

## Faculty Profile

**Name: Dr. Debadutta Das**

**Qualification: MSc, MPhil, PhD**

**Designation: Assistant Professor**

**Email Id: [debadutta.das@bjbcollege.in](mailto:debadutta.das@bjbcollege.in)  
[deba.chemistry@gmail.com](mailto:deba.chemistry@gmail.com)**



### **Area of interest:**

Physical Chemistry, Surface Chemistry, and Chemical Engineering

### **Area of research:**

Slurry stabilization, Adsorption, Surface Modification of Silk, Green Chemistry Technology, and Materials Science

### **Teaching Area:**

- UG: Physical chemistry
- Organic chemistry & Analytical chemistry
- PG: Physical chemistry

### **Total No. of Teaching Experience (Yrs):**

- UG:14years
- PG:1year

### **Research Supervision:**

- Completed(MPhil/PhD):

Name of the Student	Degree	University	Title of the Thesis	Date of Registration	Date of Submission	Date of Award of Degree
Mandakini Bihari	PhD	Centurion university of technology and management, BBSR, Odisha	Development of surfactant for high concentration iron ore water slurry	19-03-2019	07-08-2023	25.11.2023

- Ongoing(MPhil/PhD):

Name of the Student	Degree	University	Title of the Thesis	Date of Registration
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Bhagyashree Biswal	PhD	GIET University, Gunupur, Odisha	Surface modification of Muga silk cocoon using natural and natural-synthetic mixed surfactant	31.08.2021
Jharana Sahoo	PhD	GIET University, Gunupur, Odisha	Biosynthesis of ZnO nanoparticle and its application	15.03.2022
Pritijyostna Mohapatra	PhD	BPUT, Rourkela, Odisha	Development of natural and synthetic surfactant for stabilization of high concentration fly ash water slurry	10.07.2019

### Research Articles Published: (Total No. 42)

- 1) **Debadutta Das**, Amalendu Nayak, Bhagabata Nanda and Nalini B. Das, Microwave-assisted transformation of  $\alpha$ ,  $\beta$  unsaturated nitroalkene into carbonyl compounds. Journal of chemical research, 2006, 481-482, <https://doi.org/10.3184/030823406778256360>(IF- 1.097)
- 2) **Debadutta Das**, Sagarika Panigrahi, Amalendu Nayak and Pramila K. Misra. (2008), Effect of organized assemblies. Part-4: Formulation of highly concentrated coal-water slurry using a natural surfactant, Energy and Fuels, 22, 3, 1865–1872, <https://doi.org/10.1021/ef7006563>(IF- 4.654)
- 3) Pradipta K. Senapati, **Debadutta Das**, Amalendu Nayak & Pramila K. Mishra. (2008), Studies on Preparation of Coal Water Slurry Using a Natural Additive, Energy Sources, Part A: Recovery, Utilization, and Environmental Effects, 30:19, 1788-1796, <https://doi.org/10.1080/15567030701268484>(IF- 2.49)
- 4) **Debadutta Das**, Sagarika Panigrahi, Pradipta K. Senapati and Pramila K. Misra, Effect of organized assemblies. Part-5: Study on the Rheology and stabilization of a concentrated coal-water slurry using saponin of the Acacia Concinna plant, Energy and Fuels, 23, 6, 3217–3226, <https://doi.org/10.1021/ef800915y>(IF- 4.654)
- 5) **Debadutta Das**, Uma Dash, Amalendu Nayak, Pramila K. Misra, (2010), Surface engineering of flow rank Indian coals by starch-based Additives' for the formulation of concentrated coal-water slurry, Energy and Fuels, 24, 2, 1260–1268 <https://doi.org/10.1021/ef900921c>(IF-4.654)
- 6) **Debadutta Das**, Uma Dash, Jibardhan Meher, Pramila K. Misra. (2013), Improving stability of concentrated coal–water slurry using mixture of a natural and synthetic surfactants, Fuel Processing Technology, 113, 41-51, <https://doi.org/10.1016/j.fuproc.2013.02.021>(IF- 8.129)
- 7) Anupama Routray, **Debadutta Das**, Pankaj Kumar Parhi & Mamata Kumari Padhy. (2018), Characterization, stabilization, and study of mechanism of coal-water slurry using Sapindous Mukorossi as an additive, Energy Sources, Part A: Recovery,

