TEJASHREE VILAS WAGHULE

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BRIEF INTRODUCTION:

I am currently working as an Associate Scientist in Lupin Limited, Pune. I have completed my PhD (specialization in pharmaceutics) from Birla Institute of Technology and Sciences, Pilani. I have acquired experience in analytical techniques, Quality by Design (QbD), formulation and optimization of various dosage forms for topical, transdermal and intravenous delivery, characterization of the dosage forms and pharmacokinetics. I have hands on experience on various softwares utilized in the field of pharmacy. I have authored and co-authored several review and research papers in reputed journals (total citations 1450, h-index: 16).

ACADEMICS:

Qualification	Name of Institute	Percentage/ CGPA	Year of passing
PhD (Pharmaceutics)	Birla Institute of Technology and Sciences, Pilani, Rajasthan	Completed	2023
M-pharm (Pharmaceutics)		9.12	2019
B-pharm	Bombay College of Pharmacy, Kalina	7.14	2017
H.S.C	B.N. Bandodkar College of Science, Thane	74.33 %	2013
S.S.C	Sau. A. K. Joshi English Medium School, Thane	94 %	2011

PROFESSIONAL EXPERIENCE:

Research experience - PhD

Formulation, optimization and characterization of lipid based nanocarriers for intravenous delivery of an anti-cancer drug (Temozolomide).

- Analytical and bioanalytical method development and validation using UV-visible spectrometer and HPLC; Preformulation studies like solid-state characterization (DSC, FTIR/ATR, XRD), solubility studies, solid and solution state stability, degradation rate kinetics, partition coefficient
- **Formulation and optimization** of lipid-based nanocarriers like lipid nanocapsules, lyotropic liquid crystals, proliposomes and liposomes by various preparation techniques like hot melt emulsification, homogenization, probe sonication, rotary evaporation, microfluidics and membrane extrusion using the principles of Quality by Design
- **Characterization techniques** like particle size distribution, morphology, zeta potential, morphology, in-vitro drug release, hemolysis, cytotoxicity, and cell-uptake
- Pharmacokinetic studies in rats, biodistribution in different organs like brain, liver, spleen, kidney, lungs and heart

Research experience – M-pharm

- Formulation and optimization of nanostructured lipid carriers for topical delivery of an anti-fungal drug Voriconazole using QbD
- Formulation and optimization of lyotropic liquid crystals for transdermal delivery of Diclofenac using QbD
- Formulation and characterization of nanocarrier loaded gel
- Characterization techniques like particle size distribution, zeta potential, morphology, in-vitro drug release, rheology, ex-vivo skin permeation and dermatokinetics
- Hands on experience in using softwares like MS office, DD solver, PK solver, Design Expert, WinNolin, Graphpad Prism, Origin, Image J, ChemDraw

Work experience

1. Working as an Associate Scientist in Lupin Limited, Pune in the department of Pharma Research, Injectables (January 2023-present).

2. Worked as a Teaching Assistant and Instructor for B-pharm and M-pharm lab courses (Dispensing pharmacy, Physical pharmacy, Advanced physical pharmacy, Instrumental methods of analysis and Pharmaceutical Quality by Design) in Birla Institute of Technology and Sciences during the year 2018-2022)

3. Completed one month of industrial training in 'MEDISYNTH' which included training in formulation and packaging departments of homeopathic creams, drops, tablets, mother tincture and QC tests in year 2016.

4. Have 1 year of teaching experience in subjects like biology and chemistry for 11th /12th std students in a private tuition during the span of year 2015-16.

CONFERENCES/ WORKSHOPS:

1. Attended Web Training Course on 'Attaining Quality Excellence in Drug Delivery Development and Research' from 29 November to 04 December 2021 organized by Punjab University, Chandigarh

2. Attended International Online Practical Training Workshop on 'QUALITY BY DESIGN (QbD)' organized by Dr. Shivang Chaudhary from 20th October to 23rd October 2021

3. Participated and volunteered in a two-day workshop on 'Pharmacokinetic and Pharmacodynamic Modeling and simulation' organized by Birla Institute of Technology and Sciences, pilani campus on 24th and 25th February 2020

4. Participated in DISSO India 2020 Online International Conference organized by Society for Pharmaceutical Dissolution Science (SPDS) from 13th to 16th May 2020.

