

BIO DATA



Dr. Binitha N.N

Asst. Professor

Department of Chemistry

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Date of joining: 28-6-2006

Date of Birth: 31.05.1979

Address

: Kilikkoodu, Sankaramangalam,
Valloor, Pattambi, Palakkad (dt)
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Educational Qualifications :

2001 - 2007 **Ph. D.** Department of Applied Chemistry, Cochin University of
Science and Technology, Kochi.

Supervisor: Prof. Dr. S. Sugunan

Title of Ph.D. Thesis: *Structural tuning of Montmorillonite clays by pillaring:
Designing of shape selective solid acid catalysts and PANI - Montmorillonite
nanocomposites*

1999 - 2001 **M.Sc. (Applied Chemistry)** Cochin University of Science and
Technology, Kochi. (*Second Rank*; marks: 76.8 %)

1996 - 1999

B.Sc (Chemistry) University of Calicut (Third rank; marks: 95.2 %)

Post-doctoral research experience:

1 Year (2008 -2009) : Postdoctoral Fellow, Department of Chemical and Process Engineering, National University of Malaysia, UKM Bangi, Selangor, Malaysia.

2 Years (2012 - 2014) : UGC Research Awardee, Department of Chemistry, Sree Neelakanta Govt. Sanskrit College, Pattambi, Palakkad.

3. Research Guide under University of Calicut: From October 2012 onwards

Awards & Honors

- UGC Research Award (2012-2014)
- CSIR Senior Research Fellowship (2003 - 2006)
- Joint CSIR-UGC National Eligibility Test (NET) in chemical Sciences with CSIR/JRF (2001 - 2003)
- Qualified Graduate Aptitude Test in Engineering (GATE) conducted by Indian Institute of Technology, Mumbai in March 2001 with a GATE Score of 80.17%
- University second rank for M.Sc Applied Chemistry from CUSAT
- University third rank for B.Sc Chemistry from Calicut University
- EFCS Young Scientist Award – 2020 (by EFCS International Conference, Farook College, Calicut)

Patent Filed: 1

1. N N Binitha, M R Resmi, V V Vinu, S Sreenikesh, K C Sudha, Preparation of fatty acid alkyl esters (biodiesel) from triglyceride oils using rice husk derived catalysts, Filed an Indian patent, No. 201741025363, July 2017.

(Role: Scientific idea, designed the experiments, contributed in doing the experiments, interpreted the data and results and submitted the draft to DST, India)

Graduate & Post-graduate Teaching Experience

UG and PG: 14 Years of Teaching experience

Teaching Interests:

Post-graduate Level: Stereochemistry, Organic Spectroscopy, Industrial Catalysis, Green Chemistry

Undergraduate Level: Organic Chemistry, Organic Spectroscopy, Green Chemistry

Research Experience

15 years of research experience in the field of nanotechnology, Heterogeneous catalysis, Material Synthesis, Polymer nanocomposites and Green chemistry.

Research Interests:

Material science: Graphene nanocomposites, Polymer/clay nanocomposites, Mesoporous Materials, Metal oxide nanostructures, Metal nanoparticles etc

Green chemistry: Synthesis and catalysis of Solid acids and solid bases, Photocatalyst Preparation and Application, Alternate Energy, Energy Storage Materials, Biosensors, Heterogeneous Catalyst Preparation and Catalysis, Multicomponent Organic Reactions over Clays etc.

