ANNUAL REPORT-2022-23

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 of IAA producing Enterobacter sp. from soil of Similipal Biosphere Reserve and its exploit tp sustainable agriculture.	SK Jena, C. C. Rath & D. Parida.	International Journal of Botany and Research, 12(1) : 59-70	2022	https://www.tjprc.org/publishpapers/2-46-1654757607-8IJBRJUN202208.pdf

2.	Endangered Curcuma *caesia*Roxb.: Qualitative and quantitative analysis for identification of industrially important elite genotypes	Ankuri Benya, Subhadarsini Mohanty, Sujata Hota, Alok Prasad Das, Chandi Charan Rath, K. Gopinath Acharya, Shikha Singh,	Industrial Crops & Products, 195 116363, (IF: 6.5, SCOPUS).	2023	https://doi.org/10.1016/j.indcrop.2023.116363
3.	Identification and Molecular Characterization of Rhizopus delemar from Eastern Ghats of State of India and its Biotechnological Applications	Sujata Hota,K. Gopinath Achary &Shikha Singh	Geomicrobiology Journal	2023	https://doi.org/10.1080/01490451.2023.2231925
4.	Eco-toxicity of hexavalent chromium and its adverse impact on environment and human health in Sukinda Valley of India: A review on pollution and prevention strategies	Subhadarsini Mohanty, Ankuri Benya, Sujata Hota, M. Santhosh Kumar, Shikha Singh	Environmental Chemistry and Ecotoxicology 5: 46–54.	2023	http://dx.doi.org/10.1016/j.enceco.2023.01.002
5.	Expression of Estrogen Receptor Alpha (ESR1) in Breast Cancer: Role in Critical Diagnosis	Nayak B. B., Achary K.G., Behera S., Singh S.	Research Journal of Biotechnology, 2278-4535	2022	

6.	Assessment of correlations Between nutrients and physicochemical parameters along Western fringe areas of Chilika Lagoon for sustainable Development	Sasmita Panda and Shikha Singh	International Journal of Current Science Volume 12, Issue 2.	2022	
7.	Bauxite Mining Waste Pollution and its Sustainable Management through Bioremediation	G Pradhan, B Tripathy, DK Ram, AK Digal, AP Das	Geomicrobiology Journal	2023	https://doi.org/10.1080/01490451.2023.2235353
8.	Microfiber pollution and its microbial mitigation: A review on current trends and future prospects	AP Das, K Dutta, R Khatun, ID Behera, S Singh	Journal of the Taiwan Institute of Chemical Engineers	2023	https://doi.org/10.1016/j.jtice.2023.105104
9.	Ecotoxicity of mining pollutants on the environment and their remediation	**Alok Prasad Das,** Megharaj Mallavarapu, Shreya Ghosh	Ecotoxicity of mining pollutants on the environment and their remediation	2023	https://doi.org/10.1016/j.enceco.2023.08.002
10	Hexavalent Chromium Pollution and its Sustainable Management through Bioremediation	A.Paul, S.Dey, D. K. Ram & **A.P.Das**	Geomicrobiology	2023	https://doi.org/10.1080/01490451.2023.2218377
11	Bioremediation as an emerging technology for the removal of synthetic microplastic pollutants from marine ecosystem	Alok Prasad Dasa, Amar K. Mohanty, Eric D. van Hullebusch, Gisela Figueiredo	Marine Pollution Bulletin	2023	https://doi.org/10.1016/j.marpolbul.2023.115297

12	Maximization of Energy Recovery from Starch Processing Wastewater byThermophilic Dark Fermentation Coupled with Microbial fuel Cell Technology	Mohit Kumar, Soumya Pandit, Vinay Patel, Namita Khanna, Moupriya Nag, Dibyajit Lahiric, Rina RaniRay, **Alok Das**, and Debabrata Das	Geomicrobiology	2023	https://doi.org/10.1080/01490451.2023.2209555
13	Aquatic Microbial Diversity on Plastisphere: Colonization and Potential Role in Microplastic Biodegradation	S. Mishra, D. Dash, and **A.P.Das**	Geomicrobiology	2023	https://doi.org/10.1080/01490451.2023.2209750
14	A Critical Review on the Recovery of Base and Critical Elements from Electronic Waste-Contaminated Streams Using Microbial Biotechnology.	Mishra, S., Ghosh, S., van Hullebusch, E. D., Singh, S., & **Das, A. P.**	Applied Biochemistry and Biotechnology	2023 1–30.	https://doi.org/10.1007/S12010-023-04440-X
15	Endangered Curcuma caesia Roxb.: Qualitative and quantitative analysis for identification of industrially	Benya, A., Mohanty, S., Hota, S., **Das, A. P.,** Rath, C. C., Achary, K. G., & Singh, S.	Industrial Crops and Products,	2023 195, 116363.	https://doi.org/10.1016/J.INDCROP.2023.116363

