

BIODATA

DR. TONKESWAR DAS



Senior Technical Officer (I)

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Career Objective:

Being a member of prestigious CSIR (Council of Scientific and Industrial Research) fraternity, the largest R& D organization of India, amidst its highly competitive and intellectually stimulating atmosphere, I have received the all round training that is necessary not only for creative thinking but also to initiate and organize research activities and to build up useful collaborations. I feel confident that I can pursue research in modern interdisciplinary and multidisciplinary fields to the best of my abilities and impart leadership to my co-workers and juniors.

Educational Qualifications:

| Examination Passed | Year of Passing | Board/Council/University |
|--------------------|-----------------|--|
| Ph.D.** | 2019 | Gauhati University |
| M.Sc.* | 2009 | Dibrugarh University |
| B.Sc. | 2007 | Dibrugarh University |
| HSSLC | 2004 | Assam Higher Secondary Educational Council |
| HSLC | 2002 | Secondary Education Board of Assam |

*Specialization in Masters: Organic Chemistry

**Ph.D. Thesis Work @ CSIR-NEIST, Jorhat, Assam, India

Title: Synthesis and Application of Value-Added Products Derived from Low-Quality Coals

Name of thesis supervisor: Dr. Binoy K Saikia; Principal Scientist & HoD

Address: Coal & Energy Division,
CSIR-North East Institute of Science and Technology, Jorhat-785 006, Assam, India

Personal:

| | | | | | |
|--------------------------|---|--|------------------------|---|---------|
| Permanent Address | : | Vill: Chakardhara Gaon P.O. Baruah Gaon, District: Golaghat, Assam, India PIN: 785603 | Nationality: | : | Indian |
| Father's Name: | : | Mr. Bhadreswar Das | Religion: | : | Hindu |
| Date of Birth | : | 20-05-1985 | Sex: | : | Male |
| Place of Birth | : | Golaghat | Marital Status: | : | Married |

Professional:

- Twelve (12) years of R&D experience in CSIR-NEIST, Jorhat, Assam

| Positions held | Name of the Institute | Period | Nature of duties |
|------------------------------|------------------------------|-----------------------------|------------------------|
| Senior Technical Officer (I) | CSIR-NEIST, Jorhat | 13.10.2018 Till date | Research & Development |
| Technical Officer | CSIR-NEIST, Jorhat | 13.10.2015 to 13.10.2018 | Research & Development |
| Technical Assistant | CSIR-NEIST, Jorhat | 13/10/2010 to 13.10.2015 | Research & Development |
| Lecturer (Part time) | Moridhal College, Dhemaji | 2009 to 2010 | Teaching* |

*Chemistry B.Sc. Honours and Higher Secondary classes were taken.

Member of the Professional/ Academic Organizations:

| Name of the Society | Class of membership | Effective Date |
|---|----------------------------|----------------|
| 1. Assam Science Society | Life Member (LM-996) | 04.02.2014 |
| 2. Indian Institute of Mineral Engineers (IIME) | Life Member (0234) | 15.03.2016 |
| 3. Ellora Vigyan Mancha | Life Member (334) | 03.09.2019 |
| 4. Institute of Scholars (InSc) | Life Member (InSc20200629) | 2020 |

Awards, Honours, and Fellowships:

1. Young Researchers Award 2020, Institute of Scholars (An ISO 9001:2015 certified Institute by International Accurate Certification, Accredited by UASL).
2. Certificate of appreciation for technology development has been awarded in 59th CSIR-NEIST Foundation Day for the year of 2018-2019.
Title of Technology: “A process for the preparation of Blue-fluorescence emitting carbon dots (CDs) from sub-bituminous tertiary high-sulfur Indian coals.”
Inventors: Dr Binoy Kumar Saikia, Er. Dipankar Neog, Dr H.P. Deka Baruah, Dr. Manabjyoti Bordoloi, Er Jayanta Jyoti Bora, Er Bipul Das, Dr. Tonkeswar Das.
3. My research publication “Formation of carbon nanoballs and carbon nanotubes from northeast Indian Tertiary coal: value-added products from low grade coal. Gondwana Research, 31, 295-304 (2016)” was highlighted by the Nature India as “At the coalface of nanomaterials (doi: 10.1038/ nindia.2017.2 published online 11 January 2017)”.
4. My research publication “Promising carbon nanosheet-based supercapacitor electrode materials from low-grade coals. Microporous and Mesoporous Materials, 253, 80-90, 2017,” was highlighted by the Nature India as “Coal nanomaterials to make supercapacitors (doi:10.1038/nindia.2017.72 Published online 27 June 2017)”.
5. My research work on the development of Blue-fluorescence emitting Carbon Dots (CDs) from sub-bituminous Tertiary high Sulphur Coals was highlighted by news paper ‘The Hindu’ as Cancer cell detection ‘dots’ developed from coal in Assam on June 19, 2019.

