



# Nagaland University

(A Central University established by an Act of Parliament, Govt. of India vide No. 35 of 1089)

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● **Personal:** Married; Two Daughters

## ● Education

- 1999 – 2003 : PhD. Agricultural Chemistry & Soil Science, Bidhan Chandra Krishi Viswavidyalaya, West Bengal, India
- 1996 – 1998 : M.Sc. (Ag) in Agricultural Chemistry & Soil Science, Calcutta University, West Bengal, India
- 1993 – 1996 : B.Sc., Chemistry Honours, Calcutta University, West Bengal, India

## ● Professional honors, awards, memberships, and fellowships

- 2023- : Visiting Professor, Department of Pharmaceutical Science and Technology, University of Torino, Italy
- 2023 : Life member “American Chemical Society” | ACS Member Number – 33311918
- 2023 : Full member “Sigma Xi” -The Oldest Scientific Research Honor Society, USA
- 2022 : Fellow Royal Society of Chemistry (FRSC), London
- 2019 : Promising Young Scientist in North East India, DBT, Ministry of Science and Technology, Govt. of India
- 2018 : DBT Overseas Fellowship, Government of India, at Department of Civil, Environmental and Ocean Engineering, Stevens Institute of Technology, 1 Castle Point Terrace, Hoboken, NJ 07030, USA
- 2017 : Recipient of DBT UEXCEL grant, Government of India as a young and encouraging scientist
- 2012 : DBT Overseas Fellowship, Government of India, at Department of Soil Science of Temperate Ecosystems, Georg August University of Göttingen, Göttingen, Germany
- 2005 : Changjiang Scholar and Innovative Research Team in China Agricultural University (IRTo412), Sino-Israeli Agricultural Research Funds (SIARF2001-05), P. R. China
- 2003-06 : Awarded Postdoctoral Fellowship at the Department of Soil & Water Sciences, College of Resources and Environmental Sciences, China Agricultural University, P. R. China
- 1999 : Awarded Senior Research Fellowship at the Bidhan Chandra Krishi Viswavidyalaya, West Bengal, India

## ● Professional positions held

- May 2023- till date ▶ Professor, Department of Agricultural Chemistry and Soil Science, School of Agricultural Sciences and Rural Development, Nagaland University, Medziphema Campus-797 106, Nagaland, India
- July 2022- May 2023 ▶ Senior Principal Scientist (Soils), Upper Assam Advisory Centre, Tea Research Association, Dikom-786101, Dibrugarh, Assam, India
- June 2015-June 2022 ▶ Principal Scientist (Soils), Upper Assam Advisory Centre, Tea Research Association, Dikom-786101, Dibrugarh, Assam, India
- April 2013-May 2015 ▶ Senior Scientist (Soils), Upper Assam Advisory Centre, Tea Research Association, Dikom-786101, Dibrugarh, Assam, India
- May 2009-March 2013 ▶ Soil Scientist, Tocklai Experimental Station, Tea Research Association, Jorhat-8, Assam, India
- Jan 2006-May 2009 ▶ Senior Chemist, Pollution Control Board, Assam in connection with Nature Beckon (An Environmental Activist Group in North East India)
- Sep 2003-Dec 2005 ▶ Post Doctorate Research Associate, Department of Soil & Water Sciences, College of Resources and Environmental Sciences, China Agricultural University, P.R.China.

## ● Associate Editor and Guest Editor

- 5<sup>th</sup> January 2023-31 August 2023 ▶ Guest Editor, Research Topic: Application of Biochar as Fertilizer and Restorative in Agriculture, A special issue of Agronomy (ISSN 2073-4395). This special issue belongs to the section "Farming Sustainability", MDPI, Basel, MDPI AG, St. Alban-Anlage 66, 4052 Basel, Switzerland (SCI Thomson Reuters Impact Factor: **3.949**)
- 9<sup>th</sup> January 2023-15 July 2023 ▶ Guest Editor, Research Topic: Factors Affecting Aroma, Taste, Color and Nutritional Properties of Tea, A special issue of Foods (ISSN 2304-8158). This special issue belongs to the section "Plant Foods", MDPI, Basel, MDPI AG, St. Alban-Anlage 66, 4052 Basel, Switzerland (SCI Thomson Reuters Impact Factor: **5.561**)

January 2022- December 2022	►Guest Editor, Research Topic: Mineral Nutrients on Tea Yield and Quality Formation, <i>Frontiers Nutrition in Plant Science</i> , Frontiers Media SA, Avenue du Tribunal Fédéral 34, 1005 Lausanne, Switzerland (SCI Thomson Reuters Impact Factor: <b>5.753</b> )
Feb 2021-January, 2022	►Guest Editor, Research Topic: Tea ( <i>Camellia sinensis</i> L.): Cultivation to the Cup That Cheers, <i>Frontiers Nutrition</i> , Frontiers Media SA, Avenue du Tribunal Fédéral 34, 1005 Lausanne, Switzerland (SCI Thomson Reuters Impact Factor: <b>6.576</b> )
9 <sup>th</sup> March, 2016-till date	►Associate Editor, <i>International Journal of Environmental Science and Technology</i> , Springer (Present SCI Thomson Reuters Impact Factor: <b>3.519</b> )

## ● Publications

Citations: 3355; h-index: 27; i10-index: 47 (as on 22<sup>nd</sup> February 2024)

