

DPU

DR. D. Y. PATIL VIDYAPEETH (DPU), PIMPRI, PUNE

(Deemed to be University)

(Accredited (3rd Cycle) by NAAC with a CGPA of 3.64 on four point scale at 'A++' Grade)

(Declared as Category - I University by UGC Under Graded Autonomy Regulations, 2018)

ENVIRONMENTAL IMPACT



Environmental Research

**REPORT ON UNIVERSITY RESEARCH
CENTRE WITH FOCUS ON
ENVIRONMENTAL SUSTAINABILITY**

REPORT ON ENVIRONMENTAL RESEARCH CENTRE WITH EMPHASIS ON ENVIRONMENTAL SUSTAINABILITY

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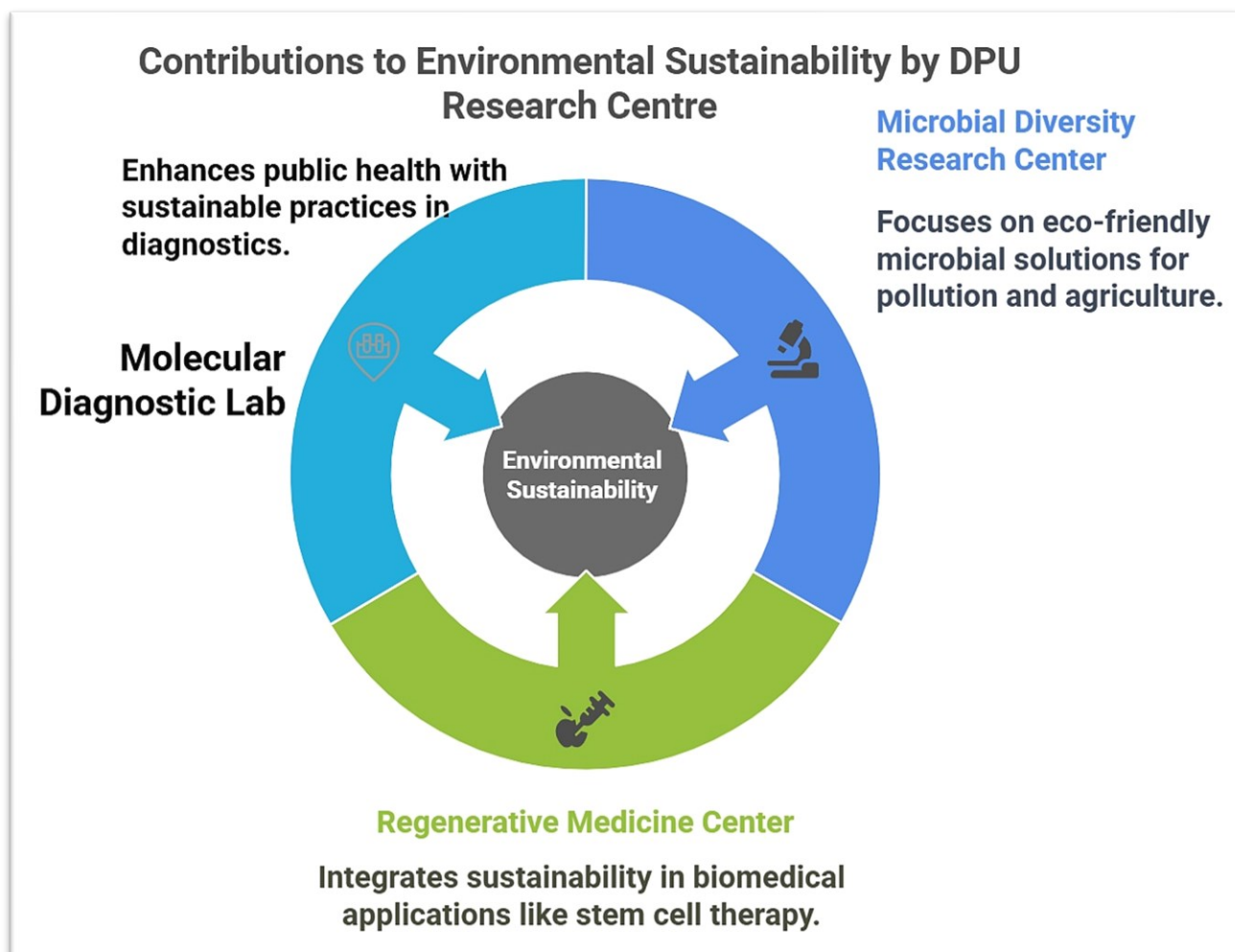
REPORT ON ENVIRONMENTAL RESEARCH CENTRE WITH EMPHASIS ON ENVIRONMENTAL SUSTAINABILITY

Dr. D Y Patil Vidyapeeth, Pimpri, Pune, is home to several cutting-edge research centers contributing to environmental sustainability. The Microbial Diversity Research Center explores eco-friendly microbial solutions for bioremediation, waste degradation, and sustainable agriculture. By harnessing beneficial microbes, this center advances pollution control and ecosystem restoration.

The Regenerative Medicine Center focuses on innovative biomedical applications while integrating sustainability principles. Research on stem cell therapy, tissue engineering, and biomaterial development incorporates green chemistry approaches, reducing environmental impact in healthcare innovations.

The Molecular Diagnostic Lab plays a vital role in disease surveillance, early detection, and personalized medicine. Its research enhances public health while minimizing the environmental burden of medical waste through precise diagnostics and sustainable laboratory practices.

Together, these centers foster interdisciplinary research, technological advancements, and eco-conscious solutions. By promoting sustainable scientific practices, they contribute to environmental conservation, resource efficiency, and long-term ecological balance, aligning with global sustainability goals. Dr. D Y Patil Vidyapeeth remains committed to pioneering research that bridges healthcare, biotechnology, and environmental stewardship for a more sustainable future.



