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Educational Background

Ph.D. (Life Science), Institute of Life Sciences, Registration with Utkal University, Bhubaneswar Odisha, India, 2010

MSc (Botany, Biochemistry as specialization), Utkal University, Odisha, India, 2003

BSc (Botany Honours), Govt. College Angul, Utkal University, Odisha, India, 2001

Research experience

Postdoctoral Research Associate, Iowa State University, Ames, Iowa, USA, 2009-2014

Awards and fellowships

Awarded CSIR-UGC, Senior Research Fellowship, 2006-2009

Awarded CSIR-UGC, Junior Research Fellowship, 2004-2006

Research Interests

Plant Immunity, Nonhost Resistance, Programmed Cell Death (PCD), Metabolomics, and Iron Biofortification

Plants are continuously exposed to a wide range of pathogens, leading to significant agricultural losses worldwide. The outcome of plant–pathogen interactions is dictated by a sophisticated molecular dialogue between host and pathogen. Central to plant defense are Disease Resistance (R) proteins, many of which belong to the NB-LRR (nucleotide-binding leucine-rich repeat) family and mediate resistance against diverse pathogens.

Plant immune responses are described by the “zig-zag” model, encompassing pattern-triggered immunity (PTI) and effector-triggered immunity (ETI). In addition, nonhost resistance (NHR) represents a highly durable and broad-spectrum form of immunity where an entire plant species is resistant to a given pathogen.

NHR operates through multilayered defense mechanisms. The first layer involves pre-invasive defense mediated by genes such as *PEN1*, *PEN2*, and *PEN3*, which restrict pathogen entry. The second layer involves post-invasive responses regulated by *EDS1*, *PAD4*, and *SAG101*. These immune responses often culminate in the Hypersensitive Response (HR), a localized form of programmed cell death (PCD) that restricts pathogen proliferation.

A central question in plant immunity is whether PCD acts as a cause or consequence of resistance. Current evidence suggests that PCD is an actively regulated defense mechanism that creates a localized antimicrobial environment to limit pathogen spread. However, pathogens deploy effector molecules to manipulate host cellular processes and suppress immunity, underscoring the complexity of host–pathogen co-evolution.

Our research focuses on elucidating the molecular, genetic, and biochemical basis of nonhost resistance in *Arabidopsis thaliana* against fungal pathogens of rice. The key objectives of the lab include:

- Identification, mapping, and cloning of nonhost resistance (NHR) genes conferring resistance to fungal pathogens of rice.
- Dissection of signaling networks governing plant immunity and PCD during plant–pathogen interactions.
- Investigation of pleiotropic effects of NHR genes and their regulation of defense pathways.
- Understanding the mechanistic role of HR-associated PCD in restricting pathogen entry and colonization.

In addition, the lab integrates metabolomics approaches to comprehensively profile metabolic reprogramming during plant immune responses and NHR. This allows the identification of key metabolites and pathways involved in defense signaling, stress adaptation, and antimicrobial activity.

A parallel research focus involves iron biofortification in crop plants, aimed at addressing micronutrient deficiencies in human populations. This work seeks to:

- Elucidate the molecular and physiological mechanisms of iron uptake, transport, and storage in plants.
- Identify and manipulate genes involved in iron homeostasis and nutrient enrichment.
- Develop strategies to enhance iron content and bioavailability in staple crops, contributing to improved nutritional security.

The research integrates plant molecular genetics, genomics, metabolomics, physiology, biochemistry, biotechnology, and microbial pathogenesis, providing a comprehensive framework to understand plant defense and nutrient biology. The long-term goal is to translate these findings into sustainable crop improvement strategies, enabling enhanced disease resistance and nutritional quality in agriculturally important crops such as rice.

Teaching

Duration	Organization	Areas
July, 2014-till	National Institute of Technology, Rourkela	Molecular genetics (LS503), Recombinant DNA Science (LS5203), rDNA Biology (LS612), Biology (LS1001), Plant Biotechnology (LS3180), Plant Science Lab (LS274), Computational Biology Lab (LS275)

