

Anran Li

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EDUCATION

China Pharmaceutical University (CPU)

Sep. 2020 – Jun. 2023

M.Sc. in New Dosage Forms and Technologies, **GPA:** 90.31/100.00 (Top 3%, Ranked 4/120)

Shandong University of Traditional Chinese Medicine (SDUTCM)

Sep. 2016 – Jun. 2020

B.Sc. in Pharmaceutical Engineering, **GPA:** 82.29/100 (Top 2%, Ranked 3/247)

PUBLICATIONS

Papers:

A. Li, K. Zhang, Z. Wang, S. Liu, X. Li, J. Ren, J. Zhang, Y. Shi, Y. Gao, *Hybrid Deposition Modeling Technology for Preparing Rocket-separation 3D-print Tablet with Greater Compliance for the Treatment of Helicobacter Pylori Infection*, Advanced Materials Technologies. (Under Review)

K. Zhang, D. Zheng, A. Li, S. Liu, Z. Wang, Chen Yu, J Yu, Y Gao, J Zhang, *Recent Advances of Pharmaceutical 3D Printing Extrusion Molding Technology*, Acta Pharm. Sin. 58 (2023) 2640-2655.

F. Ding, W. Cao, R. Wang, N. Wang, A. Li, Y. Wei, S. Qian, J. Zhang, Y. Gao, Z. Pang, *Mechanistic Study on Transformation of Coamorphous Baicalein-Nicotinamide to Its Cocrystal Form*, J. Pharm. Sci. 112 (2023) 513–524.

Patent:

Y. Gao, A. Li, K. Zhang, Z. Wang, J. Zhang, S. Qian, Y. Wei. *3D Printed Combined Tablet for Treating Helicobacter Pylori Infection*: CN 116019776 A[P]. 2023-04-28.

Monograph:

A. Li, H. Zhu, S. Qian. *Research on Formulated Granules of Traditional Chinese Medicine* [J]. China Yearbook of Traditional Chinese Medicine (Academic Volume), 2021, 16 (05): 423-424.

M. Huang, A. Li, S. Qian. *Study on the Transdermal Properties of Chinese Medicine Plasters* [J]. China Yearbook of Traditional Chinese Medicine (Academic Volume), 2022, 17 (06): 425-426

RESEARCH

Research Area: 3D Printing Technology in Pharmaceutical Applications

Keywords: 3D Printing, Drug Delivery, HDM Printer, Oral Solid Dosage, Pharmaceutical Innovation

(1) 3D Printed Combination Tablet for Quad-Therapy (Project Leader)

Oct. 2021 – Jun. 2023

Supervisor: Prof. Yuan Gao

- Addressed the complexity and low patient adherence in H. pylori therapy as found in the literature.
- Innovated by designing and assembling the first HDM Printer specifically for quad-therapy tablets.
- Utilized 'rocket-separation' drug delivery mechanism in printed combination tablets.
- Developed and applied HPLC and dissolution methods to assess the quality and release profiles of the tablets.
- Presented results to professors and produced a graduation thesis and paper.

(2) Development of 3D Printed Orodispersible Tablet

Feb. 2022 – Jun. 2023

Supervisor: Prof. Jianjun Zhang

- Employed advanced polymers and plasticizers to innovate beyond the original formulation, integrating hot-melt extrusion with 3D printing for enhanced drug delivery.
- Engineered and optimized the structure of orodispersible tablets, reducing their size to alleviate patient swallowing issues while maintaining therapeutic efficacy.

(3) 3D Printing Preparation Platform Design and Construction (Project Leader)

Jul. 2021 – Jul. 2023

Supervisor: Prof. Jianjun Zhang

- Explored various 3D printing technologies and operation principles.
- Designed and assembled four structural 3D printers, including I3 and Core-XY models.
- Independently handled programming, debugging, firmware rewriting, and setup of the first 3D printing research platform in the laboratory.

Research Area: Drug Formulation and Material Science

Keywords: Drug Formulation, Pharmaceutical Excipient, Generic Drugs

(1) Study on the Properties of Microcrystalline Cellulose Powder

Jul. 2021 – Dec. 2021

Supervisor: Prof. Jianjun Zhang

- Conducted a comparative study on the effects of different sources of microcrystalline cellulose on powder flowability, tablet compressibility and dissolution.

