

Literature Research



An exploration of special adjuvants used in the treatment of epidemics in the unearthed bamboo and silk documents from the Qin and Han Dynasties

ZHANG Yaojie(张垚杰)¹, PENG Rui(彭锐)¹, FU Xiaoxu(富晓旭)^{2,3,*}, WANG Haoyu(王浩宇)¹, GAO Ming(高明)¹, YANG Senran(杨森然)¹, WANG Danmanqi(王丹曼琪)¹

¹Hospital of Chengdu University of Traditional Chinese Medicine, Chengdu 610075, China

²TCM Regulating Metabolic Diseases Key Laboratory of Sichuan Province, Chengdu 610075, China

³Department of Endocrinology, Hospital of Chengdu University of Traditional Chinese Medicine, Chengdu 610075, China

Abstract

Objective: To investigate the content related to epidemic diseases in the silk documents unearthed from the Qin and Han Dynasties in China. Specifically, it aims to analyze the use of special excipients in the treatment of these diseases.

Methods: This study conducted extensive research and verification on the bamboo and silk documents. They systematically collected, sorted out, and studied the methods of treating epidemic diseases during the Qin and Han Dynasties. This involved analyzing the use of excipients as well as understanding the ancient doctors' aseptic awareness and recognition of medicinal properties.

Results: The study revealed that ancient doctors in the Qin and Han Dynasties frequently used special excipients in the treatment of epidemic diseases. They demonstrated a certain level of aseptic awareness and could accurately identify the medicinal properties of these excipients. The treatment activities were carried out based on the etiology and pathology of the diseases.

Conclusions: Collecting, sorting out, and studying the treatment methods of epidemic diseases in the Qin and Han Dynasties have certain reference value for the prevention and control of epidemic diseases in both traditional Chinese medicine (TCM) and modern clinical treatment.

Keywords: Unearthed bamboo and silk documents, Epidemic disease, Traditional Chinese medicine (TCM)

1 Introduction

The concept of epidemic disease in traditional Chinese medicine (TCM) can be traced back to ancient times, the *Huangdi Neijing-Suwen* has already had the record of epidemic disease. *Huangdi Neijing-Suwen* recorded: "When pestilence is strong, it usually causes sudden death to patients." And it also wrote: "In the early stage of diseases and epidemics, people have dry throats, and the limbs are heavy and painful." TCM considers that epidemics are infectious diseases caused by pestilential evil, which can spread widely in the crowd and cause large-scale casualties^[1]. The

slips and silks unearthed in the Qin and Han Dynasties are of great significance for the prevention and treatment of TCM epidemics. The author's team researched the special excipients using the slips and silks for the treatment of epidemics, and discussed their efficacy and principle of action, hoping to provide some inspirations for the prevention and treatment of TCM epidemics and modern clinical treatment.

The medical literature of slips and silks referred to in this subject mainly comes from the book *Silk and Bamboo Medical Literature: Collation and Explanation* compiled by ZHOU Zuliang and FANG Yilin, and the contents of slips

*Corresponding author.

E-mail address: fxxtcm@foxmail.com.

Received: 19 March 2024. Accepted: 9 May 2024.

Citation: ZHANG Y J, PENG R, FU X X, *et al.* An exploration of special adjuvants used in the treatment of epidemics in the unearthed bamboo and silk documents from the Qin and Han Dynasties [J]. World Journal of Integrated traditional and western Medicine, 2024, 10(2):51–57.