Utilization, and Environmental Effects, 40:20, 2502-2509,  
<https://doi.org/10.1080/15567036.2018.1503755> (IF- 2.49)

- 8) Pankaj Kumar Parhi, Saroj Sekhar Behera, Ranjan Kumar Mohapatra, Tapas Ranjan Sahoo, **Debadutta Das**, Pramila Kumari Misra (2019) Separation and recovery of Sc(III) from Mg–Sc alloy scrap solution through hollow fiber supported liquid membrane (HFLM) process supported by Bi-functional ionic liquid as carrier, Separation Science and Technology, 54:9, 1478-1488, <https://doi.org/10.1080/01496395.2018.1520730> (IF- 2.475)
- 9) Anupama Routray, Pradipta Kumar Senapati, Mamata Padhy, **Debadutta Das**. (2019), Effect of mixture of natural and synthetic surfactant and particle size distribution for stabilized high-concentrated coal water slurry, International Journal of Coal Preparation and Utilization, International journal of coal preparation and utilization, <https://doi.org/10.1080/19392699.2019.1592166> (IF- 2.697)
- 10) Marei M. El-ajaily, Ashish K. Sarangi, Ranjan K. Mohapatra, Saffa S. Hassan, Rehab N. Eldaghare, Pranab K. Mohapatra, Mukesh K. Raval, **Debadutta Das**, Ahmed Mahal, Amira Cipurkovic, Taghreed H. Al-Noor, (2019), Chemistry Select, 4, 34, <https://doi.org/10.1002/slct.201902306> (IF- 2.109)
- 11) Anupama Routray, Pradipta K. Senapati, Mamata Padhy, **Debadutta Das**, Ranjan K. Mohapatra (2019) Effect of mixture of a non-ionic and a cationic surfactant for preparation of stabilized high concentration coal water slurry, International Journal of Coal Preparation and Utilization, <https://doi.org/10.1080/19392699.2019.1674843> (IF- 2.697)
- 12) **Debadutta Das**, Swetashree Pattanaik, Pankaj Kumar Parhi, Ranjan Kumar Mohapatra, Rajesh Kumar Jyothi, Jin-Young Lee, and Hong In Kim, (2019), Stabilization and Rheological Behavior of Fly Ash–Water Slurry Using a Natural Dispersant in Pipeline Transportation, ACS Omega, 4, 25, 21604–21611, <https://doi.org/10.1021/acsomega.9b03477> (IF-4.132)
- 13) Jibardhan Meher, **Debadutta Das**, Akshaya K. Samal, Pramila K. Misra, (2019), Role of Maceral Composition on the Formulation of Concentrated Coal-Water Slurry Using a Natural Surfactant, Materials Today: Proceedings, 9, Part 3, 542-550, <https://doi.org/10.1016/j.matpr.2018.10.374> (Cite Score- 1.8)
- 14) Swetashree Pattanaik, Pankaj Kumar Parhi, **Debadutta Das**, Akshaya Kumar Samal, (2019), Acacia concinna: A natural dispersant for stabilization and transportation of fly ash-water slurry, Journal of the Taiwan Institute of Chemical Engineers, 99, 193-200, <https://doi.org/10.1016/j.jtice.2019.03.020> (IF- 5.876)
- 15) Ranjan K. Mohapatra, Pradeep K. Das, Manoj K. Pradhan, Marei M. El-Ajaily, **Debadutta Das**, Halima F. Salem, Umakanta Mahanta, Gouranga Badhei, Pankaj K. Parhi, Abdussalam A. Maihub & Md. Kudrat -E-Zahan. (2019), Recent Advances in Urea- and Thiourea-Based Metal Complexes: Biological, Sensor, Optical, and Corrosion Inhibition Studies, Comments on Inorganic Chemistry, 39:3, 127-187,

