

Dr. Alok Dutta

Designation: Assistant Professor (Chemistry)

Qualification: M.Sc. (1st class 2nd) from Assam University, Silchar.

Ph.D from National Institute of Technology, Durgapur.

Field of research: Synthesis of organic molecules and study their role as corrosion inhibitors by experimental and theoretical (DFT, Fukui, MD) methods.

Academic Experience:

9 years 4 months (From January, 2009 to till date) as an Assistant Professor, Chemistry department of Applied Sciences & Humanities, Durgapur Institute Of Advanced Technology & Management, (DIATM) since July, 2012. (The Engineering College is under MAKAUT & AICTE approved).

Research Interest: Preparation of environmental-friendly, cost effective, thermally stable organic inhibitors and application of these organic molecules as corrosion inhibitors for different metals (like mild steel, copper etc.) in different aggressive mediums (like HCl, H₂SO₄, NaOH etc.) by theoretical (DFT, MD, Fukui) and experimental methods.

Project work undertaken: “A Study on the Corrosion Inhibition Properties and Adsorption Characteristics of some Heterocyclic Bases on Metals” Submitted the project.

List of Publications:

1. “Effect of optimized structure and electronic properties of some benzimidazole derivatives on corrosion inhibition of mild steel in hydrochloric acid medium: Electrochemical and theoretical studies” **Dutta, A.**; Panja, S. S.; Nandi, M. M.; Sukul, D. *J. Chem. Sci.* **2015**, *127*, 921.
2. “Correlating electronic structure with corrosion inhibition potentiality of some bis-benzimidazole derivatives for mild steel in hydrochloric acid: Combined experimental and theoretical studies” **Dutta, A.**; Saha, S. S.; Banerjee, P.; Sukul, D. *Corros. Sci.* **2015**, *98*, 541.
3. “Evaluating corrosion inhibition property of some Schiff bases for mild steel in 1M HCl: competitive effect of heteroatom present and stereochemical configuration of the molecule” **Dutta, A.**; Saha, S. S.; Banerjee, P.; Patra, A.; Sukul, D. *RSC Adv.* **2016**, *6*, 74833.
4. “Effect of substitution on corrosion inhibition properties of 2-(substituted phenyl) benzimidazole derivatives on mild steel in 1 M HCl solution: a combined experimental and theoretical approach” **Dutta, A.**; Saha, S. S.; Banerjee, P.; Sukul, D. *Corros. Sci.* **2017**, *123*, 256.
5. “Adsorption and corrosion inhibition effect of Schiff base molecules on the mild steel surface in 1M HCl medium: a combined experimental and theoretical approach” Saha, S. S.; **Dutta, A.**; Ghosh, P.; Sukul, D.; Banerjee, P. *Phys. Chem. Chem. Phys.* **2015**, *17*, 5679.

6. "Novel Schiff base molecules as efficient anticorrosive materials on the mild steel surface in 1 M HCl medium: Experimental and theoretical approach" Saha, S. S.; **Dutta, A.**; Ghosh, P.; Sukul, D.; Banerjee, P. *Phys. Chem. Chem. Phys.* **2016**, *18*, 17898.
7. "Evaluating corrosion inhibition property of some 2-substituted phenyl benzothiazole derivatives for mild steel in 1 M HCl: Competitive effect of molecular structure of the molecules" **Dutta, A.**, (Communicated).

Conference proceeding papers:

1. **A. Dutta**, S.S Panja and D. Sukul, "Correlation Study between Structure and Corrosion inhibition efficiency of Benzimidazole derivatives" on *14th CRSI Symposium* in Trivandrum.
2. **A. Dutta**, S.S Panja, M. M Nandi and D. Sukul, "Corrosion inhibition of mild steel in hydrochloric acid by some benzimidazole derivatives: Correlation between structure and corrosion inhibition" on *16th National Congress on Corrosion Control* in Kolkata.
3. **A. Dutta**, S.S Panja and D. Sukul, "Effect of molecular structure on inhibitor properties of some benzimidazole derivatives on mild steel in 1 M HCl medium" on *1st National Seminar on Recent Trends in Applied Sciences and Humanities* in DIATM, Durgapur.
4. **A. Dutta**, S.S Panja and D. Sukul, "Effect of molecular structure on corrosion inhibition properties of 2-(substituted phenyl) benzimidazole derivatives on mild steel in 1 M HCl solution" on *16th CRSI Symposium* in IIT Mumbai.
5. **A. Dutta**, P. Roy, D. Sukul, "Corrosion inhibition of mild steel in acidic medium by polyacrylamide grafted Guar gum with various grafting percentage" on *National Seminar on Recent Trends in Chemistry* in NIT, Durgapur.
6. **A. Dutta**, S. S. Saha, P. Banerjee, D. Sukul, "Correlating electronic structure with corrosion inhibition potentiality of some bis-benzimidazole derivatives for mild steel in hydrochloric acid: Combined experimental and theoretical studies" on *2nd National Seminar on Recent Trends in Applied Sciences and Humanities* in DIATM, Durgapur.
7. **A. Dutta**, "Corrosion inhibition effect of some mannich base on mild steel surface in 1 M HCl medium" on *3rd National Seminar on Recent Trends in Applied Sciences and Humanities* in DIATM, Durgapur.