

## PERSONAL PROFILE

**Name** : Dr. NAYAN ROY  
**Designation** : Assistant Professor of Zoology  
**Department** : ZOOLOGY  
**Academic Qualification** : M. Sc., Ph. D.  
**Office address** : MUC Women's College  
B.C. Road, Burdwan - 713104  
West Bengal, India  
**Web address** : www.mucwcburdwan.org  
**Phone (Office)** : 0342-2533168  
**Phone/Mobile** : +91 9477829131  
**Residential Address** : Mearberh Pirtala  
Silbagan, Chinsurah, Hooghly  
Pin - 712101, West Bengal  
India  
**Correspondence Address** : M. U. C. Women's College  
Dept. of Zoology  
Burdwan - 713104, West Bengal  
India  
**E-mail** : nayan909@gmail.com



### Academic Information:

#### Academic Score:

Name of Examination	Name of the Board	Year of Passing	Division	Percentage of Marks
M.P.	W.B.B.S.E	2001	1 <sup>ST</sup>	81.75%
H.S.	W.B.C.H.S.E	2003	1 <sup>ST</sup>	72.70%
B.Sc.(ZOOH)	B.U.	2006	1 <sup>ST</sup>	61.62%
M.Sc.(ZOOLOGY)	B.U.	2008	1 <sup>ST</sup>	75.50%

- ❖ **M. Sc. Special Paper:** Ecology & Environment
- ❖ **M. Sc. Project Work:** "Preliminary observations of diversity and food web of mosquito immature and its insect predators in rice-fields" with Hossain, A. and Dutta, M.; 2008 under T. C. Banerjee and G. Aditya, Department of Zoology, University of Burdwan.

#### ❖ **Special Qualifications:**

1. **National Eligibility Test** (NET, CSIR –JRF June, 2008; (Life Sciences))

2. **State Level Eligibility Test (SET, 2008; Life Science)**
3. **Ph.D. thesis** entitled “**Phytochemicals in the sunflower *Helianthus annuus* L. (CV. PAC-36) and their role in the interactions with defoliator, *Diacrisia casignetum* Kollar (Lepidoptera : Arctiidae)**” awarded on 20<sup>th</sup> February 2014.

❖ **Area of Specialization:** Chemical Ecology of Plant-Insect Interactions & GPM

#### **Doctoral Research:**

1. Worked as a CSIR Junior Research Fellow and as Part-time Research fellow (from 01.04.2010) in Department of Zoology, University of Burdwan from 2009 to 2014 on “Phytochemicals in the sunflower (*Helianthus annuus* L.) and their ecological Implications on the insect herbivore, *Diacrisia casignetum* Kollar” under the guidance of Dr. A. Barik, Department of Zoology, University of Burdwan.

#### **Research Skills:**

1. **Technical Skills:** Microscopy (Light, dark field, fluorescence, Confocal and phase contrast), Electron Microscopy (Scanning and transmission), UV-Vis Spectrophotometry, Thermal gravimetric analysis (TGA), Chromatography (CC, TLC, HPLC, GC-FID, GLC, GC-MS and NMR) etc.
2. **Statistical Skills:** Significance tests, ANOVA, Multivariate regression analysis, PCA, Software packages used: SPSS statistical software 16.0, Origin pro 7.5, Chemoffice 2004, etc.
3. **Other Skills:** MS word, Excel, Power point presentation, Photoshop, Corel Draw etc.

**Professional activities:** Assistant Professor of Zoology (Emp. No. 01020847), M.U.C. Women’s College (under The Burdwan University), Department of Zoology, Burdwan-713104, West Bengal, India from 1<sup>st</sup> April 2010 to Present.

