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Research Areas

Green Nanotechnologies, Applied Biotechnology, Water Treatment, Multifunctional Materials, Photocatalysis and so forth

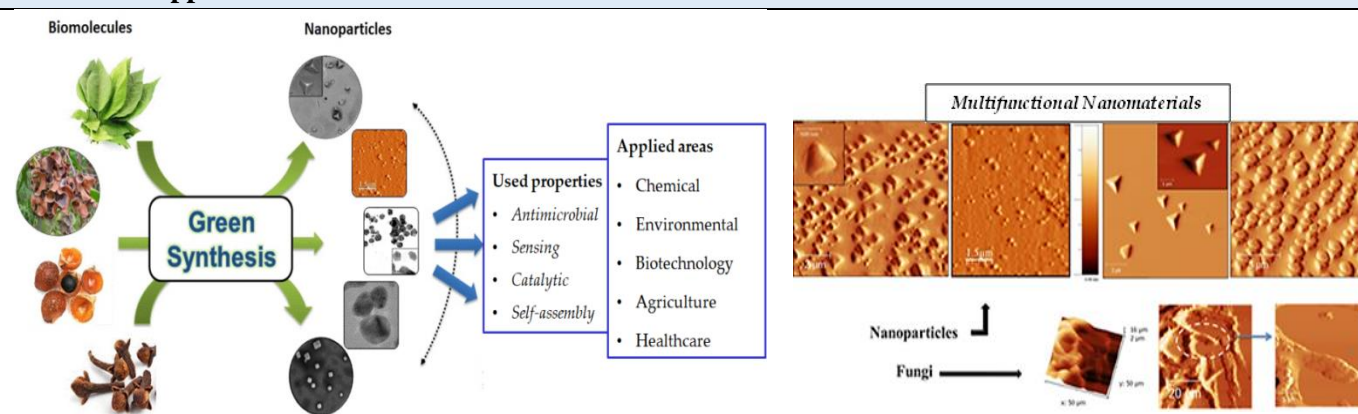
Projects & Publications Summary

Project		Publication Count		Citation Count			Impact Factor	
Completed	00	SCI	019	Citations	Google	SCOPUS	100.951	
Ongoing	03	SCOPUS	019		h-index	1183		919
Submitted	03	Books	000		i10index	12		11
		Books chapters	002			13		--

National/International Collaboration

- United Nations Industrial Development Organisations, UNIDO, Lodi Estate, New Delhi, India - Waste water treatment strategies
- Central Silk Technological Research Institute (CSTRI), Bengaluru, India – smart fabric materials
- AP state sericulture research and development institute (APSSRDI) -“Feed supplement development” in silkworm rearing for enhanced silk yield
- Technical University of Liberec, Czech Republic - Nano and Biomaterial Composites
- National College, Trichy – Novel water treatment and contaminant remediation strategies

Research snippets



Research facilities (bullet points and/or images of lab facilities)

- Clean/sterile cabinets
- AAS, Tensile tester
- Spray dryer, Biosafety cabinets
- Adv. UV/Vis-NIR Spectroscopy
- Sonicators, Hotplate stirers
- Multiparameter meters, etc.

Outline of Research Works

- Green synthesis and optimization of process parameters to produce novel isotropic & anisotropic mono/multimetallic/hybrid nanomaterials
- Organic-inorganic nanocomposites for water and wastewater treatment
- Novel nanocides for antibacterial and antifungal applications
- Natural foaming agents (bathing/shampoo materials) with active silver for healthcare and personal hygiene
- Colloidal sulfur based multifunctional green pesticides, value added products from algal biomass

Details of Funded Projects

S.No	Project Title	Funding agency	Amount (Rs.)	Duration	Collaboration
1.	Multifunctional Colloidal Sulphur Particles: A promising Green Pesticide for Practical Agriculture Applications	DST Agro-Tech RE	27,19,114/-	2020-22 (On-going)	IIT Chennai

Recent Best 5 SCI Publications

- **Rao, K.J.** and Paria, S., 2015. Aegle marmelos leaf extract and plant surfactants mediated green synthesis of Au and Ag nanoparticles by optimizing process parameters using Taguchi method. *ACS Sustainable Chemistry & Engineering*, 3(3), pp.483-491.– **IF: 8.198**
- **Rao, K.J.** and Paria, S., 2015. Mixed phytochemicals mediated synthesis of multifunctional Ag–Au–Pd nanoparticles for glucose oxidation and antimicrobial applications. *ACS applied materials & interfaces*, 7(25), pp.14018-14025.- **IF: 9.229**
- **Rao, K.J.** and Paria, S., 2017. Phytochemicals mediated synthesis of multifunctional Ag-Au-TiO₂ heterostructure for photocatalytic and antimicrobial applications. *Journal of Cleaner Production*, 165, pp.360-368.- **IF:9.297**
- **Rao, K.J.**, Korumilli, T., Kp, A., Waclawek, S., Černík, M. and Padil, V.V., 2020. Development of ZnO Nanoflake Type Structures Using Silk Fibres as Template for Water Pollutants Remediation. *Polymers*, 12(5), p.1151.– **IF: 4.329**
- **Rao, K.J.** and Korumilli, T., 2020. Instant synthesis of silver particles on silk fibres: Characterization and antimicrobial study. *Composites Communications*, 18, pp.32-36. - **IF: 6.617.**

Books (book chapters)

- Sagiri, S.S. and **Rao, K.J.**, 2020. Natural and bioderived molecular gelator–based oleogels and their applications. In *Biopolymer-Based Formulations* (pp. 513-559). Elsevier.

Fellowships/Awards/Recognitions

- Jury for VISAI event, International Project Competition (2021); Jury for VISAI event, International Project Competition (2020); **Judge** for Smart India Hackathon (2020); Participated in Youth and Sustainable Development programme at MSSRF, Chennai during International Consultation on Achieving Sustainable Development Goals for Climate Resilience (Aug-2019)
- **Innovative Postdoctoral Research Grant (2015-2018)** awardee with Rs. 5 lakh p.a from DBT-BIRAC, University innovation cluster- Biotechnology, University of Rajasthan, Jaipur, India
- **Best presentation award** in a national level seminar “Advances in Natural Science for Indigenous Development in India”, organized by Indian Science Congress Association, Department of Botany, University of Rajasthan, 2015
- Selected for “**Training of Trainers Program**” on Intellectual Property Rights, organized by Rajasthan

Council of Science and Technology, DST, Rajasthan, 2018

- Selected and received training on "**Innovation Readiness Series**" in a Business Accelerator (XLR8 AP) in collaboration with IC² Institute, The University of Texas at Austin, 2017

PhD Thesis Guidance

Scholar Name	Thesis Title	University	Status	Year
1. Mrs. S Vimala Rani	Development of Nanocomposite based Sensor for Detecting Food Pathogens and Harmful Contaminants	Vel Tech Rangarajan Dr.Sagunthala R&D Institute of Science and Technology, Chennai, India	Ongoing	2021

Editorial/Review Activities

- Associate Editor for '4Open Journal', EDP Sciences (DOAJ)
- Reviewer, MRS Communications, Springer (SCI)
- Micro & Nano Letters, Wiley (SCI)
- Composites Communications, Elsevier. (SCI)