DETAILS OF RESEARCH GUIDANCE (AS SUPERVISOR), Ph.D. AWARDED

Sl. No	Name of Research Scholar	Degree	Title of Thesis	Month and Year of Award
1.	Dr. Sudha K C	Ph.D	ECO-FRIENDLY AND COST EFFECTIVE PRODUCTION OF BIODIESEL OVER ALKALI METAL INCORPORATED HETEROGENEOUS CATALYSTS	July 2018
2.	Dr. Divya P N	Ph.D	GREEN HETEROGENEOUS CATALYSTS DERIVED FROM NATURAL RESOURCES FOR MULTICOMPONENT ORGANIC SYNTHESSES	July 2018
3.	Dr. Vinu V V	Ph.D	PRODUCTION OF BIODIESEL BY THE TRANSESTERIFICATION REACTION USING ENVIRONMENTALLY BENIGN CATALYSTS DERIVED FROM LOW COST MATERIALS AND ITS UP-GRADATION IN A PILOT SCALE UNIT	August 2018
4.	Sowmya B	Ph.D	EXFOLIATION OF GRAPHITE BY SUCROSE MEDIATED BALL-MILLING: GREEN SYNTHESSES OF GRAPHENE AND ITS NANOCOMPOSITES FOR WATER REMEDIATION	January 2019

5.	Remani K C	Ph.D	GREENER SYNTHESIS OF NANOSTRUCTURED CERIA BASED MATERIALS FOR POLLUTANT REMOVAL AND OPTICAL SENSING APPLICATIONS	August 2021
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THESIS SUBMITTED

Sl. No	Name of Research Scholar	Degree	Title of Thesis	Month and Year of Submission
1.	Vijayasree Haridas	Ph.D	α -Fe ₂ O ₃ FUNCTIONALIZED LESS DEFECTIVE GRAPHENE BASED NANOHYBRID MATERIALS: DEVELOPMENT OF MODIFIED ELECTRODES FOR SUPERCAPACITOR, SENSOR AND ELECTROCATALYTIC APPLICATIONS	November 2021

STATUS OF THE PROJECTS

Title	Funding agency & Amount (in Rs.)	Role/Specific contributions	Yr of sanction & duration (Co-investigator)	Status
High quality graphene based nanocomposites for supercapacitor applications	KSCSTE 19,52,000/-	Principal Investigator	2021, 3 Years, (Dr. Resmi M R)	Sanctioned
Graphene Based Materials for Versatile Organic Transformations	CSIR, 550000/-	Principal Investigator/Scientific idea/jointly performed experiments, interpretation of results and paper publication	2017, 3 years (Dr. Resmi M R)	Completed
Industrial Scale Production of Biodiesel by the Transesterification of	DST 4769427/-	Principal Investigator/Scientific idea/jointly performed	2011, 3 years (Dr. Resmi M R)	Completed

Jatropha/Castor Oil over Nanocatalysts		experiments, design and fabrication of biodiesel pilot plant, interpretation of results and paper publication. Could file an Indian patent as main contributor on the catalyst developed, which has a promise for commercialization.		
Multicomponent reactions over modified montmorillonite clays	UGC 300000/- contingency + Full Salary	Principal Investigator/Scientific idea/jointly performed experiments, interpretation of results and paper publication	2012, 2 years	Completed
Metal Doped Modified Titania: A Promising Photocatalyst for The Degradation of Dyes and Some Other Organic Pollutants	UGC 50000/-	Principal Investigator/Scientific idea/Done the major experimental part, jointly done the result interpretation and paper publication	2008, 2 years	Completed
Iodobenzene preparation from aniline over Montmorillonite clay catalysts	KSCSTE 5000/-	Student Project/ Scientific idea and guided the student	2008, 1 year	Completed
Graphene-Titanium Dioxide Nanocomposites: Preparation and Application as Photocatalysts for Hydrogen Production via Water Splitting	KSCSTE 3224481/-	Co-Investigator/ Helped in instrument fabrication and design of experiments. Also assisted in purchase of the equipment	2014, 3 years	Completed

Editorial Board: International Advisory Board for Teknomekanik, International Journal of Universitas Negari Padang, Indonesia.