Sponsored Projects: 9

1. Anusandhan National Research Foundation (ANRF), Advanced research Grant (ARG) entitled “Enhancing Rice Durable Resistance through *Rhizoctonia solani* Effector and Metabolite-Based Vaccination” 4 years May 2026- May 2030; PI 87,55,200
2. Anusandhan National Research Foundation (ANRF), Science & Engineering Research Board (SERB), Consortium of Technologies for Sustainable Agriculture, Health, Energy and Environment project entitled “Harnessing Traditional Rice Alleles for Developing Iron-Fortified Rice to Address Iron Deficiency Anemia” November 2025 to November 2030; Co investigator and lead (Hub: NIT Rourkela) 90,53,96,330
3. Anusandhan National Research Foundation (ANRF), Science & Engineering Research Board (SERB), Consortium of Technologies for Sustainable Agriculture, Health, Energy and Environment project entitled “A holistic approach to decipher the molecular mechanisms during Rice and *Magnaporthe oryzae* interactions” November 2025 to November 2030; Co investigator and lead (Hub: NIT Rourkela) 90,53,96,330
4. **SERB**, Department of Science and Technology Research project entitled “Enhancing broad spectrum disease resistance against rice blast by engineering orthologous nonhost resistance genes of Arabidopsis in rice”, March, 2021-March, 2024 (3 years) PI, completed, Sanctioned Amount Rs. 38,76,400
5. **CSIR** project entitled “Role of microorganisms on the productivity of the Bhitarkanika mangrove forest and potentiality of rhizosphere inhabiting bacteria in mangrove reforestation”, May, 2021-May, 2024 (3 years), Co-PI, completed, Sanctioned Amount Rs. 31,64,000
6. **SERB**, Department of Science and Technology Research project entitled “Non-host resistance and programmed cell death in Arabidopsis for engineering broad spectrum and durable disease resistance in rice; November, 2015 – November, 2018 (3 years) PI, completed, Sanctioned Amount Rs. 26,20,000
7. **Govt. of Odisha**, Science and Technology Department Research project entitled “Engineering Arabidopsis-specific nonhost resistance mechanism in rice for durable and broad-spectrum sheath blight resistance against *Rhizoctonia solani*”; April, 2016 - March, 2020 (4 years) PI completed, Sanctioned Amount Rs. 9,96,000
8. **DBT** Research project entitled “Autophagy induced by cellular Stress Switches to apoptosis”; May-2015 to May-2018 (3 years) Co-PI completed, Sanctioned Amount Rs. 21,22,000
9. **SERB**, Department of Science and Technology Research project entitled Stonin-2 regulated Beclin-1 dependent autophagy and autophagic lysosome reformation March, 2017 to March, 2020 (3 years) Co-PI completed Sanctioned Amount Rs. 45,72,200

PhD Students:

Continuing.....

1. Kalpana Dalei (SERB, DST Project, converted to Institute SRF), joined in Jan, 2016
2. Debasish Pati (Institute JRF), joined, in July 2018
3. Vivekananda Mahanta (Institute JRF), joined, in July 2019

4. Reecha Mohapatra (CSIR-JRF), Joined, in September 2020
5. Rishi Kesh (SERB project JRF), Joined in May 2021
6. Arya Kumar Dibyananda Naik (CSIR-UGC-JRF), Joined, in August 2021

Awarded

1. Dr. Eram Sultan; Awarded, October 2019: Topic: - Identification of characterization of a nonhost resistance gene in *Arabidopsis* against rice blast pathogen *Magnaporthe oryzae*.
2. Dr. Daraksha Parween; Awarded, Topic: -Identification and characterization of a nonhost resistance gene in *Arabidopsis* against *Rhizoctonia solani* for durable and broad-spectrum rice sheath blight resistance.

PG Dissertation (Completed)

1. Alaka Sahoo; 2021-22 Spring
2. Gajanan Sonavane; 2021-22 Spring
3. Amlan Arman; 2020-21 Spring
4. Manjunatha T; 2020-21 Spring
5. Lumbini Bhojraj Kamble; 2020-21 Spring
6. Rajeswari Das; 2019-20 Spring
7. Sunanda Dung Dung; 2019-20 Spring
8. Mohammed Shahanawaz 2019-20 Spring
9. Sohini Chakraborty; 2018-19 Spring
10. Moumita Chanda; 2017-18 Spring; Now doing PhD at IIT Kanpur
11. Dileep Singh; 2017-18 Spring
12. Nikita Yadav; 2016-17 Spring
13. Khrang Khrang Khunggur Mushahary; 2015-16 Spring; Now pursuing PhD at IIT Roorkee
14. Gyanaseni Dhar; 2014-15 Spring; Completed PhD from NIT Rourkela
15. Astha; 2014-15 Spring
16. Abhipsa Bhoi; 2014-15 Spring