#### **Minor/ Major Research projects completed/ in progress:**

1. MRP in Progress: “Phytochemicals in *Chorchorus capsularis* (cv. Sonali; JRC-321) leaves and their role in the interactions with the defoliator, *Diacrisia casignetum* Kollar (Lepidoptera: Arctiidae)” No.F. : PSW-025/13-14 dated: 18-Mar-2014.
2. WBDST approved: “PHYTOCHEMICAL MEDIATED TROPHIC INTERACTIONS BETWEEN *Vigna radiata* (L.) AND ITS INSECT PEST *Diacrisia casignetum* KOLLAR (Lepidoptera: Arctiidae)”  
**File No:1G-41/2016**

#### ❖ **Professional/Educational Experience:**

1. Orientation Programme (94<sup>th</sup>) at ASC, BU, 24<sup>th</sup> January to 20<sup>th</sup> February, 2014.
2. Refresher Course (2<sup>nd</sup> RC in Biological Science) at ASC, BU, 23<sup>rd</sup> September to 13<sup>th</sup> October, 2015.

#### ❖ **Academic Membership:**

∞ Life member of Zoological Association, Burdwan, from 2010.

#### ❖ **Journal Editorial Board Member:**

- a. *Journal of Entomology and Zoology Studies* (Associate Editor from 13/08/2014)
- b. *International Journal of Fauna and Biological Studies* (Associate Editor from 12/03/2015)

❖ **Journal MS Reviewer:**

- a. MS on “Tropical house hold ants.....in penang, Malaysia”, of *Journal of Entomology and Zoology Studies*, ID: 4-1-41 IJEZS (2016).
- b. MS on “Gastropod living on three genera of macroalgae”, of *Pakistan Journal of Biological Science*, ID: 82625-PJBS-ANSI (2017).

❖ **UG Research Guidance (Project Work):**

1. Under Graduate (Zoology Hon’s) project on “Particulate Matter Air Quality Mapping Using Thin Plate Technique” in 2011-2012.
2. Under Graduate (Zoology Hon’s) project on “Air Quality Mapping by Suspended Particulate Matter (PM) in Urban and Rural Areas Road side and Interior side of Burdwan District” in 2012-2013.
3. Under Graduate (Zoology Hon’s) project on “Zooplankton diversity in fresh water pond ecosystem” in 2013-2014.
4. Under Graduate (Zoology Hon’s) project on “Control strategy of a stored grain pest, *Sitophilus oryzae* by UV irradiation” in 2014-2015.
5. Under Graduate (Zoology Hon’s) project on “Control strategy of a stored grain pest, *Calosobruchus maculatus*” in 2015-2016.
6. Under Graduate (Envs) project on “Air Pollution by Road Vehicles” in 2011-2016 (for 5 years).

**Biography:** I have my Ph.D. in Zoology, university of Burdwan, under the supervision of Dr. Anandamay Barik (Assistant Professor) and presently appointed as an Assistant Professor, Department of Zoology, M.U.C. Women’s College, Burdwan, W.B., India. In due course of my research work, I became well acquainted with laboratory techniques on phytochemical analysis including isolation, chemical characterization and estimation as well as assessing their role in plant-insect interactions. I am equally efficient in field work for find out the biodiversity, pest biology including their behavioral ecology, allelopathy and green nanotechnology. I have a standing interest in how plants and insects interact and how they have affected each other in their growth and development. Herbivorous insects and green plants together make up over half of all known biodiversity. I am trying to find the range of behaviors shown by insects to unravel the complexity of their interactions with plants. The demographic study and nutritional ecology of the insect pest may help their ecological management in future. The potential for studying these topics in India is enormous toward applied issues for pest control as well as for fundamental ecology. I have extensively studied the top-down and bottom-up regulation of some crop plant by their defoliators. I am also working on the allelopathic effects of plants and synthesize metallic nanoparticles in green synthesis approach. Recently, I am very much concerned the insect pest management rather their control through the use of demography and nutritional ecology along with trap cropping system through green pest management (GPM) strategy, a branch of Integrated Pest Management (IPM) for environmental development and human welfare.

**Teaching Experience:** The goal for a teacher is to spread new information among students, not just memorizing particulars, but to teach them how to think. This is absolutely possible only when both teacher and students are enjoying what they are learning. My teaching interest largely revolves around my research interests

including Ecology, Biodiversity, Conservation Biology, Taxonomy, Ethology, Embryology, Physiology, Biochemistry, Genetics etc. I always try to stimulate the minds of my students and they also inspire me more during class room discussions. I like talking about my field and laboratory into my class room teaching to implant my students in real context. I want the students to develop interest and awareness on importance of Ecosystem and Biodiversity along with their functions for our sustainability.