LIST OF IMPACT JOURNAL PUBLICATIONS

Sl. No	Details of Publication
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1.	Vijayasree Haridas, Zahira Binti Yaakob, Sankaran Sugunan, Binitha N Narayanan, Novel Cost-effective Synthesis of Non-doped Turbostratic Graphene from Graphite Intercalation compound: Development of a Durable and Stable Electrocatalyst for Oxygen Reduction Reaction, New Journal of Chemistry, 2021, https://doi.org/10.1039/D1NJ03106F
2.	K.C. Remani, N.N. Binitha, Fluorescence sensing of picric acid by ceria nanostructures prepared using fenugreek extract, Journal of the Iranian Chemical Society, 2021, https://doi.org/10.1007/s13738-021-02327-4
3.	PK Sumayya, Suvarna K Subrahmanian, Shemeena Mullakkattuthodi, Sankaran Sugunan, Binitha N Narayanan, Green in situ preparation of novel graphene-wrapped ethyl cellulose submicrospherical capsules and its effective use in Cr (VI) removal, Journal of Nanoparticle Research, 23, 104, 2021
4.	V Haridas, Z Yaakob, S Sugunan, BN Narayanan, Selective Electrochemical Determination of Paracetamol using Hematite/Graphene Nanocomposite Modified Electrode Prepared in a Green Chemical Route, Materials Chemistry and Physics, 124379, 2021
5.	K.C. Remani, N N Binitha, Cobalt doped ceria catalysts for the oxidative abatement of gaseous pollutants and colorimetric detection of H ₂ O ₂ , Materials Research Bulletin, 139,111253, 2021
6.	V Haridas, A Sukhanazerin, B Pullithadathil, BN Narayanan, Ultrahigh specific capacitance of α -Fe ₂ O ₃ nanorods-incorporated defect-free graphene nanolayers Energy 221, 119743, 2021
7.	Cheriyathvalappil Shaniba, Mohammed Akbar, Kuttikkattil Ramseena, Poovathinthodiyil Raveendran, Binitha N Narayanan, Resmi M Ramakrishnan, Sunlight-assisted oxidative degradation of cefixime antibiotic from aqueous medium using TiO ₂ /nitrogen doped holey graphene nanocomposite as a high performance photocatalyst, Chemical and Environmental Engineering, 8,102204, 2020

8.	Vijayasree Haridas, A. Sukhananazerin, J. Mary Sneha, Biji Pullithadathil, Binitha Narayanan, α -Fe ₂ O ₃ loaded less-defective graphene sheets as chemiresistive gas sensor for selective sensing of NH ₃ , Applied Surface Science 517, 146-158, 2020
9.	DP Narayanan, A Gopalakrishnan, Z Yaakob, S Sugunan, BN Narayanan, A facile synthesis of clay-graphene oxide nanocomposite catalysts for solvent free multicomponent Biginelli reaction, Arabian Journal of Chemistry, 13, 318-334, 2020
10.	V Vadery, SK Cherikkallinmel, RM Ramakrishnan, S Sugunan, BN Narayanan, Green production of biodiesel using waste borosilicate glass derived catalyst and the process up-gradation in pilot scale, Renewable Energy, 141, 1042-1053, 2019
11.	DP Narayanan, S Balasubrahmanyam, SK Cherikkallinmel, V Vadery, S Sankaran, BN Narayanan, A green approach for the synthesis of coconut husk ash-twisted graphene nanocomposites: Novel catalysts for solvent free Biginelli reaction, ChemistrySelect, 4(16), 4785-4796, 2019
12.	S Padikkaparambil, S Sugunan, BN Narayanan, Exploration of Mn incorporated CeO ₂ nanoflakes with meso- and macropores for the effective simultaneous catalytic oxidation of carbon monoxide and propane, Reaction Kinetics, Mechanisms and Catalysis, 1-11, 2019
13.	DP Narayanan, S Sankaran, BN Narayanan, Novel rice husk ash-reduced graphene oxide nanocomposite catalysts for solvent free Biginelli reaction with a statistical approach for the optimization of reaction parameters, Materials Chemistry and Physics 222, 63-74, 2019
14.	DP Narayanan, SK Cherikallinmel, S Sankaran, BN Narayanan, Functionalized carbon dot adorned coconut shell char derived green catalysts for the rapid synthesis of amidoalkyl naphthols, Journal of colloid and interface science 520, 70-80, 2019
15.	Silija Padikkaparambil, Jinoob Perumbilavil Padi, Vinu Vadery, Sankaran Sugunan, Binitha Njarakkattuvalappil Narayanan, Facile Preparation of Noble Metal-Free Cu-Doped CeO ₂ Oxidation Catalyst Suitable for Engine Exhaust Gas Treatment, Journal of Environmental Engineering, 145(1): 04018131-9, 2019

