



Dr. JOTIRAM GANPAT GUJAR

Associate Professor, Department of Chemical Engineering

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OVERVIEW:

Qualifications: Ph.D. (Chemical Engineering), M. Tech (Chem), BE (Chem)
Experience: Teaching -17 years; Research – 4.5 years
Date of Joining STES: 11/01/2010
Skills and Proficiencies: Experience of handling analytical instruments like UV – Visible Spectrophotometer, AAS, HPLC, GC etc.

SIGNIFICANT ACHIEVEMENTS:

- Nominated as a member of Board of Studies for Chemical and Petroleum Engineering Board at Savitribai Phule Pune University (SPPU).
- Nominated as a Adhoc BOS Member for Chemical Engineering Board at Punyashlok Ahilyadevi Holkar Solapur University
- **GATE 2003:** Score of 86.47 Percentile, Organized by IIT Madras.
- **Research fellowship under TEQIP- Networking:** - Awarded research fellowship under TEQIP- Networking (a World Bank assisted project) collaborated with ICT Mumbai during Ph. D work (Nov. 2005 to March.2009) at Dr.BATU, Lonere, Raigad.
- **Best Oral Paper Presentation Prize:** - Awarded with Best Oral (paper presentation) Prize in the International conference held at Dr. D.Y Patil College of Engineering and Technology Kolhapur (21-23 Oct. 2008).

AREA OF EXPERTISE /RESEARCH INTERESTS:

Natural product extraction, Wastewater treatment, Applications of AI in Chemical Engineering

NUMBER OF STUDENTS GUIDED:

- PG: – 13 , UG: – 55+ Groups

RESEARCH PULICATIONS:

Publication Summary:

| | |
|------------------------|----|
| Scopus/SCI | 13 |
| International Journal: | 26 |
| Conference: | 22 |
| Book Chapter: | 05 |
| h-index : | 06 |
| i10 index : | 03 |

<https://scholar.google.com/citations?user=Cws39zsAAAAJ&hl=en>

FUNDED RESEARCH PROJECT:

- Modeling and experimental studies on Microwave and Ultrasound assisted extraction of shikimic acid from Arjuna seed “sanctioned by IChE Kolkatta, BCUD, SPPU, Pune, Amount Rs.50000, Year 2012-13.
- Kinetic, Mass transfer & Optimization studies on extraction of Eugenol from *Eugenia aromaticum* (Clove) sanctioned by, BCUD, SPPU, Pune, Amount Rs.230000, Year 2014-16.

RESEARCH WORK:

PhD Research Work:

Title: Experimental and modeling studies on extraction of pharmaceutically active ingredients from medicinal plants

Plant kingdom is rich in complex biomolecules, which are synthesized by a variety of plants as a part of their metabolic processes. Isolation and purification of these active ingredients from different parts of a plant have remained more of an art for several centuries. Majority of the extraction processes employ organic solvents for extraction. These studies were conducted with a few known and also hitherto unknown natural products with an emphasis on engineering principles of all the related operations. Extraction, isolation, quantification of active ingredients and various process parameters were studied for different medicinal plants taking into accounts their pharmaceutical importance and availability of raw material.

During this work, following active ingredients have been extracted using medicinal plants

- Extraction of catechin hydrate and epicatechin from *green tea* leaves having pharmaceutical activity like antioxidant, anti-cancer.
- Extraction of α -amyrin, β -amyrin from latex of *calotropis gigantean* (Rui) having pharmaceutical activity like Anti-inflammatory Purgative.
- Extraction of thymol from seed of *Trachyspermum ammi* (Ajwain) having pharmaceutical activity like having Fungicide, Cough treatment.
- Various process parameters like effect of speed of agitation, temperature, solvent, particle size, solid loading were studied for all species.
- Novel method of extraction like microwave assisted extraction and ultrasound assisted extraction has been studied.
- A steady state diffusion model was developed and experimental data were fitted with the proposed diffusion model.

NOTABLE GUIDED PROJECTS:

PG Projects:

- Experimental and Modeling studies on Ultrasound and Microwave assisted Extraction of anti-inflammatory Shikimic acid from seeds of arjuna seed (2011-12) in collaboration with

IRSHA Pune

- Extraction of anti-inflammatory Vasicine from adulsa leaves (2012-13)

UG Projects:

Project collaborated with Equinox Software and Services Pvt. Ltd. Pune

Outcome: Paper published in Scopus indexed journal

- Kale, P., Pujari, S., **Gujar, J. G.**, Sontakke, R., Haddadi, E. I., & Sonawane, S. Batch distillation for separating the acetone and n-heptane binary azeotrope mixture: Optimization and simulation. Journal of the Indian Chemical Society, (2023), 100 (1) 100795, Scopus , Web of Science Indexed (Impact Factor= 3.20)
- **Simulation of Batch Distillation** in collaboration with Equinox Software and Services Ltd. Pune (2021-22)
- **Study of Organic Rankine Cycle** in collaboration with NCL Pune (2020-21)
- **Reaction Scheme Design for Production of Hydrogen by Using Catalytic Steam Reformer** in collaboration with NCL Pune (2019-20)

RESOURCE PERSON TO INDUSTRY/ACADEMIA:

- Working as subject expert for project staff recruitment interviews at CSIR-NCL Pune
- Worked as a reviewer for peer reviewed journals like Advanced Engineering Materials (Scopus indexed, impact factor 5.7), Natural Product Research (SCI, Scopus indexed, impact factor 2.1), Canadian Journal of Chemical Engineering (SCI, Wiley Online Library, impact factor 1.6) and Journal of Experimental Pharmacology (Scopus and PubMed)
- Delivered expert session in one week AICTE funded (ATAL) online FDP on “Recent Trends in allied and Chemical Industry” organized by Govt. Polytechnic Daman, Gujarat during 21-25 June 2021.
- Worked as reviewer for International Conference on Sustainable Development (ICSD-2019), Feb. 14 – 15, 2019, organized by Department of Mechanical Engg. at SCOE Pune
- Delivered course work lectures as expert in integrated PhD course in Biotech & Chem Engg for Advanced Transport Phenomena and Advanced Modeling Techniques at SPPU Pune
- Worked as Judge for Prakalp – A national conference held at Department of Chemical Engineering, MAE Alandi, 2010,2011,2012
- Worked as Judge for the National level paper presentation conference held at Department of Chemical Engg. Bharati Vidyapeeth College of Engg. Pune (Bhartiyam 2019) on 26th and 27th March 2019.
- Worked as external examiner for B. Tech Chemical Engg. & Petrochemical Engg. & M. Tech (Chem Engg.) at various Universities like Dr. BATU, Lonere, UDCT Jalgaon, Bharti Vidyapeeth, Pune, Shivaji University Kolhapur.

SUBJECTS TAUGHTS:

- Fluid Mechanics
- Transport Phenomena
- Petroleum Refining
- Petrochemical Engineering
- Advanced Transport Phenomena
- Advanced Separation Processes

FDP/STTP/SDP/WORKSHOPS ORGANIZED AS A COORDINATOR:

- Coordinator of One day IP awareness workshop on “How to defend a patent in the phase of hearing examination” Sinhgad College of Engineering, Pune, 6th Oct. 2023.
- Coordinator of two days seminar on “Recent advances in separation technology” Sinhgad College of Engineering, Pune, 3-4 May 2023.
- Coordinator of One week online FDP on “Principles and applications to Sophisticated analytical instruments for chemical and material sciences” Sinhgad College of Engineering, Pune, 21-25 July 2020.
- Coordinator of two days seminar on “Recent advances in separation technology” Sinhgad College of Engineering, Pune, 3-4 May 2023, Sponsored by BCUD, SPPU, Pune, Amount Rs.25000, Year 2012-13.

CONFERENCES ATTENDED:

- **J. G. Gujar** “Recent advances in Natural product extraction” International E-Conference RTCTT-2020 organized jointly by the University Institute of Chemical Technology, Kavayitri Bahinabai Chaudhari NMU Jalgaon 24-26 Aug. 2020.
- **J G Gujar**, S M Chavan “Kinetic, Mass transfer & Optimization studies on extraction of Eugenol from *Eugenia aromaticum* (Clove)” INNOVATION 15 which is scheduled during (1st July 2015) at MES- College of Engineering, Pune.
- Jaikumar Motwani, **J. G. Gujar**, Ramanand Ghodke, S.M. Chavan , Suresh Jagtap, Santosh Devekar “Study of Extraction of Shikimic Acid from Arjuna seed: Experimental & Modelling Approach” accepted paper in “CHEMCON-2013” which is scheduled during (27th -30th Dec. 2013) at ICT, Mumbai.
- **J. G. Gujar**, “Kinetic Perspective And Equilibrium Adsorption Studies On Extraction Of Catechin Compounds From Indian Green Tea Leaves” presented paper in International conference held at D.Y Patil college of Engineering and Technology Kolhapur (21-23 Oct. 2008)
- **J. G. Gujar**, “Study of Extraction of Catechin hydrate and Epicatechin from *green tea leaves*” presented paper in “Young Researcher’s Conference” National level paper presentation organized by Institute of Chemical Technology, Mumbai (22-23, Jan. 2008)
- **J. G. Gujar**, S. J. Wagh, V. G. Gaikar “Recent Trends in Extraction and Separation Techniques For Pharmaceutically Active Ingredients” presented paper in “CHEMCON-2007” international level paper presentation held at Kolkatta (27-30, Dec. 2007)
- **J. G. Gujar**, S. Chattopadhyay , S. J. Wagh, V. G. Gaikar “Leaching Of Polyphenols From Tea Powder Using Ultrasound: - Experimental and Kinetic Study” presented paper in “CHEMCON-2007” which was held at Kolkatta (27-30, Dec. 2007)

FDP/STTP/SDP ATTENDED:

- Successfully completed Mission 10X High Impact Teaching Skill and Cambridge Certification course, 2010
- Total Number of FDP/STTP/SDP attended:-15
- Total Number of Workshops/Seminar/Webinar attended:-45

RESPONSIBILITIES HANDLED AT STES/SCOE/DEPT:

Society Level

- Committee Member: Sinhgad Karandak

Institute Level (SCOE)

- Working as a Chairman annual college magazine Srujan from last ten years.
- Worked as a INSEM CAP coordinator for SEM I of Dec. 2022-23 & SEM II of May 2018-19.
- Worked as a member for “INNOVATION 2010” at institute level
- Working as ARIIA coordinator at Institute level.
- Discipline committee member for Techtonic 2012, 2013, 2014.

Department Level (Chemical Engineering)

- Departmental NBA Co-ordinator
- Lab In charge for Project Laboratory
- Departmental Examination Co-ordinator
- Departmental Research Coordinator
- Departmental IIC Coordinator
- Project Guide for BE & ME students
- NBA Criterion 5 Co-Ordinator
- Departmental Techtonic Event Coordinator

DECLARATION:

I hereby declare that all the above information furnished by me is true to the best of my knowledge.

Date: 12 / 12 / 2024

Signature