REPORT ON ENVIRONMENTAL RESEARCH CENTRE WITH EMPHASIS ON ENVIRONMENTAL SUSTAINABILITY

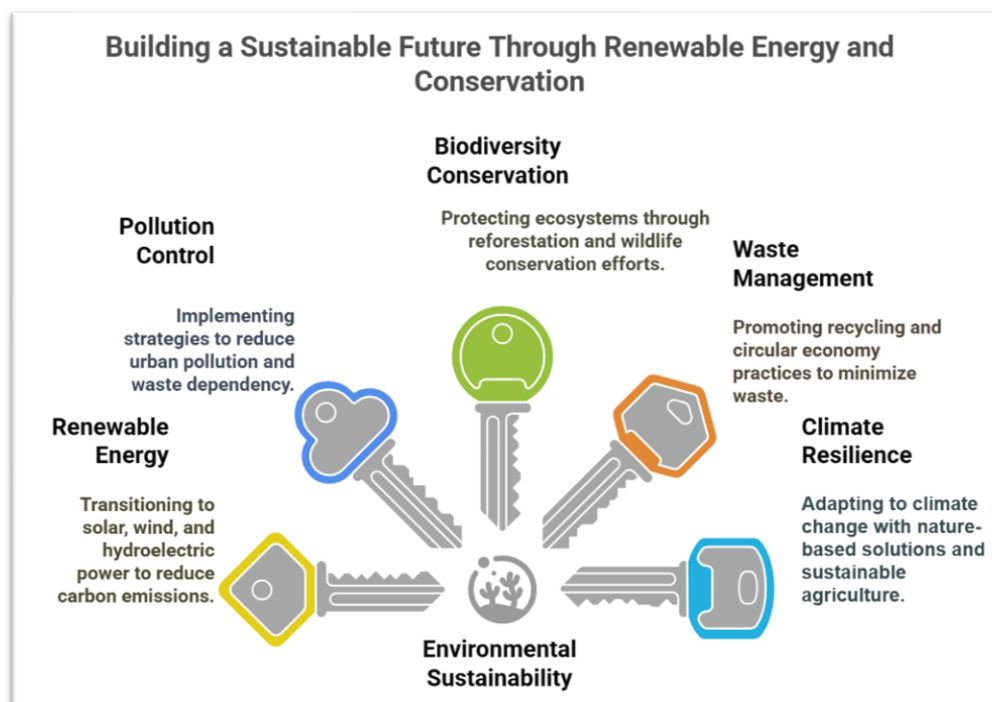
Environmental sustainability has become a critical priority in addressing global ecological challenges. The document highlights various sustainable activities and the supporting evidence for their effectiveness in mitigating environmental damage. These efforts span across multiple domains, including renewable energy adoption, pollution control measures, biodiversity conservation, waste management, and climate resilience strategies.

1. RENEWABLE ENERGY AND CARBON REDUCTION

A major sustainability effort revolves around transitioning to renewable energy sources such as solar, wind, and hydroelectric power. Evidence suggests that solar photovoltaic (PV) installations have significantly reduced carbon emissions by replacing fossil fuel-based energy. Organizations and research institutions have demonstrated that large-scale solar farms and distributed rooftop solar panels contribute to lowering greenhouse gas (GHG) emissions. Similarly, advancements in wind turbine efficiency have led to higher energy outputs with minimal ecological disturbance.

2. POLLUTION CONTROL AND SUSTAINABLE URBAN DEVELOPMENT

Pollution control strategies have been implemented through regulatory frameworks, technological innovations, and public awareness campaigns. The document provides evidence of successful waste-to-energy projects, where non-recyclable waste is converted into usable energy, reducing landfill dependency. Green building designs incorporating energy-efficient materials and sustainable water management systems have significantly reduced urban carbon footprints. Additionally, smart city initiatives incorporating IoT-based air quality monitoring have shown measurable improvements in reducing urban pollution levels.



3. BIODIVERSITY CONSERVATION AND ECOSYSTEM RESTORATION

Biodiversity conservation projects have played a crucial role in environmental sustainability. Reforestation programs, marine habitat restoration, and wildlife conservation efforts are highlighted as essential activities that protect ecosystems and mitigate the effects of deforestation and climate change. Evidence from conservation studies confirms that afforestation and reforestation projects contribute to carbon sequestration while improving local biodiversity. The document also emphasizes the role of protected areas and wildlife corridors in maintaining ecological balance and preventing habitat fragmentation.

4. WASTE MANAGEMENT AND CIRCULAR ECONOMY

The transition to a circular economy is evident through various waste management initiatives. Evidence-based programs promoting recycling, composting, and industrial symbiosis have demonstrated a reduction in resource extraction and landfill waste. The document highlights case studies where zero-waste policies in industries and universities have successfully minimized waste generation through innovative reuse and recycling models. Additionally, the shift towards biodegradable packaging and plastic alternatives has proven effective in reducing environmental pollution.

5. CLIMATE CHANGE ADAPTATION AND RESILIENCE STRATEGIES

Climate resilience strategies have been implemented to mitigate the impact of extreme weather events. Evidence from disaster-prone regions illustrates the effectiveness of nature-based solutions, such as wetland restoration and urban green spaces, in reducing flood risks and enhancing climate adaptation. Sustainable agriculture practices, including agroforestry and precision farming, have been shown to improve food security while reducing the environmental footprint of traditional farming methods.

CONCLUSION

The evidence-based environmental sustainability activities outlined in the document underscore the importance of proactive and science-driven interventions. From renewable energy solutions to ecosystem conservation and waste management innovations, these efforts collectively contribute to a sustainable future. Scaling up these initiatives through policy support, technological advancements, and community engagement is essential to achieving long-term environmental resilience.



Dr. D. Y. Patil Vidyapeeth

(Deemed to be University)

DR. D. Y. PATIL BIOTECHNOLOGY AND BIOINFORMATICS INSTITUTE



Microbial Diversity Research Centre (MDRC)

Centre of Excellence

1) NAME OF THE CENTRE

Microbial Diversity Research Centre (MDRC), Dr. D. Y. Patil Biotechnology & Bioinformatics Institute, Dr. D. Y. Patil Vidyapeeth, Tathawade, Pune 411033.

