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Asian Medicine: Tradition and Innovation

Editors
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Asia-Japan Research Institute
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Editors' Preface

Asian countries have a long and rich history of traditional medicine. It has undergone its historical development, influenced by factors such as the culture, economy, society, ideology, and politics of each country. Since the late nineteenth century, Traditional Asian medicine has been surpassed by modern Western medicine, although traditional knowledge and techniques have survived in the lives of ordinary people. Despite criticism in some countries that it is not scientific, traditional medicine has always played an irreplaceable role. At the same time, we cannot ignore the fact that the introduction of Western medicine also promoted the transformation and rapid development of traditional medicine in Asia.

Since the end of the twentieth century, traditional medicine has been attracting worldwide attention as an alternative medicine that compensates for the shortcomings of modern medicine. In particular, as interest in self-care, or the concept of taking care of one's own health, has increased, traditional medicine is increasingly attracting attention.

Furthermore, since the COVID-19 pandemic spread worldwide since late 2019, there has been a growing interest in the role that Traditional Asian medicine has played in historical epidemic outbreaks. In this special period, we are urged to pay more attention to the role of Asian medicine in today's society, as well as its development and transformation.

In this book, we explore Traditional Asian medicine from an interdisciplinary perspective in terms of the herbal market, traditional drinks, history, politics and the like in four Asian countries. The first chapter by Nara Oda explores the entangled history of the institutionalized Vietnamese traditional medicine vis-à-vis Western and Chinese medicine in the era of nation-building, with special reference

to South Vietnam (the then Republic of Vietnam). The second chapter by Kei Nagaoka explores the process of the marketization of medical plants in the Himalayas essential for Tibetan medicine, focusing on the discourses and practices of various actors in India. The third chapter by Xiang JingJing deals with the transition of medical knowledge from China to Japan, focusing on Chinese doctors' migration to Japan and the activities of Japanese doctors influenced by them in the early modern era. The fourth chapter by Dwijayanti Dinia gives a scientific analysis of the Indonesian traditional drink called "Wedang Secang," which local people have developed conflicting opinions about under the growing influence of modern medicine. These discussions show that diverse forms of Traditional Asian medicine are embedded in each local context, which cannot be captured by the dichotomies of tradition and modernity or Asian and non-Asian.

The content of this book is based on the presentations given at the 19th Asia Pacific Conference on December 4 and 5, 2021, held at Ritsumeikan Asia Pacific University (APU), where we came together to discuss Traditional Asian Medicine. This was our first face-to-face meeting since the outbreak of the COVID-19 pandemic, and it was a most monumental and memorable occasion for the editors.

We are very grateful to Dr. Nagaoka, and Dr. Dwijayanti for accepting our invitation despite their busy schedules. Their research topics and approaches have inspired the editors greatly. At the end of the conference, we had questions, answers, and discussions around each other's topics. These discussions provided us with a deeper understanding of the current state of research on Traditional Asian Medicine. We have also become more aware of the importance of exploring Traditional Asian Medicine from Asian and global perspectives, breaking through the limitations of nationalities.

The editors would like to convey our appreciation to Dr. Nobuyuki

Matsui for moderating our panel and discussion at the conference. We are also deeply appreciative of the Asia-Japan Institute for providing us with this valuable opportunity through its policy to foster a new generation of researchers. In particular, we would like to thank Prof. Yasushi Kosugi and Dr. Ayaka Kuroda for their valuable advice on the planning and selection of topics for this conference. We are also grateful beyond words for the help we received from Prof. Anthony Brewer in editing this book.

We hope that this humble work will provide a contribution to the development of research in this field. We are planning to expand our network with other researchers who are engaged in studies of Traditional Asian Medicine. Our readers' critical comments and viable suggestions will be highly appreciated.

April 2023

Jingjing XIANG
Nara ODA

Contributors

Dr. Nara ODA

Chapter 1: How to Make "Vietnamese Traditional Medicine" More Vietnamese?: Neglected History in the Divided Vietnam (1954–75)

Nara Oda received her Ph.D. in Area Studies at Kyoto University and is currently a Lecturer at the World Language and Society Education Centre, Tokyo University of Foreign Studies, Japan and a Visiting Researcher of the Asia-Japan Research Institute, Ritsumeikan University. She specializes in Southeast Asian studies, Vietnamese studies and the contemporary history of Vietnam with regard to medical history. She received the 12th Mishima Kaiun Academic Award (July 2023: Mishima Kaiun Memorial Foundation) by her recent work *The Making of "Traditional Medicine": A History of Vietnam's Medical Policies* (March 2022, Kyoto University Press [in Japanese]). Another her recent work includes "Traditional Medicine in the Mekong Region" in *From Mekong Commons to Mekong Community: An Interdisciplinary Approach to Transboundary Challenges* edited by Seiichi Igarashi (November 2021, Routledge). Recently she has become interested in the Japanese exploration of medicinal plants in the Indochina peninsula during Pacific War and historical research on medical practitioners during the Cold War in Vietnam from a gender perspective, as well as gender issues including sexual minorities.

Dr. Kei NAGAOKA

Chapter 2: Expansion of the Himalayan Herbal Market: Development of Relationships between Tibetan Medicine, Economics, and Environmentalism

Kei Nagaoka majors in Anthropology and South Asia studies. She completed her Ph.D. at the Graduate School of Asian and African Area Studies (ASAFAS), Kyoto University and is currently a JSPS Postdoctoral Fellow (CPD) at The University of Tokyo. Since 2010, she has conducted ethnographic fieldwork in Tawang, Arunachal Pradesh and Tibetan medical institutions in Dharamsala, Darjeeling, and Varanasi in India. Based on the research, she published a book *Cosmology of Illness and Medicines: An Ethnography of Tibetan Medicine, Possession, and Witchcraft in Tawang, Eastern Himalaya* (March 2021, Shumpusha Publishing [in Japanese]). Recently she is interested in the marketization of Himalayan medicinal plants, environmental movement in Tibetan Buddhism, and digital media in the Himalayan region.

Dr. Jingjing XIANG

Chapter 3: Transplanting Chinese Medicine in Early Modern Japan: Immigrant Doctors in Nagasaki and the Flourishing of a Japanese Clinic in Osaka

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Dr. Dinia Rizqi DWIJAYANTI

Chapter 4: Scientific Study of *Wedang Secang* as Indonesian Traditional Drink

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Chapter 1
How to Make "Vietnamese Traditional Medicine" More Vietnamese?: Neglected History in the Divided Vietnam (1954–75)

Nara ODA

1. Background

Medical philosophy reflects the choices made by society, its people, and its governing bodies. Especially, when we look at traditional medicine, we see that it has been historically affected and transformed by social, economic, and political factors.

During the Cold War, the Indochinese Peninsula was a place of conflict and competition. In 1954, Vietnam was divided into its North and South territories by the Geneva Agreement. Previous studies claim that while North Vietnam (the Democratic Republic of Vietnam) created a policy for the improvement of Vietnamese medicine as an institutionalized medicine, South Vietnam (Democratic Vietnam) took no such initiative.

In Vietnam, there are three elements in the institutionalized medical system. *Thuoc Nam* (thuốc nam, 南薬), Vietnamese original medicine, *thuoc bac* (thuốc bắc, 北薬), which derives from Chinese medicine, and *thuoc tay* (thuốc tây, 西薬), western medicine. *Thuoc nam* and *thuoc bac* are now positioned as one concept of traditional medicine, *Dong y* (Đông y, 東医) [Oda, 2010].

Fig 1. A pharmacy specialized in *Dong y* in Hanoi.
Source: Photograph by the author, March 2009.

During the independence movement of the late 1940s and 1950s, North Vietnam experienced a lack of medicine and medical resources. Therefore, to make the most of the local medical resources, *thuoc nam* received considerable attention. Even after the independence movement and the First Indochina war, North Vietnam promoted the use of *thouc nam* [Thompson, 2003: 114–118]. Moreover, it began 1) promoting the use of *thuoc Nam* and *thuoc Bac*, and 2) integrating them with western medicine into one medical system [Hoang, 1999; 2012].

In this context, scholars have argued that nationalism has played an important role in reinforcing traditional medicine, similar to how other countries have attempted to demonstrate their superiority and uniqueness through medicine.

However, most of the research has overlooked the situation in South Vietnam. This is partly because Vietnamese historiography tends to be observed from the perspective of North Vietnam when constructing its national history, as present-day Vietnam is established on the foundation of North Vietnam.

Fig. 2. Vietnan after the Geneva Accords in 1954
Source: https://commons.wikimedia.org/wiki/File:Vietnam1954.jpg#file

This paper will consider the idea of Vietnamese traditional medicine within the official medical system of the South Vietnam (Democratic Vietnam) during the time that Vietnam was divided, from 1954 to 1975. In this chapter, medicine will be defined as a whole system of medical practices.

In doing so, I will show 1) how South Vietnam institutionalized/promoted its own traditional medicine after being influenced by French colonization, and 2) what important problems to the government faced in institutionalizing and defining Vietnamese traditional medicine within the medical system.