<https://doi.org/10.1080/02603594.2019.1594204>(IF- 4.533)

- 16) **Debadutta Das**, Anupama Routray, Swetashree Pattanaik, Pankaj Kumar Parhi, Bijnyan Ranjan Das. (2020), Effect of particle size distribution and selective alcohol additives for preparation of high concentration coal-water slurry, *Micro and Nanosystem*, 12, 2, 102-111, <https://doi.org/10.2174/1876402912666191010142942> (IF- 0.636)
- 17) Ranjan Kumar Bhuyan, Ranjan Kumar Mohapatra, Ganeswar Nath, Basanta Kumar Sahoo, **Debadutta Das**, D. Pamu, (2020), Influence of high-energy ball milling on structural, microstructural, and optical properties of Mg<sub>2</sub>TiO<sub>4</sub> nanoparticles. *J Mater Sci: Mater Electron* **31**, 628–636, <https://doi.org/10.1007/s10854-019-02568-3> (IF- 2.478)
- 18) Ashish Kumar Sarangi, Bipin Bihari Mahapatra, Ranjan Kumar Mohapatra, Sisir Kumar Sethy, **Debadutta Das**, Lucia Pintilie, Md. Kudrat-E-Zahan, Mohammad Azam, Hemanta Meher, (2020) Synthesis and characterization of some binuclear metal complexes with a pentadentate azodye ligand: An experimental and theoretical study, *Applied organometallic chemistry*, 34, 8, <https://doi.org/10.1002/aoc.5693> (IF- 4.105)
- 19) **Debadutta Das**, Ranjan K. Mohapatra, Pankaj K. Parhi, Ashish K. Sarangi, Raghava Sahu, and Soumya R. Barik, Sustainable and Efficient Route for the Regeneration of Carbonyl Compounds from Oximes Using Aqueous Extract of *Sapindus laurifolia* under Microwave Radiation, (2020), *ACS Omega* **5**, 13, 7716–7721, <https://doi.org/10.1021/acsomega.0c00774> (IF-4.132)
- 20) **Debadutta Das**, Ranjan K. Mohapatra, Hamza Belbsir, Anupama Routray, Pankaj K. Parhi, Khalil El-Hami, (2020), Combined effect of natural dispersant and a stabilizer in formulation of high concentration coal water slurry: Experimental and rheological modeling, *Journal of Molecular Liquids*, 320, 114441, <https://doi.org/10.1016/j.molliq.2020.114441> (IF- 6.165)
- 21) **Debadutta Das**, Ashish K. Sarangi, Ranjan K. Mohapatra, Pankaj K. Parhi, Ahmed Mahal, Raghava Sahu, Md. Kudrat-E-Zahan, (2020), Aqueous extract of Shikakai; a green solvent for deoximation reaction: Mechanistic approach from experimental to theoretical, *Journal of Molecular Liquids*, 309, 113133, <https://doi.org/10.1016/j.molliq.2020.113133> (IF- 6.633)
- 22) Najla M. El-Barasi, Miloud M. Miloud, Marei M. El-ajaily, Ranjan K. Mohapatra, Ashish K. Sarangi, **Debadutta Das**, Ahmed Mahal, Pankaj K. Parhi, Lucia Pintilie, Soumya R. Barik, Md. NurAmin Bitu, Md. Kudrat-E-Zahan, Zishan Tabassum, Saud I. Al-Resayes, Mohammad Azam, (2020), Synthesis, structural investigations and antimicrobial studies of hydrazone based ternary complexes with Cr(III), Fe(III) and La(III) ions, *Journal of Saudi Chemical Society*, 24, 6, 492-503, <https://doi.org/10.1016/j.jscs.2020.04.005> (IF-4.712)
- 23) S.S. Behera, Subhendu K. Panda, **D. Das**, R.K. Mohapatra, H.I. Kim, J.Y. Lee, R.K.

