


FACULTY PROFILE

Title	Dr.	First Name	SUBHASWARAJ	Last Name	PATTNAIK	Photograph
Department	ZOOLOGY, Assistant Professor in Zoology (OES-I)-College Branch					
Address	AT- Bhima Bhoi Nagar; PO- Budharaja Sambalpur, Odisha, 768004					
Mobile	+91-8763777859					
Fax						
Email	pattnaiksslifesc26590@gmail.com					
Web-Page						
Education						
<i>Subject</i>	<i>Institution</i>		<i>Year</i>	<i>Details</i>		
Post-Doctoral (National Post-Doctoral Fellow)	Department of Biotechnology and Bioinformatics, Sambalpur University		2022-23	Project Title: “Development of Plants-based Natural Products from the Gandhamardan Hills, Odisha for Inhibition of Biofilm Producing and Efflux Pump Mediated Drug-Resistant Bacteria: Bioactive-guided Fractionation and Mechanistic Study”		
Ph.D.	Department of Microbiology, School of Life Sciences, Pondicherry University		2021	Thesis Title: “Deciphering the Anti-Infective Potential of Bioactive Metabolites of <i>Diaporthe phaseolorum</i> SSP12 and <i>Aspergillus ochraceopetaliformis</i> SSP13 in Down-Regulation of Quorum Sensing Regulatory Network in <i>Pseudomonas aeruginosa</i> PAO1”		
M.Phil.	School of Life Sciences, Sambalpur University		2015	Dissertation Title: “Assessment of Radioprotective Potential of Ethanolic Leaf and Stem Extract of <i>Bryophyllum pinnatum</i> against Gamma Radiation Induced Hepatotoxicity in Swiss Albino Rats”		
M.Sc.	School of Life Sciences, Sambalpur University		2013	Dissertation Title: “Studies on Anti-mitotic Activity of <i>Nostoc</i> sp. in <i>Allium sativum</i> ”		
B.Sc.	Gangadhar Meher (Autonomous) College, Sambalpur University		2011	Hons.: ZOOLOGY Pass.: BOTANY Major Elective: BIOTECHNOLOGY		
+2 (I.Sc.)	Gangadhar Meher Junior College, Sambalpur		2008	PCBM (Physics, Chemistry, Biology, Mathematics)		
Matriculation (10 th Board)	S.A.I.I.E&R, Sambalpur		2006	FLO, SLE, TLS, MTA, MTG, SCP, SCL, SSG, SSH		
Career Profile						
<i>Organization/ Institution</i>		<i>Designation</i>		<i>Duration</i>	<i>Role</i>	
Govt. Women’s College, Sambalpur		Assistant Professor in Zoology (OES-I), College Branch		11 th January 2024 onwards	TEACHING	
Department of Biotechnology and Bioinformatics, Sambalpur University		Post-Doctoral Research Fellow (N-PDF)		01 ST January, 2022 to 31 ST December, 2023	RESEARCH	

Department of Microbiology, School of Life Sciences, Pondicherry University	Ph.D Research Scholar (SRF)	27 TH August 2015 to 22 ND January, 2021	RESEARCH
Govt. Women's College, Sambalpur	Guest Faculty in Zoology	08 th September 2014 to 31 st January 2015	TEACHING
Bhima Bhoi College, Rairhakhol, Sambalpur	Guest Faculty in Zoology	12 th August 2013 to 07 th February, 2014	TEACHING

Research/ Interests/ Specialization

- Natural Products in Drug Discovery and Development
- Microbial Drug Discovery, Quorum Sensing and Biofilm Dynamics
- Antimicrobial and Anti-Infective Therapies
- Drug Repurposing targeting Microbial infections
- Nanotherapeutics and Drug Delivery System
- Understanding the Molecular Mechanisms Involved in Microbial Infections in Hosts

Teaching Experience (Subjects/ Courses Taught)