(2) Formulation Development of Generic Anti-cancer Drug

Sep. 2020 – Jun. 2021

Supervisor: Prof. Jianjun Zhang

- Engaged in the R&D pilot scale-up and methodological validation of quality standards for generic anti-cancer drugs.
- Completed stability studies comparing in-house samples with reference formulations.

WORK EXPERIENCE

Jiangsu Aidea Pharmaceutical Co., Ltd.

Position: Formulation Scientist

Jul. 2023 – Present

Research Area: Formulation development of drugs for the treatment of AIDS

(1) Study on the Original Drug ADC201 Tablet

- Completed pilot phase studies on formulation and process parameters.
- Participated in pilot scale-up experiments and drug stability experiments.
- Written drug submissions for registration and performed data authenticity checks.
- The project has now successfully passed bioequivalence experiments.

(2) Study on the Original Drug ACC017 Tablet

- Conducted pre-formulation studies, including API particle size distribution, hygroscopicity, polymorph analysis, etc.
- Completed pilot phase studies on formulation and process parameters.
- Responsible for the writing of experimental records to ensure the authenticity and integrity of experiments.

(3) Study on solubilization of drugs by lactose

- Comparison of the solubilizing effect of different types of lactose on insoluble drugs.
- Selection of a suitable process for dosage form development based on the nature of lactose and publication of one patent.

PROFESSIONAL SKILLS

Instruments: HPLC, XRD, UV-Vis, FTIR, Laser Particle Sizing Tester, Dissolution Apparatus

Equipment: Skilled in assembling 3D printers, with the ability to operate pharmaceutical equipment such as granulators, fluidized beds, wet granulators, tablet presses, etc.

IT Skills: Proficient in Office, Zotero, Photoshop, Illustrator, Origin, Sketch UP, Simplify3D, ChemDraw

Language: Chinese Mandarin (Native), English (IELTS 5.5)

HONORS & AWARDS

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|---|-------------|
| • Aidea Pharmaceuticals Special Award: Outstanding R&D Organization | Jan. 2024 |
| • The Second Prize, CPU Scholarship | Oct. 2022 |
| • The First Prize, CPU Scholarship | Oct. 2021 |
| • Outstanding Research Poster, Jiangsu Graduate TCM Innovation Forum | Dec. 2020 |
| • Team First Prize, the Jiangsu Province Graduate Industrial Innovation Competition | Dec. 2020 |
| • The First Prize, CPU Freshman Graduate Student (Top 5%) | Sep. 2020 |
| • Shandong Province Outstanding Undergraduate Student Award (Top 1%) | Jun. 2020 |
| • SDUTCM First Prize Scholarship Winner for 3 Consecutive Years (Top 2%) | 2016 – 2019 |
| • SDUTCM Excellent Student Cadre Winner for 3 Consecutive Years | 2016 – 2019 |
| • Provincial Team Silver Award, “Internet+” Innovation and Entrepreneurship Competition | Sep. 2019 |
| • Outstanding Student, SDUTCM “Si Yuan Cup” Scholarships (Top 1%) | Sep. 2019 |
| • Second Prize, the 1st SDUTCM Tai Chi Competition | Apr. 2019 |
| • Gold Award, SDUTCM Outstanding Student Scholarship (Top 1%) | Dec. 2018 |
| • Provincial Team Third Prize, the 5th Shandong Tech Innovation Contest | Dec. 2018 |
| • Outstanding Work, Communist Youth League of China Social Practice Competition | Nov. 2017 |
| • Second Prize, the 16th SDUTCM Brush Calligraphy Contest | Nov. 2016 |

EXTRACURRICULAR ACTIVITIES

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| • Shandong Candlelight Volunteer Association Member | Aug. 2018 – Present |
| • Director of the Network Department, SDUTCM Student Union | Aug. 2018 – Feb. 2019 |
| • Director of the Propaganda Department, SDUTCM Student Union | Sep. 2017 – Sep. 2018 |