	important elite genotypes.				
16	Ecotoxicological consequences of manganese mining pollutants and their biological remediation	Dey, S., Tripathy, B., Kumar, M. S., & **Das, A. P.**	Environmental Chemistry and Ecotoxicology.	2023	https://doi.org/10.1016/J.ENCECO.2023.01.001
17	Lead pollution: Impact on environment and human health and approach for a sustainable solution.	Raj, K., & **Das, A. P.**	Environmental Chemistry and Ecotoxicology,	2023 5,79-85	https://doi.org/10.1016/J.ENCECO.2023.02.001
18	Detection of Environmental Microfiber Pollutants through Vibrational Spectroscopic Techniques: Recent Advances of Environmental Monitoring and Future Prospects.	B. Tripathy, A.Dash, and **A. P. Das**	Critical Reviews in Analytical Chemistry	2022	https://doi.org/10.1080/10408347.2022.2144994
19	Microbial remediation of plastic pollutants generated from discarded and abandoned marine fishing nets.	P. P. Sahoo, S. Singh, P.K. Rout, S.Mishra, **A.P. Das**	Biotechnology and Genetic Engineering Reviews.	2022	https://doi.org/10.1080/02648725.2022.2152629

20	Detection, characterization and possible biofragmentation of synthetic microfibers released from domestic laundering wastewater as an emerging source of marine pollution	S. Mishra, D. Dash, and **A.P.Das**	Marine Pollution Bulletin.	2022, (185) 114254	doi: 10.1016/j.marpolbul.2022.114254
21	A Review on Heavy Metal Ion Adsorption on Synthetic Microfiber Surface in Aquatic Environments	S. Mishra, D. Dash, A. R. M. Tawaha, **A.P.Das**	Applied Biochemistry and Biotechnology.	2022	https://doi.org/10.1007/s12010-022-04029-w
22	Role of Microorganisms in Extenuation of Mining and Industrial Wastes	S Ghosh. and **A.P Das**	Geomicrobiology	2022	https://doi.org/10.1080/01490451.2022.2038953

BOOKS/BOOK CHAPTERS

Sl no.	Book/book chapter Title	Author(s)	ISBN/ISSN number	Year of Publication	Name of the publisher
1.	Recent advances in Microbiology Research	CC Rath	ISBN978-81-954602-3-6	2022	Darshan Publishers, Tamil Nadu, India,

2.	Endophytes: Novel Microorganisms for Plant Growth Promotion	CC Rath	ISBN 978-81-954602-403	2022	Darshan Publishers, Tamil Nadu, India,
3.	Manganese Mining Microorganisms	**A.P Das** Shreya Ghosh.	9780128221471	2023	Elsevier
4.	Microbial Remediation of Synthetic Microfiber Contaminated Wastewater	Mishra, S. Das, A.P.	978-981-99-2437-0	2023	Microbial Technologies in Industrial Wastewater Treatment, Springer
5.	Bioleaching of manganese from mining waste residues using Acinetobacter sp.	**Alok P Das,** Shreya Ghosh	9780128221471	2023	Manganese mining microorganisms, Elsevier
6.	Membrane bioreactor (MBR) as an advanced wastewater treatment technology for removal of synthetic microplastics.	Mishra, S. Singh, R.P. Rout, P.K **Das, A.P.**	9780323855839	2022	Development in Wastewater Treatment Research and Processes, Elsevier

PATENTS

Sl no.	Title of patent	Patent holders	Patent type & Country	Year of Filing	Status (Published/granted)
1	201831003056: Method of Detecting Rhizome Rot in Turmeric Crop and ICT Kit For Early Diagnosis of the Same	Inventor: Shikha Singh	India	2019	2nd hearing completed