- Have experience in teaching different aspects of Zoology in Undergraduate (U.G) and Post-Graduate (P.G) courses;
- **UG Courses taught:**
 - I. Core II: Principles of Ecology
 - II. Core III: Non-Chordates II: Coelomates
 - III. Core IV: Cell Biology
 - IV. Core VIII: Comparative Anatomy of Vertebrates
 - V. Core IX: Physiology: Life-Sustaining Systems
 - VI. Core X: Biochemistry of Metabolic Processes
 - VII. Core XIV: Evolutionary Biology
 - VIII. DSE III: Wildlife Conservation and Management
 - IX. GE II: Food, Nutrition and Health
 - X. GE IV: Cell and Molecular Biology
- **PG Courses taught:**
 - I. ZOOL 411: Animal Diversity
 - II. ZOOL 413: Inheritance Biology
 - III. ZOOL 421: Biophysical Chemistry
 - IV. ZOOL 422: Enzyme Technology and Microbiology
 - V. ZOOL 423: Molecular Biology
 - VI. ZOOL 424: Animal Physiology and Endocrinology
 - VII. ZOOL 511: Immunology
 - VIII. ZOOL 513: Bioinstrumentation
 - IX. ZOOL 521: Genetic Engineering
 - X. ZOOL 522: Ecology and Conservation Biology

Honors & Awards				
1. Selected for Assistant Professor in Zoology (Stage I), College Branch in Govt. Degree Colleges in Odisha conducted by Odisha Public Service Commission (OPSC) and secured Rank 1 .				
2. Selected for DST-SERB National Post-Doctoral Fellowship (NPDF) program to pursue Post-Doctorate research work from 1 st January 2022.				
3. Selected for coveted Council of Scientific and Industrial Research (CSIR)-Senior Research Fellowship (CSIR-SRF) in January 2019 .				
4. Qualified CSIR-UGC NET (LS), June-2018 with AIR 27 .				
5. Qualified for GATE-2013 examination in March 2013 with a GATE SCORE OF 373 with an AIR 562 .				
Publications: Articles				
S. No.	Articles	Publisher	Year	ISSN/ISBN
1.	Cheruvanachari P, Pattnaik S , Mishra M, Pragyandipta P, Pattnaik A, Naik PK. 2023 . Deciphering the antibiofilm potential of 2-Phenylethyl methyl ether (PEME), a bioactive compound of Kewda essential oil against <i>Staphylococcus aureus</i> . <i>Microbial Pathogenesis</i> . 179:106093. https://doi.org/10.1016/j.micpath.2023.106093	ELSEVIER	2023	eISSN:1096-1208
2.	Cheruvanachari P, Mishra M, Pattnaik S , Naik PK. 2023 . Determination of antibacterial and anti-biofilm potential of Kewda essential oil against <i>Staphylococcus aureus</i> and <i>Klebsiella pneumoniae</i> . <i>Biologia</i> . 78: 2253-2260. https://doi.org/10.1007/s11756-023-01360-3	SPRINGER NATURE	2023	eISSN:1336-9563
3.	Anju VT, Busi S, Imchen M, Kumavath R, Mohan MS, Salim SA, Subhaswaraj P , Dyavaiah M. 2022 . Polymicrobial biofilms: Clinical significance and eradication strategies. <i>Antibiotics</i> . 11(12):1731. https://doi.org/10.3390/antibiotics11121731	MDPI	2022	eISSN:2079-6382
4.	Imchen M, Anju VT, Busi S, Mohan MS, Subhaswaraj P , Dyavaiah M, Kumavath R. 2022 . Metagenomic insights into taxonomic, functional diversity and inhibitors of microbial biofilms. <i>Microbiological Research</i> . 265:127207. https://doi.org/10.1016/j.micres.2022.127207	ELSEVIER	2022	eISSN:1618-0623
5.	Pattnaik S , Imchen M, Kumavath R, Prasad R, Busi S. 2022 . Bioactive microbial metabolites in Cancer therapeutics: Mining, Repurposing, and their molecular targets. <i>Current Microbiology</i> . 79(10):300. https://doi.org/10.1007/s00284-022-02990-7	SPRINGER NATURE	2022	eISSN:1432-0991
6.	Jit BP, Pattnaik S , Arya R, Dash R, Sahoo SS, Pradhan B, Bhuyan PP, Behera PK, Jena M, Sharma A, Agrawal PK, Behera RK. 2022 . Phytochemicals: A potential next-generation agent for radioprotection. <i>Phytomedicine</i> . 106:154188. https://doi.org/10.1016/j.phymed.2022.154188	ELSEVIER	2022	eISSN:1618-095X
7.	Pala R, Pattnaik S , Busi S, Nauli SM. 2021 . Nanomaterials as novel cardiovascular theranostics. <i>Pharmaceutics</i> . 13:348. https://doi.org/10.3390/pharmaceutics13030348	MDPI	2021	eISSN:1999-4923
8.	Ahmed T, Pattnaik S , Khan MB, Ampasala DR, Busi S, Sarma VV. 2020 . Inhibition of quorum sensing associated virulence factors and biofilm formation in <i>Pseudomonas aeruginosa</i> PAO1 by <i>Mycoleptodiscus indicus</i> PUTY1.	SPRINGER NATURE	2020	eISSN:1678-4405

