

## CURRICULUM VITAE

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**3. Institution:** Jadavpur University

**4. Gender (M/F):** M



**5. Academic Qualification (Undergraduate Onwards)**

S. No.	Degree	Year	Subject	University/Institution	Class/Division
1.	BE	2005	Chemical Engineering	Jadavpur University	First Class
2.	ME	2007	Chemical Engineering	Jadavpur University	First Class
3.	Ph.D	2012	Chemical Engineering	Indian Institute of Technology Delhi	First Class (Ph.D Course work)

**6. Ph.D thesis title, Institute/Organization/University**

**Ph.D Thesis Title:** Catalytic Wet Air Oxidation of Oxalic Acid over Ceria Promoted Pt/Al<sub>2</sub>O<sub>3</sub> Catalyst

**Institute:** Indian Institute of Technology Delhi

**7. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received**

S. No.	Name of Award	Awarding Agency	Year
1.	GATE Scholarship for ME course	MHRD	2005-2007
2.	Institute Scholarship for Ph.D research	IIT-Delhi	2007-2011
3.	Postdoctoral Fellowship	Washington University in St Louis, MO, USA	2013
4.	UGC Raman Postdoctoral Fellowship at Rutgers University, NJ, USA	University Grant Commission, Govt. of India	2016-2017
5.	Chemical Weekly Award for the Best Paper published in the Indian Chemical Engineer journal in its issues for 2018	IICHe	2019
6.	IICHe NRC Award Best Paper in Indian Chemical Engineer journal 2018	IICHe	2019
7.	Kuloor Memorial Award for the Best Technical Paper published in the Indian Chemical Engineer journal in its issues for 2018	IICHe	2019

**8. Publications (List of papers published in SCI Journals, in year wise descending order)**

S. No.	Author(s)	Title	Name of Journal	Vol.	Page	Year	Journal Since
1.	Barman, P.; Basu, A.K.; *Roy, S.	Performance of mesoporous ceria supported Pt catalysts for oxidative degradation of aqueous solution of toxic phenol in a continuous fixed bed reactor: Optimization of reaction conditions, kinetics, catalyst stability, and characterization	Industrial & Engineering Chemistry Research [ACS, IF: 4.326]	62	20945-20957	2023	1909
2.	Nag, S.; *Roy, S.	La-doped LiMnPO <sub>4</sub> /C Cathode Material for Lithium-ion Battery	Chemical Engineering Science [Elsevier, IF: 4.889]	272	118600	2023	1951
3.	*Roy, S.; Chundawat,	Ionic Liquid-Based Pretreatment of Lignocellulosic Biomass for	BioEnergy Research [Springer, IF: 3.852]	16	263–278	2023	2008

