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Systematic Review of Traditional Herbal Teas Containing Semen Ziziphi Spinosae: Traditional Uses and Modern Evidence

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Abstract: *In recent years, the global interest in traditional herbal remedies has surged, with many seeking natural alternatives for managing health issues. This review focuses on a traditional Chinese herbal tea, a blend renowned for its calming and sleep-promoting properties, which comprises a unique combination of Semen Ziziphi Spinosae, lotus seeds, lily, longan, and jujube. These ingredients have been utilized in traditional Chinese medicine for centuries, primarily for their efficacy in calming the mind, enhancing sleep quality, and providing supplementary health benefits such as energy boosting and blood nourishment. The primary aim of this review is to explore the scientific underpinnings of these traditional claims, examining the extent to which current research supports the tea's purported effects. We delve into the pharmacological properties of each component, highlighting studies that have investigated their effects on sleep quality, anxiety reduction, and overall well-being. By bridging the gap between traditional wisdom and scientific validation, this overview aims to provide a comprehensive understanding of the therapeutic potential and unique advantages of this herbal tea, offering insights into its role as a natural remedy in contemporary wellness contexts.*

Keywords: *traditional Chinese medicine, herbal tea, longan, lotus seeds, lily, longan, jujube*

1. Introduction

The prevalence of sleep disorders and related health issues has significantly increased in modern society, prompting a search for effective and natural solutions [1, 2]. In this context, traditional Chinese herbal teas have garnered attention due to their long history of use in promoting health and well-being. Among these, a particular herbal tea blend consisting of Semen Ziziphi Spinosae, lotus seeds, lily, longan, and jujube stands out for its reputed calming and sleep-enhancing properties. This blend, deeply rooted in the practices of traditional Chinese medicine (TCM), is believed to harmonize the body's vital energies thus promoting physical and mental tranquility.

Traditional Chinese medicine, with its holistic approach to health, emphasizes the importance of balance and harmony within the body and between the body and its environment. The ingredients in this herbal tea are carefully selected based on their specific properties and the roles they play in TCM theory. Semen Ziziphi Spinosae, for instance, is highly valued for its sedative properties and its ability to nourish the heart and calm the mind. Similarly, Lotus Seeds, Lily, Longan, and Jujube are chosen for their complementary effects on enhancing sleep quality and providing additional health benefits according to TCM principles [3].

Despite the widespread traditional use and anecdotal evidence supporting the benefits of this herbal blend, scientific research into its efficacy and mechanisms is still in the nascent stages. This gap between traditional knowledge and scientific validation presents a significant challenge for the integration of such herbal remedies into modern healthcare practices.

Therefore, this review aims to bridge the existing gap by comprehensively examining the available scientific literature on the individual constituents and collective efficacy of the blend, with a specific focus on their impact on sleep quality, anxiety levels, and overall health. Furthermore, this study will elucidate potential mechanisms through which these ingredients may exert their effects both independently and synergistically.

By providing a comprehensive overview of both the traditional use and the current scientific

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understanding of this herbal tea, this review seeks to contribute to the broader discussion on the role of traditional remedies in modern healthcare, offering insights into how ancient wisdom and modern science can converge to promote health and well-being.

2. Ingredients and pharmacological action

2.1 Semen Ziziphi Spinosae

Semen Ziziphi Spinosae, commonly known as Suan Zao Ren in TCM, has been a staple in traditional Chinese medicine for centuries. Traditionally, it is celebrated for its stabilizing emotions and its ability to enhance sleep quality, making it a go-to remedy for insomnia and restlessness. Its use is often recommended for those suffering from stress, anxiety, and sleep disturbances, reflective of its role in balancing the body's internal environment.

Recent pharmacological studies have begun to support the traditional uses of Semen Ziziphi Spinosae. These studies have identified several bioactive compounds within Semen Ziziphi Spinosae, including saponins, flavonoids, and polysaccharides, which may contribute to its sedative and hypnotic effects [4]. Research has shown that extracts of Semen Ziziphi Spinosae can significantly increase sleep time and reduce sleep latency in animal models. Moreover, clinical studies in humans have observed improvements in sleep quality and duration, with reduced night awakenings [5, 6].

The anxiolytic and hypnotic effects of Semen Ziziphi Spinosae are believed to be multifaceted. One proposed mechanism is the modulation of neurotransmitter activity, including gamma-aminobutyric acid (GABA), which play crucial roles in sleep regulation and mood stabilization. GABA reduces neural activity in the brain, promoting relaxation and reducing excitement or anxiety that can interfere with the ability to fall asleep. By inhibiting certain areas of the brain, GABA helps initiate the sleep process [7].

