

SONAL SUKHADEO FANDE

PhD Candidate

MEMS, Microfluidics and Nanoelectronics Lab

Department of Pharmacy / Electrical and Electronics Engineering

BITS Pilani, Hyderabad Campus, Hyderabad, Telangana, India

Email: p20210452@hyderabad.bits-pilani.ac.in / fandesonal12@gmail.com

Phone: +91 7798047827 | Lab web: <https://www.mmne.in/sonal-fande>

Education:

PhD (pursuing): 03/2022-06/2025

- MEMS, Microfluidic, and Nanoelectronics lab, BITS-Pilani, Hyderabad campus, Hyderabad, Telangana (India) as ICMR Senior Research Fellow.
- Ph.D. Thesis Title: Development of Wearable Biosensors for On-Site, Real-Time Biomarkers, Pathogens, and Biochemical Detection.
- Supervisors: Prof. Sanket Goel (EEE) and Prof. D Sriram (Pharmacy)

Master of Pharmacy (Quality Assurance): 08/2017- 07/2019

- Government College of Pharmacy, Amravati.
- Master's thesis entitled: "Development and validation of RP-HPLC method on the anticancer drug in bulk and pharmaceutical dosage form".
- SGPA: 7.76

Bachelor of Pharmacy (Pharmaceutical Sciences): 08/2013-07/2017

- Rashtrasant Tukadoji Maharaj Nagpur University, Nagpur, Maharashtra.
- Bachelor's thesis entitled: Project work "Development of radial arm maze apparatus used in memory enhancing activity."
- SGPA: 7.95

Achievements:

- Qualified GPAT 2017.
- Awarded ICMR-SRF Fellowship from ICMR Scientific Project Review Group.
- Wise-YP Big Idea Pitch Competition Award Winner for Impactful Solution.
- Idea Pitch Competition Winner (2nd Prize) in Women Hackathon 2.0 for Innovative Ideas in health and wellness.
- Live Demo Presentation on "Multiplexed Electrochemical Biosensing Platform for Ultrafast Detection of Antibiotic-Resistant Bacteria" at APSCON 2024 Conference.
- Received OeAD (Austrian Agency for Education and Internationalisation) Research Fellowship as a visiting fellow at the University of Vienna, Austria.
- Attended the 8th International Conference on Biosensing Technology held on 12-15 May 2024, Seville, Spain.

Experience:

- Research Intern, Cubic Lab, Ankleshwar: October 2018 - December 2018
- Trainee, Farbe Firma, Ankleshwar: December 2018-April 2019
- Quality Assurance Executive, Medi-assist, Pune: Sept 2019 – January 2021

Certificates/Workshop:

- Participated in a national-level poster presentation on “Quality risk management of drug in pharmaceutical” at 68h Indian Pharmaceutical Congress, Vishakhapatnam.
- Completed certification in the CSIR-SRPT Program on “green catalysis” under Dr. G Sudhakar, CSIR-ICT Hyderabad, organized by CSIR-NEIST Jorhat.
- Attended a two-day workshop on the partners in energy environment engineering education and research for sustainable development by the Directory of Internationalization and Quality Development in Higher Education, Norway.
- Attended an online workshop on “Research methodology and scientific writing” organized by Biotechnika.
- Completed the course on introduction to device and system packaging organized by the Centre for Research Excellence in Semiconductor Technologies (CREST) BITS-Pilani.
- Attended a one-day workshop on Exploring Intellectual Property: From Concept to Protection - A Novelty Check Workshop, Organized by the Institution’s Innovation Council (IIC), BITS, Pilani Hyderabad Campus, Hyderabad.
- Presented a poster at the 8th International Conference on Biosensing Technology held on 12-15 May 2024, Seville, Spain.

Technical skills:

- Biosensors Development, Electrochemical Analysis, Point-of-care Devices Fabrication, Biomarkers Detection, Microfluidics, Data Analysis.
- Bacteria Culturing, Cell-culture, Microbial assays.
- Good orator, Scientific writing, and good presentation skills.
- Expertise in Characterization techniques like UV, FT-IR, Raman, XPS, XRD and Chromatographic techniques (GC/LC-MS, HPLC).

- Hands-on Software's such as Solid Works, AutoCAD, Corel Draw, and COMSOL Simulation.
- Synthesis of Molecularly Imprinted Polymers (MIPs) for biosensing applications.

Publications:

1. **Fande, S.**, Amreen, K., Sriram, D., & Goel, S. (2023). Microfluidic electrochemical device for real-time culturing and interference-free detection of Escherichia coli. *Analytica Chimica Acta*, 1237, 340591.
2. **Fande, S.**, Amreen, K., Sriram, D., Mateev, V., & Goel, S. (2023). Electromicrofluidic Device for Interference-Free Rapid Antibiotic Susceptibility Testing of Escherichia coli from Real Samples. *Sensors*, 23(23), 9314.
3. **Fande, S.**, Srikanth, S., Jayapiriya, U. S., Amreen, K., Dubey, S. K., Javed, A., & Goel, S. (2023). A protocol to execute a lab-on-chip platform for simultaneous bacteria culture and electrochemical detection. *STAR protocols*, 4(2), 102327.
4. **Sonal Fande**, Prohit Mishra, Rishabh Agrawal, Nitin Indurwade, Development of radial arm maze apparatus used in memory enhancing activity, *International Journal of Research and Analytical Review*, vol. 5(3), 2018.
5. **Sonal Fande**, Khairunnisa Amreen, D. Sriram and Sanket Goel, Electrochemical Micro-scaled Biosensor for Non-invasive Detection of Lactate, *IEEE Xplore*, 2023. (Conference paper).

Patents:

1. Device for Simultaneous Culturing and Detection of Microorganism, Sangam Srikanth, Sonal Fande, Khairunnisa Amreen, Satish Kumar Dubey, Arshad Javed and Sanket Goel, Indian Patent, filed, 202211058942, Oct-22.
2. A Flexible Microheater and A Process for Fabrication Thereof, Sanket Goel, Sonal Fande and Khairunnisa Amreen, Indian Patent, filed, 202411000357, Jan-24.
3. Multiplexed biosensing device for detecting antibiotic-resistant bacteria, Sonal Fande and Sanket Goel, Indian Patent, filed, 202411015293, Mar-24.
4. A Process to fabricate the gold electrodes on a flexible and inflexible substrate, Sonal Fande, Aniket Balapure, Sanket Goel, Satish Kumar Dubey, Narayan Rao, Indian Patent, filed, 202411030694, April 24.