### INTERNATIONAL

1. B. B. Gogoi, Md Yeasin, R. K. Paul, D. Deka, H. Malakar, J. Saikia, F. H. Rahman, C. S. Maiti, A. Sarkar, J. G. Handique, B. Kanrar, A. K. Singh, **T. Karak**. 2024. Pollution indices of selected metals in tea (*Camellia sinensis* L.) growing soils of the Upper Assam region divulge a non-trifling menace of the National Highway. *Science of the Total Environment*, (Accepted for publication, SCI Thomson Reuters Impact Factor: **9.80**)
2. B. Kanrar, S. Kundu, S. Sengupta, Md Yeasin, R. K. Paul, **T. Karak**. 2023. Assessment and health risk of fluoride from Northeast Indian tea (*Camellia sinensis* L.): Fixing up the maximum residue level of fluoride in tea. *Journal of Food Composition and Analysis*, <https://doi.org/10.1016/j.jfca.2023.105928> (Accepted for publication, SCI Thomson Reuters Impact Factor: **4.30**)
3. R. Gogoi, M. Baruah, A. Borgohain, J. Saikia, V. J. Baruah, S. Rohman, M. Singh, R. Kar, S. K. Dey, B. Mazumder, **T. Karak**. 2023. Intercalation vs adsorption strategies of myo-Inositol hexakisphosphate into Zn-Fe layered double hydroxide: A tiff between anion exchange and coprecipitation. *ACS Omega*. 8: 43151-43162 (SCI Thomson Reuters Impact Factor: **4.10**)
4. A. Borgohain, M. Sarmah, B. B. Gogoi, K. Konwar, J. G. Handique, R. K. Paul, Md. Yeasin, V. Pandey, R. Yadav, H. Malakar, J. Saikia, D. Deka, F. H. Rahman, S. Panja, P. Khare, **T. Karak**. 2023. Can tea pruning litter biochar be a friend or foe for tea plants (*Camellia sinensis* L.) growth and regulators? : Feasible or fumes of fancy. *Industrial Crops & Products*, 195: 116394 (SCI Thomson Reuters Impact Factor: **6.449**)
5. M. Baruah, A. Borgohain, R. Gogoi, N. Borah, D. Deka, **T. Karak**, J. Saikia. 2023. Optimization of phosphorus-loaded Ni-ZnO cross linked carboxy methyl cellulose-based biodegradable nanocomposite hydrogel beads for the slow release of P, Ni and Zn: a kinetic approach. *New Journal of Chemistry*, 47: 8200-8213 (SCI Thomson Reuters Impact Factor: **3.925**)
6. M. Sarmah, A. Borgohain, B. B. Gogoi, Md Yeasin, R. K. Paul, H. Malakar, J. G. Handique, J. Saikia, D. Deka, P. Khare, **T. Karak**. 2023. Insights into the effects of tea pruning litter biochar on major micronutrients (Cu, Mn, and Zn) pathway from soil to tea plant: An environmental armour. *Journal of Hazardous Materials*, 442: 129970 (SCI Thomson Reuters Impact Factor: **14.224**)
7. B. B. Gogoi, Md Yeasin, R. K. Paul, A. Borgohain, D. Deka, H. Malakar, J. Saikia, F. H. Rahman, S. Panja, A. Sarkar, C. S. Maiti, J. Bordoloi, **T. Karak**. 2023. The level of selected metals in made tea and tea infusion from the roadside tea plants and health risk assessment. *Biological Trace Element Research*. (Accepted for publication, SCI Thomson Reuters Impact Factor: **3.90**)
8. H Deka, P. P. Sarmah, P. Chowdhury, K. Rajkhowa, S. Sabhapondit, S. Panja, **T. Karak**. 2023. Impact of the Season on Total Polyphenol and Antioxidant Properties of Tea Cultivars of Industrial Importance in Northeast India. *Foods*. 12(17):3196 (SCI Thomson Reuters Impact Factor: **5.20**)
9. L. Sun, Z. Zhang, Y. Li, J. Ruan, **T. Karak**, T. Yang. Editorial: Mineral nutrients on tea yield and quality formation. 2023. *Frontiers in Plant Science*, 14:1192432 (SCI Thomson Reuters Impact Factor: **6.627**)
10. Md Yeasin, R. K. Paul, S. Das, D. Deka, **T. Karak**. 2023. Change in the air due to the coronavirus outbreak in four major cities of India: What do the statistics say? *Journal of Hazardous Materials Advances*. 10: 100325 (SCI Thomson Reuters Impact Factor: **NIL**)
11. B. B. Gogoi, A. Borgohain, K. Konwar, J. G. Handique, R. K. Paul, P. Khare, H. Malakar, J. Saikia, **T. Karak**. 2022. National highway induced selected chemical properties of soils across tea bowl of India: Scale and assessment. *International Journal of Environmental Science and Technology*, 19: 12019-12038 (SCI Thomson Reuters Impact Factor: **3.519**).
12. H. Malakar, G. Timsina, J. Dutta, A. Borgohain, D. Deka, B. Azariah, R. K. Paul, Md. Yeasin, F. H. Rahman, S. Panja, **T. Karak**. 2022. Sick or rich: Assessing the selected soil properties and fertility status across the tea-growing region of Dooars, West Bengal, India. *Frontiers in Plant Science* 13:1017145. doi: 10.3389/fpls.2022.1017145 (SCI Thomson Reuters Impact Factor: **6.627**)