Technology Transferred/Developed:

- My research contribution leads to the following Technology developed/Transferred and Know-How Processes:

| S.No | Know-How/ Technology | Name of the Party | Amount received Lumpsum | Commercialization Status (in the description) |
|------|---|--|----------------------------|---|
| 01 | “A process for the preparation of Blue-fluorescence emitting carbon dots (CDs) from sub-bituminous tertiary high-sulfur Indian coals” | M/s Sigma Aldrich Co., LLC, USA. | 2.00 Lakhs | 3 years limited license for market analysis agreement |
| | | Sumato Globaltech Pvt. Ltd., Guwahati. | Nil | Confidential disclosure agreement |

The Know-How process developed:

1. Production of Humic Acid from Low-grade coal.
2. Production of Coke-Breeze from Low-grade coal by Agglomeration Technology

Skills and Experiences:

- A NABL accredited laboratory “Quality Control & Assurance Laboratories (TC-10099; Lab ID: T-6648)” as per ISO/IEC 17025:2017 was established at CSIR-NEIST, Jorhat for Coal Testing, and the Laboratory was accredited on 30.11.2021 and Inaugurated on 04.01.2022 by Padmashri Dr. Harsh K Gupta, President of Geological Society of India in presence of Dr. G Narahari Sastry, Director CSIR-NEIST, Jorhat. My Role: Deputy Quality Manager & Technical Manager.
- Testing & Evaluation of Coal Samples as per ISO/IEC 17025:2017.
- Laboratory System management & Internal Audit as per ISO/IEC 17025:2017
- Uncertainty of Measurement & Decision Rule as per ISO/IEC 17025:2017
- I have associated with the following completed/ongoing R&D projects at CSIR-NEIST:

| SL No. | Title of Project | Your Role of Project Coordinator/Leader of member of Project team | Commencement of Project | Anticipated Conclusion | Field of Project Basic Res./Applied Res./Design or Development |
|--------------------------------|---|---|-------------------------|------------------------|--|
| Grants-in Aids Projects | | | | | |
| 01 | Emissions from Coal-based Industries -Development of Predictive models (GAP-0229) Funded by: Ministry of Coal, Govt. of India | Member | 01/01/2010 | 04/02/2013 | Basic Res./Applied Res./Design or Development |
| 02 | Desulphurization of High Sulphur NE Indian coals (GAP-0249). Funded by: Ministry of Coal, Govt. of India | Member | 2011 | 2014 | Basic Res./Applied Res./Design or Development |
| 03 | Development of Feasibility Assessment Model for Adaptation of Underground Coal Gasification Technology in North East Region of India (GAP-0261) Funded by: Ministry of Communication and Information Technology | Member | 23.03.2012 | 31.03.2016 | Basic Res./Applied Res./Design or Development |
| 04 | Probing the changing atmosphere and its Impacts in Indo-Gangetic Plains (IGP) and Himalayan Regions (Project Acronym: AIM-IGPHim) (PSC-0112) Funded by: CSIR, New Delhi | Member | April, 2012 | March, 2017 | Basic Research |
| 04 | Feasibility study on High Pressure Catalytic Conversion | Member | 15.04.2016 | 14.04.2017 | Basic Res./Applied |

| | | | | | |
|--------------------------|--|--------|------------|------------|---|
| | of Non-Coking Coals to Produce Synthetic Coking coal (CLP-0287) Funded by: TATA Steel, Jamshedpur) | | | | Res./Design or Development |
| 05 | National Carbonaceous Aerosols Programme (NCAP) Working Group-III project NCAP-WGIII: National Carbonaceous Aerosol Emissions, Source Apportionment and Climate Effects (GPP-0325) Funding Agency: Ministry of Environment, Forest and Climate Change, Govt. of India (MOEFCC, GOI) | Member | 04.05.2017 | 04.04.2022 | Basic Res./Applied Res./Design or Development |
| 06 | Development of hybrid battery power module with indigenously developed super-capacitor and Li-ion cell (GPP-0348) Funding Agency: Ministry of Electronics and Information Technology (MeitY), Government of India, New Delhi | Member | 17.01.2019 | 16.01.2022 | Basic Res./Applied Res./Design or Development |
| 07 | Development of Graphene supercapacitors using Northeastern coal for power applications (GPP-0383) | Member | 03/12/2021 | 02/12/2023 | Basic Res./Applied Res./Design or Development |
| In-house Projects | | | | | |
| 08 | Development of Env. friendly | Member | 2007 | 2012 | Basic |