©2024 The China Association of Chinese Medicine, and Beijing Zhonghui Traditional Chinese Medicine Journal Co., Ltd. This is an open access article under the CC BY-NC-ND license (<https://creativecommons.org/licenses/by-nc-nd/4.0/>).

and silks in the Digital Library of Ancient Chinese Medicine^[2]. The research encompasses *Zhoujiatai Qin Bamboo Slips: Prescriptions for Illnesses*^[3], *The Silk Manuscripts from Mawangdui Tomb of Han*^[4,5], *The Silk Manuscripts from Zhang jiashan Tomb of Han*^[6] and *The Fuyang Han Slip Wan Wu*^[7]. Upon reviewing the aforementioned literatures, the contents that may involve epidemic diseases were screened out, subsequently, the selected contents were researched. That is, the objectivity of those literatures was compared and evaluated by books recording epidemic diseases in later dynasties. the contents related to epidemic diseases were clarified, their meanings were interpreted, and a database had been established. During the process of data analysis, it was found that leprosy, rabies, insect-borne infectious diseases, and typhoid fever existed in the utilization of special excipients, leading to a discussion on the efficacy and principles of these excipients in this article.

2 Sake Boiled Gum Treatment of Leprosy

Leprosy is a chronic infectious disease that exists all over the world, and ancient China wasn't an exception. Leprosy causes disease and teratogenesis, results in partial or entire loss of the patients labor capacity, seriously endangers people's health, and because of the ancient society's lack of understanding of leprosy, there was discrimination and prejudice against leprosy patients. On the one hand, leprosy has a negative impact on individuals and families, on the other hand, leprosy's prevalence and disability caused by leprosy increase the burden on society and consumption of health resources.

The *Surgical Records of MA Peizhi*, a medical book in the Qing Dynasty, explained the pathogenesis of leprosy. MA Peizhi believed that the pathogenesis of leprosy includes three factors: Wind-damp wet toxin and toxic ulcers^[8]. It was mentioned in the article that the lungs regulate breath and the spleen dominates muscles. When the lungs' and stomach's functions are insufficient, the skin and muscles can not play their protective roles, and the body would be susceptible to disease. In addition, sudden exposure to rheumy air or long-term living in a moist environment may also lead to poor blood operation, thus inducing leprosy. In the historical classics of the Pre-Qin period, there were already a trace of leprosy, and it was known by various names in different times. Aliases for leprosy included Li, Mingbing, Lai, Dafeng, Eji, Efeng, and Tianxing, among others. The *Prescriptions for Fifty-two Diseases*, which was written during the Warring States period, contains the following passage: "For those with Dadai (a term possibly referring to a severe skin condition

or leprosy): Burn a certain herb, mix it with aged ointment, and apply it. First, boil glue with clear water and apply it." Additionally, there is a prescription mentioned as Mingbing prescription where Ming refers to a condition caused by worms burrowing through the skin, with symptoms appearing in various places, such as the nose, the mouth area, the gums, or the fingers, causing severe disfigurement including nasal collapse and finger amputation.

Professor ZHOU Mo pointed out that the Dadai disease and Styx disease recorded here in the *Prescriptions for Fifty-two Diseases* are leprosy, and the reason for the different names of diseases may be local feature^[9]. *Fifty-two Disease prescription* records that the treatment of leprosy is to boil deer antler glue in sake and apply it to the affected area, and the other is to use fresh live fish mixed with salt and apply it to the affected area. What is Qingjiu, *Zhouli·Tian-guan·Jiu Zheng* said: "About distinguishing three different liquors, one day to drink Shijiu, one day to drink Xijiu, one day to drink Qingjiu." ZHENG Xuan explained this in the Eastern Han Dynasty: "Shijiu is the fresh rice wine commonly drunk at present."^[10] The so-called Xijiu refers to the old soju that is similar to the popular wine today, that is, the earlier wine. As for Qingjiu, it is an old wine made in winter in Zhongshan region and enjoyed in summer. The Qingjiu in the *Zhouli* is brewed from the winter until the summer, and is aged longer than the past wine, so its taste is purer and has the sweetness of aged wine.

