

DEPT. OF BIOTECHNOLOGY
Rama Devi Women's University, Vidya Vihar, Bhubaneswar

ANNUAL REPORT 2021-22

1. MISSION

Biotechnology is the forefront of modern science and technology with enormous potential for the advantage of the human society. The Department aims at developing cutting edge research infrastructure, generation of human resource, popularization of biotechnology and technologies for societal benefits. Our mission is:

- Developing quality curriculum and research agenda for enhance efficiency in agriculture, molecular medicine and environmental sustainability.
- Developing a strong linkage between Academics, Research, and Industry across the country and abroad
- To instill confidence and leadership quality among the young talents by nurturing and, mentoring them.
- Developing skilled manpower in the field of biotechnology.
- Implementation of biotechnological tools for upliftment of women and rural population.

VISION

- To showcase the Department as a hub of global Biotechnology Research.
- Empowerment of society and ensuring equal opportunity to women through cutting edge technology education, training and research.

2. ACADEMIC PROGRAMME

- PhD in Biotechnology
- M.Sc in Biotechnology (Supported by DBT, Govt. of India)
- B.Sc in Biotechnology

3. PUBLICATIONS AND PATENTS

Publications – 16

List of Publications:

1. I. Mohanty, S. Banerjee, A. Mahanty, **Mohanty, S.***, N. R. Nayak, S. C. Parija, S. C. Mohanty, B. P. (2022) Proteomic Profiling and Pathway Analysis of Acid Stress-Induced Vasorelaxation of Mesenteric Arteries In Vitro. *Genes*, 13, 801.
2. Nanda S, Kumar G, Mishra R, **Joshi RK** (2021) Microbe assisted alleviation of heavy metal toxicity in plants: A review. **Geomicrobiology Journal**. Doi: 10.1080/01490451.2021.1979697. (IF- 2.3)
3. Mahanty B, Mishra R, **Joshi RK*** (2022) Molecular characterization of Zn(II)₂Cys₆ cluster gene family and their association with pathogenicity of the onion basal rot pathogen, *Fusarium oxysporum* sp. *cepae*. **Physiological and Molecular Plant Pathology**. Doi: [10.1016/j.pmpp.2021.101782](https://doi.org/10.1016/j.pmpp.2021.101782). (IF- 2.74)
4. Mallick, T., Mishra, R., **Mohanty, S.***, **Joshi, R. K.*** (2022) Genome Wide Analysis of the Potato Soft Rot Pathogen *Pectobacterium carotovorum* Strain ICMP 5702 to Predict Novel Insights into Its Genetic Features. *Plant Pathol J.* 38(2), 102-114.