16.	V Haridas, S Sugunan, BN Narayanan, One-pot low-temperature green synthesis of magnetic graphene nanocomposite for the selective reduction of nitrobenzene, <i>Journal of Solid State Chemistry</i> 262, 287-293, 2018
17.	S Balasubramanyan, S Arayathody, S Sugunan, BN Narayanan, Selective liquid phase oxidation of cyclohexene over magnetic Fe ₃ O ₄ /graphene oxide nanocomposite, <i>Materials Chemistry and Physics</i> 211, 23-33, 2018
18.	S Balasubramanyan, S Sugunan, BN Narayanan, Nitrogen-doped sulphonated 3-dimensional holey graphene nanoarchitecture for selective oxidation of ethylbenzene, <i>Journal of materials science</i> 53 (17), 12079-12090, 2018
19.	S Balasubramanyan, S Sasidharan, R Poovathinthodiyil, Resmi M Ramakrishnan, Binitha N Narayanan, Sucrose-mediated mechanical exfoliation of graphite: a green method for the large scale production of graphene and its application in catalytic reduction of 4-nitrophenol, <i>New Journal of Chemistry</i> 41 (20), 11969-11978, 2017
20.	SK Cherikkallinmel, S Sugunan, BN Narayanan, PA Faisal, S Benjamin, Statistical optimization for lithium silicate catalyzed production of biodiesel from waste cooking oil, <i>Korean Journal of Chemical Engineering</i> 34 (11), 2840-2851, 2017
21.	DP Narayanan, RM Ramakrishnan, S Sugunan, BN Narayanan, Solvent free one pot synthesis of amidoalkyl naphthols over phosphotungstic acid encapsulated montmorillonite clay catalysts, <i>Journal of Saudi Chemical Society</i> 21 (5), 538-544, 2017
22.	A Gopalakrishnan, NN Binitha, Z Yaakob, PM Akbar, S Padikkaparambil, Excellent photocatalytic activity of titania-graphene nanocomposites prepared by a facile route, <i>Journal of Sol-Gel Science and Technology</i> 80 (1), 189-200, 2016
23.	TK Hari, Z Yaakob, NN Binitha, Aviation biofuel from renewable resources: routes, opportunities and challenges, <i>Renewable and Sustainable Energy Reviews</i> 42, 1234-1244, 2015
24.	SK Cherikkallinmel, A Gopalakrishnan, Z Yaakob, RM Ramakrishnan, Sankaran Sugunan, Binitha N Narayanan, Sodium aluminate from waste aluminium source as