	SPS.	Bioconversion: a Critical Review					
4.	<b>*Roy, S.;</b> Mondal, D.	Kinetics study of catalytic wet oxidation of phenol over novel ceria promoted mesoporous silica supported Ru-Fe <sub>3</sub> O <sub>4</sub> catalyst	Chemical Engineering Research and Design [Elsevier, IF: 4.119]	182	120-132	<b>2022</b>	1983
5.	<b>*Roy, S.</b> et al.	Selective CO <sub>2</sub> reduction to methane catalyzed by mesoporous Ru-Fe <sub>3</sub> O <sub>4</sub> /CeOx-SiO <sub>2</sub> in a fixed bed flow reactor.	Molecular Catalysis [Elsevier, IF: 5.089]	528	112486	<b>2022</b>	1995
6.	<b>*Roy, S.;</b> Mondal, D.	Parametric Optimization and Kinetics Study of Effective Removal of Methylene Blue by Citric Acid Modified Arjun Bark Powder	Biomass Conversion and Biorefinery [Springer, IF: 4.050]	DOI: 10.1007/s13399-022-02590-2	-	<b>2022</b>	2011
7.	Nag, S.;	Enhancement of Li <sup>+</sup> ion kinetics in boehmite nanofiber coated polypropylene separator in LiFePO <sub>4</sub> cells	Journal of Solid State Chemistry [Elsevier, IF: 3.656]	312	123214	<b>2022</b>	1969
8.	Chatterjee, S.;	Transformation of Wurtzite ZnO to a New Triclinic Nanoporous ZnO Phase via Hydrothermal Treatment with Metformin for Designing Proton Conducting Material	Chemistry - An Asian Journal [Wiley, IF: 4.839]	16	2261-2266	<b>2021</b>	2006
9.	Chundawat, S.P.S.;	Ammonia-salt solvent promotes cellulosic biomass deconstruction under ambient pretreatment conditions to enable rapid soluble sugar production at ultra-low enzyme loadings	Green Chemistry [Royal Society of Chemistry, IF: 11.034]	22	204-218	<b>2020</b>	1999
10.	Das, A.;	Kinetic Study of Biogas Recovery from Thermo-chemically Pre-treated Rice Husk	Indian Chemical Engineer [Taylor & Francis, IF: 1.09]	3	297-313	<b>2018</b>	1959
11.	Mondal, D.K.;	Catalytic wet air oxidation of aqueous solution of phenol in a fixed bed reactor over Ru catalysts supported on ceria promoted MCM-41	RSC Advances [Royal Society of Chemistry, IF: 4.036]	6	114383 – 114395	<b>2016</b>	2011
12.	Das, A.;	Pretreatment Methods of Lignocellulosic Biomass: A Review	Journal of Engineering Science and Technology Review [UGC approved journal; Sr. No.: 20360; IF: 0.846]	8	141 -165	<b>2015</b>	2008
13.	<b>*Roy, S.;</b> Saroha, A.K.	Ceria Promoted $\gamma$ -Al <sub>2</sub> O <sub>3</sub> Supported Platinum Catalyst for Catalytic Wet Air Oxidation of Oxalic Acid: Kinetics and Catalyst Deactivation	RSC Advances [Royal Society of Chemistry, IF: 4.036]	4	56838-56847	<b>2014</b>	2011
14.	<b>*Roy, S.;</b> Newalkar, B.L.;	Vanadium Substituted SBA-15 Supported Bimetallic Pt, Pd Catalysts for Hydrogenation of Toluene to Methylcyclohexane	The Canadian Journal of Chemical Engineering [Wiley, IF: 2.5]	92	1034-1040	<b>2014</b>	1958
15.	<b>*Roy, S.;</b> Datta, S.	Hydrogenation of Toluene on Zirconium-Modified Hexagonal Molecular Sieve Supported Platinum and Palladium Catalysts	Industrial & Engineering Chemistry Research [ACS, IF: 4.326]	52	1760-1768	<b>2013</b>	1909
16.	<b>Roy, S.;</b> Saroha, A.K.	Catalytic Wet Air Oxidation of Oxalic Acid Using Ceria-promoted Pt/Al <sub>2</sub> O <sub>3</sub>	Indian Chemical Engineering	53	136-151	<b>2011</b>	1959

			[Taylor & Francis, IF: 1.09]				
17.	*Roy, S.; Vashishtha, M.; Saroha, A. K.	Catalytic Wet Air Oxidation of Oxalic Acid using Platinum Catalysts in Bubble Column Reactor: A Review	Journal of Engineering Science and Technology Review [UGC approved journal; Sr. No.: 20360; IF:0.846]	3	95-107	2010	2008

### 9. Detail of patents

S. No.	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1.	Gamma Radiation Composite and its Preparation thereof.	Mondal, S.; Roy, D.; Roy, S.; Mukhopadhyay, K.; Prasad, N.E.	347680	December, 2020	DMSRDE, DRDO, India	Granted (2020)
2.	Preparation of Bifunctional Ru-Fe/CeO <sub>2</sub> -SBA-15 Catalyst for the Production of Hydrocarbon Fuels from Industrial Effluents	Roy, S.; Mondal, S.; Roy, D.; Prasad, N.E.	Application No.: 202211020754	-	DMSRDE, DRDO, India	Filed (2022)

