

ANIRBAN ROY

Doctoral Scholar

Ashoka Trust for Research in Ecology and the Environment, PO Jakkur, Royal Enclave,
Srirampura, Bengaluru, Karnataka 560064, India

Fulbright Nehru Doctoral Research Fellow (*Envt. Sc.: Climate change*) 2021-22

Department of Forest Resources, University of Minnesota, Minneapolis, MN 55455, USA

• PHONE +91 7749879891 • EMAIL anirban.roy@atree.org • SKYPE anirban.roy

• URL <https://www.atree.org/users/anirban-roy>

• RESEARCH EXPERIENCES/PROJECTS/INTERNSHIPS

April–June 2019 *Summer Research Intern* at **Université de Rennes 1, Rennes, France**

- Analysis of the effect of evolutionary distances between host (oak) trees and neighbours on the phenotypes of colonizers (caterpillars), thereby deducing the concept of *Island Biogeography*.
- Characterisation of the oak leaves phenologically, biochemically and morphologically; reared more than 500 phytophagous caterpillars.

Jan–March 2019 *Summer Research Intern (Master's Dissertation)* at **Birbal Sahni Institute of Palaeosciences, Lucknow, India**

- Reconstruction of Palaeoecology and Palaeoclimatic conditions of the late Palaeozoic *Gondwana* sediments of the Wardha Basin in Maharashtra.
- Studied the systematics of the Late Palaeozoic spores and Pollen and their implications to recreate the geological past.

May–July 2018 *Summer Research Intern* at **Wildlife Institute of India, Dehradun, India**

- Studied the impacts of large herbivore Grazing and Altitudinal transition on Herbaceous communities in different topographic regimes of *Western Himalayas*.
- Analysis of the plant community assemblages, community composition, diversity metrics and herbaceous dynamics of *Tungnath* and *Shokhrakh* alpine meadows of Kedarnath Wildlife Sanctuary, Uttarakhand.

Aug–Dec 2017 *Semester Research Project* at **KJ Somaiya College of Science & Commerce (Affiliated to University of Mumbai), Mumbai, India**

- Explored the flora -medicine continuum and respondents' stochasticity among the inhabitants of two tribal predominant districts, *Ratnagiri* and *Palghar*, of Maharashtra.
- Developed Ethnobotanical inventories and performed Computational analysis to study the human relationships with the indigenous flora through the lens of Medicinal Botany.

June–Dec 2016 *Undergraduate Research Project on Ecotoxicology* at **Regional Institute of Education (NCERT), Bhubaneswar, India**

- The study dealt with *Polypedates maculatus* tadpoles exposed to varied concentrations of Cadmium that revealed eccentric changes in behavior and high index of mortality.
- Reared the study species for 6 months, studied the morpho -physiological parameters throughout the metamorphosis and prepared reports for publication.

Aug–Sept 2016 *Undergraduate Research Project on Child Psychology* at **Regional Institute of Education (NCERT), Bhubaneswar, India**

- Investigated the Drawing Skills and Mental Images of Secondary Students on Human Digestive System through Hand Drawing.
- Designed different teaching aids to enable the students with the opportunity to *touch and see* the human digestive system to create a better learning.

May–Dec 2015 *Investigatory Project on Child Learning* at **Regional Institute of Education (NCERT), Bhubaneswar, India**

- Multiple child -psychological studies were conducted through tools like concept inventories and likert rating scales to explore misconceptions, learning gaps and expectations of secondary students from different social backgrounds.

- **TEACHING EXPERIENCE**

Aug–Oct 2016 *Teacher Intern* at **Kendriya Vidyalaya No. 1, Bhubaneswar, India**

- Taught Biology to students of Class XI and XII; Taught Science to students of Class IX and X; Conducted practical and theoretical classes.
- Bestowed the role of I/C Class Teacher for Class X; Developed question papers for different assessments as part of their curriculum.

Jan–Feb 2016 *Pre -Service Teacher Trainee* at **Rural, Tribal and Urban-type schools**

- Four weeks teacher’s training through multicultural placements to develop understanding of students from different socio -economic and intellectual backgrounds.
- Subjects Taught: English, Science and Mathematics to the secondary students (Class VI to VIII).
Boards: CBSE and Odisha State Board

June–Dec 2015 *Microteacher* at **RIE (NCERT), Bhubaneswar, India**

- Developed lesson plans for Science (Physics, Chemistry, Biology) from Class VI to X (CBSE) and delivered the lessons to fellow peers.