13. A. Borgohain, M. Sarmah, K. Konwar, R. Gogoi, B. B. Gogoi, P. Khare, R. K. Paul, J. G. Handique, H. Malakar, D. Deka, J. Saikia, **T. Karak**. 2022. Tea pruning litter biochar amendment in soil reduces arsenic, cadmium, and chromium in made tea (*Camellia sinensis* L.) and tea infusion: A safe drink for tea consumers. *Food Chemistry: X*, 13: 100255 (SCI Thomson Reuters Impact Factor: **6.443**).
14. R. Gogoi, A. Borgohain, M. Baruah, **T. Karak**, J. Saikia. 2022. Boosting nitrogen fertilization by a slow releasing nitrate intercalated biocompatible layered double hydroxide-hydrogel composite loaded with *Azospirillum brasilense*. *RSC Advances, Royal Society of Chemistry*, 12: 6704 - 6714 (SCI Thomson Reuters Impact Factor: **4.036**)
15. M. Ahsan, M. Singh, R. P. Singh, V. Yadav, S. Tandon, B. K. Saikia, **T. Karak**, P. Khare. 2022. An innovative circular model for recycling the wastes into biochar using distillation units. *Journal of Cleaner Production*, 361: 132258 (SCI Thomson Reuters Impact Factor: **11.072**).
16. R. K. Paul, **T. Karak**. 2022. Asymmetric Price Transmission: A Case of Wheat in India. *Agriculture* 12 (3): 410 (SCI Thomson Reuters Impact Factor: **3.408**).
17. M. Singh, M. Ahsan, V. Pandey, A. Singh, D. Mishra, N. Tiwari, P. Singh, **T. Karak**, P. Khare. 2022. Comparative assessment for removal of anionic dye from water by different waste-derived biochar vis-a-vis reusability of generated sludge. *Biochar* 4: 13 (SCI Thomson Reuters Impact Factor: **11.452**).
18. N. Nigam, P. Khare, M. Ahsan, V. Yadav, K. Shanker, R. P. Singh, V. Panday, P. Das, A. Singh, R. Yadav, P. Tripathi, G. Sinam, A. K. Shukla, **T. Karak**. 2021. Biochar amendment reduced the risk associated with metal uptake and improved metabolite content in medicinally important herbs. *Physiologia Plantarum*, 173(1): 321-339 (SCI Thomson Reuters Impact factor: **5.081**)
19. H. Deka, T. Barman, P. P. Sarmah, A. Devi, P. Tamuly, **T. Karak**. 2021. Impact of processing method on selected trace elements content of green tea: Does CTC green tea infusion possess risk towards human health? *Food Chemistry: X*, 12: 100173; DOI: 10.1016/j.fochx.2021.100173 (SCI Thomson Reuters Impact Factor: **6.443**).
20. H. Deka, P. P. Sarmah, A. Devi, P. Tamuly, **T. Karak**. 2021. Changes in major catechins, caffeine, and antioxidant activity during CTC processing of black tea from North East India. *RSC Advances, Royal Society of Chemistry*, 11(19): 11457-11467 (SCI Thomson Reuters Impact Factor: **4.036**)
21. H. Deka, T. Barman, J. Dutta, A. Devi, P. Tamuly, R. K. Paul, **T. Karak**. 2021. Catechin and caffeine content of tea (*Camellia sinensis* L.) leaf significantly differ with seasonal variation: A study on popular cultivars in North East India. *Journal of Food Composition and Analysis*, 96: 103684; <https://doi.org/10.1016/j.jfca.2020.103684> (SCI Thomson Reuters Impact Factor: **4.52**)
22. A. Borgohain, K. Konwar, D. Buragohain, S. Varghese, A. K. Dutta, R. K. Paul, P. Khare, **T. Karak**. 2020. Temperature effect on biochar produced from tea (*Camellia sinensis* L.) pruning litters: A comprehensive treatise on physico-chemical and statistical approaches. *Bioresource Technology*, 318: 124023 (SCI Thomson Reuters Impact Factor: **11.889**)
23. P. Inaudi, A. Giacomino, M. Malandrino, C. La Gioia, E. Conca, **T. Karak**, O. Abollino. 2020. The inorganic component as a possible marker for quality and for authentication of the hazelnut's origin. *International Journal of Environmental Research and Public Health*, 17(2):447 (SCI Thomson Reuters Impact Factor: **4.614**)
24. H. Deka, T. Barman, P. P. Sarmah, A. Devi, P. Tamuly, R. K. Paul, **T. Karak**. 2020. Quality characteristics of infusion and health consequences: A comparative study between orthodox and CTC green teas. *RSC Advances, Royal Society of Chemistry*, 10 (54): 32833-32842 (SCI Thomson Reuters Impact Factor: **4.036**)
25. P. Borah, N. Gujre, E. R. Rene, L. Rangan, R. K. Paul, **T. Karak**, S. Mitra. 2020. Assessment of mobility and environmental risks associated with copper, manganese and zinc in soils of a dumping site around a Ramsar site. *Chemosphere*, 254: 126852; <https://doi.org/10.1016/j.chemosphere.2020.126852> (SCI Thomson Reuters Impact Factor: **8.943**)
26. T. Barman, A. K. Barooah, B. C. Goswami, N. Sharma, S. Panja, P. Khare, **T. Karak**. 2020. Contents of chromium and arsenic in tea (*Camellia sinensis* L.): Extent of transfer into tea infusion and health consequence. *Biological Trace Element Research* 196(1): 318-329 (SCI Thomson Reuters Impact Factor: **4.081**)
27. N. Nigam, V. Yadav, D. Mishra, **T. Karak**, P. Khare, 2019. Biochar amendment alters the relation between the Pb distribution and biological activities in soil. *International Journal of Environmental Science and Technology*; 16: 8595-8606 (SCI Thomson Reuters Impact Factor: **3.519**).
28. K. Bora, D. Sarkar, K. Konwar, B. Payeng, K. Sood, R. Paul, R. Dutta, S. Das, P. Khare, **T. Karak**. 2019. Disentanglement of the secrets of aluminium in acidophilic tea plant (*Camellia sinensis* L.) influenced by organic and inorganic amendments. *Food Research International*. 120: 851-864. (SCI Thomson Reuters Impact Factor: **7.425**)
29. N. Nigam, P. Khare, V. Yadav, D. Mishra, S. Jain, **T. Karak**, S. Panja, S. Tandon. 2019. Biochar-mediated sequestration of Pb and Cd leads to enhanced productivity in *Mentha arvensis*. *Ecotoxicology and Environmental Safety*, 172: 411-422. (SCI Thomson Reuters Impact Factor: **7.129**)