Imbalances or dysfunctions in GABAergic systems are linked to various sleep disorders. For instance, reduced GABA levels have been observed in individuals with insomnia, suggesting that insufficient inhibition of central nervous system activity may contribute to difficulties in falling and staying asleep. Conversely, treatments that enhance GABAergic activity, such as certain types of sleeping pills, are effective in treating some sleep disorders because they increase the inhibitory signals in the brain, promoting sleep [8, 9].

The saponins found in Semen Ziziphi Spinosae, for example, have been shown to enhance GABA receptor binding in the brain, promoting relaxation and sleep. Additionally, the flavonoids present may exert antioxidant effects, further contributing to its calming effects by reducing oxidative stress within the nervous system [10]. In the context of the herbal tea blend, Semen Ziziphi Spinosae serves as a cornerstone ingredient, providing the primary calming and sleep-promoting effect.

2.2 Lotus seeds

Lotus seeds, known as Lian Zi in TCM, are harvested from the lotus plant (Nelumbo nucifera), a species revered for its purity and spiritual significance across various cultures. In TCM, lotus seeds are valued not just for their nutritional content but for their medicinal properties. Historically, they have been used to address a range of conditions, including chronic diarrhea, insomnia, restlessness, and heart palpitations, embodying the holistic approach of TCM that seeks to balance the body’s internal energies [3].

Modern research has begun to uncover the biochemical makeup of lotus seeds that contributes to their health benefits. Rich in antioxidants and phytochemicals, lotus seeds have been studied for their potential in improving sleep quality, enhancing cognitive function, and promoting cardiovascular health [11, 12]. Phytochemicals, a broad term encompassing a variety of biologically active compounds, are naturally occurring chemicals found in plants [13]. Unlike essential nutrients, such as vitamins and minerals that are required for maintaining basic human health, phytochemicals are not essential for life but may offer added health benefits when included in the diet.

These natural compounds, found abundantly in lotus seeds, can have antioxidant, anti-inflammatory, antimicrobial, and anticancer properties. They interact with the human body in complex ways, potentially reducing the risk of chronic diseases such as heart disease, diabetes, and cancer. For instance, antioxidants like flavonoids scavenge harmful free radicals, reducing oxidative stress and cellular damage [14, 15]. Notably, the presence of flavonoids and alkaloids in lotus seeds may play a role in their calming effects,

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with studies suggesting these compounds can positively influence mood and sleep patterns through their interaction with the central nervous system [11].

2.3 Lily

In TCM, the dried fleshy scale of plants from the Liliaceae family, known as Bai He, is highly regarded for its soothing and cooling properties. Traditionally used to moisten the lungs and calm the heart, lily are often prescribed for symptoms related to respiratory disease and emotional distress, such as restlessness, irritability, and insomnia. The lily is symbolic of purity and tranquility in many cultures, reflecting its calming effects in TCM. It is believed to harmonize the heart and lung energy channels, promoting emotional balance and mental peace [3].

Modern pharmacological studies on lily have identified several active compounds, including saponins, flavonoids, and polysaccharides, which contribute to their health benefits. Research suggests these components have anti-inflammatory, sedative, and neuroprotective effects [16]. Studies on the use of lily for improving sleep quality and reducing anxiety have shown promising results, indicating their potential as a natural treatment for sleep disorders and related conditions. The antioxidant properties of lily also play a role in their therapeutic effects, helping to mitigate oxidative stress and support overall health [17].

2.4 Longan

Longan, a tropical fruit native to southern China, is cherished not only for its sweet, aromatic flavor but also for its nutritional profile. This small, round fruit has a translucent white flesh, encased in a thin brown shell. Esteemed in TCM and across various Asian cultures for its nourishing properties, longan is traditionally used to tonify the heart and spleen and promote blood circulation. Moreover, longan has been used in TCM for centuries, believed to have properties that improve sleep quality, enhance memory, and even act as an anti-depressant [3].

In terms of nutritional value, longan is particularly rich in Vitamin C, an essential antioxidant that supports the immune system, skin health, and iron absorption. Longan also contains vitamins of the B complex, including B2 (riboflavin), B3 (niacin), and smaller amounts of B1 (thiamine), which contribute to energy metabolism, brain function, and overall cellular health. The addition of longan not only enhances the sweetness and enriches the overall flavor profile of this herbal tea but also complements its nutritional value [18, 19, 20].

