

CURRICULUM VITAE

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Areas of Research Interest: Search for alternative medicine to ameliorate insulin resistance and associated metabolic diseases (T2D, PCOS, NFLD, DNP), Host-bacteria association and immunity, Bacterial Taxonomy.

Qualifications:

- M.Sc. (Zoology), University of North Bengal, Darjeeling, INDIA, 2005
- Ph.D. (Biotechnology, University of North Bengal), Under the supervision of Prof. Ranadhir Chakraborty
*Thesis title: "Immunological Responses and Internal Microbes of *Eisenia fetida*".*

Professional Experience in Higher Education:

- 2nd December, 2022 onwards, Associate Professor of Zoology, University of North Bengal, Darjeeling, West Bengal, India.
- 7th December, 2012 - 1st December, 2022, Assistant Professor of Zoology, University of North Bengal, Darjeeling, West Bengal, India.
- 2nd December, 2008 – 6th December, 2012, Assistant Professor, Acharya Brojendra Nath Seal College, Coochbehar, West Bengal, India.

Awards and Achievements:

- Qualified national level competitive examination "NET-JRF 2005" organized by Council of Scientific and Industrial Research & University Grants Commission (CSIR-UGC), Government of India
- Qualified state level competitive examination "SLET 2006" organized by West Bengal College Service Commission (WBCSC), Government of West Bengal
- Outstanding Resource Person for Enhancing skills on operating Scanning Electron Microscope in Nepal Agricultural Research Council (NARC), Kathmandu, Nepal, 2019.
- Outstanding paper award for presenting 'Tissue Recognition during Regeneration in *Eisenia fetida*' at 1st Regional Science and Technology Congress 2016, Jalpaiguri division, West Bengal organized by Department of Science and Technology, Government of West Bengal and Ananda Chandra College, Jalpaiguri

List of Publications:

1. Ghosh AJ, Ghosh S., Islam R and **Saha T.** In-vitro Exploration of the Anti-Diabetic and Probiotic Potentials of Lactic Acid Bacteria Isolated from Ethnic Fermented Foods of Darjeeling. International Journal of Gastronomy and Food Science (Under Review).

