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Dr. Manjumol K. A.
Assistant Professor
Department of Chemistry
SD College ,Alappuzha

Educational Qualifications

MSc, PhD,

Thesis Title: “SOL-GEL PHOTOCATALYTIC METAL OXIDE PRECURSORS AND COATINGS ON POROUS AND NON POROUS SUBSTRATES FOR MULTIFUNCTIONAL APPLICATIONS”

Currently working as Assistant Professor in Department of Chemistry, SD College, Alappuzha. *Research guide from January 2023*

Vidwan ID : 196963

ORCID ID: 0009-0007-5485-5273

Google Scholar ID :W6U6VysAAAAJ

Awards and honors

CSIR-Senior Research Fellowship qualified in 2011.

Won Best poster award in “76th Annual Session of The Indian Ceramic Society→ (ICS),January, 2013,

Responsibility

Research Experiences

Research supervisor under Kerala University from 7th January 2023

Working as Senior Research Fellow from April 2011 to June 2014 under the guidance of Dr. K. G. K. Warriar in NIIST (CSIR), Thiruvananthapuram.

Worked as Project Assistant grade II, from June 2006 to March 2011 under the guidance of Dr. K. G. K. Warriar in NIIST, Thiruvananthapuram.

THESIS SUPERVISION for MSc Student

I MANJUMOL KA, under my supervision MSc Project. carried out

1. **Ms. MINI L.** (Degree of Master of Science in Chemistry, Material Science, Kannur University) Title of the Thesis:- “Functional TiO₂ Nano Coatings on Aluminum Metal for Self Cleaning Applications” Period:- January – June -2012
2. **Ms. SUSMITHA N.** (Degree of Master of Science in Chemistry, Inorganic Chemistry, School of Chemical Sciences, MG University, Kottayam) Title of the Thesis:- “Fabrication of porous alumina substrate for ultra filtration membrane” Period:- January – June -2013
3. **Ms. Keerthy Kumar** (Degree of Master Science in Chemistry, SD College, Alappuzha) Photoactive layered double hydroxide Via green synthesis –March to June 2021
4. **Ms. Aryasree M Nair** (Degree of Master Science in Chemistry, SD College, Alappuzha) Sun light active layered double hydroxide Via Co-precipitation method –March to June 2021

Till January 2024 - Total no of MSc Project -7 students

Experimental

- Sol-gel synthesis of nano dispersions (particles of titania, alumina, and mixed oxides)
- Preparation of nano coatings
- Dip coating technique
- Spin coating technique
- Characterization of titania particles and coatings for photo activity and self-cleaning property

Instrumental Exposure:

- UV-VIS Spectrophotometer
- Thermo gravimetric Analysis
- Differential Thermal Analysis
- Thermo Mechanical Analysis
- BET Specific Surface Area Analysis
- X-Ray Diffractometry
- Scanning Electron Microscopy
- Transmission Electron microscopy
- FTIR Spectroscopy
- Photon Correlation Spectroscopy and Zeta seizer
- Ellipsometer

Teaching Experience

- Working as an Assistant Professor, Department of Chemistry, SD College Alappuzha from 01-10-2018
- Worked as Guest faculty in Chemistry from June 2018- to September 2018 at St. Thomas College , Kozhencherry.
- Worked as Guest faculty in Chemistry from June 2017- to March 2018 at Mar Thoms College Tiruvalla.
- Worked as Assistant Professor in Chemistry [Contract basis] in College of Engineering Aranmula, Co-operative academy, from August 2014 to June 2015.
- Delivered a course lecture on “Non crystalline ceramic materials: structure and structural requirements for stability, mode of formation silicates and non silicate glasses and their applications” for the IVth semester MSc (Materials Science) students of the school of chemistry, payyannur campus, Kannur University.