	catalyst for the transesterification of Jatropha oil, RSC Advances 5 (57), 46290-46294, 2015
25.	V Vadery, BN Narayanan, RM Ramakrishnan, SK Cherikkallinmel, S. Nikesh, Divya P N, Room temperature production of jatropha biodiesel over coconut husk ash, Energy 70, 588-594, 2014
26.	M Pudukudy, Z Yaakob, M Mohammad, B Narayanan, K Sopian, Renewable hydrogen economy in Asia—Opportunities and challenges: An overview, Renewable and Sustainable Energy Reviews 30, 743-757, 2014
27.	S Viswanathan, B Narayanan, Z Yaakob, P Periyat, S Padikkaparambil, Selective formation of aniline over nanogold incorporated cobalt loaded SBA 15 catalysts, Journal of Porous Materials 21 (3), 251-262, 2014
28.	SP Viswanathan, BN Narayanan, Z Yaakob, S Padikkaparambil, Masita Mohammed, Nanogold embedded Co ₃ O ₄ spinel supported over SBA 15 for the reduction of aquatic pollutant 4-nitrophenol, Reaction Kinetics, Mechanisms and Catalysis 111 (1), 335-345, 2014
29.	M Pudukudy, Z Yaakob, B Narayanan, Selective Vapour Phase Oxidation of Benzyl Alcohol to Benzaldehyde over Mesoporous Ceria–Zirconia Solid Solution Synthesized Via a Facile Citrate Route, Journal of Cluster Science 25 (6), 1599-1614, 2014
30.	Z Yaakob, BN Narayanan, S Padikkaparambil, A review on the oxidation stability of biodiesel, Renewable and Sustainable Energy Reviews 35, 136-153, 2014
31.	M Pudukudy, Z Yaakob, B Narayanan, A Gopalakrishnan, SM Tasirin, Facile synthesis of bimodal mesoporous spinel Co ₃ O ₄ nanomaterials and their structural properties, Superlattices and Microstructures 64, 15-26, 2013
32.	PV Suraja, Z Yaakob, NN Binitha, S Triwahyono, PP Silija, Co ₃ O ₄ doped over SBA 15: excellent adsorbent materials for the removal of methyleneblue dye Pollutant, Clean Technologies and Environmental Policy 15 (6), 967-975, 2013.

33.	S Padikkaparambil, B Narayanan, Z Yaakob, S Viswanathan, SM Tasirin, Au/TiO ₂ reusable photocatalysts for dye degradation, International Journal of Photoenergy 2013
34.	Z Yaakob, ISB Sukarman, B Narayanan, SRS Abdullah, M Ismail, Utilization of palm empty fruit bunch for the production of biodiesel from Jatropha curcas oil, Bioresource technology 104, 695-700, 2012
35.	P Silija, Z Yaakob, V Suraja, NN Binitha, ZS Akmal, An enthusiastic glance in to the visible responsive photocatalysts for energy production and pollutant removal, with special emphasis on titania, International Journal of Photoenergy 2012
36.	S Padikkaparambil, Z Yaakob, BN Narayanan, R Ramakrishnan, Zetty AA, Novel preparation method of nanosilver doped sol gel TiO ₂ photocatalysts for dye pollutant degradation, Journal of sol-gel science and technology 63 (1), 108-115, 2012
37.	V Suraja, Z Yaakob, N Binitha, A Ebshish, K Ranjana, Surface capped silver nanoparticles over anatase titania: an efficient catalyst for aromatic nitration reactions, Reaction Kinetics, Mechanisms and Catalysis 105 (2), 361-371, 2012
38.	A Bshish, Z Yaakob, B Narayanan, R Ramakrishnan, A Ebshish, Steam-reforming of ethanol for hydrogen production, Chemical Papers 65 (3), 251-266, 2011
39.	PV Suraja, Z Yaakob, NN Binitha, MR Resmi, PP Silija, Photocatalytic degradation of dye pollutant over Ti and Co doped SBA-15: comparison of activities under visible light, Chemical engineering journal 176, 265-271, 2011
40.	P Silija, Z Yaakob, MA Yarmo, S Sugunan, NN Binitha, Visible light active anion codoped sol gel titania photocatalyst for pollutant degradation, Journal of sol-gel science and technology 59 (2), 252-259, 2011
41.	N Binitha, V Suraja, Z Yaakob, S Sugunan, Synthesis of polyaniline-montmorillonite nanocomposites using H ₂ O ₂ as the oxidant, Sains Malaysiana 40 (3), 215-219, 2011

