

Curriculum Vitae

Name: DR. JOYATI DAS

Date of Birth: 03.12.1984

Nationality: Indian

Languages Known: English, Bengali, Hindi.

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Current Position: DBT Research Associate

Agricultural and Food Engineering Department

Indian Institute of Technology Kharagpur

Kharagpur, West Bengal, India

Supervisor: Prof. Hari Niwas Mishra

Agricultural and Food Engineering Department

Indian Institute of Technology Kharagpur

Kharagpur, West Bengal, India

Research Topic: Biosensor development for food spoilage monitoring and biomedical research

Ph. D Thesis Title : Sensing systems for environment, food related analytes and microbial remediation of arsenic

Place: Department of Biochemistry, University of Calcutta

Ph. D award Date: 03.04.2018

Ph.D Supervisor : Prof. Priyabrata Sarkar, Department of Polymer Science and Technology, University of Calcutta

Educational Qualifications :

Degree	Year	Board/ University	Subject	Percentage of Marks	Class/ Division
Ph.D	2018	University of Calcutta	Biochemistry	-	-
M.Sc	2009	University of Calcutta	Biochemistry	69.5	1st
B.Sc.	2006	University of Calcutta	Chemistry(H), Physics, Mathematics	60.00	1st
Higher Secondary	2003	W.B.C.H.S.E	Physics, Chemistry, Biology, Mathematics, English, Bengali	62.8	1st
Madhyamik	2001	W.B.B.S.E	Physical Sc., Life Sc., Mathematics, History, Geography, English, Bengali	74.25	1st

Research Publications:

1. **Das J** and Sarkar P. 2018. Remediation of arsenic in mung bean (*Vigna radiata*) with growth enhancement by unique arsenic-resistant bacterium *Acinetobacter lwoffii*, **Science of the Total Environment. 624, 1106-1118.**
2. **Das J** and Sarkar P. 2016. Enzymatic electrochemical biosensor for urea with a polyaniline grafted conducting hydrogel composite modified electrode, **RSC Advances. 6, 92520–92533.**
3. **Das J** and Sarkar P. 2016. A new dipstick colorimetric sensor for detection of arsenate in drinking water, **Environmental Science: Water Research & Technology (RSC publishing house). 2, 693-704.**
4. **Das J**, Sarkar P, Panda J and Pal P. 2014. Lowcost field test kits for arsenic detection in water, **Journal of Environmental Science and Health, Part A (2014) 49(1), 108–115.**

Patent Filed:

1. **Title:** A dip stick colorimetric sensor for detection of arsenate in drinking water.

Inventors: Priyabrata Sarkar , **Joyati Das**, Jigisha Panda, University of Calcutta

Patent no. – 1139/KOL/2012 dated 05.10.2012

Awards and achievements:

- Awarded **Oral presentation award for the paper entitled ‘Remediation of arsenic in mung bean (*Vigna radiata*) with growth enhancement by unique arsenic-resistant bacterium *Acinetobacter lwoffii*’** at National Seminar on Innovative Process Technology for Sustainable Development-2018, at IICHE Auditorium & K.P. Bose Auditorium, JU Campus, Kolkata, West Bengal, India, on 23-24th February, 2018 jointly organized by Calcutta Regional Centre, Indian Institute of Chemical Engineers, and CSIR-Central Glass and Ceramic Research Institute, Kolkata.
- Awarded ‘**MAULANA AZAD NATIONAL FELLOWSHIP FOR MINORITY STUDENTS**’ in the year 2014.
- Awarded **International Travel Support grant from Indian Council of Medical Research for participation in the 5th International Conference on Food & Biotechnology (ICFEB)-2014, Malaysia, 12-14th March, 2014.**
- Awarded **First Prize for poster presentation for the paper entitled ‘Detection of arsenate in drinking water by using molybdenum blue dip stick sensor’.** in the **Environmental Science and Evolutionary Biology** technical session of the International Conference on frontiers in Biological sciences (InCoFIBS-2010) organized by Department of Life sciences, National Institute of technology, at Rourkela, Odisha, India, on October 1-3, 2010.

Research Experiences:

- **Post Doctoral Research Experience:**

1. Research Work: A new enzymatic electrochemical biosensor for ethanol using prussian blue-polyaniline nanocomposite modified electrode

Place: Department of Polymer Science and Technology, University of Calcutta

Supervisor: Prof. Priyabrata Sarkar, Department of Polymer Science and Technology, University of Calcutta

Tenure: 03.09.2018 to 27.12.2018

2. Project Name: Production of Butyric acid in an anaerobic route using crude hydrolysate derived from lignocellulosic biomass

Place: Chemical Engineering Department, Jadavpur University

Supervisor: Prof. Ujjaini Sarkar, Chemical Engineering Department, Jadavpur University;

Co-Supervisor: Prof. Priyabrata Sarkar, Department of Polymer Science and Technology, University of Calcutta

