

Conversations with Pharmacy Leaders in Hong Kong – Integrating Western and Traditional Chinese Medicine: A Vision for the Future

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ABSTRACT

Professor Joan Zuo, the former Director of the School of Pharmacy at The Chinese University of Hong Kong (CUHK), shares her extensive experience in biopharmaceutics and pharmacokinetics. With over 25 years in the field, she has significantly contributed to the integration of Western and Traditional Chinese Medicine (TCM). In this interview, Professor Zuo discusses her career journey, research interests, and vision for the future of pharmacy education and practice in Hong Kong.

Keywords: *Biopharmaceutics, Pharmacokinetics, Herb-Drug Interactions, Pharmacy Education*

INTERVIEW WITH PROFESSOR JOAN ZUO

Background and Education

Professor Zuo's journey into pharmaceutical sciences began with a curiosity-driven interest in science during her middle school years. Initially fascinated by forensic medicine, she found her calling in pharmaceutical sciences due to its problem-solving nature. She completed her bachelor's degree in mainland China, which provided a solid foundation in science through extensive lab work and a year-long research project. She then pursued



a Doctor of Philosophy (Ph.D.) in Canada, focusing on biopharmaceutics and pharmacokinetics.

Reflecting on her education, Professor Zuo notes that her training in mainland China was very science-oriented, with many labs and a full year dedicated to a research-based project. This rigorous training built a solid foundation for her further studies. After completing her bachelor's degree, she worked at Xian Janssen Pharmaceutical Ltd, one of the Janssen Pharmaceutical Companies of Johnson & Johnson. It is China's first joint venture pharmaceutical manufacturing company with Good Manufacturing Practice (GMP), where she gained hands-on experience in various manufacturing processes. Such experience proved invaluable in her teaching and research career, as it provided practical insights into the pharmaceutical industry.

Career Path and Research Focus

After her initial industry experience, Professor Zuo pursued a Ph.D. in Canada. Professor Zuo's interest in biopharmaceutics and pharmacokinetics was sparked during her final year project and further developed during her Ph.D. training. She is particularly interested in how medicines interact with the human body, including the processes of absorption, distribution, metabolism, and excretion (ADME).

Her current research interests include the interaction of medicines with the human body, particularly Western drug molecules and herbal bioactive components. She

has conducted significant research on flavonoids and their pharmacokinetics, leading to numerous publications and patents.

Integrating Western and Traditional Chinese Medicine

One of Professor Zuo's most significant contributions has been her work in integrating TCM with Western medicine, emphasizing the safety and efficacy of their combination use. Professor Zuo's research on herb-drug interactions began during the SARS outbreak when the Hospital Authority (HA) in Hong Kong sought to use TCM alongside conventional treatments. Her research demonstrated that TCM could enhance the antiviral activity of treatments like oseltamivir, leading to a greater acceptance of integrated medicine practices. This work has continued to be relevant, especially during the Coronavirus Disease 2019 (COVID-19) pandemic, where integrated medicine has played a crucial role in patient care.

Pharmacy Education and Vision

Joining CUHK in 2000, Professor Zuo has been instrumental in developing the Bachelor of Pharmacy (BPharm) program. She emphasizes a solid science foundation and the integration of TCM in the curriculum. Her vision includes fostering curiosity and problem-solving skills in students, ensuring they are well-equipped for future challenges in pharmacy practice.

When she first joined CUHK, Professor Zuo was keen to develop a pharmacy program that balanced scientific rigor with practical application. She believes that a strong foundation in science is essential for students to excel in practice and to develop further in their careers. Over the years, the curriculum has evolved to include more practice-based learning, with a unique focus on TCM. This integration helps students understand the origins of drugs and the potential interactions between Western and Chinese medicines.

Professor Zuo is passionate about teaching and believes in the importance of nurturing a research mindset in students. She mentions in the interview, "Teach students how to fish, not to give them a fish!" This philosophy underscores her commitment to equipping students with the skills and knowledge they need to solve problems independently and think critically.

Committees and Professional Roles

Professor Zuo serves on various committees, including the Pharmacy & Poisons Board and the TCM Research and Development Committee. She is involved in enhancing research and development (R&D) for TCM and ensuring the safety and quality of herbal products. Her contributions have been recognized internationally, and she continues to influence the field through her editorial roles and grant reviews.

