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Review on Herbal Treatment for Insomnia

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Abstract: ***The need for the proper quantity and quality of sleep is a biological drive similar to those of hunger and thirst. We tend to think of sleep as a time when the mind and body shut down. But this is not the case; sleep is an active period in which a lot of important processing, restoration, and strengthening occurs but due to today's stressful lifestyle sleep disorders have become common. Therefore, this review aims in the herbal treatment of sleep disorders in achieving a soundful sleep. All the main plants used in the sleep disorders have been given in the review.***

Keywords: Sleep, Sleep disorders, Herbal treatment, Sleep cycle, Insomnia

1. Introduction

1.1 Sleep

The need for the proper quantity and quality of sleep is a biological drive similar to those of hunger and thirst. Humans sleep for approximately one-third of their lives. Nevertheless, sleep still remains one of mysteries despite several decades of research. Sleep is an essential part of life, but its exact role has not been elucidated. However, it is well known that sleep plays an important role in the restoration of physical and mental functioning. Generally, sleep is defined behaviorally by four criteria as follows:- 1) Reduced motor activity, 2) Decreased response to stimulation, 3) Stereotypic postures such as lying down with eyes closed, and 4) Relatively easy reversibility (distinguishing it from a coma). *(biomolecules and therapeutics Biomol Ther 19(3), 274-281 (2011)9—**(1)***

1.2 Sleep Cycle

Physiological activities during sleep can be conveniently monitored by electrical recording with an electroencephalogram (EEG).The sleep in most mammals is divided into two major types of sleep, rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep. Humans usually fall asleep by entering NREM sleep, a phase accompanied by characteristic changes in the EEG. The next stage is REM sleep, which is characterized not only by REM but also by a complete inhibition of skeletal muscle tone. Before commencing on a description of sleep architecture, it is important to define three terms used to characterize the EEG:- frequency, amplitude, and morphology**(2).** During NREM sleep neuronal activity is low, and metabolic rate and brain temperature are at their lowest.

The different phases of sleep and their characteristics are:-

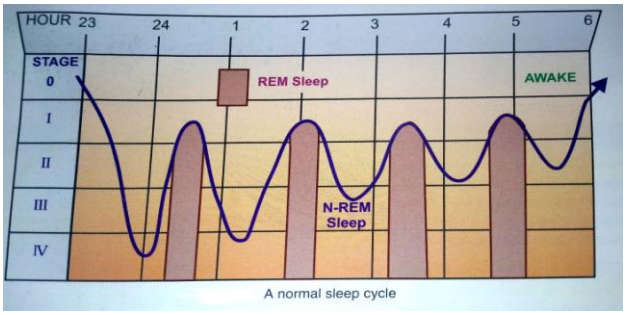
Stage 0 (awake):- From lying down to falling asleep and occasional nocturnal awakenings; constitutes 1-2% of sleep time. EEG shows a activity when eyes are closed and activity when eyes are open. Eye movements are irregular and slowly rolling.

Stage 1 (dosing):- Activity is interspersed with θ waves. Eye movements are reduced but there may be bursts of rolling. Neck muscles relax. Occupies 3-6% of sleep time.

Stage 2 (unequivocal sleep):- θ waves with interspersed spindles, K complexes can be evoked on sensory stimulation; little eye movement; subjects are easily arousable. This comprises 40-50% of sleep time.

Stage 3 (deep sleep transition):- EEG shows θ, δ and spindle activity, K complexes can be evoked with strong stimuli only. Eye movements are few; Subjects are not easily arousable; comprises 5-8% of sleep time.

Stage 4 (cerebral sleep):- δ activity predominates in EEG, K complexes cannot be evoked. Eyes are practically fixed; subjects are difficult to arouse. Night terror may occur at this time. It comprises 10-20% of sleep time. During stage 2, 3 and 4 heart rate, BP and respiration are steady and muscles are relaxed. Stages 3 and 4 together are called slow wave sleep (SWS). *(*Tripathi K.D.book of essentials of pharmacology, seventh edition, pg no.397-398) .(3)



(Tripathi K.D. book of essentials of pharmacology, seventh edition, pg no.397-398)..(3)

1.3 Disorders Associated with Sleep:

1. Obstructive sleep apnoea syndrome (OSAS):- The condition is common in men older than age 40 and among women incidence of OSAS is greater after menopause. Approximately 85 per cent of patients with OSAS are men and obesity is present in about 70 per cent of OSAS patients.