30. V. Yadav, **T. Karak**, S. Singh, A. K. Singh, P. Khare. 2019. Benefits of biochar over other organic amendments: Responses for plant productivity (*Pelargonium graveolens* L.) and nitrogen and phosphorus losses. *Industrial Crops and Products*, 131: 96-105. (SCI Thomson Reuters Impact Factor: **6.449**)
31. V. Yadav, S. Jain, P. Mishra, P. Khare, A. K. Shukla, **T. Karak**, A. K. Singh. 2019. Amelioration in nutrient mineralization and microbial activities of sandy loam soil by short term field aged biochar. *Applied Soil Ecology*, 138, 144-155. (SCI Thomson Reuters Impact Factor: **5.509**)
32. P. Borah, P. Singh, L. Rangan, **T. Karak**, S. Mitra. 2018. Mobility, bioavailability and ecological risk assessment of cadmium and chromium in soils contaminated by paper mill wastes. *Groundwater for Sustainable Development*, 6, 189–199. (SCI Thomson Reuters Impact Factor: **5.90**)
33. **T. Karak**, O. Abollino, R. K. Paul, A. K. Dutta, A. Giacomino, P. Khare, R. K. Boruah, 2018. Achievability of municipal solid waste compost for tea cultivation with special reference to cadmium. *CLEAN-Soil, Air, Water*, 46(6), 1800093 (SCI Thomson Reuters Impact Factor: **1.945**).
34. V. Yadav, P. Khare, Y. Deshmukh, K. Shanker, N. Nigam, **T. Karak**, 2018. Performance of biochar derived from *Cymbopogon winterianus* waste at two temperatures on soil properties and growth of *Bacopa monnieri*. *Communications in Soil Science and Plant Analysis*, **49(22)**: 2741–2764. (SCI Thomson Reuters Impact Factor: **1.580**)
35. **T. Karak**, K. Bora, R. K. Paul, S. Das, P. Khare, A. K. Dutta, R. K. Boruah. 2017. Paradigm shift of contamination risk of six heavy metals in tea (*Camellia sinensis* L.) growing soil: A new approach influenced by inorganic and organic amendments. *Journal of Hazardous Materials*; 338, 250-264.(SCI Thomson Reuters Impact Factor: **14.224**)
36. S. Jain, A. Singh, P. Khare, D. Chanda, D. Mishra, K. Shanker, **T. Karak**. 2017. Toxicity assessment of *Bacopa monnieri* L. grown in biochar amended extremely acidic coal mine spoils. *Ecological Engineering*, 108, Part A, 211–219. (SCI Thomson Reuters Impact Factor: **4.379**)
37. **T. Karak**, F. R. Kutu, J. R. Nath, I. Sonar, R. K. Paul, R. K. Boruah, S. Sanyal, S. Sabhapondit, A. K. Dutta. 2017. Micronutrients (B, Co, Cu, Fe, Mn, Mo and Zn) content in made tea (*Camellia sinensis* L.) and tea infusion with health prospect: A critical review. *Critical Review of Food Science and Nutrition* 57 (14), 2996-3034. (SCI Thomson Reuters Impact Factor: **11.228**).
38. **T. Karak**, R. K. Paul, F. R. Kutu, A. Mehra, P. Khare, A. K. Dutta, K. Bora, R. K. Boruah. 2017. Comparative assessment of copper, iron and zinc contents in selected Indian (Assam) and South African (Thohoyandou) tea (*Camellia sinensis* L.) samples and their infusion: A quest for health risks to consumer. *Biological Trace Element Research*.175(2), 475-487 (SCI Thomson Reuters Impact Factor: **4.081**)
39. P. Borah, A. Paul, P. Bora, P. Bhattacharyya, **T. Karak**, S. Mitra. 2017. Assessment of heavy metal pollution in soils around a paper mill using metal fractionation and multivariate analysis. *International Journal of Environmental Science and Technology*; 14(12), 2695-2708 (SCI Thomson Reuters Impact Factor: **3.519**).
40. **T. Karak**, F. R. Kutu, R. K. Paul, K. Bora, D. K. Das, P. Khare, K. Das, A. K. Dutta, R. K. Boruah. 2017. Co-composting of cow dung, municipal solid waste, roadside pond sediment and tannery sludge: Role of human hair. *International Journal of Environmental Science and Technology* 4(3), 577-594(SCI Thomson Reuters Impact Factor: **3.519**).
41. **T. Karak**, R. K. Paul, D. K. Das, R. K. Boruah. 2016. Complexation of DTPA and EDTA with Cd<sup>2+</sup>: Stability constants and thermodynamic parameters at the soil-water interface. *Environmental Monitoring and Assessment*, 188, 670(DOI: 10.1007/s10661-016-5685-5, SCI Thomson Reuters Impact Factor: **3.307**).
42. K. Das, G. P. Sutar, J. W. Einstein, R. K. Paul, **T. Karak**. 2016. Influence of metals in soil on the comparative phytochemical characterization and antioxidant study of Indian Golden Shower (*Cassia fistula*). *Indian Journal of Pharmaceutical Education and Research* 50(3s), S266-S279 (SCI Thomson Reuters Impact Factor: **0.843**)
43. **T. Karak**, R. K. Paul, I. Sonar, J. R. Nath, R. K. Boruah, A. K. Dutta. 2016. Nickel dynamics influenced by municipal solid waste compost application in tea (*Camellia sinensis* L.): a cup that cheers? *International Journal of Environmental Science and Technology* **13(2)**, 663-678. (SCI Thomson Reuters Impact Factor: **3.519**).
44. **T. Karak**, R. K. Paul, S. Das, D. K. Das, A. K. Dutta, R. K. Boruah. 2015. Fate of cadmium at soil-solution interface: A thermodynamic study as influenced by varying pH at South 24 Paraganas, West Bengal, India. *Environmental Monitoring and Assessment*, **187**:713 (DOI: 10.1007/s10661-015-4923-6) (SCI Thomson Reuters Impact Factor: **3.307**).
45. **T. Karak**, I. Sonar, J. R. Nath, R. K. Paul, S. Das, R. K. Boruah, A. K. Dutta, K. Das. 2015. Struvite for composting of agricultural wastes with termite mound: Utilizing the unutilized. *Bioresource Technology* **187**:49-59 (SCI Thomson Reuters Impact Factor: **11.889**)
46. **T. Karak**, R. K. Paul, R. K. Boruah, A. K. Dutta, I. Sonar, B. Bordoloi, B. Borkotoky. 2015. Major soil chemical properties of the major tea-growing areas in India. *Pedosphere*, 25(2), 316-328.(SCI Thomson Reuters Impact Factor: **5.514**)