2) ABOUT THE LAB- SCOPE OF AREAS, PURPOSE OF THE LAB, MAJOR RESEARCH THRUST AREAS

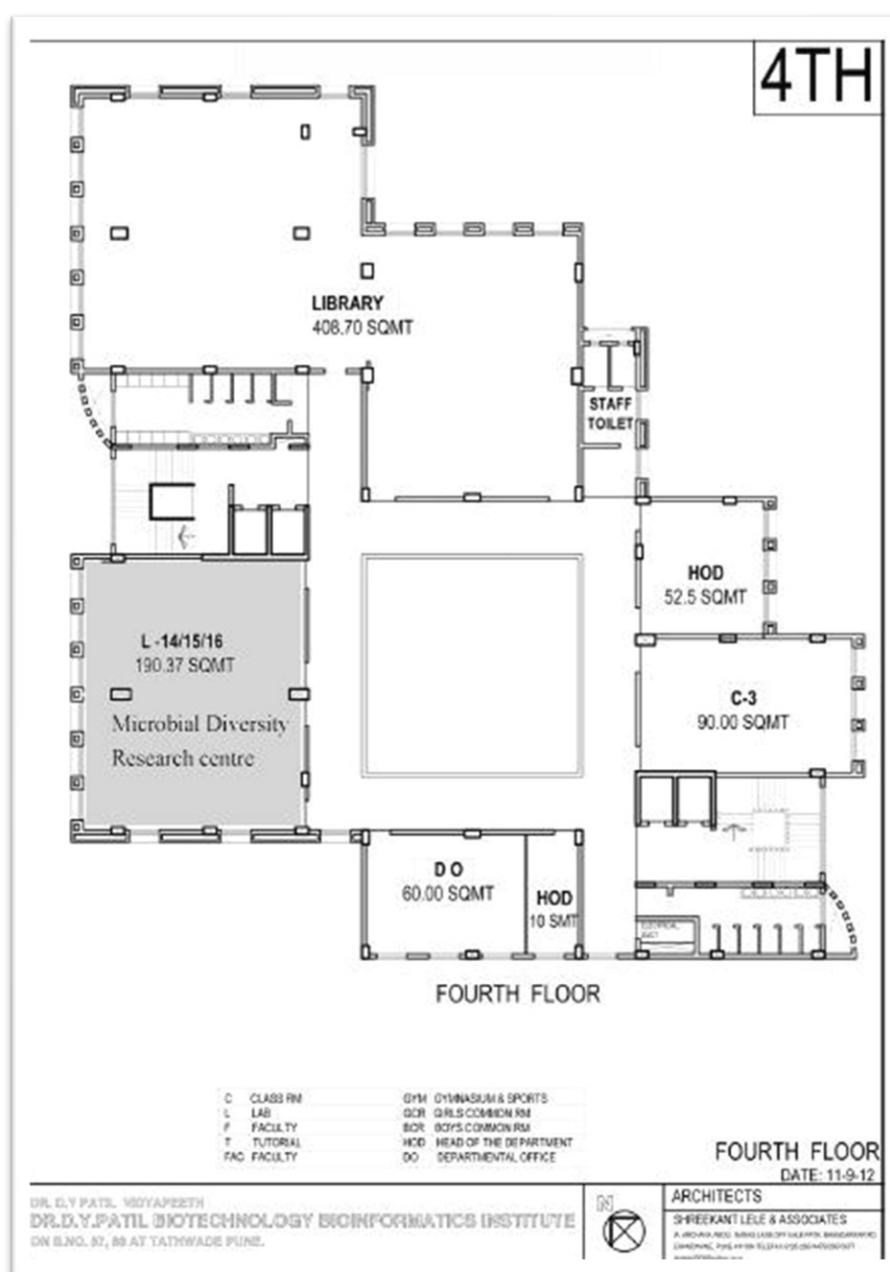
Microbial Diversity Research Centre was established as a Centre of Excellence by Dr. D. Y. Patil Vidyapeeth vide resolution no. PMB-05-13 of the Board of Management, Dr. D. Y. Patil Vidyapeeth, Pune.

Sr. No.	Aspect	Action taken
1	Laboratory space	Space of 190.37 sq. mt on fourth floor of Biotech Building is allotted (Refer L-14/15/16 in attached layout)
2	Centre Incharge	Dr. Neelu Nawani, Professor Ph.D. (Microbiology)
3	Thrust Areas	<ul style="list-style-type: none"> • Health Biotechnology • Environmental Biotechnology • Bioremediation and Pollution Mitigation • Antimicrobial resistance • Microbial Diversity and Genomics • Plant microbe interactions • Microbial Bioinformatics • Nanotechnology • Biopolymer Science
4	Members	<ul style="list-style-type: none"> • Dr. Manisha Junnarkar (Dedicated FTE Staff) • Dr. Rachna Pandey • Dr. Supriya Kore • Dr. Sarika Pawar • Dr. Viniti Vaidya • Dr. Swapnil Gaikwad • Dr. Gayatri Gera • Mr. Amol Salagare • Mrs. Arti Deshmukh
5	Research Personnel	<ul style="list-style-type: none"> • Dr. Arohi Srivastava, Ph.D. (UK), DPU Post-Doctoral Fellow • Mrs. Priyanka Wagh, M.Sc., DST-Junior Research Fellow • Mrs. Bhagyashree Shahakar, M.Sc., DPU Ph.D. Fellow • Ms. Dhanishtha Attarde, M.Sc., DPU Ph.D. Fellow • Ms. Nivedita Mishra, M.Sc., DPU Ph.D. Fellow • Mr. Mohsin Shaikh, M. Tech. Project Student
		<ul style="list-style-type: none"> • Bioremediation project funded by SIDA, Sweden
6	Collaborations and collaborative projects which aided in development of the centre and sharing of facilities	<ul style="list-style-type: none"> • COPD project funded by SIDA, Sweden • Collaboration with University of Skövde, Sweden and University of Pune, Pune • Indo-Tunisian project funded by DST and Ecole Nationale D'Ingenieurs de Sfax, Tunisia • Anti-mutagenic properties project funded by DST in collaboration with University of Pune, Pune
7	Industry collaborations	<ul style="list-style-type: none"> • Collaboration with Praj Industries for DBT research grant "Opportunities to Explore Microbial Diversity for industrial important microbial products"

Sr. No.	Aspect	Action taken
8	Instruments available	<p>Speciality Equipment (Funded by extramural projects or institute as indicated)</p> <p>Microlog M Microbial Identification System, Biolog Inc. (SIDA project)</p> <p>Voltammetry system for heavy metal analysis (SIDA project)</p> <p>Potentiostat (Carbon Sequestration Program DST Project)</p> <p>Flue Gas Analyzer (SIDA project)</p> <p>Particulate Matter Counter (GYTI-BIRAC project)</p> <p>High speed centrifuge, Dynamica (SIDA project)</p> <p>Laminar air flow, Microfilt (SIDA project)</p> <p>Soil and water sampling augers (Indo-Tunisian project)</p> <p>Robotic Automated ELISA work station (DBT project with Praj)</p> <p>High Speed Plate Centrifuge (DBT project with Praj)</p> <p>Ultralow temperature freezer minus 80, Thermo (DBT project with Praj)</p> <p>Fluorescent Microscope with Imaging facility, Olympus (Anti-mutagenic DST project)</p> <p>Biosafety level cabinet Class II, Microfilt (Funded by Institute)</p> <p>Lyophilizer, Labconco (Funded by Institute)</p> <p>Ultralow temperature freezer minus 80, Thermo (Funded by Institute)</p> <p>Thermocycler, Biorad (Funded by Institute)</p> <p>General instruments (Funded by extramural projects or institute as indicated)</p> <p>Magnetic stirrer (SIDA project)</p> <p>Refrigerated Shaking Incubator (SIDA project)</p> <p>Bacteriological Incubator (SIDA project)</p> <p>pH meter (Funded by Institute)</p> <p>Electronic balance (Funded by Institute)</p> <p>Autoclave- portable (Funded by Institute)</p> <p>Hot air oven (Funded by Institute)</p> <p>Hot plate stirrer (Funded by Institute)</p> <p>Vortex mixer (Funded by Institute)</p> <p>Benchtop Centrifuge (Funded by Institute)</p> <p>Microfuge (Funded by Institute)</p> <p>Microscope (Funded by Institute)</p>
9	Microbes available in collection	<p>Bacteria: approx 750 (includes approx. 500 actinomycetes)</p> <p>Fungi: 05</p> <p>Algae: 20</p> <p>Yeasts: 02</p>