2. Insomnia:- Insomnia is the most common sleep disorder affecting the population and is the most common disease encountered in the practice of sleep medicine. Insomniacs complain of difficulty initiating and maintaining sleep, including early morning awakening and non-restorative sleep occurring 3-4 times per week persisting for more than a month and associated with an impairment of daytime function. Acute insomnia may be associated with an identifiable stressful situation. Most cases of insomnia are

chronic and co-morbid with other conditions which include psychiatric, medical and neurological disorders or drug and alcohol abuse. In some cases, no cause is found and the condition is labelled idiopathic or primary insomnia or psychophysiological insomnia.

3. Parasomnias:- Parasomnias can be defined as abnormal movements or behaviours, including those that occur into sleep or during arousals from sleep, intermittent or episodic, or without disturbing the sleep architecture.

4. Sleepwalking (Somnambulism):-Sleepwalking is common in children between the ages of 5 and 12. Sometimes it persists into adulthood or rarely begins in adults. Sleepwalking begins with an abrupt onset of motor activity arising out of slow wave sleep during the first 1/3 of sleep. Episodes generally last less than 10 min. There is a high incidence of positive family history. Injuries and violent activities have been reported during sleepwalking episodes but generally individuals can negotiate their way around the room. sometimes abnormal sexual behaviour occurs; sleep deprivation, fatigue, concurrent illness and sedative-hypnotics are precipitating factors.

5. Sleep terror (Pavor nocturnus):-Sleep terror also occurs during slow wave sleep. Peak onset is between the ages of 5 and 7 yr. As with sleepwalking, there is a high incidence of family history of sleep terror. Episodes of sleep terror are characterized by intense autonomic and motor symptoms including a loud piercing scream. Patients appear highly confused and fearful. Many patients also have a history of sleepwalking episodes.

6. Rapid eye movement sleep behaviour disorder (RBD):- RBD is an important REM sleep parasomnia commonly seen in elderly individuals. A characteristic feature of RBD is intermittent loss of REM sleep related muscle hypotonia or atonia and the appearance of various abnormal motor activities during sleep. The patient experiences violent and dream-enacting behaviour during REM sleep, often causing selfinjury or injury to the bed partner. RBD may be idiopathic or secondary; most cases are now thought to be secondary and thought to be associated with neurodegenerative diseases. It is seen with increasing prevalence in patients with Parkinson's Disease (PD), multiple system atrophy (MSA), diffuse Lewy Body disease with dementia (DLBD), corticobasal degeneration, olivopontocerebellar atrophy, and progressive supranuclear palsy (PSP). Many patients with narcolepsy, a probable degenerative disease of the hypocreatin-containing neurons in the lateral hypothalamus may also present with RBD.

7. Nightmares:-intense, frightening dreams followed by awakening and vivid recall-occur during REM sleep. The most common time of occurrence, therefore, is from the middle to the late part of the night. Nightmares are typically normal phenomena. Approximately 50 per cent of children have nightmares beginning at 3-5 yr of age. The incidence of nightmares continues to decrease as one grows older and the elderly have very few or no nightmares. Nightmares are common after sudden withdrawal of REM-suppressant drugs and can also occur as side effects of certain medications, such as antiparkinsonian drugs, anticholinergics, and beta blockers.

8. Catathrenia (Expiratory groaning): This parasomnia is characterized by recurrent episodes of expiratory groaning (high-pitched, loud humming or roaring sounds) and occur in clusters, predominantly during REM sleep but may also occur during NREM sleep. *(Overview of sleep & sleep disorders by S. Chokroverty, Indian J Med Res 131, February 2010, pp 126-140)..(4)*

1.4 Insomnia

Insomnia is technically defined as difficulty falling asleep, staying asleep, or non restorative sleep causing daytime impairment or distress despite adequate opportunity and circumstance to sleep occurring at least three times per week for at least 1 month. [(6)]

This is important because there are distinct herbs for patients with different types of insomnia. Note that circadian rhythm disorders that often affect sleep, such as jetlag.

