, TDS, DO, Effluent pH Neutralization, Environmental Pollution, Sludge Disposal, Settling Solids

## EXTRACTION OF NATURAL DYES FROM PLANT ORIGIN AND IT'S DYEING CAPACITY ON COTTON FABRIC

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**ABSTRACT:** This study explores the role of mordants in enhancing the dyeing properties of natural plant dyes on cotton fabric. Five plant sources—*Impatiens balsamina*, *Hibiscus rosa-sinensis*, *Coleus blumei*, *Punica granatum*, and *Malus pumila*—were selected for dye extraction. The extracted dyes were applied to cotton fabric samples using three different mordants: salt, iron, and copper. Results demonstrated that the choice of mordant significantly influenced the final color, shade intensity, and overall dye absorption. Iron mordants yielded darker, richer hues, while copper mordants produced more vibrant tones, and salt led to lighter shades. pH analysis of the dye solutions confirmed their acidic nature, which plays a key role in determining their interaction with various mordants. Anthocyanin quantification revealed that *Hibiscus rosa-sinensis* and *Punica granatum* exhibited the highest pigment concentrations, making them the most potent natural dye sources. Furthermore, dye fixation and colorfastness tests indicated that mordants improved the adherence of dyes to cotton fibers, increasing the longevity and resistance of colors against fading. The study emphasizes the effectiveness of natural mordants in textile dyeing and supports the potential of plant-derived dyes as sustainable, eco-friendly alternatives to synthetic dyes. With growing environmental concerns over chemical dye pollution, natural dyeing methods using plant extracts and mordants offer a promising approach for sustainable textile production. This research contributes to the development of greener textile processing techniques and encourages further exploration of plant-based dyes in commercial applications.

**Keywords:** Mordants, Natural Dyes, Plant Pigments, Textile Dyeing, Colorfastness

## IMPACT OF LEAD AND ZINC CONTAMINATION ON SEED GERMINATION AND EARLY GROWTH OF SELECTED LEGUME SPECIES

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**ABSTRACT:** Heavy metal contamination in soil is a growing concern due to its adverse effects on plant growth and crop productivity. This study investigates the impact of lead (Pb) and zinc (Zn) on the germination and early growth of four legume species: *Vigna radiata* (green gram), *Vigna aconitifolia* (moth bean), *Vigna mungo* (black gram), and *Cicer arietinum* (brown chickpea). Seeds were germinated on cotton and Whatman filter paper in Petri plates and treated with lead acetate ( $\text{PbCH}_3\text{COO}$ ) and zinc oxide (ZnO) solutions at concentrations of 50 ppm and 100 ppm. The study observed seed germination percentage, root length, and shoot length over 15 days. The results indicated that heavy metals negatively affected seed germination and root growth, with the degree of inhibition increasing with concentration. Brown chickpea exhibited the highest sensitivity, showing minimal or no germination under heavy metal treatment. Green gram demonstrated the highest tolerance, with root growth reaching 21 cm under 100 ppm lead treatment. Zinc had a more inhibitory effect on root development compared to lead. Root growth was more affected than shoot growth, suggesting that heavy metals primarily hinder root elongation. The control group exhibited normal germination and growth patterns. The study concludes that lead and zinc contamination significantly impact seedling development, potentially reducing agricultural yield in contaminated environments. Understanding these effects can help mitigate risks associated with heavy metal pollution in agricultural soils.

**Keywords:** Heavy metals, lead acetate, zinc oxide, seed germination, root growth, legume species, environmental pollution, soil contamination, plant toxicity, agricultural impact.

## **EFFECT OF FRUIT PEEL-DERIVED LIQUID FERTILIZERS ON THE GROWTH AND YIELD OF CHILLI PLANTS (*CAPSICUM ANNUUM*)**

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**ABSTRACT :** The study explores the impact of liquid fertilizers derived from fruit peels on chilli plant growth. Fruit peels from apple, banana, orange, and sweet lime were selected based on their alkaline and citric properties. The peels were collected from juice centers and fruit vendors, processed, and fermented to create natural fertilizers. Chilli seeds were sourced from dried chillies, and plant growth was monitored for 30 days. The experiment involved regular application of liquid fertilizers, with pH, temperature, plant height, canopy size, flower count, and fruit yield recorded at five-day intervals. A control plant, watered without fertilizer, was also observed. Results showed that banana peel fertilizer had the most significant impact, promoting rapid growth, early flowering, and fruiting due to its high phosphorus and potassium content. Orange and sweet lime fertilizers also enhanced plant growth, attributed to their rich nitrogen content. Apple peel fertilizer had the least effect on plant development. Additionally, the presence of reducing sugars in fruit peel fertilizers was analyzed using Benedict's, Fehling's, and Tollen's tests, confirming essential nutrient availability. The study highlights the effectiveness of organic waste-based fertilizers in promoting sustainable agriculture. These bio-fertilizers are cost-effective, eco-friendly, and improve plant growth without synthetic chemicals. Future research could optimize fermentation conditions to enhance nutrient availability. This study supports the use of fruit peel-based fertilizers as an alternative to chemical fertilizers, promoting environmental sustainability and improved agricultural productivity.

**Keywords: Bio-fertilizers, Fruit peel fertilizers, Chili plant growth, Sustainable agriculture, Organic waste utilization**

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## **UTILIZATION OF FRUIT PEEL WASTE FOR ECO-FRIENDLY REMOVAL OF COPPER AND ZINC: COMPARATIVE EVALUATION OF POWDERED AND ENCAPSULATED BIOSORBENTS**

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**ABSTRACT:** This study evaluates the potential of fruit peel waste as an eco-friendly biosorbent for the removal of copper (Cu) and zinc (Zn) from aqueous solutions. Two biosorption approaches were investigated: powdered fruit peel waste (Sample A) and alginate-encapsulated fruit peel waste beads (Sample B), utilizing eight fruit types: orange, sweet lime, lemon, pineapple, apple, chikoo, banana, and pomegranate. Batch experiments were conducted at metal concentrations of 50 ppm and 100 ppm over 24-hour and 48-hour durations, with pH analysis and spectrophotometric measurements employed to assess removal efficiency. The results indicated exceptional metal adsorption efficiencies, with powdered fruit peel waste achieving removal rates of up to 99.78% for Cu and 99.30% for Zn. Chikoo peel powder demonstrated the highest Zn adsorption (99.30% at 50 ppm), while alginate-encapsulated orange waste beads achieved 99.64% Cu removal at 50 ppm. pH variations suggested metal-specific interactions, with Cu generally lowering solution pH, while Zn exhibited varied pH responses across different fruit wastes. This study highlights the efficacy of fruit peel waste, particularly in powdered form, as a sustainable, cost-effective alternative for heavy metal remediation. The findings contribute to the advancement of green wastewater treatment technologies, emphasizing resource recovery and environmental sustainability. Further research into large-scale applications and process optimization is warranted to enhance practical implementation.