5. Bhuban Mohan Padhiari, Asit Ray, Bibhuti Bhusan Champati, Sudipta Jena, Ambika Sahoo, Ananya Kuanar, Tarun Halder, Biswajit Ghosh, Pradeep Kumar Naik, Jeetendranath Patnaik, **Sujata Mohanty***, Pratap Chandra Panda, Sanghamitra Nayak (2022) Artificial neural network (ANN) model for prediction and optimization of bacoside A content in *Bacopa monnieri*: A statistical approach and experimental validation. *Plant Biosystems*. <https://doi.org/10.1080/11263504.2022.2048278>, Mar 2022 (IF – 2.8)
6. Santosh Gupta, Akriti Sharma, Sujan Paneerselvan, Sangeetha Kandoi, Bamadeb Patra, **Dillip Kumar Bishi**, Rama Shanker Verma. Generation and transplantation of hepatocytes-like cells using human origin hepatogenic serum for acute liver injury treatment. *Xenotransplantation* (2021 **Impact Factor 3.788**)
7. SC Chabattula, PK Gupta, SK Tripathi, R Gahtori, P Padhi, S Mahapatra, BK Biswal, SK Singh, K Dua, J Ruokolainen, Yogendra Kumar Mishra, NK Jha, **DK Bishi***, KK Kesari*. Anticancer therapeutic efficacy of biogenic Am-ZnO nanoparticles on 2D and 3D tumor models. *Materials Today Chemistry*, 2021, 22: 100618. (2021 **Impact Factor: 7.613**) (*Corresponding Author)
8. Vineeta Sharma, Sanat Kumar Dash, Kavitha Govarthan, Rekha Gahtori, Nidhi Negi, Mahmood Barani, Richa Tomar, Sudip Chakraborty, Santosh Mathapati, **Dillip Kumar Bishi**, Poonam Negi, Kamal Dua, Sachin Kumar Singh, Rohit Gundamaraju, Abhijit Dey, Janne Ruokolainen, Vijay Kumar Thakur, Kavindra Kumar Kesari, Niraj Kumar Jha, Piyush Kumar Gupta, Shreesh Ojha. Recent advances in cardiac tissue engineering for the management of myocardium infarction. *Cells*, 2021, 10(10), 2538. (2021 **Impact Factor: 7.666**)
9. Suneel Rallapalli, Soma Guhathakurta, **Dillip Kumar Bishi**, Rajasekaran Subbarayan, Santosh Mathapati, Purna Sai Korrapati. A critical appraisal of humanized alternatives to fetal bovine serum for clinical applications of umbilical cord derived mesenchymal stromal cells. *Biotechnology Letters*, 2021, 43(10), 2067–2083. (2021 **Impact Factor: 2.716**)
10. Gahtori R. Abomughaid M.M., Negi N., Krishnan S., Dhanasekaran S., Pandit S., Priya K., **Bishi D.K.***, Prasad R., Gupta P.K*. Delineating the role of phytochemicals against anti-bacterial drug Resistance-An update. *Biocell*, 2021, 45(6), 1465–1477. (2021 **Impact Factor: 1.254**) (*Corresponding Author)
11. **M. Mohanty*** (2021). Proteomics and Bioinformatics as Novel Tools in Phytoremediation Technology- An Overview. *Journal of Botanical Research*. 3(3): 4954. DOI: <https://doi.org/10.30564/jbr.v3i3.3380>

Book Chapter – 01

1. N. Nasim, I. S. Sandeep, S Nayak, S. Mohanty (2021) Cultivation and utilization of *Pandanus odorifer* for industrial application. Medicinal plants: domestication, Biotechnology and regional importance (Springer Nature). ISBN: 978-3-030-74779-4

Patents – 02

1. Patent File number: 2021104155 (Granted). Year of grant- 2021
Patent type: Australian innovation
Patent title: Methods for Molecular Mapping and Developing Diagnostic Markers for Detecting Anthracnose Resistance in Chili Pepper.
Inventors: Mishra Rukmini, Joshi Raj Kumar, Rout Elojita, Mohanty Jatindranath
2. Patent File number: 2021105189 (Granted). Year of grant-2021
Patent type: Australian innovation
Patent title: A Method for Creating Novel Anthracnose Resistant Pepper Plants

Using Genome Modification Technique.

Inventors: Joshi Raj Kumar, Mishra Rukmini, Mohanty Jatindranath, Mahanty Bijaylaxmi.

4. Research project /s sanctioned: 03 (in the current year)

Newly sanctioned research projects

S.No	Title of the project	Name of the PI/Co-PI	Funding Agency	Amount mobilized
1	Bioprospecting of <i>Ixora coccinea</i> plant extracts used by the tribal communities of Odisha for treatment of leucorrhoea	Dr Sanjay K Raul	Odisha State Higher Education Council, Govt. of Odisha	5.22 Lakhs
2	Bioprospecting of major phytochemical profile of <i>Coffea arabica</i> cultivated by the tribal communities of Koraput district of Odisha and its potential therapeutic effect.	Dr Sanjay K Raul	Science and Technology Department, Govt. of Odisha	9.96 Lakhs
3	A novel approach towards staphylococcal biofilm using synergism of lysostaphin conjugated silver nanoparticles from <i>Annona muricata</i> L. for biomedical applications	Dr Tilothama Bhotra	Odisha State Higher Education Council, Govt. of Odisha	7 Lkhs
4	Phyto nano technological interventions for hepatocellular carcinoma treatment – an invitro and in silico approach	Dr Dillip K Bishi	Science and Technology Department, Govt. of Odisha	10 lakhs