Though there is much focus on reducing sleep latency (speeding the time to fall asleep) among people affected by insomnia and among makers of drugs for this problem, herbs actually perform well primarily at enhancing the quality of sleep (improving how restorative sleep is, in other words). The growing support for this fact is critically important in advising patients about what to expect from herbal treatment of insomnia, and because of how different this makes herbs from sedative-hypnotic drugs.

Some classes of sleep medications, particularly the still widely prescribed benzodiazepines, actually degrade the quality of sleep [(7)]. People do fall asleep faster when taking these drugs, but they do not go into deep, restorative sleep and end up groggy and impaired in the daytime. For this reason, it is well documented that benzodiazepines actually impair people's ability to drive and operate heavy machinery safely, and ultimately do not improve sleep for most people.[(8)]This also increases traffic accidents[(9)].The opposite is true when it comes to most herbs, as discussed below

The addictiveness of benzodiazepines is also often overlooked, particularly as longer acting agents are now in more common use (shorter acting agents are more addictive)[10]Benzodiazepines are not first-line agents and should only be used short-term (6 months or less) according to all major guidelines on their use.[11] (*Herbal Medicine for Insomnia by Eric Yarnell, ND, RH (AHG)*

1.5 Epidemiology

1.5.1 Prevalence

Insomnia has been named as the most frequent health complaint after pain. Insomnia is by far the most common form of sleep disturbance. A 1979 US Gallup poll showed that 95% of a randomly selected adult sample reported having experienced insomnia at some time during their lives. However, for most of these people, insomnia represented a transient problem that resolved quickly when the precipitating circumstances abate.

The majority of the people with insomnia is undiagnosed and untreated; a 1991 National Sleep Foundation Survey showed that only 5% of all insomnia sufferers saw their physicians specifically for their sleep problems. Another survey showed that only 30% of all insomnia sufferers ever discussed their sleep problems with their doctors.[12]

Chronic insomnia (when defined as insomnia lasting more than one month) has a prevalence of 10 to 15 percent and occurs more frequently in women, older adults, and patients with chronic medical and psychiatric disorders.[13,14]

1.5.2 Etiology and Pathophysiology of Insomnia

The pathogenesis of primary insomnia is unknown, but available evidence suggests a state of hyper arousal; that is, the patient has a level of arousal that is incompatible with the initiation or maintenance of sleep. Physiologic, cognitive, and cortical arousal each play a role in the etiology of insomnia. There are few general models of the etiology and pathophysiology of insomnia.[15]

Neuroendocrine measures, and hypothalamic pituitary adrenal HPA axis and sympathetic nervous system activity is associated with insomnia. Patients with insomnia had significantly higher mean levels of ACTH and cortisol over the course of the 24-hour day, with the largest group differences observed inthe evening and first half of the night.[16]

1.5.3 Physiologic Model of Insomnia

Studies evaluating physiologic arousal in insomnia have used a variety of techniques, including basic psychophysiologic measures; heart rate, respirationrate, skin and core body temperature, muscle tone,skin conductance and resistance, and peripheral blood flow or vasoconstriction. These studies showed that poor sleepers exhibit increased physiologic arousal.

1) Functional neuroimaging studies:

Patients with insomnia exhibited increased global cerebral glucose metabolism during wakefulness and NREM sleep.[17]Other researches showed that insomnia patients may have increased beta activity and decreased theta and delta activity on electroencephalography during sleep.

2) Behaviour models of insomnia:

This is also alternatively referred to as the three-factor model or the three-P model (predisposing, precipitating, and perpetuating factors.) this model postulates that insomnia occurs acutely in relation to both traits (predisposing factors) and major life stresses (precipitating factors or triggers") and that the chronic form of the disorder is maintained by maladaptive coping strategies (perpetuating factors).

To explain this in more detail: A person may be prone to insomnia due to trait characteristics (genetic predisposition or a certain degree of inherited hyper arousal state).