**Keywords: Fruit peel waste, Heavy metal adsorption, Alginate-encapsulated beads, Eco-friendly wastewater treatment, Sustainable remediation strategies**

# FORMULATION AND EVALUATION OF NATURAL LIP BALM AND BLUSH USING NATURAL PIGMENT FROM PLANT EXTRACTS

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**ABSTRACT :** The growing demand for natural and sustainable cosmetics has led to increased interest in plant-based colorants for cosmetic formulations. This study focuses on the formulation and evaluation of a natural lip balm and blush using petroleum jelly as a base, incorporating natural pigments extracted from *Beta vulgaris* (beetroot) and *Punica granatum* (pomegranate). These plant extracts are rich in betalains and anthocyanins, which provide vibrant coloration along with antioxidant benefits. For the blush formulation, a gel-based product was developed using aloe vera gel and glycerin as the primary base. The physicochemical properties of the formulations, including pH, spreadability, and stability, were evaluated under different storage conditions. Sensory evaluation was conducted to assess color payoff, texture, and user acceptance. The formulations were prepared using petroleum jelly as the primary base, supplemented with essential oils (coconut oil, almond oil) to enhance texture and moisturization. The plant pigments were extracted using a solvent-based method and incorporated at optimized concentrations to achieve desirable color intensity, stability, and safety. The natural colorants exhibited good stability without significant degradation over time. The formulations were well-accepted by users, indicating their potential as safe and effective alternatives to synthetic cosmetics.

**Keywords:** Natural lip balm, Natural blush, Petroleum jelly, Plant pigment

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## PRODUCTION OF BIOZYME: A SUSTAINABLE APPROACH AS FLOOR CLEANER

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**ABSTRACT :** Biozymes, biologically derived enzymes, are increasingly sought after for their eco-friendly and efficient applications as floor cleaner. This study focuses on the production of biozymes, exploring the potential of organic waste to produce biozyme, where yeast along with vinegar and jaggery were used for the fermentation process. We investigate the optimization of fermentation conditions, such as temperature, pH, and nutrient supplementation, to enhance biozyme production. Our results demonstrate the feasibility of biozyme production, highlighting its potential as a sustainable alternative to traditional chemical-based processes and checking the phytochemicals in it which have a potential of killing microbes. The produced biozymes exhibit promising characteristics such as antibacterial activity on various organisms on the surface of the work area and give a good citrusy fragrance after cleaning. The constituents of biozyme produced were also separated by TLC. The insect repellent property of this is to be checked. This research contributes to the development of a more environment friendly and efficient biozyme which will act as an alternative for chemical based floor cleaners.

**Keywords:** Biozyme, organic waste, sustainable, floor cleaner.

# SYNTHESIS OF AG-DOPED ZINC OXIDE NANOPARTICLES USING LEMON JUICE.

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**ABSTRACT:** This project focuses on the synthesis of silver-doped zinc oxide (Ag-ZnO) nanoparticles using lemon juice as a green reducing agent. The approach involves the chemical reaction between zinc salt and silver nitrate in the presence of lemon juice, which acts to reduce silver ions and stabilize the nanoparticles. The synthesized Ag-ZnO nanoparticles are characterized by various techniques like UV-Vis spectroscopy, X-ray diffraction (XRD), and scanning electron microscopy (SEM) to study their size, morphology, and optical properties. This green synthesis method offers an eco-friendly alternative to conventional chemical approaches and holds potential for applications in photocatalysis, antibacterial activities, and sensors.

**Keywords:** Green synthesis, Lemon juice, Eco-friendly synthesis, Antibacterial activity, Green chemistry

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## GREEN SYNTHESIS OF SILVER NANOPARTICLES USING NEEM LEAVES AND TULSI LEAVES

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**ABSTRACT:** Green synthesis of silver nanoparticles using neem and Tulsi leaves offers an eco-friendly and cost-effective alternative to conventional methods. The phytochemicals present in these plant extracts act as natural reducing and stabilizing agents, eliminating the need for toxic chemicals. This method not only simplifies the synthesis process but also enhances biocompatibility, making the nanoparticles suitable for various biomedical and environmental applications. The synthesized AgNPs exhibit promising antimicrobial activity, showcasing the potential of plant-based nanotechnology.

**Keywords:** Green synthesis, silver nanoparticles, neem, Tulsi, eco-friendly, bio-reduction, antimicrobial.

# SYNTHESIS OF IRON OXIDE NANOPARTICLES USING AMMONIUM HYDROXIDE

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**Abstract:** The synthesis of iron oxide nanoparticles (Fe<sub>3</sub>O<sub>4</sub>) has garnered significant attention due to their unique magnetic, catalytic, and biomedical properties. In this study, we present a simple and efficient method for synthesizing iron oxide nanoparticles using ammonium hydroxide (NH<sub>4</sub>OH) as a precipitating agent. The process involves the controlled addition of ammonium hydroxide to an iron salt solution (FeCl<sub>3</sub>) under mild conditions, resulting in the formation of magnetite nanoparticles. The size, morphology, and crystallinity of the synthesized nanoparticles were characterized by techniques such as transmission electron microscopy (TEM), X-ray diffraction (XRD), and Fourier-transform infrared spectroscopy (FTIR). The influence of varying concentrations of ammonium hydroxide on the particle size and distribution was systematically investigated. Our results demonstrated that ammonium hydroxide plays a critical role in controlling the particle size and uniformity, with optimal conditions leading to the production of nanoparticles with a narrow size distribution and high stability. This approach provides a cost-effective and scalable method for synthesizing high-quality iron oxide nanoparticles, which can be applied in various fields, including environmental remediation, magnetic resonance imaging, and drug delivery.

**Keywords:** Iron oxide nanoparticles, ammonium hydroxide, synthesis, magnetite, characterization, particle size, biomedical applications.

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## SYNTHESIS OF ZINC OXIDE BY USING ALOE VERA LEAF EXTRACT, A GREEN APPROACH.