Sr. No.	Aspect	Action taken
10	Funding/ Publications/ Patents	<ul style="list-style-type: none"> • Funding mobilized through external grants: 931 lakhs INR and 11.5 million SEK (equivalent to 805 lkahs INR) • Publications: Till 2015- 32; 2016-2021- 33 • Patents: 06; Granted 02
11	Future targets	<ul style="list-style-type: none"> • To collect soil and water samples from unique / pristine / unusual ecological niches for isolation of novel bacteria and fungi • To catalogue the strains in collection for their identification • To determine the metabolic fingerprint of strains in collection

LAYOUT OF MDRC



ABOUT THE CENTRE

Microbial Diversity Research Centre (MDRC) was identified as a Centre of Excellence by Dr. D. Y. Patil Vidyapeeth in the year 2015. MDRC is the largest, highly funded and most versatile of all research groups in the institute. The centre has twelve teachers, eight Ph.D. students, six research scholars. More than 100 students of B. Tech, M. Tech and M.Sc. have completed their research projects through this centre. The centre has received research funding upto 14 crores from national and international agencies like Swedish International Development Cooperation Agency (SIDA), Sweden; Swedish Research Council; Department of Science and Technology, Government of India; Department of Biotechnology, Government of India and Dr. D. Y. Patil Vidyapeeth, Pune. The centre has research collaboration with industries like Praj, where both the research teams are screening 20,000 microbes from the National Centre for Microbial Resource for various important industrial targets. Thrust areas of the centre are to look for cost-effective and biological remedial measures to curb and control metal pollution, air pollution and to extract value-added products from waste. The centre is also looking at bioactive potential of microbes, green synthesis of nanoparticles, biofuels from wastes and other socially relevant areas of environment and health.

So far, the research team at the centre has published more than 80 research papers, several review articles, book chapters, books and has six national and international patents. The centre will continue exploring the thrust areas with the excellent infrastructure and collection of important advanced equipments like heavy metal analyzer, Flue gas analyzer, Total organic carbon analyzer, fluorescent microscope, multi-well dispenser, ELISA reader, Thermocycler, lyophilizer, robotic high throughput culturing system, ELISA workstation, high speed plate centrifuge and all the basic equipments necessary for the microbiology laboratory. These equipments are used for research and teaching purpose. The centre with its state-of-the-art infrastructure and experienced team of researchers has done some major innovations on ecofriendly biological matrices for removal of metals from aqueous solutions, a biological air filter for curbing the air pollution and probiotics for alleviating intestinal bowel disorders and improving immune health. Presently the centre is working on development of central laboratory waste management system. Of these inventions, the biological air purifier received the Gandhian Young Technology Innovation Award at the hands of Hon'ble President of India in March 2018.

RESEARCH STRENGTHS

Research strengths of the centre are due to sophisticated and progressive infrastructure, competent teaching staff with commitment to translational research, motivated students empowered with scientific autonomy, a perfect agglomeration of disciplines, in bilateral or multilateral cooperation (strategic

networks and industry driven) and potential of creating Centre's for Excellence of international standards.

International exploitation of innovation potentials is a means to secure access to markets and business R&D potential. Consequently, the international activities are supposed to be linked to national strategic initiatives or the national competence centre networks and lead to an improvement of foreign R&D investments. It prepares the students for international mobility, life long learning and extension of knowledge to bridge the gap between regions. This also leads to a continuous professional development of an individual offering a wider thinking perspective inculcating a desire to act as a responsible and responsive global citizen. International collaboration allows adequate peer-to-peer learning as in each domain of expertise there would be few good peers at regional level. Such collaboration can be developed by student and faculty exchange programs, participation in international conferences and internationally focused study programs. The technology, products or innovations developed through such collaborations can be shared by the partners with a prior agreement or memorandum of understanding to avoid property rights conflicts at the later stages.

Accordingly, the centre has developed international collaborations for research with University of Skovde, Sweden; Ecole Nationale D'Ingenieurs de Sfax, Tunisia and Middle Tennessee University, USA. Research collaborations with national organizations like National Chemical Laboratory, National Centre for Cell Science, Mahatma Phule Krishi Vidyapeeth, University of Pune, Agharkar Research Institute and companies like Praj and Rise and Shine is also well established. The students perform research projects at other research institutes, companies or University level departments. The faculty is deputed for specialized training to organizations under the faculty development program. Both students and faculty participate in national and international level conferences, seminars and workshops.

Long term innovative ideas to promote research: The institute has adopted measures and framed policies to meet its long term goal of promoting innovation in research. It has planned to increase resources and improve infrastructure for research/creative work, to increase

opportunities for student presentations of research experiences, to increase awareness of information resources to enable electronic research administration, to determine effective data delivery mechanisms to avoid repetitive research, interdisciplinary/strategic hiring of professionals, to communicate with society/stakeholders about research, to apply research and education for economic development and benefit of society, to facilitate technology transfer and cooperation between academics, students, other staff and offices, to enhance partnerships with adjunct faculty, institutions and alumni and to strengthen campus alliances to promote international education.

3) INFRASTRUCTURE- LIST OF STATE OF RESEARCH EQUIPMENT'S AT THE LAB WITH CLEAR PHOTOS & FIGURED TITLES

RESEARCH FACILITIES

The centre has received funding for research from several international and national agencies. Some equipment's are procured from research funding and several other equipment's are made available from the institute. Several advanced equipment's are available to execute high quality research at the institute.



Fig. 2 - Laminar hoods for sterile work space

Fluorescent and Phase Contrast Microscope for imaging of bacteria, animal cells and biological macromolecules using phase contrast, bright field, dark field and fluorescent tagging systems.

