

## ANNUAL REPORT-2021-22



### **DEPARTMENT OF LIFE SCIENCES**

ରମାଦେବୀ ମହିଳା ବିଶ୍ୱବିଦ୍ୟାଳୟ, ଭୁବନେଶ୍ୱର  
Rama Devi Women's University, Vidya Vihar,  
Bhubaneswar

**1.Name of the department:** Department of Life Science

## 2. Mission and vision

### Mission:

We not only want to give good education to students, but also our mission is to educate them in the following ways,

- Providing adequate knowledge and advancement in plant science (theory and practical)
- Use of modern technology and agriculture
- To identify rare and wild plants and their conservation
- To maintain herbarium
- To pursue a career in science
- Above to them industry ready to compete at national and international level

### Vision:

The committed faculty members with the available infrastructure intent to disseminate knowledge, generate interest among the students on the subjects and its applied aspects and to make them par excellence so that they will be able to pursue a career in higher studies and research.

## 3. Academic Programmes:

- a. M.Sc. Life Science
- b. Ph.D. Life Science
- c. M.Sc. Industrial Microbiology
- d. Skill based certificate course

## 4. Publications/patents

### JOURNAL PAPERS

Sl no.	Paper Title	Author(s)	Name of the Journal; Volume; Page no.	Year of Publication	Link to the article (doi/website)
1.	Isolation, identification and screening for bioactive compounds with antimicrobial activities from cyanobacteria of Eastern Ghat region, Odisha.	S. Pattnaik, L. Samad and <b>C. C. Rath</b>	Int.J. Parma.Sci. Res.,  12(7): 3716-3730	2021	DOI: <a href="https://doi.org/10.13040/IJPSR.0975-8232.12(7).3716-30">10.13040/IJPSR.0975-8232.12(7).3716-30</a>

2.	In vitro characterization of antimicrobial activity of an endophytic bacterium <i>Enterobacter cloacae</i> (MG001451) isolated from <i>Ocimum sanctum</i> .	S. Panigrahi and <b>C. C. Rath</b>	South African Journal of Botany,  143: 90-96	2021	<a href="https://doi.org/10.1016/j.sajb.2021.07.044">https://doi.org/10.1016/j.sajb.2021.07.044</a>
3.	Applications of Microbial Communities for the Remediation of Industrial and Mining Toxic Metal Waste A Review.	S. Begum, S. K. Rath and <b>C. C. Rath</b>	Geomicrobiology Journal,  2021: 1-12	2021	<a href="https://doi.org/10.1080/01490451.2021.1991054">https://doi.org/10.1080/01490451.2021.1991054</a>
4.	Probiotic Characterization of <i>Bacillus subtilis</i> strain isolated from infant fecal material revealed by 16S-rRNA gene and phylogenetic analysis.	D. Das, <b>C. C. Rath</b> , N. Mohanty, and SH Panda	Asian J. Pharmaceutical and Clinical Research,  14(12): 77-85.	2021	DOI: <a href="https://doi.org/10.22159/ajpcr.2021.v14i12.43204">10.22159/ajpcr.2021.v14i12.43204</a>
5.	Biocontrol activity of <i>Bacillus cereus</i> against tomato wilting pathogen, <i>Pseudomonas solanacearum</i> .	SK Jena, <b>C. C. Rath</b> and K. Tayung	International J. Advanced Research in Science Engineering and Technology,  8(11): 18530-18539	2021	