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**Abstract:** Several chemical and biological methods are reported for synthesis of Zinc oxide. Zinc oxide was successfully synthesized by using starting material Zinc acetate Zn (CH<sub>3</sub>CO<sub>2</sub>)<sub>2</sub>, Aloe Vera leaf extract prepared in distilled water. 5% Zinc acetate solution prepared in distilled water, Stepwise addition of Zinc acetate solution in Aloe Vera leaf extract was done under stirring, pH of reaction solution was adjusted to 10 to 11 by using 25% Ammonia solution. After completion of addition, resultant reaction mixture kept for ultra-sonication for further completion of reaction 5 hrs with intermittent mixing. White precipitate indicates formation of Zinc oxide. Resultant reaction mass was heated at 75°C for 3 under stirring. Resultant mixture was filtered and dried in hot air oven at 150°C for 5hrs. Resultant material was kept in muffle furnace at 650°C for 6 hrs in platinum crucible for 6 hrs with intermittent mixing to remove organic impurities. Further Zinc Oxide material was packed for characterisation by using IR, XRD, SEM, TEM etc. Further characterised Zinc Oxide material will be used for catalytic activity in chemical reaction.

**Keywords:** Green synthesis, Zinc oxide, Ultrasonic biological synthesis.

# SUSTAINABLE BIOPLASTIC FILM DEVELOPMENT FROM BANANA PEEL AND CORN STARCH

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**ABSTRACT:** This study focuses on developing a biodegradable bioplastic film using banana peel and corn starch as primary materials. The banana peel provides a rich source of cellulose, while corn starch contributes to the film's strength and flexibility. The materials were blended with natural plasticizers, heated, and molded into films. Biofilms are environmentally friendly as they can naturally filter pollutants, promote nutrient cycling, and support sustainable waste treatment processes in ecosystems. This approach not only reduces waste but also promotes the use of agricultural by-products. The bioplastic film was characterized by analytical techniques such as TGA, DSC, FTIR, Load test.

**Keywords:** Bioplastic, Banana peel, Corn starch, Agriculture waste, Eco-friendly plastics, Renewable resources.

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## AEGLE MARMELOS FRUIT ASH AS A HETEROGENOUS CATALYST IN THE SYNTHESIS OF N-BENZYLIDENEANILINE

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**ABSTRACT:** Aegle marmelos, a fruit-bearing plant has been traditionally used in medicine and folk remedies, with the ash derived from its fruit exhibiting potential catalytic properties. The catalytic activity of Bael fruit ash in promoting the condensation reaction between aniline and benzaldehyde was conducted under mild reaction conditions. The results indicate that Aegle marmelos fruit ash provides a sustainable, eco-friendly catalyst that enhances the yield and reaction efficiency compared to conventional acidic or metal-based catalysts. This study highlights the potential of agricultural waste products as green catalysts in organic synthesis, offering a cost-effective and environmentally benign alternative to traditional methods. The ash was characterized by using FTIR Technique.

**Keywords:** Aegle marmelos (Bael Fruit) ash, N-Benzylideneaniline, condensation reaction, heterogenous catalysis

# EXTRACTION OF ESSENTIAL OIL AND FORMULATION OF NATURAL HERBAL PERFUMES.

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**Abstract** - The art of crafting herbal perfumes has gained significant popularity due to the growing demand for natural and sustainable fragrance alternatives. Aromatherapy, which has been used for ages to treat stress and depression, plays a key role in this trend. Natural perfumes serve as alternatives to synthetic perfumes, incorporating the benefits of herbs. Essential oils are extracted from lemongrass (*Cymbopogon citratus*) and butterfly pea flowers (*Clitoria ternatea*), combined with ginger and mint, respectively, to create unique fragrance blends.

**Key words :** perfumes, Essential oils ,herbs

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## STATISTICAL ANALYSIS OF AQI

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**ABSTRACT:** Air quality index (AQI) is commonly used to report the level of severity of air pollution to public. India adopted a methodology in 2014 and started to release AQI daily bulletins from 2015. In this working paper, I summarized the data released between 2022 and 2023. Temperature, humidity, wind speed such factors are used to find association between them and AQI. Most of these factors are showing negative correlation between them. In three waves of COVID-19 pandemic AQI was at good level. After that again AQI fell down. Also due to many festivals, factories and increase in use of private vehicles AQI increases which affects human health too. In this paper I predicted some future values which may help to reduce AQI level.

**Key words:** AQI, correlation, time series, predicted value

# PRODUCTION OF BIOETHANOL FROM COCONUT HUSK AND SOYABEAN POWDER

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**ABSTRACT:** This study explores a sustainable approach to bio-ethanol production using coconut husk and soybean powder, two underutilized agricultural residues. It addresses the dual challenges of increasing energy demand and environmental degradation by providing an eco-friendly alternative to traditional fossil fuels. Utilizing these feed stocks for ethanol production not only diversifies biofuel sources but also adheres to zero-waste principles by creating valuable by-products like bio-paper and organic soap.

Ethanol, widely used in the fuel, cosmetic, and pharmaceutical industries, is considered a clean and renewable energy source. Its combustion produces significantly fewer greenhouse gas emissions compared to fossil fuels, earning it the label “fuel of the future.” However, most ethanol is currently derived from sugarcane, which has environmental limitations. Coconut husks, often discarded as waste, and soybean powder, which includes a significant portion lost during post-harvest handling, provide viable alternatives. Harnessing these materials supports rural development and addresses urban waste management issues by repurposing materials that would otherwise contribute to pollution. This study validates the potential of coconut husk and soybean powder as sustainable feed stocks for bio-ethanol production.

**Keywords :** biofuel, waste management, soybean powder, coconut husk, sustainable development

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## BIOINSECTICIDAL POTENTIAL OF JASMINUM GRANDIFLORUM LEAVES EXTRACT AGAINST SITOPHILUS ORYZAE L. (COLEOPTERA: CURCULIONIDAE) IN STORED WHEAT GRAINS

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**ABSTRACT :** The insecticidal potential of *Jasminum grandiflorum* leaf extract against rice weevil, *Sitophilus oryzae* were tested in the laboratory condition. It was observed that Soxhlet-extracted extracts of *J. grandiflorum* leaves in ethanol were very effective to control the pest. The bioinsecticidal effects of the extract are compared by calculating LD10, LD50, LD90, and LD99 values for 96 hrs. by Probit analysis. These results clearly suggest that the *J. grandiflorum* leaf extract may be used in grain storage against insect pests after proper dose formulation to prevent infestation.

**Keywords:** *Sitophilus oryzae*, *Jasminum grandiflorum*, Soxhlet, biopesticide, stored grains, infestation, mortality.

# CREATION OF BIO-MANURE USING DIVERSE CATTLE WASTE AND COCONUT HUSK AND THUS ASSESSMENT ON FENUGREEK CULTIVATION

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**ABSTRACT:** Biomanure, derived from cattle wastes, is pivotal in advancing sustainable agriculture in India. Biomanure made from cattle waste and coconut husk as a binding component on various crops, ensuring its benefits extend beyond fenugreek. This biomanure enhances soil fertility, supports plant growth, and reduces reliance on chemical fertilizers. The results show improved soil conditions, rapid germination, and healthier fenugreek plants. Environmentally, biomanure reduces waste, prevents pollution, and improves soil health. Societally, it supports organic farming, improves food quality.

