

## A REVIEW ON: HERBS USED IN TREATMENT OF ANXIETY DISORDERS

Mahesh S. Mali<sup>\*1</sup>, Kishori S. Jagtap<sup>2</sup>, Shweta S. Bobade<sup>3</sup>, Pradnya N. Jagtap<sup>4</sup> and Vaibhav C. Shilimkar<sup>5</sup>

<sup>\*1</sup>Master of Pharmacy, Department of Pharmacology, Pune District Education Association's Seth Govind Raghunath Sable College of Pharmacy, Saswad, Pune, India.

<sup>2,3</sup>Master of Pharmacy, Department of Pharmacology, Pune District Education Association's Seth Govind Raghunath Sable College of Pharmacy, Saswad, Pune, India.

<sup>4</sup>Head of Department of Pharmacology, Pune District Education Association's Seth Govind Raghunath Sable College of Pharmacy, Saswad, Pune, India.

<sup>5</sup>Head of Department of Pharmacognosy, Pune District Education Association's Seth Govind Raghunath Sable College of Pharmacy, Saswad, Pune, India.

**\*Corresponding Author: Mahesh S. Mali**

Master of Pharmacy, Department of Pharmacology, Pune District Education Association's Seth Govind Raghunath Sable College of Pharmacy, Saswad, Pune, India.

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### ABSTRACT

Anxiety and other psychiatric diseases have a high frequency and comorbidity. Many people from all around the world have been affected by these well-known forms of psychiatric disease. Herbs alone, as well as herbal formulas, are frequently prescribed for mental disease treatment. Because of the severe side effects of western medication, the number of people who utilize herbs to improve their health is growing. Herbal psychopharmacology has attracted a lot of interest in recent decades. The reuptake of monoamines, influencing neuroreceptor binding and channel transporter function, modulating neuronal transmission, or the hypothalamic-pituitary adrenal axis are all examples of herbal modes of action used for anxiety treatment (HPA). Despite this, there is no systematic evaluation of herbal pharmacology in anxiety. This review was conducted to better understand the mechanisms of action of various herbal medicines and to provide relevant information for herbal medicine application. People with anxiety sometime consider herbal remedies as an alternative to prescription drugs. This may be because some medications, for example, beta-blockers or benzodiazepines, can have unwanted side effects. The aim of the current review is a high light on the anxiety signs, symptoms, etiology, pathophysiology and herbals used in the treatment of anxiety.

**KEYWORDS:** Anxiety, phobia, amygdala, medulla oblongata, adrenal medulla, herbs.

### INTRODUCTION

"Anxiety is an unpleasant emotional state that is accompanied with uneasiness, discomfort, and worry or fear about some undefined future threat. Anorexia, dyspnea, palpitation, paresthesia, and other somatic symptoms are common. Anxiety is a common aspect of life for most people. When treatment is disproportionate to the condition and extreme, it is required. Pathological anxiety is seen in some psychotics and depressed people".<sup>[1]</sup> "g.i. neurosis (fixation on bowel movement, distention, eructation, reflux, acidity); social anxiety (fear of being observed and evaluated by others); obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), and various forms of phobias are some specific types of anxiety disorders".<sup>[1]</sup>

"Anxiety is an adaptive response that helps a person prepare for life's obstacles. Anxiety is characterized by

both psychologic and sympathetic plus physical symptoms (tension, fear, apprehension, lack of attention) (tachycardia, tremors, sweating, GIT distress etc). Fatigue and sleep difficulties are common side effects. Anxiety inhibits a person's capacity to perform their job and frequently results in visceral organ dysfunction and neurological issues".<sup>[2]</sup>