2. Regulations for *Dong y* (Đông y) Practitioners in South Vietnam

(1) Ngo Đinh Diem's Period

The first era is the time of Ngo Dinh Diem (Ngô Đình Diệm). He became the first Vietnamese president with the support of the United States. He has often been regarded as a puppet of the United States; however, recent studies propose that he was both an anti-communist and a nationalist, and sought to build a modern Vietnam that would not be affected by either Western or Communist influences [Miller, 2013].

The Ngo Dinh Diem administration did not provide the opportunity to exploit traditional medicine within its medical system, or have an an appropriate authorization system, and was still exercising a decree enacted during the colonial period. The decree mentioned here is "Arrete du 17 Juillet 1943," enacted under the name of Governor General Decoux on July 17, 1943. The decree (hereafter Decoux's decree) regulated the import and practice of Vietnamese/Chinese medicine and its products in French Indochina. Moreover, it prohibited selling "toxic medicine," that was, 13 kinds of minerals, 36 plants, and 2 kinds of animal products used as medicine [Sặc Luật số 9/64, 1964 (Decree No. 9/64. 1964)].

(2) Post-Diem Period: Amendment of the French Colonial Law

It was after the coup against Diem in 1963 that the government and the Ministry of Health began to consider bringing traditional medicine into the modern medical system. In April 1964, the Ministry of Health decided to enact a law based on Decoux's decree of 1943. The new act had a new list of "toxic" medicinal products, as in Decoux's decree; however, it only allowed practitioners to use medicinal products for two days [Sặc Luật số 9/64, 1964 (Decree No. 9/64. 1964)].

Behind the amendment of the 1943 decree, traditional medical practitioners' groups supported the idea of promoting traditional medicine. For instance, a magazine published by medical practitioners "*Đông y Dược*" referred to Vietnamese traditional medicine as "A special science for the Vietnamese" and declared that, "A decree on July 17, 1943, by Decoux colonial government must be abolished and replaced by a new condition for Eastern medicine in the Republic of Vietnam…." As it became more difficult to obtain medicine from North Vietnam and China, the practitioners' groups also claimed that "Everybody had been united so as to repeal Decoux's decree. Everyone in the organization of Eastern medicine wants to reconstruct the knowledge of Đông y, Eastern medicine" [*Đông y Dược*, February 1957].

(3) Reorganizing Practitioners' Occupations

At the same time, the government officially approved *Dong y* practitioners within the medical system for the first time. In doing so, the government divided medical practitioners into several professional occupations.

Except for healers whose knowledge was transmitted through family tradition (*gia truyền* 家伝), all types of *Dong y* practitioners (*Đông y sĩ* 東医士, *Sinh dược viên* 生薬員, *Thực dược viên* 実薬員, and *Đông dược sĩ* 東薬士) were required to have Vietnamese nationality and to be over 25 years old. They were also required to have graduated from a public or overseas *Đông y* medical school that provided a license [Sặc Luật số 9/64, 1964 (Decree No. 9/64. 1964)].

In other words, those qualified to prepare, sell, and examine medicines had to have Vietnamese nationality. Merchants who sold pharmaceuticals at the market and family-transmitted practitioners were allowed to be non-Vietnamese.

(4) Why Nationality Mattered

Why did Nationality matter? To answer this question, we must examine the history of South Vietnam's integration into the whole "Vietnam" that was caused by the strong influence of ethnic Chinese people.

The majority ethnic group in Vietnam is the Kinh, Viet people. However, the southern part of Vietnam was not originally the Kinh people's land. The Viet (Kinh) political forces expanded from North to the South around the fifteenth century. This expansion to the South continued until after the latter half of the seventeenth century [Li, 1998: 12–16].

Modern immigration from China to Vietnam began after the end of the nineteenth century, particularly migration from southern China to Cochinchina, the southern part of French Indochina. One statistic in 1931 shows that more than 10% of the total population of Cochinchina was Chinese, whereas in the Northern part of Vietnam, only 5 to 10% of the population was Chinese, and they were especially concentrated in the Hai Phong area. It is thought that most of the overseas Chinese lived in Cochinchina because the majority were either merchants or engaged in the rice trade [Mantetsu East Asia Economic Survey, 1939: 55].

According to statistics from 1928, before the Indochina War, half of the Saigon population consisted of ethnic Chinese, which totaled approximately 319,000 people [Engelbert, 2008: 193; Li, 2011: 53]. Many of them soon engaged in the rice economy and gained power in the market, selling rice, goods, and medicine.

During the era of division from 1954, they still had distribution power and influence in the rice polishing industry. After the mid-1950s, it was estimated that South Vietnam monopolized nearly 90% of non-European capital [Tran, 1993: 23–28].

Against this backdrop, Diem came to power in 1955. His administration tightened control on overseas Chinese who were Chinese residents. The Diem administration imposed Vietnamese nationality on the

residents, and imposed various restrictions on their freedom of employment if they did not choose Vietnamese nationality. For example, Decree No. 53 was issued stating that only Vietnamese nationals were allowed to work in 11 occupations in which many Chinese people were engaging.

In tandem with this trend against the Chinese, the restriction on *Dong y* practitioners' nationality can be seen as an attempt to strengthen the management of the *Dong y* industry in the southern part of the country. I suggest that this change in the restrictions could have been a strategy to define Vietnamese *Dong y* by drawing a line between specialists of Vietnamese and non-Vietnamese nationality, as a strong presence of Chinese people could be seen in the *Dong y* industry.

Fig. 3. Chinese medicine town in the largest Chinese town in Saigon around the 1960s.
Source: Online image. Flikr. https://www.flickr.com/photos/13476480@N07/36951531545/ by Manhhai. "CHOLON - Ngã tư Khổng Tử - Phùng Hưng nhìn về ngã tư Trịnh Hoài Đức - Phùng Hưng". Uploaded on September 1, 2017.

We can see the Chinese influence in *Dong y* as follows. During the French colonial rule, one of the major goods imported from China to Vietnam through their commercial transactions was medicine [Mantetsu East Asia Economic Survey, 1939: 116]. Even in 1974, the proportion of South Vietnamese capital which belonged to the Chinese was high. It is said that the investment of Chinese capital accounted for 16% of the total. Among the total number of business establishments and stores, 500 business establishments of Chinese origin involved Chinese herbal medicines, and the amount of investment in *Dong y* was $730,000. These establishments of Chinese origin accounted for about 80% of the total investment in Eastern medicine [Tran, 1993: 43]. For another example, in Hue before 1975, traditional *Dong y* practitioners would obtain herbal drugs from Hong Kong through an agent in Cholon, Saigon. In Dong Nai, medicine was imported from Hong Kong via Saigon.[1]

When we take a look at *Dong y* in the official medical policy, the Diem administration and the following administration set a nationality clause. Given the enormous Chinese influence on the medical market, the government needed to differentiate Vietnamese medicine from Chinese medicine. However, this was nearly impossible as long as the medical market was mostly occupied by the Chinese. Therefore, it can be said that the government differentiated the practitioners' by their backgrounds. This was to differentiate Vietnamese medicine as practiced by Vietnamese nationals, for which the government could take responsibility, from non-Vietnamese (mainly Chinese) for whom the government could not take responsibility.

3. A Chinese Practitioner's Case

To be an officially authorized *Dong y* practitioner, one was also

1 An interview with Lê Hữu Mạch, *Dong y* practitioner in Hue on December 25, 2014.

required to have graduated from a public or overseas *Dong y* medical school that provided a license [Sặc Luật số 9/64, 1964 (Decree No. 9/64. 1964)]. Individuals who wished to study *Dong y* overseas would have studied either in Hong Kong or Taiwan, as these two places were allies under the Cold War regime. In addition, there may have been some practitioners among the elder generation who had studied in mainland China before the 1949 establishment of People's Republic of China. Having said that, it does not seem as if these rules surrounding education were strictly applied.

Fig.4. Left: Membership card of *Dong y* practitioners' association.
Right: L's clinic.
Source: Photographs taken by the author on March 15. 2016.

For example, *Dong y* practitioner L, who was of Chinese ethnicity and resided in Ho Chi Minh city, recalled that his father never received a degree at a medical school, but rather studied traditional medicine intermittently in his youth in mainland China. L's father was born in 1928 in Fujian and moved to Beijing and Nanking. Eventually, he moved to Saigon from mainland China in 1952. He taught mathematics, physics, and chemistry at a British school before starting his career as a licensed *Dong y* practitioner in Saigon. We do not know when he obtained Vietnamese nationality; however, he was practicing *Dong y* in

1960 at the earliest.[2]

4. Conclusion

The South Vietnamese government approved and defined the legalized *Dong y* practitioners by categorizing them as well as distinguishing them according to their nationality. Ethnic Chinese populations were targeted, as they were unable to practice advanced medical care without Vietnamese nationality due to the professional subdivisions which had been created, separating the professions of diagnosing patients and mixing medicines. This allowed the government to recognize and manage *Dong y* practitioners. In the late years of the Republic of Vietnam, the government attempted to institutionalize *Dong y* primarily by professionalizing practitioners and differentiating Vietnamese practitioners from those of other nationalities.

Although the name *Dong y* emerged and gained popularity within the framework of the East/West dichotomy, this chapter has shown that "Eastern medicine" had several meanings for Vietnamese. Geographically, South Vietnam is far from China; however, as far as officially establishing Vietnamese traditional medicine, or Vietnamese *Dong y* was concerned, it was quite a significant and difficult problem to differentiate it from Chinese medicine.