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 in turmeric and ginger 2022	PI- Dr. Shikha Singh	DST, Govt. of India	48 lakhs
2	Investigation of Microbial remediation technology for Synthetic Microfiber pollution, 2023	PI: Dr. Alok Prasad Das	DST, Govt. of Odisha	9.08 Lakhs,

2. Teachers' achievement

Prof. Chandi Charan Rath

Prof Chandi Charan Rath-Best Teacher Award in Botany by Odisha Botanical Society-2022

Dr. Shikha Singh

i. NCBI sequence submitted Rhizopus delemar isolate CAR02 small subunit ribosomal RNA gene, partial sequence; internal transcribed spacer 1, 5.8S ribosomal RNA gene, and internal transcribed spacer 2, complete sequence; and large subunit ribosomal RNA gene, partial sequence, GenBank: OQ683833.1 in 2023, Authors:Hota,S., Prabina,K. and Singh,S.

ii. Awarded with “Excellence in Teaching and Research” by Society of Ecological Sustainability and M.S. Swaminathan School of Agriculture, Centurian University, 2022

iii. Awarded with “Research Excellence award” by Society of Ecological Sustainability in 2023.

Dr. Sakti Kanta Rath

Participated in the Training session on “Prevention of Women from Sexual Harassment at Work Place (Prevention, Prohibition and Redressal) Act 2013” held on 25.07.2022 at RDWU.

Participated in IPAwareness/ Training Programme under National Intellectual Property Awareness Mission on August 26, 2022 organised by Intellectual Property Office, India.

Delivered an Invited Lecture at the 45th Annual Conference of Orissa Botanical Society and National Seminar on Biotechnological Approaches for Mitigating Climate Change organised by Dept. of Botany, UN Auto. College of Science and Technology, Adaspur, Cuttack from 10-11th December, 2022

Participated in International Short Term Training Programme-VII "Biodiversity and Environment Conservation", Organized by Raj Rishi Govt. Autonomous College from 9th-15th March 2023.

Participated and successfully completed UGC approved Short Term Professional Development Programme under Pandit Madam Mohan Malaviya National Mission on Teachers and Teaching on "Implementation of NEP-2020 for University and College Teachers" from January 20-29, 2023.

Dr. Alok Prasad Das

i. Delivered Invited talk in the SOA WAL -2022, Organized by Department of Chemistry, Siksha O Anusandhan University, Bhubaneswar, Odisha on 17th September, 2022.

ii. Delivered Invited talk in the 3rd International Conference on Bioprocess for Sustainable Environment and Energy –2022, Organized by Department of Biotechnology, held on 20-24 June, 2022 at National Institute of Technology Rourkela.

iii. Delivered Invited talk in the International Conference on Recent trends in Biotechnology, Organized by Department of Biotechnology, Centurion University of Technology and Management, Bhubaneswar, Odisha, on 22-23 June, 2022.

iv. 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.

v. Delivered Invited Talk as Resource person at National Seminar on The current trends in Plant Science at Kendarapara Autonomous College, 25-26 February 2023.

vi. Delivered Invited Talk at International Conference on, Geosciences and Remote Sensing, GeoRS-2022, Microorganism in mining waste remediation Technologies. November 23-25.

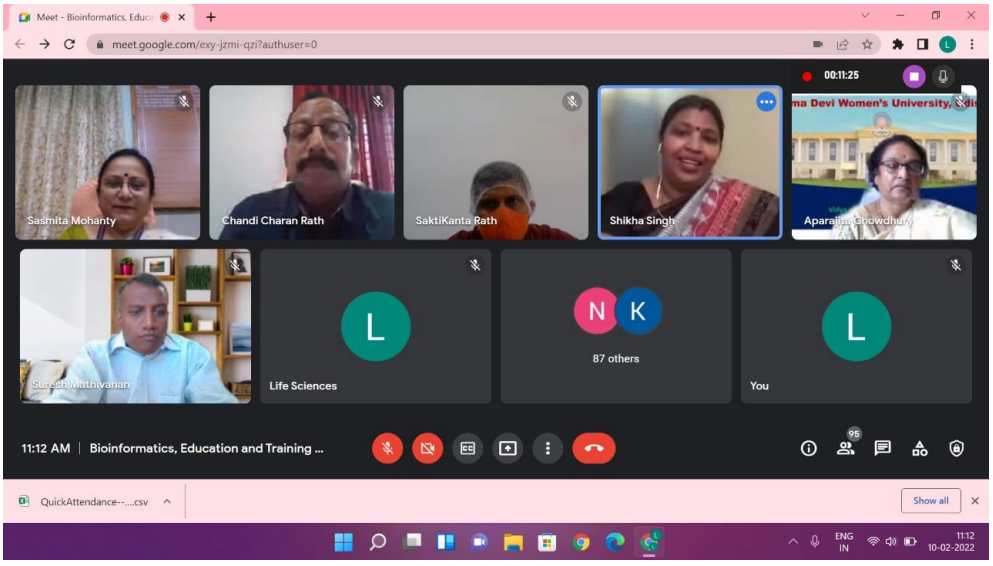
vii. Delivered Keynote talk at the Biospectrum-2022 conference on Metagenomic Exploration of Native Manganese Bioleaching Microorganism. 5th-6th November 2022.