2. Ghosh AJ, Ghosh S., Islam R., and **Saha T**. Effects of Abutilon indicum (L.) Sweet Seed Extract on Ovarian Function of Letrozole-Induced Polycystic Ovarian Syndrome in Wistar Albino Rats. *Acta Endocrinologica*. (Under Review).
3. Sarkar S., Islam R., Ghosh AJ, Ghosh S., and **Saha T**. Effects of Methanolic extract of Costus pictus D. Don Leaves on Renal Complications Associated with Hyperglycemia of Swiss Albino Mice (Under Review).
4. Banerjee S, Kar P, Islam I, Naidoo D, Roy A, Sarkar I, Sen G, **Saha T**, Yasmin H, Sen A. 2022. Synthesis of silver nanoparticles from secondary metabolites of star gooseberry fruit (*Phyllanthusacidus*) and their nephroprotective efficiency. *South African Journal of Botany*. 151: 385-395.
5. Subba, S., Saha, S., Mandal, S., Ghosh, A. J., & **Saha, T**. 2022. First total synthesis of aspergillolide. *Tetrahedron Letters*, 106, 154081.
6. Sarkar B, Das K, Ghosh AJ, Islam R, **Saha T**, Prasad E, Gardas RL. 2022. Poly (alkyl ether) based ionic liquid- γ -cyclodextrin based inclusion complex and antibacterial activity of the inclusion complex. *Journal of Molecular Liquids*. 361(119571).
7. Ghosh AJ, Islam R and **Saha T**. 2021. Dietary Supplementation of Lactobacillus brevis Normalizes Metabolic Parameters in Mouse with Obesity and Hyperglycemia. *Journal of Pharmaceutical Research International*. 33(45):60-70. Doi: 10.9734/jpri/2021/v33i45A32715.
8. Sarkar B, Das K, **Saha T**, Prasad E, Gardas RL. 2021 (Sep 1) Insights into the Formations of Host-Guest Complexes Based on the Benzimidazolium Based Ionic Liquids- β -Cyclodextrin Systems. *ACS Physical Chemistry Au.*, 2 (1), 3-15. [ISSN: 2694-2445] <https://doi.org/10.1021/acspchemau.1c00016>.
9. **Saha T**, Biswas A, Chakraborty R. 2021. Subinhibitory Levels of Oxytetracycline in Earthworm Meal Significantly Boost Resistance-Mutation Rates in Bacillus spp. within the Gut of Eisenia fetida. *Journal of Pharmaceutical Research International* 33 (45A), 80-87. DOI: 10.9734/JPRI/2021/v33i45A32717.
10. **Saha T**, Paul D, Chakraborty R. 2021. Abundance of Multiple-Antibiotic-Resistant Salmonella Strains in Fecal Samples of Rhinoceros unicornis of the Kaziranga National Park, India. *Journal of Pharmaceutical Research International* (ISSN: 2456-9119) 33(44B): 298-313. DOI: 10.9734/JPRI/2021/v33i44B32680.
11. Sen S, **Saha T**, Bhattacharya S, Mondal N, Ghosh W, Chakraborty R. 2020. Draft Genome Sequences of Two Boron-Tolerant, Arsenic-Resistant, Gram-Positive Bacterial Strains, Lysinibacillus sp. OL1 and Enterococcus sp. OL5, Isolated from Boron-Fortified Cauliflower-Growing Field Soils of Northern West Bengal, India. *Microbiology Resource Announcements*. 9.
12. Ghosh P, Chhetri G, Nandi AK, Sarkar S, **Saha T** and Das S. 2019. Creation of thio and selenocyanate derivatives of 4-quinolone via regioselective C-H bond functionalization under ambient conditions *New J. Chem.*, 43, 10959-10964.
13. **Saha T**, Ranjan VK, Ganguly S, Thakur S, Barman P, Chakraborty B, Ghosh W, Chakraborty R. (2019). Taxonomic description and draft genome of Pradoshiaeiseniae gen. nov., sp. nov., a spore-forming member of the family bacillaceae, capable of assimilating 3- nitropropionic acid, isolated from the anterior gut of the earthworm Eiseniafetida cast. *Int. J. Syst. Evol. Microbiol*. DOI: 10.1099/ijsem.0.003304.
14. Roy RP, **Saha T** and Chakraborty R 2018 Contrasting observation in culturable aerobic and micro-aerophilic heterotrophic fish gut-bacteria: Intestine-breathing Lepidocephalichthysguntea (Hamilton Buchannan) versus gill breathing Labeorohita. *Cur Sci*. 115(3). 548-552.
15. **Saha T**, Chakraborty B, Das S, Thakur N, Chakraborty R. 2018. Chryseomicrobiumexcrementi sp. nov., a gram-stain-positive rod-shaped bacterium isolated from an earthworm (Eiseniafetida) cast. *Int. J. Syst. Evol. Microbiol*. 68(7): DOI: 10.1099/IJSEM.0.002791.
16. Ranjan VK, **Saha T**, Mukherjee S, Chakraborty R. 2018 Draft Genome sequence of a novel bacterium, Pseudomonas sp. MR02, capable of 2 pyomelanin production, isolated from River Mahananda at Siliguri, West Bengal, India. *Genome Announcements ASM* 6: e01443-17. <https://doi.org/10.1128/genomeA.01443-17>.
17. Mahata D, Jana M, Jana A, Mukherjee A, Mondal N, **Saha T**, Sen S, Mukhopadhyay CK, Chakraborty R, Nando GB, Mandal SM. 2017. Lignin-graft-Polyoxazoline Conjugated Triazole a Novel Anti-Infective Ointment to Control Persistent Inflammation. *Scientific Report (Nature)*. 7. Article Number 46412.
18. **Saha T**, Chakravarty AK, Chakraborty R. Dynamics of Regeneration Process in *Eisenia fetida*. *NBU Journal of Animal Sciences*. 2016 (10): 79-88. ISSN: 0975-1424.
19. Kundu, S., Roy, I., Sarkar, B. C., **Saha, T**. and Mukherjee, S. 2011 Dynamic total haemocyte count and non-self surface adhesion response of haemocyte of Belamyabengalensis exposed to chlorpyrifos. *Abnseal journal of Science*. Vol-IV. ISSN 0975-5624: 50-55.