This person may experience acute episodes because of precipitating factors (new onset medical or psychiatric illness or major life stresses such as loss of a loved one), and later may suffer from a chronic form of the disorder because of behavioral factors (perpetuating factors).[18]

Allopathic Drugs for Treatment of Insomnia[19,20]

Synthetic drugs	*Mechanism of action*	*Side effects*
1) Benzodiazepines	bind to the gamma amino butyric acid (GABA A) receptor complex responsible for the sedative hypnotic, muscle-relaxant, anxiolytic, and anticonvulsant effects.	
Flurazepam		Dizziness, Drowsiness, Light headedness, Staggering Ataxia, Falling
Temazepam (Restoril)		Drowsiness, Headache, Fatigue
Triazolam (Halcion)		Drowsiness, Dizziness, Lightheadedness
Estazolam		Somnolenc, Hypokinesia, Dizziness, Abnormal coordination
2) Nonbenzodiazepines	act selectively on ∝1 subunit containing BZP receptors and produce hypnotic-amnesic action with only weak antianxiety, muscle relaxant and anticonvulsant effects	
Zolpidem (Ambien)		Drowsiness, Dizziness,Diarrhea
Zaleplon (Sonata)		Headache, Dizziness, Drowsiness, Paresthesia, Nausea, Abdominal Pain, Memory Impairment
3) Melatonin Agonist		
Ramelteon (Rozerem)	It targets MT1 and MT2 receptor agonist and does not have an affinity for GABA receptors	Somnolence, Dizziness, Fatigue Nausea, Exacerbated insomnia
4) Orexin Receptor Antagonist:		
Suvorexant (Belsomra)	Suvorexant is a dual antagonist of orexin receptors OX1R and OX2R. It exerts its pharmacological effect by inhibiting binding of neuropeptides orexin A and B, also known as hypocretin 1 and 2, that are produced by neurons in the lateral hypothalamus.These neurons control the wake-promoting centers of the brain and are active during wakefulness, especially during motor activities	Daytime somnolence, Headache, Dizziness
5) Tricyclic Antidepressant:		
Doxepin (Silenor)	The mechanism of action of doxepin is not completely	Somnolence, Sedation, Nausea,

	understood. Doxepin may also act on histamine H_1-receptors, resulting in sedative effects, and β-adrenergic receptors.	Upper respiratory tract infection
6.Barbiturates:-		
Butabarbital (Butisol Sodium)	Act primarily at the GABA:BZP receotor Cl^- channel complex and potentiate GABAergic inhibition by increasing lifetime of Cl^- channel opening indused by GABA.	Somnolence, Confusion,Agitation

1.6 Herbs Used for Treatment of Insomnia

1) Valerian

The roots of Valeriana officinalis (valerian), Valeriana sitchensis (Pacific valerian), and possibly other species are well-known mainstays in the herbal materia medica for treating people with insomnia.

Mechanism of action: Increases the brain levels of GABAa

Clinical data report

A meta-analysis of clinical trials on various extracts of valerian found that it has minimal to no effect on reducing sleep latency, but it consistently and significantly improves sleep quality.[21]In head-to-head comparisons with benzodiazepines, it is just as effective and significantly safer.[22]Studies going back to the 1990s and after show that valerian reduces light (stage 1) sleep and lengthens deep (stage 3) or slow-wave sleep in humans.[23,24] One small trial in older women did not find an effect of valerian on sleep architecture compared to placebo. Valerian is safe and effective in children.[25]

Direct activation of GABA A receptors by valerian has been shown in vitro and in vivo, particularly by the compound valerenic acid. [26]Thebinding sites of various valerian compounds have not been definitely determined; however, most, but not all, appear to bind to sites distinct from those of GABA, benzodiazepines, barbiturates, or ethanol.[27] Valerenic acid specifically appears to bind to the loreclezole binding site.[28]Valerenic acid and related sesquiterpenoids in valerian appear to cross the blood–brain barrier to access GABA A receptors through a nontranscellular transport system.[29] V. edulis spp. procera (Mexicanvalerian) root extract, which did not contain valerenic acid, was nonetheless shown to improve sleep architecture in patients with insomnia, though V. officinal is was somewhat superior.[30] In rats, valerian also reduces the activity of the catabolic enzyme GABA transaminase.