"The most prevalent, or often occurring, mental disorders are anxiety disorders. They refer to a group of disorders in which the primary mood or emotional tone alteration is severe or pathological anxiety. Anxiety, which can be thought of as the pathological counterpart of normal fear, manifests as mood, thinking, behavior, and physiological activity changes. Panic disorder (with or without agoraphobia), agoraphobia (with or without panic disorder), generalized anxiety disorder, specific phobia, social phobia, obsessive-compulsive disorder, acute stress disorder, and post-traumatic stress disorder are

among the anxiety disorders. There are other anxiety-related adjustment disorders, as well as disorders caused by general medical illnesses and substance-induced anxiety disorders”.<sup>[3]</sup>

## TYPES OF ANXIETY



“Fig. 01: Types of Anxiety”<sup>[4]</sup>

### 1. Generalized anxiety disorder (GAD)

“It is a long-term anxiety disorder characterized by anxieties over nonspecific life events, objects, and situations. GAD is the most common anxiety disorder, and sufferers aren't always able to pinpoint the source of their anxiety”.<sup>[6]</sup>

### 2. Panic disorder

“Characterized by recurrent panic attacks that occur at inconvenient times. A panic disorder sufferer may live in constant terror of the next panic attack”.<sup>[5]</sup> “Panic disorder is characterized by brief or unexpected spells of acute anxiety and apprehension. These attacks can cause trembling, confusion, dizziness, nausea, and difficulty breathing. Panic attacks usually start and increase quickly, reaching a climax after 10 minutes. A panic attack, on the other hand, can last for hours”.<sup>[6]</sup> “Panic disorders are most commonly triggered by terrifying situations or persistent stress, although they can occasionally strike without warning. A panic attack might be misinterpreted as a life-threatening sickness, leading to extreme adjustments in behavior in order to avoid further attacks”.<sup>[6]</sup>

### 3. Phobia

“A strong aversion to a certain thing, place, or activity”.<sup>[5]</sup> “This is an unreasonable fear of a specific thing or situation that leads to avoidance. Phobias are distinct from other anxiety disorders in that they have a cause”.<sup>[6]</sup> “A person with a phobia may recognize their dread as irrational or severe, yet they are unable to manage their anxiety in the presence of the trigger. Phobia triggers include circumstances, animals, and common things”.<sup>[6]</sup>

### 4. Social anxiety disorder

“The dread of being judged by others in social circumstances”.<sup>[5]</sup> “This is a fear of being judged negatively by others in social circumstances or of being embarrassed in public. Stage fright, a fear of intimacy, and concern over humiliation and rejection are all symptoms of social anxiety disorder. People with this illness may avoid public circumstances and human contact to the point where daily life becomes extremely challenging”.<sup>[6]</sup>

### 5. Obsessive-compulsive disorder (OCD)

“Characterized by reoccurring illogical beliefs that lead to the repetition of specific behaviors”.<sup>[5]</sup> “Cleaning or washing in response to contamination worries, or continually checking to see if a burner is turned off in response to fears about a fire developing, are examples of common habits. Due to obsessive self-doubt, some people review their work frequently or seek excessive reassurance”.<sup>[3]</sup>

### 6. Separation anxiety disorder

“Fear of being away from home or a loved one's illness”.<sup>[5]</sup> “Separation anxiety disorder is characterized by high levels of anxiety following separation from a person or location that provides emotions of security or protection. Separation can occasionally trigger panic attacks”.<sup>[6]</sup>

### 7. Illness anxiety disorder

“Anxiety disorder is characterized by worry about one's health (formerly called hypochondria)”.<sup>[5]</sup>

### 8. Post-traumatic stress disorder (PTSD)

“Anxiety following a traumatic experience”.<sup>[5]</sup> “Occur after a patient has been through a traumatic event, with physiological arousal in response to stimuli that stimulate memories of the event, avoidance of such stimuli, and a sense of reliving the event. The latter describes a more acute type of the illness, whereas the former describes a more chronic variety”.<sup>[3]</sup>

### 9. Agoraphobia

“It is a dread of being trapped in a situation where it appears difficult to flee or find aid in the event of an emergency. When flying, taking public transportation, or standing in line with a crowd, for example, you may panic or feel worried”.<sup>[7]</sup>