### 10. Books/Reports/Chapters/General articles etc.

S. No.	Title	Author's Name	Publisher	Year of Publication	Books/Chapter/Reports/General articles
1.	Pretreatment Methods of Lignocellulosic Biomass for Biofuel Production	*Roy, S.	CRC Press(Taylor & Francis) ISBN 9781032066929	2021	Book
2.	Study on Metal Catalysts for Liquid Phase Hydrogenation of Aromatic Compounds in Diesel Fuel	*Roy, S.	NOVA Science Publishers ISBN: 978-1-53616-713-9	2019	Book
3.	Green Diesel Production from Catalytic	*Roy, S.	LAP Lambert Academic Publishing ISBN:978-620-0-30764-4	2019	Book
4.	Cellulose Dissolution with Ionic Liquids for Biofuel Production	*Roy, S.	LAP Lambert Academic Publishing ISBN: 9786200102454	2019	Book
5.	Bioeconomic and Policy Aspects of Future Sustainable Biofuel Production	*Roy, S.	NOVA Science Publishers ISBN: 978-1-53616-136-6	2019	Book
6.	Catalytic Wet Air Oxidation of Oxalic Acid.	*Roy, S.; Saroha, A.K.	LAP Lambert Academic Publishing ISBN:978-3-659-55243-4	2014	Book

### 11. Ph.D student's guidance

S. No.	Name	Thesis Titles	Status	Year
1.	Dilip Kumar Mondal [B.Sc (Hons) in Chemistry (CU); BE (JU); M.Tech (IIT-Guwahati); GATE]	Development of silica mesoporous material supported Ru catalyst for oxidation of phenol	Complete	2021
2.	Aritra Das [B.Tech, Gold Medalist (WBUT); ME Gold Medalist (JU); DST INSPIRE Fellow]	A novel approach to biomethane synthesis after pretreatment of agricultural wastes through catalytic anaerobic digestion	Complete	2022
3.	Sourav Nag [B.Tech (CU); GATE]	Studies on high voltage cathode materials for advanced lithium ion battery	Complete	2023
4.	Puspendu Barman [BE (JU); ME (JU); GATE]	Removal of Toxic Carboxylic Acid in Industrial Effluent by Advanced Oxidation Method	Ongoing	2022
5.	Anima Das [BE (NIT-Durgapur); ME (JU)]	Degradation of Toxic Organic Pollutants from Industrial Effluents by Catalytic Wet Oxidation Method	Ongoing	2023
6.	Abhishek Siuli	Development of Noble Metal Catalysts for	Ongoing	2023

	[B.Tech (WBUT); M.Tech (WBUT); GATE]	Hydrogenation of Aromatics		
7.	Avik Kr Basu [B.Sc (Hons) in Physics (JU); M.Sc in Physics (JU); NET]	Development of Mesoporous Materials for Abatement of Toxic Pollutants in Industrial Effluent	Ongoing	2023

### 12. PG (ME/M.Tech/MS) student's guidance

S. No.	Name of Student	Title of the ME topic	Year of passing
1.	Sneha Eshore	Cellulosic Biomass pretreatment	2017
2.	Mekhala Mitra	Removal of highly toxic organic compounds from industrial effluent using advance oxidation method.	2020
3.	Monidipa Bose	Advance pretreatment of lignocellulosic agricultural residues for biofuel production.	2020
4.	Rupam Das	Waste water treatment by advance oxidation method	2021
5.	Ishita Saha	Novel pretreatment method for biofuel production	2022

### 13. Research project under implementation

S. No.	Title	Cost (Lakh)	Duration	Role as PI/Co-PI	Status	Agency
1.	Development of Lanthanum-Based Novel Catalyst for Hydrogen Production by Steam Reforming of Ethanol and Study Its Structure-Activity Insights	30.00	2023 to 2026	PI	Ongoing	SERB, DST

### 14. Research project completed

S. No.	Title	Cost (Lakh)	Duration	PI and Co-PI Name	Role (PI/Co-PI)	Status
1.	Sustainable production of platform chemicals and fuel additives from lignocellulosic agro-industry wastes.	14.98	April, 2019 to March, 2022	Prof. Rajat Chakraborty and Dr. Shyamal Roy	Co-PI	Complete
2.	Catalytic Wet Air Oxidation of Toxic Organic Waste in Industrial Effluent and Catalyst Deactivation Study.	8.00	March, 2019 to March, 2020	Dr. Shyamal Roy	PI	Complete
3.	Development of Novel Multi-functional Hybrid Materials for Applications in Sustainable Catalytic Conversions and Energy Storage Devices.	7.184	March, 2019 to March, 2020	Dr. Shyamal Roy	PI	Complete
4.	Development of ruthenium catalyst for catalytic wet air oxidation of phenol.	0.5	April, 2015 to July, 2016	Dr. Shyamal Roy	PI	Complete