47. **T. Karak**, I. Sonar, R. K. Paul, M. Frankowski, R. K Boruah, A. K Dutta, D. K Das. 2015. Aluminium dynamics from soil to tea plant (*Camellia sinensis* L.): Is it enhanced by municipal solid waste compost application? *Chemosphere*, 119, 917-926 (SCI Thomson Reuters Impact Factor: **8.943**)
48. **T. Karak**, I. Sonar, R. K. Paul, S. Das, R. K. Boruah, A. K. Dutta, D. K. Das. 2014. Composting of cow dung and crop residues using termite mounds as bulking agent. *Bioresource Technology* 169, 731-741 (SCI Thomson Reuters Impact Factor: **11.889**)
49. **T. Karak**, R. K. Paul, I. Sonar, S. Sanyal, K. Z. Ahmed, R. K. Boruah, D. K. Das, A. K. Dutta. 2014. Chromium in soil and tea (*Camellia sinensis* L.) infusion: Does soil amendment with municipal solid waste compost make a sense? *Food Research International* 64, 114-124 (SCI Thomson Reuters Impact Factor: **7.425**)
50. P. Bhattacharyya, **T. Karak**, K. Chakrabarti, A. Chakraborty, R. K. Paul, S. Tripathi. 2014. Did Tsunami tremor jolt microbial biomass and their activities in soils? A case study in Andaman Island, India. *Environmental Earth Science*, 72:1443-1452 (SCI Thomson Reuters Impact Factor: **3.119**)
51. **T. Karak**, R. K. Paul, D. K. Das, R. K. Boruah, I. Sonar. 2014. Thermodynamics of cadmium sorption on different soils of West Bengal, India. *The Scientific World Journal*. 2014: 216451 <http://dx.doi.org/10.1155/2014/216451> (SCI Thomson Reuters Impact Factor: **1.780**)
52. **T. Karak**, P. Bhattacharyya, R. K. Paul. 2014. Assessment of co-compost quality by physico-chemical and exploratory data analysis. *CLEAN-Soil, Air, Water* 42 (6):836-848. (SCI Thomson Reuters Impact Factor: **1.945**)
53. **T. Karak**, P. Bhattacharyya, R. K. Paul, T. Das, S. K. Saha. 2013. Evaluation of composts from agricultural wastes with fish pond sediment as bulking agent to improve compost quality. *CLEAN-Soil, Air, Water* 41: 711-723. (SCI Thomson Reuters Impact Factor: **1.945**)
54. **T. Karak**, R.M. Bhagat, P. Bhattacharyya. 2013. Erratum, Municipal solid waste generation, composition and management: The world scenario. *Critical Review of Environmental Science and Technology* **43**: 215. (SCI Thomson Reuters Impact Factor: **11.750**)
55. **T. Karak**, P. Bhattacharyya, R. K. Paul and D. K. Das. 2013. Metal accumulation, biochemical response and yield of Indian mustard grown in soil amended with rural roadside pond sediment. *Ecotoxicology and Environmental Safety* **92**:161-173. (SCI Thomson Reuters Impact Factor: **7.129**)
56. **T. Karak**, P. Bhattacharyya, T. Das, R. K. Paul, R. Bezbaruah. 2013. Non-segregated municipal solid waste in an open dumping ground: a potential contaminant in relation to environmental health. *International Journal of Environmental Science and Technology* **10**:503-518. (SCI Thomson Reuters Impact Factor: **3.519**)
57. S. Sabhapondit, **T. Karak**, L. P. Bhuyan, B. C. Goswami, M. Hazarika. 2012. Diversity of catechin in North East Indian tea cultivars. *The Scientific World Journal*. 2012, 485193 (doi:10.1100/2012/485193; SCI Thomson Reuters Impact Factor: **1.780**)
58. **T. Karak**, R.M. Bhagat, P. Bhattacharyya. 2012. Municipal solid waste generation, composition and management: The world scenario. *Critical Review of Environmental Science and Technology* **42**:15, 1509-1630. (SCI Thomson Reuters Impact Factor: **11.750**)
59. **T. Karak**, O. Abollino, P. Bhattacharyya, K. K. Das, R. K Paul. 2011. Fractionation and speciation of arsenic in three tea gardens soil profiles and distribution of As in different parts of tea plant (*Camellia sinensis* L.). *Chemosphere* **85**:948-960. (SCI Thomson Reuters Impact Factor: **8.943**)
60. **T. Karak**, P. Bhattacharyya. 2011. Human urine as a source of alternative natural fertilizer in agriculture: a flight of fancy or an achievable reality. *Resources, Conservation & Recycling* **55**: 400-408. (SCI Thomson Reuters Impact Factor: **10.204**)
61. **T. Karak**. 2010. Heavy metal accumulation in soil amended with road side pond sediment and uptake by rice (*Oryza sativa* L.). *Communications in Soil Science and Plant Analysis*, **41**:2577-2594. (SCI Thomson Reuters Impact Factor: **1.580**)
62. **T. Karak**, R. M. Bhagat. 2010. Trace elements in tea leaves, made tea and tea infusion: A review. *Food Research International* **43(9)**: 2234-2252. (SCI Thomson Reuters Impact Factor: **7.425**)
63. **T. Karak**, P. Bhattacharyya. 2010. Heavy metal accumulation in soil amended with road side pond sediment and uptake by winter wheat (*Triticum aestivum* L. cv. PBW 343). *The Scientific World Journal*. **10**: 2314-2329. (SCI Thomson Reuters Impact Factor: **1.780**)
64. **T. Karak**, U. K. Singh, J. Lai. 2005. Influences of starch and Zn-EDTA on Zn-desorption and rice (*Oryza sativa* L.) nutrition under different moisture regimes. *Archives of Agronomy and Soil Science*, **51**:265-280. (SCI Thomson Reuters Impact Factor: **2.242**)
65. **T. Karak**, U. K. Singh, S. Das, D. K. Das, Y. Kuzyakov. 2005. Comparative efficacy of ZnSO<sub>4</sub> and Zn-EDTA application for fertilization of rice (*Oryza sativa* L.). *Archives of Agronomy and Soil Science*, **51**: 253-264. (SCI Thomson Reuters Impact Factor: **2.242**)