Patents 2

1. **US Patent** US 10045499 B2 date of patent Aug 14, 2018 - Bhattacharyya, Madan, Sumit Rishi and **Sahu Binod B.**- Arabidopsis Nonhost Resistance Gene(s) and use thereof to Engineer Disease Resistant Plants: **Granted**
2. Indian Patent 202631002922 COMPOSITION AND METHOD FOR CONTROLLING RICE BLAST DISEASE USING BIOACTIVE FRACTIONS FROM EXIGUOBACTERIUM INDICUM OMCW-10: Filed

Referred Publications: Total 40

1. Debasish Pati, Eram Sultan, Arya Kumar Dibyananda Naik, Rishi Kesh, **Binod Bihari Sahu**, Enzymatic regulation of methionine/homocysteine levels by the folate pathway dictates broad-spectrum defense in *Arabidopsis*, International Journal of Biological Macromolecules, Volume 359, 2026, 151845, ISSN 0141-8130, <https://doi.org/10.1016/j.ijbiomac.2026.151845>. IF 8.7
2. Kumar Senapati P, Kariali E, Kisan K, **Sahu BB**, Mohapatra R, Naik D, Mohapatra PK. UV-B-resilient heirloom rice Meghadambaru feralized to weedy rice and vice versa in a dihybrid cross, showing a roadmap for rice evolution. *Functional Plant Biology* 2026; FP26026. <https://doi.org/10.1071/FP26026>. IF 2.7
3. Sourav Kumar PANDA, **Binod Bihari SAHU**, Surajit DAS, Unveiling the symbiotic symphony: exploring the interplay of plant growth-promoting rhizobacteria and biofilm within the rhizosphere, Pedosphere, 2026, ISSN 1002-0160, <https://doi.org/10.1016/j.pedsph.2026.02.005>. IF 7.3
4. Arya Kumar Dibyananda Naik, Debasish Pati, Monika Priyadarshane, Reecha Mohapatra, Rishi Kesh, Ramesh Namdeo Pudake, Surajit Das, Binod Bihari Sahu, Integrated management of hexavalent chromium stress and blast pathogenesis in rice using *Exiguobacterium indicum* OMCW-10, Biocatalysis and Agricultural Biotechnology, Volume 70, 2025, 103879, ISSN 1878-8181, <https://doi.org/10.1016/j.bcab.2025.103879>. IF 4.1
5. Eram Sultan, Debasish Pati, Sanjeev Kumar, **Binod Bihari Sahu**, Arabidopsis METHYLENETETRAHYDROFOLATE REDUCTASE 2 functions independently of PENETRATION 2 during primary immunity against rice blast, *Journal of Experimental Botany*, 2024; erae435, <https://doi.org/10.1093/jxb/erae435> IF: 7.298
6. Santosini Patra, Manasi Singh, Subhasri Subudhi, Manoranjan Mandal, Alok Kumar Nayak, Injamul Alam, Binod Bihari Sahu, Pitamber Mahanandia, One-pot green synthesis of in-situ functionalized carbon quantum dots from Agave americana for supercapacitor applications, Inorganic Chemistry Communications, Volume 179, Part 2, 2025, 114817, ISSN 1387-7003, <https://doi.org/10.1016/j.inoche.2025.114817>. IF 5.4
7. Senapati, P.K., Kariali, E., Kisan, K., **Sahu B.B.**, Naik AKD., Panda D., Tripathy S.K., Mohapatra S., and Mohapatra P.K. Comprehensive studies reveal physiological and genetic diversity in traditional rice cultivars for UV-B sensitivity. *Sci Rep* 14, 13137 (2024). <https://doi.org/10.1038/s41598-024-64134-0>. IF: 4.6
8. L Behera, D Pati, **BB Sahu**, S Mohapatra (2022) One-step synthesis of Mn-carbon dot nanoprobe for signal-on detection of arsenic and reversible temperature sensing. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 653, 130002. IF: 5.51
9. Kariali, Ekamber, Sahoo, Saswati Subasini, Panigrahi, Sonam, Pati, Debasish, **Sahu, Binod Bihari**, Dash, Sushanta Kumar; Mohapatra, Pravat Kumar (2022) Inter-auricular distance: A