Acknowledgment

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2 An interview with *Dong y* practitioner L on March 15, 2016.

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Chapter 2
Expansion of the Himalayan Herbal Market: Networks between Tibetan Medicine, the Economy, and Environmentalism

Kei NAGAOKA

1. Introduction

This study explores the expanding marketization of Himalayan herbs associated with Tibetan medicine. From the perspective of medical anthropology, I have studied the institutionalization of Tibetan medicine and bodily experiences of illness in India for several years [Nagaoka, 2021]. Additionally, I have recently started working on my new research project focusing on the marketization of Himalayan medicinal herbs as the primary ingredients in Tibetan medicine. The term *marketization* is used here to refer to the formation of an economic network through the commercialization of goods and their distribution over a wide area.

Tibetan medicine (*bömen*) [*bod sman*][1] refers to medical knowledge and practices historically used by Tibetan Buddhist communities in the Tibetan and Himalayan regions and Central Asian regions. Tibetan medicine, like Traditional Chinese Medicine (TCM) and Ayurveda, is a codified system that considers illness to be an imbalance of vital elements and treats it by restoring balance using various medicinal

1 Tibetan terms are italicized and phonetically transcribed, followed by a transliteration using the standard Wylie system on the first use.

herbs and other ingredients. The basic theory of this medicinal system is described in the authoritative medical text *Gyushi* [*rgyud bzhi*], or the *Four Tantras*, codified in the twelfth century and in commentaries on it written in later periods. Medical practitioners are called *amchi* [*am chi*] or *menpa* [*sman pa*] in Tibetan, and beginning in the seventeenth century their medical training was conducted at Chagpori Medical College in Lhasa and various monasteries under the patronage of the Dalai Lama's regime.

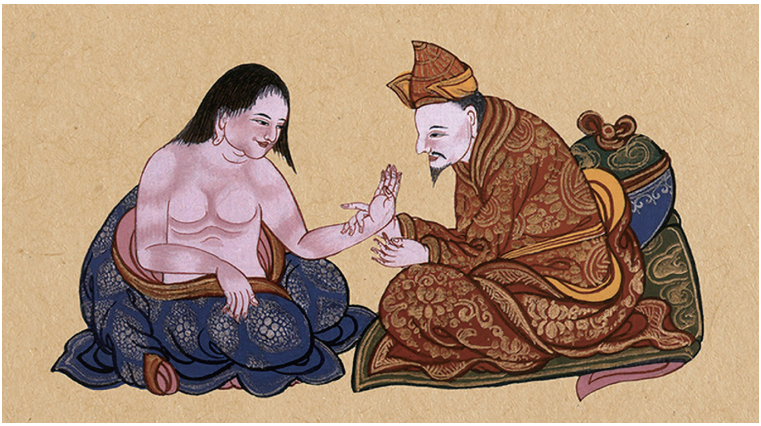

Fig. 1. *Amchi* (right side) and patient
Source: Image of e-book cover in *Sowa Rigpa Journal #3: The Art of Diagnosis* published by International Academy for Traditional Tibetan Medicine, 2020. (It is a partially processed painting from the seventeenth century in Tibet.)

In the late twentieth century, Tibetan medicine became known to the Western world after the Chinese annexation of Tibetan regions in the 1950s, when many Tibetan refugees were exiled to India and Nepal. Western travelers, journalists, and researchers have witnessed the

medical practices at the Tibetan refugee settlements in India and Nepal and published books and articles about them since the 1980s. This knowledge and practice, which until then had been referred to simply as "medicine" (*men*) [*sman*] among locals in their everyday lives, was described as "Tibetan medicine" or "*bömen*." Having developed a new nationalist sensibility, Tibetan refugees have come to emphasize the expertise of medical knowledge based on their culture in their diasporic situation. However, different terms — such as "Himalayan medicine," "traditional Bhutanese medicine," and "*Amchi* medicine" — are also used in northwestern India, Nepal, and Bhutan. These terms are deeply related to the political position and contexts regarding the cultural ownership of knowledge and practices in regions and countries.

Recently, a growing number of practitioners and institutions adopted the broader term "Sowa Rigpa" (*sowa rigpa*) [*gso ba rig pa*] translated as "science of healing." *Sowa* means to enhance, feed, nourish, strengthen, heal, or cure, while *rigpa* refers to a field of knowledge, science, or academic or monastic discipline [Craig & Gerke 2016: 94–95]. Sowa Rigpa is viewed as a unifying term to give the practitioners in Tibetan and Himalayan regions a sense of belonging in a transnational identity and to retain their diverse and more localized subjectivities. Furthermore, after India recognized Sowa Rigpa as an official name of a medical system in 2010, this term brought a sense of legitimacy and authority internationally. Although Tibetan and Himalayan practitioners still debate this term, Sowa Rigpa has a brand value as the name of a globally circulating medical system [Craig and Gerke 2016].

2. Tibetan Medicine in the Himalayan Herbal Market

Himalayan medicinal herbs, one of the unique components of

Tibetan medicine, are wild alpine plants that grow in cold habitats at altitudes of 3,000 meters or higher in the Himalayas. Well-known varieties include Himalayan blue poppies (*Meconopsis* species) and Himalayan rhododendrons (*Rhododendron* species), which include the national flowers of Bhutan (*Meconopsis horridula*) and Nepal (*Rhododendron arboretum*), respectively. Historically, these plants have been marketized and are closely linked to the institutionalization of Tibetan medicine.

Fig. 2. Himalayan blue poppy
Source: [Tomiyama 2020: 69]

Fig. 3. Himalayan rhododendron
Source: [Yoshida 2005: 317]

Previous studies on Tibetan medicine criticize the dichotomous perspective of "traditional" versus "modern" and discuss the institutionalization, standardization, and industrialization of Tibetan medicine in contemporary contexts [e.g., Pordié ed. 2008; Adams, Schrempf, and Craig eds. 2010]. These studies focused on the manufacturing of medicines as a process of pharmaceuticalization from

individual decoctions to mass-produced pills, as well as their connection to Buddhist rituals and identity politics of Tibetanness [Kloos 2017a; Adams, Schrempf, and Craig eds. 2010; Madhavan 2017]. In addition, there is growing research on the relationship between Himalayan medicinal herbs and the national or global markets [Blaikie 2013; Kloos 2017b; Saxer 2009, 2013].

However, these studies have yet to adequately examine the broader historical processes of the marketization of Himalayan herbs and their interaction with Tibetan medicine. In contrast with these previous studies, my study argues that the Himalayan herbal market expanded not in a monolithic and linear process of "modernization" but through multiple networks and practices entangled with Tibetan medicine, the economy, and environmentalism. Specifically, the following questions are examined in this article: Why did the marketization of Himalayan plants occur? How was this marketization linked to Tibetan medicine? What impact does Western environmentalism have on this market?

This study was based on research conducted intermittently between 2010 and 2016 at Tawang, an eastern Himalayan border region in northeastern India, and at two Tibetan medical institutions: the Central Institute of Higher Tibetan Studies (CIHTS), formerly called the Central University of Tibetan Studies (CUTS), in Varanasi, and Men-Tsee-Khang (MTK) in Dharamsala, both in northern India. Regarding the structure of this article, I explain the emergence of Himalayan plant marketization during the colonial period. I then discuss the expanding marketization by focusing on Tibetan medicine and the practice of collecting herbs in Tawang. Finally, I examine the relationship between the marketization of Himalayan herbs, Tibetan medicine, and environmentalism.

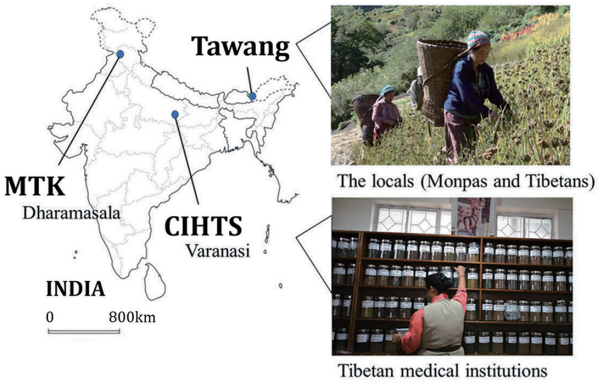

Fig. 4. Map of research area

Source: It is made by the author. The upper photo was taken by the author in 2015 and the lower one was used from the website of *Tibetan Journal* http://www.tibetanjournal.com/tag/sowa-rigpa/ (last access date: 2022/09/02)

3. Early Marketization of Himalayan Plants in Horticulture

Alpine plants have been commonly used in treatments and rituals by Himalayan villagers for themselves and their livestock. Although the plants were locally distributed in the Trans-Himalayan trade between Tibet and India, the marketization of Himalayan plants did not occur on a large scale until India's colonization.

Since the sixteenth and seventeenth centuries, European countries began experiencing a horticultural boom, with botanical gardens collecting and growing exotic plants extracted from their colonies not only for food and medicinal purposes but also ornamentally. In the early nineteenth century, British officials and explorers visited India and Nepal and began surveying and collecting Himalayan plant specimens. The Royal Botanic Gardens, Kew and other botanical gardens in the

United Kingdom employed plant hunters to survey the Himalayan flora, who collected a variety of plants and sent them to the botanical garden in Kolkata, India, which was under British control [Shirahata 2005].