2.5 Jujube

Jujube, also known as red date or Chinese date, is a small, reddish-brown fruit with a sweet and tart flavor. It has been valued in traditional medicine for centuries, especially in Asia, and is increasingly recognized for its nutritional and health benefits. Nutritionally, jujubes are a rich source of vitamins, minerals, and dietary fibers. Jujubes contain important minerals such as potassium, which is vital for maintaining healthy blood pressure levels, and iron, which is crucial for blood production and oxygen transport in the body [3].

Beyond their nutritional content, jujubes have been studied for their potential health effects. They possess antioxidant properties due to the presence of various phytochemicals, which reduce oxidative stress and potentially lower the risk of chronic diseases such as heart disease and cancer. Furthermore, studies have shown that jujubes have a calming effect on the nervous system, improving sleep quality and reducing anxiety. Additionally, jujubes support digestive health partly because of their fiber content, which aids in preventing constipation and promoting a healthy gut microbiome [21, 22, 23].

3. Potential health benefits

3.1 Stress reduction and sleep promotion

The blend's ingredients, particularly Semen Ziziphi Spinosae and Lotus Seeds, have been shown to possess anxiolytic properties, which can help reduce stress and anxiety levels [7, 11]. By modulating neurotransmitter levels in the brain, such as serotonin and GABA, the tea can promote a sense of calm and relaxation, making it beneficial for those facing high stress or anxiety disorders. The soothing effect on the nervous system not only aids in improving sleep quality but also contributes to overall mental health and well-being.

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3.2 Immune system support

Several components of the tea, including longan and jujube, are rich in antioxidants and polysaccharides, known for their immunomodulatory effects. These substances can enhance the body's immune response, providing a protective effect against common illnesses and infections [24]. Regular consumption of this tea can provide a protective effect against common illnesses such as colds, flu, or respiratory infections. By strengthening the immune response, it helps reduce susceptibility to these ailments and supports faster recovery if one does fall ill.

3.3 Cognitive enhancement

The inclusion of ingredients like lotus seeds and longan, both of which have been associated with neuroprotective effects, suggests the tea could have potential benefits for cognitive function. These effects may include improved memory, focus, and cognitive agility, likely due to the antioxidant properties of the ingredients, which help in reducing oxidative stress and inflammation in the brain. Such benefits are especially valuable in the context of aging and cognitive decline, offering a natural means of enhancing brain health [7, 25].

3.4 Antioxidant and Anti-inflammatory Effects

The herbal tea blend's rich array of bioactive compounds, including flavonoids and saponins, provides potent antioxidant and anti-inflammatory benefits [12]. These effects can contribute to reducing the risk of chronic diseases, such as heart disease, diabetes, and certain cancers, by combating oxidative stress and inflammation within the body. Additionally, these properties may support skin health, promoting a clear and youthful complexion.

3.5 Digestive Health

Jujube, in particular, is known for its role in improving digestion and promoting gut health. The tea can aid in regulating bowel movements and alleviating symptoms of digestive discomfort, such as bloating and constipation [21]. The harmonizing effects on the digestive system reflect the traditional use of these ingredients in supporting the spleen and stomach,

4. Advantages in the treatment of insomnia

Widely used insomnia medications on the market, such as benzodiazepines, non-benzodiazepine sleep aids, antidepressants, and antihistamines, can effectively alleviate symptoms of insomnia and provide temporary relief in the short term. However, their long-term use may lead to a series of adverse effects (Table 1). Firstly, these drugs can cause the body to develop dependence and tolerance, making it difficult for patients to maintain the same effects without increasing the dosage, which may increase the risk of side effects. Long-term use may also affect brain function, leading to a decline in cognitive abilities, such as weakened memory and lack of concentration, severely affecting daily life and work efficiency [26, 27].

Changes in emotions and behavior are also potential side effects of long-term use of insomnia drugs, including mood instability, irritability, depression, etc. These changes may further exacerbate sleep problems, forming a vicious cycle. Physical side effects should not be overlooked either, as symptoms such as headaches, dry mouth, and digestive issues may worsen with the prolonged use of these drugs, posing a threat to the patient's physical health. More seriously, some insomnia drugs may cause sleep behavior issues like sleepwalking, which not only affects the quality of sleep but may also pose safety risks.

Additionally, suddenly stopping the use of these drugs can trigger withdrawal symptoms, such as anxiety, trembling, and worsening insomnia, causing more distress and inconvenience for patients. In this situation, patients might feel incapable of sleeping without the aid of drugs, thus becoming even more dependent on them.