### **Research Experience:**

**Past Research activity:** In due course of my research work, I was concerned with phytochemical analysis including isolation, chemical characterization and estimation as well as assessing their role in plant-insect interactions. I have also worked on the allelopathic effects of plants and synthesize metallic nanoparticles (MNP) in green synthesis approach. Firstly, I have worked as a CSIR Junior Research Fellow in Department of Zoology, University of Burdwan from 02.01.2009 to 31.03.2010 on “Phytochemicals in the sunflower (*Helianthus annus* L.) and their ecological implications on the insect herbivore, *Diacrisia casignetum* Kollar” under the guidance of Dr. A. Barik, Department of Zoology, University of Burdwan. Secondly, I have worked as a Part-time Research fellow (from 01.04.2010) under a project entitled “Phytochemicals in the sunflower, *Helianthus annus* L. (cv. PAC-36) and their role in the interactions with defoliator, *Diacrisia casignetum* Kollar (Lepidoptera : Arctiidae)” under the guidance of Dr. A. Barik. Department of Zoology, University of Burdwan.

**Present Research activity:** I am working on biodiversity, pest biology including their behavioral ecology, allelopathy and green nanotechnology. I have a standing interest in - how plants and insects interact and how they have affected each other in their growth and development. Herbivorous insects and green plants together make up over half of all known biodiversity. I am trying to find the range of behaviors shown by insects to unravel the complexity of their interactions with plants.

**Future research plan:** I have wide research interest and most of my studies have largely focused on insect-plant interaction. I would like to expand my horizon related to chemical ecology of plant-insect interactions for pest management. I have a great interest on top-down and bottom-up regulation of some crop plant by their pests. I am also interested in demographic study and nutritional ecology of the insect pest that may help their ecological management in future. Ultimately it may help me in finding a new approach of agro ecosystem analysis (AESA) based green pest management (GPM) for climate smart agriculture (CSA) to human welfare. The potential for studying these topics in India is enormous toward applied issues for pest control as well as for fundamental ecology.

I am looking potential students and collaborators with allied research interest for an innovative research. Please feel free to inform me ([nayan909@gmail.com](mailto:nayan909@gmail.com)) with new ideas and proposals.

### **❖ List of Publication:**

1. Roy, N. and Barik, A. (2010). The role of volatiles in tritrophic interactions. **Environment and Ecology**, 28(1): 352–355.