**Keywords:** Biomanure, cattle waste, coconut husk, plant growth, soil condition.

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## A STUDY ON THE DIVERSITY OF MARINE BIVALVES ALONG ANJARLE COAST, DAPOLI.

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**Abstract :** Marine bivalves occupy the intertidal zones and play a pivotal role in the transient tidal ecosystems. Bivalves have been used as food, ornaments and artifacts. Apart from that they are known for their bioaccumulation potential. Konkan coastline is approximately 720 km long. Anjarle coast near Dapoli covers approximately 6.9 km area encompassing of 4 beaches such as Anjarle beach, Savne beach, Padale beach and Aade beach. These were the study area for a period ranging from January 2024 to August 2024. 20 species of bivalves belonging to 09 different families were recorded. Further, anthropogenic activities were also observed on these beaches which affects the diversity of bivalves. Bivalves being filter-feeders, with resistance to variable environmental conditions and the ability to accumulate multiple types of substances from the environment are bioindicators for environmental pollutants.

**Keywords:** Intertidal zone, Bivalve, Anjarle coast, bio-indicator

## USING BUDDHA'S WISDOM TO PROTECT NATURE: SUPPORT OF ENVIRONMENTAL AND NATURE STUDIES

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**Abstract:** This literature-based study explores the symbolic meaning that plants and flowers have in Buddhism to encourage people to become more conscious, moral behaviour and enlightenment. A comprehensive literature review and field observation revealed twelve sacred plants including the Asoka tree, Bodhi tree, Banyan tree, Fig tree, Lotus, Sal tree, Jamun tree, Sandalwood, Bamboo, Jasmine, Mango and Neem tree. It celebrates various elements of Buddhist philosophy, including insight, intelligence, compassion and selflessness in the human and natural world.

**Keywords-***Sacred plants, Buddha, Philosophy, enlightenment, conservation*

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## PRODUCTION OF BIODIESEL USING TWO MICROALGAL CONSORTIUMS WITH DIFFERING CYANOBACTERIAL AND MICROALGAL LOAD

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**Abstract :** Fossil fuel emissions contribute significantly to pollution and global warming, highlighting the environmental consequences of human activities. Biodiesel, with a lower carbon footprint than fossil fuels, presents a sustainable alternative. Since the 1990s, microalgal lipids have been explored for biodiesel production, with recent efforts focusing on enhancing yields through consortia-based approaches rather than single-species cultures. This study utilized two separate consortia: one enriched using Chlorella Broth (System 1) and another enriched using BG11 Broth (System 2). These media were selected to maximize lipid production. Aeration was provided through aerators ensuring optimal growth condition, i.e., oxygen supply and these systems were set in fishbowls.

For biodiesel extraction, a simplified and efficient method was employed, avoiding labour-intensive protocols like Folch or Bligh-Dyer extraction. Hexane effectively extracted neutral lipids from dried algal biomass, while Methanol and NaOH catalysed their conversion into biodiesel. Distilled water was used for purification, and vortexing facilitated homogenization. The obtained biodiesel was tested for flammability using a flame test, yielding a positive result. This study demonstrates the potential of microalgal consortia for enhanced biodiesel production, offering an efficient alternative to traditional methods and advancing sustainable energy solutions

**Keywords:** *Algal Consortium, Biodiesel, FAMES, Hexane, Transesterification.*

# FROM SPENT GRAIN TO ANIMAL FEED: A STEP TOWARDS ZERO-WASTE BAKERY PRODUCTS

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**Abstract :** Spent grain, a byproduct of the brewing industry, poses a significant waste management challenge despite its high nutritional value. Rich in protein and essential minerals, it holds great potential as a sustainable ingredient for food products. This study explores the development of cookies using spent grain to create a nutritious and eco-friendly animal feed. The process involved drying and milling the spent grain into flour, which was then blended with traditional baking ingredients to formulate cookies. Sensory evaluations and nutritional analysis revealed that the spent grain cookies had improved texture and a unique taste profile.

The study also explored the carbohydrate and protein content of the cookies by quantitative methods. These findings highlight the potential of spent grain as a functional ingredient, reducing waste while offering a health-conscious product. From an entrepreneurial perspective, upcycling spent grain into value-added food products presents a promising business opportunity in the sustainable food industry.

**Keywords:** Spent grain cookies, Dietary fibre, Sustainable food business.

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## STUDY OF OLIGODYNAMIC ACTION OF DIFFERENT METALS ON MICROORGANISMS ISOLATED FROM WATER SAMPLES COLLECTED FROM WATER SAMPLES FROM LOCAL AREA, PUBLIC PLACES & TANKER WATER IN THE MUMBAI.

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**Abstract :** Water contamination is a growing concern, occurring due to industrial waste, pipeline corrosion, and leakage. Testing water quality is crucial to ensure its safety for consumption. This study aimed to evaluate the oligodynamic action of metals like copper, brass, steel, and aluminium on microorganisms isolated from water samples collected from local areas, public places, and tanker water in Mumbai, including Mumbai Central railway stations. Oligodynamic action refers to the ability of small amounts of heavy metals to exert a lethal effect on bacterial cells. Traditionally, metal pots have been used to store drinking water for safety. To investigate this effect, water samples were tested using various media, including standard nutrient agar, MacConkey's broth, BGLB broth, triple sugar iron broth, tryptone water, Simmons' citrate agar, and glucose phosphate medium. The study revealed that copper exhibited the highest inhibition against both Gram-positive and Gram-negative bacteria, followed by brass. In contrast, steel and aluminium showed no significant oligodynamic action. These findings suggest that copper and brass can effectively reduce bacterial contamination in water and may be suitable for further research on their antimicrobial properties

# GEOENGINEERING: LEVERAGING TECHNOLOGY TO RESTORE ECOSYSTEM

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**Abstract :** Geoengineering, encompassing a range of technological interventions, is increasingly explored as a potential approach to mitigate climate change impacts on ecosystems. This research investigates the efficacy of integrating advanced technologies, including artificial intelligence (AI), Internet of Things (IoT) sensors, and renewable energy systems, into ecosystem restoration projects. We examine specific applications such as AI-driven species selection for reforestation, IoT-based real-time ecosystem monitoring, and the role of renewable energy in powering sustainable restoration efforts. Our findings highlight the potential of these integrated technological approaches to enhance restoration outcomes, improve ecosystem resilience, and contribute to broader climate change mitigation strategies.