6.	Development of Monoclonal antibody against Human Epidermal Growth Factor Receptor 2 a marker of belligerent Breast Cancer	<b>Shikha Singh</b> Jayashree Behera Susanta Kumar Behera K. Gopinath Achary	International Journal of Emerging Technologies and Innovative Research (www.jetir.org   UGC and issn Approved), ISSN:2349-5162, Vol.8, Issue 7, page no. ppc192-c199, July-2021,	2021	<a href="http://www.jetir.org/papers/JETIR2107293.pdf">http://www.jetir.org/papers/JETIR2107293.pdf</a>
7.	Soil Fungi for Bioremediation of Pesticide Toxicants: A Perspective	D. Mohapatra, <b>S. K. Rath</b> & P. K. Mohapatra	Geomicrobiology Journal. Vol 39 (3-5), 352-372.	2021	<a href="https://doi.org/10.1080/01490451.2021.2019855">https://doi.org/10.1080/01490451.2021.2019855</a>
8.	Applications of Microbial Communities for the Remediation of Industrial and Mining Toxic Metal Waste: A Review. Taylor and Francis. ISSN- 1521-0529	Shahani Begum, <b>Sakti Kanta Rath</b> & Chandi Charan Rath	Geomicrobiology Journal. Vol 39 (3-5), 282-293.	2021	<a href="https://doi.org/10.1080/01490451.2021.1991054">https://doi.org/10.1080/01490451.2021.1991054</a>
9.	Evaluating a preparation of malathion tolerant Aspergillus niger MRU01 for accelerated removal of four organophosphorus insecticides.	D. Mohapatra, <b>S.K.Rath</b> and P.K.Mohapatra	J. of Chemical technology and Biotechnology. 96 (6). 1603-1610. IF- 2.587.	2021	<a href="https://doi.org/10.1002/jctb.6679">https://doi.org/10.1002/jctb.6679</a>
10	A Systematic Study on the Microbial Degradation of Glyphosate: A Review	S. Mohanty and <b>A. P. Das.</b>	Geomicrobiology,	2021	<a href="https://doi.org/10.1080/01490451.2021.1998255">https://doi.org/10.1080/01490451.2021.1998255</a>
11	Recent Advances in Sensor-Based Detection of Toxic Dyes for Bioremediation Application: A Review.	J. Bhattacharjee, S. Mishra, <b>A. P. Das.</b>	Applied Biochemistry and Biotechnology	2021	10.1007/s12010-021-03767-7

12	Microbial colonization and degradation of microplastics in aquatic ecosystem	S. Mishra, S. Swain, M. Sahoo, S. Mishra, <b>A.P. Das.</b>	Geomicrobiology, .	2021	<a href="https://doi.org/10.1080/01490451.2021.1983670">https://doi.org/10.1080/01490451.2021.1983670</a>
13	Exploration of probiotic microbial biodiversity in acidic environments (curd) and their futuristic pharmaceutical applications.	Biswal, P. Pal, Ghosh. S, A., <b>Das, A.P.</b>	Geomicrobiology,	2021	<a href="https://doi.org/10.1080/01490451.2021.1956020">https://doi.org/10.1080/01490451.2021.1956020</a>
14	Biofilm Mediated Degradation of Petroleum Products	D. Lahiria, M. Naga, A. Dey, T. Sarkar, S. Joshie, S. Pandit, <b>A. P. Das</b> , S. Pati, S. Pattanaik, V. K. Tilak and R.R.	Geomicrobiology journal.	2021	<a href="https://doi.org/10.1080/01490451.2021.1968979">https://doi.org/10.1080/01490451.2021.1968979</a>
15	Screening for probiotic potential of Lactobacillus Rhamnosus strain CRD4	Biswal, P. Pal, A., <b>Das, A.P.</b>	Biointerface Research in Applied Chemistry	2021 Volume 11, Issue 2,	<a href="https://doi.org/10.33263/BRIAC113.1017410184">https://doi.org/10.33263/BRIAC113.1017410184</a>
16	Proteomic insights into Lysinibacillus sp. mediated biosolubilisation of manganese.	Ghosh, S., Gandhi, M., van Hullebusch, E.D., <b>Das A.P.</b>	Environmental Science and Pollution Research.	2021	10.1007/s11356-020-10863-4

#### BOOKS/BOOK CHAPTERS

Sl no.	Book/book chapter Title	Author(s)	ISBN/ISSN number	Year of Publication	Name of the publisher
--------	-------------------------	-----------	------------------	---------------------	-----------------------

1.	Endophytic Bacteria a Novel Group of Microorganisms: A Review.	S. Panigrahi and C. C. <b>Rath.</b>		(2021) pp: 178-219.	Dr. R.B. Tripathi (Ed), Recent Trends in Life Sciences Research. India: Darshan Publishers
2.	Effect of Slag Addition on Compressive Strength and Microstructural Features of Fly Ash Based Geopolymer.	Dipankar Das, <b>Alok Prasad Das</b> , Prasanta Kumar Rout.	9781032108964	2021	Circular Economy in the Construction Industry. CRC Press.
3.	Emerging microfiber pollution and its remediation.	Mishra S. P.K. Rout and <b>Das A.P.</b>	2662-1681	2021	Microbial biotechnology and Environmental issues/ Remediation. Springer Nature.
4.	Current treatment technologies for removal of microplastic and microfiber pollutants from wastewater.	Mishra S. and <b>Das A.P.</b>	9780128218952	2021	Wastewater Treatment: Cutting Edge Molecular Tools, Techniques and Applied Aspects. Elsevier.