| | | | | | |
|--|--|--------|-----------------------------|------------------------------|--|
| | Technologies for gainful Utilization of high sulphur NE coals (MLP-3000) | | | | Res./Applied Res./Design or Development |
| 09 | Clean Coal initiatives for Northeast Indian Coals [MLP-6000 (WP-III)] Funded by: CSIR, New Delhi | Member | 2012 | 2017 | Basic Res./Applied Res./Design or Development |
| 10 | Sustainable Materials and Processes for Energy, Environment and Industry. WP-III: Value-added Products from Northeast Indian Coa, Polymers, and Biomass [OLP-2023 (WP-III)] (Funded by CSIR New Delhi) | Member | 1 st April, 2018 | 31 st March, 2019 | Basic Res./Applied Res./Design or Development |
| Fast-Track Translation (FTT) Projects | | | | | |
| 11 | To develop a scale-up and size-controlled process for producing fluorescent carbon quantum dots (CQDs) MLP-1006 | Member | 04.09.2018 | 02.08.2020 | Basic Res./Applied Res./Design or Development |
| Consultancy Projects | | | | | |
| 12 | Techno-economic studies for manufacturing of Coke Breeze from Konya Coal, Tuensang District, Nagaland (CNP-0449). Funded by: DGM, Govt. of Nagaland. | Co-PI | 2010 | 2012 | Basic Res./Applied Res./Design or Development |
| 13 | Feasibility studies for manufacturing of soil conditioner from coal and coal waste (CNP-0456). Funded by: DGM, Govt. of Nagaland. | Co-PI | 2010 | 2012 | Basic Res./Applied Res./Design or Development |

| | | | | | |
|----|---|--------|------------|-------------|---|
| 14 | Gradation of NE Indian Coals (CNP-0459). Funded by: Coal India Limited, Margherita. | Member | 01.05.2012 | 31.12.2012. | Basic Res./Applied Res./Design or Development |
| 15 | Gradation (annual) of NE Indian Coals Funded by: Coal India Limited, Margherita. | Member | 19.02.2013 | 31.12.2013. | Basic Res./Applied Res./Design or Development |
| 16 | Gradation of NE Indian Coals (Annual) Funded by: Coal India Limited, Margherita. | Member | 31.01.2014 | 31.12.2014 | Basic Res./Applied Res./Design or Development |

- Capable of synthesizing carbon nanoparticles such as carbon quantum dots, carbon nanotubes, nanocomposite and evaluating them as industrially important supercapacitor electrode materials, a diagnostic tool for bioimaging in the medical field, chemical sensing, wastewater treatment, etc.
- Capable in handling (i) FT-IR, (ii) UV-Visible, (iii) Simultaneous Netzsch TGA-DTA-DSC system, (iv) High-Pressure reactors, (v) Surface Area and Pore Volume Analyzer, (vi) Gas Chromatography, (vii) Powder XRD (viii) S-144 Dual Range Sulfur Analyzer, (ix) TGA-701 Thermal Analyzer, (x) AC-350 Automatic Bomb Calorimeter, (xi) Truspec CHN Macro Determinators, (xii) Ion-chromatography, (xiii) Ultrasonicator system, (xiv) Testo Flue Gas Analyzer, etc.
- Experienced in the preparation and handling of air and moisture-sensitive reagents/reactions as well as high-pressure reactions.
- I have experience in resource quality assessment and annual gradation of low as well as hard coals.
- I have experience in the beneficiation and value-addition of low-quality coals.
- I have experience in Physico-chemical analysis of Coal, Cement, Ores and Minerals, Soil, Sand aggregates, etc.

- I was involved in raising indents, selection, procurement, installation, and commissioning as well as calibration and maintenance of the equipment.
- Well versed in computer skills including Microsoft Word, Excel, PowerPoint, Chem Draw, Origin, ImajJ, Mercury, and scientific databases such as SciFinder, Scopus, etc.

Achievements:

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- The following achievements have been made from the R & D work carried out so far.

Papers Published/ Communicated in SCI Journals:

Total No. of Publications: 28 Nos

Highest IF: 8.189

In Journal

1. A novel rapid synthesis of highly stable silver nanoparticle/carbon quantum dot nanocomposites derived from low-grade coal feedstock. Monikankana Saikia, Tonkeswar Das, and Binoy K Saikia. New Journal of Chemistry, **46**, 309-321, 2022. **IF: 3.951**
2. Coal-derived humic acid for application in acid mine drainage (AMD) water treatment and electrochemical devices. Tonkeswar Das, Mousumi Bora, Joyshil Tamuly, Santhi Maria Benoy, Bimala P. Baruah, Prasenjit Saikia, Binoy K. Saikia. International Journal of Coal Science & Technology (Electronic ISSN: 2198-7823; Print ISSN: 2095-8293), **8**, 1479–1490, 2021.
3. Oxidative chemical beneficiation of low-quality coals under low-energy ultrasonic and microwave irradiation: An environmental-friendly approach. Monikankana Saikia, Tonkeswar Das, James C.Hower, Luis F.O.Silvae, Xing Fan, Binoy K.Saikia. Journal of Environmental Chemical Engineering **9** (2), 104830, 2021. **IF: 5.909**
4. Blue-emitting fluorescent carbon quantum dots from waste biomass sources and their application in fluoride ion detection in water. Anusuya Boruah, Monikankana Saikia, Tonkeswar Das, Rajib Lochan Goswamee, Binoy K Saikia. Journal of Photochemistry and Photobiology B: Biology (ISSN 1011-1344), **209**, 111940, 2020. **IF: 6.252**
5. Formation of carbon quantum dots and graphene nanosheets from different abundant carbonaceous materials. Monikankana Saikia, Tonkeswar Das, Nikalabh Dihingia, Xing Fan, Luis F.O. Silva, Binoy K. Saikia, Diamond and Related Materials (ISSN 0925-9635), **106**, 10783, 2020. **IF: 3.315**