- morphological biomarker for ethylene production in the boot and coincidental grain loss of rice plant. *Crop and Environment* 1; 1; 41-49 <https://doi.org/10.1016/j.crope.2022.03.001>.
10. Tiwari, Menka, Debasish Pati, Reecha Mohapatra, **Binod Bihari Sahu**, and Prashant Singh. "The impact of microbes in plant immunity and priming induced inheritance: A sustainable approach for crop protection." *Plant Stress* (2022): 100072. <https://doi.org/10.1016/j.stress.2022.100072> **IF: 5.19**
 11. Daraksha Parween, **Binod Bihari Sahu*** (2022) An Arabidopsis nonhost resistance gene, *IMPORTIN ALPHA 2* provides immunity against rice sheath blight pathogen, *Rhizoctonia solani*. *Current Research in Microbial Sciences*. 8;3:100109., companion J COMICR <https://doi.org/10.1016/j.crmicr.2022.100109> **IF:8.13**
 12. Sahoo, Krishna Kalyani, **Binod B. Sahu**, V. R. Singh, and Nivedita Patra*. (2022) "Enhanced production of Bacopa saponins by repeated batch strategy in bioreactor." *Bioprocess and Biosystems Engineering* 1-13. **IF: 3.21**
 13. Amber Gupta*, Birendra P. Shaw* and **Binod Bihari Sahu** (2021) Post-transcriptional regulation of the membrane transporters contributing to salt tolerance in plants. *Functional Plant Biology*; FP21153; Accepted 07 August 2021. 48(12), 1199–1212 doi:10.1071/FP21153. **IF: 3.10**
 14. Sekhar Kambakam[#], Micheline N Ngaki[#], **Binod Bihari Sahu[#]**, Kandel DR, Singh P, Sumit R, Swaminathan S, Rajesh MK, Bhattacharyya MK.* (2021) Arabidopsis Nonhost Resistance *PSS30* Gene Enhances Broad-spectrum Disease Resistance in the Soybean Cultivar Williams 82. *The Plant Journal* Sep;107(5):1432-1446. doi: 10.1111/tpj.15392. PMID: 34171147. **# Co-First author, IF: 7.09**
 15. Bhol CS, Patil S, **Sahu BB**, Patra SK, Bhutia SK*. (2021) The clinical significance and correlative signaling pathways of paired box gene 9 in development and carcinogenesis. *Biochim Biophys Acta Rev Cancer*. May 7;1876(1):188561. doi: 10.1016/j.bbcan.2021.188561. Epub ahead of print. PMID: 33965511. **IF: 10.54**
 16. Sonam Panigrahi[#], Madhusmita Panigrahy[#], Ekamber Kariali[#], Sushanta Kumar Dash[#], **Binod Bihari Sahu[#]** Sushil Kumar Sahu, Pravat Kumar Mohapatra, and Kishore Chandra Sekhar Panigrahi*. (2021) MicroRNAs modulate ethylene induced retrograde signal for rice endosperm starch biosynthesis by default expression of transcriptome. *Scientific Reports*. 11(1): 5573. doi: 10.1038/s41598-021-84663-2. PMID: 33692374; PMCID: PMC7946924. **#First author, IF: 4.37**
 17. Palliyath, Gangaraj Karyath; Subrahmanya, Muralikrishna Kilingar; Antony, Ginny; **Bihari, Sahu Binod**; Hegde, Vinayaka; Krishna, Rajesh Muliya* (2021) A rapid in vitro leaf inoculation assay to investigate *Phytophthora palmivora*-coconut interactions. *Journal of Phytopathology* 169 (5) 316-328. **IF: 1.82**
 18. Daraksha Parween, Eram Sultan, Kalpana Dalei, **Binod Bihari Sahu*** (2021) Arabidopsis nonhost resistance gene *PENETRATION 2* is involved in disruption of cushion formation by *Rhizoctonia solani* during early infection process. *Australasian Plant Pathol*. 50 281-292 <https://doi.org/10.1007/s13313-020-00768-8>. **IF: 1.6**
 19. Bishwanath Seth, Krishna Kalyani Sahoo, K. R. Aravind, **Binod Bihari Sahu**, V. R. Singh, and Nivedita Patra* (2020). Statistical optimization of bacoside: A biosynthesis in plant cell suspension cultures using response surface methodology. *3 BIOTECH* 10 (6) 264-264. doi: 10.1007/s13205-020-02258-6. Epub 2020 May 23. PMID: 32509497; PMCID: PMC7245600. **IF: 2.89**