For example, Joseph Dalton Hooker (1817–1911), a botanist and plant hunter who later became Director of the Royal Botanic Gardens, Kew traveled across India and the Himalayas between 1847 and 1851, collecting specimens and seeds of 25 new Rhododendron species in the kingdom of Sikkim in the eastern Himalayas [Edwards 2022]. These evergreen rhododendrons, with their bright red flowers, became wildly popular with British gardeners beginning in the 1850s and later in the United States. Numerous cultivars were created from the plants Hooker had introduced and distributed commercially in the nursery trade.

Furthermore, in 1924, a British plant hunter named Francis (Frank) Kingdon-Ward (1885–1958) located one of the rare blue poppies (*Meconopsis baileyi*, later reclassified as *Meconopsis betonicifolia*) during his botanical expedition in eastern Tibet and successfully brought a large quantity of its seeds to England [Kingdon-Ward 1960]. In 1926, blue poppy flowers bloomed from the seeds he collected and were shown to the public for the first time at the Royal Horticultural Society's Chelsea Flower Show in London. This became a sensation in the Western horticultural world because blue poppies had never been seen in Europe. Although botanists had been studying blue poppies through the specimen since the nineteenth century, public interest in them as exotic and rare horticultural plants was sparked.

With the Himalayan plant boom in horticulture through the introduction and cultivation of colorful alpine varieties such as rhododendrons and blue poppies, Himalayan plants began being marketized through botanical gardens, plant hunters, nurseries, and gardening enthusiasts in Western countries. This marketization began in the form of horticultural plants in Europe and was closely related to the history of colonial rule. Botanical gardens were centers for the marketization of exotic plants, establishing a

global plant network connecting sovereign and colonial countries under the politics and economics of colonial rule [Kawashima 1999].

Fig. 5. Chelsea Flower Show in 1926-1927
Source: Website of *Gardens Illustrated*
https://www.gardensillustrated.com/chelsea/history-of-chelsea-flower-show/ (last access date: 2022/09/02)

4. Marketization of Herbs as Tibetan Medicines

In the second half of the twentieth century, Himalayan plants began to be linked to the institutionalization of Tibetan medicine. After the WHO proposed the concept of primary healthcare and recommended incorporating traditional medicine into national health policies, different traditional medicine such as Ayurveda, Unani, Yoga, and Siddha were institutionalized and protected by the Indian governmen. Regarding Tibetan medicine or Sowa Rigpa, four medical institutions were established by Tibetan refugees between the 1960s and 1990s. These institutions began collecting various medicinal plants in the Himalayan

mountains of India to produce manufactured medicinal pills.

Fig. 6. Manufacturing Tibetan medicines in India
Source: Website of Men-Tsee-Khang
https://www.men-tsee-khang.org/index2.htm (last access date: 2022/09/02)

As the number of branch clinics of Tibetan medical institutions increased throughout India, the medicines were used not only by Tibetan refugees but also by regular citizens, including Himalayan Buddhists and the Indian middle class (non-Buddhists) who took great interest in herbal medicines and health. For the mass production of medicinal pills, Tibetan medical institutions dispatched *amchi* to a broad area from northern to northeastern India to collect alpine plants that had not yet been marketed. In addition to the horticultural network, alpine plants were manufactured into Tibetan medicines, expanding the distribution throughout India.

After their legalization in 2010, Tibetan medicinal pills became subject to India's Drugs and Cosmetics Act of 1940 and patent laws. These laws facilitated their official entry into the global pharmaceutical market, and the marketization of Himalayan herbs as medicines and healthcare products, such as teas and cosmetics, subsequently expanded [Kloos 2017b]. Presently, the Indian government and Tibetan medical institutions are working on the Traditional Knowledge Digital Library

(TKDL) project, which aims to prevent biopiracy by foreign companies and digitize knowledge of Himalayan herbs.

In the meantime, China has also legalized Tibetan medicine as part of its national traditional medicine, and many institutions and pharmaceutical companies based on Tibetan medicine have emerged [Saxer 2013]. Through the pharmaceuticalization of Tibetan medicine for the global market in both India and China, patent applications and clinical research are on the rise [Madhavan 2017]. Thus, the marketization of Himalayan herbs in the form of Tibetan medicines has been gradually expanding from domestic distribution to the global market since the late 2000s.

5. The Practice of Collecting Herbs in Tawang

Through the manufacturing of Tibetan medicines, Himalayan locals began to be more closely connected to the marketization of these plants, although they had been indirectly related to horticultural marketization in their work as guides or laborers for plant hunters during colonial times. Tibetan medical institutions must collect certain quantities of Himalayan herbs from the mountains every year to manufacture the various medicines in their factories, which requires the cooperation of the locals.

In the case of Tawang, Himalayan herbs in forests and high mountain regions have generally been used in folk medicine for treating humans and livestock, and in rituals to purify the land for peaceful coexistence with local deities and spirits. More specifically, locals in this area make use of fragrant plants such as the Himalayan rhododendron (*Rhododendron arboreum*), the Himalayan fir (*Abies spectabilis*), and black juniper (*Juniperus indica*). These plants are burned outside the house every morning for purification purposes. Additionally, when

plowing fields or building houses, these plants are burned as a way of asking land deities for permission to work on the surrounding land.

Fig. 7. Fragrant plants collected for purification rituals in Tawang
Source: The photos were taken by the author in 2014

Tawang residents began forming a relationship with MTK, the Tibetan medical institution, by collecting medicinal herbs in the 1980s. At the time of my research, Himalayan blue poppies, Himalayan gentians (*Gentiana* species), and other herbs were being collected by Thupten (a Monpa man in his 40s and *amchi* at the MTK branch clinic) and 20 local nuns every year. These plants were subsequently sun-dried and processed by local pastoralists who camped on the mountain during the summers. Thupten then sent them to MTK's pharmaceutical factory in Dharamsala.

Local cooperation is essential for the *amchi*'s work at Tibetan medical institutions. The 20 local nuns perform this duty as a social service, and as such they do not accept monetary compensation as a token of his appreciation. Thupten provides each of them with a packet of a dozen expensive medicines called *rinchen rilb* [*rin chen rilbu*] or "precious pills" containing various plants, minerals, and precious jewels that is blessed by the Dalai Lama in a ritual, in addition to free meals during their work of collecting herbs. Furthermore, Thupten

pays local pastoralists with money as a reward, and he also exchanges homemade wine fermented with barley, finger millet, and vegetables for the pastoralists' homemade cheese and butter based on the traditional barter system in Tawang. Thus, locals play an important role in the expanding marketization of Himalayan herbs as medicines through the contemporary institutionalization network of Tibetan medicine.

Fig. 8. *Amchi* (right side) diagnosing a patient at an MTK branch clinic in Tawang
Source: The photo was taken by the author in 2011

6. Himalayan Herbs as Biological Resources

In addition to the horticultural and medicinal networks, the Himalayan herbal market encountered Western environmentalism in the late twentieth century. Environmental activists have emphasized that Himalayan herbs are endangered biological resources and have started to intervene in the market networks for horticultural and medicinal products to prevent overexploitation. International environmental groups such as the World Wildlife Fund (WWF) and

The Mountain Institute (TMI) have begun projects for cultivating medicinal and aromatic Himalayan herbs to transform markets and protect the environment.

The Western framework for environmental thought is said to have undergone a major shift in the late 1960s and 1970s, from one of nature conservation for human interests to environmentalism as a broad philosophy, involving actions and policies that show concern for protecting and preserving the natural environment for its own sake.[2] After the Himalayan region was named a biodiversity hotspot, Western environmentalists grew increasingly interested in the region's flora and fauna in the 1980s. The term *biodiversity hotspot* was proposed in 1988 by Norman Myers, a British environmental scientist, to designate areas with over 1,500 endemic plant species, but where over 70% of the original habitat had been lost and therefore where conservation was of high importance [Myers et al. 2000]. Conservation International (CI) selected 34 hotspots worldwide and emphasized the need for conservation efforts. International environmental groups began surveying Himalayan plants as significant biological resources requiring protection, designating many of them as endangered [Singh et al. 2021].

Given this backdrop, Tibetan medical institutions could not ignore the new environmentalist view of Himalayan herbs. By taking it into account, they aimed to show the global value and reliability of their manufactured pills based on Tibetan medicine in the health and

2 Kay Milton [1993] pointed out that environmentalism is essentially a quest for a viable future pursued through the implication of culturally defined responsibilities. According to her, these responsibilities arise from the recognition that "the environment," as the complex of natural phenomena which we share with the universe and on which we depend, is affected by human activity and that controlling the activity will secure a viable future [Milton 1993: 2–3].

pharmaceutical markets. These institutions started projects to cultivate Himalayan herbs in the late 2000s in the Indian regions of Tawang and Ladakh.[3]

Fig. 9. Mountain forest around villages in Tawang
Source: The photo was taken by the author in 2015

7. Cultivating Herbs for Creating a Sustainable Market

Projects to cultivate Himalayan wild herbs have created a network between the Indian government, Tibetan medical institutions, and Tawang locals. CIHTS started a project entitled "Establishment and Development of Medical Herbal Garden (EDMG), Tawang" in 2008 by means of a government grant, with the following objectives: (1) to conserve endangered species by establishing techniques for cultivating medicinal plants, (2) to standardize the quality of herbal medicines

3 Ladakh is a western Himalayan border area located in northwestern India.

to ensure their stable supply, regardless of climate change, and (3) to create a mechanism for villagers to earn cash incomes through the cultivation of medicinal plants, thereby contributing to the social and economic development of the northeastern region of India, which is considered underdeveloped. In other words, it is a long-term project involving measures for coping with environmental changes, marketizing medicines, and protecting local livelihoods, such as ensuring a stable supply of medicines and returning profits to the locals.