According to the records of *Shanghan Lun* and *Jingui Yaolue*, Qingjiu is mainly used in the following four aspects. Firstly, it is used to treat typhoid fever, palpitation, fatigue and pulmonary asthenia. Seven liters of Qingjiu and eight liters of water are decocted with medicine. Secondly scenario is the condition for which the prescription of. Danggui Sini Tang plus Wuzhuyu Shengjiang Tang is used, when the person has long-standing internal cold. The book mentions, "Take the above nine ingredients, mix them with six liters of water and six liters of clear wine, boil until the decoction is reduced, strain out the dregs, and then warm it up to divide into five servings." Thirdly the Xionggui Jiao Ai Tang mentioned in the woman's pregnancy disease, is used to treat the woman's embarrassment of ferts caused by the debility and cold of her body, the original recipe with five liters of water and three liters of sake. Finally, the Biejiajian Wan, which is used to treat gynecological mass in abdomen, is made of turtle shell soaked in Qingjiu and treated with ashes in the cooking ranges. The juice is crushed and mixed with herbal powder to make a pill^[11].

Overall, Qingjiu is mostly used to treat blood diseases. On the one hand, the nature of Qingjiu is clear and warm,

which can strengthen the drugs' effects, help to improve the warm and nourishing effect of Yang, and ensure that the blood collaterals are unimpeded. On the other hand, because of its spicy, warm and loose nature, Qingjiu is often used in combination with medicinal materials for nourishing Yin blood, thus allowing the effectiveness of the tonic to spread and avoid obstructing. Antler gum is sweet, salty and warm enters the channels of liver and kidneys, its effect is to warm liver and kidney, nourish essence and blood. Use sake to boil gum can stimulate its medicinal properties, in line with the cause of leprosy.

3 Alcohol for the Treatment of Rabies Wounds

As a deadly viral disease, rabies poses a serious public health threat to modern society due to the lack of cure, not only because of its impact on individual health and safety, but also because of its potential destruction of domestic and wild animals, as well as the economic and social burden it brings to people. In addition, rabies' prevention and control requires sustained vaccination programs and public health interventions, which is a major challenge in modern society.

Rabies, also known as fear of water disease, epileptic dog disease, dog bite infection, belongs to an acute infectious viral disease that attacks the brain nervous system. As early as in the *Prescriptions for Fifty-two Diseases*, there have been records of rabies wounding people and left a prescription to cure mad dogs' bite. Ancient doctors had a long history of understanding rabies, the pathogenesis of the disease was nothing except the maniac dog hurt, the dog's saliva contained evil went through the wound into the human body. From the surface the evil goes, straight to Yin blood, can appear sputum turbiditis, disturb the upper part of body, patients can also appear fear of water, extreme panic, abnormal excitement and other symptoms. If the disease develops further and the evil Qi is closed in the body, then there may be symptoms of progressive limb paralysis, aphasia, dizziness and other evil poisons obstructing the blood^[12].

The ancient book *Fifty-two Prescriptions for Diseases* said: "When a dog bites, it is necessary to help the injured be less painful and more healable, make the injured lie down, and makes people irrigate their wounds with wine", "rabies wounding: Take two constant stones, grind against each other take their powder, to apply the injured." According to the records of slips and silks, the doctors in the Han period had a preliminary treatment method for patients with rabies bites, that is, first let the patient lie down, and

then use a certain amount of wine to water the wound from above, and wait for the natural volatilize of the wine, and can not carry out human intervention before the next step. Then two feldspar stones are ground against each other, and the powder is applied to the bitten victim's wound. The method of disinfecting a dog bite by rinsing it with wine is similar to the initial treatment of wounds in surgery today.