**Keywords:** Carbon Capture and Storage (CCS), Solar Radiation Management (SRM), Afforestation & Reforestation, IoT in Environment, Big Data Analytics, Environmental Monitoring, Green Technology, Climate Mitigation, Carbon Sequestration.

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## GENETIC ENGINEERING BOON OR CURSE

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**Abstract :** Although genetic engineering is beneficial, especially in medicine and agriculture, it raises important issues. Risk of health complications due to unknowingly altered genes alongside the disruption of the ecological balance is a concern as well as the fact that GMOs can compromise biodiversity. There are also other ethical concerns such as socio-economic inequalities or the possibility of “designer babies.” In addition, the monopolization of genetic technologies questions the sovereignty of food and further diminishes the rights of small-scale farmers. This study analyzes these problems while applying more stringent regulations and moral judgement in the use of genetic engineering technologies.

**Keywords:** Ethical Dilemma, Cloning, Human Genome Editing, Designer Babies, Biodiversity Impact, Bioethics, Human and Animal Rights, Epigenetics, Synthetic Biology, Soil and Water Contamination, Genetic Discrimination

# GREEN INFRASTRUCTURE SUSTAINABLE WAY TOWARDS DEVELOPMENT

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**Abstract :** Green infrastructure offers sustainable solutions to mitigate the environmental harm caused by conventional infrastructure. This study explores nature-based approaches like green roofs, permeable pavements, and urban forests, enhanced by AI-driven planning and IoT-based monitoring. Our findings highlight how these strategies improve air and water quality, enhance climate resilience, and promote sustainable urban development. Additionally, we examine the role of renewable energy in powering green infrastructure and reducing carbon footprints. Case studies demonstrate successful implementations in urban areas, showcasing their scalability and long-term benefits. This research underscores the necessity of integrating technology with ecological solutions for a resilient future.

**Keywords:** Stormwater Management, Carbon Sequestration, Green Spaces, Urban Heat Island Mitigation, Sustainable Land Use, Water Management, Ecological Footprint, Green Roofs and Wall, Permeable Pavements.

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## ENVIRONMENTAL ASPECTS OF IOT IN AGRICULTURE SECTOR

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**Abstract :** The Internet of Things (IoT) has the potential to revolutionize the agriculture sector by offering solutions for precision farming, resource optimization, and crop monitoring. However, the integration of IoT into agriculture also presents several challenges and disadvantages. These include high implementation costs, the need for advanced technical skills, and concerns related to data privacy and security. Additionally, the reliance on network connectivity can be problematic in remote or rural areas with limited infrastructure. IoT devices are also vulnerable to malfunctions, leading to potential risks in monitoring and decision-making. Environmental concerns, such as the disposal of IoT hardware, and the risk of technological dependency, are also important factors to consider. This paper explores these disadvantages in detail, highlighting the limitations that must be addressed to fully realize the benefits of IoT in agriculture while mitigating potential drawbacks.

**Keywords:** Limited infrastructure, Maintenance challenges, High implementation cost, Connectivity issues, Data overload, System failures, Limited technical expertise, Energy consumption.

## AIR CONSERVATION

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**Abstract:** Air pollution poses significant threats to environmental sustainability and human health. This research explores the potential of innovative technologies to mitigate air pollution and promote conservation. We investigate the integration of advanced technologies, including artificial intelligence (AI), Internet of Things (IoT) sensors, and green building materials, into air conservation strategies. Our analysis focuses on specific applications such as AI-driven air quality prediction, IoT-based real-time pollution monitoring, and the role of green building materials in reducing indoor air pollution. Our findings highlight the efficacy of these technological interventions in improving air quality, enhancing public health, and contributing to broader environmental sustainability goals.

**Keywords:** Air Pollution, Air Conservation, Artificial Intelligence (AI), Internet of Things (IoT), Air Quality Monitoring, Green Building Materials, Environmental Sustainability, Public Health

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## WASTE MANAGEMENT

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**Abstract:** The advent of technology has revolutionized waste management practices, transforming traditional methods into more efficient, sustainable, and advanced processes. The integration of IoT, cloud computing, data analytics, and AI has led to significant improvements in how waste is collected, processed, and disposed of, addressing numerous challenges faced by conventional waste management systems. IoT-enabled smart bins equipped with sensors monitor waste levels in real-time. Data from these sensors is transmitted to a central system, allowing for dynamic scheduling and optimized collection routes. AI and robotic systems automate the sorting process, identifying and separating different types of waste materials with high precision. This increases recycling rates, reduces contamination, and improves the quality of recyclables. The integration of technology into waste management has brought about significant changes, making the process more efficient, sustainable, and environmentally friendly.

**Keywords:** Smart bins, Real time monitoring, Communicating Module, Advance recycling technology, Waste Segregation, Sustainability, Sensors, Environmental Monitoring, Proper E-waste disposal.

# IT AND THE OCEAN - TECH TO PROTECT MARINE BIODIVERSITY

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**Abstract :** The relationship between information technology (IT) and ocean conservation is a rapidly evolving field that integrates marine science, environmental sustainability, and digital innovation. As marine ecosystems face significant threats from climate change, pollution, and unsustainable practices, IT emerges as a crucial ally in safeguarding biodiversity. Advancements in artificial intelligence, big data analytics, remote sensing, satellite imagery, and autonomous underwater vehicles enable real-time monitoring of ocean health and the prediction of climate change impacts. These technologies facilitate the tracking of endangered species, assessment of coral reef conditions, and detection of illegal fishing activities, enhancing disaster response and conservation efforts. By exploring the intersection of IT and oceanic studies, this paper highlights how digital tools not only improve our understanding of marine ecosystems but also promote sustainable resource management. Leveraging IT in ocean conservation strategies allows humanity to better protect and utilize the vast potential of the ocean while mitigating environmental risks, ultimately contributing to the long-term preservation of marine biodiversity.

**Keywords:** Smart Monitoring & Surveillance(AI, IoT, Remote Sensing), Big Data Analytics for Marine Biodiversity, Underwater Drones, Deep-Sea Observation Tech, Satellite-Based Illegal Fishing Detection, Startups Revolutionizing Ocean Conservation.

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## TECH-DRIVEN CARBON CAPTURE AND STORAGE

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**Abstract :** Tech-driven Carbon Capture and Storage (CCS) is transforming the approach to reducing carbon emissions through advanced technologies such as cryogenic separation, AI and machine learning (ML) optimization, and direct air capture (DAC). Cryogenic separation employs ultra-low temperatures to selectively isolate and capture CO<sub>2</sub> with high efficiency, making it suitable for industrial-scale applications. AI and ML-driven optimization enhances CCS by improving process efficiency, predicting capture performance, and minimizing energy consumption through real-time monitoring and adaptive control systems. Additionally, DAC technology extracts CO<sub>2</sub> directly from ambient air, offering a scalable solution for negative emissions. The integration of these advanced methodologies strengthens CCS as a vital tool in achieving global carbon neutrality and supporting a sustainable future.