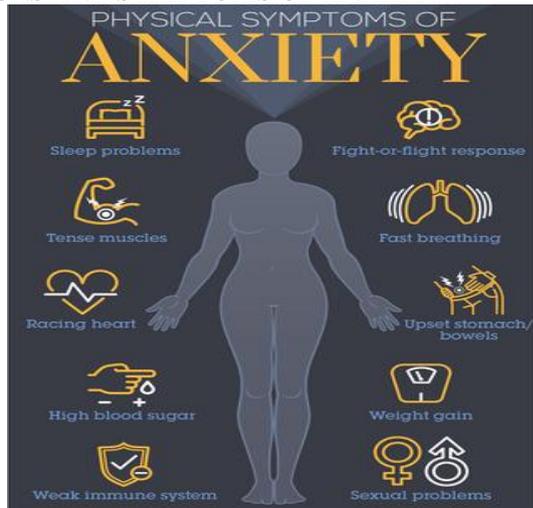
### 10. Selective Mutism

“This is a form of social anxiety in which young children who spoke normally with their families do not converse in public, such as at school”.<sup>[7]</sup>

### 11. Medication-induced anxiety disorder

“Some symptoms of anxiety disorder can be triggered by the use of certain pharmaceuticals or illegal drugs, or by the withdrawal from certain drugs”.<sup>[7]</sup>

## SIGNS AND SYMPTOMS OF ANXIETY



“Fig. 02: Symptoms of Anxiety”<sup>[9]</sup>

“Anxiety manifests itself differently for each individual. Feelings can range from stomach butterflies to a racing heart. You can feel out of control, as if your mind and body aren't communicating. Other symptoms of anxiety

include nightmares, panic attacks, and uncontrollable painful thoughts or recollections. You could be afraid of something in general, or you might be afraid of a specific place or incident”.<sup>[5]</sup>

### Common symptoms are

- “Panic, fear, and uneasiness
- Feelings of panic, doom, or danger
- Sleep problems
- Not being able to stay calm and still
- Cold, sweaty, numb, or tingling hands or feet
- Shortness of breath, breathing faster and more quickly than normal (hyperventilation)
- Heart palpitations
- Dry mouth, nausea, dizziness, Tense muscles
- Thinking about a problem over and over again and unable to stop (rumination)
- Inability to concentrate
- Intensely or obsessively avoiding feared objects or places”<sup>[7]</sup>

## CAUSES OF ANXIETY



“Fig. 03: Causes of Anxiety”<sup>[10]</sup>

“Anxiety disorders have a variety of causes. Many things might happen at once, some things can lead to others, and some things don't always lead to anxiety disorders”.<sup>[6]</sup>

“**Genetics:** Anxiety disorders can be passed down via families.

**Brain Chemistry:** Anxiety disorders may be connected to malfunctioning circuits in the brain that control fear and emotions, according to some study.

**Environmental stress:** Refers to distressing situations that you have witnessed or experienced. Childhood abuse and neglect, the death of a loved one, or being attacked or seeing violence are all common triggers for anxiety disorders.

**Drug withdrawal or abuse:** Certain medications can be used to mask or reduce anxiety symptoms. Anxiety disorder frequently coexists with alcohol and substance abuse.

**Medical issues:** Some heart, lung, and thyroid illnesses can mimic the symptoms of anxiety disorders or exacerbate them<sup>[7]</sup>.

### RISK FACTORS FOR ANXIETY DISORDER

**“History of mental health disorder:** Anxiety disorder is more likely to develop if you have a history of mental health problems, such as depression.

**Childhood sexual abuse:** Emotional, physical, and sexual abuse or neglect during childhood has been related to anxiety disorders later in life.

**Trauma:** After experiencing a traumatic experience, you're more likely to develop posttraumatic stress disorder (PTSD), which can lead to panic episodes.