Tenure: 04.05.2018 to 31.08.2018

Funding Agency: Department of Science and Technology (DST), Govt. of India

- **Senior Research Fellow** of UGC, Govt. of India funded ‘MAULANA AZAD NATIONAL FELLOWSHIP FOR MINORITY STUDENTS’ from 01.04.2016-08.02.2017 on the topic “**Development of electrochemical sensing systems for environmental and food related analytes**” under the supervision of Prof. Priyabrata Sarkar, Department of Polymer Science and Technology, University of Calcutta. (Work Place- Dept. of Polymer Science and Technology, University of Calcutta, Ph. D Registration- Dept. of Biochemistry, University of Calcutta).
- **Junior Research Fellow** of UGC, Govt. of India funded ‘MAULANA AZAD NATIONAL FELLOWSHIP FOR MINORITY STUDENTS’ from 01.04.2014-31.03.2016 on the topic “**Development of electrochemical sensing systems for environmental and food related analytes**” under the supervision of Prof. Priyabrata Sarkar, Department of Polymer Science and Technology, University of Calcutta. (Work Place- Dept. of Polymer Science and Technology, University of Calcutta, Ph. D Registration- Dept. of Biochemistry, University of Calcutta).
- **Project Fellow** of UGC, Govt. of India Major Research project-‘**Microbial remediation of chromium and development of enzyme sensor**’ from 05.08.2013-31.01.2014 under the supervision of Prof. Priyabrata Sarkar at Dept. of Polymer Science and Technology, University of Calcutta.
- **Project Assistant** of DST-WTI, Govt. of India funded project-‘**Development of arsenic adsorbing polymer beads and their performance study in packed bed columns**’ from 05.08.2012-04.08.13 under the supervision of Prof. Priyabrata Sarkar at Dept. of Polymer Science and Technology, University of Calcutta.

- **Junior Research Fellow** of DST-WTI, Govt. of India funded project named-‘**Field test kit for arsenic in water**’ from 15.03.2010-29.07.2012 under the supervision of Prof. Priyabrata Sarkar at Dept. of Polymer Science and Technology, University of Calcutta.
- **Summer Training Fellow** at Manovikas biomedical research and diagnostic centre, Monovikas Kendra Rehabilitation Research Institute for the handicapped, Kolkata-700107, West Bengal, India under the supervision of Dr.(Mrs.) Usha Rajamma on the topic “**Analysis of Tryptophan hydroxylase 1 gene (TPH1) Intron 7 A/C218 Polymorphism (rs1800532): A Genetic Association Study with Autism in the Indian Population**” from April-June, 2008.

Technical Experiences:

- Electrochemical techniques known: Differential pulse voltammetry, Cyclic voltammetry, Electrochemical impedance spectroscopy (Frequency response analyser), Amperometry etc. Expertise in handling AUTOLAB electrochemical analyser and electrochemical sensor development: immobilization of enzyme within polymeric matrix.
- Development of arsenic detection hand held kits for onsite monitoring and testing water samples for detecting arsenic contamination and monitoring arsenic uptake by plants.
- Microbial laboratory practices: Microbial culture preparation and handling, media optimization etc.
- Isolation of novel microbe from soil and extraction of enzymes from microbial sources.
- Expertise in handling instruments like UV-VIS Spectrophotometer, Freeze Dryer, Laminar flow chamber, Bifocal microscope, Shaker-incubator, Ultrasonicator, and Centrifuge machine, Ion chromatography (Basic), Milli-Q water system.
- DNA extraction from human blood samples.
- Polymerase chain reaction (PCR), Enzyme Linked Immunosorbent Assay (ELISA), Western blotting, Agarose gel electrophoresis techniques.
- **Computer Knowledge:** Multilingual office automation course- Windows 7, Office 2003/07, Photoshop etc. of CDAC, GIST PACE program, Govt. of India.

Seminar presentations or participations:

- **Das J** and Sarkar P. Remediation of arsenic in mung bean (*Vigna radiata*) with growth enhancement by unique arsenic-resistant bacterium *Acinetobacter lwoffii*- **Oral presentation** at National Seminar on Innovative Process Technology for Sustainable Development-2018, at IICHE Auditorium & K.P. Bose Auditorium, JU Campus, Kolkata, West Bengal, India, on 23-24th February, 2018 jointly organized by Calcutta Regional Centre, Indian Institute of Chemical Engineers, and CSIR-Central Glass and Ceramic Research Institute, Kolkata.
- National Conference on “Advancement in Polymer Engineering and Industrial Challenges”, Department of Polymer Science and Technology, University of Calcutta, 27th January, 2018- **Participation.**
- National Seminar on “ Carbon Capture and Utilization Technology” organized by Calcutta Regional Centre, Indian Institute of Chemical Engineers, Kolkata at H.L. Roy Building, Jadavpur University, Kolkata-700032, West Bengal, India on 24-25th February, 2017- **Participation.**
- **Das J** and Sarkar P. Influence of arsenic-resistant bacteria on growth and arsenic uptake in plants- **Oral presentation** at International conference on microbiology, agriculture & environmental sciences-2016, Hyderabad, India, 01-03rd September, 2016 organized by St. Pios X Degree & PG College for women, Snehapuri colony, Nacharam, Hyderabad in collaboration with International multidisciplinary research foundation (IMRF), Govt. of India approved conference.
- **Das J** and Sarkar P. Electrochemical urea biosensor: unique conducting hydrogel matrix for urease immobilization- **Oral presentation** at 5th International Conference on Food & Biotechnology (ICFEB)-2014, Malaysia, 12-14th March, 2014 organized by Asia-Pacific chemical, Biological & Environmental Engineering society (APCBEEES), Conference Specialist: Lydia Liu, Headquarter Address: Unit B on 15th Floor, EU YAN SANG Tower, Nos, 11/15, Chatham Road South, Kowloon, Hong Kong.
- **Das J** and Sarkar P. Electrochemical urea biosensor: unique conducting hydrogel matrix for urease immobilization- **Oral presentation** at 2nd International Conference on Agriculture, Food Technologies and Environment- New Approaches (AFTENA- 2013) organized by Krishi Sanskriti at Jawaharlal Nehru University (J.N.U), New Delhi-110067, India, on October 19-20, 2013.

- **Das J** and Sarkar P. Low cost test kit for rapid arsenic detection in ground water- **Poster presentation** at 15th Year Celebration of Patent Information Centre Intellectual Property Rights Congress' jointly organized by Patent Facilitating Centre (PFC) Technology Information, Forecasting & Assessment Council (TIFAQ) & Patent Information Centre (PIC) West Bengal State Council of Science & Technology (WBSCST), DST-Govt WB. India, on September 25, 2013.
- **Das J**, Panda J and Sarkar P. Field test kit for arsenic in ground water- **Poster presentation** at National Conference of Sustainable Development through Innovative Research in Science and Technology', organized by DST PURSE Programme' at Jadavpur University, Kolkata, India, on September 28-29, 2012.
- **Das J**, Panda J and Sarkar P. Speciation of arsenic in drinking water- **Poster presentation** at International Conference on Chemistry for mankind ,innovative Ideas in Life Sciences organized jointly by Department of Chemistry, Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur ; Department of Chemistry, Institute of Science, Nagpur ; Department of Chemistry and Biotechnology, St.francis de sales' college, Nagpur, Indian Society of Chemists and Biologists, Lucknow, at Nagpur, India, on February 9-11, 2011.
- **Das J**, Panda J and Sarkar P. Detection of arsenate in drinking water by using molybdenum blue dip stick sensor- **Poster presentation** at the International Conference on frontiers in Biological Sciences (InCoFIBS-2010) organized by Department of Life sciences, National Institute of technology, at Rourkela, Odisha ,India, on October 1-3, 2010.
- National Conference on Sensors and Actuators: Science to Technology (NCSA-2011) organized jointly by Central Glass & Ceramic Research Institute and Sensor Hub, at Kolkata, India, on March 11-12, 2011- **Participation.**
- **Das J** and Rajamma U. Analysis of Tryptophan hydroxylase 1 gene (TPH1) Intron 7 A/C218 Polymorphism (rs1800532): A Genetic Association Study with Autism in the Indian Population- **Oral presentation** at Department of Biochemistry, University of Calcutta (In 3rd Semester of M.Sc).
- **Das J**. Solvent effects on fluorescence properties of protochlorophyll and its derivatives with various porphyrin side chains- **Oral presentation** at Department of Biochemistry, University of Calcutta (In 4th Semester of M.Sc).

Workshop participations:

- National Seminar on carbon capture and utilization technology organized by Calcutta Regional Centre, Indian institute of chemical engineers, Jadavpur University, Kolkata-70032, India on 24-25th February, 2017.
- Teqip-II sponsored five days under advanced pedagogy on “Recent advancement in energy harvesting and water treatment technologies” organized by Chemical engineering department of Jadavpur University, Kolkata- 70032, India, 13-17th June, 2016.
- 1stDST-CSIR Sensor Hub (Kolkata) workshop on ‘Smart Chemical and biosensors for the new millennium’ organized by CSIR-CGCRI, Kolkata, India, on August 21-25, 2012.

Research Interests:

I have immense interest in certain areas like Environmental Science, Electrochemistry, Bioelectrochemistry, Biochemistry, Biotechnology, Chemistry, Enzymology, Clinical Biochemistry, Microbiology, Nanotechnology, Nanobiotechnology etc. I like to expand my knowledge in any one of the fields in future if I have been given a chance to.

I hereby declare that the information given above is true to the best of my knowledge and belief.

Sincerely Yours,

JOYATI DAS
Kolkata