

The Current Situation and Reflections on the Protection of Trade Secrets in Traditional Chinese Medicine Prescriptions

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Abstract: Traditional knowledge of Chinese medicine is the outcome of the Chinese nation's struggle against diseases and survival in nature over several thousand years. It embodies the wisdom of countless ancient medicine practitioners. This thesis will conduct an overview of traditional Chinese medicine prescriptions as the object, analyzing their uniqueness and the current status of legal protection, as well as analyzing the current protection status of existing patent system for traditional Chinese medicine prescriptions, analyzing the protection methods, protection scope and identifying the shortcomings. This study reveals that the protection of trade secret is highly applicable to the protection of traditional Chinese medicine prescriptions. Based on the practice of protection traditional medicine in foreign countries, it can be concluded that the protection of trade secrets for traditional Chinese medicine prescriptions can be achieved through the issuance of targeted laws and regulations as well as the establishment of databases.

1 INTRODUCTION

As an outstanding traditional culture of the Chinese nation, traditional Chinese medicine has enabled the Chinese people to overcome various diseases over thousands of years and has become an indispensable part of the development of social health and medicine value is immeasurable. As an important part of traditional Chinese medicine knowledge, Chinese herbal prescriptions have also drawn increasing attention and consensus from people.

From the ancient period when Shennong tasted hundreds of herbs to the medicinal prescriptions and pharmacological knowledge recorded in *Compendium of Materia Medica*, and even the good folk remedies, these have been passed down to this day and are still utilized by the Chinese people. However, with the advent of economic globalization, Western developed countries, taking advantage of the imperfect protection of intellectual property rights for traditional Chinese medicine in China, maliciously exploited their technological and financial advantages to re-utilize the prescriptions of traditional Chinese medicine in a second round, and then maliciously applied for patent protection based on it, thus reselling them domestically to obtain huge

profits. They used the "biological" method to obtain huge benefits. For example, Japan has registered a large number of patents and trademarks of classic prescriptions of traditional Chinese medicine, and changed its name to "Save Heart Pill" after imitating "Lix God Pill". South Korea imitated China's "Niu Huang Qingxin Pill" and renamed it "Niu Huang Qingxin Liquid". India imitates the traditional Chinese medicine "Yujin" into "Curcumin". These have all caused the loss of traditional Chinese medicine prescription resources, reflecting the loss of overseas discounts and frequent incidents of trade secrets of traditional Chinese medicine. This not only causes losses and intellectual property theft to the creators and owners of traditional Chinese medicine, but also shows that there are crises and challenges in the healthy development of traditional Chinese medicine in China.

At present, China attaches more and more importance to the intellectual property of traditional Chinese medicine. The State Intellectual Property Office has included traditional Chinese medicine in the key protection areas, and revised the *Regulations on the Protection of Traditional Chinese Medicine Varieties* in 2018 to promote the establishment of a traditional database of traditional Chinese medicine. In 2023, China issued the *Opinions on the*

Examination of Key Information of Ancient Classic Famous Prescriptions, which simplified the approval process of classic famous formula preparations and reflected the intellectual property of Chinese medicine prescriptions.

Based on this, this article is a research summary. Western patent system, traditional Chinese medicine prescriptions face difficulties such as difficulty to be effectively protected and low patent pass rate. Thus, it leads to thinking about the applicability of the protection of traditional Chinese medicine prescriptions with trade secrets as an entry point.

