

Dr. Yallappa Shiralgi

Advanced Functional Materials for Environmental & Healthcare

Research Interests

Synthesis and bio-functionalisation of cancer drugs using nanomaterials for targeted drug delivery. Design and synthesis of metallic nanocomposites for industrial wastewater treatment. Development of drug delivery systems based on nanoparticles for plants, to facilitate crop improvement, increased plant growth, and nanoparticles for sustainable farming.

Bio

Dr. Yallappa Shiralgi completed his Master's and PhD in Industrial Chemistry from the Kuvempu University Shimoga. He then worked as a postdoctoral researcher in the BMS R&D center, BMS College of Engineering, Bangalore. Then he moved to Iwate University in JAPAN (with KAKENHE Fellowship) for his second postdoctoral research. He specialized in the synthesis of different morphologies of nanoparticles and their bio-functionalization of organic molecules for targeted drug delivery, dye degradation and plant drug delivery.

His current research includes the sustainable synthesis of metal/metal oxide nanoparticles, magnetic nanomaterials, carbon nanospheres, nanotubes, and graphene, with extensive characterization and application in biomedical and environmental domains. Bio functionalization and bio-conjugation of nanomaterials with organic molecules to enhance efficiency in water treatment and medical diagnostics. Development of nanoparticle-based drug delivery systems for plants, facilitating crop improvement, enhanced plant growth, and nanopesticides for sustainable agriculture. He has 60 international papers of good quality & 05 Indian and 01 Japanese patent.

Awards and Honors

- **ISAS Young Scientist Award** from Indian Society of Analytical Scientist (ISAS, Mumbai) in Feb 2024 held at VNIT, Nagpur, Maharashtra, **INDIA**.
- **Young Scientist award (RGS)** on Superparamagnetic iron oxide nanoparticle based Host Guest theranostic systems towards personalized nanomedicines and health care, with Research grant of Rupees 5Lakh (Vision Group of Science and Technology, Karnataka: Ref. No. KSTePS/VGST-RGS/F/GRD No. 741/2017-18).
- **JRF/SRF** (during Ph.D.) : 2011-2015 Kuvempu University Govt. of **INDIA**.

Patents

- [1] 'Green synthesis of nanoporous carbon from sandalwood bark using phyrolysis method and its biomedical applications'
[Indian Patent granted \(Patent No:380037& Application No: 201641005600- Granted: 29/10/2021\)](#)
- [2] 'Efficient Water Treatment using eco-friendly Carbon Nanospheres'
[Indian Patent Filed \(6604/CHE/2015\)- Status Published \(Publication: 09/06/2017\)](#)
- [3] Method For Fabricating A Nitrite Sensor Using Biorenewable Based Precursor
[Indian Patent Granted \(201741020842\)- Status Published \(Publication: 21/12/2018\)](#)
- [4] Novel Design and Method of Predicting the Mechanical Properties of β -titanium Alloys Using Machine Learning Approaches.
[Indian Patent Published \(E-2/43334/2022-CHE, 202241057770/10/10/2022\)](#)
- [5] Design and method of developing starch-based Bioplastics for sustainable food packaging- Effect of CMC and citric acid
[Indian Patent Published, Application No.: 202441039489, Applied Date: 21/05/24](#)
- [6] Design and method of developing starch-based Bioplastics with nanofillers for sustainable food packaging
[Indian Patent Published, Application No.: 202441039491, Applied Date: 21/05/24](#)

Book Chapters Published

- [1] K. Jagadish, **S. Yallappa**, B.N. Chandrashekar, B.L.Dhananjaya, S. Srikantaswamy
Eco-friendly synthesis of metal /metal oxide nanoparticles and their application in food packaging and food preservation
Impact of Nanoscience in the Food Industry, Handbook of Food Bioengineering, 2018, Pages 197-216. <https://doi.org/10.1016/B978-0-12-811441-4.00008-X>
- [2] S. Nazimunnisa, V. Veeranna , V. Venkatalakshmi and **S. Yallappa**
Second-Order Derivative Spectrophotometric Estimation of Magnesium and Titanium Using 3- Aminopyridine-2-Carboxal Dehydethiosemicarbazone
Novel Aspects on Chemistry and Biochemistry Vol. 6. DOI: 10.9734/bpi/nacb/v6/6980A

Key Publications

- [1] **S. Yallappa**, J. Manjanna, M.A. Sindhe, N.D. Satyanarayan, S.N. Pramod and K. Nagaraja, Microwave assisted rapid synthesis and biological evaluation of stable copper nanoparticles using *T. arjuna* bark extract. [*Spectrochimica Acta Part A* 110 \(2013\) 108-115.](#)
- [2] **S. Yallappa**, J. Manjanna, B. L. Dhananjaya, U. Vishwanatha, B. Ravishankar and H. Gururaj, Phytosynthesis of gold nanoparticles using *Mappiafoetida* leaves extract and their conjugation with folic acid for delivery of doxorubicin to cancer cells. [*Journal of Material Science : Materials in Medicine* 26 \(2015\) 235-247.](#)
- [3] **S. Yallappa**, J. Manjanna, B.L. Dhananjaya, U. Vishwanatha, B. Ravishankar, H. Gururaj, P. Niranjana and B.S. Hungund, Phytochemically functionalized Cu and Ag nanoparticles embedded in MWCNTs for enhanced antimicrobial and anticancer properties. [*Nano Micro Letters* 8\(2\)\(2016\) 120-130.](#)
- [4] K. Shankamma, **S. Yallappa**, M.B. Shivanna and J. Manjanna, Fe₂O₃ magnetic nanoparticles to enhance *S. lycopersicum* (Tomato) plant growth and their biomineralization. [*Applied Nanoscience* 6 \(2016\) 983–990.](#)
- [5] **S. Yallappa**, S.A.A. Manaf, and Gurumurthy Hegde, Synthesis of biocompatible nanoporous carbons and its bio-conjugation with fluorescent dye for cellular imaging and its delivery to cancer cells. [*New Carbon Materials* 33 \(2018\)162-172.](#)
- [6] S.S. Godipurge¹, **S. Yallappa**¹, N.J. Biradar, J.S. Biradar, B.L. Dhananjaya, Gajanan Hegde, K. Jagadish, Gurumurthy Hegde
- A facile and green strategy for the synthesis of Au, Ag and Au–Ag alloy nanoparticles using aerial parts of *R. hypocrateriformis* extract and their biological evaluation. [*Enzyme and Microbial Technology* 95 \(2016\) 174–184.](#)
- [7] A. Divyashree, S.A.A. Manaf, **S. Yallappa**, Kathyayini and Gurumurthy Hegde, Low cost, high performance supercapacitor electrode using Coconut wastes: eco-friendly approach. [*Journal of Energy Chemistry* 25 \(2016\)880-887.](#)
- [8] S. Shashidhar Bharadwaj, Boja Poojary and **S. Yallappa**, Design, synthesis and pharmacological studies of some new quinoline Schiff bases and 2,5-disubstituted-[1,3,4]-oxadiazoles. [*New Journal of Chemistry* 2017,41, 8568-8585.](#)

