



ENLIGHTENMENT TO PERFECTION

## UNIVERSITY OF NORTH BENGAL

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Raja Rammohunpur, Dist- Darjeeling, West Bengal, Pin-734013, India.

## Department of Zoology

Print



## Dr. Dhiraj Saha

M.Sc., Ph.D.

Assistant Professor (Senior Grade)



## Contact Addresses:

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**Subject specialization:** Insect Biochemistry, Toxicology and Molecular Biology

## Areas of Research Interest:

- Tea Pest Biology and Ecology
- Insecticide Resistance Management (IRM) of Tea Pests
- Metabolic (Detoxifying) Enzymes activity in Tea Pests
- Genetic Diversity of Tea Pests
- Vector Biology and insecticide resistance in mosquito vector

**No. of Ph.D. students:** (a) Supervised: 00 (b) Ongoing: 00 .

**No. of M.Phil. students:** (a) Supervised: NA (b) Ongoing: NA.

**No. of Publications:** (a) Journal(s) : 14 (b) Book(s) : 01 (c) Book chapter(s): 01

## Achievement &amp; Awards:

- Qualified CSIR-UGC Junior Research Fellowship December 2004
- University Medal for securing First Class Second Position in B.Sc. Honours Examination in 2001.
- International Travel Support (ITS) to visit Bangkok, Thailand by University Grants Commission, India during 2012.
- International Travel Support (ITS) to visit Melbourne, Australia by Department of Science and Technology, India, during 2013.
- Visited Department of Zoology, Kasetsart University, Bangkok, Thailand during September, 2012

## Professional Experiences:

- Worked as an Assistant Professor in Zoology from 1st November, 2006 to 11th March 2008 at Kurseong College, Kurseong, Darjeeling, West Bengal, INDIA.
- Worked as a Part-time Research Scholar from May 2007 to March 2008 in Department of Zoology, University of North Bengal. Siliguri, Darjeeling, west Bengal, INDIA
- Successfully completed the Ph.D. Course work in Zoology in 2012 with Grade A+ (81%) First Position in the Department.

## Administrative Experiences:

- Nil

## Research Projects:

Sl. No.	Title of Projects	PI/Co-PI	Duration	Funding agency (Amount)
1.	Impact of pesticides used in tea plantations on arthropod pests of tea	Co-Investigator	Apr, 2008 to Mar, 2012	UGC SAP DRS-I (43 lac)
2.	Evaluating susceptibility level of the sucking pest, <i>Helopeltis theivora</i> Waterhouse (Hemiptera: Miridae) using biochemical parameters in the tea plantations of Darjeeling hill and adjoining plains.	Principal Investigator	Feb, 2011 to Jan, 2013	UGC (0.90 lac)
3.	Enzyme-based detection of susceptibility level in major sucking pests of tea, <i>Helopeltis theivora</i>	Co- Investigator	Jul, 2011 to Jun, 2014	UGC (10.06 lac)

	Waterhouse(Hemiptera: Miridae) to commonly applied insecticides in Darjeeling foothills and plains			
4.	Advanced studies in the effect of pesticides on the target organism (tea pests) at the defense enzyme and molecular level	Co Investigator	Apr, 2013 to Mar, 2018	UGC SAP DRS-II (65 lac)
5.	Host plant-based variation in fitness traits and major detoxifying enzymes activity in <i>Empoasca flavescens</i> Fabricius (Cicadellidae: Homoptera), an emerging sucking pest of tea in sub Himalayan tea plantations of north east India.	Principal Investigator	Apr, 2013 to Mar, 2014	University Research Grant (0.75 lac)
6.	Genetic diversity of <i>Helopeltis theivora</i> (Miridae: Hemiptera) through RAPD-PCR (Randomly Amplified Polymorphic DNA- Polymerase Chain Reaction), a major sucking insect pest of tea from sub Himalayan tea plantations of Darjeeling hill and adjoining plains of Terai and the Dooars.	Principal Investigator	Apr, 2014 to Mar, 2015	University Research Grant (0.75 lac)