- **EDUCATION**

2017–2019 **M.Sc. (Botany)**, University of Mumbai, Maharashtra, India: **83.6%**

2013–2017 Integrated **B.Sc./B.Ed. (CBZ Stream)**, Regional Institute of Education (NCERT) Bhubaneswar, India: **78.4%**

2013 **Class XII, CBSE (PCMB)**, Kendriya Vidyalaya No. 1, Ishapore, India: **85.3%**

2011 **Class X, CBSE**, Kendriya Vidyalaya No. 1, Ishapore, India: **9.8 CGPA**

- **RESEARCH INTERESTS**

- Climate Change Sciences, Plant-Soil Dynamics and Landscape Ecology
- Science Pedagogy, Child Psychology and Cognition

- **GRANTS/SCHOLARSHIPS/NOTABLE ACHIEVEMENTS/POSITIONS**

2020–22 *Research Grant*: Estimation of current and prediction of long -term Carbon sequestration in biomass and soil carbon in reforested tracts around Bangalore: 8560 USD, **SayTrees (Bengaluru)**

2019–23 *Doctoral Fellowship*: Equivalent to UGC-JRF, **ATREE Bengaluru**

2019 *Principal’s Fund for Higher Studies*: Merit-based scholarship for higher studies, **KJ Somaiya College of Science & Commerce (Affiliated to University of Mumbai), Mumbai**

2018 *Smt. Sakarbai K. Somaiya Memorial Scholarship*: Research-based scholarship, **KJ Somaiya College of Science & Commerce (Affiliated to University of Mumbai), Mumbai**

2018 *SYMBIOTEK - Intercollegiate Research Meet*: Awarded with the title of ‘Best Poster in Ecology’ and secured first position in Debate, **Department of Bioscience and Bioengineering, IIT-B, Mumbai**

2013–2017 *NCERT Scholarship*: Merit-based scholarship for undergraduate studies, **Ministry of Education, India) at RIE (NCERT) Bhubaneswar**

2016 *Central Teacher’s Eligibility Test (CTET)* Merit-based scholarship for undergraduate studies, **Ministry of Education, India at RIE (NCERT) Bhubaneswar**

2016–2017 *Odisha’s State Champion in English Debate*: Chancellor’s Gold Medal in English Debate, **Utkal University, Bhubaneswar**

- 2016, 2017 *Champion of Champions: Student of the Year (2016 and 2017)*: Received the award twice for academic, co-scholastic and literary accomplishments., **RIE (NCERT) Bhubaneswar**
- 2016–2017 *Student Representative*: Headed the Institute’s cultural and literary committee(s), **RIE (NCERT) Bhubaneswar**

● PEER-REVIEWED PUBLICATIONS
published

1. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2018). Exploring Drawing Skills and Mental Images of Secondary Students on Human Digestive System through Hand Drawing. *Journal of Indian Education*, 44 (2): 94–107.
2. **Roy, Anirban** & Janbandhu, Supriya. (2020). An ethnobotanical analysis on flora-medicine continuum among the tribal inhabitants of Ratnagiri and Palghar district, Maharashtra, India. *Ethnobotany Research and Applications*, 20 (43): 1-23.
DOI: 10.32859/era.20.43.1-23
3. Di Pasquo, M., Kavali, P.S., Dino, R., Shivanna, M., Pedārao, E. & **Roy, A.** (2021). *Faunipollenites* Bharadwaj 1962 and *Protohaploxypinus* Samoilovich 1953 emend. Morbey 1975: Morphologic comparison of oxidized and nonoxidized specimens from India and Brazil, and its taxonomic importance. *Anais da Academia Brasileira de Ciências*, 93 (1): e20190094.
DOI: 10.1590/0001-3765202120190094
4. Ojha, Srikant, **Roy, Anirban** & Mohapatra, Animesh Kumar (2021). Chronic Toxicity of Cadmium to *Polypedates maculatus* (Gray, 1830) tadpoles revealed delayed metamorphosis and augmentation of tumours. *Environmental Chemistry and Ecotoxicology*, 3 (2021): 133-141.
DOI: <https://doi.org/10.1016/j.eneco.2021.03.002>
5. Kavali, P.S., **Roy, A.**, Pasquo, M., Gurumurthy, G.P., Sharma, G. & Kumar, A. (2021). New age of the lower Talchir formation in the Wardha Basin, Central India, based on guide palynomorphs present in radiometrically-dated palynozonations in South America. Africa and Australia. *Ameghiniana*
DOI: 10.5710/AMGH.29.03.2021.3423
6. **Roy, Anirban** & Singh, Sushmita. (2021). Investigation of senior secondary students’ cognitive structure in elementary science through word construction tests. *Anusandhan Anveshika: Journal of Education & Pedagogy*, vol. XI: 21-30. ISSN: 2230-9179