Papers Published In International Journals

- **K.A Manjumol, S Sankar, BN Nair, M Midhun, PA Mohamed, KGK Warriar, A novel approach to formulate high flux multifunctional ultrafiltration membranes from**

photocatalytic titania composite precursors on multi-channel tubular substrates. RSC advances 6 (63), 58813-58822. 2016

- ➡ **K.A Manjumol**, M Jayasankar, K Vidya, AP Mohamed, BN Nair, *A novel synthesis route for brookite rich titanium dioxide photocatalyst involving organic intermediate* .Journal of Sol-Gel Science and Technology 73 (1), 161-170.2015
- ➡ **K. A Manjumol**, L Mini, Peer Mohamed A. U. S Hareesh . K. G. K Warriar,. “A hybrid sol-gel approach for novel photoactive and hydrophobic titania coatings on aluminium metal surfaces”, *RSC advances*. 3 (2013)18062-18070
- ➡ **K. A. Manjumol**, P. Shajesh, K. V. Baiju and K. G. K. Warriar, “An ‘Eco-friendly’ all aqueous sol gel process for multi functional ultrafiltration membrane on porous tubular alumina substrate”, *Journal of Membrane Science*. 375 (2011) 134–140.
- ➡ Venu Sreekala Smitha, **Kochupurayil Appukkuttannair Manjumol**, Swapankumar Ghosh, Methalayil Brahmakumar, Petchimuthu Perumal and Krishna Gopakumar Warriar, “Rhodamine 6G intercalated montmorillonite nanopigments-polyethylene composites: facile synthesis and UV stability study” *Journal of American Ceramic Society*. 94 (2011) 1731-1736.
- ➡ K. V. Baiju, P. Periyat, P. Shajesh, W. Wunderlich, **K. A. Manjumol**, V. S. Smitha, K. B. Jaimy, K. G. K. Warriar, “Mesoporous gadolinium doped titania photocatalyst through an aqueous sol- gel method”, *Journal of Alloys and Compounds*. 505 (2010) 194-200.
- ➡ V. S. Smitha, **K. A. Manjumol**, K. V. Baiju, Swapankumar Ghosh, P. Perumal and K. G. K. Warriar, “Sol-gel route to *Synthesize titania silica nano precursors for photoactive particulates and coatings*”, *Journal of Sol-gel science and Technology*. 54 (2010) 203-211.
- ➡ **K. A. Manjumol**, V. S. Smitha, P. Shajesh, K. V. Baiju and K. G. K. Warriar, “Synthesis of Lanthanum oxide doped photocatalytic nano titanium oxide through aqueous sol-gel method for titania multifunctional ultra filtration membrane”, *Journal of Sol-gel science and Technology* . 53 (2010) 353-358.
- ➡ S Ajay, JS Panicker, **KA Manjumol**, PP Subramanian , Photo catalytic activity of biogenic silver nanoparticles synthesized using Coleus Vettiveroid, *Inorganic chemistry communication* 144 (2022) 109926

Patent filed

- ➔ Swamikannau Ravichandran, Gopalan Swaminathan, Ceramic Technological Institute, Bharat Heavy Electrical Limited and Krishna Gopakumar Warriar, **Kochupurayil Appukkuttannair Manjumol** & Kizhakkekilikkoodayil Vijayan Baiju, *Materials and Minerals Division, National Institute for Interdisciplinary Science and Technology, Council of Scientific and industrial Research, Industrial Estate, Trivandrum 695019, "Process and system for coating ultra porous membrane layers on micro porous support tube", File No: 679/kol/2010 dated 24/6/2010.*

Paperes Presented In International Conferences

- ➔ Oral Presentation entitled "*Development of Titania based Multifunctional Ultrafiltration Membranes*" **K. A. Manjumol**, U. S. Hareesh and K. G. K. Warriar presented in the "International conference on Membranes 2013, 5- 8th October, 2013.
- ➔ Poster entitled "*Hydrophobic and photoactive nano titanium dioxide coatings on aluminium metal for self-cleaning applications*" **K. A. Manjumol** et al. presented in the "Nano India 2013, 19-20th February, 2013.
- ➔ Poster entitled "*Development of Titania and Titania -Alumina multifunctional ceramic membrane for ultrafiltration*" **K. A. Manjumol** et al. presented in the "76th Annual Session of The Indian Ceramic Society (ICS), 18-19th January, 2013, has won **Best poster award**.
- ➔ Poster entitled "*Functionalized Titanium dioxide Nano Coatings on Aluminium Metal for Self-cleaning Applications*", **K. A. Manjumol**, L. Mini and K. G. K. Warriar, presented in the 'International conference on Advanced oxidation process (AOP) 5- 8th October, 2012'.
- ➔ Oral Presentation entitled "*Multifunctional $TiO_2-Al_2O_3$ Composite Membrane On Porous Tubular Substrate For Ultrafiltration*", **K. A. Manjumol**, K. Divish and K. G. K. Warriar, Presented in the 'Platinum Jubilee Session of The Indian Ceramic Society (ICS), 20th -22nd December, 2011