CIHTS's *amchi* researched plants in Tawang and hired a village resident who was knowledgeable about local medicinal herbs. After building herbal gardens at three different altitudes, they began cultivating Himalayan medicinal plants and comparing their growth. They cultivated 15 species in 2010, which increased to 131 in 2014. These plants were selected based on their prices in the Chinese herbal market, as alpine plants used in Tibetan medicine fetch high prices in China. At the time of my research, this cultivation project was still in the preliminary stage, consisting of the *amchi* and only four locally employed people. Teachers and students also participated in the project to experiment with planting herbs at their schools.

Fig. 10. Cultivation project of Tibetan medicinal herbs in Tawang
Source: The photos were taken by the author in 2014

Currently, the Himalayan region is an important experimental ground for testing the compatibility between environmental protection and the economy for the government, Tibetan medical institutions, and environmental activists through herb cultivation projects. For residents of Tawang and other Himalayan areas, this practice of cultivating wild herbs was a different experience compared to the environmental movement in earlier decades. Previous environmental movements, such as the anti-dam movement, involved people fighting the government and companies to prevent them from depriving them of their livelihoods. However, in the case of the Himalayan herb cultivation project, they are required to participate and collaborate through a project managed by the government and institutions. Unlike agricultural development projects for cultivating cash crops, the basic framework for cultivating wild Himalayan herbs remains unclear. Negotiations between locals, the government, and institutions are ongoing in order to establish sustainable Himalayan herbal markets.

8. Conclusion

Multiple networks for Himalayan herbs have expanded during their historical process of marketization. The herbs first attracted interest as rare horticultural plants not found in Europe, which expanded the horticultural network to include botanical gardens, plant hunters, nurseries, and gardening enthusiasts in Western countries during colonial times. Since the late twentieth century, Himalayan herbs have become important ingredients in medicinal pills manufactured by Tibetan medical institutions, which formed a network of medicines between professional institutions, medical practitioners, and locals. Furthermore, Himalayan herbs were defined as endangered biological resources from the perspective of biodiversity hotspots, leading to the formation of a

network for wild herb cultivation involving environmental activists, the government, Tibetan medical institutions, and locals. The contemporary transformation of Tibetan medicine is closely related to the historical marketization process of Himalayan herbs and their multiple networks. These broad networks connect with various actors, including not only professionals but also laypeople engaging with these Himalayan herbs as horticultural plants, medicines, and biological resources. The expansion of these networks has created a transnational negotiation between Tibetan medicine, the economy, and environmentalism in the Himalayas.

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Chapter 3
Transplanting Chinese Medicine in Early Modern Japan: Immigrant Doctors in Nagasaki and the Flourishing of a Japanese Clinic in Osaka

Jingjing XIANG

1. Introduction

Fig.1. Harbor of Chinese Boats in Nagasaki (Painted by Hiroshige Utagawa II)
Source: National Diet Library Digital Collections <https://dl.ndl.go.jp/info:ndljp/pid/1309786>

Early modern Japanese medicine had a close relationship with the medicine of the Ming and Qing Dynasties. Given this relationship, the first phase was the migration of medical practitioners during the Ming-Qing transition [Nakamura,1914; Li, 1999], and the second was during Yoshimune Tokugawa's regime [Oba, 1980]. First, during the 40 years of turmoil that followed the fall of the Ming Dynasty in China, many doctors came to Japan to escape the war [Xu, 2018]. They worked in Nagasaki and other places. It was suggested that

there was a network that made this possible.

Yoshimune Tokugawa 徳川吉宗, who became shogun in 1716, actively introduced books and other Chinese cultural relics to Japan from 1720, and sent a variety of orders to Nagasaki. Thus, many doctors came to Japan during the Kyoho Era (1716–1736) based on Yoshimune's order, which attracted Chinese doctors who were excellent in both learning and treatment [Oba, 1980: 35–36; 184–186].

In addition, it should be noted that during the Ming and Qing dynasties, as well as the period of the Yoshimune administration, most of the doctors came from Suzhou, Ningbo, and Fujian which were the ports from which Chinese ships set sail.

Fig.2. Chinese Settlement
Source: National Diet Library Digital Collections <https://dl.ndl.go.jp/info:ndljp/pid/1307088>

2. *Shanghan Lun*

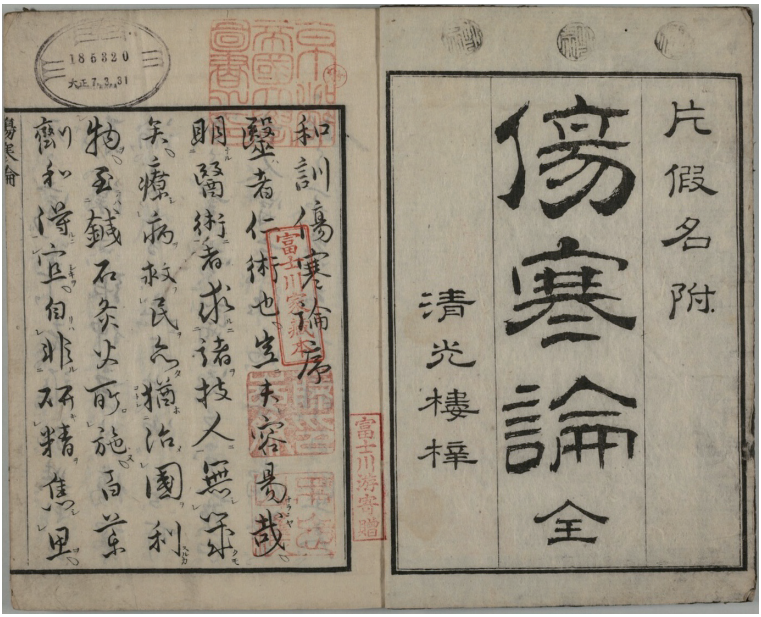

Fig.3.Title Page of *Shanghan Lun* Published in the Edo Period
Source: Kyoto University Rare Materials Digital Archive <https://rmda.kulib.kyoto-u.ac.jp/item/rb00003125>

Among the ports from which Chinese ships embarked, Suzhou and Ningbo were the most advanced areas in medicine at that time.

Many famous doctors worked there and focused on the research of *Shanghan Lun* (*Treatise on Cold Damage Diseases* 傷寒論), a famous Chinese medical Masterpiece edit by Zhang Zhongjing 張仲景 [Wu et al., 2000: 16–17].

This book was brought to Japan and had a great influence on Japanese medicine and pharmacology [Mayanagi, 1997]. It is no

exaggeration to say that *Shanghan Lun* is one of the most important medical books for Japanese Kampo medicine even today.

Fig. 4. Zhang Zhongjing
Source: Baidu Baike

For example, Tsumura Corporation, a pharmaceutical company formulates many of its current products, including the popular *Kakkonto*, based on *Shanghan Lun*.

Fig. 5. *Kakkonto*

Presently in Japan, a clinical trial of Kampo medicine is being conducted for the treatment of Coronavirus disease (COVID-19),[1] and it is said that many of the herbal medicines used for the treatment of mild cases are also based on the *Shanghan Lun*.

From the above, in early modern Japan, Zhang Zhongjing's works were propagated by these people, which led to the flourishing of the study of *Shanghan Lun*. Consequently, early modern Japanese medicine was established under these communications in East Asia.

The Chinese doctors first landed in Nagasaki and began their medical practices. They not only discovered drugs and interpreted Chinese medical books, but also devoted themselves to medical treatment and communicated with Japanese doctors. In this way, the Ming and Qing doctors left behind significant achievements in the history of medical exchange between China and Japan. They played an important role in the development of medicine in early modern Japan.

3. Yushoshi Kitayama's Research of *Shanghan Lun*

Let us examine the impact this movement of doctors and medical books had on Japanese medical thought. As an example, I will make a basic study of the medicine of one of the children of a Ming physician, Yushoshi Kitayama 北山友松子 (1640–1701), the son of Chinese medical family who promoted original medical research by using this network. He studied in Nagasaki and built a clinic in Osaka.

Yushoshi Kitayama, also known as Juan 寿庵, was the son of Ma Rongyu 馬栄宇 (?–1654) and a prostitute in Maruyama, Nagasaki. Ma was an exile from the Ming's Fujian Prefecture who came to Japan

1 https://www.yomiuri.co.jp/medical/20210729-OYT1T50443/ Viewed October 23, 2021.

Fig. 6. Yushoshi as a baby with his mother
Source: *Kinsei Kijinden*, 212

between 1624 and 1627 to avoid the war and chaos at the end of the Ming Dynasty [Hong, 2017: 132]. He was active as a herbalist and stayed in Japan for around thirty years, where he engaged in importing Chinese medical books and Chinese herbal medicine, and providing medical treatment to the public.