2 THE CURRENT SITUATION OF THE PROTECTION OF TRADE SECRETS OF TRADITIONAL CHINESE MEDICINE PRESCRIPTIONS

2.1 Legislative Protection Research

Worldwide, the patent system has become the mainstream choice to protect pharmaceutical products and technologies. In China's patent law, provisions are borrowed from the Western patent system. However, due to the differences in cultural attributes, Western medicine belong to two distinct theoretical systems. Essentially, their differences represent a dialogue between two civilizations. Traditional Chinese medicine embodies the wisdom of agricultural civilization, emphasizing harmony between humans and nature, while Western medicine reflects the scientific rationality of industrial civilization, aiming for precise control over diseases. In some single laws and regulations in China, there are already provisions for the protection of trade secrets. For instance, the current effective Anti-Unfair Competition Law came into effect on April 23, 2019, and its main provisions concerning trade secrets are Article 1, Article 2, Article 9, and Article 32. Among them, Article 1 and Article 2 clearly state the legislative purpose and basic principles of the Anti-Unfair Competition Law, such as "stopping unfair competition behaviors" and "abiding by laws and commercial ethics", which reflect China's passive legislative protection of trade secrets. This provides a feasible legal interpretation for the urgent need to establish an active protection model for trade secrets through a specialized law. Therefore, it is suggested that laws and regulations be improved to clearly define the scope of protection for trade secrets in traditional Chinese medicine, increase the severity

of penalties for unfair competition and infringement, and establish a collaborative medicine for the protection of trade secrets in traditional Chinese medicine (Xie and Ma, 2021). Article 501 of the Civil Code stipulates, "During the process of concluding a contract, if a party becomes aware of any trade secrets or other information that should be kept confidential, such information shall not be disclosed or improper utilization of such trade secrets or information causes damage to the other party, improperly utilized such information shall bear the liability for compensation." Article 43 of the Traditional Chinese Medicine Law stipulates The state shall provide special protection for traditional Chinese medicine prescriptions that have been legally recognized as state secrets regarding their composition and production processes. Among them, the Labor Law and the Contract Law also stipulate confidentiality obligations and non-competition restrictions for trade secrets, protecting trade secrets through confidentiality obligations and prohibitive provisions.

2.2 Complementary Between Business Secrets and State Secrets

There is a connection between business secrets and state secrets. To some extent, the combination of the two can complement each other, and both can protect the legitimate interests of the right holders. The Law on State Secrets stipulates: concern national security and interests, which are determined in accordance with legal procedures and are only known to a certain period of time. Among them, the protection of secrets matters in science and technology includes major traditional Chinese medicine formulas or prescriptions that involve national security. This indicates that the protection of state secrets is in line with the protection of traditional Chinese medicine. For instance, the prescriptions and prescriptions of traditional Chinese medicine such as Yunnan Baiyao, An Gong Niu Huang are recognized as state secrets and are subject to the provisions of the State Secrets Law and Article 43 of the Traditional Chinese Medicine Law, prohibiting any illegal disclosure. This shows that sometimes the prescriptions of traditional Chinese medicine are also protected as state secrets.

3 THE DILEMMA OF PROTECTING TRADE SECRETS IN TRADITIONAL CHINESE MEDICINE INDUSTRY

3.1 The Risk of Leakage of Traditional Chinese Medicine Is High

During the long history of over a thousand years of development of traditional Chinese medicine in our country, the traditional means adopted by relevant medical practitioners to protect themselves from others' infringement of their own research prescriptions or other therapeutic methods is through confidentiality. Among these confidentiality measures, the most typical one is the inheritance of secret prescriptions. Due to historical limitations, such confidentiality measures are rather fragile and the traditional ones are incomplete. This has led to a situation where, in the era of information sharing, the awareness of confidentiality is weak and commercial secrets are frequently leaked, which has become a major pain point in the traditional Chinese medicine industry. Furthermore, due to the weak awareness of confidentiality among enterprise employees and the absence of a strict confidentiality system, the enterprise is facing the crisis of information leakage. Once an employee who has access to the enterprise's trade secrets voluntarily quits his job or is poached by another company, the departing employee may betray the enterprise's trade secrets for personal gain. If the enterprise has not signed any non-compete or confidentiality agreements, it will be even more difficult to fight against the infringer. Even among the current employees, some may take risks and disclose the core secrets of the enterprise to the outside world in the face of huge benefits. The reason for this is that there is another risk worth nothing: The ownership of trade secrets is a kind of non-exclusive exclusivity. That is to say, it is not prohibited for others to obtain the same technology through legal means. For instance, others may conduct reverse research by purchasing prescriptions-based traditional Chinese medicine products. They might even attempt to crack or reprocess these products to steal them, and then apply for patents maliciously by registering them under false names to obtain their own patent rights.

