

**Name:** Dr. Ranjan Kumar Padhy, Head of the Department

**Designation:** Asst. Professor

**Contact:** [rkpadhi2001@gmail.com](mailto:rkpadhi2001@gmail.com), 8917598069 / 94384623591

**Administrative Assignments:**

Head of the Department, IQAC coordinator, R & D coordinator, Member in College Purchase committee, College Development Council etc.

**Research Domain:**

- Preparation, characterization and applicability studies of nanoparticles.
- Reaction Dynamics
- Surfactant Science
- Drug delivery and dissolution behavior
- Synthesis and evaluation of drug molecules

**Courses Taught:**

Molecular Spectroscopy, Applications of Spectroscopy, Analytical Chemistry at PG level and Physical & Inorganic Chemistry papers at UG level.

**Education:**

- ❖ PhD (2012) from Berhampur University under the guidance of Prof. (Mrs.) Sreelekha Das Bhattamisra.  
Title: “**Studies on the Kinetics and Mechanism of metal ion catalyzed redox reactions**”
- ❖ M. Phil from Berhampur University.
- ❖ M. Sc. in Analytical Chemistry from P.G. Department of Chemistry, Berhampur University.

**Membership in Professional Bodies:**

1. Affiliate Member, **Royal Society of Chemistry (RSC) ID-721370**
2. Life member, **Indian Society for Technical Education (ISTE) [LM 48582]**
3. Patron member, **Orissa Chemical Society (OCS) [PM/1047/10]**

**PG & UG Projects Guided:** 24

**Publication in Referred Journals:**

1. Sahu S, Nanda SP, **Padhy RK** (2023) Interfacial micro-heterogeneous surface phenomenon in the oxidative transformation of 2-phenylethanol by Ce(IV). Chem. Afr. DOI: [10.1007/s42250-023-00809-x](https://doi.org/10.1007/s42250-023-00809-x).

2. **Padhy RK**, Padhi AP, Patro R, Mahapatra B, Dash S, Sahu S (2023) Interfacial and surface adsorption phenomenon in the dissolution behavior of 8-hydroxy quinoline. Mater Today: Proc. <https://doi.org/10.1016/j.matpr.2023.08.374>.
3. **R K Padhy** and S Sahu, Editors: Zishan Husain Khan, Mark Jackson and Numan A. Salah (2023) Heterogeneous Oxidation of Alcohols Catalyzed by Titania Supported Palladium Nanoparticles in Aqueous Micellar Solution. Springer Proc. Mater., Vol. 28, Chapter-74, 517-528. [https://doi.org/10.1007/978-981-99-4685-3\\_74](https://doi.org/10.1007/978-981-99-4685-3_74).
4. Sahu S, **Padhy RK**, Nanda SP (2023) Interfacial catalytic influence of sodium lauryl sulphate in the oxidation of cyclic alcohols by Cr(VI). Mater Today: Proc. <https://doi.org/10.1016/j.matpr.2023.05.644>.
5. Sahu S, **Padhy RK**, Nanda SP (2023) Surfactant Catalyzed Electron Transfer Mechanism in the Oxidation of Racemic Tartaric Acid by Ce(IV). Mater Today: Proc 78:786-791. <https://doi.org/10.1016/j.matpr.2022.10.276>.
6. **Padhy RK**, Sahu S (2023) Oxidation of Iminodiethanol by Ce (IV) in microheterogeneous system: A comprehensive kinetic analysis. J Dispers Sci Technol. 44 (9):1584-1594. <https://doi.org/10.1080/01932691.2022.2026783>.
7. **Padhy RK**, Sahu S (2022) Oxidation of triethanolamine by ceric ammonium sulphate in aqueous sulphuric acid: Spectrophotometric kinetic and mechanistic study. Monatsh Chem 153 (1):69-78. <https://doi.org/10.1007/s00706-021-02874-9>.
8. **Padhy RK**, Sahu S (2021) Kinetic investigation of oxidation of alkanolamine by Cerium (IV) in acidic medium: Catalytic effect of Mn(II). J Chem Sci 133 (3):1-11. <https://doi.org/10.1007/s12039-021-01921-6>.
9. **Padhy RK**, Sahu S (2021) Zirconia Supported Rhodium Nano Materials: Catalytic Application in Selective Oxidation of Alcohols. Mater Today: Proc 47:2276-2280. <https://doi.org/10.1016/j.matpr.2021.04.204>.
10. **Padhy RK**, Bhattamisra SD (2021) Surfactant Catalyzed Oxidation of Ethanolamines by Ce(IV). Asian J Chem 33(1):21-25. <https://doi.org/10.14233/ajchem.2021.22907>.
11. Sahu S, **Padhy RK** (2018) Enhancement of bio-availability of pharmaceutically active acridone derivatives by inclusion complex formation with  $\beta$ -cyclodextrin as encapsulate. Asian J. Org. Med. Chem., 3(2): 45-49. DOI:10.14233/ajomc.2018.AJOMC-P123.
12. Bhattamishra SD, **Padhy RK** (2009) Estimation of Ibuprofen solubilization in cationic and anionic surfactant media: Application of micelle binding model. Ind J Chem Tech 16:426-430. <http://nopr.niscair.res.in/handle/123456789/6167>.