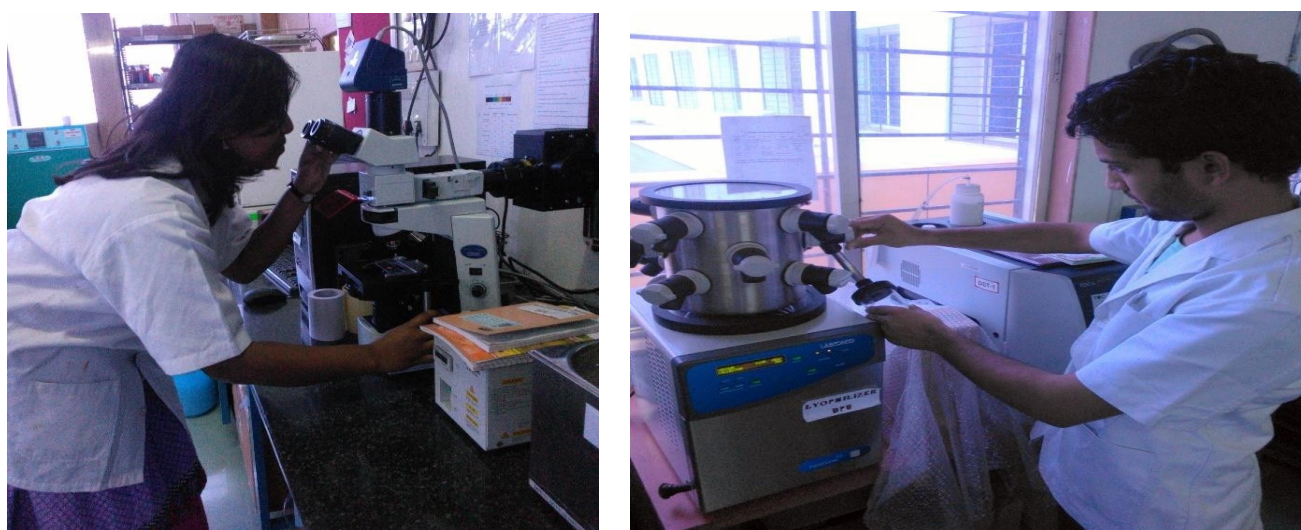


Figure 3: Fluorescent & Phase contrast Microscope

Figure 4: Lyophilizer for freeze drying of cells and metabolites



Figure 5: Performance Liquid Chromatography system for analysis of biological metabolites
Figure 6: FERMENTER for lab scale production of industrially important compounds



Figure 7: Gel Documentation system

Figure 8: Digital Flame Photometer



Figure 9: Thermocyclers and Gradient PCR for molecular and nucleotide research

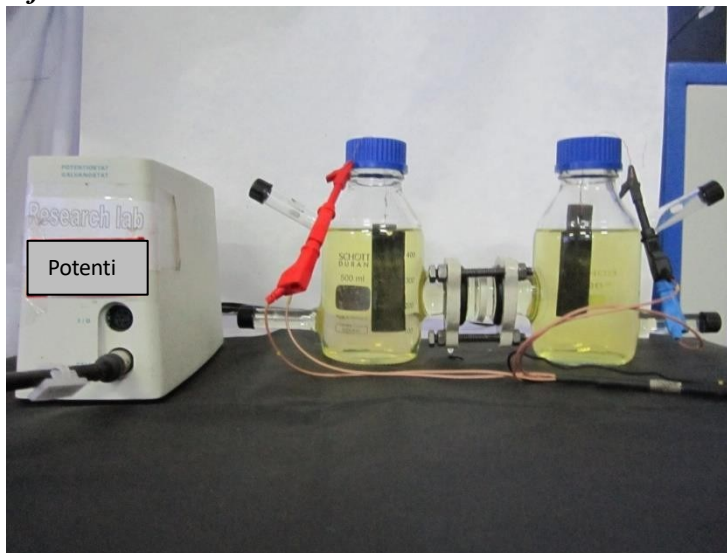


Figure 10: UV Spectrophotometer



Figure 11: Potentiostat

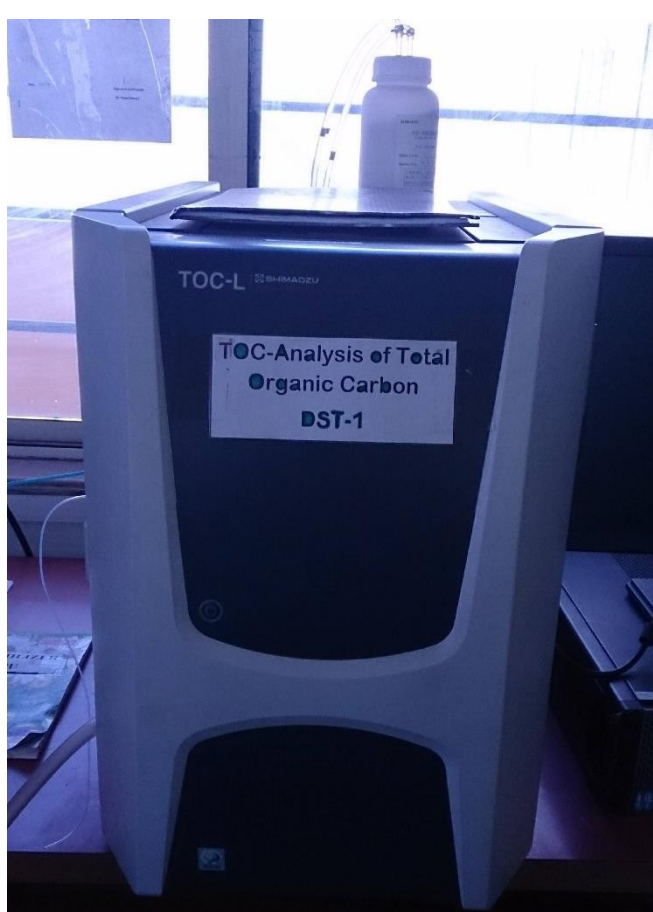


Figure 12: Minus 80 and minus 20 deep freezers

Figure 13: Total Organic Carbon Analyser



Figure 14: Cooling Centrifuge

Figure 15: CO2 Incubator



Figure 16: Flue gas analyzer for analysis of air pollutants

Figure 17: Biosafety cabinets

Besides the above equipments, other specialized systems for microbial identification viz. Microlog System, Gas Chromatograph system are available.