- [9] **S. Yallappa**, D.R. Deepthi, S. Yashaswini, R. Hamsanandini, M. Chandraprasad, S. Ashok Kumar, Gurumurthy Hegde, Natural biowaste of Groundnut shell derived nano carbons: Synthesis, characterization and its in vitro antibacterial activity. [*Nano-Structures & Nano-Objects* 12 \(2017\) 84–90.](#)
- [10] D.M. Surendra, N.A. Chamaraja, S.S. Godipurge, **S. Yallappa**. Synthesis and functionalization of silver ferrite (AgFe₂O₃) nanoparticles with L-methionine: *In vivo* toxicity studies against *Drosophila melanogaster* (Diptera: Drosophilidae) [*Results in Chemistry* 4 \(2022\) 100565.](#)
- [11] E. Shruthi, **S. Yallappa**, N. M. Mallikarjuna, V. Talavara, B. L. Dhananjaya, V. P. Vaidya 8-Nitronaphthofuran Fused Urea Derivatives as Potential Antimicrobial Agents: Synthesis, Characterization and Pharmacological Studies, [*ChemistrySelect-8* \(2023\), e202204979.](#)
- [12] P.S. Nandisha, Sowbhagya **S. Yallappa**, Synthesis and characterization of ternary NiO@Bi₂MoO₆–MoS heterojunction with enhanced photodegradation efficiency towards indigo carmine dye. [*Solid State Sciences* 139 \(2023\) 107157.](#)
- [13] B. M. Basavaraja Patel, M. Revanasiddappa, **S. Yallappa**, and D. R. Rangaswamy, Iron decorated polypyrrole with tellurium oxide ternary nanocomposites: Synthesis, electrical conductivity, and EMI shielding applications. [*Journal of Material Science and Material in Electronics* 34 \(2023\) 866.](#)
- [14] Nazimunnisa, V. veeranna, V. Venkata Laxmi, Pathalinga prasad and **S. Yallappa**, First-Order Derivative Spectrophotometry Method with Triapine as Chelating Agent for Simultaneous Determination of Barium(II) and Lead(II) [*Asian Journal of Chemistry*; 35\(5\) \(2023\), 1231-1236.](#)
- [15] G. Hegde, **S. Yallappa**, T. Khadre, Sudha Joseph, J. Manjanna, Plant-extract-assisted green synthesis of silver nanoparticles using *Macaranga Indica* bark extract for antimicrobial and photocatalytic activity. [*Journal of ISAS* 1\(4\) 2023 12-24.](#)
- [16] **S. Yallappa et al.**, Phytochemically functionalized silver nanoparticles for *Bombyx mori* L. larvae to control Flacheria and Sappe silkworm diseases, [*Journal of Plant Nano Biology*, 5 \(2023\) 100048](#)
- [17] H.M. Rashmi, M. Revanasiddappa, M. Surekha, D. R. Rangaswamy and **S. Yallappa**. Electrical conductivity and EMI shielding efficiency of PPY-PVA-Ni nanocomposite films. [*Polymer science B* 65 \(2023\) 6](#)

- [18] P.S. Nandisha , Sowbhagya, **S. Yallappa**, K.L. Nagashree, S. Manjunatha, B. Umesha, Areej Al Bahir. Synergic formulation of Ipomoea batatas quercetin loaded with zinc oxide nanoparticles: Photocatalysis of the methylene blue and cango red dyes and biological evaluations. [*Journal of Molecular Structure* 1315 \(2024\) 138766](#)
- [19] Sudha Joseph, Akshata Raveendra Hegde, Vishwa Gopalakrishnan, **S. Yallappa**, N.I.M. Nadzri, Kavitha Joseph, and K. Meenakshi. Biodegradable Plastics from Mango Seed Starch for Sustainable Food Packaging-Effect of Citric Acid and Fillers. [*ChemistrySelect* 9 \(2024\) e202401312](#)
- [20] P S Nandisha, Sowbhagya , **S. Yallappa** , B. Umesha, K. Ramakrishna Reddy, B. Venkatanarayana Reddy. Lanthanum anchored NiCo₂S₄ nanocomposite and their structural, optical, and enhanced photodegradation of Indigo Carmine (InC) dye. [*Materials Letters* 373 \(2024 \) 137093.](#)

Refer full paper list at: <https://scholar.google.co.in/citations?user=onle2LwAAAAJ&hl=en>

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