In 1627, he was appointed to the post of Totsuji 唐通事 by the Shogunate. In the process of building the Sofuku-ji Temple 崇福寺 in Nagasaki, he traveled between Fujian and Nagasaki several times, and made great efforts to build this temple.

Fig. 7. Sofuku-ji Temple in Nagasaki
Source: © NPTA <https://www.nagasaki-tabinet.com/houjin/photo/284>

Being born into such a bilingual family environment, Yushoshi was fluent in both Chinese and Japanese and also used the Fujian dialect fluently. From an early age, he visited many Chinese immigrant doctors in Nagasaki to learn from them. In the spring of 1660, he met the Fujian monk Shoei Kerin 化林性僕 who was naturalized in Japan, and as he was impressed by Shoei Kerin's medical skills, he decided to study *Shanghan Lun* under him [Asada, 1880].

Besides Kerin, Yushoshi also learned *Huangdi Neijing* 黄帝内経 and herbology from Shoeki Dokuryu 独立性易. He was also learning Japanese traditional medicine from Japanese doctors. It can be inferred that Yushoshi was also taught the Fujian local medicine by his father Ma, as well as his teacher Kerin. In this way, he would have been able to interact smoothly with the Chinese doctors who came to Nagasaki, and would have grasped the situation of the latest medical science and medical books in China at the same time [Asada, 1880].

Fig. 8. Shoeki Dokuryu (Painted by Nobumitsu Kurihara)
Source: National Diet Library Digital Collections <https://dl.ndl.go.jp/info:ndljp/pid/1287846>

After mastering various medical techniques, Yushoshi settled in Doshomachi 道修町 in Osaka, where he opened a clinic and was well known in Osaka for his erudition and knowledge at that time. In addition to helping the daimyo of each clan to cure their diseases, he also helped the poor people to treat their diseases for free. In addition, he gave rice to the poor people. For this reason, he was called the "physician sage" at that time.

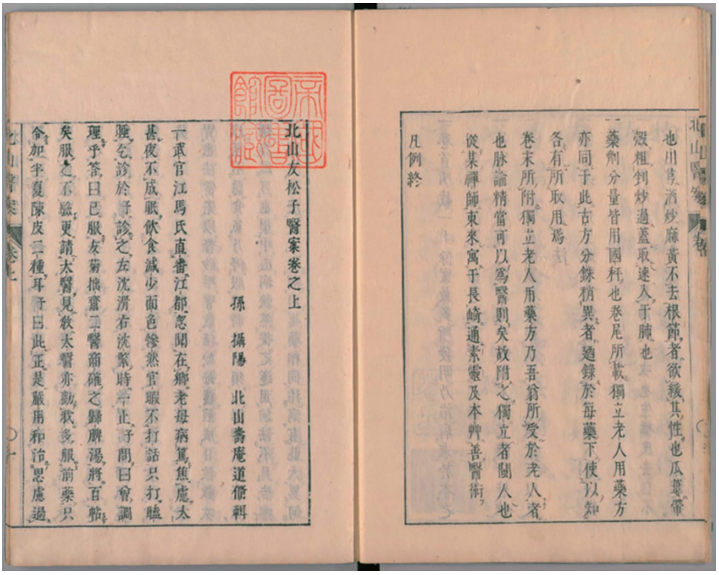

Fig. 9. Text page of *Kitayama Ian*
Source: National Diet Library Digital Collections <https://dl.ndl.go.jp/info:ndljp/pid/2567920?tocOpened=1>

Before his death, he installed a life-size stone statue of Fudo Myoo 不動明王 at Taiheiji 太平寺 in Tennoji-ku, Osaka, where he was buried after his death. He left many professional works, including *Kitayama Ian* 北山医案, etc. In particular, *Kitayama Ian* is a representative work of his own clinical trials. After his death, this work was edited by his grandson, Doshu Kitayama 北山道脩 and published in 1745. This book

is considered as a great collection of Yushoshi's actual clinical skills. Moreover, Yushoshi also added his commentaries and supplements to medical works written by Japanese and Chinese doctors. According to his books, he cited and emphasized the medical practice of Four Great Medical Experts In Jin & Yuan Dynasty,[2] and he placed particular emphasis on the prescriptions in Zhang Zhongjing's *Shanghan Lun* [Yasui, 2014].

Fig. 10. A life-size Stone Statue of Fudo Myoo with Yushoshi in Taiheiji Temple
Source: Photo by author

Fig.11. Taiheiji Temple in Tennoji-ku, Osaka
Source: Photo by author

2 Zhu Danxi 朱丹溪, Li Dongyuan 李東垣, Xue Ji 薛已, and Yu Chang 喻昌.

The studies of *Huangdi Neijing* were widely read among the Japanese doctors at that time, but the *Shanghan Lun* did not attract much attention. At that time, the medical science of Li Dongyuan 李東垣 and Zhu Danxi 朱丹溪 was extremely influential. However, Yushoshi never stuck to contemporary Ming medicine techniques; he actively studied the *Shanghan Lun* and tried to set Zhang Zhongjing's medicine as the standard.

From the sixteenth to seventeenth century, there was a boom in the study of *Shanghan Lun* in China, and many research books were written and published. Among them, for example, such as *Shang Han Shang Lun Pian* 傷寒尚論篇 and *Shang Hanlun Houtiao Bian* 傷寒論後条弁 were brought to Nagasaki through trade and the arrival of Chinese doctors. Due to their relationship with his father Ma Rongyu, Yushoshi had a lot of contact with the Chinese doctors who came to Nagasaki during the time he was living there, and he would have been able to obtain information on the new medical books imported from China at the earliest possible time. In addition, according to the research of Hiromichi Yasui 安井廣迪, the number of reference books that Yushoshi listed among his books was enormous, and he often read even the latest medical books at that time [Yasui, 2014]. In this way, he paid attention to *Shanghan Lun* earlier than other doctors of the Original Chinese Medical Treatment. According to his records, he treated diseases such as fever, pox, and syphilis, and most of his patients were from the Kinki region, including Ki-shu, Osaka, Kyoto, Hyogo, and Kawasu.

As we have seen above, Yushoshi's medicine incorporated the latest Chinese medicine of his time in China. In particular, it can be said that his emphasis on the Shanghan Lun, which Japanese doctors at the time had not yet emphasized, was revolutionary. This was deeply related to his early understanding of the research situation of the *Shanghan Lun* in the Ming Dynasty and the research books on the *Shanghan Lun* that had

come to Nagasaki, as well as the background of the communication on medicine between China and Japan.

4. Conclusion

As we have shown in this article, when considering the relations between Ming and Qing medicine and early modern Japanese medicine, the role played by doctors, Ming vassals, and Qing Chinese doctors who came to Japan during the Ming-Qing transition and Yoshimune period, in addition to the arrival of medical books, are worthy of attention, especially the existence of this network between Chinese doctors and Japanese doctors. Yushoshi's medicine, which is presented in this chapter as an exploratory study, was cultivated through a close network with Ming vassals.

Furthermore, the results of these Sino-Japanese medical exchanges were not completed only in Japan. Interestingly, Chen Cunren 陳存仁 (1908–1990), a modern Chinese physician, traveled to Japan and collected 93 Japanese books on Chinese medicine, which he published in China in 1936 as *Huanghan Yi Xue Cong Shu* 皇漢医学叢書, and *Kitayama Ian* 北山医案 was included in this book. In other words, Yushoshi's medicine was returned to China.

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Chapter 4
Scientific Study of *Wedang Secang* as Indonesian Traditional Drink

Dinia Rizqi DWIJAYANTI

1. A Short History of *Wedang Secang*

Secang (sappan wood; *Caesalpinia sappan* L.) is a native plant of China, India, Malaysia, Myanmar, and Thailand (the green area in Figure 1), while it is an exotic plant in Indonesia, Papua New Guinea, the Philippines, the Solomon Islands, Sri Lanka, Taiwan, and the US. Initially, the red coloring of sappan wood was widely used as a natural dye. Then sappan wood is believed to have been used as a traditional medicine to increase stamina, to warm the body during cold weather, and sometimes to prevent colds. With these benefits, it is not surprising that since the seventeenth century, sappan wood was included among the popular spice commodities exported from Southeast Asian nations (especially Thailand) aboard by *Shuinsen* (trading ships licensed by the shogunate) to Japan.

Figure 1. The distribution of sappan wood worldwide
Source: [Orwa et al., 2009]

In Indonesia, sappan wood has been used as the main ingredient of *wedang secang* (Figure 2). *Wedang secang* is a traditional red drink that comes from the natural dye of sappan wood and has a fresh aroma. *Wedang secang* consists not only of sappan wood but also other herbal plants such as small ginger (*Zingiber officinale* var.), cinnamon (*Cinnamomum verum* J. Persl), and lemongrass (*Cymbopogon flexuosus*). *Wedang secang* is a typical drink from Trowulan, Mojokerto, East-Java, Indonesia. *Wedang secang* also became the favorite drink of the kings in the Majapahit Kingdom.