### Selective List of Publications:

#### Research/ Review Papers in peer-reviewed Journals, Books and Book Chapter:

- Saha, D. and Mukhopadhyay, A. 2016. Genetic relatedness among different populations of *Helopeltistheivora* (Miridae: Hemiptera), a major sucking insect pest of tea from sub Himalayan tea plantations of northern part of West Bengal, India. (Communicated).
- Bharati, M., Saha P. and Saha, D. 2016. Variation in Esterase Activity Among Different *Aedes aegypti* L. Populations from the Dooars and Terai Regions of West Bengal, India. *Proceedings of Zoological Society* 00(00):00-00. (Springer-Verlag Publication, Netherlands). (Accepted on 25th October 2016)
- Saha, D. 2016. Host plant-based variation in fitness traits and major detoxifying enzymes activity in *Scirtothrips dorsalis* Hood (Thripidae: Thysanoptera), an emerging sucking pest of tea from sub Himalayan tea plantations of northern part of West Bengal, India. *International Journal of Tropical Insect Science*. 00(0): 00-00. (Cambridge University Press, London, U.K.). IF 0.419
- Saha, D. 2016. Biochemical insecticide resistance in tea pests. In: 'Insecticide Resistance' Edited by Stanislav Trdan, InTech Europe, Rijeka, Croatia, ISBN 978-953-51-4591-2.
- Kumar, B., Saha, D. and Mukhopadhyay, A. 2014. Enhancement of resistant ratio vis-a-vis defence-enzymes activity in tea mosquito bug, *Helopeltis theivora* Waterhouse (Hemiptera: Miridae) selected through exposure to sub-lethal dose of monocrotophos. *Proceedings of Zoological Society*. DOI: 10.1007/s12595-014-0124-5 (Published online on 11th September, 2014)
- Mukhopadhyay, A., Roy, S., Das, S. and Saha, D. 2013. Some stress factors in tea plantation of Sub-Himalayan Terrain of North Bengal vis-à-vis the changing pest scenario -an overview. *Two and a Bud*. 60(2): 30-42.
- Saha, D., Mukhopadhyay, A. and Bahadur, M. 2013. Variation in the activity of three detoxifying enzymes in major sucking pest of tea, *Helopeltis theivora* Waterhouse (Heteroptera: Miridae) from sub-Himalayan tea plantations of West Bengal, India. *Proceedings of Zoological Society* (July-Dec 2013) 66(2):92-99. (Springer-Verlag Publication, Netherlands).
- Saha, D. and Mukhopadhyay, A. 2013. Insecticide resistance mechanisms in three sucking insect pests of tea with reference to North East India - an appraisal. *International Journal of Tropical Insect Science*. 33(1): 46-70. (Cambridge University Press, London, U.K.). IF 0.419
- Saha, D. and Roy, S. 2012. Evaluation of Insecticide susceptibility and activity of three principal detoxifying enzymes in female *Helopeltistheivora* Waterhouse (Miridae: Heteroptera) from Sub-Himalayan tea plantations of North Bengal, India. In: "Proceedings of 2nd International Symposium on Biopesticide and Ecotoxicological Network (2ndISBioPEN)". Department of Zoology, Kasetsart University, Bangkok, Thailand. pp. 387-400.
- Saha, D. 2012. Insecticide Resistance Mechanisms in Sucking Insect Pests of Tea. Lambert Academic Publishing, GmbH and Co. KG, Dudweiler Landstraße 99, 66123 Saarbrücken, Germany (ISBN: 978-3-6594-24372-1).
- Saha, D., Mukhopadhyay, A. and Bahadur, M. 2012. Genetic diversity of *Empoasca flavescens* Fabricius (Homoptera: Cicadellidae), an emerging pest of tea from sub-Himalayan plantations of West Bengal, India. *Proceedings of Zoological Society* (July-Dec 2012) 65(2): 126-131. (Springer-Verlag Publication, Netherlands)
- Saha, D., Mukhopadhyay, A. and Bahadur, M. 2012. Effect of host plants on fitness traits and detoxifying enzymes activity of major sucking insect pest of tea, *Helopeltis theivora* (Heteroptera: Miridae). *Phytoparasitica*. 40: 433-444. DOI: 10.1007/s12600-012-0244-2. (Springer-Verlag Publication, Netherlands). IF 0.901
- Saha, D., Roy S and Mukhopadhyay, A. 2012. Insecticide susceptibility and activity of major detoxifying enzymes in female *Helopeltistheivora* Waterhouse (Heteroptera: Miridae) from Sub-Himalayan tea plantations of North Bengal, India. *International Journal of Tropical Insect Science*. 32(2): 85-93. (Cambridge University Press, London, U.K.) IF 0.419
- Saha, D., Roy S and Mukhopadhyay, A. 2012. Seasonal incidence and enzyme-based susceptibility to synthetic insecticides in two upcoming sucking insect pests of tea. *Phytoparasitica* 40: 105-115. (Springer-Verlag Publication, Netherlands). IF 0.901
- Saha, D., Mukhopadhyay, A. and Bahadur, M. 2012. Variation in detoxifying enzymes activity in tea greenfly, *Empoasca flavescens* Fabricius (Homoptera: Jassidae) from sub Himalayan organic and conventional tea plantations. In: "Proceedings of National Symposium on Biodiversity Status and Conservation Strategies with special Reference to North East India", Varatharajan, R. (ed.). Centre for Advanced Studies, Department of Life sciences, Manipur University, Manipur, India. pp. 257-266. ISBN 978-81-923343-1-8.
- Saha, D., Mukhopadhyay, A. and Bahadur, M. 2010. Variation in Detoxifying Enzymes of Assam Thrips, *Scirtothrips dorsalis* Hood (Thysanoptera: Thripidae) from Organically and Insecticide Managed Tea Plantations. *NBU Journal of Animal Sciences* 4: 45-52. (ISSN 0975-1424).
- Saha, D. and Mukhopadhyay, A. 2008. Variation in Esterase activity of *Empoasca flavescens* Fabricius (Cicadellidae: Homoptera) in different tea Estates of Terai. *NBU Journal of Animal Sciences* 2(2): 39-41 (ISSN 0975-1424).