42.	NN Binitha, PV Suraja, Z Yaakob, MR Resmi, PP Siliya, Simple synthesis of Co_3O_4 nanoflakes using a low temperature sol-gel method suitable for photodegradation of dyes, <i>Journal of sol-gel science and technology</i> 53 (2), 466-469, 2010
43.	BN Narayanan, R Koodathil, T Gangadharan, Z Yaakob, FK Saidu, Soumini C, Preparation and characterization of exfoliated polyaniline/montmorillonite nanocomposites, <i>Materials Science and Engineering: B</i> 168 (1-3), 242-244, 2010
44.	NN Binitha, Z Yaakob, R Resmi, Influence of synthesis methods on zirconium doped titania photocatalysts, <i>Central European Journal of Chemistry</i> 8 (1), 182-187, 2010
45.	E Akbar, N Binitha, Z Yaakob, SK Kamarudin, J Salimon, Preparation of Na doped SiO_2 solid catalysts by the sol-gel method for the production of biodiesel from jatropha oil <i>Green Chemistry</i> 11 (11), 1862-1866, 2009
46.	NN Binitha, Z Yaakob, MR Reshmi, S Sugunan, VK Ambili, AA Zetty, Preparation and characterization of nano silver-doped mesoporous titania photocatalysts for dye degradation <i>Catalysis Today</i> 147, S76-S80, 2009
47.	NN Binitha, S Sugunan, Polyaniline/pillared montmorillonite clay composite nanofibers, <i>Journal of applied polymer science</i> 107 (5), 3367-3372, 2008
48.	BN Narayanan, S Sugunan, Alkylation of benzene with 1-octene over titania pillared montmorillonite, <i>Reaction Kinetics and Catalysis Letters</i> 94 (1), 77-83, 2008
49.	NN Binitha, S Sugunan, Shape selective toluene methylation over chromia pillared montmorillonites, <i>Catalysis Communications</i> 9 (14), 2376-2380, 2008
50.	NN Binitha, S Sugunan, p-Cymene preparation over modified montmorillonite clays, <i>Catalysis Communications</i> 8 (11), 1793-1797, 2007
51.	NN Binitha, S Sugunan, Preparation, characterization and catalytic activity of titania pillared montmorillonite clays, <i>Microporous and mesoporous materials</i> 93 (1-3), 82-89, 2006

52.	BN Narayanan, S Sugunan, Selective formation of cumene on pillared clays by isopropylation of benzene, Reaction Kinetics and Catalysis Letters 89 (1), 45-53, 2006
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BOOKS/CHAPTERS CONTRIBUTED

1. Sol Gel Titania: Leader Heterogeneous Photocatalyst for Waste Remediation, N.N. Binitha, Z. Yaakob, M.R. Resmi, Chapter Contributed to the book: - **The Sol-Gel Process: Uniformity, Polymers and Applications**, ISBN 10: 1617613215, **NOVA publishers, 2010.**
2. Nanogold Loaded Nitrogen Doped TiO₂ Photocatalysts for the Degradation of Aquatic Pollutants under Sun Light, Zahira Yaakob, Anila Krishna, Silija Padikkaparambil, Binitha Narayanan, Resmi Ramakrishnan, Chapter contributed to the book:- **Solar Energy**, ISBN: 978-953-307-946-2, **Intech Open Access Publisher, 2011.**
3. A Facile Sol Gel Method for the Preparation of N-Doped TiO₂ Photocatalyst for Pollutant Degradation, P.P Silija, Z. Yaakob, N.N. Binitha, P.V. Suraja, S. Sugunan. Chapter contributed to the book: - Recent Advances in Nanostructured Materials: Synthesis, Characterization and Applications, Edited by: Dr. Sabu Thomas, Matthew Sebastian, MD, Anne George and Yang Weimin, **Nanostructured Materials: Synthesis, Characterization, and Applications (Volume 2)** Volume Editors: Yang Weimin, Ajesh K. Zachariah and Nandakumar Kalariakkal, **Apple Academic Press, 2013**

CONTRIBUTIONS TO ORAL/POSTER PRESENTATIONS/CONFERENCE PROCEEDINGS (Presenting author's name is underlined)

- [1] N.N. Binitha and S. Sugunan, "Influence of titania pillars on the zirconia pillared Montmorillonite for Cumene cracking reactions" National Symposium on Light and Smart Materials, Material Research Society of India, February 2004, Banaras Hindu University, Varanasi. UP, India 61.
- [2] Binitha N. N. and Sugunan S, "Synthesis of polyaniline-pillared montmorillonite nanocomposites", Current Trends in Inorganic Chemistry, March 2004, Cochin University of Science and Technology, Kochi. Kerala, India 60.