Figure 2. *Wedang secang*
Source: Shutterstock.com/Ariyani Tedjo

2. *Wedang Secang*, Local Wisdom and the Problem

Indonesia is rich not only in biodiversity but also in local wisdom. One such traditional custom is the consumption of *wedang secang* in local communities. *Wedang secang* can be served hot or cold as needed. In the rainy season, *wedang secang* is delicious when served as a hot drink that makes the body feel fresh and warm. *Wedang secang* can

also be served cold during the day in the hot season. In the midst of the dominance of drinks with various types and brands, this traditional drink is still very much in demand, because apart from being a traditional heritage, *wedang secang* is believed to be highly beneficial for health. This drink is traditionally used to warm the body, relieve a sore throat, treat diarrhea, and enhance the immune system. Recently, this drink has also been one of the drinks chosen to enhance the immune system during the COVID-19 pandemic in Indonesia.

Uniquely, in the past, this drink was said to only have been enjoyed by relatives of the royal family. However today, *wedang secang* can be enjoyed by all levels of society and is even served to teenagers in modern cafes. It can be bought very easily and is widely traded in an instant tea-bag form. While such products are distributed from large factories, there is also a growing home industry. Nowadays, everyone is free to mix their own *wedang secang* using the ingredients that are widely available in the traditional market. The type and amount of the ingredients used to make *wedang secang* also vary from region to region, even among the sellers of the *wedang secang* concoctions. *Wedang secang* can be made by simply washing all the ingredients needed until clean, and then boiling them over a low flame so that the substances contained can be completely extracted. After the mixture becomes brown and smells good, sappan wood is added and the pot is covered until the water boils and turns reddish. As a sweetener, sugar or honey can be added according to taste.

Unfortunately, the widespread production of *wedang secang* by a large number of undocumented sources has become a big problem in this modern era. Many people are starting to doubt its efficacy, and are worried about its possible toxicity because, as explained above, there is no standard recipe, and its composition, and dosage have not been measured accurately.

3. Scientific View of Crude Drugs

Besides synthetic drugs, the use of crude drugs has long been popular in the community. Based on a scientific view, before use, crude drugs have to pass several tests. The first is the efficacy test which can later be used to determine indications or claims of their benefits. The second is the study or isolation of the active compounds, which is not only to know what active compounds are responsible for the healing mechanisms, but also to find out the contraindications of the compounds contained in them. The third is the toxicity test which is very important to determine the right dosage because the use of crude drugs with an incorrect dosage can be toxic and damage our organs such as the liver and kidneys which function to filtrate toxins in the body. These three tests are important to do as a preliminary study before making an efficacy claim for some crude drugs.

Figure 3. The classification symbols in the packaging of the crude drugs in Indonesia
Source: [BPOM, 2004]

In Indonesia, three different levels of crude drugs have been announced by the Food and Drug Monitoring Agency (*Badan Pengawasan Obat dan Makanan*; BPOM), namely (Figure 3): traditional medicines (including *jamu*), standardized herbal medicines (*obat herbal terstandar*;

OHT) and phyto-pharmaceuticals (*fitofarmaka*). We will discuss their criteria in the following parts.

(1) Traditional Medicines (*Jamu*)

Traditional medicine is derived from plants, animal materials, and mineral materials, or preparations of extracts or mixtures of these materials, which have been used for generations for treatment. *Jamu* is one example of a form of traditional medicine. *Jamu* must meet the following criteria:

1. It is safe in accordance with the requirements set.
2. Claims of efficacy are proven based on **empirical data**.
3. It meets the applicable quality requirements.
4. The type of claim of use must begin with the words: "**Traditionally used for …**"

   In *jamu* there should be no claims of efficacy using pharmacological/medical terms such as *jamu* for hypertension, *jamu* for diabetes, *jamu* for hyperlipidemia, *jamu* for tuberculosis etc.

(2) Standardized Herbal Medicines (*OHT*)

Standardized Herbal Medicines (*OHT*) are crude drugs that have been scientifically proven to be safe and effective by preclinical testing (on experimental animals) and the raw materials have been standardized. *OHT* must meet the following criteria:

1. It is safe in accordance with the requirements set.
2. Claims of efficacy are scientifically proven / preclinical (**in experimental animals**).
3. **Standardization of raw materials** used in finished products has been carried out.
4. It meets the applicable quality requirements.

(3) Phyto-pharmaceuticals (*fitofarmaka*)

Phyto-pharmaceuticals are natural medicines that have been scientifically proven to be safe and effective by means of pre-clinical tests (on experimental animals) and clinical trials (on humans), standardized raw materials and finished products. Phytopharmaceuticals meet the following criteria:

1. They are safe in accordance with the requirements set.
2. Claims of efficacy have been proven scientifically/pre-clinical (**in animals**) and clinically (**in humans**). Indeed, phyto-pharmaceuticals are crude drugs that are prescribed by doctors considering that they have been tested on both animals and humans.
3. **Standardization of raw materials** used in finished products has been carried out.
4. They meet the applicable quality requirements.
5. The type of claim for use is in accordance with a medium to high level of evidence.

Based on these classifications, currently research on the certification of *jamu* is aimed at bringing the level of *jamu* to OHT (as minimum target) or phyto-*pharmaceuticals* (in long term) so that it can be used safely. Unfortunately, this classification is not widely known by the public, especially in traditional communities, even though it is very important to understand before using the crude drug itself, and this includes the use of *wedang secang* which is under the traditional medicine classification (*jamu*) and has also been one of the local wisdoms in Indonesia since the seventeenth century. Scientific studies are not intended to abolish local wisdom, rather, the scientific study of *wedang secang* is actually important for the preservation of local wisdom. It is hoped that in the future people can continue to enjoy *wedang secang* safely.

4. Scientific Study of *Wedang Secang*

As I have explained, *wedang secang* is a kind of *jamu* which consists of several herbal compositions, namely: sappan wood (*Caesalpinia sappan* L.), small ginger (*Zingiber officinale* var.), cinnamon (*Cinnamomum verum* J. Persl), and lemongrass (*Cymbopogon flexuosus*). Therefore, each of these plants is thought to provide efficacy that may work synergistically to provide the efficacy of *wedang secang* as claimed empirically by the traditional community. Here we will discuss the efficacy of each plant and its popular active compounds to elucidate the possible mechanism of action of *wedang secang* according to the scientific view.

(1) Sappan Wood (*Secang*; *C. sappan* L.)

Pharmacological researches have revealed that sappan wood has many bioactivities, such as the inhibition of melanin production, anti-inflammation, antioxidant and antibacterial effects, and immune regulation. In addition, the ethyl acetate, methanol, and water extracts of sappan wood exhibit strong antioxidant activity by the method of DPPH and nitric oxide. It has also been reported that the extract of sappan wood inhibits cancer cells in vitro and in vivo. It has also been found that methanolic and 50% ethanolic extracts of sappan wood showed inhibitory effects on Propionibacterium acnes and lipase activity. Chemical constituents and pharmacological investigations of sappan wood showed that the main bioactive components of sappan wood were phenolic compounds such as brazilin and sappanchalcone (Figure 4).

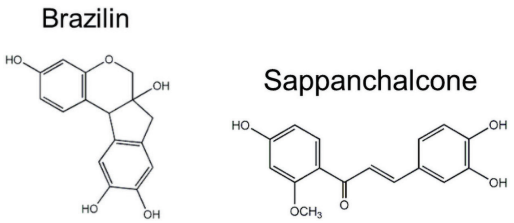

Figure 4. The chemical structure of Brazilin and Sappanchalcone

Brazilin has potential pharmacological properties such as anti-tumor, anti-cancer, anti-inflammatory, anti-diabetic, and immunostimulant effects. Brazilin, the principle component of sappan lignum has been found to exhibit hypoglycemic properties and to increase glucose metabolism in diabetics rats. It improved glucose metabolism in cultured rat hepatocytes, and also increased basal glucose transport in 3T 3L1 fibroblasts and adipocytes, but insulin stimulated glucose transport was not influenced. It was also found that brazilin possessed a stronger anti-inflammatory effect than hematoxylin and berberine hydrochloride. Brazilin also exhibited hypoglycemic effect in diabetic animals through amelioration of glucose metabolisms in insulin-responsive tissues. Another study also found that brazilin could reduce the BrCCl3-induced toxicities on hepatocytes and depress BrCCl3-induced microsomal calcium sequestration.

Not only brazilin, but also sappanchalcone contained in sappan wood is responsible for its anti-inflammatory properties. In the rheumatoid arthritis mice model, the levels of pro-inflammatory cytokines (TNF-α, IL-6, and 1L-1β) were significantly lower in the serum of sappanchalcone-treated mice as compared with the control group and suggest that sappanchalcone could be used as an anti-inflammatory and bone-protective agent. Another research showed the anti-cancer properties of sappanchalcone isolated from sappan wood.

Based on that data, sappanchalcone treatment decreased the proliferation and further promoted apoptosis in HCT116 cells compared with the findings in SW480 cells. Sappanchalcone triggered phosphorylation of p53, which is involved in the activation of caspases and increased expression of Bax in HCT116 cells.

(2) Small Ginger (*Jahe emprit*; *Z. officinale* var.)