in review

1. **Roy, Anirban** & Singh, Sushmita. (NA). Investigating the learning gaps of Senior -secondary children through original biological images: What really lacks? *Voice of Teacher and Teacher Educators*, in review.
2. **Roy, Anirban** & Mohapatra, Animesh Kumar (NA). Pre-service Trainee Teachers’ perspective on ‘Study from Home’ during the COVID-19 Pandemic, “Home or Classrooms: How does it differ?” *The Online Journal of Distance Education and e-Learning*, in review.
3. **Roy, Anirban** & Mohapatra, Animesh Kumar (NA). Biology Concept Inventories reveal students’ misconceptions about Reproduction: A pedagogical cycle of Identification, Mitigation and Eradication. *Journal of Biological Education*, in review.
4. Haridas, Sneha & **Roy, Anirban**. (NA). Researchers’ perspectives on ‘Work from Home’ during the COVID-19 pandemic. *Indian Journal of Science and Technology*, in review.

● POPULAR SCIENCE ARTICLES

1. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2015). Capuchin Monkeys: The New World Primates. *Science Horizon (Odisha Bigyan Academy)*, 2: 11–16
2. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2015). Platypus: The Animal of Confusions. *Science Horizon (Odisha Bigyan Academy)*, 3: 17–24
3. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2015). Novel Therapy for River blindness and filariasis (Nobel Prize for Physiology or Medicine - 2015; Part I). *Science Horizon (Odisha Bigyan Academy)*, 11: 7–16

4. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2016). Novel Therapy for Malaria (Nobel Prize for Physiology or Medicine - 2015; Part II). *Science Horizon (Odisha Bigyan Academy)*, 6: 23–27
5. Goswami, Manasi & **Roy, Anirban**. (2016). The Secret of Electric Jolt of Electric Fishes. *Science Reporter (CSIR)*, 53 (05): 38–40
6. **Roy, Anirban**. (2017). Accidental Discoveries in Medical Science. *Dream 2047 (Vigyan Prasar)*, 19 (08): 25–28
7. Goswami, Manasi & **Roy, Anirban**. (2017). How do they know where they are flying? *Science Reporter (CSIR)*, 54 (07): 31–32
8. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2017). Opah: The World's First Warm-Blooded Fish. *Science Horizon (Odisha Bigyan Academy)*, 2 (5): 30–35
9. Mohapatra, Animesh Kumar & **Roy, Anirban**. (2017). Prof. Obaid Siddiqui, the Legendary Molecular Biologist. *Science Horizon (Odisha Bigyan Academy)*, 2 (12): 67–70
10. **Roy, Anirban**. (2018). How the Geckos climb the wall. *Dream 2047 (Vigyan Prasar)*, 20(10): 27–28
11. **Roy, Anirban** & Ojha, Srikant. (2018). To draw or not to draw. *Science Reporter (CSIR)*, 55 (01): 26–27
12. **Roy, Anirban** (2020). The Unnoticed Mystery behind what we commonly see! *Journal of Advanced Scientific Education and Research*, 1: 12-14

