



**Dr. Pravin K. Shende**

Professor

Department of Pharmaceutical Technology (Formulations)

National Institute of Pharmaceutical Education and Research (NIPER)

Sector 67, SAS Nagar (Mohali) -160062 Punjab (India).

Email: [pravinshende@niper.ac.in](mailto:pravinshende@niper.ac.in)

Phone No. +91(172)-2292000 Extn. 2227

**QUALIFICATIONS:**

- Post-Doctoral Fellow, Unito, Italy
- Doctor of Philosophy (Ph.D. in Pharmaceutical Sciences)
- Master of Pharmacy (Pharmaceutics)

**Introduction**

Dr. Pravin Shende, demonstrates **19 years** of experience, including **3** post-doctorates at the University of Torino, Italy. He is passionate about driving innovation in pharmaceutical sciences through research, development, and academics. His expertise lies in advanced pharmaceutical research with a range of innovative areas such as controlled and sustained drug delivery systems, nanoparticulate and topical drug delivery systems, and biocarrier drug delivery systems. Additionally, he specializes in Design of Experiments (DoE)-based formulation and development, targeted drug delivery systems for oncologic and anti-inflammatory actives, as well as protein, peptide, and DNA-based formulations.

**INTEREST AREAS:**

- Fabrication of different nanocarriers like nanocomposites, microneedle, nanosponges, nanoclusters, dendrimers, liposomes, SLNs, etc for cancer, diabetes, neurological disorders.
- Gaseous nanoparticles, nanoflowers, nanopopcorns, nanobubbles, resealed erythrocytes.

- Nanotechnology-based sensor development for biofluids like saliva, urine, blood, etc for asthma, kidney cancer, pregnancy detections.
- Routes of delivery like transdermal, intra-nasal, pulmonary, injectable and oral.
- Cyclodextrins for nanotechnology-based product development like nanocomposite, filters, MIP and non-MIP based products, herbal or phytochemical systems.
- Cosmetics: Hair gel, solid and liquid soaps preparation.
- Polymeric nanoparticles, carbon NP, magnetic NP, nanocrystals, etc.
- Preformulation and stability studies of conventional dosage forms, etc.
- Technology transfer for stabilization of excipients, drugs and formulations.

Dr. Shende has made significant contributions to the field, evidenced by over **200 publications** in nanotechnology, as well as multiple patents. His work has earned him recognition on Stanford University's annual list of the top 2% of scientists globally.

**RESEARCH PUBLICATIONS/PRESENTATIONS/CONFERENCES/WORKSHOPS/SEMINARS:**

- Publications – 208
- Book- 1
- Book Chapters- 12
- Presentations- 19
- Conferences/Workshops/Seminars attended- 28
- Patents- 7 (National and International)

**Links:**

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

SCOPUS: <https://www.scopus.com/authid/detail.uri?authorId=26647038100>

## **RESEARCH EXPERIENCE:**

### **Experience of First Post Doctorate:**

#### **Project Scheme: Indo-Italian research scheme**

Nanosponges are mostly prepared using polymer condensation method. But this method is time consuming and wastage of solvents are more. To avoid such problems, new synthetic method of interfacial polymerization is developed and patented internationally. The link of patent is:

<https://patents.google.com/patent/WO2012147069A1/sv>

Advantages:

1. Simple and economic method.
2. Steps involved in synthesis reduced.
3. Green synthesis, high reaction rates at mild reaction conditions, etc.

### **Experience of Second Post Doctorate:**

#### **Project sponsored by: Syngenta agro, United Kingdom**

This project was based on the nanoparticle formulation and characterization for increasing the longevity of flowers, vegetables, fruits, etc. Gas loaded nanoparticles were prepared and characterized using DSC, FTIR and GC-MS. These nanoparticles showed an increment of longevity of flowers, vegetables and fruits for 15 days. Project is not published and elaborated here due to signing of confidential agreement.

### **Experience of Third Post Doctorate:**

#### **Project sponsored by: Stabiwine, France**

Different nanosponges were used for the removal of undesirable aroma in wine due to aggregation of proteins during storage period. Efficiently adsorbed aroma on nanosponges using molecularly imprinted polymerization methods. Project is not published and elaborated here due to signing of confidential agreement.