**Stressful or negative life events:** such as losing a parent as a youngster, raise your likelihood of developing an anxiety condition.

**Severe illness or a chronic health condition:** Constant worry about your or a loved one's health, or caring for someone who is sick, can leave you feeling overwhelmed and nervous.

**Severe illness or a chronic health condition:** Constant worry about your or a loved one's health, or caring for someone who is sick, can leave you feeling overwhelmed and nervous.

**Substance abuse:** Using alcohol or illegal drugs increases your chances of developing an anxiety condition. Some people use these drugs to mask or alleviate anxiety symptoms.

**Being shy as a child:** Shyness and withdrawal from unfamiliar people and settings as a youngster has been related to social anxiety in teenagers and adults.

**Low self-esteem:** Negative self-perceptions can cause social anxiety disorder<sup>[7]</sup>.

### PATHOPHYSIOLOGY OF ANXIETY

“The actual mechanism remains unknown. Anxiety in youngsters is a common occurrence. Stranger anxiety appears between the ages of seven and nine months. Anxiety symptoms and illnesses are thought to be caused by a disruption in central nervous system regulation. The physical and emotional signs of this dysregulation are caused by variable degrees of sympathetic arousal<sup>[3]</sup>.”

#### The Amygdala

“The amygdala, a pair of small almond-shaped clusters of neurons near the brain's base, is thought to be where fear reactions begin. While it is not in charge of what

you think when anxiety-inducing stimuli are present, it is in charge of what your body does. The amygdala's role is to organize memory storage based on the intensity of the emotional reaction connected with the memory. Men have a more active right amygdala, which is primarily responsible for action, than women. The left amygdala, on the other hand, is primarily responsible for storing the intricacies of traumatic experiences and is more reflective than action-oriented. This amygdala is more active than the right in women, and in persons of both genders who have anxiety disorders<sup>[8]</sup>.”

#### The Medulla Oblongata

“The amygdala begins by connecting with the parabrachial nucleus, a tiny grey horseshoe-shaped structure that then triggers the medulla oblongata. The medulla oblongata, which is positioned among other more primitive brain regions involved for fight or flight in the lower section of the brainstem, is in control of involuntary body activities such as heart rate, breathing rate, and vomiting. The medulla oblongata is tasked by the parabrachial nucleus with informing the lungs and cardiac muscles that more air is required for blood circulation to the body's muscles. When the body doesn't need to fight or flee, the medulla oblongata's request for quick breathing and additional air overwhelms the body, resulting in dyspnea (shortness of breath) and hyperventilation<sup>[8]</sup>.”

#### The Nucleus Ambiguous and Hypothalamus

“The nucleus ambiguous, which is positioned directly below the medulla oblongata, gets the urgent request for additional blood to deliver extra oxygen. By interacting with the parasympathetic nervous system, the nucleus ambiguous induces the body's arterioles to contract, making the heart pump harder and quicker. Similarly, when the amygdala triggers the hypothalamus, it sets off a cascade of activity in the body's second neurological system, the sympathetic nervous system. The majority of the body's fight or flight response is controlled by the sympathetic nervous system.

Your body is essentially prepared for anything through the fight or flight reaction. The heart, lungs, and muscles all work together to provide the body with what it needs to move quickly and effectively. On the other side, when you have this response, you are truly prepared to fight or flee, even if it is only anxiety and nothing to be concerned about. On the other hand, constantly being in a state of fight or flight for no apparent reason can be exhausting. This has a lot to do with the adrenal gland being triggered by the sympathetic nervous system<sup>[8]</sup>.”

#### Adrenal Medulla

“Your sympathetic nerves signal the adrenal medulla to produce adrenaline and a small quantity of dopamine into the body, making you feel better than you would otherwise (which is known in combination as the adrenaline rush). The adrenaline causes the brain to release epinephrine, a neurotransmitter that raises blood

pressure and blood sugar, making blood sugar (together with the body's stored fatty acids) available for the muscles to convert into fast energy.