#### Participation in International/National/ Conference/ Symposia/Workshop:

- Training Programme on "Computer Aided Learning Programme" at Electronics Test and Development Centre Malda during 15th may, 2006- 29th May 2006 Under West Bengal Government Aided Teacher Training Programme.
- National Workshop on "Bioinformatics" at NBU Bioinformatics Facility, Department of Botany, University of North Bengal, Siliguri January 18 – 20, 2008.
- Silver Jubilee Symposium(National) on "Dimensions of Research Applications in Animal Sciences" at Department of Zoology, University of North Bengal, Siliguri during December 2 – 3, 2008.
- National Symposium on "Pesticide stress on Target, Non-Target Organisms and Human Health" at Department of Zoology, University of North Bengal, Siliguri during February 11 – 12, 2010.
- National Conference on "Evaluation of Biodiversity of Eastern Himalaya and Adjoining Plains" at Department of Zoology, University of North Bengal, Siliguri during December 1 – 4, 2010.

6. National Symposium on “*Biodiversity Status and Conservation Strategies with special Reference to North East India*” at Department of Life Sciences, Manipur University, Manipur during March 17 – 18, 2011.
7. 3RD Congress on Insect Science “*Pest Management for Food Security and Environment Health*” at Department of Entomology, Punjab Agricultural University, Ludhiana, Punjab, India during April 18 – 20, 2011.
8. National Symposium on “*Biodiversity and Food Security: Challenges and Devising Strategies*” at Indian Institutes of Pulses Research (IIPR), Kanpur, India during December 10 – 11, 2011.
9. Workshop on “*User Awareness Programme on Access to E-Resources under N-LIST programme*” organized by University Library, University of North Bengal, and INFLIBNET Centre, Ahmedabad, at University of North Bengal, Siliguri, India during February 10, 2012.
10. National Symposium on “*Anthropogenic Toxicants, Green Chemistry, Biodiversity and Sustainable Development: An Interdisciplinary Approach*” at Department of Zoology, P.D. Women’s College, Jalpaiguri during March 13 – 14, 2012.
11. National Symposium on “*Research in Animal Sciences: Evaluation and Development*” at Department of Zoology, University of North Bengal, Siliguri during March 19 – 20, 2012.
12. National Seminar on “*Biodiversity and Sustainability vis-à-vis Economic Development in the northern parts of West Bengal*” at Raiganj Surendranath Mahavidyalaya, Raiganj, UD, West Bengal, India during August 26 – 27, 2012.
13. International Symposium on “*Biopesticide and Ecotoxicological Network (ISBioPEN)*” at Department of Zoology, Kasetsart University, Bangkok, Thailand during September 24-26, 2012.
14. 5TH International Science Conclave: A congregation of Nobel Laureates at Indian Institute of Information Technology, Allahabad, U.P. India, during December 08-14, 2012.
15. 4TH International Insect Science Congress (IISC) on “*Exploring the Incredible Insect World*” at University of Agricultural Sciences at Bangalore, India during February 14-17, 2013.
16. National Symposium on “*Man, Animal and Environment Interaction in the Perspective of Modern Research*” at Department of Zoology, University of North Bengal, Siliguri, W.B., India, during March 8 – 9, 2013
17. 6TH International Science Conclave: A congregation of Nobel Laureates at Indian Institute of Information Technology, Allahabad, U.P. India, during December 08-14, 2013.
18. International Conference on Entomology at Department of Zoology and Environmental Sciences, Punjabi University, Patiala, Punjab, India, during February 21-23 2014.
