LIST OF PUBLICATIONS

In Referred Journals:

1. **Das, U.,** Biswas, R., and Mazumder, N. Elucidating thermal effects in plasmonic metal nanostructures: a tutorial review. *The European Physical Journal Plus*, 137(11): 1248, 2022. http://dx.doi.org/10.1140/epjp/s13360-022-03449-1

2. **Das, U.**, and Biswas, R. Unravelling optical properties and morphology of plasmonic gold nanoparticles synthesized via a novel green route. *Chemical Papers*, 77(6): 3485-3493, 2023. http://dx.doi.org/10.1007/s11696-023-02716-4

3. **Das, U.**, Hoque, R., and Biswas, R. Biosynthesized silver nanoparticles as an efficient colorimetric sensor towards detection of melamine. *Applied Physics A*, 129(5): 328, 2023. http://dx.doi.org/10.1007/s00339-023-06613-1

4. **Das, U.**, Daimari, N. K., Biswas, R., and Mazumder, N. Elucidating impact of solvent and pH in synthesizing silver nanoparticles via green and chemical route. *Discover Applied Sciences*, 6(6): 320, 2024. http://dx.doi.org/10.1007/s42452-024-06010-0

5. **Das, U.**, Saikia, S., and Biswas, R. Highly sensitive biofunctionalized nanostructures for paper-based colorimetric sensing of hydrogen peroxide in raw milk. *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy*, 316: 124290, 2024. http://dx.doi.org/10.1016/j.saa.2024.124290

6. **Das, U**., Biswas, R., and Mazumder, N. One-Pot Interference-Based Colorimetric Detection of Melamine in Raw Milk via Green Tea-Modified Silver Nanostructures. *ACS Omega*, 9 (20): 21879-21890, 2024. http://dx.doi.org/10.1021/acsomega.3c09516

7. **Das, U.**, Daimari, N.K., Islam, K., and Biswas, R. Copper Electrodes Modified with AuNPs Detect Two Hazardous Contaminants (As, Cd) in Raw Milk, *Recent Patents on Nontechnology*, 2024. http://dx.doi.org/10.2174/0118722105316267240807072122

8. **Das, U**., and Biswas, R. Developing and implementing a facile colorimetric method for detecting salicylic acid in raw milk via biogenic plasmonic nanostructures. *Measurement*, 242: 115818, 2025. http://dx.doi.org/10.1016/j.measurement.2024.115818

9. **Das, U**., Gayan, A., and Biswas, R. Highly sensitive facile plasmonic scheme for assessment of melamine in raw milk. *Analytical Methods*, 2025. http://dx.doi.org/10.1039/D4AY01764A

10. **Das, U.,** Biswas, R., & Mazumder, N. Quantifying Hydrogen Peroxide in Cattle Milk via a Novel Plasmonic Nanofilm. *ACS omega,* 10(21): 21786, 2025. https://doi.org/10.1021/acsomega.5c01585

Book Chapter:

Das, U., Mazumder, N., and Biswas, R. An Appraisal on Plasmonic Heating of Nanostructures. In Recent Advances in Plasmonic Probes: Theory and Practice. *Springer International Publishing*, 341-354, 2022. http://dx.doi.org/10.1007/978-3-030-99491-4_12

Das, U., and Daimari, N. K. Unveiling the Synergy of Nanocolorimetric and Plasmonic Based Techniques Towards Sensing of Food Adulterants. Optical Techniques for Assessing Food Adulterants, *Springer International Publishing*, 181-201, 2025. https://doi.org/10.1007/978-981-96-8142-6_10

Early-published Patent:

Biswas, R., **Das, U.**, Daimari, N.K., Neog, A., Borah, P., 2024. (*Indian Patent*), Application Number: 202331046391, Paper based system for simultaneous sensing of multiple adulterants and contaminants in raw milk.