This rush has been known to bestow seemingly superhuman abilities, such as extraordinary strength and speed. It does, however, come at a cost. The body crashes after an adrenaline spike, taking the dopamine or reward chemical with it and leaving the body exhausted and dissatisfied. Your muscles, especially those in your chest, may be fatigued and stiff as a result of the tension that helped them get their extra fuel, as well as the quick breathing that the lungs did to keep the blood of the heart supplied with oxygen.

Neuronal networks connect the amygdala to the prefrontal cortex of the brain, which is the part of your brain that thinks about your experiences rather than just responding to them. While theoretically connected to this area of the brain, the amygdala does not think. This means that, while your amygdala reacts similarly to everyone else's, the ideas and memories stored in the cortex by the amygdala are unique to you, and so what the amygdala reacts to might vary greatly.

The amygdala's hyperactivity can only indicate that you may have an anxiety condition, but not which form of anxiety disorder you have. However, what triggers your amygdala is a vital component in determining which anxiety disorder you have. It could be anything, from memories of past experiences to crowded areas, disorder, spiders, or internal triggers that aren't even recognized.

The frequency and duration with which you are troubled by amygdala hyperactivity can also help to define your disorder, but the disorder is caused by the content of your prefrontal cortex, which you can explore through therapeutic sessions, journaling, or simply talking to a trusted friend or relative. By using your brain to figure out what memory or belief in your brain's prefrontal cortex is activating your body's pathophysiological response, you can vanquish your anxiety and remind your body who's on your team".<sup>[8]</sup>

#### SELF TREATMENT

**“Stress Management:** Learning to handle stress can assist in limiting potential triggers. Organize any forthcoming deadlines and pressures, prepare lists to make big jobs more achievable, and schedule time off from school or work.

**Relaxation techniques:** Simple activities might help alleviate anxiety's mental and physical symptoms. Meditation, deep breathing exercises, long baths, resting in the dark, and yoga are some of these practices.

**Exercises for replacing negative ideas with good ones include the following:** Make a note of the negative thoughts that may be cycling as a result of anxiety, then compose a list of positive, realistic thoughts to replace them next to it. Creating a mental image of successfully

facing and conquering a specific fear can also provide benefits if anxiety symptoms relate to a specific cause, such as in a phobia.

**Support network:** Talk to individuals you know who will be supportive, such as a family member or a friend. Support groups may be offered in your neighborhood or online.

**Exercise:** Can help you feel better about yourself by releasing hormones in your brain that make you feel good".<sup>[6]</sup>

**“Caffeine-containing foods and beverages:** such as coffee, tea, cola, energy drinks, and chocolate, should be avoided. Caffeine is a mood-altering substance that may exacerbate the symptoms of anxiety disorders.

**Alcohol and recreational street drugs should not be used:** anxiety disorders are more likely if you abuse substances.

**Improve your sleeping habits:** Sleep issues and anxiety disorders frequently coexist. Make getting enough sleep a top priority. Establish a soothing nighttime ritual. If you're still having difficulties sleeping, see your doctor".<sup>[7]</sup>

#### HERBAL REMEDIES FOR TREATMENT OF ANXIETY

##### 1. Ginkgo Biloba



“Fig. 04: Ginkgo Biloba”<sup>[11]</sup>

“As we all know, medicines that try to create or boost serotonin have gotten a lot of attention as potential anxiolytic candidates in the search for benzodiazepine alternatives”.<sup>[12]</sup> Ginkgo biloba extracts are capable of reducing thrombocyte agglutination and so indirectly antagonizing serotonin function, in addition to increasing blood flow velocity”.<sup>[13][14][15]</sup> “Ginkgo biloba leaf extract is widely and frequently used to treat clinical manifestations of a variety of cognitive disorders, producing reversible suppressive effects on monoamine oxidase in the rat brain, demonstrating the pharmacological activities of this natural product against mental disorders like anxiety”.<sup>[16]</sup>