In recent years, ginger has been found to possess biological activities, such as antioxidant, anti-inflammatory, antimicrobial, and anti-cancer activities. In addition, accumulating studies have demonstrated that ginger possesses the potential to prevent and manage several diseases, including neurodegenerative diseases, cardiovascular diseases, obesity, diabetes mellitus, chemotherapy-induced nausea and emesis, and respiratory disorders. As grounds for these efficacies, many bioactive compounds in ginger have been identified, such as phenolic and terpene compounds. The phenolic compounds are mainly Gingerenone-A, gingerols, shogaols, quercetin, zingerone, 6-dehydrogingerdione and paradols which have the responsibility for the various bioactivities of ginger.

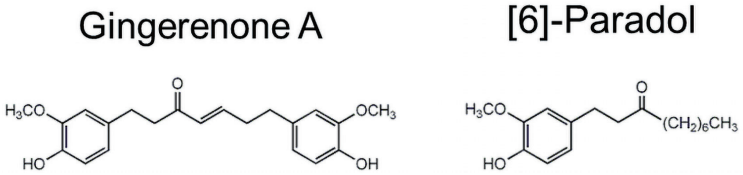

Figure 5. The chemical structure of Gingerenone-A and [6]-Paradol

Photographic and quantitative assessments of intracellular lipid content by Oil red O staining revealed that Gingerenone-A (Figure 5) had the most potent anti-adipogenic effect of the tested ginger compounds at the same concentration without affecting cell viability. The

treatment was with non-toxic concentrations of Gingerenone-A reduced lipid accumulation in a dose-dependent fashion. Consistent with these results, protein expression levels of adipogenic transcription factors such as PPARγ and C/EBPα, and lipogenic protein FAS in cells treated with Gingerenone A were lower than those in MDI only differentiated cells. Moreover, Gingerenone-A also possesses the anti-inflammatory properties by inhibiting the expression of CCL-2 and TNF in co-cultures of differentiated 3T3-L1 adipocytes and Raw264.7 macrophages in the contact system. Those studies showed that Gingerenone-A suppressed the development of obesity and adipose tissue inflammation by reducing adipocyte hypertrophy and inhibiting macrophage infiltration.

Furthermore, another study showed the anti-inflammatory, anti-diabetic, and anti-cancer effects of [6]-paradol (Figure 5) isolated from ginger. When [6]-paradol was added to cultures of BV2 microglia after they were exposed to LPS for 24 h, [6]-paradol reduced NO production and increased cell viability. The reduced NO production by [6]-paradol was mediated by the attenuation of LPS-induced iNOS upregulation. [6]-paradol blocked the secretion of cytokines TNF-α and IL-6 in a concentration-dependent manner in stimulated microglia. In addition, [6]-paradol also significantly reduced blood glucose, cholesterol and body weight in high-fat diet-fed mice. In another study, they proved that [6]-paradol suppressed the proliferation and metastases of pancreatic cancer by decreasing EGFR and inactivating PI3K/AKT signaling.

(3) Cinnamon (*C. verum* J. Persl)

Cinnamon has been reported to have many different health properties, such as its antioxidant content and its effect on diabetes and neurological, microbial, and cardiovascular diseases due to the properties of bioactive components. Cinnamon was reported to upregulate anti-autoimmune Tregs and Th2, suppress autoimmune Th17

and Th1, inhibit inflammatory infiltration, and reduce the expression of pro-inflammatory molecules. Furthermore, cinnamon extract exhibits hypolipidemic activity in hypercholesterolemic albino rats. Daily administration of the extract reduced serum levels of total cholesterol, triglycerides, and low-density lipoprotein cholesterol. Numerous studies have shown the presence of biologically active compounds in cinnamon, mainly cinnamaldehyde and eugenol (Figure 6). However, the efficiency of the compounds in the extracted cinnamon oil depends on the separation methods, solvents, and all the parameters related to the extraction/separation process, such as time, temperature, and pressure.

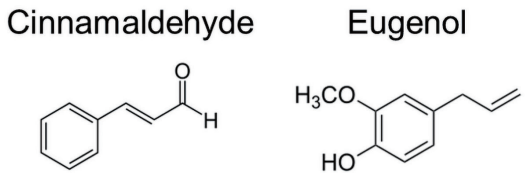

Figure 6. The chemical structure of Cinnamaldehyde and Eugenol

Looking further at the benefits of cinnamon, cinnamaldehyde and eugenol have been reported to play a role in protecting the gut from injury from conditions of inflammation, infections, and oxidative stress. In addition, cinnamaldehyde has been reported as a factor that decreases the production and expression of nitric oxide (NO), IL-1β, IL-6, and TNF-α in LPS-activated BV2 microglia and is therefore thus indicating that it has an anti-neuroinflammatory effect. Moreover, it has been reported to aid in neuroprotection due to its potential to inhibit tau protein aggregation, the hallmark of Alzheimer's disease. Cinnamaldehyde also has the potential to control harmful fungal and mycotoxin contamination of agricultural commodities. Cinnamaldehyde is a predominant compound in the bark oil extracted from Cinnamon. It

seems to reduce plasma glucose levels more effectively than metformin, which is commonly used in traditional medicine. The bioactive compounds of cinnamon oil enhance the expression of proteins that play key roles in glucose transport, insulin signaling, and the regulation of dyslipidemia. More to the point, cinnamaldehyde and eugenol have also shown positive results in the treatment of leukemia and lymphoma. These compounds have also been used as nutraceuticals in fighting colon and liver cancer cells.

(4) Lemongrass (*C. flexuosus*)

The plant is used as a fragrance and flavoring agent and in folk medicine as an antispasmodic, hypotensive, anticonvulsant, analgesic, antiemetic, antitussive, anti-rheumatic, antiseptic and as a treatment for nervous and gastrointestinal disorders and fevers. The plant is also used as an antibacterial, antidiarrheal, antioxidant and anti-inflammatory. Methanol or water extracts, infusion and decoction of lemongrass were shown to have free radical scavenging effects by measuring the bleaching of the DPPH radical, scavenging of the superoxide anion and inhibition of the enzyme xanthine oxidase and lipid peroxidation in human erythrocytes. The hot water extract of the dried leaves administered intragastrically to rats was active when compared with carrageenin-induced pedal edema, as an inflammatory model. A fresh leaf aqueous extract of lemongrass administered in normal rats lowered the fasting plasma glucose, total cholesterol, and triglycerides.

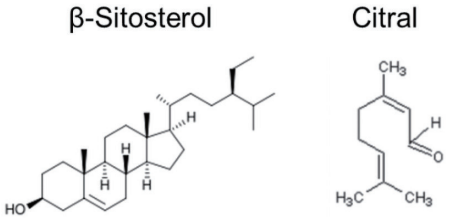

Figure 7. The chemical structure of β-sitosterol and citral

Lemongrass contains various constituents such as flavonoids and phenolic compounds, terpenoids and essential oils, which may be responsible for the different biological activities, but the mode of action for the different bioactivities has not been studied in detail. β-Sitosterol (Figure 7) is one of the compounds contained in lemongrass. Several studies have shown that β-sitosterol has a wide range of anti-inflammatory effects in peripheral tissues. More specifically, it has a certain role in inflammation models such as chronic obesity-related inflammation, ovalbumin-induced lung inflammation, TNBS-induced colitis, and rheumatoid inflammation in mice.

Furthermore, Citral (Figure 7) is an essential oil from lemongrass that possesses anti-inflammatory properties, since it enhances TNF-α as a target for the prevention of inflammatory events induced by chemicals. Citral oil inhibits an increase in TNF-α levels in RAW 264.7 cells that are stimulated with lipopolysaccharide (LPS). In the same way, it was observed in the literature that citral oil reduced the TNF-α relative expression compared to treatment with LPS. Another study showed that treatment with citral oil in mice with lung injury induced by LPS inhibited TNF-α, IL-1β, and IL-6 levels both in vivo and in vitro, demonstrating that the citral oil can inhibit a possible inflammatory response.

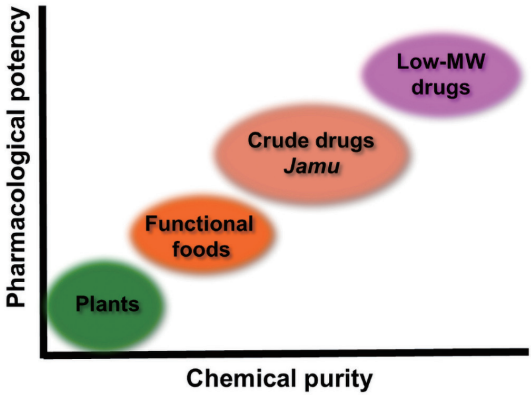

Figure 8. The relationship between chemical purity of the crude drugs and their pharmacological potency. Source: Author

Based on the scientific study explained before, the bioactive compounds isolated from the herbs contained in wedang secang have been proven to have several efficacies especially for anti-oxidant, anti-inflammation, anti-diabetes, anti-obesity and anti-cancer treatments. However, it should be emphasized that these studies were conducted mainly by using pure compounds. Figure 8 shows the relationship between the chemical purity of the crude drugs and their pharmacological potency. It means that, even though there is a high possibility that wedang secang has several efficacies as an anti-oxidant, anti-inflammation, anti-diabetes, anti-obesity and anti-cancer treatment, an experiment on whole wedang secang using experimental animals is still needed to show its potency and toxicity when it is consumed in a whole form as a decoction.

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