#### Conference Publication:

1. Interfacial and surface adsorption phenomenon in the dissolution behaviour of 8-hydroxy quinoline in 2<sup>nd</sup> International Conference on Advances in Mechanical Engineering and Material Science (**ICAMEMS-23**) at VIT-AP University, Amaravati during April 20-22, 2023.
2. Interfacial catalytic influence of Sodium lauryl sulphate in the oxidation of cyclic alcohols by Cr(VI) in International Conference on Advances in Smart Materials, Chemical & Biochemical Engineering (**CHEMSMART-22**) at NIR, Rourkela during December 16-18, 2022.
3. Heterogeneous Oxidation of Alcohols Catalyzed by Titania Supported Palladium Nanoparticles in Aqueous Micellar Solution in International Conference on Nanotechnology, Opportunities and Challenges (**ICNOC-2022**) at Jamia Milia Islamia University during November 28-29, 2022.
4. Oxidation of Mandelic Acid by Ce(IV): Sodium Lauryl Sulphate Catalyzed Electron Transfer Mechanism in Sustainable Technological Advancements in Chemical Industries -2022 (STAC-2022)-18<sup>th</sup> Annual Session Chemical Engineering Students Congress (**SCHEMCON 2022**) at NIT, Warangal and Indian Institute of Chemical Engineers, Hyderabad during September 23-24, 2022.

5. Surfactant catalyzed electron transfer mechanism in the oxidation of racemic tartaric acid by Ce(IV) in International Conference on Advanced Functional Materials: Future Perspectives (**AFMFP-2022**) at NIT, Jalandhar during August 6-8, 2022.
6. Solubilization of 8-hydroxyquinoline in surfactant medium in International Conference on Chemistry for Sustainable Development at Department of Chemistry, Central University of Jharkhand during July 2-4, 2021.
7. Zirconia Supported Rhodium Nano Materials: Catalytic Application in Selective Oxidation of Alcohols in International Conference on Materials and Systems Engineering (**ICMSE 2021**) at Department of Mechanical Engineering, SJB Institute of Technology, Bengaluru, Karnataka during May 7-8, 2021.
8. Effect of Surfactants on the Solubilization of Drug 8-hydroxyquinoline in Emerging Trends in Medicinal Chemistry (**ETMC- 2021**) at Department of Chemistry, SVNIT, Surat during March 18-19, 2021.
9. Surfactant mediated aerial oxidation of amino alcohols catalyzed by ZrO<sub>2</sub> supported Pt nano particles in International Conference on Novel Materials for Biomedical, Energy, Environment, Sensing and other Applications (**ICON-BEES-2021**) at Department of Physics, NIT, Tiruchirappalli during March 11-13, 2021.
10. Synthesis and Characterization of magnetic nanoparticles for biomedical applications in 6<sup>th</sup> International Conference on Nanoscience and Nanotechnology (**ICONN-2021**) at Department of Physics and Nanotechnology, SRM Institute of Science and Technology (SRMIST), India during February 1-3, 2021.
11. Titania supported Platinum nanoparticles for catalytic applications: Oxidation of Alcohols in International Conference on Molecules to Materials (**MTM – 2020**) at Department of Applied, Chemistry, S. V. NIT Surat, Gujarat, India during December 17-18, 2020.
12. Kinetic and mechanistic study of oxidation of cysteine in acid medium in 32nd Annual Conference of Orissa Chemical Society & National Seminar on Recent Advances in Functional Nano-Materials (**ACOCS-2018**) at Department of Chemistry NIST, Berhampur during December 23-24, 2018.
13. Kinetics and Mechanism of Mn (II) catalyzed oxidation of diethanolamine by Ce (IV) in aqueous and micellar medium in National Seminar on Recent Trends in Chemical Sciences and Technology at Department of Chemistry, Khallikote College, Berhampur during March 29-30, 2011.
14. Micellar effects on the complex formation reaction of Copper (II) with ciprofloxacin in National Seminar on Recent Trends in Chemical Sciences and Technology at Department of Chemistry, Khallikote College, Berhampur during March 29-30, 2011.
15. Mn (II) catalyzed oxidation of monoethanolamine by Ce (IV) in micellar and non-micellar media: A kinetic and mechanistic study in 24<sup>th</sup> Annual conference of Orissa Chemical Society at Department of Chemistry, Apex Institute of Technology & Management, Bhubaneswar during December 25-26, 2010.
16. Studies on Solubility of Ibuprofen in Micellar Media in Recent Trends in Chemical Sciences-2008 (**RETICS-2008**) at Department of chemistry, Sambalpur University during February 9-11, 2008.