20. Biswajita Pradhan, Srimanta Patra, Rabindra Nayak, Chhandashree Behera, Soumya Ranjan Dash, Sneha Nayak, **Binod Bihari Sahu**, Sujit K. Bhutia*, and Mrutyunjay Jena* (2020). Multifunctional role of fucoidan, sulfated polysaccharides in human health and disease: A journey under the sea in pursuit of potent therapeutic agents. **International journal of biological macromolecules**: Dec 1; 164: 4263-4278. doi: 10.1016/j.ijbiomac.2020.09.019. Epub 2020 Sep 9. PMID: 32916197. **IF: 8.2**
21. Daraksha Parween, Eram Sultan, Kalpana Dalei, **Binod Bihari Sahu*** (2019) Arabidopsis PEN2, a promising gene in upraising penetration resistance against rice necrotrophic fungus *Rhizoctonia solani*. **PeerJ Preprints** e27611v1. **IF:2.98**
22. Eram Sultan, Kalpana Dalei, Prashant Singh, **Binod Bihari Sahu*** (2019) Involvement of nonhost resistance genes in disease resistance plausible for future crop improvement. **PeerJ Preprints** e27722v1. **IF:2.98**
23. Bing Wang, Rishi Sumit, **Binod B. Sahu**, Micheline Ngaki, Yang Yang, Madan K. Bhattacharyya* (2018) Arabidopsis novel glycine-rich plasma membrane PSS1 protein enhances disease resistance in transgenic soybean plants. **Plant Physiology** Jan; 176 (1):865-878. doi: 10.1104/pp.16.01982. Epub 2017 Nov 3 PMID: 29101280; PMCID: PMC5761755. **IF: 8.01**
24. Rajesh M. K.*, Rachana K. E., Kulkarni K., **Sahu B. B.**, Thomas R. J. and Karun A. (2018) Comparative transcriptome profiling of healthy and diseased Chowghat Green Dwarf coconut palms from root (wilt) disease hot spots. **European Journal of Plant Pathology** Volume 151, Issue 1, pp 173–193 doi: 10.1007/s10658-017-1365-8. **IF: 2.02**
25. J Leonard, S Bishwanath, **Sahu Binod B.**, S V.R., P Nivedita) (2017) Statistical optimization for enhanced bacoside A production in plant cell cultures of *Bacopa monnieri* **Plant Cell, Tissue and Organ Culture** Volume 133, Issue 2, pp 203–214. **IF: 2.71**
26. **Binod B. Sahu**, Subodh K. Srivastava, Prashant Singh, Jordan L. Baumbach, Xiaoping Yi, and Madan K. Bhattacharyya* (2017) Investigation of the *Fusarium virguliforme* Transcriptomes Induced during Infection of Soybean Roots Suggests that Enzymes with Hydrolytic Activities Could Play a Major Role in Root Necrosis. **PLoS ONE**. January 17, <http://dx.doi.org/10.1371/journal.pone.0169963> PMID: 28095498; PMCID: PMC5241000. **IF: 3.7**
27. Sultan, E., Sabat, D., **Sahu, B. B.** and Mishra, M.* (2016) Structural Variations in Wing Patterning of Seasonal Polyphenic *Melanitis leda* (Satyrinae). **Microscopy Research**, 4, 47-54. doi: 10.4236/mr.2016.44006.
28. Micheline N. Ngaki, Bing Wang, **Binod B. Sahu**, Subodh K. Srivastava, Mohammad S. Farooqi, Sekhar Kambakam, Sivakumar Swaminathan, Madan K. Bhattacharyya* (2016) Transcriptomic study of the soybean-*Fusarium virguliforme* interaction revealed a novel ankyrin-repeat containing defense gene, expression of whose during infection led to enhanced resistance to the fungal pathogen in transgenic soybean plants. **PLoS ONE** 11(10): doi: e0163106. doi:10.1371/journal.pone.0163106, PMID: 27760122; PMCID: PMC5070833. **IF: 3.7**
29. Z. Xu, H. Jiang, **B. B. Sahu**, S. Kambakam, P. Singh, X. Wang, Q. Wang, M. K. Bhattacharyya, and L. Dong* (2016) "Humidity assay for studying plant-pathogen interactions in miniature controlled discrete humidity environments with good throughput," **Biomicrofluidics**, (in press). May; 10(3): 034108 doi:10(3):034108. **IF:3.08**
30. Xiaoqiu Huang, Anindya Das, **Binod B Sahu**, Subodh K Srivastava, Leonor F Leandro, Kerry O'Donnell, Madan K Bhattacharyya* (2016) Identification of Highly Variable Supernumerary

