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HERBS IN THE MANAGEMENT OF ANXIETY & DEPRESSION: A REVIEW

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ABSTRACT

Anxiety and depression are among the most prevalent mental health disorders worldwide, contributing significantly to the global burden of disease. Conventional pharmacological treatments, though effective, are often associated with side effects, limited accessibility, and variable patient adherence, driving interest in complementary and alternative therapies. Herbal medicines have a long history of traditional use for mood regulation and stress relief, and an increasing body of scientific evidence supports their potential role in managing anxiety and depression. This review aims to summarize and critically evaluate current scientific evidence on the efficacy, mechanisms of action, and safety of selected herbs used in the management of anxiety and depression. By bridging traditional knowledge with modern pharmacological insights, this paper seeks to highlight the therapeutic potential of herbal remedies as adjuncts or alternatives to conventional psychotropic medications.

KEYWORDS: Herbal medicines, Anxiety, depression.

INTRODUCTION

Anxiety and depression are among the most prevalent mental health disorders worldwide, contributing significantly to the global burden of disease and disability. Despite the availability of conventional pharmacological treatments such as antidepressants and anxiolytics, these therapies often present limitations including delayed onset of action, incomplete remission, high relapse rates, and undesirable side effects. Consequently, there has been growing interest in alternative and complementary approaches that are safer, cost-effective, and holistic in nature.

Herbal medicine, rooted in traditional systems of healing such as Ayurveda, Traditional Chinese Medicine, and Western herbalism, has gained increasing recognition for its potential role in modulating mood and emotional well-being. Various medicinal plants and their bioactive compounds have demonstrated anxiolytic and antidepressant-like properties through multiple mechanisms, including modulation of neurotransmitters (serotonin, dopamine, GABA), regulation of the hypothalamic-pituitary-adrenal (HPA) axis, and reduction of oxidative stress and neuroinflammation.

This review explores the therapeutic promise of commonly studied herbs, including *Withania somnifera* (ashwagandha), *Hypericum perforatum* (St. John's wort), *Crocus sativus (Saffron*), *Passiflora incarnata* (passionflower), *Bacopa monnieri* (brahmi), and *Lavandula angustifolia* (lavender). Emphasis is placed on their pharmacological mechanisms, such as modulation of neurotransmitter systems, regulation of the hypothalamic–pituitary–adrenal axis, and antioxidant activity. The review also highlights findings from preclinical and clinical studies, safety considerations, and potential herb–drug interactions. While herbal therapies offer promising adjuncts or alternatives to conventional treatments, further rigorous clinical trials are needed to establish standardized formulations, dosages, and long-term safety profiles. Understanding the role of medicinal herbs in mental health care may provide more holistic and accessible strategies for the management of anxiety and depression.

ASHWAGANDHA (*Withania somnifera*)

Withania somnifera, commonly known as ashwagandha, is an evergreen shrub from the Solanaceae family. It is native to the Middle East, North Africa, other parts of Africa, southern Europe, and the Indian subcontinent. The plant, especially its root powder, has been used for centuries in traditional Indian medicine (Ayurveda). Today, ashwagandha is widely available as a dietary supplement, typically made from its roots or leaves, either in powdered form or as extracts.

The key phytochemical components of *Withania somnifera* include withanolides—a group of triterpene lactones such as withaferin A—as well as alkaloids, steroidal lactones, tropine, and cuscohygrine. So far, researchers have identified around 40 withanolides, 12 alkaloids, and several sitoindosides from this plant species.

Ashwagandha in the management of anxiety and depression

Ashwagandha (Withania somnifera) has been traditionally used in Ayurveda as a natural remedy for stress, anxiety, and depression. It is classified as an adaptogen, meaning it helps the body manage stress more effectively. The active compounds, particularly withanolides, are believed to reduce cortisol levels, calm the nervous system, and improve mood. Several clinical studies have shown that ashwagandha supplements can significantly reduce symptoms of

generalized anxiety disorder (GAD) and mild to moderate depression, with minimal side effects. Its calming effects make it a promising herbal option for supporting mental well-being naturally.

Dosage and Administration of Ashwagandha

Ashwagandha is available in several forms, including root powder, capsules, and standardized extracts. The appropriate dose may vary depending on the individual's health condition, age, and the form of the supplement used.

RootPowder- 3–6 grams per day, traditionally taken with warm water or milk, often in divided doses (morning and evening).