- ➡ Poster entitled “*Rare Earth Doped Photoactive Nano Titanium Dioxide Membrane For Ultrafiltration*”, **K. A. Manjumol**, V. S. Smitha, K. B. Jaimy and K. G. K. Warriar, presented in the ‘National Conference on Science, Technology and Applications of Rare Earths 2011, Munnar during August 19-20, 2011 (STAR 2011).
- ➡ Poster entitled “*Preparation of High Temperature Stable Photoactive Nano Brookite Titania Membrane Through Sol-gel Route for Filtration Applications*”, **K. A. Manjumol**, S. Sankar and K. G. K. Warriar, Presented in the ‘74th Annual Session of The Indian Ceramic Society (ICS), 11-13th January, 2010.
- ➡ Poster entitled “*Preparation of Lanthanum doped photocatalytic nano titania through aqueous sol-gel method for multifunctional ultra filtration membranes*”, **K. A. Manjumol**, K. V. Baiju, P. Shajesh, K. G. K. Warriar, presented in the ‘International Conference On Advanced Functional Materials’ held at NIIST, Trivandrum during December 9-10, 2009.
- ➡ Poster entitled “*Sol-gel coating on porous alumina substrates for ceramic membrane applications*”, **K. A. Manjumol**, K. V. Baiju, S. Sankar, K. G. K. Warriar, W. Wunderlich, presented in the ‘International Conference On Sol-gel Process for Advanced ceramics’ held at IGCAR , kalpakkam during October 11-14, 2009.
- ➡ Poster entitled “*Silica-titania nano precursors for photoactive particulates and coatings*”, V. S. Smitha, **K. A. Manjumol**, K. V. Baiju, P. Krishnapillai, P. Perumal and K. G. K. Warriar, presented in the Annual Conference of ‘The Indian Ceramic Society’ held at Jaipur during January 30-31, 2009.
- ➡ Poster entitled “*Effect of Tantalum Addition on Anatase Phase Stability and Photo activity of Aqueous Sol gel Derived Mesoporous Titania*”, **K. A. Manjumol**, K. V. Baiju, P. Krishnapillai and K. G. K. Warriar presented in the Annual Conference of ‘ The Indian Ceramic Society’ held at CPRI, Bangalore during Jan 10-11, 2008.
- ➡ Poster entitled “*Synthesis of light stable natural hybrid nano pigment for polymer composites*”, V. S. Smitha, **K. A. Manjumol**, M. Brahmakumar, P. Krishnapillai, P. Pavitrana, and K. G. K. Warriar, presented in the International Conference on ‘Advanced Materials and Composites’ held at NIIST Trivandrum during Oct 24-26, 2007.

Event Attended

“ACS on Campus Event” held at NIIST Trivandrum, November 2013

Workshop on “Electron Microscopic Technique” held at NIIST Trivandrum, July 2008

Professional Affiliation

Member of **Indian Ceramic Society (InCerS)**

Member of Association of
Chemistry College Teachers

Computer Knowledge

- ➔ Windows
- ➔ MS Office
- ➔ Origin/Excel/Power point packages
- ➔ Adobe Photoshop/ Chem. Draw

Personal Details

- ➔ Date of Birth : 22nd April 1981
- ➔ Marrital Status : Married
- ➔ Gender : Female
- ➔ Nationality : Indian
- ➔ Languages Known : English, Hindi, Malayalam
- ➔

References

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