- Chromosome Segments in an Asexual Pathogen. **PLoS ONE** 11(6): e0158183. doi: 10.1371/journal.pone.0158183. **IF: 3.7**
31. Min Liu, Shuxian Li, Sivakumar Swaminathan, **Binod B. Sahu**, Leonor F. Leandro, Andrea Cardinal, Madan K. Bhattacharyya, Qijian Song, David R. Walker, and Silvia R. Cianzio* (2015) Identification of a soybean rust resistance gene in PI 567104B **Theoretical and Applied Genetics**. May;129(5):863-77. doi: 10.1007/s00122-015-2651-5. **IF: 5.46**
 32. DL Bagdi, BP Shaw, **BB Sahu**, GK Purohit* (2015) Real time PCR expression analysis of gene encoding p5cs enzyme and proline metabolism under NaCl salinity in rice. **Journal of Environmental Biology** 36 (4) 955-961. **IF: 0.72**
 33. **Binod B. Sahu**, Devinder Sandhu, Prashant Singh, Simone MacMil, Graham Wiley, William D. Beavis, Bruce Roe, Andrew J. Severin, Steven Cannon, Madan K. Bhattacharyya* (2022) Transcriptomic analysis of the early soybean-*Phytophthora sojae* interaction using 454 pyrosequencing. For communication to **PLoS ONE**.
 34. Ramesh N. Pudake, Siva K. Swaminathan, **Binod B. Sahu**, L. F. Leandro, Madan K. Bhattacharyya* (2013) Investigation of the *Fusarium virguliforme* fvto1 mutants revealed that the FvTox1 toxin is involved in foliar sudden death syndrome development in soybean. **Current Genetics** 59 (3) 107-117. **IF: 3.88**
 35. Rishi Sumit, **Binod B. Sahu**, Min Xu, Devinder Sandhu, and Madan K. Bhattacharyya* (2012) Arabidopsis nonhost resistance gene *PSS1* confers immunity against an oomycete and a fungal pathogen but not a bacterial pathogen that cause diseases in soybean. **BMC Plant Biology** 13;12 (1):87. **IF: 5.09**
 36. **Binod B. Sahu**, Rishi Sumit, Subodh K. Srivastava, and Madan K. Bhattacharyya* (2012). Sequence based polymorphic (SBP) marker technology for targeted genomic regions: its application in generating a molecular map of the *Arabidopsis thaliana* genome. **BMC Genomics** 13:20. **IF: 3.34**
 37. Suryakant Mallik, Madhusmita Nayak, **Binod B. Sahu**, Ashok K. Panigrahi, Birendra P. Shaw* (2011) Response of antioxidant enzymes to high Na⁺ concentration in taxonomically and morphologically diverse salt-tolerant plants. **Biologia Plantarum**, 55 (1): 191-195. **IF: 1.29**
 38. **Binod B Sahu*** and Birendra P. Shaw (2009) Isolation, identification and expression analysis of salt-induced genes in *Suaeda maritima*, a natural halophyte using PCR-based suppression subtractive hybridization. **BMC Plant Biology**, 9:69. doi: 10.1186/1471-22299-69. **IF: 5.09**
 39. Sunil Kumar, Binod Bihari Sahu, Niraj Kanti Tripathy and Birendra P. Shaw* (2009) In Silico Identification of Putative Proton Binding Sites of a Plasma Membrane H⁺-ATPase Isoform of *Arabidopsis thaliana*, AHA1, **J Proteomics Bioinform**, 2: 349-359. doi: 10.4172/jpb.1000095. **IF: 3.54**
 40. **Binod B. Sahu***, Birendra P. Shaw (2009) Salt inducible isoform of plasma membrane H⁺ATPase gene in rice remains constitutively expressed in natural halophyte, *Suaeda maritima*. **Journal of Plant Physiology** 166, 1077-1089. 10.1016/j.jplph.2008.12.001. **IF: 4.3**
 41. Prosenjit Mondal, Narsinga Dey, Ardhendu K. Dash, A. Chatterjee, **Binod B. Sahu**, Bandita Panda, Indu B. Maiti and Surendra C. Sabat* (2007) Structural and Functional Analysis of Rice Catalase-B Gene Promoter: Presence of Dof and CAAT Binding Site. **Plant Molecular Biology reporter** 25 (1-2), 71 – 82. <https://doi.org/10.1007/s11105-007-0011-6>. **IF: 2.39**

* Corresponding author

Books:

1. Pravat Kumar Mohapatra, **Binod Bihari Sahu** (2021) Panicle Architecture of Rice and its Relationship with Grain Filling; Springer; <https://doi.org/10.1007/978-3-030-67897-5>
2. Ramesh Namdeo Pudake, **Binod Bihari Sahu**, Maya Kumari, Anil K. Sharma (2021) Omics Science for Rhizosphere Biology; Springer Nature Singapore Pte Ltd. 2021; XIII, 279 <https://doi.org/10.1007/978-981-16-0889-6>; Edition: 1Series ISSN2523-8442; Hardcover ISBN 978-981-16-0888-9; eBook ISBN: 978-981-16-0889-6.