6. Environmental and toxicological assessment of nanodiamond-like materials derived from carbonaceous aerosols. Nazrul Islam, Anjum Dihingia, Prasenjit Manna, Tonkeswar Das, Jatin Kalita, H.P.Deka boruah, Binoy K.Saikia. *Science of Total Environment* (ISSN: 0048-9697) 679, 209-220, 2019. **IF: 7.963**.
7. Petrographic controls of coal from Ib valley Basin for carbon nano-products formation. Atul Kumar Varma, Akhandal Sahoo, Binoy K.Saikia, Tonkeswar Das. *International Journal of Coal Geology* (ISSN 0166-5162), 211 (1), 103211, 2019. **IF: 6.806**.
8. Blue-fluorescent and biocompatible carbon dots derived from abundant low-quality coals. Tonkeswar Das, Binoy K.Saikia, H.P.Dekaboruah, Manobjyoti Bordoloi, Dipankar Neog, Jayanta J.Bora, Jiumoni Lahkar, Bardwi Narzary, Sonali Roy, Danaboyina Ramaiah. *Journal of Photochemistry and Photobiology B: Biology* (ISSN 1011-1344), 195, 1-11, 2019. **IF: 6.252**.
9. Feasibility study of preparation of carbon quantum dots from Pennsylvania anthracite and Kentucky bituminous coals. Monikankana Saikia, James C. Hower, Tonkeswar Das, Trisharani Dutta, Binoy K.Saikia. *Fuel* (ISSN: 0016-2361), 2019, 243 (1), 433-440. **IF: 6.609**
10. Retention of antibacterial and antioxidant properties of lemongrass oil loaded on cellulose nanofibre-poly ethylene glycol composite. Disha Mishra, Puja Khare, Dhananjay. K. Singh, Suaib Luqman, P.V. Ajay Kumar, AnjuYadav, Tonkeswar Das, B.K.Saikia. *Industrial Crops and Products* (ISSN 0926-6690), 2018, 114, 68-80. **IF: 5.645**
11. Copyrolysis of Low-Grade Indian Coal and Waste Plastics: Future Prospects of Waste Plastic as a Source of Fuel. Gitika Rani Saha, Tonkeswar Das, Pranjal Handique, Dipankar Kalita, and Binoy K. Saikia. *Energy Fuels* (ISSN: 0887-0624 (print); 1520-5029 (web)), 2018, 32 (2), 2421–2431. **IF: 3.605**
12. Nanodiamonds Produced from Low-Grade Indian Coals. Tonkeswar Das and Binoy K. Saikia. *ACS Sustainable Chem. Eng.* (Web Edition ISSN: 2168-0485), 2017, 5 (11), 9619–9624. **IF: 8.189**
13. Promising carbon nanosheet-based supercapacitor electrode materials from low-grade coals. Tonkeswar Das, Himani Chauhan, Sasanka Deka, Shanky Chaudhary, Ratan Boruah, Binoy K. Saikia. *Microporous and Mesoporous Materials* (ISSN 1387-1811), 253, 2017, 80-90. **IF: 5.455**