Valerian is generally very safe. Unlike benzodiazepines, valerian actually improves people's daytime alertness and driving ability.[31] It is not habit-forming. Clinically, it is noted that it, like most other herbs for sleep improvement, can very occasionally cause stimulation instead of relaxation.

2) Humulus lupulus (hops):

Strobiles (female flowers) are another midpotency herbal medicine for improving sleep quality. This vine is a circumboreal plant (native all around the Northern Hemisphere) and has separate male and female plants. Mechanism of action:- Slows down the breakdown of GABA and acts via the melatonin receptors

Clinical data report:

Most clinical trials showing hops helpful for insomnia patients have used it in combination with valerian, with at least one of these studies suggesting a definite synergistic effect from their combination.[32,33]One study of an extract with soy and Juniperus oxycedrus (cade) oils and just 100 mg of hops did not find it superior to placebo for insomnia. [34] Ingestion of 333 ml nonalcoholic beer (containing around 1 g of hops) at dinner time, compared to no beer, reduced sleep latency and improved sleep quality in healthy nurses doing shift work in one small trial.[35]

The compounds responsible for hops effects on sleep have not been determined. One study in mice suggested that hops acted in part by activating melatonin receptors.[36] A study in quail supported this idea somewhat, showing that low doses of hops (similar to concentrations found in nonalcoholic beer)seemed to enhance circadian rhythms, including reduced activity at night.[37]

Hops is generally very safe. Overdose may lead to unwanted estrogenic adverse effects, but this takes work to achieve. It

is intensely bitter, which tends to limit dosing. Alcoholic beer intake by lactating women decreases the amount of milk their babies drink, possibly due to the hops content, though this is unknown.[38]Nonalcoholic beer increased the antioxidant con-tent of breast milk.

3) Piscidia piscipula (Jamaica dogwood)
Bark has a similar level of potency as a sleep aid as valerian, or perhaps moderately stronger.

Clinical data report:
There is little research on this helpful medicine, and so its use is largely based on history and experience. Limited animal research supports its effectiveness as a moderate hypnotic.[39]This tree is also not that widespread and the use of its bark limits the sustainability of the medicine. Luckily, only small doses are used, but it should be considered. A second-line therapy when other treatments fail. Jamaica dogwood should be avoided in pregnancy and lactation due to lack of information about its safety in these settings.

A combination of valerian 300 mg, hops 30 mg, and Passiflora incarnata 80 mg was compared to zolpidem 10 mg at bedtime in 78 patients with chronic insomnia in a randomized, double blind trial.[40] In this brief two-week trial, the two treatments were equally effective at reducing sleep latency and improving sleep quality. Daytime drowsiness was not different between the groups and there were no serious adverse events. This strongly suggests that herbal sleep aides are a legitimate alternative to zolpidem and related drugs, though more robust research is necessary to be certain. Another larger trial involving 184 adults with insomnia found a combination of valerian 187 mg and hops 42 mg as effective as diphenhydramine50 mg compared to placebo for relieving insomnia over 1month's time.[41]

Mild Potency Nervine Herbs:
There are many herbs with a mild effect on sleep that are generally called nervines. We have previously written in depth about these herbs as a treatment for anxiety, but they are also highly relevant for people with insomnia [42]

4. Passiflora incarnata (passion flower):
Is a vine native to the southeastern United States. Its leaves are used as medicine, though its flower is considered among one of the most beautifulin the world. A tea in relatively low doses (one cup per night)for just one week improved sleep quality in healthy adults with mild intermittent disturbed sleep.[43]

Mechanism of action:-Action similar to benzodiazepine drugs.

Clinical data report:
In vitro it has been shown to affect GABA A and GABA B channels and to affect GABA uptake into neurons.[44] The usual dose of tincture or glycerite is 3-5 ml at bedtime, or 1,000-2,000 mg in capsules at bedtime. In one case study, a combination of passion flower and valerian was associated with rapid onset of hand tremor, dizziness, throbbing, and muscle fatigue in a patient who was concomitantly taking lorazepam.[45] No other cases of such interactions could be found in the literature.