Ongoing sanctioned research projects

S.No	Title of the project	Name of the PI/Co-PI	Funding Agency	Amount mobilized
1	DBT sponsored PG teaching programme in Biotechnology	Coordinator- Prof. Sasmita Mohanty	DBT, Govt. of India	180 Lakhs
2	Engineering anthracnose resistance in chilli pepper (<i>Capsicum annuum</i> L.) using a single transcript CRISPR/Cas9 genome editing system. (In collaboration with CUTM, Bhubaneswar)	Dr. Raj Kumar Joshi	SERB, Govt. of India	31.00 Lakhs
3	Propagation of elite Kewda (<i>Pandanus fascicularis</i>) in association with other aromatic crops to enhance farmer's income through high quality oil production. (In collaboration with SOA, University & FFDC, Kannauj)	Dr. Sujata Mohanty	DBT, Govt. of India	87.94 Lakhs

5. Faculty achievements (Awards/honours, training/workshops attended, presentation in conferences etc.)

5.1 Awards/honours/recognition:

Sl No	Name of Faculty	Awards/honours/recognition

1	Prof Sasmita Mohanty	Research excellence award, Institute of Scholars, Bengaluru, 2021
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5.2 Training/workshop attended

Sl no.	Name of Faculty	Training/workshop attended with month/year
1	Prof. Sasmita Mohanty	Online Advanced FDP on “Organizational Behaviour” AICTE Training and Learning (ATAL) Academy at NIPER, Hyderabad, 13 th Sept 2021 to 17 th Sept 2021
2	Dr Sujata Mohanty	Researcher Academy on Campus workshop on “Identifying Fake, Cloned, Predatory Journals in Academics” OSHEC, Govt. of Odisha in collaboration with Elsevier, 25 th April 2022.
3	Dr R K Joshi	Researcher Academy on Campus workshop on “Identifying Fake, Cloned, Predatory Journals in Academics” OSHEC, Govt. of Odisha in collaboration with Elsevier, 25 th April 2022.
4	Dr Dillip K Bishi	Two-day faculty development online workshop on “Games for Classroom Teaching” Teaching and Learning Centre at the Centre for Science and Society, IISER Bhopal, 11 th -12 th March 2022.
5	-do-	Researcher Academy on Campus workshop on “Identifying Fake, Cloned, Predatory Journals in Academics” OSHEC, Govt. of Odisha in collaboration with Elsevier, 25 th April 2022.
6		Researcher Academy on Campus workshop on “Understanding Research Metrics and Elsevier’s Science Direct” 25 th February, 2022
7	Dr Monalisa Mohanty	Researcher Academy on Campus workshop on “Identifying Fake, Cloned, Predatory Journals in Academics” OSHEC, Govt. of Odisha in collaboration with Elsevier, 25 th April 2022.
8	Dr Tilothama Bhotra	Researcher Academy on Campus workshop on “Identifying Fake, Cloned, Predatory Journals in Academics” OSHEC, Govt. of Odisha in collaboration with Elsevier, 25 th April 2022.