66. **T. Karak**, D. K. Das, U. K. Singh, D. Maiti. 2005. Influence of pH on soil charge characteristics and cadmium sorption in some non-contaminated soils of Indian sub-tropics. *The Scientific World Journal*.5:183-194. (SCI Thomson Reuters Impact Factor: **1.780**)
67. **T. Karak**, U. K. Singh, D.K. Das. 2004. Role of various extractants in removing group-IIB elements of soils incubated with EDTA. *The Scientific World Journal* **4**: 1038-1045. (SCI Thomson Reuters Impact Factor: **1.780**)
68. D. K. Das, S. Dutta, D. Maiti, **T. Karak**. 2004. Desorption of sorbed Zn in some acid soils affected by organic matter application. *The Journal of Food, Agriculture and Environment*. **2**: 250-253. (SCI Thomson Reuters Impact Factor: **0.517**)
69. D. Maiti, D. K. Das, **T. Karak**, M. Banerjee. 2004. Management of nitrogen through the use of leaf color chart (LCC) and soil plant analysis development (SPAD) or chlorophyll meter in rice under irrigated ecosystem. *The Scientific World Journal*.4:838-846. (SCI Thomson Reuters Impact Factor: **1.780**)

#### INTERNATIONAL

1. A. K. Dolui, **T. Karak**. 2000. Lime requirement as influenced by nature of soil acidity in some inceptisol and alfisols of Madhya Pradesh. *Intern. J. Trop. Agric.* **18(2)**: 113-121.
2. F. H. Rahman, **T. Karak**. 2001. Effect of nature of soil acidity on lime requirement in some laterite soils of Midnapore district of West Bengal. *Ann. Agric. Res.* **22(1)**: 74-79.
3. D. K. Das, **T. Karak**, D. Maiti. 2004. Effect of foliar application of different sources of Zn on the changes in Zn content, uptake and yield of rice (*Oryza sativa*L.). *Ann. Agric. Res. New Series* **25(2)**: 253-256.
4. **T. Karak**, D. K. Das, D. Maity. 2006. **Yield and Zn-uptake in rice (*Oryza sativa* L.) as influenced by sources and times of Zn application**. *Ind. J. Agric. Sci.* **76 (6)**:346-348.

#### SEMINAR AND SYMPOSIUM:

1. C. Chen, D. Sarkar, V. Sidhu, **T. Karak**, R. Datta, 2018. A green BMP for mitigation of metals in stormwater: Greenhouse panel study. Page-185. Proceedings of the 34th Annual International Conference on Soils, Sediments, Water, and Energy, Amherst, Massachusetts. Held on and from October 15 to 18, 2018 University of Massachusetts Amherst, MA, USA.
2. **T. Karak**, 2019. The science and culture of tea. Stevens Institute of Technology, 1 Castle Point on Hudson, Hoboken, NJ 07030, United States of America (Invited talk).
3. F. R. Kutu, **T. Karak**, A. M. Ojo. 2017. Comparative assessment of physico-chemical characteristics and selected Trace Metal distribution in soils from three South African tea Estates. Oral paper presented at the ASA, CSSA & SSSA 2015 international annual meeting held during 22-25 October 2017 at Tampa, Florida, USA.
4. **T. Karak**, C. Sarmah, I. Haque, R. M. Bhagat and K. Z. Ahmed. 2011. Assessment of co-compost quality produced from easily available biowaste by physico-chemical and exploratory data analysis. World Tea Science Congress 2011, Held on and from 22-24 November, 2011 at Tocklai Experimental Station, Tea Research Association, Jorhat-8, Assam, India.
5. D. Gogoi, **T. Karak**, I. K. Phukan and R. M. Bhagat. 2011. Depth-wise variations of physical and chemical properties in compact and non compact soils from four tea estates in Assam, India. World Tea Science Congress 2011, Held on and from 22-24 November, 2011 at Tocklai Experimental Station, Tea Research Association, Jorhat-8, Assam, India.
6. D. K. Das, **T. Karak**, D. Maiti and D. Mukherjee. 2004. Effect of sources of Zn and gypsum on the changes in reaction kinetics of salt affected soil. In *Extended Summaries of the International Conference on Sustainable management of sodic lands*. Held on and from February, 9-14, 2004 at Indian Institute of Sugarcane Research, Lucknow, India.
7. D. Maiti, **T. Karak** and D. K. Das. 2004. Influence of Zn and organic matter on the changes in reaction kinetics of salt affected soil. In: *Extended Summaries of the International Conference on Sustainable management of sodic lands*. Held on and from February, 9-14, 2004 at Indian Institute of Sugarcane Research, Lucknow, India.
8. **T. Karak**, D. K. Das, D. Maiti and G.H.Santra. 2004. Effect of Foliar Application of Zn on the Yield and Uptake of Zn by Rice (*Oryza sativa* L.). Geotrop-2004. Held on and from 21<sup>st</sup> to 26<sup>th</sup> March, 2004 at Haikou, P. R. China.
9. D. K. Das, **T. Karak** and D. Maiti. 2004. Influence of Zn and gypsum on the changes in reaction kinetics of salt affected soil. *Eurosoil 2004*. Held on and from 6<sup>th</sup> – 12<sup>th</sup> Sept, 2004 at Freiburg, Germany.
10. D. K. Das, **T. Karak** and D. Maiti, 2004. Effect of sources of Zn and organic matter on reaction kinetics of salt affected soil. *Eurosoil 2004*. Held on and from 6<sup>th</sup> – 12<sup>th</sup> Sept, 2004 at Freiburg, Germany.
11. D. Maiti, D. K. Das, H. Pathak, **T. Karak** and M. Banerjee. 2004. Increasing Agronomic efficiency, Recovery efficiency and Physiological efficiency of Nitrogen through the use of Leaf Colour Chart and Chlorophyll meter

in Irrigated Rice (*Oryza sativa* L.). The 3<sup>rd</sup> International Nitrogen Conference. Held on and from 12-16 October, 2004 at Nanjing, China. Page-87.