- [3] Binitha N N, Sugunan S, “Effect of mixed pillaring on the structural and textural properties of montmorillonites”, Sixth International Conference on Solvothermal Reactions (ICSTR-6, 2004, University of Mysore).
- [4] N.N. Binitha and S. Sugunan, “Selective formation of cumene on pillared clays by isopropylation of benzene”, 17th National Symposium on Catalysis (January 2005, Central Salt and Marine Chemical Research Institute, Bhavnagar, Gujarat, India).
- [5] N.N Binitha & s. Sugunan “Alkylation of benzene with 1-octene over pillared clays”, National Seminar on Frontiers in Chemistry, March 24-25, 2006, Cochin University of Science and Technology, Kochi, Kerala, India.
- [6] Soumini C, Binitha N N, Tripti G, “ Benzylation of Benzene over transition metal ion exchanged Montmorillonite Clays”, National seminar on Current Trends in Chemistry, January 2008, Department of Applied Chemistry, CUSAT, Kochi, Kerala, India
- [7] Binitha N N, Ranjana K, Tripti G, Femina K S and Soumini C, Preparation and Characterization of Exfoliated Polyaniline/Montmorillonite Nanocomposites, 2nd International Symposium on Advanced Materials and Polymers for Aerospace and Defense Applications, Dec 08- 12, 2008, Pune, India
- [8] N.N. Binitha, Z. Yaakob, M.R. Reshmi, S. Sugunan, V.K. Ambili and A.A. Zetty, Preparation and characterization of nano silver-doped mesoporous titania photocatalysts for dye degradation. 3 rd International Conference on structured catalysts and reactors. September 27-30, 2009 Ischia, Naples Italy
- [9] P.V. Suraja, N.N. Binitha, Z. Yaakob, P.P. Silija, Preparation and Characterization of Nano Gold Supported over Montmorillonite Clays, International Advanced Technology Congress 2009, November 3 – 5, 2009, Kualalumpur, Malaysia
- [10] N. N. Binitha, P.P. Silija, V. Suraj, Z. Yaakob, S. Sugunan, Samarium Ion Exchanged Montmorillonite For High Temperature Cumene Cracking Reaction, International Advanced Technology Congress 2009, November 3 – 5, 2009, Kualalumpur, Malaysia
- [11] Narayanan Binitha, Padikkaparambil Silija, Zahira Yaakob, Sankaran Sugunan, Varottukankattu Ambili, Nitrogen Adsorption Studies of Mesoporous Titania Synthesized using Template Mediated/Template free Sol Gel Route, NANOTECH Malaysia 2009, October 27 – 29, 2009, Kualalumpur, Malaysia.