Standardized Extract (containing 1.5–5% withanolides) 250–600 mg once or twice daily. 300 mg twice daily is commonly used for stress and anxiety. Up to 600 mg per day is used in some clinical trials for depression and sleep support.

Precautions

The drug is not recommended during pregnancy without medical advice.it may interact with sedatives, thyroid medications, or immunosuppressants hence it is essential to always consult a healthcare provider before starting long-term use.

ST. JOHN'S WORT (*Hypericum perforatum*)

St. John's wort (SJW), known botanically as *Hypericum perforatum*, is a sprawling, leafy herb that grows in open, disturbed areas throughout much of the world's temperate regions. The use of this species as an herbal remedy to treat a variety of internal and external ailments dates back to the time of the ancient Greeks. Since then, it has remained a popular treatment for anxiety and depression.

The most common active chemicals in *Hypericum perforatum* are hypericin and pseudohypericin (naphthodianthrones), and hyperforin (a phloroglucinol derivative). The species contains a host of essential oils, the bulk of which are sesquiterpenes. In the wild, the concentrations of any active chemicals can vary widely among individual plants and populations.

Hypericum perforatum in the Management of Anxiety and Depression

Hypericum perforatum, commonly known as St. John's Wort, is a traditional medicinal herb extensively studied and used for the treatment of mild to moderate depression and, to a lesser extent, anxiety disorders.

Pharmacological Properties

St. John's Wort contains several active compounds such as Hypericin, Hyperforin, Flavonoids. These compounds are believed to contribute to its antidepressant and anxiolytic effects by modulating neurotransmitters like serotonin, dopamine, norepinephrine, and GABA in the brain — similar to the mechanism of some conventional antidepressants.

Efficacy in Depression

Multiple clinical studies have shown that St. John's Wort is more effective than placebo. Its efficacy is comparable to standard antidepressants like SSRIs (e.g., fluoxetine, sertraline) in mild to moderate depression, with fewer side effects. Benefits typically become noticeable after 2–4 weeks of regular use.

Efficacy in Anxiety

Some studies and traditional use suggest mild anxiolytic effects, possibly due to modulation of GABA activity. It is often used in combination with other calming herbs like *Valeriana officinalis* or *Passiflora incarnata* for anxiety relief.

Dosage

Common dose: 300 mg of standardized extract (0.3% hypericin) 3 times daily, totaling 900 mg/day. Long-term use should be monitored by a healthcare professional.

Important drug interactions

It reduces effectiveness of oral contraceptives, antiretrovirals, immunosuppressants, and anticoagulants (e.g., warfarin). The drug should not be combined with SSRIs or MAO inhibitors due to risk of serotonin syndrome.

SAFFRON (*Crocus sativus*)

Crocus sativus, commonly known as saffron crocus or autumn crocus, is a flowering plant belonging to the Iridaceae family (iris family). The plant is best known for its vivid red stigmas, which are harvested and dried to produce the culinary spice saffron. Beyond its use in cooking, saffron has been valued in traditional Asian medicine for its therapeutic properties, particularly for its mood-enhancing effects, which are attributed to its rich content of biologically active compounds.

Saffron contains around 28 volatile and aroma-contributing compounds, primarily composed of ketones and aldehydes. The key aroma-active constituents include safranal—the primary compound responsible for saffron's characteristic scent—along with 4-ketoisophorone and dihydrooxophorone. In addition to its volatile compounds, saffron is rich in nonvolatile phytochemicals, particularly carotenoids such as zeaxanthin, lycopene, and various forms of α- and β-carotene. Among its most biologically active components are crocetin and its glycoside crocin, which contribute significantly to saffron's therapeutic properties.

Crocus sativus in the Management of Anxiety and Depression

Crocus sativus, commonly known as saffron, is more than a prized culinary spice—it is a well-researched medicinal plant known for its significant mood-enhancing, antidepressant, and anxiolytic effects. Traditionally used in Persian, Ayurvedic, and Chinese medicine, saffron has gained modern scientific recognition as a natural remedy for managing mild to moderate depression and anxiety.

Active Constituents

Saffron's therapeutic benefits are largely attributed to its bioactive compounds, including: Safranal is responsible for its aroma and central nervous system (CNS) effects. Crocin and crocetin are carotenoid derivatives with antioxidant and neuroprotective properties. Picrocrocin contributes to its flavor and may also support mood. Kaempferol and other flavonoids have anti-inflammatory and antidepressant effects.