2. Basu, M., Roy, N. and Barik, A. (2010). Seasonal abundance of net zooplankton correlated with physico-chemical parameters in a fresh water ecosystem. **International Journal of Lakes and Rivers**, 3(1): 67–77.
3. Roy, N. and Barik, A. (2010). Green synthesis of silver nanoparticles from the unexploited weed resources. **International Journal of Nanotechnology and Applications**, 4(2): 95–101.
4. Roy, N. and Barik, A. (2010). Allelopathic potential of *Ludwigia adscendens* (L.) on germination and seedling growth of green gram, *Vigna radiata* (L.) cultivated after rice. **Agricultural Science Digest**, 30(3): 192–196.
5. Roy, N. Basu, M. Chattopadhyay C. and Barik A. (2011). Allelopathic effects of rice field weed, *Ludwigia adscendens* (L.) on germination and seedling growth of three economic crop plants. **International Journal of Horticulture and Crop Science Research**, 1(1): 15–20.
6. Roy, N., Laskar, S. and Barik, A. (2012). The attractiveness of odorous esterified fatty acids to the potential biocontrol agent, *Altica cyanea*. **Journal of Asia-Pacific Entomology**, 15(2): 277–282.
7. Roy, N. and Barik, A. (2012). The Impact of Variation in Foliar Constituents of Sunflower on Development and Reproduction of *Diacrisia casignetum* Kollar (Lepidoptera: Arctiidae). **Psyche**, vol. 2012: Article ID 812091, 9 pages, doi:10.1155/2012/812091.
8. Mukherjee, A., Sarkar, N., Roy, N. and Barik, A. (2012). Green Approach of Gold Nanoparticle Synthesis from Sunflower Leaf. **International Journal of Nanotechnology and Applications**, 6 (2): 89–96.
9. Roy, N. and Barik, A. (2012). Influence of four host plants on feeding, growth and reproduction of *Diacrisia casignetum* (Lepidoptera: Arctiidae). **Entomological Science**, 16(1): 112-118. doi:10.1111/j.1479-8298.2012.00546.x.
10. Roy, N. and Barik, A. (2012). Alkanes used for host recognition by the arctiid moth *Diacrisia casignetum* Kollar. **Journal of Entomological Research**, 36(4): 345-50.
11. Roy, N., Laskar, S. and Barik, A. (2012). Determination of n-alkane profile through developmental state of sunflower leaves. **The South Pacific Journal of Natural and Applied sciences**. 30: 72-76.
12. Roy, N., Laskar, S. and Barik, A. (2013). Amino acids through developmental stages of sunflower leaves. **Acta Botanica Croatica**, 72(1): 41-51.
13. Roy, N., Chattopadhyay, C. and Barik, A. (2013). Assessing the Attractiveness of Odorous Esterified Fatty Acids to Arctiid Moth, *Diacrisia casignetum* Kollar. **The Ecoscan**, 3: 87-91.
14. Roy, N. and Barik, A. (2014). Long-chain fatty acids: Semiochemicals for host location by the insect pest, *Diacrisia casignetum*. **Journal of the Kansas Entomological Society**. 87(1): 22-36.
15. Roy, N. (2014). Role of *Chorchorus capsularis* phytochemicals on the feeding dynamics of *Diacrisia casignetum* Kollar (Lepidoptera: Arctiidae). **Journal of Entomology and Zoology Studies**. 2 (4): 227-236.
16. Roy, N. (2015). Life table and population parameters of *Diacrisia casignetum* Kollar (Lepidoptera: Arctiidae) on jute, *Chorchorus capsularis* (cv. Sonali; JRC-321), leaves. **International Journal of Fauna and Biological Studies**. 2(3): 23-29.
17. Roy, N. (2015). Host phytochemicals in regulation of nutritional ecology and population dynamics of *Podontia quatuordecimpunctata* L. (Coleoptera:Chrysomelidae). **International Journal of Horticulture**. 5(4): 1-11. (doi: 10.5376/ijh.2015.05.0004).
18. Roy, N., Chowdhury, P., Dutta, S., Garain, R. and Das, T. (2015). Air quality analysis by suspended particulate matter in urban and rural areas of burdwan district. **JAST –A reviewed multidisciplinary research journal**. 1(1):88-91. ISSN:2395-4353

19. Roy, N., Nag, D. and Chowdhury, S. K. (2015). Bottom up Phytofabrication of Silver Nanoparticles and Their Antimicrobial Activity. *Biomaterial and Biomedicine*. 5(37): 1-14. (doi: 10.5376/bb.2015.05.0037).
20. Dutta, S. and Roy, N. (2016). Life table and population dynamics of a major pest, *Leptocorisa acuta* (Thunb.) (Hemiptera: Alydidae), on rice and non-rice system. *International Journal of Pure & Applied Bioscience*. 4(1):199-207. ISSN: 2320 – 7051
21. Sen, D., Dey, P., Pal, K., Mondal, R., Sain, A. and Roy N. (2016). Potency of UV Irradiation in Management of Rice Weevil, *Sitophilusoryzae* L. *JAST –A reviewed multidisciplinary research journal*. 2(1):61-67. ISSN:2395-4353
22. Parui, A. and Roy, N. (2016). Ecofriendly and sustainable management of *Spilosoma obliqua* Walker on sesame (*Sesamum indicum* L.) crops by new botanicals. *Journal of Entomology and Zoology Studies*. 4 (6): 349-354.
23. Roy, N. (2017). Life Table and Nutritional Ecology of *Epilachna vigintioctopunctata* Fab. (Colioptera: Coccinellidae) on Three Host Plants. *International Journal of Horticulture*. 7(2): 7-19. (doi: 10.5376/ijh.2017.07.0002).
24. Roy, N. (2016). Life table of a bio-control agent *Alticyanea* on the weed, *Ludwigiaadscendens*. *FOCUS: An annual multidisciplinary refereed journal* (ISSN: 2278-1501) [Accepted].
25. Monali Mukherjee<sup>2</sup>, Shreya Mondal<sup>2</sup>, Debarati Biswas<sup>2</sup>, Debaspriya Das<sup>2</sup> and Nayan Roy<sup>1\*</sup> (2017). Eco-friendly and Sustainable Management of Pulse Beetle, *Callosobruchus maculatus* Fabr. *JAST –A reviewed multidisciplinary research journal*. [Communicated]. ISSN:2395-4353

