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Commentary

Medicinal Plants with Multifunctional Healing Properties in the Treatment of Insomnia

Jinchang Zhao*

Department of Medicine, Shandong University of Traditional Chinese Medicine, Jinan, Shandong Province, China

DESCRIPTION

Insomnia, a pervasive sleep disorder characterized by difficulty in falling or staying asleep, affects millions of people globally. Its adverse effects on physical and mental health, including fatigue, impaired cognition and increased susceptibility to chronic diseases, establish the importance of effective treatments. While conventional medications, such as benzodiazepines and non-benzodiazepine hypnotics, are commonly prescribed, they often come with undesirable side effects, such as dependency and cognitive impairments. Consequently, there has been growing interest in the use of medicinal plants with Multifunctional Healing (MFH) properties as natural remedies for insomnia. These plants, which often exhibit sedative, anxiolytic and adaptogenic effects, offer a holistic and potentially safer approach to managing sleep disorders.

MFH plants are widely used in traditional medicine systems, including Traditional Chinese Medicine (TCM), Ayurveda and Western herbal medicine, for their sedative properties. Plants such as valerian (*Valeriana officinalis*), passionflower (*Passiflora incarnata*), chamomile (*Matricaria chamomilla*) and ashwagandha (*Withania somnifera*) are among the most frequently prescribed remedies for insomnia. These plants contain bioactive compounds, including flavonoids, alkaloids and terpenes, which modulate neurotransmitter systems associated with sleep regulation. For instance, valerian root is rich in valerenic acid, which interacts with Gamma-Aminobutyric Acid (GABA) receptors to promote relaxation and reduce sleep latency. Similarly, passionflower contains compounds that enhance GABAergic activity, thereby reducing anxiety and facilitating restful sleep.

The treatment of insomnia with MFH plants often involves personalized prescriptions customized to the individual's underlying condition and constitution. Traditional medical systems identifies the importance of identifying the root causes of insomnia, which may include stress, anxiety, hormonal imbalances, or chronic illness. Based on this assessment, practitioners select the appropriate combination of plants and dosages to address both the symptoms and the underlying causes of sleep disturbances. For example, a person experiencing insomnia due to high stress levels may benefit from adaptogenic herbs like ashwagandha, which not only improve sleep quality but also enhance the body's resilience to stress.

One of the significant advantages of using MFH plants for treating insomnia is their multitargeted action. Unlike pharmaceutical drugs that often act on a single receptor or pathway, medicinal plants typically contain a complex array of bioactive compounds that exert synergistic effects. This multifunctionality allows them to address comorbid conditions that often accompany insomnia, such as anxiety, depression and inflammation. Chamomile, for instance, not only acts as a mild sedative but also possesses anti-inflammatory and muscle-relaxant properties, making it particularly beneficial for individuals with physical discomfort that disrupts sleep.

Despite these potential benefits, the use of MFH plants to treat insomnia is not without limitations. One of the primary challenges is the variability in the quality and potency of herbal products. Factors such as plant species, growing conditions, harvesting methods and extraction techniques can significantly influence the concentration of active compounds. This variability often leads to inconsistent therapeutic effects, making it difficult to standardize dosages and achieve reliable outcomes. Furthermore, the lack of rigorous regulatory oversight in the herbal supplement industry raises concerns about the safety and efficacy of some products, which may be contaminated with heavy metals, pesticides, or adulterants.

Another limitation is the relatively slow onset of action of MFH plants compared to pharmaceutical hypnotics. While synthetic drugs like benzodiazepines can induce sleep almost immediately, herbal remedies often require several days or weeks of consistent use to produce noticeable effects. This delay may discourage some individuals seeking immediate relief from their insomnia, particularly those with severe or acute sleep disturbances. Additionally, while MFH plants are generally considered safe,

Correspondence to: Jinchang Zhao, Department of Medicine, Shandong University of Traditional Chinese Medicine, Jinan, Shandong Province, China, E-mail: jinchangzhao4534@163.com

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they are not entirely free from side effects or risks. Overuse or improper use of certain herbs, such as valerian or passionflower, can cause mild side effects like dizziness, nausea, or gastrointestinal discomfort. In rare cases, interactions with other medications or underlying health conditions can lead to more severe adverse effects.

Scientific research on MFH plants for insomnia remains limited compared to the extensive studies on pharmaceutical sleep aids. Although traditional knowledge and anecdotal evidence provide a foundation for their use, there is a need for more high-quality clinical trials to validate their efficacy and safety. Standardizing the active compounds, understanding the pharmacokinetics of herbal formulations and identifying potential drug-herb interactions are important steps toward integrating these remedies into evidence-based medicine.

Cultural perceptions and accessibility also play a role in the limitations of MFH plants for treating insomnia. In many regions, the use of herbal medicine is still viewed as alternative or complementary rather than mainstream. This perception, combined with limited access to trained herbal practitioners and quality products, may hinder the widespread adoption of MFH plants as a primary treatment for insomnia.

MFH plants offer a potential and holistic approach to the treatment of insomnia, particularly for individuals seeking natural alternatives to pharmaceutical drugs. Their multifunctional properties, ability to address underlying causes of sleep disturbances and potential to improve overall health make them valuable tools in managing this common condition. However, their use is not without challenges, including variability in product quality, slower onset of action and the need for more strong scientific evidence. Addressing these limitations through research, regulation and education will be essential to fully control the potential of MFH plants in treating insomnia and integrating them into modern healthcare practices.