In Conference Proceedings:

1. **Das, U**., and Biswas, R. Lab-on-paper chip sensor to detect melamine in adulterated milk by use of green noble metal nanoparticles. *International Conference on Advances in Physics and its applications (APA)*, 2022. ISBN: 978-93-91953-55-3

2. **Das, U**., and Biswas, R. Utilizing Biofunctionalized Plasmonic Silver Nanostructures for Sensing Mercury Ions in Raw Milk. In Frontiers in Optics (pp. JM7A-4). *Optica Publishing Group*, 2023. http://dx.doi.org/10.1364/FIO.2023.JM7A.4

3. Daimari, N. K., **Das, U**., Islam, K., and Biswas, R. Exploiting Gold Nanoparticle-Modified Copper Electrodes Towards Sensing of Prominent Heavy Metals in Aqueous Solution. In Frontiers in Optics (pp. FD1-3). *Optica Publishing Group,* 2023. http://dx.doi.org/10.1364/FIO.2023.FD1.3

4. Daimari, N. K., **Das, U.**, Bhattacharyya, P. P., and Biswas, R. Comparative Sizing of Silver and Gold Nanoparticles: Analysis with Microcontroller-Assisted Setup. In Frontiers in Optics (pp. JD4A-69). *Optica Publishing Group*, 2024.

LIST OF CONFERENCE PRESENTATIONS

1. **"Lab-on-paper chip sensor to detect melamine in adulterated milk by use of green noble metal nanoparticles"** in the **Second International Conference of Advances in Physics and its applications 2021 (APA-2021),** held virtually on November, 26th and 27th 2021, Duliajan College, Assam, India (Oral Presentation).

2. **"Green synthesis of noble metal nanostructures by Camellia sinensis, Pyrus Malus peel and Citrus Sinensis peel extracts"** in the **International Conference on Advanced Materials and Mechanical Characterization 2021 (ICAMMC-2021),** held virtually on December, 2nd to 4th 2021, Shri Ramaswamy Memorial Institute of Science and Technology (SRMIST), Tamil Nadu, India (Poster Presentation).

3. "**Investigation of optical properties and morphological study of plasmonic gold nanoparticles synthesised via a novel green route"** in the **National Conference on Physical Sciences-2022 (NCPS-2022),** held virtually on April, 29th to 30th 2022, DHSK College, Dibrugarh University and Manipur University, Assam, India (Poster Presentation).

4. **"Highly sensitive colorimetric detection of melamine in pure milk"** in the **International Conference on Sustainable Approaches in Food Engineering and Technology -2022 (SAFETY-2022)**, held virtually on October, 19th and 20th 2022, Tezpur University, Assam, India and Sultan Qaboos University, Oman, (Oral Presentation).

5. **"Biosynthesised nanoparticles as an efficient colorimetric sensor towards detection of melamine"** in the **30th National Conference on Condensed Matter Physics (CMDAYS-2022)**, held in December, 14th to 16th 2022, National Institute of Technology (NIT) Nagaland, Nagaland, India (Poster Presentation).

6. **"Highly optimized greener silver nanostructure for visual detection of melamine in milk"** in the **International Union of Materials Research Societies-International Conference in Asia – 2022 (IUMRS-ICA 2022)**, held in

December, 19th to 23rd 2022, Indian Institute of Technology (IIT) Jodhpur, Rajasthan, India (Poster Presentation).

7. **"Utilizing Biofunctionalized Plasmonic Silver Nanostructures for Sensing Mercury Ions in Raw Milk"** in the **International Conference Frontiers in Optics + Laser Science 2023 (FiO-LS 2023),** held in October, 9th to 11th 2023, OPTICA publishing group, Tacoma, USA (Poster Presentation).

8. **"Exploring biofunctionalized silver nanoparticles in a paper-based sensing framework for precise estimation of hydrogen peroxide content in milk"** in the **8th International Conference on Advanced Nanomaterials & Nanotechnology-2023 (ICANN-2023),** held in November 29th to December 1st, 2023, IIT Guwahati, Assam, India (Poster Presentation).

9. **"Cognizance of melamine presence in milk through plasmonic nanomaterial-enhanced analytical sensing architecture: A quantitative appraisal"** in the **14th International Conference on Advanced Materials Research-2024 (ICAMR-2024)**, held in January, 25th to 27th 2024, Phuket, Thailand (Oral Presentation).

10. "**Green Tea-Enhanced Silver Nanostructures for Colorimetric Sensing of Melamine in Raw Milk**" in the **4th International Conference on Material Science 2024 (ICMS-2024)**, held in 31st January to 2nd February, 2024, Tripura University, Tripura, India (Poster Presentation).

ACHIEVEMENTS

1. "**Second prize**" in National level and "**First prize**" in Zonal Level Student Research Convention "**ANVESHAN**" organised by Association of Indian Universities on the topic **"PAdCoM: Paper based microfluidic unit for sensing adulterant and Contaminant in Milk".**