The treatment of rabies bites recorded in the *Fifty-two Prescription for Diseases* has had a great influence on later generations of doctors, and many doctors have realized that cleaning and disinfecting the wound is the key link to cure rabies. *Zhouhou Beiji Fang* was the first to describe the treatment of rabies should firstly remove blood stasis. *Waitai Miyao* mentioned that the sucked blood should be quickly spit out, do not swallow, and described the specific steps to clean the wound with cold water: "The first bite immediately wash with cold water, so that the bleeding stops and then bandage. If the wound is large and deep, it should be soaked in running water and wrapped according to the procedures after the bleeding stops." A similar document in the book *Beiji Qianjin Yaofang* said: "Wash the wound with water to let the blood flow out, do not forcibly stop the bleeding, continue to wash until the bleeding is naturally reduced, and then cover with cotton cloth to help healing."^[12] Medical literature throughout the ages has emphasized the cleaning of wounds after rabies bites, from mouth suction to water washing, to the use of raw licorice and urine with toxic effects of cleaning, all of which are major medical improvements. The *Fifty-two Disease Prescription* as early as hundreds of years ago had known the use of alcohol to clean wounds and avoid contact between wounds and mucous membranes, which was extremely valuable at that time, in line with the prevention principles of modern preventive medicine on rabies.

Modern scientific research lacks drugs that can cure rabies, which makes it particularly important for the prevention of rabies, and it mainly depends on vaccination and proper disposal after exposure. The *Beijing Technical Guidelines for the Prevention and Disposal of Rabies Exposure* also mentioned the principle of immediate rinsing and disinfection after rabies exposure^[13]. Using soapy water (or other weakly alkaline cleaning agent, professional rinsing solution) and a certain pressure of running water to rinse all wounds thoroughly for about 15 min. After thoroughly rinsing, apply the wound with dilute iodophor (0.025%–0.050%), benzalkonium chloride (0.005%–0.010%) or other skin mucosal disinfectant with virus inactivation effect. The epidemiology and preclinical management of human dog bites by Dr. KISAKA also

recognizes that the victim must immediately wash the bite wound with water, soap and disinfectant for 15 min before seeking medical attention^[14]. Dr. KRZOWSKA-FIRYCH also noted that the recommendation for post-exposure rabies prophylaxis (PEP) follows national guidelines, which recommend that people receive PEP when bitten by a suspected rabies-infected animal. Human PEP includes cleaning and disinfecting wounds or contact points, as well as administering anti-rabies immunization^[15].

4 Hot Ironing with Vinegar for the Treatment of Vector-borne Infectious Diseases

Arboviruses have a profound impact on society through their wide spread and potential lethality. They not only threaten public health security and increase the burden of the medical system, but may also lead to economic losses, social unrest and economic disruption. Therefore, attention should be paid to the prevention and control of arboviral diseases.

Arboviruses are a class of viruses that infect arthropods and vertebrates through the bites of blood-sucking arthropods^[16]. Arboviruses can cause serious human infectious diseases such as Dengue fever, Chikungunya (CHIKV), Crimean Congo hemorrhagic fever, forest encephalitis and so on, and to this day arboviruses have become an important part of the infectious diseases^[17]. Although the concepts of diseases such as Dengue fever and Chikungunya were not explicitly proposed in ancient times, ancient doctors still classified these two diseases as pestilence due to their clear endemic characteristics, high incidence, rapid spread and great harm to human health. According to XU Jiaming^[18], although the name of the disease is not explicitly mentioned in traditional Chinese medicine, in the literature discussing warm disease, the arguments of heat temperature, heat epidemic and epidemic rash have more or less indirectly covered the condition of the disease. According to the season of onset and the nature of pathogenic factors, Chikungunya can be classified as damp-heat epidemic, heat-heat epidemic and heat-dryness epidemic^[19], and Chikungunya can be classified as damp-heat epidemic in the category of plague according to its incidence and symptom characteristics^[20].

The ancient text *Zaliao Fang* recorded If unfortunately bitten by a poisonous insect such as a snake or bee, then one should quickly spit three times while chanting an incantation towards the creature that bit them. Then add a fresh *Aconitum* root, boil it, and drink it. If the wound is dry, then treat it with a warm compress. Another method is to take oven-baked yellow clay, soak it in vinegar, steam it,

and use it for fumigation. That is when bitten by a poisonous insect, as mentioned in the *Zaliao Fang*, the treatment method involves taking a certain amount of oven-baked yellow clay (Fulonggan), soaking it in vinegar, steaming it, and then using it to warm and fumigate the area of the insect bite.