- Jyothi, P.K. Parh. (2020), Microwave assisted leaching investigation for the extraction of copper(II) and chromium(III) from spent catalyst, Separation and Purification Technology, 244, 116842, <https://doi.org/10.1016/j.seppur.2020.116842> (IF- 7.312)
- 24) Ranjan K. Mohapatra, Lucia Pintilie, Venkataramana Kandi, Ashish K. Sarangi, **Debadutta Das**, Raghava Sahu, Lina Perekhoda. (2020), The recent challenges of highly contagious COVID-19, causing respiratory infections: Symptoms, diagnosis, transmission, possible vaccines, animal models, and immunotherapy, Chemical Biology and Drug design, <https://doi.org/10.1111/cbdd.13761> (IF- 2.215)
- 25) Raghava Sahu, Ranjan K. Mohapatra, Saud I. Al-Resayes, **Debadutta Das**, Pankaj K. Parhi, Shakilur Rahman, Lucia Pintilie, Manjeet Kumar, Mohammad Azam, Azaj Ansari. (2021), An efficient synthesis towards the core of Crinipellin: TD-DFT and docking studies, Journal of Saudi Chemical Society, 25-2, 101193, <https://doi.org/10.1016/j.jscs.2020.101193> (IF-3.932)
- 26) Shaswat Kumar Das, Jyotirmoy Mishra, Syed Mohammed Mustakim, Adeyemi Adesina, Cyriaque Rodrigue Kaze & **Debadutta Das** (2021) Sustainable utilization of ultrafine rice husk ash in alkali activated concrete: Characterization and performance evaluation, Journal of Sustainable Cement-Based Materials, DOI: 10.1080/21650373.2021.1894265 <https://doi.org/10.1080/21650373.2021.1894265> (IF-4.429)
- 27) Ahmed Mahal, Meitao Duan, Dhafer S. Zinad, Ranjan K. Mohapatra, Ahmad J. Obaidullah, Xiaoyi Wei, Manoj K. Pradhan, **Debadutta Das**, Venkataramana Kandi, Hany S. Zinadjk and Quanhong Zhu. (2021), Recent progress in chemical approaches for the development of novel neuraminidase inhibitors, RSC Advances, 3, 1-37, <https://doi.org/10.1039/D0RA07283D> (IF- 4.038)
- 28) Umakanta Behera, Shaswat Kumar Das, Devi Prasad Mishra, Pankaj Kumar Parhi, and **Debadutta Das**, (2021) Sustainable Transportation, Leaching, Stabilization, and Disposal of Fly Ash Using a Mixture of Natural Surfactant and Sodium Silicate, ACS Omega, 6, 35, 22820–22830, <https://doi.org/10.1021/acsomega.1c03241> (IF- 4.132)
- 29) Umakanta Behera, Shaswat Kumar Das, Devi Prasad Mishra, Pankaj Kumar Parhi & **Debadutta Das**, (2021), Enhancing the rheology and leachability of fly ash slurry using natural – synthetic mixed surfactant system for hydraulic stowing in underground mines, International Journal of Coal Preparation and Utilization, <https://doi.org/10.1080/19392699.2021.1995374> (IF- 2.69)
- 30) **Debadutta Das**, Shaswat Kumar Das, Pankaj Kumar Parhi, Aritra Kumar Dan, Snehasish Mishra, Pramila K. Misra, (2021) Green strategies in formulating, stabilizing and pipeline transportation of coal water slurry in the framework of