Books Edited:

1. **Saha T**, Adhikari MD, Tiwary BK, editors. **Recent Trends and The Future of Antimicrobial Agents-Part I**. Bentham Science Publishers; 2023 Mar 2. Hard-copy, ISBN: 978-981-5079-61-6; eISBN: 978-981-5079-60-9, 2023. DOI: [10.2174/97898150796091230101](https://doi.org/10.2174/97898150796091230101)
2. **Tilak Saha**, Manab Deb Adhikari, Bipranch Kumar Tiwary, Editors. **Alternatives to Antibiotics: Recent Trends and Future Prospects**. Springer Nature, Singapore, **2022**. Hard cover ISBN 978-981-19-1853-7, eBook ISBN 978-981-19-1854-4, DOI: <https://doi.org/10.1007/978-981-19-1854-4>
3. **Tilak Saha**, Manab Deb Adhikari, Bipranch Kumar Tiwary, Editors. **Microbes, Environment and Human Welfare** Nova Science Publishers, NY, USA, **2020**. ISBN: 978-1-53617-945-3

Book Chapters:

1. Manab Deb Adhikary, Bipranch Kumar Tiwary, **Tilak Saha**. (2022) Quest for alternatives to antibiotics- An urgent need of the twenty-first century. In, Alternatives to Antibiotics: Recent Trends and Future Prospects (Edited). ISBN- 978-981-19-1853-7, Springer (Nature), Singapore.
2. Rejuan Islam, Anirban Pandey and **Tilak Saha** (2022) Phytobiotics and other safer alternatives to antibiotics for animal husbandry. In, Alternatives to Antibiotics: Recent Trends and Future Prospects (Edited). ISBN- 978-981-19-1853-7, Springer (Nature), Singapore.
3. AmlanJyoti Ghosh,Sagar Sarkar,Supriyo Ghosh and **Tilak Saha** (2022) Prebiotic Immunomodulators to Enhance Mucosal Immunity and Reduce Mass Use of Antibiotics. In, Alternatives to Antibiotics: Recent Trends and Future Prospects (Edited). ISBN- 978-981-19-1853-7, Springer (Nature), Singapore.
4. AmlanJyoti Ghosh and **Tilak Saha**. (2020) Microbes, inflammation and type-2 diabetes mellitus in human- an intricate relationship, Nova Science Publisher, NY, USA, ISBN: 978-1-53617-945-3.
5. **Tilak Saha**. (2020). Soil microbiome to sustainable agriculture-role of soil fauna, Nova Science Publisher, NY, USA,ISBN: 978-1-53617-945-3.

Invited Lectures/Talks:

1. **Saha, T.** (2019). Enhancing skills on operating Scanning Electron Microscope (SEM) for identification of plant pathogens (Bacteria). Organized by Plant Pathology Division , National Agriculture Research Institute (NARI). Nepal Agricultural Research Council (NARC), Khumaltar, Nepal, 6-8th January 2019
2. **Saha, T.** (2018). Microbial technology: Biotechnological & Industrial perspectives. Organized by North Bengal ST. Xavier's College, University of North Bengal, West Bengal, India, 20th February, 2018
3. **Saha, T.** (2015). Isolation of multiple antibiotic resistant *Salmonella* strain.....Kaziranga national Park. *Natural Resources, Diversity & Sustainable Development*. Department of Zoology, University of north Bengal in association with Foundation for Science and Environment, Kolkata & West Bengal Biodiversity Board, 11-12th December, 2015.
4. **Saha T.**, Invited lecture on 'Fish Immunology' Asutosh College centenary talk on 'Fish Immunology' On November 19th 2015 Department of Fishery, Asutosh College, Kolkata

Technical Presentations (as first/corresponding author):

1. Amlan Jyoti Ghosh, Rejuan Islam, **Tilak Saha** (2022). Effect of oral supplementation of probiotic microorganism on High Fat Diet induced insulin resistant hyperglycemic mice. *48th Annual Conference Of Indian Immunology Society (BHU)*. Benaras Hindu University, India, 8-9th July, 2022.
2. Sagar Sarkar, AmlanJyoti Ghosh, Rejuan Islam, **Tilak Saha** (2022). Effects of *Costus pictus* D. Don Leaf Extract on Hyperglycemia Associated Renal Complication. *48th Annual Conference Of Indian Immunology Society (BHU)*. Benaras Hindu University, India, 8-9th July, 2022.