Vinegar tastes sour bitter, warm, non-toxic, into the stomach, spleen, large intestine, especially the liver meridian, has the effect of treating carbuncle, removing stasis, reducing swelling and pain, killing insects and detoxifying. As recorded in *Bencao Qizhen*: “To vinegar both sour (collect), and can disperse carbuncle swelling, eliminate the internal scattering, collapse the external scattering, the restrained place is the dispersed place.” In addition, due to the volatile nature of vinegar, methods such as fumigation hip bath can also make vinegar reach the affected area of the body to treat skin diseases. For example, it is recorded in the *Diet Spectrum of Living with Breath* to treat postpartum blood halosis, a red-hot iron can be soaked in vinegar, and the iron can be smoked in the patient’s nose for relief^[21]. There are a lot of records of the internal use of vinegar in *Shanghan Lun*. In *Shanghan Lun*, vinegar is also called bitter wine, mainly used in Wumei pills, bitter wine soup, Huangqi peony and cinnamon wine, as well as in treating dietary poisoning, and addressing five specific Manchu conditions. Bitter wine in Wumei pills can be used to impregnate Wumei to enhance its sour and bitter character, so as to anther and relieve pain. When decocted with *pinellia* in bitter wine soup, bitter wine amplifies *pinellia*’s ability to disperse bitterness and eliminate phlegm. In Huangqi peony and cinnamon wine soup, bitter wine, when decocted with other medicinals, imparts its unique properties and influences. The application of bitter wine in prescriptions aimed at reviving the dying and treating dietary poisoning underscores its importance in emergency medical care.

According to the *2018 Guidelines for the Clinical Diagnosis and Treatment of Dengue Fever in China*, the classification and treatment of Dengue fever include summer-dampness injury to Yang Qi, inhibition of blood, and the treatment methods are mostly warming Yang, supplementing Qi, and inactivating blood, and the selection of prescription is mostly based on loess decoction. External treatment with loess also has certain effects. Soaking loess in vinegar can enhance the effect of warming Yang and absorbing blood, as well as the effect of sterilization and preventing pests. Vinegar contains acetic acid, which helps to eliminate or inhibit bacteria and pathogenic microorganisms in the soil, thus achieving disinfection effect. Therefore, the loess can also reduce the impact of

poison insects on the human body after being soaked in vinegar. Dr. DAVULURI's study of the antiviral potential of zinc acetate against Chikungunya showed that zinc acetate exerts anti-CHIKV activity in cultures treated with zinc acetate. Viral titer decreased, and a dose-dependent reduction in viral protein expression was observed, inhibiting virus entry into the body^[22]. According to the results of using vinegar to kill Aedes mosquito eggs reported by Dr. RODRÍGUEZ, vinegar has a certain effect on killing insect eggs. In 100% vinegar, the hatching rate of insect eggs is 17.25%, and the hatching rate of insect eggs at different time points changes from 14.67% after 7 days to 31.83% after 42 days^[23].

5 Hot Soup for the Treatment of Typhoid Fever

Typhoid fever had a profound influence in ancient China. As an acute infectious disease, typhoid posed a great threat to the health of the population. For example, in the late Eastern Han Dynasty, typhoid fever caused a large number of deaths and social unrest, and in less than ten years, two-thirds of ZHANG Zhongjing's families died of typhoid fever. To this day, humans are still suffering from many diseases caused by typhoid.