Dosage and Forms

Typical dosage: 15–30 mg/day of standardized saffron extract, often divided into two doses. It can be administered in the form of capsules, tablets, teas, or powdered saffron threads. Effects may be observed after 2–4 weeks of consistent use.

Safety and Side Effects

Generally safe and well-tolerated at therapeutic doses. Mild side effects: nausea, drowsiness, dry mouth, or headache in some individuals. Not recommended during pregnancy in large amounts due to possible uterine stimulation.

Conclusion

Crocus sativus (saffron) is a promising natural treatment for anxiety and depression, especially in individuals seeking alternatives to conventional medications. Backed by both traditional use and modern clinical research, saffron offers a safe, well-tolerated, and effective option for mood support. However, it should be used under the guidance of a healthcare professional, particularly when taken alongside other medications or in chronic conditions.

PASSIONFLOWER (*Passiflora incarnata*)

Passiflora incarnata, commonly known as maypop, purple passionflower, true passionflower, wild apricot, or wild passion vine, is a fast-growing perennial vine with climbing or trailing stems. It is recognized in official pharmacopeias, including the European and British Pharmacopoeias, where the dried aerial parts of the plant are listed for their medicinal use.

Passiflora incarnata contains a variety of flavonoids and alkaloids, with the leaves holding the highest concentration of flavonoids. Notable flavonoids found in the plant include chrysin, apigenin, luteolin, quercetin, kaempferol, and isovitexin.

The primary bioactive compounds identified in *P. incarnata* are polyphenols, flavonoids, carotenoids, anthocyanins, and other natural antioxidants. Among these, polyphenols particularly those classified as flavone C-glucosides play a significant role. These phenolic compounds and flavonoids demonstrate strong antioxidant potential and exhibit notable free radical scavenging activity, contributing to the plant's therapeutic properties.

Passion flower in the Management of Anxiety and Depression

Passiflora incarnata, commonly known as passionflower, is a traditional medicinal plant widely recognized for its calming, anxiolytic, and mild sedative effects. Historically used in Native American and European herbal medicine, it has gained scientific interest as a natural remedy for anxiety, insomnia, and related mood disorders, including mild depression.

Active Constituents

The therapeutic benefits of *P. incarnata* are primarily attributed to its rich content of flavonoids including chrysin, apigenin, luteolin, kaempferol, and isovitexin. It is also reported to contain alkaloids, polyphenols, carotenoids and anthocyanins.

Efficacy in Anxiety

Clinical studies and traditional use support its role in reducing generalized anxiety, situational anxiety (e.g., pre-operative stress), and restlessness. Passionflower extract has shown comparable effectiveness to some prescription anxiolytics (e.g., oxazepam) in mild to moderate cases, with fewer side effects.

Efficacy in Depression

While research is more limited than for anxiety, some studies indicate it may improve mood, especially when depression is associated with chronic stress or insomnia. The drug is often used as a complementary therapy alongside other mood-supportive herbs or treatments.

Dosage and Forms

Infusion/tea: 1–2 grams of dried aerial parts, steeped for 10–15 minutes, 2–3 times daily. Extracts/tinctures: 300–500 mg of standardized extract daily, or as directed. Capsules: typically contain 250–500 mg per dose, taken 1–2 times daily.

Safety and Side Effects

It is generally considered safe and non-addictive when used appropriately. Possible mild side effects: drowsiness, dizziness, or gastrointestinal discomfort. However, the drug should be used with caution if combined with CNS depressants, sedatives or alcohol. Also it is not recommended for pregnant or breastfeeding women without professional supervision.

Conclusion

Passiflora incarnata is a gentle and effective herbal option for managing anxiety, especially when accompanied by insomnia, stress, or nervous tension. Its mild antidepressant effects make it a valuable adjunct therapy in mood disorders. Due to its favourable safety profile, it is widely used in complementary and integrative medicine as a natural alternative to synthetic anxiolytics.

BRAHMI (*Bacopa monnieri*)

Bacopa monnieri, also known as water hyssop, brahmi, thyme-leafed gratiola, herb of grace, and Indian pennywort, is a perennial, creeping herb native to wetland areas globally. *Bacopa monnieri* is one of the most widespread *Bacopa* species. It commonly grows in marshy areas throughout India, Nepal, Sri Lanka, China, Pakistan, Taiwan, Vietnam, tropical and southern Africa.