- [12] Narayanan Binitha, Viswanathan Suraja, Zahira Yaakob, Sankaran Sugunan, Polyaniline - montmorillonite nanocomposites using H₂O₂ as the oxidant, NANOTECH Malaysia 2009, October 27 – 29, 2009, Kuala Lumpur, Malaysia
- [13] Padikkaparambil Silija, Zahira Yaakob, Narayanan Binitha, Viswanathan Suraja, Effect of preparation methods on nanogold supported TiO₂, 16th ASEAN RSCE 2009, December 1-2, 2009, UST Manila, Philippines
- [14] Viswanathan Suraja, Zahira Yaakob, Narayanan Binitha, S.M.Tasirin, Padikkaparambil Silija, Characterization of gold nanoparticles prepared by deposition precipitation method on surfactant assisted sol-gel CO₃O₄, 16th ASEAN RSCE 2009, December 1-2, 2009, UST Manila, Philippines
- [15] Padikkaparambil Silija, Narayanan Binitha, Zahira Yaakob, Ramakrishnan Resmi, Viswanathan Suraja, Nano silver loaded nitrogen doped titania for the visible light degradation of dye pollutant, International Conference on Materials for the Millennium , MatCon 2010. January 11- 13, 2010 Cochin, India
- [16] Narayanan Binitha, Koodathil Ranjana, Viswanathan Suraja, Zahira Yaakob, Ramakrishnan Resmi, Benzene nitration over nano silver doped anatase titania, International Conference on Materials for the Millennium , MatCon 2010. January 11-13, 2010 Cochin, India
- [17] Zahira Yaakob, Narayanan Binitha, Viswanathan Suraja, Ramakrishnan Resmi, Padikkaparambil Silija, K/SBA-15 solid base catalyst for transesterification of jatropha oil for biodiesel production, International Conference on Materials for the Millennium, MatCon 2010. January 11-13, 2010 Cochin, India
- [18] Viswanathan Suraja, Narayanan Binitha, Zahira Yaakob, Padikkaparambil Silija, Ramakrishnan Resmi, Transesterification of ethylacetate over Na₂Si₂O₅, International Conference on Materials for the Millennium , MatCon 2010, January 11-13, 2010 Cochin, India
- [19] Narayanan Binitha, Zahira Yaakob, Sankaran Sugunan, Surface acidities and catalytic activities of pillared clays, 4th International Congress of Chemistry and Environment, ICCE 2009, January 21 - 23, 2010, Ubonratchathani, Thailand
- [20] Emil Akbar, Zahira Yaakob, Narayanan Binitha, Siti Kartom Kamarudin, Jumat Salimon, Preparation and Characterization of Na doped SiO₂ Suitable for the Production of Biodiesel,

4th International Congress of Chemistry and Environment, ICCE 2009, January 21 - 23, 2010, Ubonratchathani, Thailand

- [21] N.N Binitha., Z Yaakob., P.P Silija., P.V Suraja , Effect of Co-doping of nano silver, carbon and nitrogen on titania on the visible light activity for methyl orange degradation, 6th international conference on diffusion in solids and liquids, DSL 2010, july 5-7, 2010, Paris, France
- [22] Narayanan Binitha., Koodathil Ranjana., Zahira Yaakob., Viswanathan Suraja., Ali Ebshish, Benzene nitration over nano silver doped anatase titania, The 6th Tokyo conference on advanced catalytic science and technology and the 5th Asia Pacific congress on catalysis, TOCAT6/APCAT5, July 18-23, 2010, Sapporo, Japan
- [23] Silija Padikkaparambil., Zahira Yaakob., Binitha Narayanan., Ahmad Bshish., Suraja Viswanathan, Na₂Si₂O₅ Solid Catalyst for the Transesterification of Ethylacetate, The 6th Tokyo conference on advanced catalytic science and technology and the 5th Asia Pacific congress on catalysis, TOCAT6/APCAT5, July 18-23, 2010, Sapporo, Japan
- [24] Binitha N. Narayanan., Zahira Yaakob., Suraja P. Viswanathan., Ramakrishnan Resmi., Padikkaparambil Silija., Sity K. Kamarudin, Effect of synthetic methods on the photocatalytic activities of cobalt – titanium mixed oxides, The 2nd international solvothermal & hydrothermal association conference, ISHA 2010, july 27-29, 2010, Beijing, China
- [25] Binitha N Narayanan., Resmi M Ramakrishnan., Zahira Yaako., Padikkaparambil Silija, Nitrogen Doped TiO₂: A Promising Photocatalyst for Pollutant Degradation under Visible Light, International conference on nano materials, synthesis, characterization and application, ICN 2010, April 27-29, 2010, Kottayam, Kerala, India (**Invited Lecture**)
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