- 31) Shaswat Kumar Das, Aritra Kumar Dan, Umakanta Behera, Ankit Kumar Tripathi, Mandakini Behari, **Debadutta Das**, Pankaj Kumar Parhi, (2021) A novel approach on leaching study for removal of toxic elements from thermal power plant-based fly ash using natural bio-surfactant, Case Studies in Chemical and Environmental Engineering, Volume 4, 100156, <https://doi.org/10.1016/j.cscee.2021.100156> (New Journal)
- 32) Mandakini Behari, A.M. Mohanty, **Debadutta Das**, (2022) influence of a plant-based surfactant on improving the stability of iron ore particles for dispersion and pipeline transportation. Powder Technology 407 (2022) 117620, <https://doi.org/10.1016/j.powtec.2022.117620>, (IF-5.64)
- 33) Bhagyashree Biswal, Aritra Kumar Dan, Atanu Sengupta, Manoja Das, Birendra Kumar Bindhani, **Debadutta Das** & Pankaj Kumar Parhi, Extraction of Silk Fibroin with Several Sericin Removal Processes and its Importance in Tissue Engineering: A Review. Journal of Polymers and the Environment (2022) 30:2222–2253, <https://doi.org/10.1007/s10924-022-02381-w>, (IF-4.705)
- 34) Mandakini Behari, **Debadutta Das**, and Ardhendu Mouli Mohanty Influence of Surfactant for Stabilization and Pipeline Transportation of Iron Ore Water Slurry: A Review. ACS Omega 2022, 7, 28708–28722, <https://doi.org/10.1021/acsomega.2c02534> (IF-4.132)
- 35) Kumar Dan, A., Biswal, B., Das, M., Parida, S., Kumar Parhi, P., **Das, D.**, 2022. Aqueous and chemical extraction of saponin of *Acacia concinna* (Willd.) Dc.: An effective Bio-surfactant solution to extract silk fibroin from muga silk cocoons. J. Mol. Liq. 360, 119547, <https://doi.org/10.1016/j.molliq.2022.119547> (IF- 6.633)
- 36) Soumik De, Aritra Kumar Dan, Raghava Sahu, **Debadutta Das**. Asymmetric Synthesis of Halocyclized Products by Using Various Catalysts: A State-of-the-Art Review. (2022), 32, European Journal of Organic Chemistry. <https://doi.org/10.1002/ejoc.202200817> (2.889)
- 37) Soumik De, Aritra Kumar Dan, Dr. Raghava Sahu, Dr. Sagarika Parida, **Dr. Debadutta Das**. Total Synthesis of Natural Products using Gold Catalysis, (2022), Chemistry an Asian journal, <https://doi.org/10.1002/asia.202200896> (IF- 4.839)
- 38) Mandakini Behari, Ardhendu Mouli Mohanty, **Debadutta Das**. Insights into the transport phenomena of iron ore particles by utilizing extracted Bio-surfactant from *Acacia concinna* (Willd.) Dc. Journal of Molecular Liquids, (2023), 382, 121974, <https://doi.org/10.1016/j.molliq.2023.121974> (IF- 6.633)
- 39) Bhagyashree Biswal, Aritra Kumar Dan, Mandakini Bihari, Manoja & Das, **Debadutta Das**. ORIGINAL PAPER; Self-Assembled Micellar Saponin from *Sapindus laurifolia*



Vahl.:Investigations on the Surfactant Activity on the Extraction of Fibroin from Silk Cocoons A Review .Journal of Polymers and the Environment (2022),<https://doi.org/10.1007/s10924-023-02861-7> (IF- 4.705 )

- 40) B M Murmu, S S Behera, A Ray , D Ghosh , **D Das** , B K Bindhani & PK Parhi, A review on adsorptive removal study of organic pollutant(s) using activated sorbents from waste contaminated water ,Indian Journal of Chemical Technology Vol. 30, September 2023, pp. 589-605 DOI: 10.56042/ijct.v30i5.5213
- 41) Swetashree Pattanaik, Umakanta Behera, **Debadutta Das**, Pramila Kumari Misra, Enhancing the Flowability of Crude Oil-Water Emulsions in Pipeline Transportation using Trigonella foenum-graecum Extract Journal of Macromolecular Science, Part B 2024-05-29 | journal-article DOI: 10.1080/00222348.2024.2359256 (IF- 1.2)
- 42) Soumik De, Mona Sunaydih Alsaedi, **Debadutta Das**, Mechanistic insight into the synergistic role of the dual-surfactant system as a green solvent for deoximation reaction: An experimental and computational analysis, Journal of Molecular Liquids Volume 400, Pages 124559, Publisher Elsevier, Publication date 2024/4/15 DOI: <https://doi.org/10.1016/j.molliq.2024.124559> (IF- 6.633)

