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16
Journal PUBLICATIONS
3
Sponsored PROJECTS
10
Book and Book Chapters
DOCTORAL STUDENTS
Awarded: 0
Ongoing: 03

Brief Profile

Dr. Nirmali Bordoloi is working as Assistant Professor in the Department of Environmental Sciences, Central University of Jharkhand since 14th December, 2017. She has qualified UGC NET in Environmental Sciences for Lectureship held in the year 2012. Before joining as Assistant Professor in Central University of Jharkhand, she worked as Research Associate in a Ministry of Agriculture, New Delhi, GOI sponsored R & D project on 'National Initiative in Climate Resilient Agriculture (NICRA)' in ICAR, Umiam, Meghalaya. The PI, Dr. Bordoloi is working on mitigation of anthropogenic greenhouse gasses from agriculture, which largely contribute towards global warming and climate change. She is also working on carbon sequestration in agricultural soil through different soil management practices. Dr. Bordoloi is a recipient of UGC-startup grant for newly recruited faculties and she has received another

and soil quality under maize-wheat cropping system” (PI, Completed).

2. SERB, EEQ project of 39.29 lakhs on “Fertilizer Management for Mitigation of Greenhouse Gas Nitrous Oxide (N₂O) Emission from Rice-Wheat Cropping Systems of Jharkhand, Eastern India” (PI), Completed.
3. Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions (FIST) Program (70 lakhs) funded by Ministry of Science & Technology Department of Science & Technology (Co-PI, Ongoing).

Courses Taught

1. Post Graduate: M.Sc.
2. Under Graduate: B.Sc., B.A.
3. Ph.D

Additional roles/ responsibility

1. BOS Member (Department of Environmental Sciences)
2. Departmental Research Committee Member (DEVS, DCE)
3. Member of Research & Development Cell

Publications

List of Selected Papers :

1. Kumari, K., Kumar, R., **Bordoloi, N.**, Minkina, T., Keswani, C., Baudh, K. (2023). Unravelling the Recent Developments in the Production Technology and Efficient Applications of Biochar for Agro-Ecosystems. *Agriculture*, 13(3), 512.
2. Mondal, B., Baudh, K., Kumar, A., **Bordoloi, N.** (2022). India’s contribution to greenhouse gas emission from freshwater ecosystems: a comprehensive review. *14(19)*, 2965.
3. Baruah, K.K., Kumar, R., **Bordoloi, N.** (2022). Identification of optimal level of nitrogen fertilizer and tillage practice to reduce nitrous oxide emissions and maximize the nitrogen use efficiency and productivity from tropical rice paddy. *Paddy and Water Environment*, 20(2), 483–497. doi.org/10.1007/s10333-022-00906-6.
4. Gupta, K., Kumar, R., Baruah, K.K., Hazarika, S., Karmakar, S., **Bordoloi, N.** (2021). Greenhouse gas emission from rice fields: a review from Indian context. *Environmental Science and Pollution Research*, 28(24), 30551-30572.
5. Priya, J., Randhawa, N.S., Hait, J., **Bordoloi, N.**, Patel, J.N. (2020). High-purity copper recycled from smelter dust by sulfation roasting, water leaching and electro refining. *Environmental Chemistry Letters*, 18, 2133–2139.
6. **Bordoloi, N.**, Baruah, K.K., Devi, J. (2020). Nitrous Oxide (N₂O) Estimation from Tropical Rice Paddy Under the Influence of Growth-Regulating Compounds. *International Journal of Environmental Research*. 14:289–301.
7. **Bordoloi, N.**, Baruah, K.K., Hazarika, B. (2020). Fertilizer management through coated urea to mitigate greenhouse gas (N₂O) emission and improve soil quality in agroclimatic zone of North-East India. *Environmental Science and Pollution Research*. 27,11919–11931.
8. Kumar, A., Singh, E., Khapre A., **Bordoloi N.**, Kumar S., Sorption of volatile organic compounds on non-activated biochar (2020). *Bioresource Technology*, 297, 122469.
9. **Bordoloi, N.**, Baruah, K.K., Bhattacharyya, P., and Gupta, P.K. (2019). Impact of nitrogen fertilization and tillage practices on nitrous oxide emission from a summer rice ecosystem. *Archives of Agronomy and Soil Science*, 65(11): 1493-1506.
10. **Bordoloi, N.**, Baruah, K.K., and Thakur, A.J. (2018). Effectiveness of plant growth regulators on emission reduction of greenhouse gas (nitrous oxide): An approach for cleaner environment. *Journal of Cleaner Production*, 171: 333–344.
11. **Bordoloi, N.** and Baruah, K.K. (2017). Effect of foliar application of plant growth regulators on nitrous oxide