	<i>Brazilian Journal of Microbiology.</i> 51:467-487. https://doi.org/10.1007/s42770-020-00235			
9.	Subhaswaraj P , Syed A, Siddhardha B. 2020 . Novel nanotherapeutics as next-generation anti-infective agents: Current trends and future perspectives. <i>Current Drug Discovery Technologies.</i> 17:455-467. https://doi.org/10.2174/1570163816666190715120708	BENTHAM SCIENCE	2020	eISSN:1875-6220
10.	Jalli N, Santhi Sri KV, Hnamte S, Pattnaik S , Paramanathan P, Siddhardha B. 2019 . Antioxidant, anti-quorum sensing, and anti-biofilm potential of ethanolic leaf extract of <i>Phrynium capitatum</i> and <i>Dryptes indica</i> . <i>Asian Pacific Journal of Tropical Biomedicine.</i> 9(8):323-332. https://doi.org/10.4103/2221-1691.262082	Wolters Kluwer	2019	eISSN:2588-9222
11.	Pattnaik S , Barik S, Muralitharan G, Busi S. 2018 . Ferulic acid encapsulated chitosan tripolyphosphate nanoparticles attenuate quorum sensing regulated virulence and biofilm formation in <i>Pseudomonas aeruginosa</i> PAO1. <i>IET Nanobiotechnology.</i> 12(8):1056-1061. https://doi.org/10.1049/iet-nbt.2018.5114	WILEY	2018	eISSN:1751-875X
12.	Subhaswaraj P , Barik S, Macha C, Chiranjeevi PV, Siddhardha B. 2018 . Anti quorum sensing and anti biofilm efficacy of cinnamaldehyde encapsulated chitosan nanoparticles against <i>Pseudomonas aeruginosa</i> PAO1. <i>LWT Food Science and Technology.</i> 97:752-759. https://doi.org/10.1016/j.lwt.2018.08.011	ELSEVIER	2018	eISSN:1096-1127
13.	Pattnaik S , Hnamte S, Sudharshan SJ, Dyavaiah M, Busi S. 2018 . Determination of antioxidant potential of selected wild edible mushrooms from India in a <i>Saccharomyces cerevisiae</i> model system. <i>International Journal of Medicinal Mushroom.</i> 20(6):569-580. https://doi.org/10.1615/IntJMedMushrooms.2018026531	BEGELL HOUSE	2018	eISSN:1940-4344
14.	Pala R, Zeng Y, Pattnaik S , Busi S, Alomari N, Nauli SM, Liu G. 2018 . Functionalized Silver Nanoparticles for Sensing, Molecular Imaging, and Therapeutic Applications. <i>Current Nanomedicine.</i> 8:1-17. https://doi.org/10.2174/2468187308666180508144919	BENTHAM SCIENCE	2018	eISSN:2468-1881
15.	Pattnaik S , Ranganathan S, Ampasala DR, Ahmed T, Sarma VV, Busi S. 2018 . <i>Aspergillus ochraceopetaliformis</i> SSP13 modulates quorum sensing associated virulence and biofilm formation in <i>Pseudomonas aeruginosa</i> PAO1. <i>Biofouling.</i> 34(4):410-425. https://doi.org/10.1080/08927014.2018.1460748	TAYLOR & FRANCIS	2018	eISSN:1029-2454
16.	Pattnaik SS , Ranganathan S, Ampasala DR, Syed A, Ameen F, Busi S. 2018 . Attenuation of quorum sensing regulated virulence and biofilm development in <i>Pseudomonas aeruginosa</i> PAO1 by <i>Diaporthe phaseolorum</i> SSP12. <i>Microbial Pathogenesis.</i> 118:177-189. https://doi.org/10.1016/j.micpath.2018.03.031	ELSEVIER	2018	eISSN:1096-1208

