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## Review Article

# Herbs Used to Treat Anxiety and Depression Disorders : An Insight Review

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## ABSTRACT

Negative emotions like sadness and worry have a multiplicity of negative effects on a person's physical and mental health. Millions of people all over the globe suffer from anxiety disorders, making it one of the most common forms of mental illness. While benzodiazepines and SSRIs are effective pharmaceutical therapies, they are not without side effects, including as dependency, sleepiness, and withdrawal symptoms. Consequently, herbal medicines are gaining popularity as a safer alternative to conventional anxiety treatments. Herbal remedies, which are less expensive and have fewer side effects, have lately gained a lot of interest as potential alternatives to conventional therapies for depression. There are many plants in traditional medical systems, such as Ayurveda and TCM, that have adaptogenic, mood-enhancing, and neuroprotective effects. A number of bioactive chemicals found in herbs have many effects, including balancing neurotransmitters, lowering oxidative stress, regulating stress hormones, and increasing brain plasticity. Some of these herbs include Ashwagandha, Brahmi, Gotu Kola, Turmeric, and Tulsi. An insightful evaluation of herbs for the treatment of anxiety and depression disorders is what we'll be looking at in this review.

## INTRODUCTION

Stress and anxiety may sometimes be alleviated by the traditional usage of herbal plants. Critical neurotransmitter systems involved in anxiety modulation include the GABA system, serotonergic pathways, and the

hypothalamic pituitary adrenal (HPA) axis; these plants contain bioactive chemicals that interact with these systems.[1] When confronted with a challenging scenario, everyone feels a certain level of anxiety and anxiousness. This is a short-lived adaptive reaction.

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When anxiety levels rise too high, it may cause unpleasant and even crippling bodily and psychological symptoms like rapid heartbeat or difficulty breathing. Persistent, severe anxiety symptoms and unfounded concerns may greatly hinder everyday functioning for some people.[2] In Conventional pharmacological treatment, which includes benzodiazepines, selective serotonin reuptake inhibitors (SSRIs), and serotonin norepinephrine reuptake inhibitors (SNRIs), is effective but may be associated with adverse effects including as drowsiness, gastrointestinal issues, and dependency.[3] Anxiety and sadness are on the rise, and this threatens people all over the world and their well-being. There is a wide variety of clinical manifestations associated with anxiety disorders, and many phobias might have their origins in exposure to certain stimuli in the environment. Among the many psychophysiological responses that may accompany the activation of the fight-or-flight response are increased heart rate, vertigo, and perspiration.[4] One of the most common forms of alternative medicine is herbal medicine; in fact, 34 percent of all UK CAM patients utilize herbal medicines. Herbal remedies are often prescribed for mental health issues including depression and anxiety.[5] Many additional diseases and conditions, such as Alzheimer's, epilepsy, Parkinson's, migraines, and strokes, are often associated with depression.[6] Research has shown that both the central and peripheral neural systems of depressed individuals exhibit an inadequate activity of monoamine neurotransmitters. By inhibiting serotonin reuptake, norepinephrine reuptake, and the reuptake of both serotonin and norepinephrine, many antidepressants raise the concentration of monoamine neurotransmitters in the synaptic cleft of neurons, which in turn regulates mood.[7]

#### **Mental disorders manifest in diverse forms:[8]**

Feelings of guilt or worthlessness, changes in appetite, sleep difficulties, exhaustion, lack of interest or pleasure, and chronic sorrow are all symptoms of depression. • Physical symptoms like as a racing heart or shortness of breath are common manifestations of anxiety, along with excessive concern, fear, restlessness, and tension in the body. • Memory, thinking, and decision-making are severely impacted by cognitive

illnesses such as Alzheimer's disease and Mild Cognitive Impairment (MCI), which often lead to dementia. Anxiety, insomnia, and mood disorders are just a few examples of the many mental health issues that are finding relief via the use of plant-based remedies. There are less side effects, herbs are cheaper, easier to stomach, and they're safer than pharmaceutical medications.[9] **Depression and Anxiety Symptoms**

Anxiety disorders, including depression, are common worldwide. A wide variety of symptoms are shown by individuals who are suffering from anxiety and sadness. The emotional and professional parts of a person's life might be affected by depression. Physical, mental, and social problems all come together to form depression. Feelings of shame, powerlessness, worry, nervous conduct, pessimism, difficulty concentrating, and diminished drive are all examples of psychological symptoms. A loss of self-assurance, rage, restlessness, and overload are further symptoms the patient may encounter. However, sleep difficulties are among the most common physical symptoms of depression. Hypersomnia or sleeplessness are symptoms that a depressed person may experience. Under these conditions, the patient may wake up very early in the morning or feel very drowsy throughout the day. Reduced libido, lethargy, changes in appetite and body mass index, gastrointestinal disturbances, and menstrual cycle variations are among other symptoms.[4]