(N₂O) emission and grain yield in wheat. *Environmental Science and Pollution Research*, 24:10481–10492.

12. **Bordoloi, N.** and Baruah, K.K. (2017). A 2-year field assessment on the effect of slow release of nitrogenous fertilizer on N₂O emission from wheat cropping system. *Soil Research*, 55: 191–200.
13. **Bordoloi, N.,** Baruah, K.K., and Maji, T.K. (2016). Nitrous oxide emission from transplanted rice field in alluvial soil as influenced by management of nitrogen fertilizer. *Soil Use and Management*, 32: 573–582.
14. Baruah, A., **Bordoloi, N.,** and Baruah, K.K. (2016). Effect of organic amendments with varied C-N ratios on grain productivity and nitrous oxide (N₂O) emission from wheat grown in alluvial soil. *Australian Journal of Crop Science*, 10:460-469.
15. **Bordoloi, N.,** Baruah, K.K., and Bhattacharya, P. (2016). Emission estimation of nitrous oxide (N₂O) from wheat cropping system under varying tillage practices and different levels of nitrogen fertilizer. *Soil Research*, 54: 767–776.

Technical Documents, Books and Book Chapters

Book Chapters

1. Kumar R, **Bordoloi N** (2023) Agriculture's Contribution to the Emission of Greenhouse Gas Nitrous Oxide (N₂O) and Its Feasible Mitigation Strategies, *Climate Smart Greenhouses – Innovations and Impacts*, pp.1-28.
2. Mondal B, **Bordoloi N.** (2023) Metal in water: an assessment of toxicity with its biogeochemistry, *Metals In Water, Global Sources, Significance, and Treatment*, pp. 71-91.
3. Kumar R, Gupta K, **Bordoloi N** (2022) The potential of engineered endophytic bacteria to improve phytoremediation of organic pollutants, *Advances in Micro-Assisted Phytoremediation of Polluted Sites 2022*, pp. 477-496.
4. Kumar R, Gupta K, **Bordoloi N** (2022) Nanotechnology: an emerging strategy for combating air pollution, *Environmental Sustainability and Industries, 2022*, pp. 117-128.
5. Gupta K, Kumar R, **Bordoloi N** (2022) Sustainable bio-based technologies for waste and wastewater treatment integrated with value-added products. *Environmental Sustainability and Industries, 2022*, pp. 147-158.
6. Gupta K, **Bordoloi N** (2020) Greenhouse Gas Emission from Agriculture and Possible Mitigation Strategies: An Indian Perspective. Justin A. Daniels (Editor), *Advances in Environmental Research*, vol 70, ISBN: 978-1-53616-972-0.
7. Gupta K, **Bordoloi N,** Baruah KK, GorhD (2020) Role of starch polymer coated urea in the mitigation of greenhouse gas emissions from rice and wheat ecosystems. K. Baudh et al. (eds.), *Ecological and Practical Applications for Sustainable Agriculture*, page-131-148. https://doi.org/10.1007/978-981-15-3372-3_7, 978-981-15-3371-6.
8. Ankit, **N. Bordoloi,** J. Tiwari, S. Kumar, J. Korstad, K. Baudh (2020) Efficiency of Algae for Heavy Metal Removal, Bioenergy Production, and Carbon Sequestration. In: Bharagava R. (eds) *Emerging Eco-friendly Green Technologies for Wastewater Treatment. Microorganisms for Sustainability*, vol 18. pp 77-101, ISBN:978-981-15-1390-9, Springer, Singapore.
9. Ankit, L. Saha, K. Kumari, S. Sinha, **N. Bordoloi,** J. Tiwari, J. Korstad and K. Baudh (2020) Removal of Organic pollutant from contaminated water bodies by using aquatic macrophytes coupled with bioenergy production and carbon sequestration. Bharagava R. (eds) *Emerging Eco-friendly Green Technologies for Wastewater Treatment. Microorganisms for Sustainability*, vol 18, pp 221-244, ISBN:978-981-15-1390-9, Springer, Singapore.
10. Kumari, R., S.K. Shukla, K. Parmar, **N. Bordoloi,** A. Kumar and P. Saikia (2019) Wetlands conservation and restoration for ecosystem services and halt biodiversity loss: An Indian Perspective. In: *Restoration of Wetland Ecosystem: A Trajectory towards a Sustainable Environment*; A.K. Upadhyay, R. Singh and D.P. Singh (eds.), Springer Nature Singapore Pte Ltd. pp. 75-85.