17.	Subhaswaraj P , Sowmya M, Jobina R, Sudharshan SJ, Dyavaiah M, Siddhardha B. 2017 . Determination of antioxidant potential of <i>Acacia nilotica</i> leaf extract in oxidative stress response system of <i>Saccharomyces cerevisiae</i> . <i>Journal of the Science of Food and Agriculture</i> . 97:5247-5253. https://doi.org/10.1002/jsfa.9366	WILEY	2018	eISSN:1097-0010
18.	Subhaswaraj P , Sowmya M, Bhavana V, Dyavaiah M, Siddhardha B. 2017 . Determination of antioxidant activity of <i>Hibiscus sabdariffa</i> and <i>Croton caudatus</i> in <i>Saccharomyces cerevisiae</i> model system. <i>Journal of Food Science and Technology</i> . 54(9): 2728-2736. https://doi.org/10.1007/s13197-017-2709-2	SPRINGER NATURE	2018	eISSN:0975-8402
19.	Anil Kumar V, Ammani K, Jobina R, Subhaswaraj P , Siddhardha B. 2017 . Photo-induced and phytomediated synthesis of silver nanoparticles using <i>Derris trifoliata</i> leaf extract and its larvicidal activity against <i>Aedes aegypti</i> . <i>Journal of Photochemistry and Photobiology B: Biology</i> . 171: 1-8. https://doi.org/10.1016/j.photobiol.2017.04.022	ELSEVIER	2017	eISSN:1873-2682
20.	Pattnaik S , Rajkumari J, Paramanandham P, Busi S. 2017 . Indole Acetic Acid Production and Growth-Promoting Activity of <i>Methylobacterium extorquens</i> MP ₁ and <i>Methylobacterium zatmanii</i> MS ₄ in Tomato. <i>International Journal of Vegetable Science</i> . 23(4):321-330. https://doi.org/10.1080/19315260.2017.1283381	TAYLOR & FRANCIS	2017	eISSN:1931-5279

Publications: Book Chapter

S. No.	Articles	Publisher	Year	ISSN/ISBN
1.	Pattnaik S , Mishra M, Naik PK. 2024 . Computational approaches for the inhibition of ESKAPE pathogens. In: ESKAPE Pathogens virulence factors and biofilm components: Synthesis, Structure, Function and Inhibitors. Busi S., and Prasad R. (Eds.). pp.. Springer Nature. pp. 503-544. https://doi.org/10.1007/978-981-99-8799-3_19	SPRINGER NATURE	2024	978-981-99-8801-3
2.	Pattnaik S , Mishra M, Naik PK. 2024 . Phytochemicals as potential antibacterial agents against ESKAPE pathogens. In: ESKAPE Pathogens virulence factors and biofilm components: Synthesis, Structure, Function and Inhibitors. Busi S., and Prasad R. (Eds.). pp. Springer Nature. pp. 379-419. https://doi.org/10.1007/978-981-99-8799-3_14	SPRINGER NATURE	2024	978-981-99-8801-3
3.	Pattnaik S , Mishra M, Naik PK. 2023 . Alternative strategies for combating antibiotic resistance in microorganisms. In: Antimicrobial Photodynamic Therapy: Concepts and Applications. Busi S., and Prasad R. (Eds.). pp. 65-109. https://doi.org/10.1201/9781003345299-5	CRC PRESS	2023	978-100-33-4529-9
4.	Pattnaik S , Mishra M, Singh H, Naik PK. 2023 . Novel perspectives on phytochemicals-based approaches for mitigation of biofilms in ESKAPE pathogens: Recent trends	ELSEVIER	2023	978-0-443-19143-5