14. Humi-Fe₃O₄ nanocomposites from low-quality coal with amazing catalytic performance in reduction of nitrophenols. Tonkeswar Das, Gayatri Kalita, PriyamJyoti Bora, Dipak Prajapati, Gakul Baishya, Binoy K. Saikia. Journal of Environmental Chemical Engineering (ISSN: 2213-3437), 5(2), 1855–1865, 2017. **IF: 5.909**
15. Formation of onion-like fullerene and chemically converted graphene-like nanosheets from low-quality coals: Application in photocatalytic degradation of 2-nitrophenol. Tonkeswar Das, Purna K. Boruah, Manash R. Das and Binoy K. Saikia. RSC Advances (Online only: ISSN 2046-2069), 2016, 6(42), 35177-35190. **IF: 3.36**
16. Formation of carbon nano-balls and carbon nano-tubes from northeast Indian Tertiary coal: value added products from low grade coal. Tonkeswar Das, B.K. Saikia, B P Baruah. Gondwana Research (ISSN: 1342-937X), 2016, 31, 295-304. **IF: 6.051**.
17. Thermal behaviour of low-rank Indian coal fines agglomerated with an organic binder. Tonkeswar Das, Bimala P. Baruah, Binoy K. Saikia. Journal of Thermal Analysis and Calorimetry (ISSN: 1388-6150 (print); 1572-8943 (web)), 2016, 126(2), 435-446. **IF: 4.626**.
18. Thermogravimetric and model-free kinetic studies on CO₂ gasification of low-quality, high-sulphur Indian coals. Tonkeswar Das, Ananya Saikia, Banashree Mahanta, Rahul Choudhury, Binoy K Saikia. Journal of Earth System Science (Electronic ISSN 0973-774X), 2016, 125 (7), 1365-1377. **IF: 1.371**
19. Elemental geochemistry and mineralogy of coals and associated coal mine overburden from Makum coalfield (Northeast India). Binoy K. Saikia, Ananya Saikia, Rahul Choudhury, Panpan Xie, Jingjing Liu, Tonkeswar Das, Hari P. Dekaboruah. Environmental Earth Sciences (ISSN: 1866-6280 (print); 1866-6299 (web)), 75(8), 2016, DOI: 10.1007/s12665-016-5484-x. **IF: 2.784**.
20. Effective removal of sulfur components from Brazilian power-coals by ultrasonication (40KHz) in presence of H₂O₂. Binoy K. Saikia, Adilson C. Dalmora, Rahul Choudhury , Tonkeswar Das, Silvio R. Taffarel , Luis F.O. Silva. Ultrasonics Sonochemistry (ISSN: 1350-4177), 2016, 32,147-157. **IF: 7.491**
21. A preliminary report on the formation of graphite from sub-bituminous coal during oxidation in H₂O₂/HCOOH: a new forecast. Binoy K. Saikia, Tonkeswar Das, Bimala P. Baruah. International Journal of Oil Gas and Coal Technology (ISSN online 1753-3317, ISSN print 1753-3309), 2016, 13(3), 292-304. **IF: 0.787**

22. Agglomeration of low rank Indian coal fines with an organic binder and the thermal behaviour of the agglomerate produced: Part I. Tonkeswar Das, B. K. Saikia, Dileep K Dutta, Dipok Bordoloi, Bimala P Baruah. Fuel (ISSN: 0016-2361), 2015, 147, 269-278. **IF: 5.128**
23. Size Distribution of Particles in High Sulphur Coal Ash and their Chemistry: A Computer-controlled Scanning Electron Microscopic Study. Binoy K. Saikia , Tonkeswar Das , Bimala P. Baruah. Journal of the Geological Society of India (Electronic ISSN 0974-6889), 2015, 85(2), 206-214. **IF: 0.899**
24. Characterizations of humic acid isolated from coals of two Nagaland Coalfields of India in relation to their origin. Tonkeswar Das, B.K. Saikia, B. P. Baruah, Dhurbajyoti Das. Journal of Geological Society of India (Electronic ISSN 0974-6889), 2015, 86, 468-474. **IF: 0.899**
25. Feasibility Studies for isolation of humic acid from coal of Mongchen Coal field, Nagaland; Tonkeswar Das, Binoy Kumar Saikia and Bimala Prasad Baruah, Journal of Indian Chemical Society, 2013, 90,2007-2014.
26. Emission profile and predictive model for high sulphur low rank coals used in carbonization and combustion units, P Khare, M Sarmah, Tonkeswar Das, O P Sahu, BP Baruah, Environmental Progress And Sustainable Energy (Online ISSN: 1944-7450), 2012, wileyonlinelibrary.com). DOI: 0.1002/ep.11715. **IF: 1.989**
27. Non recovery coke ovens of North east coals: an attempt for energy utilization, Nilakshi Kakoti, Jayanta J Bora, Tonkeswar Das, Binoy K. Saikia, B. P. Baruah; Int. Journal of Innovative Research & Development (ISSN 2278 0211), 2012, 1, 7, ISSN 2278-0211 (Special Issue), 253-262. **IF: 0.981 (IIFS)**
28. Coal Combustion Residues from Thermal Power Plants. ArundhotiGogoi, Tonkeswar Das. Journal of Environmental Science Society, Vol.1, No.1, 2013; Page No. 37.

Book Chapters:

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- (i) Indian coal beneficiation technology by using ultrasonic energy: A new avenue. Binoy K. Saikia, Tonkeswar Das, Dipanker Neog, Jayanta J Bora. In book: NexGen Technologies for Mining and Fuel Industries, Edition: Vol-II, Chapter: Mineral Processing and Coal Beneficiation, Publisher: Allied Publishers Pvt. Ltd., 2016, pp.1191-1200. **ISBN: 978-93-85926-40-2**

- (ii) Combustion characteristics of caustic leached high sulphur coals, Tonkeswar Das, B K Saikia, P Saikia, B P Baruah, Abstract and Proceeding Volume, International Seminar and workshop on Energy, Sustainability and Development (ISWESD-2012), pp 211. **ISBN: 978-81-925299-0-5.**

Patents Grant/Filed:

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- (i) Process for the preparation of blue-fluorescence emitting Carbon Dots (CDTs) from sub-bituminous Tertiary High Sulfur Indian Coals. United States Patent No. US 10,655,061 B2 (May 19 , 2020)
Inventors: Binoy Kumar Saikia, Tonkeswar Das, Sonali Roy, Bardwi Narzary, Hari Prasana Deka Boruah, Manabjyoti Bordoloi, Junmoni Lahkar, Dipanker Neog, Danaboynia Ramaiah.
- (ii) Fabrication of Blue-fluorescent and non-toxic nanodiamonds (NDs) from atmospheric particulate matters. Pub. No. US2021/0292172 A1.
Inventors: Binoy K Saikia, Nazrul Islam, Tonkeswar Das, Jatin Kalita
- (iii) Process for production of activated carbon from sub-bituminous Tertiary high sulfur Indian coals by ultrasonic-assisted chemical activation. Patent Application: 0052NF2020
Inventors: Binoy K Saikia, Tonkeswar Das, Prasenjit Saikia, Dipankar Neog, Mousmi Bora, Santhi Maria Benoy.

In Conference/Proceedings/Abstract Volume:

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1. Synthesis of carbon nanoparticles and fullerene-like materials from carbonaceous aerosols: A study towards their utilization to make value-added products. Nazrul Islam, Tonkeswar Das, Binoy K Saikia. International Conference on Engineering Sciences and Technologies for Environmental Care, 20-22 February, 2020, organized by CSIR-NEIST, Jorhat, Page No. 199.
 2. Synthesis of value-added carbon materials from low-grade coal by oxidative alkali activation and their electrochemical characterizations. Joyshil Tamuly, Tonkeswar Das, Binoy K. Saikia. International Conference on Engineering Sciences and Technologies for Environmental Care, 20-22 February, 2020, organized by CSIR-NEIST, Jorhat, Page No. 200.
 3. Large scale synthesis of carbon dots from petroleum coke and tea waste: A comparative study. Monikankana Saikia, Tonkeswar Das, Binoy K. Saikia. International Conference on

Engineering Sciences and Technologies for Environmental Care, 20-22 February, 2020, organized by CSIR-NEIST, Jorhat, Page No. 201.

4. Derivation of carbon materials from low-quality coal by using ball milling and chemical activation for using as electrode materials in supercapacitor. Tonkeswar Das, Mousumi Bora, Priyam J Bora, Jyoti P Saikia, Binoy K Saikia. XVIII Conference on Mineral Processing Technology, 2019, Organized by IIME-Hyderabad Chapter 16-18 December, 2019. Page No. 222.
5. Synthesis of Silver Nanoparticles by using carbon quantum dots derived from low-quality coals. Monikankana Saikia, Tonkeswar Das, Binoy K Saikia. XVIII Conference on Mineral Processing Technology, 2019, Organized by IIME-Hyderabad Chapter 16-18 December, 2019. Page No. 43.
6. Chemical Composition of Atmospheric Particulate Matters (Pms) And Their Conversion To Value-Added Carbon Nanomaterials. Nazrul Islam, Tonkeswar Das, Binoy K Saikia. XVIII Conference on Mineral Processing Technology, 2019, Organized by IIME-Hyderabad Chapter 16-18 December, 2019. Page No. 45.
7. Fluorescent Carbon Quantum Dots From Northeast Region High Sulfur Coal And Biomass: A New Chemical Approach For Their Value Addition. Anusuya Baruah, Tonkeswar Das, Prasenjit Saikia, Binoy K Saikia. XVIII Conference on Mineral Processing Technology, 2019, Organized by IIME-Hyderabad Chapter 16-18 December, 2019. Page No. 44.
8. Carbonization of low-grade Northeast Indian coal and waste plastics: studies on coke quality and oil yield. Tonkeswar Das, Gitika Rani Saha, Binoy K Saikia. Abstract and Proceeding Volume: International Seminar on Mineral Processing Technology, October 10-12, 2018, IIT (ISM) Dhanbad. page no-37.
9. Low-grade high sulfur coal as abundant source of fluorescent carbon quantum dots. Tonkeswar Das, Nikalabh Dihingia, Binoy K Saikia. Abstract and Proceeding Volume: International Seminar on Mineral Processing Technology, October 10-12, 2018, IIT (ISM) Dhanbad. page no-210
10. Preparation of coal-derived carbon nanomaterials. Tonkeswar Das, Binoy K Saikia. Abstract and Proceeding Volume: Materials Research Society of India Symposium on Advanced materials for sustainable applications, 18-21 February, 2016, CSIR-NEIST, Jorhat, page no-57.

