



HerbClip™

Mariann Garner-Wizard

Shari Henson

Dani Hoots

Samaara Robbins

Gavin Van De Walle, MS, RD, LN

Executive Editor – Mark Blumenthal

Managing Editor – Lori Glenn

Consulting Editors – Thomas Brendler, Meghan Henshaw, Kristen McPhee, MSciTH, Beth Quintana, ND, Carrie Waterman, PhD

**File: ■ Sleep Disorders
■ Systematic Review**

HC 072012-659

Date: February 26, 2021

RE: Systematic Review of Plant Extracts May be Effective in Treating Sleep Disorders

Guadagna S, Barattini DF, Rosu S, Ferini-Strambi L. Plant extracts for sleep disturbance: A systematic review. *Evidence-based Complement Altern Med.* April 2020; 2020:3792390. doi: 10.1155/2020/3792390.

Insomnia affects more than 30% of the U.S. general population. It is characterized as dissatisfaction with sleep quality or quantity in addition to experiencing a least one other symptom including difficulty of initiating sleep, maintaining sleep, or waking early with an inability to go back to sleep. Sleep disorders have been shown to lead to a reduction in labor productivity and an increase in accidents. Chronic insomnia is a risk factor for many significant health conditions including cardiovascular disease, diabetes, and obesity. Benzodiazepine and non-benzodiazepine hypnotic drugs are commonly prescribed to treat sleep disorders. These drug therapies often have unwanted side effects such as daytime drowsiness, dependency, depression, hypnotic-withdrawal insomnia, and increased mortality.

Research has shown that dietary supplements support health and body functions and may alleviate sleep disorders. However, there is not a standard recommendation for treatment of mild sleep disorders or any of their symptoms. The purpose of this systematic review was to evaluate recent literature on orally administered plant extracts and nutraceuticals as aids in sleep disorders. Specifically, this review differentiated between the interventions and outcomes of studies in different sleep disorders. Seven of the most commonly used plant extracts were reviewed: valerian (*Valeriana officinalis*, Caprifoliaceae), lavender (*Lavandula* spp., Lamiaceae), hops (*Humulus lupulus*, Cannabaceae), chamomile (*Matricaria chamomilla*, Asteraceae) St. John's wort (*Hypericum perforatum*, Hypericaceae), hawthorn (*Crataegus laevigata* syn. *C. oxyacantha*, Rosaceae), and rosemary (*Salvia rosmarinus* syn. *Rosmarinus officinalis*, Lamiaceae).

An initial keyword search was performed using PubMed database through March 3, 2020. The most studied plant extracts were identified, and a second keyword search was performed using those specific keywords. Included studies were randomized, double-blind, placebo-controlled trials, noncontrolled trials, and cohort studies written in

English and conducted on humans. Duplicates, nonrelevant articles, reviews, and articles where the full text was not available were excluded. A total of 292 articles were identified. Of those, 24 were duplicates and 230 did not meet inclusion criteria. The remaining 38 full text articles were assessed for eligibility, and three of those were excluded (reasons not disclosed). A total of 35 articles were included in this systematic review.

Valerian was the most studied plant for sleep disorders with conflicting results. Several studies demonstrated improvements in sleep quality with doses ranging from 160 to 600 mg/day. Valerian was also shown to reduce wake time after sleep onset, improve sleep latency and duration, and to improve insomnia severity index (ISI) score. Conflicting studies showed no improvements in sleep quality using the Pittsburgh Sleep Quality Index (PSQI), or perceived measurements. No improvements in total sleep time, number of nocturnal awakenings, insomnia severity scores, or polysomnographic parameters or psychometric measures were noted in other studies.

Several clinical trials examined Silexan, an oral lavender oil capsule preparation (Dr. Willmar Schwabe GmbH; Karlsruhe, Germany). Studies found Silexan to be as effective as lorazepam in adults with generalized anxiety disorder (GAD). Several studies found improvements in PSQI and Hamilton Anxiety Rating Scale (HAM-A) with use of Silexan at doses of 80 mg/day. Additionally, one study with 47 participants demonstrated a reduction of nocturnal awakening frequency and duration after six weeks of Silexan consumption as a food supplement.

None of the studies reviewed demonstrated any effect on sleep quality with the use of hops on PSQI scores, Leeds sleep evaluation questionnaire (LSEQ), melatonin metabolism, and sleep-wake cycle.

One study reported improvements in PQSI scores with consumption of chamomile extract capsules (200 mg) twice daily for 28 days. Another study reported modest improvements in postpartum sleep quality scale (PSQS), subscale "physical symptoms-related sleep inefficiency" scores after two weeks of drinking chamomile tea, but not after four weeks. In a third study, no improvements were noted in ISI and PSQI in patients diagnosed with DSM-IV primary insomnia.

A double-blind, placebo-controlled randomized controlled trial with 264 participants reported significant reductions in total and somatic HAM-A ($P = 0.005$) with consumption of hawthorn. No trials were found that examined the efficacy of hawthorn on sleep disorders.

No trials examined the efficacy of St. John's wort on sleep disorders. However, several studies examined the beneficial use of St. John's wort on depression. One such study found that 900 mg/day over 12 weeks decreased scores on the sleep problem scale in perimenopausal women compared to the placebo.

One study demonstrated significant improvement with 500 mg/day of rosemary in sleep quality using PSQI scores, but not on sleep latency or duration.

Two studies demonstrated improvements in total sleep time, quality of sleep, and sleep latency with a combined treatment of valerian and hops. A combined treatment of valerian, hops, and passionflower (*Passiflora* spp., Passifloraceae) showed significant

improvements in sleep time, sleep latency, number of nightly awakenings, and ISI scores after a two-week treatment (P values not given). Conversely, one study only found modest effects of valerian and hops and only in quality of life scores. One of the studies examined the use of valerian and hops in combination with many other herbs on sleep disturbance in menopausal women and found significant reductions in PSQI scores for sleep quality, sleep latency, sleep duration, sleep disturbance, and daytime dysfunction (P values not reported; herbal combination not reported).

The authors report that valerian, chamomile, and lavender are most commonly used to treat insomnia. Valerian seems to be more effective in treating chronic insomnia than acute episodes. The authors recommend that future studies examine the efficacy of combined nonpharmacological interventions. Studies should test effectiveness of plant extracts on sleep disorders for chronic conditions in combination with other complementary and alternative medicine therapies such as sleep hygiene and mind-body therapies. The authors state that "more high-quality research is need to confirm the effectiveness of plant extracts on sleep disorders."

SG, DFB, and SR are employed at Opera Contract Research Organization. The other author declares no conflict of interest.

—*Samaara Robbins*

Referenced article can be accessed at <https://www.hindawi.com/journals/mi/2019/1296153/>.

The American Botanical Council provides this review as an educational service. By providing this service, ABC does not warrant that the data are accurate and correct, nor does distribution of the article constitute any endorsement of the information contained or of the views of the authors.

ABC does not authorize the copying or use of the original articles. Reproduction of the reviews is allowed on a limited basis for students, colleagues, employees and/or members. Other uses and distribution require prior approval from ABC.