#### **MECHANISMS OF ACTION OF HERBAL PLANTS IN ANXIETY&DEPRESSION**

Various biochemical and physiological pathways are influenced by the actions of herbal plants that are used to alleviate anxiety. These pathways include important systems of neurotransmitters, processes of stress response, and neuroprotective capabilities. By increasing GABA activity, controlling serotonin and dopamine levels, lowering oxidative stress, increasing neuroplasticity, and regulating the hypothalamic-pituitary-adrenal (HPA) axis, these natural therapies alleviate anxiety. Their ability to alleviate anxiety with fewer negative effects than traditional pharmaceutical therapies is due in part to their multi-targeted activities.[1]

Their multi-targeting skills allow them to:



- Control pathways for various neurotransmitters (such as acetylcholine, serotonin, dopamine, and GABA) One way to manage stress hormones like cortisol is by adjusting the hypothalamic-pituitary-adrenal (HPA) axis.
- Prevent inflammation and oxidative damage to neurons by acting as antioxidants
- Help the brain heal and operate better by promoting neurogenesis and synaptic plasticity.

## DISORDERS

**Generalized Anxiety Disorder (GAD)** Symptoms of this condition include an unhealthy preoccupation with mundane matters such as one's health, one's job, or one's financial situation. The uncontrollable anxiousness persists for a minimum of six months. Anxiety, depression, and sleep disturbances are some of the physical symptoms that may manifest.[1]

### Panic Disorder

Panic attacks, which may occur in people with a variety of anxiety disorders, are characterized by brief, severe episodes of symptoms that last around 10 minutes. Possible symptoms include perspiration, palpitations, shaking, chills, hot flashes, chest discomfort, and a sensation of suffocation. Recurring, predictable panic episodes accompanied by four or more of the following symptoms, which must manifest rapidly and reach their climax within ten minutes, are diagnostic criteria for this syndrome.[9]

### Specific Phobias

Some examples of things that people with certain phobias find very terrifying are needles, spiders, heights, and flying. Anxietiest fears are disproportionate to the real threat, which could cause people to avoid situations.[1]

### Post-Traumatic Stress Disorder

Experiencing or seeing traumatic events, such as awful crimes or catastrophic tragedies, might lead to this disease. Some signs of this illness include being highly sensitive to environmental stimuli, having difficulties sleeping or being unable to sleep at all, and having trouble remembering details from stressful experiences.[9]

## Agoraphobia

People who get panic attacks and worry they won't be able to escape a dangerous situation in time may be suffering from agoraphobia. Open areas, throngs, public transit, and being alone outside the house are among the most dreaded locations for many people.[1]

## Difficulty with Separation Anxiety

This condition is more frequent in youngsters, although it may also impact adults. Extreme worry or dread over being apart from loved ones, whether they be parents, spouses, or children, is a hallmark of separation anxiety.[1]

## Social Phobia, Also Known as Social Anxiety Disorder

The hallmark of social anxiety disorder, sometimes called social phobia, is an irrational and crippling dread of being unappreciated, underappreciated, or rejected in any kind of social or performance setting. A person with social anxiety disorder can be afraid to show any outward symptoms of their worry, including stuttering or flushing.[9]

## Selective Mutism

This condition is more common in youngsters and is defined by a lack of verbal expression in unfamiliar social contexts (such as a classroom) but normal expression in more familiar ones (like at home). It has nothing to do with language or speech issues.[1]

## COMMONLY USED HERBAL PLANTS

Both traditional medicine and modern science have acknowledged the anxiolytic effects of several herbal plants.

### The Ashwagandha tree, scientifically known as *Withania somnifera*

The adaptogenic herb ashwagandha has a reputation for calming the nervous system and alleviating stress. Reducing cortisol levels, increasing serotonin and GABA activity, and making one more resistant to stress are all benefits of this. Ashwagandha is a well-liked herbal medicine because, according to studies, it greatly alleviates anxiety symptoms when taken as a



supplement.[1] **Valerian Root (*Valeriana officinalis*)**

Many people get relief from anxiety and sedation by using valerian root. It helps relax the nervous system and alleviate anxiety-related restlessness and sleeplessness by enhancing GABAergic activity. It has no intoxicating or withdrawal-inducing effects, unlike synthetic sedatives.[1] **Purified *Clitoria ternatea* (Butterfly Pea):**

The Ayurvedic practice of using *Clitoria ternatea* for its purported benefits on mental health and cognitive function dates back many centuries. Preliminary studies suggest it has an antidepressant effect via increasing serotonin and dopamine levels.the third **Pinaceae family tree, *Abies pindrow* Royle**