5. Melissa officinalis (lemon balm):

Is from the Mediterranean region, but is now widely cultivated in temperate areas.

Mechanism of action: Inhibits the breakdown of the sedative neurotransmitter GABA and possibly acetylcholine.

Clinical data report:
One double-blind trial in overall healthy adults with mild insomnia found a combination of valerian and lemon balm effective compared to placebo.[46] A prior trial found this combination as effective as benzodiazepines for insomnia.[47] These two herbs together appear to mainly improve sleep quality.[48] Topicalapplication of lemon balm to the temples

has also been suggested by the late, great Rudolf Fritz Weiss, MD, for insom-nia.[49] In vitro it inhibits GABA transaminase. It is also commonly used as a tea at a dose of5 g/cup, steeped for 15–30 minutes, strained, and drunk before bed. Tea should be avoided in patients having sleep difficulties due to nocturia. Note that Nepeta cataria (catnip) is very similar to lemon balm and has a stronger lemon taste. Clinically, it seems even more potent than lemon balm in all its aspects.[50]

Sedative Herbs:

For patients who primarily have difficulty falling asleep, there are stronger herbs that are more sedating and can actually reduce sleep latency. These herbs are more likely to cause daytime sleepiness if taken during the daytime, but generally lessen it when taken at bedtime due to improved sleep quality. There is no evidence that these herbs interfere with deep sleep. These herbs are not recommended either for use without the assistance of a practitioner skilled in their use, or for practitioners until they have had a chance to train with someone who has experience with them.

6. Gelsemium sempervirens (gelsemium, yellow jessamine):-

Is a vine that is native to the eastern part of North America, extending as far south as Guatemala. The root is the potent medicine and should only ever be used under direct supervision of a practitioner experienced with its use. Just 10 drops of fully concentrated (1:2-1:3 weight: volume) fresh root tincture is a good starting dose for severe difficulties falling asleep. This can be increased by 5 drops per night each night that it is ineffective, up to the point that 1 ml (30 drops) is reached, mild adverse effects occur (in which case the dose should be de-creased), or sleep is readily achieved. It is also a moderate lypotent smooth and skeletal muscle relaxant based on clinical experience with it, and so when cramping of these structures is associated with difficulty sleeping, gelsemium should be considered. In overdose it begins to cause ataxia, diplopia, prostration, dilated pupils, ptosis, and impaired speech. In severe overdose, death from respiratory depression can occur,though this is extremely rare.

7. Myristica fragrans (Nutmeg):- Nutmeg is the seed of Myrtistica fragrans and other similar species of tree, which are native to the Banda Islands. These trees are dioecious, and the fruits appear only on the female trees. The outer portion of the nutmeg when harvested is covered with a red netted structure, which yields the spice mace. This is removed and the remaining hard nut is referred to as nutmeg. it is the most specific herb to use for patients who wake up in the middle of the night and can't fall back asleep, when taken at bedtime. It can also be taken at dinner time (provided this is roughly four hours before bed) to have a sleep-inducing affect at bedtime.

Clinical data report

This is based on its traditional use in Ayurvedic medicine and modern clinical application, but has not been rigorously tested. One trial of an Ayurvedic formula featuring nutmeg did support its effectiveness as a sleep enhancer.[51] In the traditional medicine of the Moluccas (Spice Islands), where it is native, nutmeg was used for insomnia.[52] The usual dose of fresh nutmeg is 0.25-0.5 teaspoons. It is traditionally taken with milk, though other fatty foods (such as nut butter) can also be used, to enhance absorption. For dried powder, at least twice the dose should be used. It can be slowly increased on subsequent nights up to a maximum of 1-2 tea-spoons. In overdose (probably 3-10 times the therapeutic dose), nutmeg can cause neurological damage and hallucinations.[53]

8. St John's wort (Hypericum perforatum):-

Is the most popular and well-studied herbal treatment for psychiatric problems in the West in recent years. H. perforatum has long been used as a remedy for wound healing, mild sedation, and pain relief.[53] Its flowers, leaves, bark, fruit, seeds, stems, and roots have all been used to treat insomnia and depression. However, two recent large-scale randomized controlled studies reported conflicting results on the efficacy of St Johns wort in treating depression.