Book Chapters:

1. Pati D., **Sahu B.B.** (2021) Long Sequencing Tools for Rhizosphere Study. In: Pudake R.N., Sahu B.B., Kumari M., Sharma A.K. (eds) Omics Science for Rhizosphere Biology. Rhizosphere Biology. Springer, Singapore. https://doi.org/10.1007/978-981-16-0889-6_12
2. Mohapatra, Pravat K; **Sahu, Binod Bihari**; (2021) The Cellular Basis of Rice Seed Growth Panicle Architecture of Rice and its Relationship with Grain Filling 87-962022 Springer, Cham
3. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Physiology of Variation in Individual Grain Weight of Rice Panicle Panicle Architecture of Rice and its Relationship with Grain Filling 143-1632022 Springer, Cham
4. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Ontogeny of Organ Development in Rice Plant Panicle Architecture of Rice and its Relationship with Grain Filling 49-612022 Springer, Cham
5. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Importance of Rice as Human Food Panicle Architecture of Rice and its Relationship with Grain Filling Jan-252022 Springer, Cham
6. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Hormonal Regulation of Spikelet Development Panicle Architecture of Rice and its Relationship with Grain Filling 187-2822022 Springer, Cham
7. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Genetic Analyses of Floral Development on Rice Panicle Panicle Architecture of Rice and its Relationship with Grain Filling 97-1062022 Springer, Cham
8. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Fertilization and Seed Development in Rice Panicle Architecture of Rice and its Relationship with Grain Filling 63-862022 Springer, Cham
9. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Enzymes Controlling Starch Biosynthesis Panicle Architecture of Rice and its Relationship with Grain Filling 165-1852022 Springer, Cham
10. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Effects of Environmental Stresses on Grain

- Filling of Rice Panicle Panicle Architecture of Rice and its Relationship with Grain Filling 283-2952022 Springer, Cham
11. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Diversity of Panicle Architecture and Traits Influencing Grain Filling Panicle Architecture of Rice and its Relationship with Grain Filling 107-1282022
 12. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Designer Rice in Quest of High Grain Filling Panicle Architecture of Rice and its Relationship with Grain Filling 297-3212022 Springer, Cham
 13. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Change of Panicle Architecture During Domestication Panicle Architecture of Rice and its Relationship with Grain Filling 1291412022 Springer, Cham
 14. Mohapatra, Pravat K; **Sahu, Binod Bihari**; Botany of Rice Plant Panicle Architecture of Rice and its Relationship with Grain Filling 27-482022 Springer, Cham
 15. Parween, Daraksha, **Binod Bihari Sahu**, Maya Kumari, and Ramesh N. Pudake. "Plant Metabolites Involved in Plant–Pathogen Interactions." *Plant Biotic Interactions: State of the Art* (2019): 61.
 16. Kalpana Dalei, **Binod Bihari Sahu**, Maya Kumari, Ravi Mani Tripathi, Ramesh N. Pudake Chapter: Advances in Genetic Transformation of Litchi in The Lychee Biotechnology published by Springer Mar (2017) pp 421-436
 17. Eram Sultan, Kalpana Dalei, Khrang Khunggur Mushahary, and **Binod Bihari Sahu** Chapter Plant Immunity: Insight into Disease Resistance and Current Trends from Creation to Convention *Frontiers in Life Sciences* Editors: Rajendra Kumar Behera, Ekamber Kariali and Sanjat Kumar Sahu Excel India Publishers, New Delhi, India (2016) pp. 56–74.
 18. TRACE ELEMENTS in the ENVIRONMENT biogeochemistry, Biotechnology, and Bioremediation Chapter 16 Detoxification/Defence Mechanisms in metal-exposed Plants. Birendra P. Shaw, M.N.V. Prasad, Vikash K. Jha, **Binod B. Sahu**.
 19. Ramesh N. Pudake, Maya Kumari, **Binod Bihari Sahu**, and Eram Sultan Chapter: Targeted Gene Disruption Tools for Fungal Genomics in Modern Tools and Techniques to Understand Microbes published by Springer April (2017) pp 81-102
 20. Book Review Chapter: Environmental bioremediation Technologies, Chapter 6-Metal resistance in plants with particular reference to aluminium. Birendra P. Shaw, Vikash K. Jha and **Binod B. Sahu**. pp. 147-172.