Her role on these committees involves reviewing research proposals, setting standards for TCM products, and ensuring that both Western and Chinese medicines meet rigorous safety and quality standards. She also participates in forums and discussions to share her expertise and to learn from other experts in the field. This collaborative approach helps to advance the integration of TCM and Western medicine, benefiting both practitioners and patients.

Advice for Aspiring Pharmacists

Professor Zuo advises pharmacy students to maintain curiosity, engage in problem-solving, and not just focus on exams. She stresses the importance of a research mindset to stay relevant in the age of artificial intelligence (AI), encouraging students to think critically and innovate.

She believes that curiosity is the driving force behind scientific discovery and encourages students to ask questions and seek solutions. Rather than being exam-driven, she advises students to develop a research mindset, which will help them stay ahead in a rapidly changing field. By fostering a culture of curiosity and critical thinking, Professor Zuo hopes to prepare the next generation of pharmacists to tackle future challenges and to contribute to the advancement of the profession.

Challenges and Achievements

Throughout her career, Professor Zuo has faced numerous challenges, particularly in integrating TCM with Western medicine. One significant challenge was the lack of preclinical studies on herb-drug interactions, which made it difficult to design clinical trials. Despite these obstacles, she managed to conduct clinical studies that proved the safety and potential efficacy of combining TCM with Western treatments. Her research demonstrated that even though herbs might influence

the concentration of drugs like oseltamivir, the overall antiviral activity increased when used together, thus enhancing the treatment regimen.

Her work with the Hospital Authority (HA) during the SARS outbreak was a turning point. The HA was keen on using TCM, but many Western medicine practitioners were concerned about the safety of herb-drug interactions. Professor Zuo's research provided the necessary evidence to support the use of TCM, leading to a broader acceptance of integrated medicine practices. This experience underscored the importance of safety in her research, a principle she continues to uphold.

Impact on Healthcare and Policy

Professor Zuo's contributions extend beyond academia and research. She has played a crucial role in shaping healthcare policies related to TCM and integrated medicine in Hong Kong. As a member of various government committees, she has been instrumental in setting standards for TCM products and ensuring their safety and efficacy. Her work has influenced policy decisions, leading to the establishment of guidelines for the use of TCM in conjunction with Western medicine.

Her involvement in the TCM Research and Development Committee under the Innovation Technology Bureau has been particularly impactful. This committee brings together experts from various backgrounds, including manufacturing, Western medicine, and TCM, to enhance R&D for TCM. The committee organizes annual forums that include representatives from the HA, Department of Health (DH), and Education and Training Committee (ETC). These forums provide a platform for sharing knowledge, discussing challenges, and setting research priorities.

Future Vision and Ongoing Projects

Looking ahead, Professor Zuo plans to continue her research, focusing on translational research and biotech development. She sees great potential in Hong Kong's biotech sector and believes that pharmacy and pharmaceutical sciences are well-positioned to benefit from this growth. Her ongoing projects include developing new drug delivery systems and investigating the pharmacokinetics of herbal compounds.

She is also involved in the "Incu-Bio" program at the Hong Kong Science & Technology Parks Corporation, where she evaluates early-stage biotech projects and provides guidance on how to advance them. This work is particularly meaningful to her, as it allows her to contribute to the development of new technologies and therapies that can improve patient care.

CONCLUSION

Professor Joan Zuo's interview highlights her journey, contributions to pharmacy teaching and research, and her vision for the future. Her insights provide valuable guidance for aspiring pharmacists and researchers, emphasizing the importance of curiosity, interdisciplinary collaboration, and continuous learning. Through her work, she has demonstrated the potential of integrating Western and Chinese medicine, paving the way for future advancements in the field.

Her advice to students and young researchers is particularly poignant: "Teach students how to fish, not to give them a fish!" This encapsulates her educational philosophy, focusing on empowering students to become independent thinkers and problem solvers. By fostering a culture of curiosity and critical thinking, Professor Zuo hopes to prepare the next generation of pharmacists to tackle future challenges and contribute to the advancement of the profession.

Author's background

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