**Keywords:** Carbon Capture and Storage (CCS), Cryogenic Separation, Artificial Intelligence (AI), Machine Learning (ML), Direct Air Capture (DAC), Carbon Neutrality, CO<sub>2</sub> Emissions Reduction, Sustainable Future.

# TECHNOLOGY TRANSFORMING FOOD INDUSTRY

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**Abstract:** Traditional methods in food industry struggle to meet growing global demand including in efficient supply chains, food safety risks, high resource consumption, and environmental impact while ensuring sustainability and quality. This explores technological advancements such as AI, Big Data, automation, robotics, and IoT in revolutionizing food production. Precision agriculture optimizes yields, 3D food printing enables customization, and IoT-based monitoring enhances food safety. Blockchain ensures transparency, while automation reduces waste and improves efficiency. By integrating these technologies, the food industry can become more sustainable, efficient, and consumer-focused. Our research aims to analyze their impact and future potential in transforming food production.

**Keywords:** Waste reduction, Precision agriculture, Supply chains, Food safety risks, Quality, Automation, Robotics, Distribution, 3D printing

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## FOOD TECHNOLOGY TRENDS

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**Abstract:** Food technology trends reflect a significant shift towards sustainability, health, and innovation. Key trends include the rise of plant-based foods and lab-grown meats, which address ethical consumption and environmental concerns. Personalized nutrition, driven by AI, allows for tailored dietary solutions. Sustainability practices are being implemented through waste reduction and eco-friendly packaging. Innovations in food safety, such as blockchain technology, enhance traceability. Additionally, vertical farming and smart cooking solutions are transforming food production and preparation. Overall, these trends signify a move towards a more sustainable, health-focused, and technology-driven food landscape.

**Keywords:** Food Safety Precision, Agriculture Personalized Nutrition, Supply Chain Efficiency, Smart Kitchens, Sustainability, Food Delivery Robots, Smart Food Packaging.

## WATER ECOSYSTEM WITH TECHNOLOGY

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**Abstract:** The water ecosystem includes various water bodies and their biological and abiotic components. Technology like IoT, GIS, AI, and remote sensing helps monitor water quality, detect pollution, and optimize resources. Advanced purification, desalination, and recycling techniques support sustainable water management. Automation and data analytics enhance decision-making for ecosystem protection. Integrating technology with water ecosystems ensures efficient resource use, reduced environmental impact, and long-term sustainability. AI-Powered Water Management for real-time contamination detection. Smart Desalination Plants to provide clean drinking water. Blockchain in Water Resource Management to ensure transparency. Eco-friendly Nanotechnology Filters for efficient water purification. Community Awareness Campaigns for responsible water usage.

**Keywords:** IoT & GIS, AI & Remote Sensing, Water Quality Monitoring, Pollution Detection, Purification & Desalination, Water Recycling, Automation & Data Analytics, Smart Desalination Plants, Nanotechnology Filters, Responsible Water Usage.

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## RENEWABLE ENERGY

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**Abstract:** Renewable energy is a pivotal topic in contemporary discussions about sustainability and environmental conservation. It encompasses energy sources that are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat. This abstract explores the significance, types, benefits, and challenges of renewable energy. The adoption of renewable energy is crucial for reducing greenhouse gas emissions, decreasing dependency on fossil fuels, and mitigating the impacts of climate change. Various forms of renewable energy, including solar, wind, hydroelectric, biomass, and geothermal, offer diverse options for energy generation. Each type presents unique advantages and challenges, requiring innovative technologies and policies to enhance their efficiency and accessibility. While the shift towards renewable energy involves initial high costs and technological advancements, the long-term benefits—such as sustainability, energy security, and economic growth—underscore its importance. This abstract aims to provide a comprehensive overview of the current state and future prospects of renewable energy, highlighting its role in achieving a sustainable and resilient energy system.

**Keywords:** Renewable Energy, Sustainability, Greenhouse Gas Emissions, Solar Energy, Wind Energy, Energy Security, Climate Change Mitigation, Energy Transition.

## USING BUDDHA'S WISDOM TO PROTECT NATURE: SUPPORT OF ENVIRONMENTAL AND NATURE STUDIES

**Ritika Yadav, Yash Menkundale, Aditya Bhand, Sejal Kedare, Dinesh Chauhan, Shradha Jadhav, Bhalchandra Mandlekar# , Sudhir Bhosale, Bipin Dhumale\$ and V M Jamdhade**

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**Abstract:** This literature-based study explores the symbolic meaning that plants and flowers have in Buddhism to encourage people to become more conscious, moral behaviour and enlightenment. A comprehensive literature review and field observation revealed twelve sacred plants including the Asoka tree, Bodhi tree, Banyan tree, Fig tree, Lotus, Sal tree, Jamun tree, Sandalwood, Bamboo, Jasmine, Mango and Neem tree. It celebrates various elements of Buddhist philosophy, including insight, intelligence, compassion and selflessness in the human and natural world.

**Keywords :** *Sacred plants, Buddha, Philosophy, enlightenment, conservation*

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## STUDY ON TRADITIONAL WORSHIPPING PLANTS IN HINDU RELIGION FROM THANE URBAN OF MAHARASHTRA

**Adarsh Tribhivan, Krishna Chauhan, Simran Rajbhar, Khushi Bhardwaj, Krishnam pandey, Harshali waghmare, Bhalchandra Mandlekar\* , Sudhir Bhosale\*\* and V M Jamdhade**

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**Abstract:** A field study was conducted between 2023 and 2024. This study presents the significance of plant species in Hindu practices and traditions associated with Thane, Maharashtra. A review of literature and field research was included to identify 20 plant species from 13 families used in various religious rituals dedicated to the gods, be used. These plants are traditionally offered to believers in the form of leaves, flowers, fruits, stems and seeds with the expectation that they will receive respect, prosperity and general well-being. The deep connection between nature and divinity characteristics Hinduism. Based on the considerations presented above, the study examines plants' importance in Socio-economic, cultural and environmental protection issues. It therefore becomes crucial for spiritual practices, biodiversity protection and community tradition.