DETAILS OF TEAM MEMBERS

1) **Team Head: Dr. Neelu Nawani** Research Areas

- **Health Biotechnology**
- **Environmental Biotechnology**
- **Bioremediation**
- **Antimicrobial resistance** Experience: Teaching since the year 1997 Research Experience: 21 years

External research projects: 10 completed; 01 ongoing DPU funded projects: 05 completed;
01 ongoing Publications: 96
Patents: 06
Technology Transfers: 02 completed; 02 ongoing

2) **Dr. Rachna Pandey** Research Areas

- **Microbial Genomics**
- **Microbial Molecular Biology**
- **Plant microbe interactions**

Experience: Teaching since the year 2003
Research Experience: 18 years
External research projects: 01 completed; 01 ongoing
Publication: 20

3) **Dr. Supriya Kore** Research Areas

- **Essential oils in preservation**
- **Antimicrobial resistance**
- **Biopolymers**

Experience: Teaching since the year 2000
Research Experience: 21 years
DPU funded projects: 02 completed; 01 ongoing
Publications: 12

4) **Dr. Sarika Pawar** Research Areas

- **Quorum Sensing**
- **Antimicrobial resistance**
- **Bioinformatics**

Experience: Teaching since the year 2003
Research Experience: 19 years
DPU funded projects: 02 completed; 01 ongoing
Publications: 16

5) Dr. Viniti Vaidya

Research Areas

- Environmental Biotechnology
- Biopolymers
- Waste recycling

Experience: Teaching since the year 2016

Research Experience: 9 years

External research projects: 01 ongoing

DPU funded projects: 01 ongoing

Publications: 10

6) Dr. Swapnil Gaikwad Research Areas

- Nanotechnology

Experience: Teaching since the year 2016

Research Experience: 10 years

DPU funded projects: 01 ongoing

Publications: 52

7) Dr. Gayatri Gera Research Areas

- Industrial Biotechnology
- Biological wastewater treatment

Experience: Teaching since the year 2016 Research Experience: 16 years

Industrial Experience: 11 years

DPU funded projects: 01

Ongoing Publications: 8

8) Dr. Manisha Junnarkar

Research Areas

- Microbial Diversity
- Probiotics

Experience: Teaching since the year 2006 Research Experience: 3 years

DPU funded projects: 01 completed; 01 ongoing Publications: 7

9) Mr. Amol Salagare Research Areas

- Environmental Biotechnology
- Biofuels

Experience: Teaching since the year 2007 Research Experience: 6 years

DPU funded projects: 01 completed Publications: 8

10) Mrs. Arti Deshmukh Research Areas

- Microbial Diversity
- Actinomycete Biology

Experience: Teaching since the year 2000 Research Experience: 6 years

DPU funded projects: 01 ongoing Publications: 4

Awards: 1. SET (2006) Qualified

4. STATUTORY APPROVAL RECOGNITION AWARD FOR THE CENTRE

1. BEST PRIZE AT INDIA INTERNATIONAL SCIENCE FESTIVAL 2021

The prize was for the innovation “Biosmotrap: a low-cost multipurpose biological air purifier” at the India International Science Festival 2021 organized by Vigyan Prasar, Ministry of Science and Technology at Panjim, Goa during 10-13 Dec 2021 (Cash prize of Rs. 25000/- to the presenting student Tejas Vannalwar, Project Mentor Dr. Neelu Nawani)

Promotion of the product on Vigyan Prasar Channel

(<https://ne-np.facebook.com/indiasciencetv/videos/biosmotrap-a-unique-biological-purifier/285157396885590/>)



2. DRUG DISCOVERY HACKATHON 2020 PRIZE,

AICTE and MHRD, Govt. of India

Dr. Neelu Nawani, Mr. Kiran Lokhande, Ms. Sayali Doiphode won prize of Rs. 25000/- in the Drug Discovery Hackathon 2020 for the project “Identification of drug candidates that are effective against coronavirus SARS-CoV-2- by employing a hackathon for in-silico drug discovery, followed up by chemical synthesis and biological testing.” Only 10 entries were selected at a national level amongst thousands of entries.

We Are Happy to Announce That Our Solution for Drug Discovery Against Covid-19 has been Selected & Awarded with Cash Prize of Rs. 25,000/- in DDH2020 Phase-I

Team Mentor:
Prof. N.N. Nawani,
 Prof. and Incharge of Microbial Diversity Research Centre ,
 Ph.D. Coordinator, DYPBBI, Pune.

Team Leader:
Mr. Kiran Bharat Lokhande,
 SRF-ICMR, Ph.D. Scholar,
 Bioinformatics Research Lab.,
 DYPBBI, Pune.

Team Member:
Ms. Sayali Doiphode,
 Ph.D. Scholar,
 Bioinformatics Research Lab.,
 DYPBBI, Pune.

Project Title: Computational screening of molecular fragments and fragment linking to design novel inhibitors for SARS-CoV-2 main protease

3. BEST RESEARCH PRESENTATION PRIZE AT INTERNATIONAL CONFERENCE

on Biotechnology for Resource Efficiency Energy, Environment, Chemicals and Health (BRE3CH 2021) during December 1-4, 2021 at CSIR-Indian Institute of Petroleum, Dehradun and BRSI.



4. BEST RESEARCH AWARD BY TERRE

A.P.J. Abdul Kalam Young Research Fellowship.

5. SPECIAL AWARD FOR TECHNICAL EXCELLENCE- RESEARCH

For the Science Documentary “A Probiotic Revolution” produced by Dr. Neelu Nawani and Directed by Mr. Tejas Vannalwar by National Science Film Festival of India 2022. Two Science Documentary Films about the research at MDRC were nominated at the 11th National Science Film Festival of India, 2022 held at Bhopal during 22-26 Aug 2022.



6. A NATIONAL AWARD FOR “BEST INNOVATION TECHNOLOGY FOR RE-USE”

Was won at National-level competition organized by Confederation of Indian Industries (CII, Chennai), Government of India on 28th August 2021.