3. Tilak Saha, Dibyendu Paul, Vivek Kumar Ranjan, and Ranadhir Chakraborty Greater Indian one-horned rhinoceros of the Kaziranga National Park, India found infected with Multiple-Antibiotic-Resistant *Salmonella* strains^{2nd} International Conference on Contemporary Antimicrobial Research. 15th-17th Dec2018 IIT, Kharagpur
4. Tilak Saha, Ranadhir Chakraborty Coelome microbiome and revelation of host- bacterial symbiosis in coelomic cavity of *Eisenia fetida*. *International conference on 'Microbiology in the New Millennium: from Molecules to Communities'*, October 27-29, 2017 Bose Institute, Kolkata.
5. Tilak Saha, Ashim Kumar Chakravarty, Ranadhir Chakraborty. Opsonization activity of amoebocytes of *Eisenia fetida* increases by exposure to *Bacillus thuringiensis* Zoological conference (National), March, 2017 Department of Zoology, Raiganj University.
6. Tilak Saha, Ashim Kumar Chakravarty, Ranadhir Chakraborty. Bacterial competition in the coelomic space of *Eisenia fetida*. ZooCon-2017(National), January, 2017 Department of Zoology, University of North Bengal
7. Tilak Saha, Ashim Kumar Chakravarty, Ranadhir Chakraborty, Tissue Reorganization During Regeneration in *Eisenia fetida*. WBSSTC (State level) - _Nov_7-8,_2016 AC_College.
8. Tilak Saha, Ranadhir Chakraborty. A histological study to partially understand tissue reorganization during regeneration in *E. fetida*. National conference ABN Seal College, April10-11,2016
9. Tilak Saha, Ashim Kumar Chakravarty, Ranadhir Chakraborty. Modulation of Coelomocyte Phagocytic Behavior in *Eisenia fetida* in response to *Bacillus thuringiensis* Infection National Conference on "Natural Resources, Diversity and Sustainable Development" held on 11 - 12 December, 2015 Department of Biotechnology, NBU.
10. Tilak Saha, Ashim Kumar Chakravarty, Ranadhir Chakraborty. Light Microscopic Study Of Coelomocytes In *Eisenia fetida* *State Science Congress* February 28 –March01, 2015. held in the University of North Bengal.
11. Tilak Saha, Ashim Kumar Chakravarty, Ranadhir Chakraborty. "Bioprospecting Gut Microflora Of *Eisenia fetida* For Novel Decomposer" *National conference on Applied Zoology In Sustainable Development: An Update*. January 30-February 2, 2015. Department of Zoology, University of North Bengal.
12. Tilak Saha, Subrata Saha. "Studies on large Indian.....on their distribution" *National conference on Biodiversity and sustainability vis-à-vis Economic development in the northern part of West Bengal*. 26-27th August, 2012, Dept. of Botany, Raiganj Surendranath Mahavidyalaya, West Bengal

Genbank Submissions:

Whole Genome:

1. Chakraborty,R. and **Saha,T.** (2017) *Chryseomicrobium excrementi* Chryseomicrobium excrementi strain ET03 NZ_PCGR00000000.1
2. Chakraborty,R. and **Saha,T.** (2017) *Chryseomicrobium excrementi* strain ET03 Scaffold_18 NZ_PCGR01000014.1

SRA:

1. **Saha,T.** and Chakraborty,R OMICS Lab,Department of Biotechnology,University of North Bengal. (2017). ranscriptome of coelomocytes from control and *Bacillus thuringiensis* challenged *Eisenia fetida* SRX3903407
2. Saha,T. and Chakraborty,R UNIVERSITY OF NORTH BENGAL. (2017) Transcriptome of *Lysinibacillus* sp. strain OL1 grown in Tryptone Soya Broth (TSB) medium SRX13577158