3.2 The Way of Inheritance of Traditional Chinese Medicine Itself Is Incompatible with the Requirements of Protecting Commercial Secrets

Although trade secrets have low risks due to their non-disclosure nature and lack of time and geographical restrictions, they can still be leaked due to the failure of contractual protection measures, and there is a lack of mandatory protection by relevant countries. This is extremely unfavorable for the protection of trade secrets of traditional Chinese medicine (Qiang, 2009). Regarding the protection of the secrets of traditional Chinese medicine, the majority of traditional protection practices are confidential. As a result, the vast majority of prescriptions in traditional Chinese medicine are considered as family heirloom secrets. They are passed down orally from master to apprentice, without any physical carriers, nor are these complete systems and standards. This not only makes the collection and organizations more difficult, but also makes it hard for traditional Chinese medicine prescriptions to achieve the same level of precision and clarity as Western medicine prescriptions in terms of intellectual property protection and patent protection. The patent protection scope is not clear, and the technical features are not easy to be classified (Huang and Wei, 2015). For example, traditional Chinese medicine prescriptions contain a lot of flavoured medicines. The protection of such prescriptions not only involves the prescriptions drugs, dosage and cooking methods, but also involves factors such as drug varieties and drug preparation methods. However, it is difficult for analysis and testing technology at this stage to determine the infringement of the intellectual property rights of traditional Chinese medicine prescriptions. This will prevent others from providing effective evidence of infringement, and the charges will be invalid, which also costs the protection of trade secrets. In addition, a modern traditional Chinese medicine costs 4450yuan before applying for invention patent protection. After authorisation, the free payment will increase every year. The validity period of the invention patent is 20 years, and a total of 74300 yuan is required. If it is overdue, the annual fee for a modern traditional Chinese medicine invention patent will cost nearly 100000 yuan in total (Yu and Yao, 2024). This kind of expenditure cannot be ignored either. This reflects the incompatibility between the protection of traditional Chinese medicine and modern intellectual property law of the West.

Traditional Chinese medicine is based on collision with the Western legal system has also increased the difficulty of traditional Chinese medicine in protecting trade secrets.

3.3 A Comparative Study on the Protection of Trade Secrets and Intellectual Property Rights of Traditional Chinese Medicine

The two protection methods complement each other and are inseparable. Intellectual property protection is further divided into patent, trademark and copyright protection. Take patents as an example, in the method of intellectual property protection of traditional Chinese medicine, because the patent protection of traditional Chinese medicine has been applied earlier, with strong protection, and the advantages of exclusivity, it has a wider applicability than other traditional Chinese medicine protection methods (Bai, 2020). However, it is worth noting that due to the special nature of the production process of traditional Chinese medicine itself, it is often difficult to meet the requirements of the "three sexes" of the patent. Among them, the performance of prescriptions is particularly obvious. Traditional Chinese medicine prescriptions are often made of a variety of drugs, and several processes, which makes it difficult for the final product of the drug to analyse its specific ingredients with modern technology, which also leads to the difficulty of determining the facts of infringement. This lead to the loss of the exclusive rights of the right holder of trade secrets. This reflects from the side that when the trade secrets of traditional Chinese medicine are infringed, it is difficult for others to identify and identify the infringement of trade secrets, so it is difficult to effectively protect the trade secrets of traditional Chinese medicine.