19. National Conference on Applied Zoology in Sustainable Development: an Update at Department of Zoology, University of North Bengal, Siliguri, West Bengal, India during 30th January-2nd February, 2015.
20. 22nd West Bengal State Science and Technology Congress 2015 in Animal Science section at University of North Bengal, Siliguri, West Bengal during 28th February- 1st March 2015.
21. 22nd West Bengal State Science and Technology Congress 2015 in Medical Science section at University of North Bengal, Siliguri, West Bengal during 28th February- 1st March 2015.
22. “CONEXION - An UGC sponsored University Industry Linkages Programme 2015” at University of North Bengal, Siliguri, West Bengal during 3rd March 2015.
23. 4th Congress on Insect Science at Department of Entomology, Punjab Agricultural University, Ludhiana, Punjab, India during April 16 – 17, 2015.
24. “Science in Bengal” a Satellite Conference of ‘22nd West Bengal State Science and Technology Congress 2015’ held at University of North Bengal, Siliguri, West Bengal during 3rd - 4th June, 2015.
25. UGC sponsored National seminar on “*Advances in Biology: Eastern Himalayan Perspective*” at Kalimpong College, Kalimpong, Darjeeling during October 03- 04, 2015.
26. National level Workshop on “*Contemporary laboratory and field courses in Zoological Science*” sponsored by Department of Higher Education, Government of West Bengal, organized by Department of Zoology, Acharya Prafulla Chandra Roy Government College, Siliguri, West Bengal, India during 22nd November to 1st December, 2015.
27. UGC-CPE Assisted Inter Disciplinary (Science) National Seminar on “*Frontiers in Science and Technology towards National Development*” held at Acharya B.N. Seal College, Cooch Behar 736101, West Bengal during 10 - 11th April, 2016. Title of Presentation “*RNAi Based Technology for Insect Pest Control: The Next Generation Insecticide*” by Souromita Ghosh and Dhiraj Saha.
28. 1st Regional Science and Technology Congress, Jalpaiguri Division, West Bengal, at Ananda Chandra College, Jalpaiguri, West Bengal, India, during 7th – 8th November, 2016. Title of Presentation “*Biochemical and Genetic variability of Scirtothrips dorsalis Hood (Thysanoptera: Thripidae, an important sucking pest of tea from different tea plantations of sub-Himalayan West Bengal, India)*” by Dhiraj Saha.
29. 1st Regional Science and Technology Congress, Jalpaiguri Division, West Bengal, at Ananda Chandra College, Jalpaiguri, West Bengal, India, during 7th – 8th November, 2016. Title of Presentation “*Activity of three major Insecticide detoxifying Enzymes in field population of Culex quinquefasciatus Say from Darjeeling district, West Bengal, India*” by Prasanta saha, Minu Bharati, Somnath Kundu and Dhiraj Saha
30. 1st Regional Science and Technology Congress, Jalpaiguri Division, West Bengal, at Ananda Chandra College, Jalpaiguri, West Bengal, India, during 7th – 8th November, 2016. Title of Presentation “*Variation of Major Insecticide Detoxifying Enzymes’ activity among different Aedes albopictus L. populations from three districts of sub-Himalayan West Bengal India*” by Minu Bharati, Prasanta saha, Somnath kundu and Dhiraj Saha
31. 1st Regional Science and Technology Congress, Jalpaiguri Division, West Bengal, at Ananda Chandra College, Jalpaiguri, West Bengal, India, during 7th – 8th November, 2016. Title of Presentation “*Larvicidal activities of Piper nigrum L. (Piperaceae) leaf extracts against Culex quinquefasciatus Say (Dipteral: Culicidae) from sub-Himalayan West Bengal India*” by Somnath kundu, Somobarna Roy, Minu Bharati, Prasanta saha, and Dhiraj Saha