## PATENTS

Sl no.	Title of patent	Patent holders	Patent type & Country	Year of Filing	Status (Published/granted)
1	A field Compatible Biofungal composition for degradation of organophosphate insecticides.	D. Mohapatra, <b>S.K.Rath</b> and P.K.Mohapatra	Process, Indian	2021	Filed

## 1. Research Projects

S.No	Title of the project	Name of the PI/Co-PI	Funding Agency	Amount mobilized
1	Development of rapid diagnostic kit for early detection of rhizome rot	PI- <b>Dr. Shikha Singh</b>	DST, Govt. of India	2856800 lakhs

	in turmeric and ginger 2022	Co-PI- <b>Alok Prasad Das</b>		
--	--------------------------------	-------------------------------	--	--

## 2. Teachers' achievement

### Dr. Shikha Singh

- i. 201831003056: Inventor: Shikha Singh, Method of Detecting Rhizome Rot in Turmeric Crop and ICT Kit For Early Diagnosis of the Same.
- ii. Invited Speaker in National level seminar organized by Dept. of Botany, Awdhoot Bhagwan Ramji College, Kashi Vidyapith, 21<sup>st</sup> and 22<sup>nd</sup> May, 2022.
- iii. Invited speaker of International level Skill Based Training Programme (Virtual), Rama Devi Women's University, 10<sup>th</sup>-19<sup>th</sup> Feb, 2022.
- iv. Invited speaker of The 8th International Conference on Agricultural and Biological Sciences (ABS 2022), Digital rhizome rot diagnosis on to the field: an effortless approach for the farmers, Shenzhen University, China, June 29-30, 2020

### Dr. Sakti Kanta Rath

- i. Principal Investigator: Dr. Sakti Kanta Rath, Evaluation of Antimicrobial and Antidiabetic activities of selected parasitic plants of Odisha Science and Technology Dept., Govt. of Odisha, 6.76 Lakhs 2021 (Three Years).
- ii. 202031056520: Indian Patent: A field Compatible Biofungal composition for degradation of organophosphate insecticides. Inventors: D. Mohapatra, S.K.Rath and P.K.Mohapatra.

### Dr. Alok Prasad Das

- i. Delivered Invited talk in the International Conference on Advance in Energy, Environment for Sustainable Development, organized by Siksha O Anusandhan University, Bhubaneswar, Odisha and NIT Meghalaya, from 7-8 January 2022.
- ii. Delivered Invited talk in the International online Conference on Advanced Nano Materials, Organized by center for Nanaoscience & Technology, Mahatma Gandhi University, Kerala, from 14-16 December 2021.
- iii. Delivered Invited talk in the AICTE sponsored STTP on Functional Metagenomics and Bioprocessing of Therapeutic Enzymes organized by the Department of Biotechnology, Sri Venkateswara College of Engineering, Sriperumbudur, 22nd-27th February 2021.
- iv. Delivered Invited talk in the National Conference on Recent trends in Interdisciplinary

Research in Basic Science, IQAC cell, Pillai HOC college of Arts , Science & commerce, Rasayani, Maharashtra, India.

**Dr. Navneet Kaur**

- i. Attended International webinar on Managing References made easy using Mendeley at Miranda House, University of Delhi, 05 August, 2022
- ii. Attended IP Awareness/Training program under “National Intellectual Property Awareness Mission”, Organized by NIPAM, August 26,2022