#### **Books Chapters Published (Total 9)**

1. Pramila Kumari Misra and **Debadutta Das**, Fundamental and Applied Aspects of Developing Green Additives for the Stabilization of Coal-Water Slurry, In “Innovative Approach of Integrated Resource Management”, Edited by A. Rakshit et al, New Delhi Publisher, New Delhi (ISBN: 978-93-86453-09-9), First edition (2018), Chapter-26, PP: 187-198.
2. Pankaj Kumar Parhi, Saroj Sekhar Behera, Ranjan Kumar Mohapatra and **Debadutta Das**, Processing Technology For Treatment of Primary and Secondary Bearing Base Metal: Comprehensive Hydrometallurgical Approach Of Recovery Of Copper And Zinc In “Mineral processing ,Method, Application and Technology”, Edited by Jyoti Rajesh Kumar. Nova Science Publisher, America (ISBN: 978-1-53612-893-2), Chapter-6, PP: 141-214.
3. Pankaj Kumar Parhi, Saroj Sekhar Behera, **Debadutta Das**, Pramila Kumari Misra, Processing Technology for Extraction of Scandium(III) from Secondary Sources—A Comprehensive Approach, Abhilash, , & Akcil, A. (Eds.). (2019). Critical and Rare Earth Elements: Recovery from Secondary Resources (1st ed.). CRC Press. <https://doi.org/10.1201/9780429023545-4>
4. Pankaj Kumar Parhi, Saroj Sekhar Behera, Dindyal Mandal, **Debadutta Das**, Ranjan Kumar Mohapatra, (2020) Fundamental Principle and Practices of Solvent Extraction (SX) and Supported Liquid Membrane (SLM) Process for Extraction and Separation of Rare Earth Metal(s). In: Jyothi R. (eds) Rare-Earth Metal Recovery for Green Technologies. Springer, Cham. [https://doi.org/10.1007/978-3-030-38106-6\\_4](https://doi.org/10.1007/978-3-030-38106-6_4)

5. SarojSekharBehera,RanjanKumarMohapatra,**DebaduttaDas**,PankajKumarParhi(2020) Investigation on Extraction and Recovery of Rare Earth Elements from Secondary Solid Wastes. In: Jyothi R. (eds) Rare-Earth Metal Recovery for Green Technologies. Springer, Cham. [https://doi.org/10.1007/978-3-030-38106-6\\_6](https://doi.org/10.1007/978-3-030-38106-6_6)
6. Aritra Kumar Dan, Dipanjan Bhattacharjee, Saikat Ghosh, Saroj Sekhar Behera, Birendra Kumar Bindhani, **Debadutta Das**, Pankaj Kumar Parhi (2021), Prospective Utilization of Coal FlyAsh for MakingAdvanced Materials. In: Jyothi R.K., Parhi P.K. (eds) Clean Coal Technologies. Springer, Cham. [https://doi.org/10.1007/978-3-030-68502-7\\_20](https://doi.org/10.1007/978-3-030-68502-7_20).
7. Ranjan KumarMohapatra, Pradeep KumarDas, Dulal C. Kabiraz, **Debadutta Das**,Ajit Behera, Md. Kudrat-E-Zahan (2021),Generation, Transportation and Utilization of Indian Coal Ash. In: Jyothi R.K., Parhi P.K. (eds) Clean Coal Technologies. Springer, Cham. [https://doi.org/10.1007/978-3-030-68502-7\\_11](https://doi.org/10.1007/978-3-030-68502-7_11)
8. Saroj Sekhar Behera, Surendra Hansdah, **Debadutta Das**, Pankaj Kumar Parhi, Rajesh Kumar Jyothi (2021),Studies on Extraction of Heavy Metal (s) from Fly Ash through HydroprocessingApproach. In: Jyothi R.K., Parhi P.K. (eds) Clean Coal Technologies. Springer, Cham. [https://doi.org/10.1007/978-3-030-68502-7\\_12](https://doi.org/10.1007/978-3-030-68502-7_12)
9. ShaswatKumarDas,SubhabrataMishra, **DebaduttaDas**,SyedMohammedMustakim, Cyriaque Rodrigue Kaze (2021);Characterization and Utilization of Coal Ash for Synthesis of Building Materials. In: Jyothi R.K., Parhi P.K. (eds) Clean Coal Technologies. Springer, Cham. [https://doi.org/10.1007/978-3-030-68502-7\\_19](https://doi.org/10.1007/978-3-030-68502-7_19)