### 15. International conference

- [1] Mekhala Mitra and Shyamal Roy, Treatment of industrial wastewater by catalytic wet air oxidation on alumina supported platinum catalyst. ICESD 2020. Jadavpur University, Kolkata-700032, India, 14-15th February, 2020.
- [2] Monidipa Bose, Dilip Kumar Mondal, Shyamal Roy, Deconstruction of crystalline cellulose using ammonia and ammonia salt pretreatment method for biofuel production. International seminar on Sustainable 2-G Biorefinery Platforms (Sponsor: RUSA-2.0), Chemical Engg. Department, 10-12th December, 2019. Jadavpur University.
- [3] Monidipa Bose, Shyamal Roy, Comparative Study for Pretreatment of Lignocellulosic Biomass using Inorganic Salt. The 9th International Conference on Sustainable Waste Management towards Circular Economy, KIIT University, Bhubaneswar, India, 27th-30th November, 2019.
- [4] Mondal, D.; Roy, S. Biosorption of Methylene Blue Using Citric Acid Modified Arjun Bark Powder. AIChE Annual Meeting 2019, Orlando, Florida, USA, Conference proceeding Paper Number: 6ji.
- [5] Roy, S.; Mondal, D.K.; Ghosh, S.; Chatterjee, S.; Ranjan, P.; Kumar, P. Heterogeneous Catalysts Development for Benzene Saturation in Diesel. AIChE Annual Meeting 2018, Pittsburg, PA, USA, Conference proceeding Paper No.: 144940, pp. 125-143.
- [6] Mondal, D.K.; Mondal, C.; \*Roy, S. How pH affects the metal dispersion on silica-HMS, MCM-41 and SBA-15 Supports.

- AIChE Annual Meeting 2017, Minneapolis, Minnesota, USA, Conference proceeding Paper Number: 582bt, pp. 703-710.
- [7] Roy, S.; Mondal, D.K.; Mondal, C. Kinetic Study for Hydrogenation of Toluene to Methylcyclohexane over Titanium Substituted SBA-15 Supported Pt-Pd Catalysts. AIChE Annual Meeting 2016, San Francisco, CA, USA Conference proceeding Paper Number: 476691, pp. 760-774.
- [8] Roy, S.; Saroha, A.K. Catalytic Wet Air Oxidation of Oxalic Acid. CHEMCON-2009, Andhra University, Vishakhapatnam, 27th-30th December, 2009.
- [9] Roy, S.; Vashistha, M.; Saroha, A.K. Catalytic Wet Air Oxidation of Oxalic Acid in Bubble Column Reactor. International Conference on Emerging Technologies in Environmental Science & Engineering, ICETESE-2009, Aligarh Muslim University, Aligarh, India, 26th-28th October, 2009.
- [10] Roy, S.; Saroha, A.K. Wet Air Oxidation of Oxalic Acid. International Conference on Water, Environment, Energy and Society, SRK-ISA-RC-24, SRK College, Firozabad, India, 28th-30th June, 2009.
- [11] Roy, S.; Saroha, A.K.; Pant, K.K. Kinetic Study of Catalytic Wet Air Oxidation of Oxalic Acid at Atmospheric Pressure. International Conference on Energy and Environment, Enviroenergy-2009, Taj Chandigarh, NIT-Kurukshetra, 19th-21st March, 2009.

## 16. National conference

- [1] Roy, S.; Saroha, A.K. Catalytic Wet Air Oxidation of Aqueous Oxalic Acid Solutions over Ceria Promoted Pt/Al<sub>2</sub>O<sub>3</sub> Catalyst: Kinetics and Catalyst Deactivation. CHEMCON-2012, NIT-Jalandhar, Punjab, 27th-30th December, 2012.
- [2] Roy, S.; Newalkar B. L. Hydrogenation of Toluene on Zr-modified HMS Supported Pt, Pd Catalysts. CHEMCON-2012, NIT-Jalandhar, Punjab, 27th-30th December, 2012.
- [3] Roy, S.; Saroha, A.K. Kinetic Study of CWAO of Oxalic Acid in a Bubble Column Reactor. SCHEMCON-2009, IIT-Roorke, 19th-20th September, 2009.
- [4] Roy, S.; Saroha, A.K. Kinetic Study of Catalytic Wet Air Oxidation of Oxalic Acid at Atmospheric Pressure. CHEMFERNECE-2009, IIT-Madras, 22th -23th August, 2009.
- [5] Roy, S.; Saroha, A.K. Catalytic Wet Air Oxidation of Oxalic Acid in a Bubble Column Reactor and Kinetic Study. National Conference on Recent Advances in Waste Management-2009, RAWM-2009, Dept. of Chem. Engg. & Technology, IIT-BHU, Varanasi, 20th-21th February, 2009.

