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Vishal S Chaudhari

Career Objective: To work in a challenging environment and integrate my knowledge, capabilities and technical skills in the process of learning and exploring science and achieving goals in line with the contemporary research

EDUCATIONAL QUALIFICATIONS:

Ph.D.	Submitted in the month of August 2021 and will meet the entire requirement by October 2021
Institute:	National Institute of Pharmaceutical Education and Research (NIPER), Guwahati, India. (www.niperguwahati.ac.in)
Mentor:	Dr. Subham Banerjee
Thesis Title:	Active Plant Constituents Enriched Nanostructured Lipid Carriers Embedded into 3D Printed Wafer for Oral Cancer Mitigation in North-eastern Region of India
M.S (Pharm) (2016-2018)	Department of Pharmaceutics National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, India (www.niperhyd.ac.in) Research Fellowship by Department of Pharmaceutics, Ministry of Chemical and Fertilizers, Government of India, India Scored cGPA of **7.97** on a 10-point scale (50 credits of courses including thesis)
B. Pharm	NDMVP Samaja's College of Pharmacy, Savitribai Phule Pune University (2012-2016), Nasik, India http://www.unipune.ac.in Scored 63.41 % marks (Aggregate marks)

RESEARCH EXPERIENCE

Ph.D. Research Scholar, National Institute of Pharmaceutical Education and Research (NIPER), Hyderabad, India (www.niperhyd.ac.in) (August 2018- July 2021)

AWARDS/HONORS

- Awarded **1st Best oral presentation** at the Virtual Dissolution Discussion Group (DDG) India Meeting 2020, (15th and 16th October, 2020).
- Awarded **International travel grant** by Asian Association School of Pharmacy, Ajou University, Republic of South Korea, (2-6 July 2019).
- **Qualified GPAT** (Graduate Pharmacy Aptitude Test) in 2016, **All India Rank: 654**
- **Qualified NIPER-JEE** entrance test in 2016 with **All India Rank: 82,** was awarded post-graduation fellowship from Department of Pharmaceutical Sciences, Ministry of Chemical and Fertilizers, New Delhi during post-graduation from 2016 to 2018.

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SCIENTIFIC EXPERTISE

FORMULATION DEVELOPMENT AND PHARMACOKINETICS

- Well experienced in developing nanoformulations like **Lipid Nanoparticles and their characterizations** through various techniques
- Well experienced in developing topical and transdermal formulations and their characterizations
- Analytical method development and validation (as per ICH Q2)
- Bioanalytical method development and validation (**Plasma, Tissues** etc.).
- Animal Handling Techniques (**Rat and Rabbit**).
- Acquainted with molecular biology activities such as cytotoxicity assay, internalization assay
- Experience in preclinical (**Rat and mice**) ADME/pharmacokinetic evaluation of drugs and their formulations.
- Preclinical **tissue distribution** studies.

3D PRINTING TECHNOLOGY

- Well versed with the design and prototyping of 3D objects
- Acquainted with Fused Deposition Modelling (FDM) printer works on layer by layer melting and extrusion of polymeric filaments and Stereo-lithography (SLA) printer works on 3D printing of resins through laser

Instrumental Experience

- Highly experienced in handling instruments including HPLC, 3D printers (FDM & SLA),High Pressure Homogenizer, Differential Scanning Calorimetry, Thermo-Gravimetric Analysis, Zetasizer, Rota Evaporator, Ultra-centrifuge, Lyophilizer, UV-Visible Spectrophotometer, FT-IR, ATR, Rheometer, Cryo-tome, Microtome, Franz Diffusion Apparatus
- Analytical/Bioanalytical method development & validation of API's by using HPLC and LC-MS/MS
- Expertise in data evaluation like SEM, XRD, DSC, TEM, AFM

PROJECT HANDLED

- Active plant constituents enriched nanostructured lipid carriers embedded into 3D printed wafer against oral cancer mitigation in North-East region.
- Extruded filaments derived 3D printed medicated skin patch to mitigate destructive pulmonary tuberculosis: Design to delivery.
- 3D printed housing devices for segregated compartmental delivery of oral fixed dose anti-

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tubercular drugs adopting print & fill strategy

- Development of solid lipid nanoparticles for encapsulation of essential oil.
- Delivery of micro-particles through sterolithography mediated capsule.