5.3 Presentation in conference

Sl no.	Name of Faculty	Details of conference/presentation title/organizers/month and year
1	Dr Sujata Mohanty	International conference on emerging technologies of Biotechnology, March 10-12, 2022
2	-do-	International e conclave on women scientist in science and technology with special reference to Biotechnology, March 8-10, 2022
3	Dr Raj K Joshi	International conference on Bioresource of Our environment: Utilization & Conservation, 28 th -30 th March 2022
4	-do-	2 nd International Conference on Agriculture and Horticulture, 29 th -30 th November 2021, 29 th -30 th November 2021
5	-do-	3 rd International Conference on Agriculture and Horticulture, 4 th -5 th April 2022
	-do-	Introducing ISO-Seq on PacBio Sequel 2; the present and future of Transcriptome studies, 29 April 2020
6	Dr Monalisa Mohanty	International conference on emerging technologies of Biotechnology, March 10-12, 2022
7	Dr Dillip K Bishi	Seminar organized by Department of Botany, Ravenshaw University, Cuttack, Odisha, 31 st May, 2022

8	-do-	Seminar on “Telomere Biology” organized by Sri Sathya Sai Sanjeevani Research Foundation, Gurugram, 11 th December, 2021
9	-do-	Science Popularization Program of Centre for Cosmology and Science Popularization (CCSP), SGT University, Gurugram, Haryana, India, 31 st October, 2021
10	Dr Sanjay K Raul	“Role of Bio-analytical Techniques in Biotechnology” in the Dept of Botany, SR Mahavidyalaya, Baliapal, Balasore. 29 th December 2021

6. Student’s achievement

Qualification in entrance exams

- **Students qualified GATE 2022**

1. Sruti Manjari Parida
2. Soumyashree Dash
3. Jagatjita Malick
4. V. Ramya
5. Akankshya Mohanty

- **Students qualified GAT-B 2022**

1. Subhalaxmi Moharana
2. Neha Padhi
3. Baisali Mohapatra
4. Preity Pragyan Sahoo
5. Sangita Behera

- **Prizes**

✓ **Ms. Bijaylaxmi Mohanty (PhD Scholar)**

Second prize in Poster Competition Organised by : Centurion University as the part of the event : International Conference on Bioresources of Our Environment : Utilization and Conservation (ICBEUC)

✓ **Ms. T Sravya Shruti and Ms. Subhranshi (PhD Scholar)**

- **Third prize in Agri-Quiz Competition** Organised by: KIIT University as the part of the event : 3rd National Conference on Realigning Indian Agriculture for A Sustainable Future (5farming)

7. Seminars/Conferences/Workshops/Webinars organised:

Sl no.	Name of the conference/seminar/webinar	Organized by	Date of conference
1	3rd National Conference on ‘Realigning Indian Agricultural for a Sustainable Future’ (5F Farming 2022)	Dept. of Biotechnology	10th - 12 th March, 2022 (2 days)
2	BIOSPECTRUM-Biotechnology- Industry Interaction Series Dr. Neera Singh, Founder Director, ProCyto Labs, KIIT-TBI, Bhubaneswar.	-do-	14 th May 2022
3	BIOSPECTRUM-Biotechnology- Industry Interaction Series Aman Abhishek, National Business Manager, BIOWORLD	-do-	18 th May 2022
4	ROSALIND FRANKLIN SEMINAR SERIES on “Evolution, Development, Body size and Reproductive Isolation : An Integrative Biology Approach using Drosophila” Dr. Shampa M. Ghosh , KIIT school of Biotechnology, Bhubaneswar	-do-	12 th March 2022
5	ROSALIND FRANKLIN SEMINAR SERIES on “Cell Mediated Immunity (CMI) and Immune Regulation in Health and Diseases”	-do-	17 th March 2022

	Dr. Subhasis Chattopadhyay, School of Biological Sciences, NISER, Bhubaneswar.1		
6	ROSALIND FRANKLIN SEMINAR SERIES on “Protein Degradation: Destruction for the sake of construction” Dr. Indrajit Sahu, Harvard Medical School, Boston, MA, USA.	-do-	25 th April 2022
7	Skill Based Training Programme in Bio-entrepreneurship	-do-	7 th - 17th February, 2022