11. High-quality product from low quality Northeast Indian Coals. Tonkeswar Das, Binoy K Saikia. Abstract and Proceeding Volume: International Seminar on Mineral Processing Technology, organized by IIME Tamil Nadu Chapter, during 1-3 February, 2017 at Radisson Blu Resort, Temple Bay, Mahabalipuram, Chennai, Tamil Nadu, India.
12. Role of Additive on Fusibility and combustion behaviour of coal and its ash. Ananya Saikia, Banashree Mahanta, Tonkeswar Das, B.P. Baruah. Abstract and Proceeding Volume: International Conference on Mineral Processing Technology, 12-14 March 2015, page No. 177.
13. Scale-up studies on cleaning of high sulphur NE Indian Coals for its potential utilization by nodulization technology. Abstract and Proceeding Volume: Digging Deep (Souvenir of NECMICO-2014). National Symposium-cum-Workshop on NER Coals Minerals: Issues, Challenges and Opportunities. Page No. 47, 2014, held at CSIR-NEIST, Jorhat
14. Thermo-chemical properties of low rank nodulized coal with organic binder. Tonkeswar Das, B K Saikia, B. P. Baruah. Abstract and Proceeding Volume, 8th Mid-Year CRSI National Symposium in Chemistry. Page No. 65, 2014, held at CSIR-NEIST, Jorhat, July 10-12th , 2014.
15. Combustion characteristics of caustic leached high sulphur coals, Tonkeswar Das, B K Saikia, P Saikia, B P Baruah, Abstract and Proceeding Volume, International Seminar and workshop on Energy, Sustainability and Development (ISWESD-2012), ISBN 978-81-925299-0-5, pp 211.
16. Studies on ignition temperature of NER coals: A thermogravimetric approach, Tonkeswar Das, B. K. Saikia, P. Saikia, B. P. Baruah, Book of Abstracts, 18th International Conference (Post:ISCBC-2012) Perspective and Challenges in Chemical Biological Sciences: Innovation cross roads, pp 62.
17. Quality and combustion behaviors of coal-nodules of Indian coals, Tonkeswar Das, B K Saikia, P Saikia B. P. Baruah, Abstract Volume, International Conference on Global Trends in Pure and Applied Chemical Sciences (ICGTS-2012), pp-120.
18. Oxidative desulfurization of some North-Eastern Region (NER) Coals in presence of Cd²⁺ ions,. Kakoli Khound, Tonkeswar Das, Binoy K Saikia, B P Baruah, 57th Annual Technical Session, Assam Science Society, March-2012.

19. Dynamics of Elements Release to Environment from Tertiary Indian Coals. Tonkeswar Das and BP Baruah, Abstract Volume of XIII International Seminar on Mineral Processing Technology, 10-12 December 2013, pp-117.

Paper/ Posters Presented in Organized Conferences/Symposia/ Seminars Etc.

1. Paper entitled “ Synthesis of carbon nanoparticles and fullerene-like materials from carbonaceous aerosols: A study towards their utilization to make value-added products by Nazrul Islam, Tonkeswar Das, Binoy K Saikia have been poster presented at International Conference on Engineering Science & Technologies for Environmental Care 2020, organized by CSIR-NEIST, Jorhat, 20-22 February, 2020.
2. Paper entitled “Derivation of carbon materials from low-quality coal by using ball milling and chemical activation for using as electrode materials in supercapacitor by Tonkeswar Das, Mousumi Bora, Priyam J Bora, Jyoti P Saikia, Binoy K Saikia have been poster presented at XVIII Conference on Mineral Processing Technology, 2019, Organized by IIME-Hyderabad Chapter 16-18 December, 2019.
3. Paper entitled “ Carbonization of low-grade Northeast Indian coal and waste plastics: studies on coke quality and oil yield” by Tonkeswar Das, Gitika Rani Saha, Binoy K Saikia have been oral presented at International Seminar on Mineral Processing Technology 2018 at IIT (ISM) Dhanbad, October 10-12, 2018, organized by IIME.
4. Paper entitled “Synthesis of humic acid nanocomposites for catalytic and electrochemical applications” by Tonkeswar Das, Binoy K Saikia have been oral presented at National Seminar on Recent Trends in Environment Responsive Chemical Processes (RTERCP-2017) at D.R. College, Golaghat, Assam, September 22-23, 2017, orgainezed by Department of Chemistry, D.R. College, Golaghat, Assam.
5. Paper entitled “High-quality product from low quality Northeast Indian Coals” by Tonkeswar Das, Binoy K Saikia have been oral presented at International Seminar on Mineral Processing Technology, organized by IIME Tamil Nadu Chapter, during 1-3 February, 2017 at Radisson Blu Resort, Temple Bay, Mahabalipuram, Chennai, Tamil Nadu, India.
6. Paper entitled “Preparation of coal-derived carbon nanomaterials” by Tonkeswar Das, Binoy K Saikia have been presented at Materials Research Society of India Symposium on Advanced materials for sustainable applications, jointly organized by CSRI-North East

Institute of Science and Technology (CSIR-NEIST), Tezpur University, and IIT Guwahati during 18-21 February, 2016 at CSIR-NEIST, Jorhat.