COMPUTER PROFICIENCY

- Windows operating systems and application software like Microsoft Office package (MS word, Excel, Powerpoint).
- Scientific data retrieval from various Internet portals like **Sciencedirect**, **Pubmed**, **Google Scholar** and **Libgen** etc.
- Technical software (Scientific software) **Chemdraw**, Reference Management Software (**Endnote Plus**), **Graph pad Prism**, **Origin-Pro.**
- Pharmacokinetic data analysis using **Pk Analysis.**

Research Publications:

1. **Chaudhari VS**, Borkar RM, Murty USN, Banerjee S. Analytical method development and validation of reverse-phase high-performance liquid chromatography (RP-HPLC) method for simultaneous quantification of quercetin and piperine in dual-drug loaded nanostructured lipid carriers. *Journal of Pharmaceutical and Biomedical Analysis* 2020:186–113325. https://doi.org/10.1016/j.jpba.2020.113325 (Impact Factor **3.935**)
2. **Chaudhari VS**, Murty USN, Banerjee S. Nanostructured lipid carriers as a strategy for encapsulation of active plant constituents: Formulation and in vitro physicochemical characterisations. *Chemistry and Physics of Lipids* 2021: 235, 105037. https://doi.org/10.1016/j.chemphyslip.2020.105037 (Impact Factor **3.329**)
3. **Chaudhari VS,** Murty USN, Banerjee S. Fused deposition modelling (FDM)-mediated 3D printed mouth-dissolving wafers loaded with nanostructured lipid carriers (NLCs) for in vitro release. *Journal of Material Research*. 2021:1-10. https://doi.org/10.1557/s43578-021-00288-1. (Impact Factor **3.089**)
4. **Chaudhari VS**, Gavali B, Saha P, Murty USN, Naidu VGM, Banerjee S. Quercetin and piperine enriched nanostructured lipid carriers (NLCs) to improve apoptosis in oral squamous cell carcinoma (FaDu cells) with improved bio-distribution profile. *European Journal of Pharmacology*. 2021: 909, 174400. https://doi.org/10.1016/j.ejphar.2021.174400 (Impact Factor **4.432**)
5. **Chaudhari VS**, Malakar TK, Murty US, Banerjee S. Extruded filaments derived 3D printed medicated skin patch to mitigate destructive pulmonary tuberculosis: Design to delivery. Expert Opinion on Drug Delivery 2020:18; 301-313. Impact Factor (**4.838**)

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6. Malakar TK, **Chaudhari VS**, Murty US, Banerjee S. 3D printed housing devices for segregated compartmental delivery of oral fixed dose anti-tubercular drugs adopting print & fill strategy. *3D Printing and Additive Manufacturing* 2021. *Article Accepted. In Press.* Impact Factor (**5.449**)

Patents:

- Subham Banerjee, **Vishal Sharad Chaudhari**, Tushar Kanti Malakar, USN Murty. "Medicated skin patch, use and method of making thereof." Application No.: 202031018293. Patent Number: 355267. Date of Grant: 05 January 2021. **(Granted Patent)**
- **Vishal Sharad Chaudhari**, Tushar Kanti Malakar, USN Murty, Subham Banerjee. "3D Printed Mouth Dissolving Wafers" Application No. 342624-001. Cbr No. 202856, **FER Issued**: 27 May, 2021, Date of Filing: 22 April, 2021.