“Numerous components found in ginkgo leaf, such as flavonoids and terpenoids, exert a pharmacological impact. Many nations, including Germany, have licensed a Ginkgo biloba extract for the treatment of dementia. Furthermore, in preclinical studies, Ginkgo biloba has anti-stress and anxiolytic-like activities in a dose-

dependent manner, and treatment with *Ginkgo biloba* produces better secondary parameter results than the control, indicating that *Ginkgo biloba* may be involved in regulating the function of the HPA axis. The medicine is of great anxiolytic benefit not only for senile people, but also for younger workers, due to its good compatibility, as it minimizes the inclination for addiction and reduces adverse effects on cognitive function”.<sup>[17]</sup>

## 2. Banxia Houpu Decoction



“Fig. 05: Banxia Houpu Decoction”<sup>[18]</sup>

“Houpu is a commonly prescribed herb that is included in the authoritative Chinese Pharmacopeia. It has been discovered as a viable treatment for a variety of ailments, including neurological problems, thrombotic stroke, typhoid, and muscle necrosis. Pinellia tuber, magnolia bark, hoelen, perilla herb, and ginger rhizome make up the herbal formula Banxia houpu decoction, which has been used in China for hundreds of years to treat a variety of psychiatric diseases, including numerous subtypes of depression, anxiety, and schizophrenia. Clinical trials have shown that Banxia houpu is a safe, effective, and well-tolerated anxiolytic and antidepressant prescription with few known side effects in patients”.<sup>[19]</sup>

## 3. Kava (*Piper methysticum*)



“Fig. 06: Kava”<sup>[23]</sup>

“Although kava appeared to be a potential anxiety treatment, reports of substantial liver damage even with short-term usage prompted the Food and Drug Administration to publish warnings regarding the use of dietary supplements containing kava. While the original claims of liver toxicity have been called into doubt, if you're considering utilizing kava products, proceed with caution and see your doctor”.<sup>[20]</sup>

## 4. Passion flower (*Passiflora*)



“Fig. 7: Passion Flower”<sup>[24]</sup>

“According to a few modest clinical investigations, passion flower may aid with anxiety. Passion flower is often blended with other plants in commercial goods, making it difficult to distinguish between their individual properties. When taken as advised, passion flower is generally considered safe, however some studies have revealed that it can produce drowsiness, dizziness, and disorientation”.<sup>[20]</sup>

## 5. Valerian (*Valeriana officinalis*)



“Fig. 8: Valerian”<sup>[25]</sup>

“People who consumed valerian reported less worry and tension in certain studies. People in other research reported no advantage. At authorized doses, valerian is usually considered safe, but because long-term safety trials are lacking, don't take it for more than a few weeks at a time unless your doctor allows. Headaches, dizziness, and sleepiness are some of the possible adverse effects”.<sup>[20]</sup> “Valerian root is available in the following forms: tea, tablet, tincture”.<sup>[21]</sup>

## 6. Chamomile (*Matricaria recutita*)



“Fig. 9: Chamomile”<sup>[26]</sup>

“Short-term usage of chamomile is generally deemed safe and can be useful in lowering anxiety symptoms, according to limited studies. When combined with blood thinners, however, chamomile can raise the risk of bleeding. Some persons who are allergic to the plant family that includes chamomile may experience allergic responses when using it. Ragweed, marigolds, daisies, chrysanthemums and other members of this family”.<sup>[20]</sup> “Some people use chamomile in the following forms to help relieve stress and anxiety: tea, extract, tablet, skin cream”.<sup>[21]</sup>

### 7. Lavender (*Lavandula angustifolia*)



“Fig. 10: Lavender”<sup>[27]</sup>

“Lavender aromatherapy may relieve anxiety, according to some research; nevertheless, the evidence is preliminary and restricted. Constipation and headaches are side effects of taking lavender orally. It can also stimulate appetite, make other drugs and supplements more sedative, and induce low blood pressure”.<sup>[20]</sup> “Lavender can be used in the following ways.