## 17. Participated Short term Workshops/Course/Training

- [1] One day Webinar on “Clean Energy Technologies”, IIT-ISM Dhanbad, 18th September, 2021.
- [2] National Workshop on Solid Waste Management, Dept. of Chemical Engg., IIT-Delhi & Delhi S&T Cluster (DRIIV), July 30-31, 2021.
- [3] UGC Sponsored Faculty Induction Programme (Guru Dakshita), HRDC, Jadavpur University, 21st December 2020 to 28th January, 2021.
- [4] SERB DST Sponsored Online National Workshop on ‘Recent trends of pollution control strategies for waste water treatment’, Chemical Engg. Dept., Jadavpur University, 20th December, 2020.
- [5] UGC-SAP Sponsored national seminar on ‘Advances in Nanoscience and Nanotechnology Applications’ Chemical Engg. Dept., Jadavpur University, 10th January, 2020.
- [6] RUSA-2.0 Sponsored International Seminar on Sustainable 2-G Biorefinery Platforms, Chemical Engg. Dept., Jadavpur University, 10th -12th December, 2019. (& Assistant Convener)
- [7] DST, India sponsored International Workshop on ‘Hybrid Technologies for Conversion of Lignocellulosic Biomass to Biofuel’, Chemical Engineering Department, Jadavpur University, 11th -13th December, 2019.
- [8] AICTE-QIP Short Term Course on ‘Waste to Wealth- The Paradigm, Practice and Potential’ School of Environmental Science and Engineering, P.K. Sinha Centre for Bioenergy and Renewables IIT Kharagpur, 25-29 November, 2019.
- [9] TEQIP Short Term Course on ‘Heterogeneous Catalysis for Chemical Engineers’, Chemical Engineering Department, IIT Kharagpur, 10-14 December, 2018.
- [10] TEQIP-III Short Term Course on ‘Recent Refinery Practices’ Chemical Engineering Department, Jadavpur University, 4th -8th June, 2018.
- [11] UGC, INCP sponsored International Workshop on ‘Advanced Hybrid Separation Techniques in Industrial Wastewater Management’ Chemical Engineering Department, Jadavpur University in association with CHEMBridge, 8th -9th December, 2017.
- [12] UGC, under Indo-Norwegian Collaborative International workshop on ‘Colloid Chemistry in Produced Water Treatment’ Chemical Engg Dept., Jadavpur University, 16th-17th December, 2015.
- [13] Refresher course in the subject ‘Management for a Better Societal Environmental-A Socio Technical Approach’ Civil Engineering Department, Jadavpur University, 3rd July-24th July, 2015.
- [14] Workshop on Indian Innovations in Material Research: New Materials and Processes, CGCRI, Kolkata, 25th -27th June, 2015.
- [15] Workshop on ‘Petroleum Refining and Petrochemicals’ Indian Oil R&D, IIPM and Petrotech, Institute of Petroleum Management, Gurgaon, 1st to 5th June, 2015.
- [16] Industry-Academia workshop on ‘Safety, Health and Environmental Management in Oil Refining & Pipeline Transportation’ Petroleum Federation of India and IOCL, Haldia, West Bengal, 17th-18th April, 2015.
- [17] Refresher course in the subject ‘Interdisciplinary Research using Nanoscience and Nanotechnology’ School of Material Science & Nanotechnology, Jadavpur University, 9th March-28th March, 2015.

[18] 'MACRO 2015, International symposium on Polymer Science and Technology' Indian Association for the Cultivation of Science, Kolkata, 23rd January-26th January, 2015.

[19] 'Multiphase Reactor Engineering for the Process Industry'. Dept. of Chem. Engg. IIT-Delhi, 9th-11th December, 2009.

[20] 'Industrial Hazard and Risk Assessment-An Integrated Training Programme'. Dept. of Chem. Engg. Calcutta University, Kolkata, 5th -6th February, 2009.

[21] 'DST-SERC School on Tomography and Velocity Imaging in Multiple Reactors'. Dept. of Chem. Engg., IIT-Delhi, 21th-25th July, 2008.