#### ❖ Seminar Presentations:

1. Roy, N. and Barik, A. (2009). Volatile Signaling: Talking-Tree. Presented in: 16th West Bengal State Science & Technology Congress, 28th February-1st March, 2009 at University of Burdwan; ROY-25, p 498.
2. Roy, N. and Barik, A. (2010). Fatty acid composition in weed parts, *Ludwigia adscendens* L. and assessing their role in the attraction of a biocontrol agent, *Altica cyanea* (Weber). Presented in: Golden Jubilee International Seminar on “Researches in Zoology-Basic and Applied”, March 17-19; ORAL E7; P98.
3. Hossain, A., Roy, N., Kundu, M. and Aditya, G. (2010). Deciphering predators and mosquito prey links: food webs of rice-fields. Presented in: UGC sponsored national seminar on Resurgent vector-borne diseases and climate change: a threat to mankind on 15<sup>th</sup> & 16<sup>th</sup> December, 2010 in Department of Zoology, Maharajadhiraj Uday Cahand women’s college, Burdwan, ORAL; P22.
4. Roy, N., Chattopadhyay, C. and Barik, A. (2013). Assessing the Attractiveness of Odorous Esterified Fatty Acids to Arctiid Moth, *Diacrisia casignetum* Kollar. Presented in: NASEED-2013 on 25–27 January 2013 at Sambalpur University. *Published in: The Ecoscan, 3: 87-91*.
5. Roy, N. (2013). Effects of Three Host-Plants on Larval Growth and Adult Fecundity of the Arctiid Moth *Diacrisia casignetum* Kollar (Lepidoptera: Arctiidae). Presented in: UGC-DRS Seminar on “Bioprospecting of Natural Products” held on 05 and 06th December, 2013 in Department of Zoology, University of Burdwan, Burdwan.
6. Roy, N. (2016). Nutritional ecology and host preference of a major pest, *Diacrisia casignetum* Kollar. Presented in: 23<sup>rd</sup> West Bengal State Science & Technology Congress, 28-29 th February, 2016 at Presidency University, Kolkata. Animal science 01.

7. Roy, N. (2016). Population Dynamics and Life Table of *Altica cyanea*: A Classical Bio-control Agent of Rice Field Weed, *Ludwigia spp.* Presented in: 1<sup>st</sup> Regional Science & Technology Congress-2016, 7-8<sup>th</sup> November, 2016 at Bankura Christian College, Bankura, in Burdwan Division, West Bengal, Zoology Section.
8. Roy, N. (2016). Green Management of a Major Pest *Diacrisia casignetum* Kollar . Presented in: 1<sup>st</sup> Regional Science & Technology Congress-2016, 13-14<sup>th</sup> November, 2016 at NIRRT, Kolkata, in Presidency Division, West Bengal, Environment section.
9. Dutta S. and Roy N. (2016). Population Dynamics and Host Selection of a Major Pest, *Leptocorisa acuta* (Thunb.). Presented in: UGC-SAP sponsored national seminar on Effect of Climate Change on Faunal Diversity organized by Department of Zoology, University of Kalyani, Kalyani, West Bangal on 27<sup>th</sup> Feb 2017 in Taxonomy and Environment section as Poster Presentation.