## **GRANTS/INDUSTRY PROJECTS:**

- **Government-funded projects**

- DST-SERB, Govt. of India, Intranasal synthetic neuropeptide Y based brain targeting nanosponges for seizure attenuation in epilepsy. (Project sanctioned of Rs. 22 L).
- ICMR, Govt. of India, Intranasal formulation of siRNA-conjugated nanosponges for brain targeting in the treatment of Alzheimer's disease- (Project sanctioned of Rs. 29.52 L).
- AICTE, Govt. of India, EGFR-targeting PAMAM dendrimer-based conjugates for prolonged therapeutic efficacy in ovarian cancer. (Project sanctioned of Rs. 17 L).
- RGSTC, Govt. of Maharashtra, Microporous Herbal Dental Glue for Hemostatic and Tissue Healing Actions. (Project sanctioned of Rs. 28.29L).

- **Industry projects:**

- Freunds Corporation, Japan on “Formulation and characterization of tablets of different drugs’. (Project sanctioned of Rs. Rs.5.99 L).
- Gangwal Chemicals Pvt. Ltd, India on ‘Development and characterization of free-flowing powder’. (Project sanctioned of Rs. Rs.5.99 L).
- Septalyst lifesciences Pvt. Ltd. Thane, India on ‘Reduction in size of the tablets of XYZ’. (Project sanctioned of Rs. 6 L).
- Septalyst lifesciences Pvt. Ltd. Thane, India on ‘Bioavailability study of Test tablet of Septalyst’ (Project sanctioned of Rs. Rs. 6.49 L).

#### **RECENT KEY PUBLICATIONS:**

1. Kothawade, S., Shende, P. (2024) Coordination Bonded Stimuli-Responsive Drug Delivery System of Chemical Actives with Metal in Pharmaceutical Applications. *Coordination Chemistry Reviews*, 510, 215851. (IF= 20.3).
2. Dholakia, J., Prabhakar, B., Shende, P. (2024) Pulmonary Administration of Cross-Linked Chitosan Nanoparticles of Genistein for Regulating Blood Glucose. *International Journal of Biological Macromolecules*, 276, 133854. (IF= 7.7).
3. Batra, P., & Shende, P. (2024).  $\beta$ -cyclodextrin-based supramolecular micelles of diosgenin conjugated with anti-CD64 antibody for rheumatoid arthritis. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 688, 133521. (IF = 4.9).
4. Kharangate, K., & Shende, P. (2024). A stimuli-responsive keratin functionalized PEI coated baicalin nano-hydrogels for modulated gastric ulcer therapy. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*, 705, 135541. (IF= 4.9).
5. Kumar, P., Bhardwaj, V. K., Shende, P., & Purohit, R. (2024). Computational and experimental analysis of luteolin- $\beta$ -cyclodextrin supramolecular complexes: Insights into conformational dynamics and phase solubility. *European Journal of Pharmaceutics and Biopharmaceutics*, 114, 114569. (IF= 4.4).

#### **ACADEMIC ACTIVITIES:**

- He has guided more than fifty M.Pharm. students for their research projects.
- Under his guidance and supervision, five Ph.D. students completed their PhD, and three Ph.D. research scholars are registered under him.

## HONORS & AWARDS:

- Best *in-vivo* study award for the project entitled “Microporous herbal dental glue for hemostatic and tissue healing actions” by Rajiv Gandhi Science and Technology Management, Govt. of Maharashtra, India, Desai Sethi school of entrepreneurship, IIT Bombay, India and Biomedical Engineering and Technology Innovation Centre, IIT Bombay, India.
- “Literati Award Winners 2021 for outstanding paper [Glucose oxidase-based biosensor for glucose detection from biological fluids](#)” .
- Top 2% Scientists in the world by Stanford University: Year 2024, 2023, 2022 and 2021
- Best Researcher awards: Year 2023, 2022, 2021, 2019 and 2018.
- Abstract entitled “Transporters in drug delivery” [Video file] was presented at The Biomedical & Life Sciences Collection, Henry Stewart Talks in the USA.