Upon examination, the ancient book *He Qi Tang Fa* is the first known record of Shanghan, and it was compiled during the early Western Han Dynasty. The text mentions: "Treating Shanghan with sufficient clarity and nourishment." The term Shanghan has both a broad and narrow meaning in TCM. In its narrow sense, Shanghan specifically refers to a type of externally contracted disease caused by exposure to cold pathogenic factors. In a broader sense, Shanghan is seen as a collective term for various externally contracted febrile diseases, including stroke, the narrow definition of Shanghan, warm diseases, damp-warmth, and other conditions. The *Juyan Han Jian Yi Yao Jian* contains a wealth of information about Shanghan, as noted by LIN Jingshu. These instances of Shanghan are characterized by symptoms such as headache, irritability, inability to eat or drink, and weakness in all four limbs. In the *Juyan Han Jian Yi Yao Jian*, it is mentioned: "For treating cold disease with four herbs: Wu Hui Shifen, atractylodes (Zhu) Shifen, asarum (Xixin) Liufen, and cinnamon (Gui) Sifen. Mix with warm water and take one Daogui, three times during the day and twice at night. This prescription will relieve the symptoms, but may not cause sweating." The warm soup mentioned here refers to a hot soup, and Daogui is a capacity unit from the Han Dynasty. This prescription is for the treatment of Shanghan disease, with a focus on using four pungent and warm dispersing herbs: Fuzi (aconite), Baizhu

(white atractylodes), Xixin (asarum), and Guizhi (cinnamon twig). The method of decoction involves boiling in hot soup, three times during the day and twice at night. This prescription reflects the TCM treatment principle of treating cold with warmth for Shanghan disease, indicating that medical practitioners during the Han Dynasty had a rudimentary form of using sweating therapy for Shanghan disease^[24].

In the medical masterpiece *Shanghan Lun* written during the late Eastern Han Dynasty by ZHANG Zhongjing, there was a focused exploration of the disease known as Shanghan. ZHANG Zhongjing mentioned: "In Taiyang disease, whether there is a fever or not, there must be aversion to cold, body aches, vomiting, and the pulse is tight in both Yin and Yang, this is called Shanghan."

In this description, the symptoms of "body aches, nausea, and vomiting" mentioned are similar to the symptoms of Shanghan described in *Juyan Han Jian Yi Yao Jian*, which includes "headache and loss of appetite". From this observation, it can be seen that the discussion on Shanghan in the *Juyan Han Jian Yi Yao Jian* and the understanding of Shanghan disease as explained by ZHANG Zhongjing in the *Shanghan Lun* have significant similarities.

Hot soup, characterized by its warmth and sweet taste, is extensively used in the *Shanghan Lun* for the Guadi powder formula to treat conditions similar to Guizhi syndrome. Patients present with no headache or neck stiffness, with a pulse that is floating lightly, and they experience difficult breathing, feel chest stuffiness and discomfort with breath rising up to the throat without smooth passage. For such symptoms, emetic therapy should be considered, and Guadi powder is suitable. According to the original prescription: "Take one unit of fragrant soybeans, add them to seven units of hot soup, boil into a thin porridge-like consistency, filter out the residue, leaving only the liquid to mix with the powdered medicine," which involves boiling fragrant soybeans in hot soup to obtain a liquid that is then mixed with the powdered medicine. This method, utilizing the warmth of hot soup, helps to disperse the accumulated cold Qi in the body. Using the *Shanghan Lun* as a reference, the hot soup in Shanghan Siwu prescription from the *Juyan Han Jian Yi Yao Jian* also has a similar effect of dispersing cold with pungent warmth, aiding in treating Shanghan by inducing sweating.

6 Conclusions

Through the study of the special excipients used in disease treatment in the bamboo and silk documents unearthed in the Qin and Han Dynasties, the profound