	and future avenues. In: Recent Frontiers of Phytochemicals: Applications in Food, Pharmacy, Cosmetics and Biotechnology. Pati S. et al., (Eds.). pp. 433-454. https://doi.org/10.1016/B978-0-443-19143-5.00005-0			
5.	Mishra M, Pattnaik S , Singh H, Naik PK. 2023 . Exploring the role of Mahua as a functional food and its future perspectives. In: Recent Frontiers of Phytochemicals: Applications in Food, Pharmacy, Cosmetics and Biotechnology. Pati S. et al., (Eds.). pp. 109-121. https://doi.org/10.1016/B978-0-443-19143-5.00030-X	ELSEVIER	2023	978-0-443-19143-5
6.	Subhaswaraj P , Siddhardha B. 2022 . Molecular docking and molecular dynamic simulation approaches for drug development and repurposing of drugs for severe acute respiratory syndrome-Coronavirus-2. In: Computational Approaches for Novel Therapeutic and Diagnostic Designing to Mitigate SARS-CoV-2 Infection. Parihar A. et al., (Eds.). pp. 207-246. https://doi.org/10.1016/B978-0-323-91172-6.00007-8	ELSEVIER	2022	978-0-323-99800-0
7.	Pattnaik S , Siddhardha B. 2021 . Next generation OMICS: a tool to understand the diversity of soil microbiota and improvement of agricultural sustainability. In: Microbes in Land Use Change Management. Singh JS. et al., (Eds.). pp. 221-238. https://doi.org/10.1016/B978-0-12-824448-7.00013-9	ELSEVIER	2021	978-0-323-85894-6
8.	Pattnaik SS , Paramanathan P, Busi S. 2020 . Agricultural importance of phyllosphere microbiome: Recent trends and future perspectives. In: The Plant Microbiome in Sustainable Agriculture. Srivastava AK. et al., (Eds.). pp. 119-140. https://doi.org/10.1002/9781119505457.ch7	WILEY	2020	978-1-119-50544-0
9.	Subhaswaraj P , Siddhardha B. 2020 . Nanoemulsions for antimicrobial and anti-biofilm applications. In: Nanostructures for Antimicrobial and Antibiofilm Applications. Prasad R. (Eds.). pp. 347-373. https://doi.org/10.1007/978-3-030-40337-9_15	SPRINGER NATURE	2020	978-3-030-40337-9
10.	Pattnaik S , Syed A, Siddhardha B. 2020 . Pathogenesis, virulence factors and antibiotic resistance of Group B <i>Streptococcus</i> . In: Model Organisms for Microbial Pathogenesis, Biofilm Formation and Antimicrobial Drug Discovery. Siddhardha B. (Eds.). pp. 117-130. https://doi.org/10.1007/978-981-15-1695-5_8	SPRINGER NATURE	2020	978-981-15-1697-9
11.	Pattnaik S , Kaviyarasu K, Siddhardha B. 2020 . Drosophila model to decipher the toxicity of nanoparticles. In: Model Organisms to Study Biological Activities and Toxicity of Nanoparticles. Siddhardha B. (Eds.). pp. 417-437. https://doi.org/10.1007/978-981-15-1702-0_20	SPRINGER NATURE	2020	978-981-15-1704-4
12.	Pattnaik S , Siddhardha B. 2020 . Understanding the biological activities of nanoparticles using murine models. In: Model Organisms to Study Biological Activities and Toxicity of Nanoparticles. Siddhardha B. (Eds.). pp. 217-241. https://doi.org/10.1007/978-981-15-1702-0_11	SPRINGER NATURE	2020	978-981-15-1704-4
13.	Pattnaik SS , Busi S. 2019 . Rhizospheric fungi: Diversity and biotechnological applications. In: Recent Advancement in White Biotechnology Through Fungi, Fungal Biology. Yadav	SPRINGER NATURE	2019	978-3-030-10480-1