Papers Presented in Conference

- **Bordoloi, N.** (2021) Presented a paper on “Current Environmental Issues: Management and mitigation for the Society” on two days international webinar on Multifaceted India-South Korea Relations: Exploiting New Visits for Deeper Collaboration during 12th and November 2021, organized by Researchers

association for the Study of Korea with Dept. of Far East Languages, CUJ, Ranchi.

- **Bordoloi, N.** (2019) Mitigation of agricultural greenhouse gas: An approach towards the cleaner environment. 3rd World Clean Environment Summit. 19-21st August, 2019, St. Xavier's College, Ranchi, Jharkhand, India. Abstract p. 21.
- **Bordoloi, N.** and Baruah, K. K. (2019) Management interventions to mitigate greenhouse gas emissions from Indian rice paddy. National seminar entitled Current Perspectives in Environmental Pollution: Challenges and opportunities. 7th-8th June, 2019, Tezpur University, Tezpur, Assam, India. Abstract p. 10.
- **Bordoloi, N.** and Baruah, K. K. (2018) Impacts of nitrogen fertilizer and tillage practices on nitrous oxide (N₂O) emission from pre-monsoon rice ecosystem. International Conference on Environmental Challenges and Sustainability. (ICECS 2018). 31st October to 2nd November, 2018 at CUJ, Ranchi, India. Abstract p. 153-154.
- **Bordoloi, N.** and Baruah, K. K. (2018) Plant physiological and anatomical factors associated with greenhouse gas (N₂O) emission from rice paddy: Impact of growth regulating compounds. International Conference on 'Advances in Environmental and Agricultural Biotechnology (ICAEA 2018). 22-24th February, 2018, St. Xavier's College, Ranchi in association with Indo Global Chamber of Commerce Industries and Agriculture, (IGCCIA) Pune. Abstract p. 48.
- **Bordoloi, N.** and Baruah, K. K. (2017) Management of nitrogen fertilizer for reducing nitrous oxide (N₂O) emission from summer rice and wheat fields. UGC-SAP National Seminar on Climate Change and Society, 24-25th February, 2017, Tezpur University. Abstract p. 110.
- **Bordoloi, N.** and Baruah, K. K. (2015). Effect of foliar application of plant growth regulators on photosynthetic rate, stomatal density and grain yield in relation to nitrous oxide (N₂O) emission from field grown wheat. International Plant physiology Congress. 11-14 Dec, JNU, Delhi. Abstract p. 283.
- **Bordoloi, N.** and Baruah, K. K. (2014). Reduction of nitrous oxide (N₂O) emission from Wheat agriculture under varying tillage practices and different level of Nitrogen fertilizer. Tropical Ecology Congress, JNU, Delhi. 10-12th Dec, 2014. Abstract p. 42 – 43.
- Baruah, A., **Bordoloi N.** and Baruah K. K (2013). Organic Management of Soil with C:N ratios for Mitigation of Nitrous Oxide(N₂O) from Wheat Agriculture. 100th Indian Science Congress, Kolkata on 3rd Jan. to 7th January, 2013. Abstract p. 90.