Published Review Articles:

- **Chaudhari VS**, Murty USN, Banerjee S. Lipidic nanomaterials to deliver natural compounds against cancer: a review. *Environmental Chemistry Letters*. 18(6), 1803-1812. 2020. **(Impact Factor: 5.922)**

Published Book Chapters:

- **Chaudhari VS**, Hazam PK, Banerjee S. "Lipid nanoarchitectonics for natural products delivery in cancer therapy." SPRINGER-NATURE book titled Pharmaceutical Technology for Natural Products Delivery, Sustainable Agriculture Reviews, Vol-44, Chapter-5, 2020, 169-203. 2020. [ISBN: 9783030418410]

Proceeding in Conferences:

- **Best Oral presentation** at Dissolution Research Presentation India **(DRPI) – 2021**, "Combinatorial delivery of nanoencapsulated active constituents embedded in 3D printed wafer for both drug and particle release applications"16th - 17th July, 2021. – **ZONAL Topper from East Zone** and **Finalist. Awarded with Certificate and INR 10,000/- cash prize**.

- Oral presentation at **19th International e-Symposium conducted by Controlled Release Society Indian Local Chapter**, "Quercetin and Piperine Encapsulated Nanostructured Lipid Carriers to Attenuate Oral Cancer: Development, Characterization and in-vitro Cellular Evaluation" 25th to 27 February 2021.

- **Best Poster presentation** at **Virtual Dissolution Discussion Group (DDG) India Meeting 2020**, "Development & in vitro release of nanostructured lipid carriers (NLCs) from FDM mediated 3D printed mouth-dissolving wafers" 15th and 16 October 2020. Agilent Technologies, USA**.**

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- Oral presentation at **4th International Conference on Nutraceuticals and Chronic Diseases – INCD 2019**, "Active Plant Constituents Enriched Nanostructured Lipid Carriers against Oral Cancer Mitigation in Northeast Region" 23rd to 25th September,2019 held at IIT-Guwahati, Assam, India.

Ph.D THESIS SUMMARY

With respect to the recent report from Indian Council for Medical Research (ICMR) for oral cancer burden in India, the North-East Region (NER) of India showed more prevalence of oral cancer. The major reason behind this is habits adapted by locals like chewing tobacco, betel quid and areca nuts. Along with this, NER is having tremendous biodiversity among medicinal plants and their therapeutic potential. But the poor solubility and permeability leading to low bioavailability of these herbal medicines halt their development and reduces utility. Advancement in nanotechnology can be the best tool for delivery of these phytoconstituents to treat life threatening diseases. In order to get societal benefits from the project, development of translational form of drug delivery is important. Hence the project was designed as *"**Active Plant Constituents Enriched Nanostructured Lipid Carriers Embedded into 3D Printed Wafer for Oral Cancer Mitigation in North-eastern Region of India**"*. In this regard, we have selected two drugs from herbal origin in combination includes quercetin and piperine, with previously well proven anti-cancer activity. Nanostructured lipid carriers (NLCs) formulation was developed to enhance the bioavailability of both drugs and can be used as novel drug delivery system against oral cancer. Further evaluation of prepared NLCs has been performed using various sophisticated advanced analytical techniques like DLS, SEM, DSC, TEM, AFM and so far. Along with this, *in-vitro* cellular evaluation has been done in cancer cell lines (FaDu Cells). Results have been found to be promising w.r.t. formulation development and its characterization. Pharmacokinetic profile along with bio-distribution in various tissues for developed NLCs has been conducted in rats followed by estimation through LCMS/MS system. 3D printed moth dissolving wafers have been developed to deliver NLCs in buccal cavity to deliver against oral cancer. The release of NLCs from wafer has been estimated for particle release application artificial saliva through derived KCPS from dynamic light scattering technique.

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Vishal S Chaudhari

Personal Details:

Full Name	:	Vishal Sharad Chaudhari
Date of Birth	:	25th March 1994.
Sex	:	Male
Local Address	:	NIPER Boy's Hostel, Changsari, Guwahati, Assam, India.
Permanent Address	:	Narayan Nagar, Bhusawal, Dist. Jalgaon, India
Language Proficiency	:	English, Hindi and Marathi

References:

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Assistant Professor, Department of Pharmaceutical Technology (Formulation),
National Institute of Pharmaceutical Education and Research, Guwahati, Assam, India.
Email I'd: navinchella@gmail.com
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Declaration:

I hereby declare that all the details furnished above are true to the best of my knowledge.

Place: Bhusawal

Date: 16/08/2021

Yours Sincerely,
Vishal S Chaudhari