8. Industry/Lab Visit:

Sl No	UG/PG students	No of students and Date	Industry/ Lab	Accompanying Teacher(s)
1	UG 3 rd Yr students	24	Odisha state food testing laboratory	Dr S K Raul

Sujata Mohanty

Dr Sujata Mohanty
Assoc Prof and Head
Dept of Biotechnology

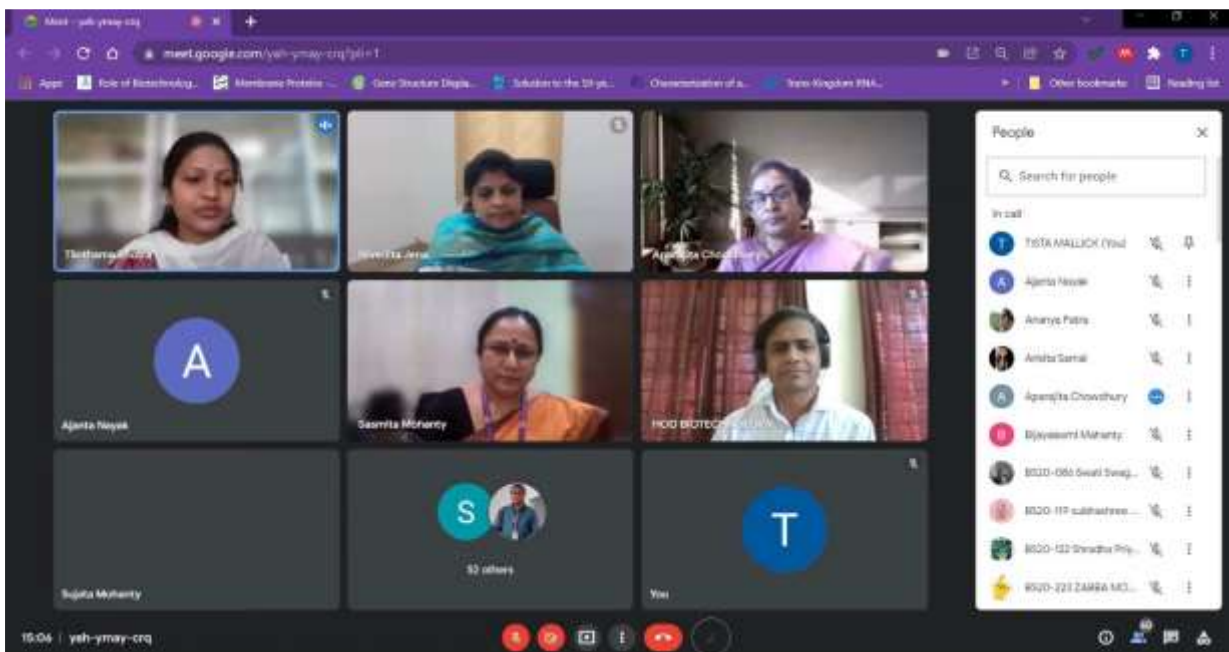
Selected Galleries



Dr. Indrajit Sahu with the faculty members and students of the Dept of Biotechnology, RDWU



Dr. Subhasis Chattopadhyay, School of Biological Sciences, NISER, Bhubaneswar speaking at Rama Devi Women's University on 17.03.2022



Inaugural session of the Skill Training programme in Bio entrepreneurship presided by Prof. Aparajita Chowdhury, Hon'ble Vice Chancellor, RDWU. The Chief speaker was Dr. Nivedita Jena, Chief Executive Officer, DBT-ILS Bioincubator



Prof. Aparajita Chowdhury, Hon'ble Vice Chancellor, Rama Devi Women's University, Bhubaneswar, Prof. Sasmita Mohanty, Chairperson, PG Council, RDWU, Dr. Raj Kumar Joshi, Head, Biotechnology, RDWU along with faculty members at the "5F Farming 2022"



Team Rama Devi Women's University won the third prize in the Agri-Quiz event held during "5F Farming 2022"