heritage and innovative spirit of ancient Chinese medicine in disease prevention and control were revealed. These documents not only recorded the ancient doctors' profound understanding of epidemic diseases, but also showed their aseptic consciousness in treatment practice and accurate grasp of etiology and pathology. The aseptic consciousness displayed by ancient doctors in the use of excipients in the treatment of rabies, such as the treatment of rabies wounds, has striking similarities with modern aseptic techniques. The early manifestation of this awareness provides the historical basis for modern aseptic practice, and also inspires us to continue carrying forward this wisdom of infection prevention in modern medicine. Ancient doctors used some disinfectant substances such as alcohol to suppress the entry of viruses and bacteria in wounds, and this principle has been further developed in modern times. After the wound is cleaned, modern medical treatment will use diluted iodine or other skin mucosal disinfectants with virus inactivation effect (such as quaternary ammonium salt disinfectants) to rub the wound. This disinfection treatment is an improvement on ancient methods, using modern technology to develop disinfectants, more effectively kill or suppress viruses and bacteria. Through the treatment of rabies wounds, we can see the transformation and application of ancient treatment methods in modern times, which not only improves the treatment effect, but also provides a new idea for modern medical research. This transformation not only reflects the combination of ancient knowledge and modern technology, but also demonstrates the continuing value and development potential of traditional healing methods in modern medical practice. In addition, the methods of selecting excipients according to the etiology and pathology of ancient doctors, such as the sake used in the treatment of leprosy to warm Yang and reach blood, and the hot soup used in the treatment of typhoid, reflected the deep understanding of the nature of the disease. This approach is still applicable in modern medicine, especially in personalized treatment and precision medicine, where the wisdom of ancient physicians provides an important reference. In terms of humanities, the innovative spirit embodied by ancient doctors in the treatment of epidemic diseases has an important role in the development of modern medicine. Inheriting and carrying forward this spirit in modern medical research will help promote innovation and progress in the medical field. The concept of disease treatment in the bamboo and silk literature of Han Dynasty has important reference significance for the prevention and treatment of disease in modern TCM. We should continue to in-depth study, explore the deep value of these documents, in order to make greater contributions to the cause of Chinese medicine.

However, there are still limitations in this study, such as the differences between ancient and modern medical environments, the fact that modern leprosy has been basically controlled, the outdated treatment methods recorded in the *Fifty-two Prescription for Diseases* and the lack of research data, and the oversimplification of historical descriptions lead to the failure to comprehensively discuss the treatment of some diseases. For example, sake gelatin in the treatment of leprosy, due to the lack of modern clinical trials, has not proved its effectiveness, which needs to be further studied in the future. Ancient medical briefs still need to be further explored in the future to provide more theoretical support for TCM disease prevention and control.

Ethical Approval

None.

Funding

This study was supported by Sichuan Province Social Science Key Research Base: China Unearthed Medical Literature and Cultural Relics Research Center (Extended) (CTWX 2305).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

None.

References

- [1] TAO X K. Research on the Origin, Syndrome and Treatment of TCM Epidemics [D]. Nanjing: Nanjing University of Chinese Medicine, 2010. (in Chinese)
- [2] ZHOU Z L, FANG Y L. Silk and Bamboo Medical Literature: Collation and Explanation [M]. Beijing: China Press of Traditional Chinese Medicine, 2014. (in Chinese)
- [3] LI J M. Bamboo Slips from Qin and Han Tombs in Guanju [M]. Beijing: China Publishing Group Co., Ltd., 2001. (in Chinese)
- [4] The Collating Group of Silk Manuscripts from Mawangdui Tomb of Han. The Silk Manuscripts from Mawangdui Tomb of Han [M]. Beijing: Cultural Relics Press, 1985. (in Chinese)
- [5] GU Y, HE Q H, CHEN X P, *et al.* Medical application of liquor in Mawangdui's medical book [J]. Journal of Hunan University of Chinese Medicine, 20, 43(07): 1268–127. (in Chinese)