Conference and workshop organized (Continuing Education)

1. **International Conference** on “Omics of Plant-Pathogen Interaction with their implication”
Organiser: **Binod Bihari Sahu**; Mode: Online, November 16-18th, 2020
2. **Workshop** on “Techniques to Understand Autophagic Processes in Mammalian Systems (TUAPMS)” Organiser: Sujit Kumar Bhutia, Rohan Dhiman, **Binod Bihari Sahu**; 26-022020-01-03-2020

Nucleotide Sequences Submitted to Gene Bank (NCBI)

EU591512, EU591511, EU190459, EU190458, EF611740, EF611739, DQ925817.

ESTs (from SSH) submitted to EST database (NCBI)

FC932781 - FC932780, Total 152 and FG228208 - FG228224, Total 017

SNP dataset deposited in public NCBI database for Niederzenz (*Arabidopsis thaliana*)

SRA048909.1 and NCBI_SS # 478443777 – 428555842

BioSample: SAMN04520040; Sample name: Mont-1 RNA-Seq; SRA: SRS1313756

BioProject accession number: PRJNA926508, mosA NGS Seq

Academic Editors of

PLOS One

Journal of Plant Stress Physiology

Reviewed Manuscripts from Following Journals:

BMC Plant biology

BMC Genomics

BMC Research Note

International Research Journal of Plant Science

Journal of Agricultural Biotechnology and Sustainable Development

African Journal of Environmental Science and Technology

Invited speaker

1. Oral Presentation as **invited Plenary lecture** at Asian Conference of Plant Pathologists 2024 (ACPP 2024) scheduled between 03-08-2024 to 07-08-2024 at **Changchun, CHINA**
2. Oral Presentation as **Invited lecture** in International Conference on Fungal Biology and PlantMicrobe Interactions 2024 (ICFBPMI-2024)” during February 16-18, 2024, at **BHU, Varanasi, INDIA**
3. Oral Presentation **as Invited lecture** at the International Conference on Recent Advances of Biodiversity and Agriculture for a Sustainable Future on April 19-20, 2024, at **Koraput Central University, Koraput, INDIA**
4. Oral Presentation as **Invited lecture** at National Seminar organized by Dhenkanal Autonomous College, Dhenkanal, in association with **Orissa Botanical Society** conducted during 17-18 December 2023
5. Presented seminar and training on **New Insights into plant Immunity** at **ICAR-Indian Agricultural Statistics Research Institute (IASRI)**, New Delhi during Feb 3-23, 2015, for the training programme on “Recent advances in statistical Genetics” organised by Centre of advanced faculty training (CAFT) in agricultural statistics and computer application.

Dr. Binod Bihari Sahu, Department of Life Science, NIT Rourkela, Rourkela, Odisha, INDIA 769008

6. Invited Seminar on "Mapping and cloning a nonhost resistance gene against *Phytophthora sojae* which causes the root and stem rot disease of soybean" at **Department of Life Science Jyoti Vihar Sambalpur** for National Conference on "Frontiers in Life Sciences" during 12th -13th December 2015 on the occasion of 17th Alumni meet.

Selected National and International Conference Attended:

1. Presented poster "The transcriptome of the *Fusarium virguliforme* infected soybean roots" at the 14th Biennial Molecular & Cellular Biology of the Soybean, August 12-15 2012 at Des Moines, IA, USA.
2. Presented paper "*Arabidopsis* Nonhost Resistance Gene, *Pss1* Confers Immunity against Oomycete and Fungal but not Bacterial Pathogens of Soybean" in Plant & Animal Genomes XIX Conference, January 15-19, 2011 at San Diego, CA USA.
3. Participated in International Symposium on Environmental Factors, Cellular Stress and Evolution October 13-15, 2006 at Banaras Hindu University, Varanasi, India.
4. Participated in the workshop on "Molecular Biology Concepts and Techniques" at the Institute of Life Sciences, Bhubaneswar, India from December 12-16, 2006.
5. Participated in International conference on Nanomedicine-2007 at Bhubaneswar, India during February 22-23, 2007.
6. Participated in Seminar and Training on Confocal Microscopy held at Institute of Life Sciences, Bhubaneswar, by Leica Microsystems during May 22-24, 2007.
7. Presented a paper entitled "Characterization of a new H⁺-ATPase isoform in rice under salinity stress" by **Binod B. Sahu**, B. P. Shaw in International Conference on New Horizons in Biotechnology (NHBT-2007), held at Trivandrum during November 26-29, 2007.
8. Participated in 35th Annual meeting of the Indian Immunology Society 12-14th December 2008, Bhubaneswar-751 023, Odisha.