- making tea from leaves
- Aromatherapy with the oil
- massage by combining the essential oil with a base oil
- bathing with the oil or flowers”<sup>[21]</sup>

### 8. Lemon balm (*Melissa officinalis*)



“Fig. 11: Lemon balm”<sup>[28]</sup>

“According to preliminary study, lemon balm can help with anxiety symptoms like anxiousness and excitability. Lemon balm is generally well accepted and regarded safe for short-term usage, but it has the potential to produce nausea and gastrointestinal pain”.<sup>[20]</sup> “Studies show that supplements containing 1,000 mg of lemon balm may be helpful for easing symptoms of anxiety”.<sup>[22]</sup>

### 9. Ashwagandha (*Withania somnifera*)



“Fig. 12: Ashwagandha”<sup>[29]</sup>

“Ashwagandha is an adaptogenic plant that has long been used to relieve anxiety. Many of ashwagandha's active ingredients have been proven to have anti-stress, anti-inflammatory, and antioxidant properties. Experts recommend consuming 300 mg of ashwagandha per day to aid with anxiety. Keep in mind that because research on this product is limited, you should see your doctor before taking it”.<sup>[22]</sup>

### 10. Hops (*Humulus lupulus*)



“Fig. 13: Hops”<sup>[30]</sup>

“Hops are a commercially cultivated herb used in the brewing of beer. Hops, like chamomile, contain sedative ingredients, making them a good choice for anxiety sufferers. The hops extract contributed to a significant decrease in the individuals' depression and anxiety scores when compared to the placebo, according to the study. According to studies, taking 200 mg of *Humulus lupulus* daily can help reduce or eliminate anxiety over time”.<sup>[22]</sup>

### 11. St. John's wort (*Hypericum perforatum*)



“Fig. 14: St. John's wort”<sup>[31]</sup>

“The herb St. John's wort has a long history of use in the treatment of mood disorders. Although St. John's wort is often used to treat depression, research is currently being conducted to see if it might also be used to treat anxiety. Supplements containing St. John's wort can range from 600 to 1,800 mg per serving. For anxiety treatment, experts recommend starting with the lowest dose possible. Before using this supplement, see your doctor because there is no firm evidence that it helps with anxiety”.<sup>[22]</sup>

## 12. Galphimia glauca



“Fig. 15: Galphimia glauca”<sup>[32]</sup>

“The plant Galphimia glauca is native to Mexico. It was originally used as a sedative to relieve nervousness. The effectiveness of G. glauca as a GAD therapy. For 12 weeks, participants were given either G. glauca or the anti-anxiety medicine lorazepam. When compared to those who took lorazepam, participants who received a daily dose of 0.175 mg of G. glauca demonstrated a larger reduction in GAD symptoms. Both therapies were completely risk-free”.<sup>[21]</sup>

## CONCLUSION

Anxiety is characterized by mood, thought, behavior, and physiological activity disruptions, as well as sleep, concentration, social, and/or vocational functioning impairments. It's also linked to restlessness, a tense or tense mood, being easily tired, problems concentrating or going blank, impatience, muscle tightness, and irritation. Anxiety can be caused by a variety of reasons, including stress, diabetes, depression, genetics, and the environment. Psychiatric disorders, particularly anxiety, are afflicting an increasing number of people. Mental diseases not only disrupt people's daily lives, but also place a significant financial strain on society. The psychopharmacology of herbs has gotten a lot of attention in recent decades. A vast body of evidence suggests that herbs' complex psychotropic actions may aid in the treatment of anxiety. Finally, this review shows some promising outcomes for the use of herbs in the treatment of mental disorders such as anxiety.

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