The best characterized phytochemicals in *Bacopa monnieri* are dammarane-type triterpenoid saponins known as bacosides, with jujubogenin or pseudo-jujubogenin moieties as aglycone units. Bacosides comprise a family of 12 known analogs. Other saponins called bacopasides I–XII were identified. The alkaloids brahmine, nicotine, and herpestine have been catalogued, along with D-mannitol, apigenin, hersaponin, monnierasides I–III, cucurbitacin and plantainoside B.

Bacopa monnieri in the Management of Anxiety and Depression

Bacopa monnieri, also known as Brahmi, is a traditional Ayurvedic herb known for its nootropic (brain-boosting) and adaptogenic properties. It has gained interest for its potential role in managing anxiety and depression, especially in stress-related and age-related cognitive decline.

Active constituents

Key active compounds include bacosides A and B, alkaloids (brahmine, herpestine), flavonoids and saponins. These compounds exert neuroprotective, antioxidant, and neurotransmitter-modulating effects that are believed to support mood and reduce anxiety.

Dosage

Common dose: 300–450 mg/day of standardized extract containing 50% bacosides. It can be taken daily for at least 4–6 weeks to observe cognitive and mood benefits.

Safety and Side Effects

The drug is generally safe and well-tolerated. However, mild side effects include gastrointestinal discomfort, nausea, dry mouth, and fatigue. There are no major drug interactions, but caution is advised when combined with sedatives or thyroid medications.

Conclusion

Bacopa monnieri is a natural, well-tolerated herb with strong potential in the management of anxiety and some supportive evidence in mild depression. Its use may be particularly beneficial for people with stress-induced mood disturbances, age-related cognitive decline, or those seeking a plant-based adaptogen for long-term mental wellness. As with any herbal remedy, consistent use and medical supervision are recommended for best outcomes.

LAVENDER *(Lavandula angustifolia)*

Lavandula angustifolia, formerly known as *L. officinalis*, is a flowering plant belonging to the *Lamiaceae* (mint) family. Both its flowers and leaves are widely used in herbal medicine. Commercially, the plant is valued for its production of lavender essential oil, which is commonly used in balms, salves, perfumes, cosmetics, and various topical preparations. When diluted with a carrier oil, lavender essential oil is frequently applied in massage therapy and aromatherapy for its calming and therapeutic effects.

The phytochemical composition of lavender oil varies among different species, but it is primarily made up of monoterpenoid and sesquiterpenoid alcohols. The major constituents are linalool and linalyl acetate, accompanied by moderate amounts of lavandulyl acetate, terpinen-4-ol, lavandulol, 1,8-cineole, camphor, limonene, and tannins. In total, lavender essential oil contains over 100 different compounds, although many are present in trace amounts.

Lavandula angustifolia in the Management of Anxiety and Depression

Lavandula angustifolia, commonly known as English lavender, is a widely used medicinal plant recognized for its calming, anxiolytic, and antidepressant properties. Traditionally used in aromatherapy and herbal medicine, it has gained scientific interest for its potential to alleviate anxiety and mild depressive symptoms through both inhalation and oral administration.

Active Constituents

The therapeutic effects of *Lavandula angustifolia* are primarily due to Linalool, Linalyl acetate, Terpinen-4-ol, Lavandulol. Minor compounds like 1,8-cineole, camphor, and limonene contribute to neuroactive, sedative, and mood-stabilizing effects.

Dosage and Use

Aromatherapy: 2–4 drops of essential oil in a diffuser or added to a warm bath. For massage therapy: Diluted lavender oil in a carrier oil (e.g., coconut or almond oil) applied to the skin. Oral preparations like standardized extracts typically 80 mg/day, under medical supervision are administered.

Safety and Side Effects

Generally safe and well-tolerated. Mild side effects (mainly in oral form) may include nausea, burping, headache, or allergic reactions. Essential oil should not be ingested unless specifically formulated for internal use. It is not recommended for pregnant women or young children without professional guidance.

CONCLUSION

Lavandula angustifolia is a gentle yet effective natural remedy for managing anxiety and mild depression, particularly when symptoms are stress-related. Its versatility—usable in aromatherapy, topical applications, and standardized oral forms—makes it a popular choice in complementary and integrative medicine. For best results, it should be used consistently and, in clinical cases, alongside guidance from a healthcare professional.

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