**Keywords:** *Sacred Plants, God, Goddess, Deity, Spiritua*

# STUDENTS PREFERENCE FOR ECO-FRIENDLY ASSOCIATIONS: A SURVEY ON GREEN DATING

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**Abstract:** The study that follows focuses on the concept of green dating, which is an environmentally responsible approach to passionate relationships in which both relationships are concerned about ecological concerns. A survey was done among 150 undergraduate students at the V.P.M.'S B.N. Bandodkar College of Science, (Autonomous) Thane to measure their knowledge and interest in green dating. The findings show that more than 70% of students are aware of green dating and prefer green dating activities, particularly outdoor activities and eco-friendly acts such as volunteering or sustainable the exchange of gifts. The assessment highlights the increasing number of sustainable relationships. A higher percentage of students find themselves looking for partners to ensure sustainability relevance. The findings provided above seem to show an increasing movement among students for incorporating ecological responsibility into relationships with one another, which has the potential to make a beneficial contribution to environmental consciousness and social bonds.

**Keywords :** Green dating, environment, ecology, green purchasing

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## PD(OAC)<sub>2</sub> IN WEPA: A NOVEL GREEN PROTOCOL FOR SUZUKI-MIYAURA COUPLING REACTION AT ROOM TEMPERATURE

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**Abstract:** A highly efficient bio-derived sustainable alkaline medium for palladium acetate catalyzed ligand-free Suzuki-Miyaura cross-coupling reaction in water extract of pomegranate ash (WEPA) has been developed for the cross-coupling reaction at room temperature in the air under ligand-free condition. The pomegranate ash was characterized by FT-IR, SEM, XRD, TGA-DTA, EDX, flame photometry techniques. The characterization report of ash shows that the presence of potassium, sodium, and calcium oxide which is possible in aqueous medium produces corresponding hydroxide in situ, whose synergetic effect is responsible for the basicity. This WEPA as a base was highly effective for ligand-free Pd (OAc)<sub>2</sub> catalyzed Suzuki-Miyaura cross-coupling reaction. The catalytic system could be easily recycled at least five times with loss of catalytic activity after 4<sup>th</sup> cycle. All resulting compounds were characterized by <sup>1</sup>H and <sup>13</sup>C NMR spectra.

**Keywords:** Pomegranate peels ash, Suzuki- Miyaura cross coupling, Natural solvent

# **A REVIEW STUDY ON ANIMAL ABUSE AND CRUELTY BASED ON DATA PROCURED FROM THANE CITY.**

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VPM's B. N. Bandodkar College of Science, Thane

**Abstract :** The present study addresses the challenges of defining and assessing animal abuse, the relation between animal abuse and cruelty. The implication of these findings is for programs to enhance human and animal welfare. The study is directed on the expanding horizon of on addressing the conflict of animal abuse. The data procured from the field observations, research studies, and NGO reports were analyzed to identify patterns of abuse, awareness programs, and wildlife conservation efforts. Government records and legal cases were also reviewed to measure enforcement effectiveness. The findings highlighted severe mistreatment of domestic animals, including stray dogs and working cattle. However, habitat destruction, poaching, and illegal trade affecting wildlife at large. Awareness programs and NGO initiatives have led to localized improvements up to certain extent. Whereas, a weak enforcement and lack of education still leads to cruelty of animals. The study reveals the urgent need for stronger legal enforcement, active community participation, and continuous awareness campaigns to reduce animal abuse and promote wildlife protection.

**Keywords:** Animal abuse, cruelty, legal cases, awareness

**VPM's B. N. Bandodkar College of Science, Thane**  
**Department of Botany**  
**Report of First preconference workshop of National Conference**  
**on**  
**“Eco Pulse: Monitoring Beats of Ecosystem”**  
**14<sup>th</sup> to 15<sup>th</sup> February 2025**

**Department of Botany of Vidya Prasarak Mandal's B. N. Bandodkar College of Science,(Autonomous) Thane** had organized first preconference workshop of **National Conference on “Eco Pulse: Monitoring Beats of Ecosystem ” on 14<sup>th</sup> to 15<sup>th</sup> February 2025** in collaboration with Thane Municipal Corporation, Thane.

Prior to National Conference, Dept. of Botany organized first Preconference Workshop on 28<sup>th</sup> November 2024. Total 236 students participated in this workshop.

Eminent Speaker, Dr. Hemant Karkhanis mesmerized all audience by giving new research ideas and his contribution towards conservation of nature.

Inauguration of the preconference workshop began with offering garland to the goddess the Sarswati . **Chief Guest Hon'ble Dr. Hemant Karkhanis** (Associate Manager- Godrej Mangroves), **Prof. Dr.Vinda Manjramkar (I/C Principal and Chief Convener)**, **Mr. Kale** (Vice-Principal,Un-aided Section), **Prof. V.M.Jamdhade (Convener and Head Department of Botany)** had graced Inauguration Function. In the beginning **Prof.Dr. Vinda Manjramkar**, welcomed all the delegates and narrated about the conceptualization of preconference workshop and she gave brief talk on environment friendly practices. Later **Dr. Urmila Kumavat** briefed about the.

**Prof. Dr. V. M. Jamdhade** explains briefly about the importance of the conference and various themes involved in it. He encouraged students and staff for doing research.

**Dr. Mandlekar**(Associate professor ,**Department of Physics**), guided students about how to present research paper in the conference. He gave presentation on the different research ideas which are suitable to conference theme.

**Chief Guest Dr. Hemant Karkhanis** focused on living a better life by following nature friendly ways such as minimizing use of plastic, pesticides, antibiotics, cosmetics, etc.

He guided students regarding how to write research paper. The audience appreciated his presentation which depicted the various photographs. He shared very interesting research topics for research in the field of mangrove conservation.

**Dr. Hemant Karkhanis** introduced Miss. Shambhavi Chavan, she is our M.Sc Biodiversity Wildlife Conservation and Management Student. She worked with Dr. Karkhanis sir on one research project as part of her curriculum. Her research project is based on finding new varieties of Ants from Mangrove ecosystem. She worked on the study life cycle of Ants. She gave an insightful presentation on her topic.

The day of preconference workshop was ended with the formal vote of thanks. It was given by Mr. Sudhir Bhosale (Head department of Foundation Course).

**Prof. Dr. V.M.Jamdhade**  
Convenor, Head Dept of Botany

### GEO TAGGED PHOTOS



**Report on Second Pre-conference Workshop  
of  
National Conference titled Ecopulse: Monitoring Beats of Ecosystem to be held on  
14<sup>th</sup> to 15<sup>th</sup> February 2025**

The second pre conference workshop of National Conference titled Ecopulse: Monitoring Beats of Ecosystem was organized by the Department of Botany on **25<sup>th</sup> January 2025 from 11.30 am to 2.00 pm**. This workshop received a huge response of **231 students and 13 teaching staff**. The programme began with the National Anthem which ignited a sense of patriotism and respect for the country's history, culture and values. It was then to proceed to 'Lighting of lamp' that signifies tribute towards 'Saraswati Mata - The Goddess of Knowledge'.