5. Participated and poster presented in "Dissolution Science and Applications, Theme: Ensuring Built-in Quality through Dissolution Studies" organized by National Institute of Pharmaceutical Education and Research (NIPER), SAS Nagar, Chandigarh from 12-13th September, 2019 (Poster details: Tejashree Waghule, Vamshi Krishna Rapalli, Srividya Gorantla, Ranendra N. Saha, Sunil K Dubey, Gautam Singhvi. Enhanced stability and prolonged drug release of temozolomide through lipid based nanocarriers)

ACHIEVEMENTS:

1. Listed in **World's Top 2% scientist** list curated by Stanford University and Elsevier in 2022.

2. Was selected as **Zonal 1st Runner up and Semifinalist** (received a cash prize of ₹ 7,000/-) in All India 'DRPI 2021 – Online'. It is a scientific research presentation competition for young pharmaceutical researchers across academia and industry, organized by SPDS in association with

AAPS and APTI. (Title: Selection of an appropriate dissolution medium and release mechanism from lipid based nanoparticles)

3. Was awarded 'Best Researcher Award of the year', International Research Leadership Awards 2019 for excellence in, Microneedles: A smart approach and increasing potential for transdermal drug delivery system (A review article). The article is also among the top cited articles of the journal.

4. Was awarded Tata Trusts Medical and Healthcare Scholarship (a merit based scholarship) of Rs. 57400 from SIR DORABJI TATA TRUST in 2019

5. Received 'BRISTOL-MYERS SQUIBB AWARD' for meritorious performance in first semester, M-pharm (2017-18)

EXTRACURRICULAR ACTIVITIES:

1. Volunteered in various workshops/conferences conducted in Birla Institute of Technology and Sciences, pilani campus during the span of 2019 to 2021.

2. Volunteered at Rotary Mega Blood Donation Camp, in the year 2013.

3. Completed one Year Diploma in Software Programming from "Excel Computer Institute", Mumbai in the year 2012 with distinction.

4. Participated in various competitions in the college events like dance, music, street play.

5. Qualified "Intermediate Drawing Grade Examination" in the year 2008 with A grade.

PUBLICATIONS:

Research articles: (* equal contribution)

1. **Waghule T**, Swetha KL, Roy A, Saha RN, Singhvi G. Exploring temozolomide encapsulated PEGylated liposomes and lyotropic liquid crystals for effective treatment of glioblastoma: in-vitro, cell line, and pharmacokinetic studies. European Journal of Pharmaceutics and Biopharmaceutics. 2023 May 1;186:18-29.

2. **Waghule T**, Saha RN, Singhvi G. Exploring microfluidics and membrane extrusion for the formulation of temozolomide-loaded liposomes: investigating the effect of formulation and process variables. Journal of Liposome Research. 2022 Nov 11:1-3.

3. **Waghule T**, Swetha KL, Roy A, Saha RN, Singhvi G. Quality by design assisted optimization of temozolomide loaded PEGylated lyotropic liquid crystals: Investigating various formulation and process variables along with in-vitro characterization. Journal of Molecular Liquids. 2022 Apr 15;352:118724.

4. **Waghule T**, Saha RN, Singhvi G. UV spectroscopic method for estimation of temozolomide: Application in stability studies in simulated plasma pH, degradation rate kinetics, formulation design, and selection of dissolution media. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy. 2021 Sep 5;258:119848.

5. **Waghule T**, Rapalli VK, Singhvi G, Gorantla S, Khosa A, Dubey SK, Saha RN. Design of temozolomide-loaded proliposomes and lipid crystal nanoparticles with industrial feasible approaches: comparative assessment of drug loading, entrapment efficiency, and stability at plasma pH. Journal of Liposome Research. 2021 Apr 3;31(2):158-68.

6. **Waghule T***, Patil S*, Rapalli VK, Girdhar V, Gorantla S, Kumar Dubey S, Saha RN, Singhvi G. Improved skin-permeated diclofenac-loaded lyotropic liquid crystal nanoparticles: QbD-driven industrial feasible process and assessment of skin deposition. Liquid Crystals. 2021 May 28;48(7):991-1009.

