

## **Phytotherapy for Insomnia: A Review of the Most Important Effective Medicinal Plants in Treating Insomnia According to References of Iran**

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**Abstract:** Sleep is a complex biological pattern and one of the circadian rhythm. Insomnia referring to difficulty falling asleep or staying asleep, or lack of sleep, which is tonic and refreshing, is one of the most common disorders of this pattern. Some of the complications of sleep deprivation are weakened immune system, reduced glucose tolerance, reduced hypothalamic-pituitary-adrenal axis activity during subsequent days, hypertension, decreased level of maximum ability to exercise, non-dependently increased risk of cardiovascular events, and talent. In the light of the significance of sleep, appropriate treatment of insomnia, and high prevalence of insomnia in the community, a strategy to treat insomnia can be development of a specific therapeutic strategy and nature-based, complementary medicines. This review article seeks to report the effective medicinal plants on insomnia according to the ethnobotanical references of Iran. According to the findings, 17 plant species from 11 families have been used for prevention and treatment of insomnia n Iran.

**Keywords:** *Sleep, Insomnia, Ethnobotany, Medicinal plants, Iran.*

### **Introduction**

Sleep is a complex biological pattern and one of the circadian rhythms. Insomnia which refers to difficulty falling asleep or staying asleep, or lack of sleep, is one of the most prevalent disorders of this pattern [1]. Sleep-wake cycle is one of the important and complex biological cycles which is affected by physiological function in darkness and light, work plan, care, and other activities [2]. Sleep is one of the basic needs of human and sleep disorder represents an early symptom of psychiatric disorders in most cases [3]. Out of sleep disorders, daytime sleepiness and insomnia is one of the most common ones [4]. Daytime sleepiness may lead to danger and sometimes accident [5]. Some of the complications of sleep deprivation are weakened immune system, reduced glucose

tolerance, reduced hypothalamic-pituitary-adrenal axis activity during subsequent days, hypertension, decreased level of maximum ability to exercise, non-dependently increased risk of cardiovascular events, and talent [6-8].

Insomnia represents individual complaint of quantity of quality of sleep or the time of falling asleep. People with sleep deprivation may develop irritability and lethargy [9, 10]. Benzodiazepines are the most common drug used for pharmacotherapeutic management of insomnia in inpatients and outpatients [11]. Ethnobotanical survey is an approach to investigate traditional effects of medicinal plants. Ethnobotanical studies can introduce new medicinal plants for discovering more

effective drugs with lower side effects [12-19]. These studies have been shown that medicinal plants are important natural sources to treat various diseases such as diabetes, addiction, common cold, infectious diseases, fungal diseases, neurological disorders, cardiac diseases, and some other diseases [20-28].

In the light of the significance of sleep, appropriate treatment of insomnia, and high prevalence of insomnia in the community, a strategy to treat insomnia can be development of a specific therapeutic strategy and nature-based, complementary medicines. This review article seeks to report the effective medicinal plants on insomnia according to the ethnobotanical references of Iran.

## Materials and Methods

In the present study, the search terms sleep, insomnia, ethnobotany, and medicinal plants were used to retrieve relevant publications from certain databases including Scopus, Islamic World Science Citation Center, Scientific Information Database, and Magiran.

## Results

In different regions of Iran, 17 plants are traditionally used to treat insomnia. They are from the various plant families. Most of them are Lamiaceae family. Table 1 shows further information about the medicinal plants of different regions of Iran those are effective on insomnia.

**Table 1. Most important Iranian medicinal plants used for insomnia**

Row	Botanical name	Family	Persian name	Therapeutic effect	Province of occurrence	References
1	<i>Juniperus communis</i> L.	Cupressaceae	Pyro	Hypnotic	Arasbaran	29
2	<i>Lotus cornicalantus</i> L.	Papilionaceae	Ahoomash-Zard	Hypnotic	Arasbaran	29
3	<i>Asperula odorata</i> L.	Rubiaceae	Shir-Panir	Hypnotic	Arasbaran	29
4	<i>Hyoscyamus niger</i>	Solanaceae	Bangdaneh	Hypnotic	Arasbaran	29
5	<i>Echium italicum</i> L.	Boraginaceae	Gavzaban	Hypnotic	Ilam	30
6	<i>Peganum harmala</i> L.	Zygophyllaceae	Espand	Hypnotic	Ilam	30
7	<i>Cannabis sativa</i>	Cannabaceae	Shahdaneh	Hypnotic	Kerman	31
8	<i>Echium amoenum</i>	Boraginaceae	Gavzaban	Hypnotic	Kerman	31
9	<i>Ocimum basilicum</i>	Lamiaceae	Reyhan	Hypnotic	Jandagh	32
10	<i>Scutellaria lateviflora</i> L.	Lamiaceae	Franjameshk	Hypnotic	Khozestan	33
11	<i>Avena sativa</i> L.	Poaceae	Jow-dosar	Hypnotic	Khozestan	33
12	<i>Citrus bigardia</i> Duh.	Rutacea	Bahar-narenj	Hypnotic	Khozestan	33
13	<i>Ocimum basilicum</i>	Lamiaceae	Reyhan	Hypnotic	Khalij-Fars	34
14	<i>Scutellaria lateviflora</i> L.	Lamiaceae	Faranjameshk	Hypnotic	Kazeroon	35
15	<i>Cynodon dactylon</i> L.	Poaceae	Margh	Hypnotic	Kazeroon	35
16	<i>Papaver fugax</i> Poir.	Papaveraceae	Khashkhash-rizan	Hypnotic	Marivan	36
17	<i>Lagochilus macrocanthus</i> Fisch. & C. A. Mey	Lamiaceae	Labekhargoshi-goldorosht	Hypnotic	Natanz-Kashan	37

## Discussion

Although benzodiazepines are the effective drugs used for management of insomnia, however they neither are nor free from side effects [11]. According to the findings, 17 medicinal plants have been used for prevention and treatment of insomnia in Iran. They have fewer side effects compared with synthesis drugs.

Medicinal plants represent a reliable natural source to treat various diseases such as insomnia. Most of these plants have

anxiolytic activity other than sedative properties. Also medicinal plants have antioxidants properties [38-41]. Antioxidants may induce a mood conducive to insomnia. For any sleep-inducing drug to be effective, a tranquil ambience needs to be established a priori. In most cases a physical ailments such as pain may interfere with sleep. Psychological conditions such as depression, if possible, need to be controlled. A lot of these plants are effective in these conditions; too, it should be noted that some of these plants have some limitations. For example, kava-kava is a hypnotic drug with an

adequate duration of action is hepatotoxic. Also, valerian is has a slow onset of effect (2-3 weeks). Although it has profound beneficial effects on sleep, but the slow action renders it unsuitable for short-term use. It might be suitable for elderly and long-term use. In a study, both kava and valerian have shown to improve sleep and the ill-effects of stress. The combination of the two plants were examined for the control

of insomnia and showed to be even more effective [11].

In the light of the importance of sleep, appropriate treatment of insomnia, a reliable strategy to treat insomnia can be developed on the nature-based, complementary medicines. In this regard, this review article tried to report the effective medicinal plants on insomnia based on the ethnobotanical references of Iran.

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