Metabolic pathways:

1. **Saha, T.** (2020) Bcd-Etf $\alpha\beta$, But and Buk which are the key genes in the SCFA metabolic pathways in bacteria in *B. pacificus* MW785184
2. **Saha, T.** (2020) Bcd-Etf $\alpha\beta$, But and Buk which are the key genes in the SCFA metabolic pathways in bacteria in *B. stercoris* MW785188

Partial Sequence:

1. **Saha,T.**, Ranjan,V.K., Ganguli,S., Thakur,S., Chakraborty,B., Barman,P., Ghosh,W. and Chakraborty,R. (2021) *Pradoshia eiseniae* strain EAG3 NR_173521.1
2. **Saha,T.** and Chakraborty,R. (2017)*Bacillus cereus* strain BCR MF398397.1
3. **Saha,T.** and Chakraborty,R. (2017)*Acinetobacter* sp. strain EDN1 MF398396.1
4. **Saha,T.** and Chakraborty,R. (2017)*Pseudomonas aeruginosa* strain ET05 MF398395.1
5. **Saha,T.** and Chakraborty,R. (2017) *Streptomyces* sp. strain EAG5 MF398394.1
6. **Saha,T.** and Chakraborty,R. (2017) *Mumia* sp. strain EAG4 MF398393.1
7. **Saha,T.** and Chakraborty,R. (2017) *Mycobacterium* sp. strain EPG1 MF398392.1
8. **Saha,T.** and Chakraborty,R. (2017) *Pradoshia eiseniae* strain EAG3 MF398391.1
9. **Saha,T.** and Chakraborty,R. (2017) *Escherichia coli* strain AG2 MH236118.1
10. **Saha,T.** and Chakraborty,R. (2017) *Klebsiella* sp. EN1 MF564193.2
11. **Saha,T.** and Chakraborty,R. (2017) *Rhizobium* sp. ENF4 MF564192.1
12. **Saha,T.** and Chakraborty,R. (2017) *Paracoccus* sp. ENF1 MF564191.1
13. **Saha,T.** and Chakraborty,R. (2017) *Bacillus thuringiensis* strain BT MF574366.1
14. **Saha,T.** and Chakraborty,R. (2017) *Streptomyces* sp. strain EAG2 KY593924.1
15. **Saha,T.** and Chakraborty,R. (2017) *Bacillus* sp. (in: Bacteria) KX839268.1
16. **Saha,T.** and Chakraborty,R. (2017) *Pseudoxanthomonas* sp. strain EAG1 KX839266.1
17. **Saha,T.** and Chakraborty,R. (2017) *Bacterium* strain ET4 KX839265.1
18. Ghosh,A. and **Saha,T.** (2021). *Bacillus cereus* strain MTSAM16 MW785188.1
19. Ghosh,A. and **Saha,T.** (2021) *Bacillus cereus* strain MTSOL8 MW785187.1
20. Ghosh,A. and **Saha,T.** (2021). *Bacillus cereus* strain KTWOL4 MW785186.1.
21. Ghosh,A. and **Saha,T.** (2021). *Bacillus stercoris* strain MHWAL3 MW785185.1
22. Ghosh,A. and **Saha,T.** (2021). *Bacillus pacificus* strain KHWOL2 MW785184.1

23. **Saha,T.** and Chakraborty,R. (2016) Bacterium Ah4 KU230527.2
24. **Saha,T.** and Chakraborty,R. (2016) Bacterium ET10 KU230526.2
25. **Saha,T.** and Chakraborty,R. (2016) Bacterium ET9 KU230525.2
26. **Saha,T.** and Chakraborty,R. (2016) Bacterium ET 8 KU230524.2
27. **Saha,T.** and Chakraborty,R. (2016) Bacterium ET 3 KU230523.2
28. **Saha,T.** and Chakraborty,R. (2016) Bacterium ET 2 KU230522.2
29. **Saha,T.** and Chakraborty,R. (2016) Bacterium ET 1 KU175176.2
30. **Saha,T.,** Ranjan,V. and Chakraborty,R. (2018) *Streptomyces koyangensis* JCM 14915 gene for tryptophan synthase B-subunit, partial cds LC413709.1

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