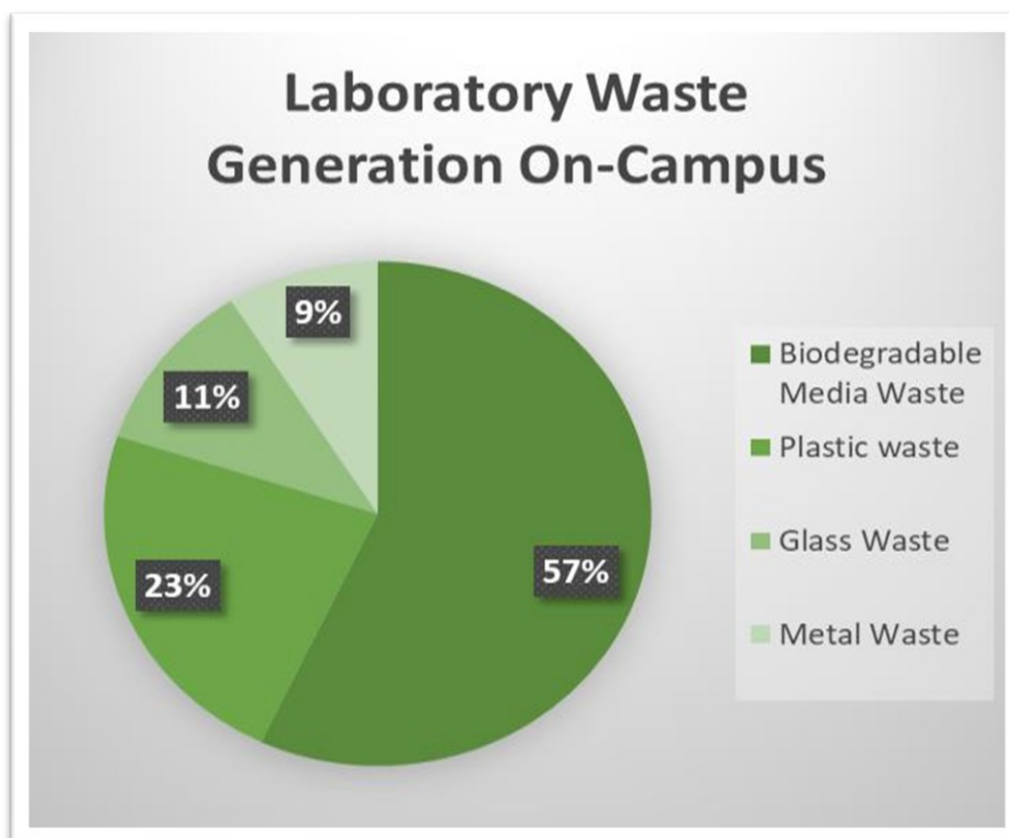
7. GANDHIAN YOUNG TECHNOLOGY INNOVATION AWARD 2018

SRISTI, BIRAC-GYTI, DBT and NIF (One of the 23 projects selected out of 3000 at a national level)
Project Title: “A multipurpose low-cost biological air purifier”, funding Rs. 15 lakh from BIRAC-GYTI under Socially relevant innovation



5) MAJOR ACHIEVEMENTS- EXTRAMURAL FUNDING BY THE FACULTY OF LAB, ANY TRAINING PROGRAMME CONDUCTED, WORKSHOP, CONFERENCES CONDUCTED WITH CONFERENCE REPORT. (2020-2021)

1. **Extramural Research Project:** A project entitled “Segregation and management of laboratory wastes for resource recovery and value addition” File number: DST/TDT/WM/2019/1, has been funded by Department of Science and Technology, Govt. of India. (**Date of Commencement: 01/10/2020**)
 - A) Construction of waste agar processing unit **completed** in campus of **Dr. D. Y. Patil Biotechnology and Bioinformatics Institute, Tathawade, Pune**. Installation of self-fabricated **Pyrolizer** machine was completed.
 - B) Training session for research faculty, lab attendants and house-keeping staff was conducted in the campus. The type and volumes of waste generated in the campus was analyzed, importance of segregation of waste at the point of inception was conveyed to the cleaning staff through the training session.
 - C) Survey of agar waste generating start-ups, plant tissue culture labs, academic and research microbiology labs from Pune region is under surveillance. The collected data will be used for database mapping of agar waste generated at Pune region.
 - D) We are maintaining a weekly record of the waste generated on our campus.



Waste Recycling plant established at the Tathawade Campus by MDRC from funding received from Department of Science and Technology under the Technology Development and Transfer Division and from Dr. D. Y. Patil Vidyapeeth, Pune.



Installation of color-coded wastebins for segregation and collection of agar waste at point of inception



Training for Ancillary Staff of DYPBBI, the event was volunteered by MDRC lab

PARTICIPATION IN CONFERENCES (ORAL/POSTER PRESENTATION)

Title of the Paper Presented	Symposium /Conference	Dates of the Symp./Conf.	Authors
Production and Functional assessment of bio-commodity products using waste media from laboratories (Invited Oral Presentation)	International Conference on Biotechnology for Sustainable Agriculture, Environment and Health (BSAEH-2021) Jaipur, Rajasthan, India	April 04-08, 2021	Dr. Neelu Nawani
Technology for recycling waste agar-media from laboratories: an avenue of Circular bioeconomy (Poster & Flash talk)	International Conference on Biotechnology for resource Efficiency, Energy, Environment, Chemical & Health (BREEECH-2021), Dehradun, India	December 1-4, 2021	Ms. Priyanka Wagh
Antimicrobial resistance and its potential biocontrol agent	International Conference on Biotechnology for resource Efficiency, Energy, Environment, Chemical & Health (BREEECH-2021), Dehradun, India	December 1-4, 2021	Ms. Bhagyashree Shahakar
BIOSMOTRAP: A low-cost biological air filter (Poster & Flash talk)	International Conference on Biotechnology for resource Efficiency, Energy, Environment, Chemical & Health (BREEECH-2021), Dehradun, India	December 1-4, 2021	Mr. Tejas Vannalwar
BIOSMOTRAP: A low-cost biological air filter (Poster & Model)	Indian International Science Festival-2021, Goa held on 11 th and 12 th of December 2021.	December 11-12 th , 2021	Mr. Tejas Vannalwar & Dr. Neelu Nawani

Title of the Paper Presented	Symposium /Conference	Dates of the Symp./Conf.	Authors
Jaivik Upchaar: A film of solution to curb pollution (Science film)	11th National Science Film Festival of India (NSFFI) 2021, Award ceremony: 26th Aug, 2022	August 21-26 th , 2022	Dr. Neelu Nawani
A probiotic sensation (Science film)	11th National Science Film Festival of India (NSFFI) 2021	August 21-26 th , 2022	Dr. Neelu Nawani

6) ANY FACULTY PUBLICATIONS ON THRUST AREA OF CENTRE. (2020-2021)