### Books Published:

- 1.Chemical Modification of Solid Surfaces by the Use of Additive, published onOctober 2021 :1st Edition:Publisher: Bentham Science Publishers Pte. Ltd. Singapore. ISBN: 978-981-5036-81-7

### Patents:

1. Indian Patent: Title of the Invention-A NATURAL ADDITIVE FOR THE STABILIZATION OF THE COAL-WATER SLURRY: Application No. 494/KOL/2015A,OfficejournalofIndianpatentJournal,Applicationfilingdate 05/05/2015, Patent office journal, Publication Date: 11/11/2016, page 73673.
2. WorldPatent:(WO2016178241):TitleoftheInvention:ANATURALADDITIVE FORTHESTABILISATIONOFCONCENTRATEDCOAL-WATERSLURRY, Publication No. WO/ 2016/178241 International Application No.: PCT/IN2016/000098 Publication Date10.11.2016, International Filing Date:15.04.2016.
3. Indian Patent: Title of the Invention: "REDUCTION OF VISCOSITY OF CRUDE



OIL-WATER EMULSION USING A NATURAL DISPERSANT, Application number 201731036767, Docket No. 28720, CBR No. 21736, Filing Date: 31.10.2017.

4. D. Das, P. K. Parhi, R. K. Mohapatra, S. N. Das, S. K. Mahanta and S. R. Barik, "DEGUMMING OF MUGA SILK BY NATURAL SURFACTANT", Docket No 42730, App. No. TEMP/E1/52182/2019-KOL, Ref. No. 201931049356.
5. German Patent. Title of the invention: "System zur Isolierung eines Biotensids aus den Früchten der Pflanze *Acacia concinna* (Willd.) dc. für den Transport von Eisenerz-Schlamm" (A system for isolating a biosurfactant from fruits of *Acacia concinna* (Willd.) Dc. plant for iron ore-slurry transportation); Inventors: Umakanta Behera, Manadagini Behari, Swetashree Pattnaik, Anupama Routray, Debadutta Das, Pramila Kumari Misra, Filing Date: October 21, 2023, Reference number: 2023102115203700DE; Application number: 20 2023 106 107.9
6. German Patent. Title of the invention: "System zur Gewinnung eines Biotensids aus der Pflanze *Sapindus laurifolia* vahl. für die Anwendung zur Entschleimung von Rohseide" (A system for obtaining a biosurfactant from *sapindus laurifolia* vahl. Plant for raw silk degumming application); Inventors: **Debadutta Das**, Aritra Kumar Dan, Aamna Bari, Swetashree Pattnaik, Jharana Sahoo, Bijnyan Ranjan Das, Pramila Kumari Misra, Filing Date: November 27, 2023, Reference number: 2023112712015200DE; Application number: 202023106991
7. South African patent. Title of the invention: A system for preparing fly ash water slurry (FAWS) using bio-additive solution from *Dioscorea* *Hispida*. Umakanta Behera, Swetashree Pattnaik, Barada Prasana Das, Niva Nayak, Tapan Panda, **Debadutta Das**, Pramila Kumari Misra Filing Date: March 11, 2024, Application number: **2024/02003**