Several components of the plant have been shown to possess biological and pharmacological properties; they include terpenoids, fatty acids, chalcones, flavonoids, and cyclic polyol (pinitol). To determine its impact on rat anxiety models, researchers used a methanolic extract of *A. pindrow* leaves.[10]

#### **The Passionflower, or *Passiflora incarnata***

Anxiety and sleeplessness are two conditions that passionflower has long been thought to alleviate. It promotes relaxation and decreases excessive neural excitability by raising brain GABA levels. Many doctors prescribe it to patients who suffer from moderate to mild anxiety.[1] ***Hypericum perforatum*,**

More often known as St. John's wort, is an effective remedy for moderate to mild depression. Hypericin and/or hyperforin are likely the active components of this herbal remedy. It seems to suppress monoamine oxidase and serotonin reuptake, the two enzymes responsible for depression. The absorption of GABA and L-glutamate by neurons was similarly adversely impacted by an extract of *Hypericum perforatum* [5,6]. When compared to fluoxetine, *hypericum perforatum* had a marked advantage, and it even showed signs of being better than placebo. The main goal of a multicenter, double-blind trial was to show that the *Hypericum perforatum* extract STW3-VI (900 mg) was better than placebo and that it was not inferior to the SSRI citalopram (20 mg).[12]

#### **Brahmi or *Bacopa monnieri***

As a nootropic herb, brahmi helps with mental clarity and calms nervousness. It lessens oxidative stress in the brain, increases neuroplasticity, and serotonin action. Stress adaption and emotional stability have both been associated to regular *Bacopa* usage.[1] **Kava Kava**

Adrenergic activity is downregulated and MAO-B is inhibited by Kava Kava (*Piper methysticum*). The reuptake of norepinephrine in the prefrontal cortex is inhibited. Compared to a placebo, kava reportedly has a substantial anxiolytic effect on the Hamilton Anxiety Rating Scale (HAMA).[9]

#### **Chamomile, or *Matricaria chamomilla***

Apigenin, found in chamomile, is a sedative because it binds to GABA receptors. Because of its calming and anti-anxiolytic effects, it is often drunk as a tea to ease the symptoms of GAD [1]. ***Sativus Crocus*:**

The spice saffron, whose botanical name is *Crocus sativus*, is believed to have aphrodisiac, expectorant, and antispasmodic effects. Mild to moderate depression has also been managed with *crocus sativus*. The effectiveness of saffron as an antidepressant was assessed in a comparative research. According to the results, saffron also showed antidepressant properties. *Crocus sativus* is believed to have antidepressant properties due to its antioxidant, anti-inflammatory, neuroprotective, serotonergic, and neuroendocrine properties.[3]

#### **Japanese ginseng**

Because of its antioxidant characteristics and ability to increase blood flow to the brain, ginkgo biloba helps alleviate anxiety caused by oxidative stress. Mood stability is aided by its enhancement of dopamine and serotonin activity.[1]

**Lavender (*Lavandula angustifolia*):** Some people with moderate depression have found that using lavender extract helps them feel less anxious and happier. The levels of cortisol are reduced and the GABA-A receptors are altered. On top of that, it lessens anxiety via increasing 5-HT1A receptor activity. You may use lavenders as a culinary herb or as an attractive plant in your yard or landscape. The European Medicines Agency reports that linalyl acetate and linalool, two fat-



soluble components of lavender essential oil, show substantial therapeutic benefits in several neurological illnesses, including stress, anxiety, and depression [3,7].

### Red Rhodiola

An adaptogen, rhodiola makes it easier for the body to deal with stressful situations. It lessens the stress hormone cortisol, boosts the neurotransmitters serotonin and dopamine, and makes you more resistant to tiredness and worry. In mice exposed to CUMS, RL extract induced depressive-like characteristics, including a reduction in sucrose preference rate and exploratory activity.[1,7]

Because of their potential to make up for some of the drawbacks of synthetic substances, herbal medicines as a kind of complementary and alternative medicine are gaining popularity around the world.[11]

### CONCLUSION

Herbal remedies have the ability to alleviate symptoms of anxiety, sadness, and cognitive impairment, as discussed in this article. Several herbs, including Ginkgo biloba, Ashwagandha, and others, have shown potential in both animal and human trials for the treatment of anxiety, depression, and cognitive impairment. Because of their low toxicity, traditional medicines including Ashwagandha, Brahmi, Chamomile, Passionflower, and Valerian are helping millions of people throughout the globe. Herbal plant extracts provide excellent answers for managing anxiety and depression because they are derived from natural sources, have the potential to be beneficial, and have less major side effects than conventional medications. The anxiolytic and depressive effects of several plant-based substances, such as adaptogens, flavonoids, and alkaloids, are enhanced by regulating neurotransmitter systems, lowering oxidative stress, and boosting neuroprotection. Due to their usefulness in contemporary drug development efforts, traditional medicines are gaining popularity.

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