In this workshop, three guest speakers namely Mr. Abhijeet Kale (Vice Principal - Unaided Section, Incharge Department of IT-CS), Dr. Ashwini Tilak (Asst. Professor, Department of Biotechnology) and Ms. Purvi Shah (Asst. Professor, Department of Biotechnology) presented insightful information on various aspects of data analysis and presentation skills involved in research projects. They were felicitated by the hands of I/C Principal Prof. Dr. Vinda Manjramkar madam and Prof. Dr. V.M.Jamdhade Sir (Convenor and Head, Department of Botany). Later the welcome address was delivered by I/C Principal Manjramkar madam who is also functioning as Chief Convenor of the National Conference. She narrated about 'Vasant Panchami' and its relevance with nature's beauty and ecological conservation. During this festival we prefer to eat a calcium rich diet of young cobs of millet (Hurda of Jawar) to balance the needs of the human body. In her talk she also explained the concept of balance of body and nature by referring to beats of earth which are exhibited in the form of changing seasons of winter and summer. She told about how these beats are altered due to human interference and now it is inviting environmental issues. At the end, She appealed to all students to contribute to the National Conference in the form of research papers by aligning research projects with environmental conservation and sustainability.

After welcome address, the first session was of Mr. Kale Sir where he elaborated on 'Tools used in Research Project Data analysis' Ms. Mrunali Patil (TYBSc Botany) briefly introduced him to the audience. Sir gave an idea about collection of primary data and secondary data and processing of them using reliable tools. He discussed various types of research with suitable examples. He also described about simple tools such as Monkey Survey, Zotero, Endnote, Grammarly-Check and their use in case studies and surveys based projects.

The second session was conducted by Dr. Ashwini Tilak who delivered a thought provoking presentation on 'Data to Display: Crafting impactful scientific poster'. Ms. Afreen Shaikh (SYBSc Botany) introduced Tilak madam. Dr. Tilak shared in-depth knowledge on contents of research project to be included in poster format. She pin pointed every detail regarding sections of research project, viz., Introduction, materials, methods, results, conclusion, references and acknowledgment. Apart from content, she also emphasized on layout of poster with respect to colour combination, font type, word-count and overall appearance of research idea.

The third session was delivered by Ms. Purvi Shah who took further micro-management of earlier session's content. Ms. Afreen Shaikh (SYBSc Botany) briefly introduced her. Shah madam recommended adding content in different sections bullet-wise. She also emphasized on adding content in form of flow-charts and smart-art especially in methodology/ results. She advised the use of tools of MS-PPT, Canva, Adobe to develop eye-catching effects. She mentioned various Do's and Don't s in choosing background, color, contrast ratio, font-size, alignment of content in a slide. She finally gave valuable inputs on poster presentation techniques with respect to body language, dressing sense, time management and communication skills.

*All above mentioned sessions were full of novel ideas and thoroughly delivered by Guest Speakers with in-depth knowledge. This workshop was intended to raise the research aptitude and attitude among all budding researchers. The quality content of the workshop lead to develop 'out-of-box' thinking in students which would lead to work on innovative research ideas to provide sustainable solutions.*

After these Guest lectures, undergraduate and postgraduate students from different departments presented a few research projects and demonstrated excellent skills of research communication to the audience. The following are the details of presented research projects -

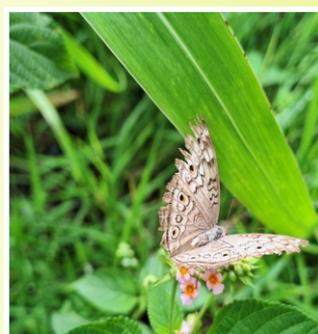
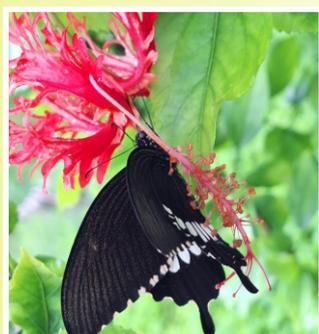
Sr. No.	Name of the Presenter	Title of Research Project	Name of Co-Authors and Guide	Department
1	Ms. Varsha D. Dubey	Exploring the bioremediation potential of chromium tolerant bacteria	Ashwini Tilak and Purvi Shah	Biotechnology
2	Ms. Siya M. Patil	Formulation and characterization of edible food packaging from fruit peels	Shravani Ghatkar and Shradha Pagare	Biochemistry
3	Ms. Pooja B. Kumavat	Utilization of fruit peel waste for eco-friendly removal of copper and zinc: comparative evaluation of powdered and encapsulated biosorbents	Asba Ansari	Environmental Science
4	Ms. Swapnali Korde	Bridging knowledge system: Integrating indigenous and scientific approaches for wild life conservation	Aditya Mhatre	Biodiversity-Wildlife Conservation & Management

The programme was concluded by Mr. Sudhir Bhosale Sir (Head, Dept of Foundation Course, Member-Advisory Board) who proposed Vote of Thanks. At the end, 'Pasaydan' was recited by Ms. Snehal Bhor (FYBSc Botany).

Prof. Dr. V.M.Jamdhade  
Convenor, Head Dept of Botany

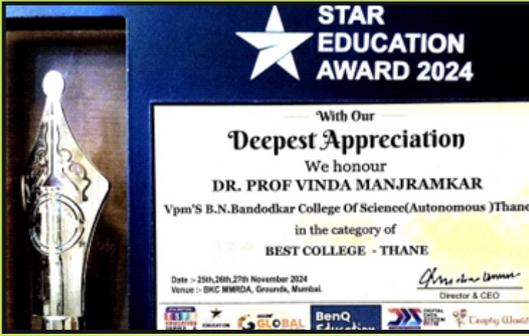
## GEO TAGGED PHOTOS





# VPM THANE FLORA AND FAUNA

Photographs by B.N.Bandodkar College, Students, Teaching and Non-Teaching Staff



**STAR EDUCATION AWARD**



**MEETING WITH PADMABHUSHAN DR. GADGIL  
KEYNOTE SPEAKER OF NATIONAL CONFERENCE**



**BNB REPRESENTED IN WORLD SUMMIT  
AT TAJ PRESIDENT, COLOBA**



**NCC BOYS AWARD**



**AVISHKAR UNIVERSITY ROUND WINNER**



**MAJHI VASUNDHARA AWARD**



**NSS SKIT BEACH CLEANING AWARD**



**JUNIOR COLLEGE AWARD FOR INNOVATION**



**Vidya Prasarak Mandal's  
B.N. BANDODKAR COLLEGE OF SCIENCE,  
(AUTONOMOUS), THANE**