- PAPER PRESENTATIONS/ CONFERENCES/ SYMPOSIUMS

- Delivered an oral presentation on “An Investigation of Senior Secondary Students’ Expectations of School Education: What really matters to them?” at INTERNATIONAL CONFERENCE ON EDUCATION IN THE 21ST CENTURY, **RIE (NCERT) Bhubaneswar, India**
- Delivered a talk on “How Plants interact with each other” at 4TH SOTM ASIA INTERNATIONAL CONFERENCE, **Krishibid Institution, Dhaka, Bangladesh (Travel scholarship received from State of the Map Asia 2019 Working Group)**
- Delivered an oral presentation on “Plant-Herbivore interaction in Tungnath valleys, Western Himalayas, India” at 6TH INTL. CONFERENCE ON PLANTS AND ENVIRONMENTAL POLLUTION, **CSRI -NBRI, Lucknow, India (Travel scholarship received from IUBS, Paris)**
- Presented a poster on “Biodiversity and endemic plants of tribal predominant districts of Maharashtra” at INTERNATIONAL INDIA SCIENCE FESTIVAL, **IIT-M and Anna University, Chennai, India**
- Presented a poster on “Ethnobotanical assessment of medicinal plants in Ratnagiri and Palghar districts of Maharashtra” at CURRENT TRENDS IN HERBAL DRUG DISCOVERY AND ETHNOPHARMACOLOGY, **VESCOP, Mumbai, India**
- Delivered an oral presentation on “Exploring Drawing Skills and Mental Images of Secondary Students on Human Digestive System through Hand Drawing” at NATIONAL SEMINAR ON SCIENCE EDUCATION, **RIE (NCERT) Ajmer, India**
- Presented a poster on “Exposure of *Polypedates maculatus* (Gray, 1830) tadpoles to Cadmium reveals delayed metamorphosis and development of tumours” AVISHKAR (INTERCOLLEGIATE RESEARCH MEET AT STATE LEVEL (MAHARASHTRA), **University of Mumbai, Mumbai, India**
- Delivered an oral presentation on “Exploring the Creative Mental Representation of the Secondary Grade Children about Scientific Concepts employing Bi -linguistic Approach of Prefixes and Suffixes” at LANGUAGE ACROSS CURRICULUM IN MULTI-LINGUISTIC CONTEXT, **RIE (NCERT) Mysuru, India**
- Delivered an oral presentation on “Exploring the Basic misconceptions in Biological Science learning of Secondary Grade Children”. at NATIONAL CONFERENCE ON SCIENCE EDUCATION, **RIE (NCERT) Bhubaneswar, India**

- REVIEWER

- PEER REVIEWER in *Journal of Turkish Science Education* (Double-blind peer reviewed, Scopus indexed journal in the field of higher science education).
- MEMBERSHIP(S)
 - DELEGATE FROM INDIA at *Global Youth Climate Pact*, Centre Edgar Morin-Ecole des Hautes Etudes en Sciences Sociales -EHESS, National Center for Scientific Research, France.
- COMPUTATIONAL/LABORATORY SKILLS
 - Wet Lab Techniques: Maceration, Electrophoresis, Spectrophotometry, Chromatography, PCR, Phase Contrast Microscopy
 - Animal Models: Tadpoles and Caterpillars
 - Field Techniques: Quadrat/Transect methods, Semi-structured Interviews, Palynological (Geological) techniques
 - Software:
 - * Programming/scripting: STELLA, PAST, R, L^AT_EX
 - * Earth-science modeling tools: GIS, GOOGLE EARTH
 - * General purpose software: MS OFFICE, PHOTOSHOP
- REFERENCES
 - DR. NIRMALYA CHATTERJEE, **Fellow L1**, Ashoka Trust for Research in Ecology and the Environment (ATREE) Regional Office: Eastern Himalaya -North East India, Sikkim Jewels, Tadong, NH -10, Gangtok 737102 SK-IN. Email: nirmalya.c@atree.org
 - DR. PAULINE S. KAVALI, **Scientist-D**, Laboratory of Gondwana Palynoflora, Birbal Sahni Institute of Palaeosciences, 53, University Road, Lucknow 226007 UP-IN. Email: kpauline_sabina@bsip.res.in
 - DR. ANIMESH KUMAR MOHAPATRA, **Professor and Head**, Department of Education in Science and Mathematics, Regional Institute of Education (NCERT), Unit - IX, Sachivalaya Marg, Bhubaneswar 751022 OD-IN Email: akmncert@gmail.com