- 1) Yewale, P., Wagle, N., Lenka, S., Bannigol, P., **Junnarkar, M.**, Prakash, D., Mandal, A., Stigh, C., Sahasrabudhe, T., Vannalwar, T., Thakare, P., Nikam, D., **Pawar, S., Nawani, N.** Studies on Biosmotrap: A multipurpose biological air purifier to minimize indoor and outdoor air pollution (2022) Journal of Cleaner Production, 357, art. no. 132001, <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85129346697&doi=10.1016%2fj.jclepro.2022.132001&partnerID=40&md5=990cb3e79b8637e18b9b50b99e00bb42> DOI: 10.1016/j.jclepro.2022.132001
- 2) **Gaikwad, S.**, Birla, S., Ingle, A.P., Gade, A., Ingle, P., Golińska, P., Rai, M. Superior in vivo Wound-Healing Activity of Mycosynthesized Silver Nanogel on Different Wound Models in Rat (2022) Frontiers in Microbiology, 13, art. no. 881404, . <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85132832550&doi=10.3389%2ffmicb.2022.881404&partnerID=40&md5=a556c3a6eff05a6eec0237354676f7fb> DOI: 10.3389/fmicb.2022.881404
- 3) Lokhande, K.B., **Pawar, S.V.**, Madkaiker, S., **Nawani, N.**, Venkateswara, S.K., Ghosh, P. throughput virtual screening and molecular dynamics simulation analysis of phytomolecules against BfmR of Acinetobacter baumannii: anti-virulent drug development campaign (2022) Journal of Biomolecular Structure and Dynamics, Cited 3 times. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85125222295&doi=10.1080%2f07391102.2022.2038271&partnerID=40&md5=5649e9c6460cf2b76b043cee24630abe> DOI: 10.1080/07391102.2022.2038271
- 4) Lokhande, K., **Nawani, N.**, K. Venkateswara, S., **Pawar, S.** Biflavonoids from Rhus succedanea as probable natural inhibitors against SARS-CoV-2: a molecular docking and molecular dynamics approach (2022) Journal of Biomolecular Structure and Dynamics, 40 (10), pp. 4376-4388. Cited 16 times. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104829375&doi=10.1080%2f07391102.2020.1858165&partnerID=40&md5=728d8b4efe315120e28b13762e5f6ad1> DOI: 10.1080/07391102.2020.1858165
- 5) Mansuri, A., Lokhande, K., **Kore, S., Gaikwad, S., Nawani, N.**, Swamy, K.V., **Junnarkar, M., Pawar, S.** Antioxidant, anti-quorum sensing, biofilm inhibitory activities and chemical composition of Patchouli essential oil: in vitro and in silico approach (2022) Journal of Biomolecular Structure and Dynamics, 40 (1), pp. 154-165. Cited 2 times. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85089739638&doi=10.1080%2f07391102.2020.1810124&partnerID=40&md5=7454a03805dc2800f18c5034e91cf4b9> DOI: 10.1080/07391102.2020.1810124

- 6) Mone, N.S., Bhagwat, S.A., Sharma, D., Chaskar, M., Patil, R.H., Zamboni, P., **Nawani, N.N.**, Satpute, S.K. Naphthoquinones and their derivatives: Emerging trends in combating microbial pathogens (2021) *Coatings*, 11 (4), art. no. 434, Cited 7 times.
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85104185900&doi=10.3390%2fcoatings11040434&partnerID=40&md5=9a6c61f6607eb8bcfdcd2126db9fa44d> DOI: 10.3390/coatings11040434
- 7) Rai, M., Bonde, S., Golinska, P., Trzcińska-Wencel, J., Gade, A., Abd-Elsalam, K., Shende, S., **Gaikwad, S.**, Ingle, A.P. Fusarium as a novel fungus for the synthesis of nanoparticles: Mechanism and applications (2021) *Journal of Fungi*, 7 (2), art. no. 139, pp. 1-24. Cited 24 times.
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85101583187&doi=10.3390%2fjof7020139&partnerID=40&md5=e9cb02eca3315caa0896111e45659507> DOI: 10.3390/jof7020139
- 8) Karale, A., Lokhande, K.B., Shende, N., Swamy, K.V., Dhere, R., **Nawani, N.**, Mallya, A. Transferrin binding protein-B from *Neisseria meningitidis* C as a novel carrier protein in glycoconjugate preparation: an in silico approach (2021) *Journal of Biomolecular Structure and Dynamics*,
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85118431388&doi=10.1080%2f07391102.2021.1994878&partnerID=40&md5=cc5fce4f815f82c5eab70199bcf047c3> DOI: 10.1080/07391102.2021.1994878
- 9) Yewale, P.P., Lokhande, K.B., Sridhar, A., Vaishnav, M., Khan, F.A., Mandal, A., Swamy, K.V., Jass, J., **Nawani, N.** Molecular profiling of multidrug-resistant river water isolates: insights into resistance mechanism and potential inhibitors (2020) *Environmental Science and Pollution Research*, 27 (22), pp. 27279-27292. Cited 10 times. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85068134896&doi=10.1007%2fs11356-019-05738-2&partnerID=40&md5=4d2d62fe271d19082c565b766b67efd1> DOI: 10.1007/s11356-019-05738-2
- 10) Khan, S., Singh, S., **Gaikwad, S.**, **Nawani, N.**, **Junnarkar, M.**, **Pawar, S.V.** Optimization of process parameters for the synthesis of silver nanoparticles from Piper betle leaf aqueous extract, and evaluation of their antiphytofungus activity (2020) *Environmental Science and Pollution Research*, 27 (22), pp. 27221-27233. Cited 17 times. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85065536608&doi=10.1007%2fs11356-019-05239-2&partnerID=40&md5=6e001a0df9a77d40d6c8d14d9ab4d87c> DOI: 10.1007/s11356-019-05239-2
- 11) **Bhopale, G.M.** Antimicrobial peptides: A promising avenue for human healthcare (2020) *Current Pharmaceutical Biotechnology*, 21 (2), pp. 90-96. Cited 9 times.
<https://www.scopus.com/inward/record.uri?eid=2-s2.0-85079561207&doi=10.2174%2f1389201020666191011121722&partnerID=40&md5=0509d3472c307e1dfa01ebb8311cbc3f> DOI: 10.2174/1389201020666191011121722

Link and videos of Interdisciplinary Research Facilities in the University			
Sr. No.	Name of the facility	Year of establishment	Provide link of videos/pictures
1	Central Research Laboratory / Central Research Facility		
	Molecular diagnostic Laboratory	2019	View document
	Molecular diagnostic Laboratory	2019	View Video
	Inauguration ceremony of Molecular diagnostic laboratory	2019	View Website
	Regenerative Medicine Laboratory	2014	View Document
	Regenerative Medicine Laboratory Outcome analysis	2014	View Document
	Inauguration ceremony of Regenerative Medicine Laboratory	2014	View Document
	Digital Wall (D-Wall)	2024	View Document
	5G laboratory	2024	View Document
2	Animal House/ Medicinal plant garden / Museum		
	Animal House	1997	View Document
	Medicinal Plant Garden	1997	View Document
	Skill Labs	2009	View Document
	Museum	1996	View Document
3	Research/Statistical Databases/Health Informatics		
	Scopus database	2019	View Document
	Clinical Key	2019	View Document
	Web of Science	2021	View Document
	Wolter Kluwer	2023-24	View Document
	K-Hub	2015	View Document
	BMJ	2023-24	View document
	Proquest	2023-24	View Document
	J-Gate	2019	View Document