The mechanism of action of these drugs typically involves affecting specific neurotransmitter systems in the brain to promote sleep. However, this artificial intervention does not only regulate sleep but may also interfere with other brain functions, leading to the aforementioned variety of side effects. Long-term reliance on these drugs to treat insomnia may also mask deeper health issues or emotional disorders,

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preventing the root problems from being resolved and potentially worsening them.

Table 1: The side effects of different sleep aids

Drug Class	Common Side Effects
Benzodiazepines	Drowsiness, dizziness, tiredness, blurred vision, slurred speech, weakness, memory problems, difficulty concentrating.
Non-Benzodiazepine Sleep Aids	Dizziness, headache, gastrointestinal disturbances, prolonged drowsiness, daytime drowsiness, feeling 'drugged' or light-headed, amnesia, sleep-walking, and other complex behaviors.
Antidepressants	Nausea, increased appetite and weight gain, loss of sexual desire or other sexual problems, fatigue and drowsiness, insomnia, dry mouth, blurred vision, constipation, dizziness, agitation or irritability, anxiety.
Antihistamines	Drowsiness (mainly with first-generation antihistamines), dry mouth, dizziness, nausea and vomiting, restlessness or moodiness (in some children), trouble peeing or not being able to pee, blurred vision, confusion.

Given these challenges associated with conventional insomnia drugs, it becomes clear that a more natural and integrative approach may offer a better path toward not just managing insomnia, but actually improving overall health and well-being. This is where the traditional use of Chinese herbal tea steps in as a promising alternative. The advantages of this herbal tea blend in treating insomnia not only lie in its holistic treatment philosophy but also in its relatively minor side effects, comprehensive promotion of physical and mental health, and its ability to strengthen self-healing capabilities [28].

This treatment method is deeply rooted in the fundamental principles of TCM, focusing not just on alleviating the symptoms of the disease but more importantly on harmonizing the balance within the body and resolving insomnia at its source. Meanwhile, the natural plant components of this herbal tea, typically considered to have fewer side effects than conventional chemically synthesized drugs, can not only effectively improve sleep quality but also help reduce symptoms of anxiety and depression by regulating the endocrine system and improving the function of the nervous system, thereby enhancing overall health. Furthermore, these teas, through the synergistic action of their components, stimulate the body's intrinsic self-healing power and regulatory functions, enhancing resistance to external stressors, making it a suitable choice for long-term use with a multifaceted mechanism of action. In summary, the tea blend offers a safer, more natural, and effective way to address insomnia, bringing a broader range of health benefits.

5. Conclusion

This comprehensive review of a traditional herbal tea blend, comprising Semen Ziziphi Spinosae, lotus seeds, lily, longan, and jujube, underscores the rich tapestry of traditional Chinese medicine woven with the threads of modern scientific inquiry. The primary and ancillary health benefits of these ingredients, ranging from improved sleep quality and stress reduction to enhanced immune function and cognitive health, illustrate the blend's multifaceted approach to wellness. Each ingredient contributes its unique properties, working in synergy to promote a holistic balance of mind, body, and spirit.

The scientific evidence presented reinforces the traditional claims associated with these herbs, providing a foundation for their continued use in contemporary health practices. While the research underscores the potential of these ingredients to improve sleep and overall well-being, it also highlights the necessity for further investigation. The exploration into the mechanisms of action, optimal dosages, and long-term effects of these ingredients can pave the way for more targeted and effective use in natural health products and therapies.

Moreover, this review serves as a testament to the value of integrating traditional herbal wisdom with the rigor of scientific research. By embracing the insights offered by centuries of traditional use, and subjecting them to the scrutiny of modern science, we can unlock new avenues for natural health solutions that are both effective and grounded in a deep understanding of human wellness. The future of health and wellness lies in the successful marriage of traditional knowledge and scientific innovation. As we continue to explore the benefits of traditional herbal blends, like the one discussed, we open ourselves up to a broader spectrum of natural remedies that can complement conventional medicine, offering individuals more choices in their pursuit of health and well-being.

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In conclusion, the journey through the traditional uses and scientific validation of this herbal tea blend illuminates the path toward a more integrated and holistic approach to health care. It invites consumers, practitioners, and researchers alike to consider the profound potential of traditional herbal medicine in enhancing contemporary life, urging an ongoing dialogue and exploration that respects the wisdom of the past while embracing the possibilities of the future.

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