- [6] The Collating Group of Bamboo Slips from Zhangjiashan Tomb of Han. Introduction to Zhangjiashan Han Slips in Jiangling [M]. Beijing: Cultural Relics Press, 1985. (in Chinese)
- [7] The Fuyang Han Slip Collating Group. A Brief Introduction to Fuyang Han Slips [M]. Beijing: Cultural Relics Press, 1983. (in Chinese)
- [8] FAN F Y. Ma Peizhi's Surgical Records [M]. Beijing: Beijing People's Medical Publishing House, 2008. (in Chinese)
- [9] ZHOU M, XIAO Z Y. Notes on Medical Books of Mawangdui [M]. Tianjin: Tianpan Science and Technology Publishing, 1988. (in Chinese)
- [10] ZHENG X, Zhouli Zhushu [M]. Shanghai: Shanghai Ancient Books Publishing House, 2010. (in Chinese)
- [11] LU L A, WEN X P. Research on special solvents in classical prescriptions in *Shanghan Zabing Lun* (treatise on febrile and miscellaneous diseases [J]. Journal of Traditional Chinese Medicine, 2015, 56(19): 1625–1629. (in Chinese)
- [12] CHEN S S, WEI J A, HUANG X Z. Review of literature on the treatment of rabies by Chinese medicine [J]. Global Traditional Chinese Medicine, 2012, 5(2): 114–116. (in Chinese)
- [13] Beijing Center for Disease Prevention and Control. Technical guidelines for rabies exposure prophylaxis in Beijing (2024 edition) [J]. Capital Journal of Public Health, 2024, 18(3): 129–136. (in Chinese)
- [14] KISAKA S, MAKUMBI F E, MAJALIJA S, *et al.* Epidemiology and preclinical management of dog bites among humans in Wakiso and Kampala districts, Uganda: Implications for prevention of dog bites and rabies [J]. PLoS One, 2020, 15(9): e0239090.
- [15] KRZOWSKA-FIRYCH J, TOMASIEWICZ K, KOZŁOWSKA A. Post-exposure rabies prophylaxis in humans exposed to animals in Lublin province (Eastern Poland) in 2012–2015: A retrospective study [J]. Human Vaccines & Immunotherapeutics, 2017, 13(6): 1–6.
- [16] XIA H, YUAN Z M. Discovery and distribution of and response to arbovirus in China over the past seven decades [J]. Chinese Journal of Schistosomiasis Control 2023, 35(5): 427–436+450. (in Chinese)
- [17] LI Y H, ZHANG W, CHENG G. Arboviruses and biosecurity [J]. Journal of Biology, 2023, 40(6): 1–6. (in Chinese)
- [18] XU J M. Experience of traditional Chinese medicine treatment of Dengue fever [J]. Journal of Guangdong Medical University, 1994, 10(3): 199–200. (in Chinese)
- [19] HE Z H, HUANG Z G, LI J S, *et al.* Research progress on the treatment of Dengue fever by traditional Chinese medicine [J]. Modern Journal of Integrated Traditional Chinese and Western Medicine, 2023, 32(14): 2029–2032. (in Chinese)
- [20] TANG B, LUO P, WANG Z J. Expert consensus on TCM diagnosis and treatment of Chikungunya in Yunnan [J]. Chinese Journal of TCM Emergencies, 2019, 29(4): 575–578+588. (in Chinese)
- [21] ZHANG T T, PENG Q, HE Z X, *et al.* On the clinical application of vinegar therapy in traditional Chinese medicine [J]. China's Naturopathy, 2016, 24(10): 7–8. (in Chinese)
- [22] DAVULURI K S, SHUKLA S, KAKADE M, *et al.* Explorations on the antiviral potential of zinc and magnesium salts against Chikungunya virus: Implications for therapeutics [J]. Frontiers in Cellular and Infection Microbiology, 2024, 14: 1335189.
- [23] RODRÍGUEZ G A, POMARES M A, HERRERA GIL V G, *et al.* Household ovicidal alternative for complementary control of *Aedes aegypti* in the Gran San Miguel de Tucuman agglomerate, Tucumán, Argentina [J]. Acta Tropica, 2023, 239: 106813.
- [24] LIN J S, GAO Y X, ZHOU D W. Analysis of the concepts of early febrile disease and typhoid fever in traditional Chinese medicine based on the pharmaceutical literature of Qin and Han Jian and silk [J/OL]. Journal of Basic Chinese Medicine, 2024, 30(9): 1449–1452.