3. Students' achievement

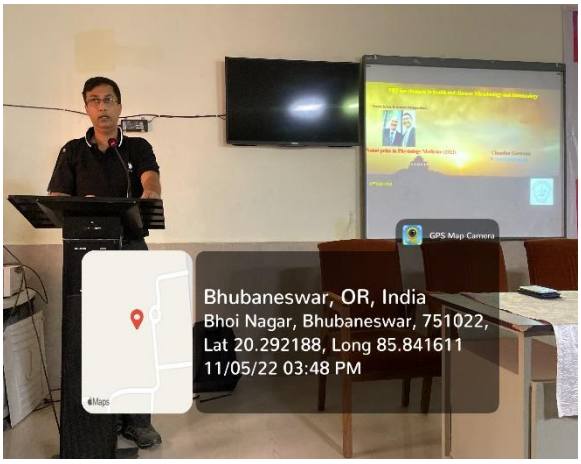
i. Banismita Tripathy and Sudeshna Dey- PG 2nd Year Students- 4th position in Open Boot Camp, 2022 organised by Science and technology Dept, Govt. of odisha in collaboration with KIIT-TBI and BCKIC Bhubaneswar
ii. Banismita Tripathy and Subhalaxmi Rout- PG 2nd Year students- Qualified TFIR GS2023 1st Round for Ph.D.
iii. SasmitaSunani- PG2nd Year student- 1st in Discuss Throw at District level in Women's Category
iv. SasmitaSunani- PG2nd Year student-2nd in Putting the shot at District level in Women's Category
v. SasmitaSunani- PG2nd Year student-1st in Javelin Throw at District level in Women's Category
vi. SasmitaSunani- PG2nd Year student-4th in Discuss Throw and Hammer Throw in 68th Athletic Meet, Odisha
vii. Suchita Behera-PG 1st Year Student-1st in slogan competition at District level on No Tobacco Day organised by Health and Family Welfare Department.
viii. Smiti Kana Ray- PG 1st Year-3rd in Seminar Presentation organised on occasion of National Seminar at S.B Women's College, Cuttack.

4. Seminars/FDPs/Workshops organized

i. Skill based training programme for UG and PG students on the topic entitled "Bioinformatics, Education and Training: Developing Skills while Learning", held from 10th -19th February 2022.



ii. Dept. of Life Sciences & Microbiologists Society, India (MSI) Local Unit Seminar Series on the theme "Microbes for better tomorrow", held from 9th – 12th May 2022.



i. Inauguration of Microbiologists Society, India (MSI) unit at P.G. Dept. of Life Sciences, Rama Devi Women's University by Hon'ble VC Prof. Aparajita Chowdhury & Prof. A.M. Deshmukh National President,MSI held on 12th March 2022.

ii. P.G. Department of Life Sciences in Collaboration with Microbiologists Society India (MBSI) Local Unit organised a Departmental Seminar on "Cell Therapy in Musculoskeletal Complications of Diabetes Mellitus". The Resource Person wasDr. Navneet Kumar Dubey, International Project Manager, Victory Biotechnology Co. Ltd., Taiwan held on 16th September 2022.