4 THE WAY OUT OF PROTECTION OF TRADE SECRETS OF TRADITIONAL CHINESE MEDICINE

The modern intellectual property system is a protection system based on the development of Western civilization and Western science and technology, while traditional Chinese medicine is a knowledge and technology system based on the development of Eastern civilization, especially

Chinese civilization, and traditional Chinese knowledge. The knowledge system is fundamentally different from the Western knowledge technology system. This characteristic of traditional Chinese medicine has brought great troubles and constraints to the protection of intellectual property rights of traditional Chinese medicine based on Western science and civilization (Liu, 2019). Therefore, it is particularly urgent to explore a path suitable for the protection of the trade secrets of traditional Chinese medicine. The technological innovation and applications of Chinese and Western medicine enterprises and traditional Chinese medicine can be taken as an entry point.

4.1 Self-Protection of Traditional Chinese Medicine Enterprises

The spirit of contract is applied in trade secrets. According to the information, from 2018 to 2020, China's civil cases of infringement of trade secrets increased from 403 in 2018 to 599 in 2020. Chinese procuratorial organs have transferred and prosecuted a total of 98 criminal cases of infringement of trade secrets involving 196 people (Li, 2021). This can be seen that the number of criminal cases in the first instance of China's infringement of trade secrets is increasing year by year. It is particularly urgent for traditional Chinese medicine enterprises to strengthen self-protection. Relevant practitioners of traditional Chinese medicine need to start from themselves, strengthen personnel risk control, and strengthen the information protection of pharmaceutical enterprises. They can also protect the core secrets of traditional Chinese medicine or production methods by formulating confidentiality regulations and signing confidentiality agreements with R&D personnel, so as to improve the competitiveness of Chinese pharmaceutical enterprises. Among them, the spirit of the contract can play a prominent role. By signing a confidentiality agreement, it can remind the obligations of relevant stakeholders, which can play a warning role. The confidentiality agreement is also the embodiment of the evidence awareness of traditional Chinese medicine enterprises, which allows traditional Chinese medicine enterprises to make sufficient preparation in advance when they are subjected to lawsuits. This can play a role through evidence when enterprises suffer from trade secret infringement disputes.

Learn from the advanced trade secret protection measures of foreign enterprises. The products of the famous Coca-Cola company sell well all over the world, so it pays special attention to the protection of

the formula. Its strategy integrates legal means, physical isolation and brand marketing. Among them, the separation and dispersion of the formula and the protection of traditional Chinese medicine prescriptions can be learned from it. Specifically, the complete formula is divided into multiple segments, and the raw material are provided and produced by different suppliers, and finally mixed proportionally by the Coca-Cola factory. The successful protection of Coca-cola's formula proves that the value of trade secrets lies not only in the information itself, but also in its unrepeatable management ecology. In addition, IBM, for example, the company has set up a trade secret contact registration management method, that is to say, the company data that employees with different authority can view is also different. Through the division of the security level of the database, the level of information that everyone comes into contact is also different. This kind of data hierarchical management method is worth learning from traditional Chinese medicine enterprises. It can also be protected through a combination strategy with patents, which is connected with the trade secret laws of various countries. Its protection logic is the core competitiveness of trade secret protection that cannot be reverse engineered. IBM's protection practice shows that the real trade secret defense is the trinity of legal deterrence, technical barriers, and cultural penetration.

4.2 Strengthen the Technology Innovation and Application of Traditional Chinese Medicine

Compared with the complex chemical composition of Western medicine, traditional Chinese medicine is based on natural medicine and has a relatively single composition. It can be easily cracked by using modern science and technology. This is also the main reason why traditional Chinese medicine knowledge has been widely imitated abroad in recent years. Specifically, the traditional Chinese medicine industry should adhere to the original thinking of traditional Chinese medicine, adhere to and carry forward the characteristic advantages of traditional Chinese medicine, and systematic conduct biological research of traditional Chinese medicine (Zhu, 2018). In terms of the protection methods for traditional Chinese medicine prescriptions data, we can also draw on the field of data privacy protection technology. For instance, a privacy protection method for traditional Chinese medicine prescriptions data based on K-anonymity (Haust, 2023). Strengthen the optimization ability of protection traditional Chinese

medicine prescriptions as trade secrets through multi-dimensional technological innovation and the introduction of new methods. At the same time, adhere to the combination of traditional Chinese medicine theory and innovative practice, give full play to the scientific knowledge contained in traditional Chinese medicine, and gradually enhance the protection of trade secrets of traditional Chinese medicine prescriptions.