**Dr. Mukta Mayee Kumbhar**

- i. Two days National Webinar on “NEP 2020: Towards Inclusively and Multidisciplinary in Higher Education. Organized by RD Women’s University, India, 7<sup>th</sup> – 8<sup>th</sup> June 2021
- ii. Attended Faculty Development Programme on “Effective stress management for maximizing human productivity”, RD Women’s University funded by IDP Cell, 9<sup>th</sup> to 13<sup>th</sup> June, 2021
- iii. Attended Faculty Development Programme on “Research Methodology and Project Writing”, IDP cell, RD Women’s University, Bhubaneswar, 07-11 July 2021.
- iv. Completed a Refresher Course in Zoology (2 Weeks), Organized by Teaching Learning Centre, Ramanujan College, University of Delhi in collaboration with Gargi College, University of Delhi, Under the aegis of Ministry of Education, PMMMNMTT, 25<sup>th</sup> April to 09 May 2022



### **Ms. Jamuna Tudu**

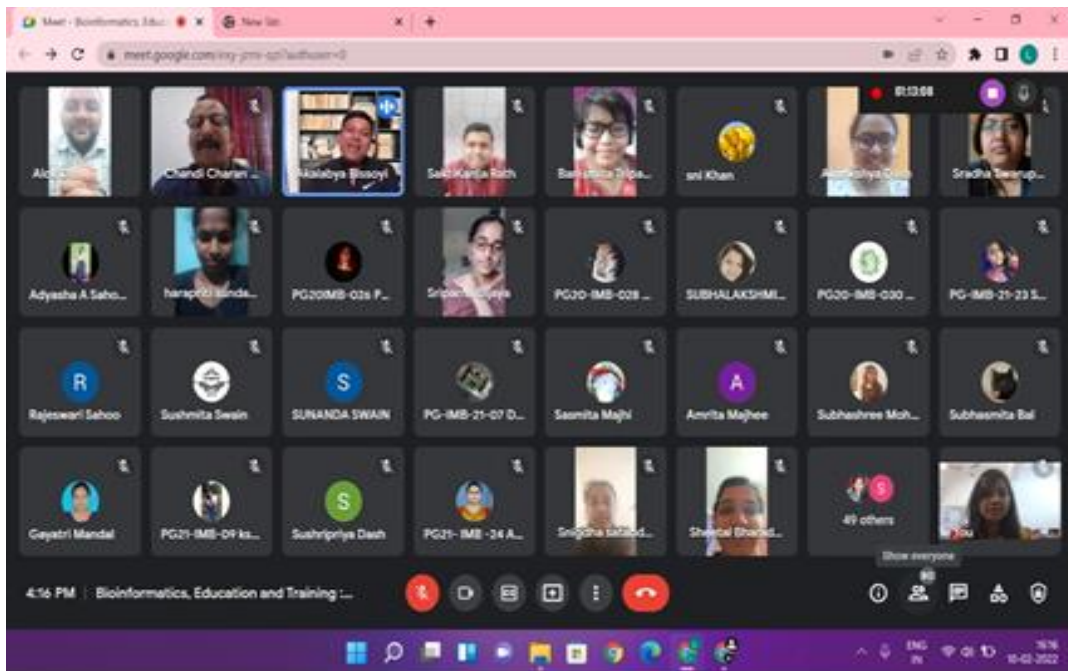
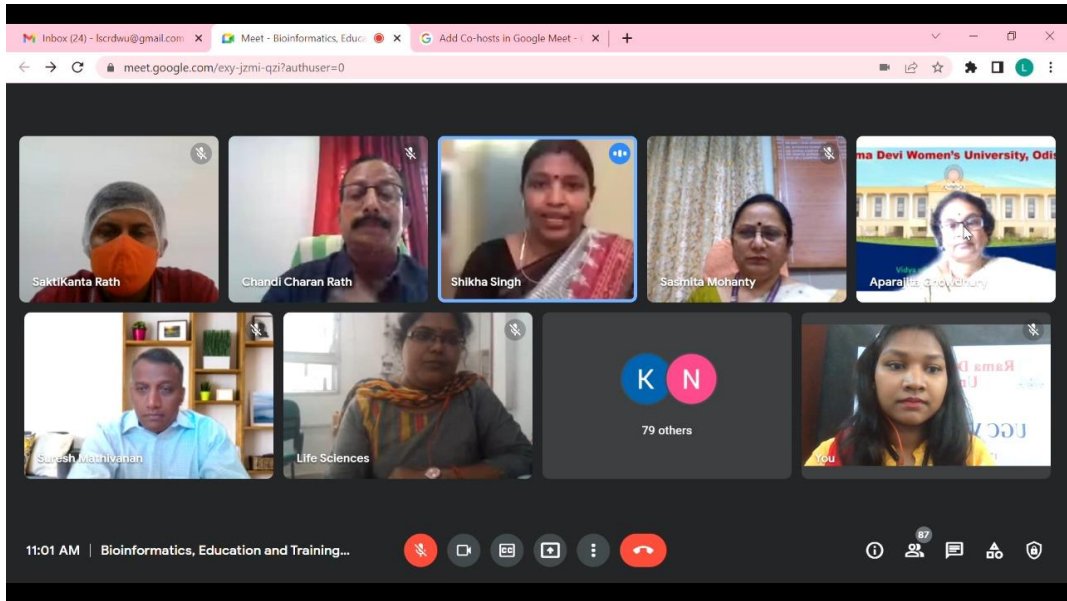
Attended Faculty Development Programme on “Effective stress management for maximizing human productivity”, RD Women’s University funded by IDP Cell, 9<sup>th</sup> to 13<sup>th</sup> June, 2021