Participation in orientation, refresher and training programmes

1. Participated in Refresher Courses on Research Methodology at UGC-HRDC, Sardar Patel University, Gujarat from 12th Dec 2022 to 25th Dec 2022.
2. Participated in Refresher Courses /Inter Disciplinary Courses (RC – 324, Earth Sciences, IDC), UGC-HRDC, Himachal Pradesh University, Shimla from Dec 14, 2020 to Dec 26, 2020.
3. Participated in 46th Orientation Program at UGC-HRDC, North-Eastern Hill University, Shillong, Meghalaya from 21st January 2019 to 17th February 2019.
4. Regional Training Programme Cum Workshop on ShodhGanga and Anti-Plagiarism Software. 28th Nov, 2014.
5. Training Programme on Self Development & Pre Placement Grooming on 30th April to 1st May, 2010, Organized by Equal Opportunity Cell, Tezpur University.

Invited Talks

1. **Bordoloi N.** (2022). Delivered an **invited talk** on Climate readiness in Urbanization as a **resource person** in week-long Faculty Development Programme-Short Term Development Programme (FDP-STDP) on 'Geo-environmental Research and its social implications' from 12th -17th September, 2022 organised by Departments of Environmental Science and Geology of Royal School of Environmental & Earth Sciences, Assam Royal Global University.
2. **Bordoloi N.** (2022). Delivered an **invited talk** on " Basic Principles of Flame Photometer" in One Week

Training Programme on Advanced Instrumental Techniques in Water and Wastewater Analysis (AITWWA, 22) from 27 June to 03 July 2022 organized by DEVS, CUJ under the DST-STUTI Programme of IIT-ISM, Dhanbad.

3. **Bordoloi N.** (2022). Delivered an **invited talk** on “ Concept of Gas Chromatography” in One Week Training Programme on Advanced Instrumental Techniques in Water and Wastewater Analysis (AITWWA, 22) from 27 June to 03 July 2022 organized by DEVS, CUJ under the DST-STUTI Programme of IIT-ISM, Dhanbad.
4. **Bordoloi N.** (2022). Delivered an **invited talk** on “ Analysis by Gas Chromography” in One Week Training Programme on Advanced Instrumental Techniques in Water and Wastewater Analysis (AITWWA, 22) from 27 June to 03 July 2022 organized by DEVS, CUJ under the DST-STUTI Programme of IIT-ISM, Dhanbad.
5. **Bordoloi, N.** (2022) Delivered an **invited talk** on “Current Environmental Issues and Solutions” on 14th March 2022, National Webinar on “Environmental Issues” Organized by Department of Geography in Collaboration With IQAC Rammohan College, West Bengal.
6. **Bordoloi N.,** (2022). Delivered an **invited talk** on “Basic Laboratory Apparatus and Equipment” in Short Training and Awareness Program for science popularization among school students under DST-FIST program, Organized by DST-FIST sponsored Department of Env Central University of Jharkhand, Ranchi, 28th February 2022.
7. **Bordoloi N.,** (2022). Hands on Training on R&D instruments used in Environmental Research. Demonstrated in Short Training and Awareness Program for science popularization among school students under DST-FIST program, Organized by DST-FIST sponsored Department of Env Central University of Jharkhand, Ranchi, 28th February 2022.
8. **Bordoloi, N.,** (2022) Environmental Pollutants. 21st February 2022, Lecture Series Event Under DBT Star College Scheme, organized by Nirmala College, Ranchi, Jharkhand.
9. **Bordoloi, N.** (2021). **Co-chaired** a technical session “**Bioremediation**” on ‘Environmental Pollution and Transportation’ in *International Webinar on Role of Transportation, Environment and Energy in Integrated Urban Planning (RTEE-IUP-2021)* organized by CUJ, Ranchi from 25-26 November 2021.
10. **Bordoloi, N.** (2020) Environment and Society's Responsibility, Webinar on Environmental Issues: Mitigation and Management for Human Needs, organised by H.R.H Prince of Wales Institute of Engineering and Technology, Jorhat, Assam, 18th November 2020.

Any Other Information]

Membership of Professional Bodies/Societies etc.

- Life member of the Society for Science for Climate Change and Sustainable Environment.
- Life member of the Indian society of Plant Physiology.