	AN. (Eds.). pp. 63-84. https://doi.org/10.1007/978-3-030-10480-1_2			
14.	Pattnaik S, Busi S. 2018. Fungal-derived chitosan-based nanocomposites: A sustainable approach for heavy metal biosorption and environmental management. In: Mycoremediation and Environmental Sustainability, Fungal Biology. Ram Prasad (Eds.). pp. 325-349. https://doi.org/10.1007/978-3-319-77386-5_13	SPRINGER NATURE	2018	978-3-319-68957-9
15.	Pattnaik S, Paramanathan P, Busi S. 2018. Entomopathogenic fungi-mediated biocontrol mechanisms against mosquito vectors: Recent trends and future perspectives. In: Microbial control of Vector-Borne Diseases. Tyagi BK and Dhanasekaran D. (Eds.). pp. 37-60. https://doi.org/10.1201/b22203	CRC PRESS	2018	978-1-138-05581-0

Conference/ Presentations

Title of Paper	Event	Year
Presented Poster entitled “ Deciphering the Ethnomedicinal Potential of <i>Cordia macleoidii</i> Hook. Bark from Gandhamardan: An <i>in vitro</i> and <i>in vivo</i> Perspective ”	Odisha Research Conclave (ORC-2023), Sambalpur University	14 th -16 th November, 2023
Presented Poster entitled “ <i>Cordia macleoidii</i> from the Gandhamardan, Odisha: New Perspective as Promising Anti-Biofilm Agent against ESKAPE Pathogens ”	Odisha Research Conclave (ORC-2022), Ravenshaw University	14 th -16 th November, 2022
Presented Poster entitled “ Understanding the Anti-infective Potential of Fungal-derived Metabolites in combating <i>Pseudomonas aeruginosa</i> PAO1 Virulence: An <i>in vitro</i> and <i>in silico</i> approach ”	Discussion Meeting on Conflict and Cooperation in Cellular Populations (CCCC 2020)	03 rd -05 th February, 2020
Presented Poster entitled “ Ferulic acid encapsulated chitosan-tripolyphosphate nanoparticles attenuate Quorum Sensing Regulated Virulence and Biofilm Formation in <i>Pseudomonas aeruginosa</i> PAO1 ”	International Conference on Microbial Pathogenesis and New Frontiers, CSIR-IMTECH, Chandigarh	23 rd -25 th March, 2019

Public Service/ University Service/ Consulting Activity/ College Committee members

1. Member of the IQAC Committee, Govt. Women’s College, Sambalpur.

Professional Societies Memberships

- Life Member of the British Society for Antimicrobial Chemotherapy (Membership Number: P0002977)
- Life Member of the Association of Microbiologists of India (AMI)

Projects(Major Grants/ Collaborations)

- Received a Major Research Grant of Rs. 20,25,600/- from SERB, Department of Science and Technology (DST), Govt. of India for the fulfillment of National Post-Doctoral Fellowship (N-PDF) in the year 2021.

Other Details

OTHER ACHIEVEMENTS

- Submitted Microorganisms under NCBI GenBank Submission with Accession No. KX925280.1, KX925279.1, KX925278.1, KX944237.1, KU705864.1, KU705863.1, KU705862.1, KU705861.1, KU705860.1,