### **3. Students' achievement**

- i. Biswasini Priyadarshini felicitated with Rs 10,000/- as the Winner in the inter university debate competition held on the eve of “world malaria day 2022” conducted by ICMR-RMRC, NAVBD & ILS-DBT at Ravenshaw university, 2022.
- ii. Biswasini Priyadarshini represented RDWU in English debate in the 1st Odisha Inter-University Competitions in Extracurricular Activities, 2022
- iii. Biswasini Priyadarshini awarded with cash prize Rs 2000/- by the Governor of Odisha for winning in English Debate in University Cup of Rama Devi Women’s University, 2021
- iv. Biswasini Priyadarshini awarded as best English debate by Ashok. C. Panda, Minister Of Science and Technology, Government of Odisha in collaboration with Odisha Bigyan Academy on the eve of National Science Day 2021
- v. Biswasini Priyadarshini won second best poster presentation-“Artificial Neural Network Model to Predict in Real Time COVID-19 like Outbreak in All Districts of Odisha” by Ashok. C. Panda, Minister of Science and Technology, Government of Odisha & Odisha Bigyan Academy on the eve of National science Day 2021
- vi. Biswasini Priyadarshini won 2nd prize in the English debate competition at Rama Devi Women's University on the eve of National Science Day, 2021
- vii. Biswasini Priyadarshini secured 2nd rank in online quiz competition held on 2nd October 2021, on the eve of Gandhi Jayanti 2021, by NSS UNIT -1 at RDWU
- viii. Manisha Kerketta and Tejaswini Dakua won 1st prize in Treasure Hunt 2021, at Rama Devi Women’s University
- ix. Biswasini Priyadarshini achieved Fellowship of Rs 48,000/- from Institute of mathematics and applications (IOMA), Government of Odisha by qualifying their written exam for Post Graduate merit scholarships for the duration of 2 years of master’s degree.

### **4. Seminars/FDPs/Workshops organized**

10 Days Skill based training programme on “Bioinformatics: Education & Training”, organized by Dept. of Life Sciences, RDWU from 10-02-2022 to 19-02-2022.





## 5. Social outreach programmes conducted:

On the eve of Science Day week celebration on Date 24th February, 2022 ten students of +2 Science, Rama Devi Women's Junior College & 10 students of Govt. Girl's High School, Unit -9 visited to Department of Life Sciences, Rama Devi Women's University, Bhubaneswar.

The students were introduced to all the faculty members of Life Sciences Department. They were allowed to visit the museum specimen laboratory and faculty members explained about each specimen in details. They were demonstrated with many techniques such as blood group determination techniques, haemoglobin estimation techniques, microbial culture techniques etc. They also trained with the working principle of various instrumentation viz. pH meter, laminar air flow, spectrophotometer, water bath, incubator, microscope etc. To assess the student's knowledge on science subject a quiz test was conducted and prizes were given to the students secured 1st, 2nd and 3rd position.



**Interaction of Faculty Members with Students**



**Interaction with PG Students of Life Sciences**



**Demonstration of Blood grouping techniques**



**Visitor Students in Life Sciences Lab**

**6. Any other**

- i. Alumni activities: NA**
- ii. Certificate/skill courses: NA**