7. Paper entitled “Thermo-chemical properties of low rank nodulized coal with organic binder” by Tonkeswar Das, B K Saikia, B. P. Baruah have been poster presented at 8th Mid-Year CRSI National Symposium in Chemistry, jointly organized by CSRI-North East Institute of Science and Technology (CSIR-NEIST) and Tezpur University, during 10-12 July 2014 at CSIR-NEIST, Jorhat.
8. Paper entitled “Combustion characteristics of caustic leached high sulphur coals” by Tonkeswar Das, B K Saikia, P Saikia, B P Baruah have been oral presented at International Seminar and Workshop on Energy, Sustainability and Development (ISWESD-2012) organized by Department of Physics, Sibsagar College incollaboration with CSIR-NEIST on 12th to 14th Oct. 2012.

Workshop/Seminar/Conference Attended:

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1. Seminar on “Basics of Small Angle X-Ray Scattering” at CSIR-NEIST, February 25, 2020, Organized by Anton Paar GmbH.
 2. International Seminar on Mineral Processing Technology 2018 at IIT (ISM) Dhanbad, October 10-12, 2018, organized by IIME.
 3. “Technical Workshop and Training Program” of the project National Carbonaceous Aerosols Programme (NCAP: COALESCE) at IISER, Bhopal. June 03-13, 2018.
 4. Materials Research Society of India-North East Conference-2018 on “The Frontiers in Chemical Biology” jointly organized by CSIR-NEIST, Jorhat and Assam Science Society, Jorhat Branch, Jorhat held on 26-28 June, 2018.
 5. Capacity Building Programme for Technical Officers held on 21-25 May, 2018 at CSIR-Human Resource Development Centre, Ghaziabad.
 6. National Seminar on Recent Trends in Environment Responsive Chemical Processes (RTERCP-2017) at D.R. College, Golaghat, Assam, September 22-23, 2017, orgainezed by Department of Chemistry, D.R. College, Golaghat, Assam.
 7. International Seminar on Mineral Processing Technology organized by IIME Tamil Nadu Chapter, during 1-3 February, 2017 at Radisson Blu Resort, Temple Bay, Mahabalipuram, Chennai, Tamil Nadu, India.

8. Materials Research Society of India Symposium on Advanced materials for sustainable applications, jointly organized by CSRI-North East Institute of Science and Technology (CSIR-NEIST), Tezpur University, and IIT Guwahati during 18-21 February, 2016 at CSIR-NEIST, Jorhat.
9. International Conference on Mineral Processing Technology. Organized by Andhra University and Indian Institute of Mineral Engineers, 12-14 march 2015. Venue: AU college of Engineering (A), Visakhapatnam.
10. National Symposium-cum-Workshop on NER Coals Minerals: Issues, Challenges and Opportunities NECMICO-014). Jointly organized by CSRI-North East Institute of Science and Technology and Tezpur University, during 10-12 July 2014 at CSIR-NEIST, Jorhat.
11. A Faculty Development Programme on Research Methodology and Data Analysis Using SPSS 21.0 organized by Xavier Institute of Management and Information Technology (XIMIT), Bamunimaidan, Guwahati and SPSS South Asia, a part of well-known IT company IBM during 26th August 2013 to 31st August, 2013 at XIMIT, Guwahati.
12. Workshop on Electron Microscopy in Physical Sciences” during 4th –6th March, 2014. Organized by Sophisticated Analytical Instrument Facility (SAIF), North Eastern Hill University Shillong-793022.

Organizational Experiences:

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1. Worked as SRTP-2020 secretariate Team in CSIR-Summar Research Training Program (CSIR-SRTP) 2020 Online.
 - (i) The program brochure was prepared.
 - (ii) All technical & demonstration video (SRTP DV-01 to SRTP DV-46) from CSIR-NEIST was edited and uploaded to the CSIR-SRTP youtube channel (CSIR SRTP).
 2. Worked as a programme Assistant at the Salters Chemistry Camp at CSIR-NEIST, Jorhat and Kaziranga University, Jorhat, Assam during 11-13 July 2016.
 3. Worked actively as a member of Food Committee in organizing 43th SSBMT (*Outdoor Zonal*), a sports meet among the CSIR laboratories at NEIST campus.

Extracurricular:

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1. Represented five times CSIR-NEIST Cricket team as a player in the national level Santi Swarup Bhatnagar Tournament, an inter CSIR Sports meet.

Guidance to Trainee:

1. Trained the undergraduate students in the form of short-term projects under the CSIR CPYLS and Science Motivation Programmes.
2. Trained the summer trainees from different institutes/universities for the short-term projects.

Social Responsibilities:

1. Worked as convenor and member of the CSIR-NEIST Diamond Jubilee Celebration at CSIR-NEIST, Jorhat, 11-17 March, 2022.
2. Worked as a convenor and member of the celebration of birth anniversary of *Sri Sri Sankardeva*, the great Vaishnavite Saint of Assamese culture held at CSIR-NEIST campus for the year of 2011-2018.
3. Working as member in RRL Employees Co-Operative Credit & Thrift Society.
4. Working as executive member in CSIR-NEIST Staff Club.

Declaration: I do hereby declare that all the information mentioned above is true and correct to the best of my knowledge.

Date:

(Dr. Tonkeswar Das)

Place: CSIR-NEIST, JORHAT