The use of St Johns wort as a hypnotic has not been systematically studied. A cross-over double-blind placebo-controlled study of high-dose hypericum extract in 12 elderly healthy volunteers suggested that St Johns wort induced an increase in deep sleep, but had no effect on other sleep parameters. Based on the results of St Johns wort in treating depression and the suggestion that it may modulate REM and deep sleep; however, further study on the potential hypnotic properties of St Johns wort is necessary.[54] Hypericin and pseudohypericin, are postulated to be the main active ingredients of St John's wort. The crude extract has significant in vitro receptor affi nity for GABA, benzodiazepines, inositol triphosphate, and monoamine oxidase A and B.[55] Chronic treatment with hypericum may also down regulate β1- adrenoceptors and upregulate post-synaptic 5-HT1A and 5-HT2 receptors. In general, St John's wort is well tolerated, with minimal side-effects, including sedation, dry mouth, dizziness, gastrointestinal upset, restlessness, and hypersensitivity. Potential drug interactions with serotonin reuptake inhibitors and monoamine oxidase inhibitors have been reported. It would be interesting to see whether Asian hypericums share similar psychotropic properties with those reported for St Johns wort. Today, some people use St. Johns wort to treat mild to moderate depression, anxiety and sleep disorders.

9. Kava Kava (Piper methysticum):- Kava (Piper methysticum):- Kava has long been used in the South Pacific islands to reduce stress and anxiety and induce relaxation [55]. Kava has been reported to interact with the GABAA receptor, which is themain target for hypnotic agents that induce sleep.[56,57]

Clinical data report

Kava has been reported traditionally to have rapid onset and minimal morning after-effects. [58] One clinical trial has examined the effects of kava in participants who presented with sleep disturbance and co-morbid generalised anxiety disorder (dose: 200mg; duration: four weeks). [59] The study showed that the score differences between baseline and end of treatment were statistically significant in the kava group for sleep quality (0.6 for kava and 0.36 for placebo; p-value 0.007) and recuperative effect after sleep (0.80 for kava and 0.64 for placebo; p-value 0.018).Further trials are required to support this study and confirm kava's effectiveness in treating chronic insomnia.

Herbal Marketed Preparations for Insomnia

HERB	*Brand Name*	*Dose(mg)*
1) Melatonin	a) Melatonex	3
	b) Natures Bounty	1/3/5
	c) Natrol Nature	3
	d) MadeGNC Melatoni	1/3
2) Valerian	a) Nature Made	400
	b) Natures Resource Valerian	400
	c) Herbal Plus Valerian Root	500
	d) Natures Fingerprint Valerian Root	500
3) St. John's Wort	a) Nature Made	150
	b) Sundown	300
	c) Natures Resource Time Release	450
	d) Natures Fingerprint	500

2. Conclusion

Herbal medicines offer many ways to improve sleep in people with insomnia. They are most prominent as ways to enhance sleep quality, which takes some time to work. Specific agents should be chosen based on their efficacy in specific situations and taking into account other issues going on with an individual patient. The moderately potent sleep quality enhancers such as valerian, hops, and Jamaica dogwood can be considered as initial agents in most cases of insomnia, even when they feature difficulty falling or staying asleep. Combining one of these with at least one of the gentler sleep quality-enhancing nervine herbs (to obtain synergistic effects)is also recommended. If there is no improvement after 2–3months of using these agents at appropriate doses, different herbs should be tried for another couple of months. Only at that point should sedative herbs be tried. However, for more severe sleep-onset problems, sedatives may be tried immediately. Finally, for patients who have predominant early waking, nutmeg at bedtime should be tried for 1–2 months, alone or combined with sleep quality enhancers.

3. Future Scope

As per the increasing insomnia and sleep deprivation reports the rates are increasing day by day. Therefore, these herbs will serve in curing this problem.

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