7. **Waghule T***, Rapalli VK*, Singhvi G, Manchanda P, Hans N, Dubey SK, Hasnain MS, Nayak AK. Voriconazole loaded nanostructured lipid carriers based topical delivery system: QbD based designing, characterization, in-vitro and ex-vivo evaluation. Journal of Drug Delivery Science and Technology. 2019 Aug 1;52:303-15.

Review articles: (* equal contribution)

1. **Waghule T**, Saha RN, Alexander A, Singhvi G. Tailoring the multi-functional properties of phospholipids for simple to complex self-assemblies. Journal of Controlled Release. 2022 Sep 1;349:460-74.

2. **Waghule T**, Dabholkar N, Gorantla S, Rapalli VK, Saha RN, Singhvi G. Quality by design (QbD) in the formulation and optimization of liquid crystalline nanoparticles (LCNPs): A risk based industrial approach. Biomedicine & Pharmacotherapy. 2021 Sep 1;141:111940.

3. Dabholkar N*, **Waghule T***, Rapalli VK, Gorantla S, Alexander A, Saha RN, Singhvi G. Lipid shell lipid nanocapsules as smart generation lipid nanocarriers. Journal of Molecular Liquids. 2021 Oct 1;339:117145.

4. Rapalli VK*, **Waghule T***, Hans N, Mahmood A, Gorantla S, Dubey SK, Singhvi G. Insights of lyotropic liquid crystals in topical drug delivery for targeting various skin disorders. Journal of Molecular Liquids. 2020 Oct 1;315:113771.

5. **Waghule T**, Gorantla S, Rapalli VK, Shah P, Dubey SK, Saha RN, Singhvi G. Emerging trends in topical delivery of Curcumin through lipid nanocarriers: Effectiveness in skin disorders. AAPS PharmSciTech. 2020 Oct;21(7):1-2.

6. **Waghule T**, Rapalli VK, Gorantla S, Saha RN, Dubey SK, Puri A, Singhvi G. Nanostructured lipid carriers as potential drug delivery systems for skin disorders. Current Pharmaceutical Design. 2020 Oct 1;26(36):4569-79.

7. **Waghule T**, Sankar S, Rapalli VK, Gorantla S, Dubey SK, Chellappan DK, Dua K, Singhvi G. Emerging role of nanocarriers based topical delivery of anti-fungal agents in combating growing fungal infections. Dermatologic therapy. 2020 Nov;33(6):e13905.

8. **Waghule T**, Singhvi G, Dubey SK, Pandey MM, Gupta G, Singh M, Dua K. Microneedles: A smart approach and increasing potential for transdermal drug delivery system. Biomedicine & pharmacotherapy. 2019 Jan 1;109:1249-58.

Book chapters:

1. Batra U, **Waghule T**, Saha RN, Singhvi G. Liposomal Drug Delivery. Nanoparticles and Nanocarriers Based Pharmaceutical Formulations. 2022 Dec 9:303.

2. Singhvi G, Rapalli VK, **Waghule T**, Gorantla S, Pemmadi RV, Patel R, Dubey SK. Microparticulate drug delivery systems for targeting respiratory diseases. InTargeting Chronic Inflammatory Lung Diseases Using Advanced Drug Delivery Systems 2020 Jan 1 (pp. 337-357). Academic Press.

3. Chander S, Piplani M, **Waghule T**, Singhvi G. Role of chitosan in transdermal drug delivery. InChitosan in Drug Delivery 2022 Jan 1 (pp. 83-105). Academic Press.

PATENTS:

1. Process for preparing a lipid-based nanocarrier composition" (Patent No. 396280; Date of Grant: 06/05/2022)

2. PROLYOTROPIC LIQUID CRYSTALS AND METHOD FOR PREPARING THE SAME, 201911016252

3. Temozolomide – Lyotropic Lipid Nanoparticle Composite, 202111026752

PERSONAL INFORMATION:

Name: TEJASHREE VILAS WAGHULE

Date of birth: 22/03/1995

Gender: Female

Languages known: English, Marathi, Hindi

I hereby declare that the information provided above is true to the best of my knowledge

Tejashree Waghule

Date: 25/08/2023