12. D. Maiti, D. K. Das, H. Pathak and **T. Karak**. 2004. Management of soil erosion and soil health through QUEFTS model of irrigated rice-wheat in Eastern India. *CIGR 2004*. Held on and from 1<sup>st</sup>-14<sup>th</sup> Oct, 2004 at Beijing, P. R. China. Page 42-45.
13. D. K. Das, **T. Karak**, D. Maiti. 2004. Behaviour of Zn in salt affected soil as influenced by the application of gypsum and organic matter. *CIGR 2004*. Held on and from 11<sup>th</sup>-14<sup>th</sup> Oct, 2004 at Beijing, P. R. China. Page 932-937.
14. **T. Karak**, U. K. Singh, D. K. Das, 2004. Stability of Zn-EDTA over that of zinc sulphate in soils. *CIGR 2004*. Held on and from 11<sup>th</sup>-14<sup>th</sup> Oct, 2004 at Beijing, P. R. China. Page 987-994.
15. D. K. Das, S. Dutta, D. Maiti, **T. Karak**. 2004. Desorption of sorbed Zn in some acid soils affected by organic matter application. *Geo ENV 2004*. Held on and from 11-12 October, 2004 at Univ. of Neuchatel, Switzerland.
16. D. K. Das, T. Karak and D. Maiti. 2004. Influence of soil application of Zn on the yield and nutrition of rice (*Oryza sativa* L.) 4<sup>th</sup> International Crop Science Congress (4ICSC). Held on and from 26<sup>th</sup> Sept-1<sup>st</sup> Oct, 2004 at Brisbane Convention & Exhibition Centre, Queensland, Australia.
17. **T. Karak**, D. K. Das, D. Maiti, N. Bose and G. Metiya. 2003. Effect of foliar application of different sources of Zn on the changes in Zn content, uptake and yield of rice (*Oryza sativa* L.). *In Abstract of the 6<sup>th</sup> Annual Convention of the Indian Society of Soil Science*. Held on and from November, 4-8, 2003 at the C.S. Azad University of Agriculture and Technology, Kanpur, India.
18. D. K. Das, **T. Karak** and S. K. Karmakar. 2002. Efficiency of chelated zinc (Zn-EDTA) on the maintenance of Zn in soils in relation to yield and nutrition of rice (*Oryza sativa* L.). 17<sup>th</sup> World Congress of Soil Science, Queen Sirikit National Convention Center, Thailand, held on 14-21 August, 2002. Paper No.64. 64-1/64-7

#### ► **Book Chapter:**

1. A. Borgohain, M. Baruah, M. Sarmah, J. Saikia, D. Deka, H. Malakar, P. Khare, **T. Karak**. 2023. Biochar-Based Hydrogel Nanocomposites: An Innovative Technique for Contaminant-Free Environment *in* Biochar-Based Nanocomposites for Contaminant Management, Springer, Germany.
2. M. Sarmah, A. Borgohain, J. Saikia, D. Deka, H. Malakar, P. Khare, **T. Karak**. 2023. Physical Activation and Nanoscale Transformation of Biochar Using Different Mechanochemical Techniques *in* Biochar-Based Nanocomposites for Contaminant Management, Springer, Germany.
3. **T. Karak**, D. K. Das. 2004. "Paddy Soil Fertility". 2004. Edited by Dr. Christian Witt, Dr. Samran Sombatpanit and Dr. Rogelio N. Concepcion, Republic of Philippines, Department of Agriculture, Bureau of Soils and Water Management, Soil Research and Development Center Building, Elliptical Road Corner Visayas Avenue, Diliman, Quezon City.

#### ● **Other professional activities, such as workshops, seminars and consultations**

1. Member of Technical Program Committee, World Tea Science Congress 2011, Held on and from 22-24 November, 2011 at Tocklai Experimental Station, Tea Research Association, Jorhat-8, Assam, India
2. Member of PhD Research Committee, Department of Chemistry, Dibrugarh University, Dibrugarh, India

#### ● **Membership and activities in professional associations (In India)**

1. Member, Indian Society of Soil Science (ISSS)
2. Member, Soil Science Society of Calcutta University, India
3. Reviewer of research proposals for the National Tea Research Foundation, Govt. of India
4. Reviewer of research proposals for the Indian Council of Agricultural Research, Ministry of Agriculture, Govt. of India

#### ● **Community service**

1. Conduct community service project during the flood in the state of West Bengal and Assam, India
2. Prepare food and serve to homeless people.
3. Donate cloths to refugees.

#### ● **Others**

#### ► **Research Experience**

Twenty years research experience in Soil Fertility, Plant Nutrition, Waste Management and Heavy Metal Remediation in Soils.

## ►Research Interest

Chemistry of heavy metals in soils and plants; Behaviour of micronutrients in soils and plants; Environmental pollution; Waste management and Environmental Status of Tea estates

## ►Teaching Experience

1. From May 2023 at School of Agricultural Sciences, Nagaland University as a Professor
2. Two years teaching experience in China Agricultural University (2003-2005)
3. Four years teaching experience in St. Paul's School, Calcutta (2000-2003)

## ►Skill in Instruments

AAS, AFS, Mercury Analyser, GC, UV, ICP-MS, ICP-OES, IR, HPLC, SEM, Respirable Dust Sampler (RDS) and other sophisticate instruments related to environmental pollution.