Research Projects: NIL

Invited/Special Lectures/Resource Person or Presentations at Conferences/ Workshops:

1. Attended the Bangladesh Chemical Society conference, BCSC-2019, as Invited Speaker, which is organized at Rajshahi University, Bangladesh, during 9th to 10th November, 2019.
2. National Conference on Recent Advances in Material Science and Technology (RAMSAT-2019) jointly organised by Government of college of Engineering, Keonjhar and Institute of Chemical Technology, Mumbai, India. March, 30-31, 2019.
3. National seminar on coal and mineral processing technology (CMPT-2019) jointly organised by Department of mineral engineering, Government of college of Engineering, and Indian Institute of Minerals Engineers, Keonjhar, Odisha, India. January, 12-13, 2019.
4. 27th Regional conference of Odisha Chemical Society, Organized by. Dept. of Chemistry, Paradeep College, Paradeep, Odisha, India. 23rd September, 2018.
5. International Conference on Industrial Impact on Environment and Sustainable Development organised by Government of college of Engineering, Keonjhar and Odisha, India. April, 15-16, 2018.

6. International Conference of Recent Advances in Material Chemistry, organized by P.G Department of Chemistry, Utkal University, Vani Bhubaneswar, Odisha, India. Feb.24-26, 2017.
7. 30th annual conference of Odisha Chemical Society, Organized by. Dept of Chemistry, KIIT University, Bhubaneswar, Odisha, India. Dec. 24-25, 2016.
8. UGC Sponsored National Seminar On Environmental Impact Assessment And Human Health, Perspective, Approach And Future Direction During 28-29 September, 2016 organized by Mohan Subudhi College, Badamba, Cuttack, Odisha, India.
9. International conference on innovative application of chemistry in pharmacology and technology (IACPT) during 6th -8th Feb, 2015 organized by department of chemistry, Berhampur university, Odisha, India.
10. 28th annual conference of Odisha chemical society Dec 13-14, 2014. Organized by U.N College, Adaspur, Cuttack, Odisha, India. 27th annual conference of Orissa chemical society and national conference on "chemistry in the 21st century" 14-15 december, 2013 organized by MEMT, Balasore, Odisha, India.
11. International seminars on Minerals Processing Technology MPT- 2013. Institution of Minerals and Material Technology, CSIR, Bhubaneswar, India. Dec. 10-12, 2013.
12. Recent Trends in Chemical Science, organized by School of Chemistry, Sambalpur University, Jyoti Vihar, Burla, Odisha, India. Feb. 16-17, 2013.
13. 26th annual conference of Odisha chemical society and national seminar on Recent Trends in chemical science and technology. Nov 15-16, 2012. Organized by Ravenshaw University, Cuttack, Odisha.
14. India 26th annual conference of Odisha chemical society and national seminar on Recent Trends in chemical science and technology. Feb 8-9, 2012. Organized by Ravenshaw University, Cuttack, Odisha, India.
15. National seminar on E-waste management. Department of chemistry, Aul college, Aul, Kendrapara, Odisha, India. October, 2012.
16. Recent Trends in Chemical Science, organized by School of Chemistry, Sambalpur University, Jyoti Vihar, Burla, Odisha, India. Feb. 19-21, 2011.
17. International seminars on Minerals Processing Technology MPT- 2009. Institution of Minerals and Material Technology, CSIR, Bhubaneswar, India. Oct. 28-30, 2009.
18. 23rd annual conference of Odisha chemical society and national seminar on Recent Trends in chemical science and technology. Dec. 19-20, 2009. Organized by National Institute of Technology, Rourkela, Odisha, India.
19. 19th annual conference of Odisha chemical society, Organized by. School of Chemistry, Sambalpur University, Jyoti Vihar, Burla, Odisha, India. Dec. 23-24, 2005.

#### Awards and Distinctions:

- Qualified Joint CSIR-UGC NET (Lectureship), June 2002
- Qualified GATE with 91.69 percentile (All India Rank 239), 2003

#### Association with Professional Bodies:

- Odisha chemical society