Empowering with local culture and promoting the modernization of traditional Chinese medicine technology. The Western intellectual property system and the protection of traditional Chinese medicine prescriptions are bound to collide. As a traditional culture of the Chinese nation, how traditional Chinese medicine can be integrated with Western culture and promote technological modernization is particularly important. Based on the local culture, with the aim of fully applying scientific and technological achievements to modernization construction, by adopting the strategies of building an open and innovative ecosystem concentrating efforts through the "national system" to take key issues, conducting interdisciplinary research, and promoting collaborative innovation among industry, academia and research institutions, and leveraging the original advantages of traditional Chinese medicine as the base point of scientific and technological innovation, and collaborative innovation as the inevitable path for the modernization of traditional Chinese medicine (Su, Yuan, Zhang et al, 2024). Technological innovation and the utilization of local cultural advantages can mitigate the impact of the Western intellectual property system, thereby accelerating the modernization process of traditional Chinese medicine.

4.3 Synergistic Protection of Trade Secrets and Other Institutional Measures

Integrate with the database system. Establish a specialized database for traditional knowledge of Chinese medicine prescriptions, thereby achieving efficient management and protec. For instance, India has established a huge database called the Digital Library of Traditional Knowledge, which details 54 steps of official traditional herbal medicine works, 150000 kinds of traditional medicines, and over 1500 yoga practices with a history of 5000 years. In view of this, China can conduct extensive collection and classification of traditional knowledge of various Chinese herbal prescriptions and systematically record them in specialized databases. For China, a

large number of Chinese herbal prescriptions are still in the non-public domain, so the establishment of our databases should also be considered in light of national conditions. During the patent search and review process, measures for confidentiality should also be taken into account.

5 CONCLUSION

Nowadays, the majority of people advocate the use of the intellectual property rights system to protect traditional knowledge such as Chinese medicine prescriptions. However, the intellectual property rights system originated from the West. Due to the differences in cultural attributes between Chinese medicine and Western systems, the protection process of this system has encountered conflicts. Especially in the protection of Chinese medicine prescriptions, there has been a significant in adaptability. At present, a new type of intellectual property-trade secrets, has emerged. This concept can be well integrated with the protection of traditional Chinese medicine prescriptions. Thus, we can explore the path for the interconnection between the protection of traditional Chinese medicine prescriptions and trade secrets. Therefore, this paper conducts an overview and reflection on the protection of the commercial secrets of traditional Chinese medicine prescriptions from the perspective of the level of protection. Starting from the differentiations of cultural attributes, it analyzes the deficiencies of the exactly patent system in protection traditional Chinese medicine prescriptions, and then leads to the path of protecting traditional Chinese medicine prescriptions through commercial secrets. Thus, it explores the applicability of commercial secret protection for traditional Chinese medicine prescriptions. Traditional Chinese medicine prescriptions are different from other intellectual property objects. Due to their own complexity and unique cultural attributes, a single protection method is insufficient to provide comprehensive protection. Other systems can be supplemented to achieve coordinated protection, which might yield better results. It should be emphasized that in this article, the incompatibility between the Western patent system and the protection of traditional Chinese medicine prescriptions is not a denial or confrontation of the former. Instead, it aims to coordinate the protection of trade secrets of traditional Chinese medicine prescriptions with other protection methods, thereby exploring a comprehensive and effective protection path.

Finally, it is hoped that through the dried research and suggestion presented in this article, it can play a certain role in exploring the protection of commercial secrets in traditional Chinese medicine prescriptions.

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