## ►Proficiency in Computer

MS Office, Adobe Page Maker, Photoshop, Statistical package, Sigma plot

## ►Research Project

### ❖National (Ongoing)

Sl. No.	Title of project	Funding agency	Amount	Date of sanction and Duration
1.	Exploring the efficacy of nutrient rich biochar based fertilizer on tea ( <i>Camellia sinensis</i> L.) and Indian ginseng ( <i>Withaniasomnifera</i> L.): A biotechnological intervention (with Dr. Puja Khare, Principal Scientist, CIMAP)	DBT, Govt. of India under Twinning Research Programme	50.68156 Lakh (Indian Rs) for three years	30 <sup>th</sup> Sept, 2019; 3 years

### ❖National (Completed)

Sl. No.	Title of project	Funding agency	Amount	Date of sanction and Duration
1.	Studies on Municipal Solid Waste Compost (MSWC) and its Standardisations for use in the Tea Plantation	National Tea Research Foundation, Tea Board, Govt. of India	24.86 Lakh (Indian Rs)	April, 2012; 3 years
2.	A study on aluminium detoxification in tea ( <i>Camellia sinensis</i> L.): Paradigm shift towards biotechnological approach	DBT, Govt. of India under "Unit of Excellence"	145.112 Lakh (Indian Rs) for three years	Aug, 2017; 3 years

### ❖International (Completed)

Sl. No	Project title	Name of the Collaborating Scientist & Institute	Sponsoring Agency	Budget (Rs. In Lakh)	Date of sanction and Duration
1.	Effect of Trace Elements on Yield and Quality Parameters of Tea ( <i>Camellia sinensis</i> L. and <i>Athrixia phylicoides</i> DC.) as Influenced by Inorganic and Organic Amendments	Prof. Funso Raphael Kutu Department of Crop Science, School of Agriculture, North-West University, Mafikeng Campus, P/Bag X2046, Mmabatho 2735, South Africa.	Joint Research Grant Under the South Africa/India Agreement on Science and Technology Cooperation, Department of Science and Technology, Govt. of India	32.63 for three years	Sept, 2014; 3 years

### ❖International (Accepted)

Sl. No	Project title	Name of the Collaborating Scientist & Institute	Sponsoring Agency	Budget (Rs. In EURO)	Date of sanction and Duration
1.	Strategies for Improving the Quality of Tea Through the Soil Improvement	Prof. Ornella Abollino Dipartimento di Scienza e Tecnologia del Farmaco Università degli Studi di Torino Torino, Italia	"GRANT for INTERNATIONALIZATION - GFI"	11,000 (for the first year)	March, 2023; 3 years



## ► Scientific collaborations

### ❖ National

1. Central Institute of Medicinal and Aromatic Plants (CIMAP), Lucknow- 226015, UP, India
2. Department of Agricultural Chemistry and Soil Science, Faculty of Agriculture, Bidhan Chandra Krishi Vishwavidyalaya, Mohanpur-741252, Nadia, West Bengal, India
3. Indian Agricultural Statistics Research Institute, New Delhi-110012, India
4. Department of Agricultural Chemistry and Soil Science, Faculty of Agriculture, Calcutta University, Kolkata, West Bengal, India
5. Department of Chemistry, Dibrugarh University, Dibrugarh, Assam (also received PhD supervisorship from this University, Vide letter no. DU/DR-A/12-1/14/1523 dated 20.01.2014)

### ❖ International

1. Department of Civil, Environmental and Ocean Engineering, Stevens Institute of Technology, 1 Castle Point Terrace, Hoboken, NJ 07030, USA
2. Dipartimento di Scienza e Tecnologia del Farmaco, Università di Torino, Via Giuria 5, 10125 Torino (Italia)
3. Department of Crop Science, School of Agriculture, North West University, Mafikeng Campus, P/Bag X2046, Mmabatho 2735, South Africa
4. Department of Soil Science of Temperate Ecosystems, Büsngen-Institute, Georg August University of Göttingen, Büsngenweg 2, 37077 Göttingen, Germany
5. Institute of General and Experimental Biology of the Siberian Branch of the Russian Academy of Sciences Ubugunov V.L., Russia,
6. Laboratory for Sediment and Soil Analysis, Geographical Institute Research Centre for Astronomy and Earth Sciences, Hungarian Academy of Sciences, Budapest, Hungary
7. Departamento de Ciências e Tecnologia da Biomassa, Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa, Quinta da Torre, 2829-516 Caparica, Portugal
8. Faculty of Chemistry, Adam Mickiewicz University, ul. Umultowska 89b, 61-614 Poznan, Poland
9. College of Life & Natural Sciences, Department of Natural Sciences, University of Derby

### ❖ PhD Scholars

**Completed** -National: 4; International: 1 | **Under progress** - 6

### ► Reviewer

- Chemosphere, Elsevier Science
- CLEAN - Soil, Air, Water, Wiley-VCH
- Environmental Engineering and Management Journal, Technical University of Iasi, Romania
- Environmental Monitoring and Assessment, Springer
- Environmental Research, Elsevier Science
- Food & Function, RSC
- Food and Chemical Toxicology, Elsevier Science
- Food Chemistry, Elsevier Science
- Food Research International, Elsevier Science
- Geoderma, Elsevier Science
- Journal of Environmental Management, Elsevier Science
- Journal of Environmental Monitoring and Assessment, Springer
- Journal of Hazardous Materials, Elsevier Science
- International Journal of Environmental Science and Technology, Springer
- Pedosphere, Elsevier Science
- Resources, Conservation & Recycling, Elsevier Science
- Soils and Tillage Research, Elsevier Science
- Talanta, Elsevier Science, and many more

I hereby declare that all the statements made in this resume are true and complete to the best of my knowledge and belief and nothing has been concealed/distorted my material information.

(Tanmoy Karak)