### 18. Invited lectures

1. Advanced Oxidation of Phenol over MCM-41 Supported Ru Catalyst in a Fixed Bed Flow Reactor, Department of Chemical Engineering, NIT-Rourkela, January, 2023.

### 19. Course/Subject/Lab developed

1. Catalytic Processes for Green Energy (UG-IV; Open Elective; Offered to all 4<sup>th</sup> year BE students at JU)
2. Developed Pilot Plant Reactor Lab in the department

### 20. Member of the professional society

1. IET (Membership No.: 1100373332)

### 21. Courses taught

S. No.	UG (BE/B.Tech/BS)	PG (ME/M.Tech/ MS)	Lab	Seminar
1.	Chemical Technology-I (UG-II)	Bioenergetics & Bioprocess Engineering (PG-I)	Heat & Mass Transfer Lab. (UG-IV)	Seminar-I (UG-IV)
2.	Chemical Technology II (UG-III)	Biochemical Engineering (PG-I)	Process Instrumentation & Control Lab. (UG-IV)	Seminar-II (UG-IV)
3.	Process Heat Transfer (UG-III)		Process Equipment Design & Drawing-II (UG-IV)	
4.	Industrial Pollution Control Engg. (UG-IV)		Reaction Engineering & Thermodynamics Lab. (UG-III)	
5.	Fluidization Engineering (UG-IV)		Momentum Transfer & Mechanical Operation Lab. (UG-III)	
6.	Catalytic Processes for Green Energy (UG-IV)		Energy Engineering Lab. (UG-III)	
			Computer Applications in Chemical Engineering Laboratory (UG-III)	

### 22. Administrative roles and responsibilities

1. Member of local organizing committee for International Conference on Advances in Chemical and Materials Sciences, ACMS-2022, February 24-26, IChE, Kolkata
2. Assistant Convener of the RUSA-2.0 Sponsored International Seminar on Sustainable 2-G Biorefinery Platforms, December 10-12, 2019.
3. Member of Academic Reforms Committee, TEQIP Phase-II, JU.
4. Convener of the Teacher-Student committee
5. Departmental mentor for induction program of UG 1st year students.
6. Ph.D admission committee member
7. Appointed to act as an Invigilator, WBJEE
8. Resident Wardens in the Hostel
9. Coordinator of the examinations of 'Seminar' and Term Paper Leading to Thesis' for MCHE and MBPE students of PG.
10. Examiner in Chemical Engineering for West Bengal Forest Services and West Bengal Subordinate Forest Service (Main Examination) (PSC).
11. Member of the Anti-Ragging Squad for the academic year 2023-24
12. Member of the Anti-Ragging Sub-Committee for hostel (both boys & girls) within the main campus
13. Member of the department Anti-Ragging volunteer team
14. Member of the Anti-Ragging Mentor-Mentee in the department

### 23. Manuscript reviewed for the journal so far

1. Applied Catalysis B: Environmental, (Elsevier, IF: 24.391)
2. ACS Catalysis (ACS, IF: 13.70)
3. Renewable Energy (Elsevier, IF: 8.634)
4. Materials Today Chemistry (Elsevier, IF: 7.613)
5. Journal of Water Process Engineering (Elsevier, IF: 7.34)

6. Applied Catalysis A: General (Elsevier, IF: 5.723)
7. Industrial & Engineering Chemistry Research (ACS, IF: 4.36)
8. Chemical Engineering Research and Design (Elsevier, IF: 4.119)
9. ACS Omega (ACS, IF: 4.132)
10. RSC Advances (RSC, IF: 4.036)
11. Chemical Engineering Communications (Taylor & Francis, IF: 2.72)
12. The Canadian Journal of Chemical Engineering (Wiley IF: 2.5)
13. Chemical Engineering Research and Design (Elsevier, IF: 4.119)

#### **24. Industry visited**

1. IOCL, Haldia Refinery, West Bengal, India
2. IOCL, Panipat Refinery, Haryana, India
3. R&D, IOCL, Faridabad, Haryana, India
4. R&D, BPCL, Noida, UP
5. BASF Catalysis, Iselin, New Jersey, USA
6. Amar Equipment Pvt. Ltd., Pressure & Flow Reactors Manufacturer, Mumbai, India