❖ **Seminar, Conference, Symposium and Workshop Attained:**

1. Workshop on Methylene blue reductase test & acid fast staining on February 28, 2007; Department of Zoology, University of Burdwan.
2. International conference on frontier of mathematics and applications on January 16-18, 2008; Department of Mathematics, University of Burdwan.
3. 16th West Bengal State Science & Technology Congress, 28th February-1st March, 2009 at University of Burdwan.
4. UGC sponsored state-level seminar on Application of spectroscopy: atomic to molecular systems on March 20-21, 2009 at Department of chemistry, Vivekananda mahavidyalaya, Burdwan.
5. International seminar on Biological thoughts: micro to the macro on February9, 2010 in Department of Zoology, University of Calcutta.
6. National seminar on recent trends in biotechnology on 11-12 March, 2010 Organized by the Department of Biotechnology, University of Burdwan, Burdwan.
7. Golden Jubilee International Seminar on “Researches in Zoology-Basic and Applied” on March 17-19 in Department of Zoology, University of Burdwan, Burdwan.
8. National seminar cum exposition on modern microscopes and their applications on 08-09 April, 2010 in University science instrumentation centre, University of Burdwan, Burdwan.
9. UGC sponsored national seminar on Resurgent vector-borne diseases and climate change: a threat to mankind on 15<sup>th</sup> & 16<sup>th</sup> December, 2010 in Department of Zoology, Maharajadhiraj Uday Chand women’s college, Burdwan, West Bengal.
10. UGC sponsored Tow-day international seminar on Global warming on 23-24 November, 2011 in Burdwan Raj College, Burdwan.
11. UGC sponsored national seminar on women & society in colonial India: debates and Discourses on 29-30 November, 2011 in Department of History, Maharajadhiraj Uday Chand women’s college, Burdwan, West Bengal.
12. UGC sponsored national seminar on Challenges of biology in the 21<sup>st</sup> century on 1<sup>st</sup>-2<sup>nd</sup> December, 2011 in Department of Botany, Maharajadhiraj Uday Chand women’s college, Burdwan, West Bengal.
13. National seminar on Application of statistics in industry, social and biomedical sciences on 30<sup>th</sup> March, 2012 in the Department of Statistics, University of Burdwan.

14. National seminar on Ecology, Environment and Development (NASEED-2013) on 25-27<sup>th</sup> January, 2013 in the P. G. Department of Environmental Sciences, Sambalpur University, Jyoti Vihar-768 019, Odisha (India).
15. UGC-DRS Seminar on “Bioprospecting of Natural Products” held on 05 and 06 th December, 2013 in Department of Zoology, University of Burdwan, Burdwan.
16. UGC sponsored national seminar on Frontier in Chemistry on 4th and 5th December, 2013 in Department of Chemistry, Maharajadhiraj Uday Chand women’s college, Burdwan, West Bengal.
17. International symposium on combating climate change in C40 megacities on 22<sup>nd</sup> April, 2015 at Kolkata organized by SAFE and others.
18. “Bird Photography Workshop-2016” on January 12 to 14, 2016, organized by Nature Club (CANOPY), Bejoy Narayan Mahavidyalaya in association with WWF; Itachuna, Hooghly.
19. 23<sup>rd</sup> West Bengal State Science & Technology Congress, 28-29th February, 2016 at Presidency University, Kolkata.
20. 1<sup>st</sup> Regional Science & Technology Congress-2016, 7-8<sup>th</sup> November, 2016 at Bankura Christian College, Bankura, in Burdwan Division, West Bengal.
21. 1<sup>st</sup> Regional Science & Technology Congress-2016, 13-14<sup>th</sup> November, 2016 at NIRRT, Kolkata, in Presidency Division, West Bengal.
22. UGC-SAP sponsored national seminar on Effect of Climate Change on Faunal Diversity, on 27<sup>th</sup> Feb 2017, organized by Department of Zoology, University of Kalyani, Kalyani, West Bangal.

**Signature**