Dr. Navneet Kumar Dubey Delivering the Lecture

Dr. NK Dubey, Faculties and Students

iii. 7thProf. S.N. Patnaik Memorial Lecture was organised by Prof. Satyanarayan Patnaik Memorial Trust in collaboration with the Old Students' Association, Dept. of Botany, Utkal University & Dept. of Life Sciences and IQAC, Rama Devi Women's University. The lecture on "Stress Tolerance Crops for Future Agriculture" was delivered by Prof. Anil Grover, Head, Dept. of Plant Molecular Biology, University of Delhi, South Campus held on 26th September 2022.

Inauguration by Guests

Hon'ble Vice Chancellor's Address

Director, IQAC, RDWU's Address

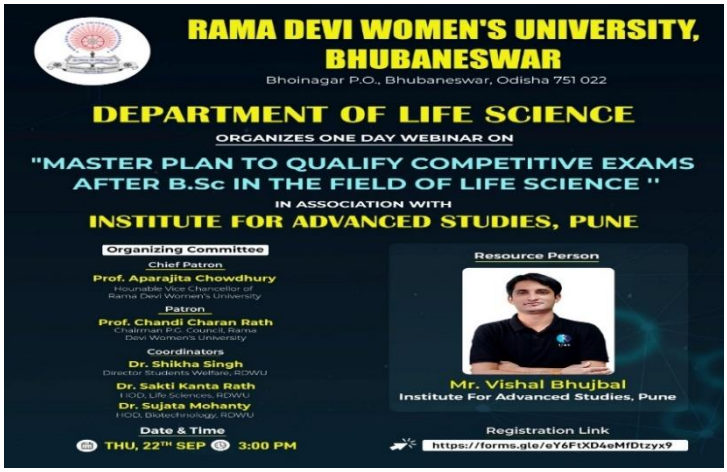
Prof. A. Grover's Lecture

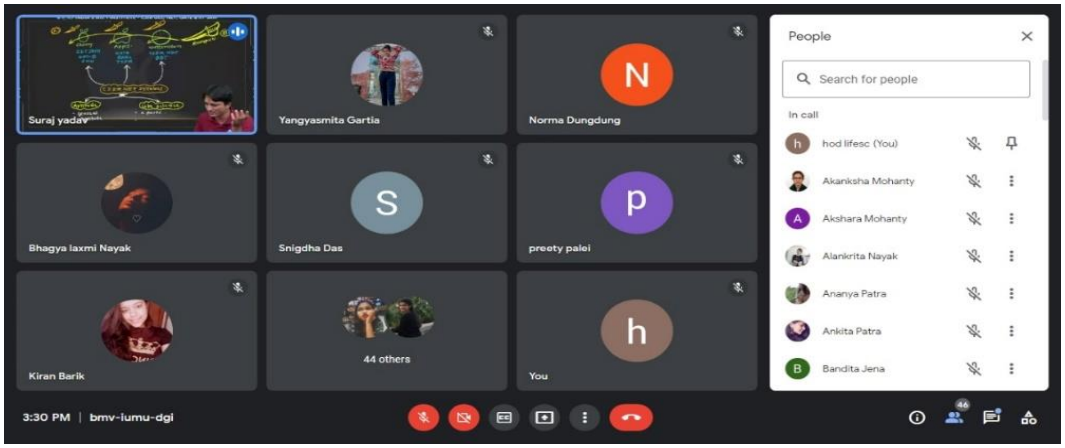
Rukmini Patnaik Award

Guests and Students

iv. Department of Life Sciences, Rama Devi Women's University in collaboration with Institute of Advanced studies, Pune organized a one day webinar on the topic "Master Plan to Qualify Competitive exams after B.Sc. in the field of Life Science" on 22.09.2022 at 3pm. The Speaker Mr. Vishal Bhujbal discussed different

strategies like preparing notes of topics exactly in the syllabus, practicing previous year questions, which will be help full for the students to crack the competitive exams like CSIR NET. The webinar was attended by PG students of Life Sciences, Biotechnology and Industrial Microbiology.





5. **Social outreach programmes conducted: Nil**

6. **Any other**

i. **Alumni activities**

The alumni meeting of Department of Life Sciences and Industrial Microbiology was held on 17.12.2022 at 2:30pm in the smart classroom of department of Life Sciences. The meeting was attended by all the faculty members, twelve (12) alumni members and current students of department.

Alumni Meet of Department of Life Science

ii. Certificate/skill courses

Course name: Scientific manuscript Writing: From paper to publication

Course duration: 03 months (January to March 2023)

Enrolled students: 43