

## The use of medicinal plants in the treatment of mental disorders: An overview

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### Abstract

It has been known from the ancient times, spanning hundreds of years of recorded and unrecorded history, that people have used different methods and procedures in treatment of different psychiatric disorders and very often these were medicinal preparations from plants. Numerous scientific discoveries and advent of industrial age gave a big boost to drug development and significantly improved quality of life for psychiatric patients during the last century. Nevertheless, after huge success, joy and relief, evidence has shown that quest for natural medicines faced a lot of disappointment, leading to a poor attitude that resulted to some natural drugs unnecessarily thrown out. On the other hand, there are a huge number of patients that use natural medicinal plants in self-treatment of different psychiatric disorders. It is reported that herbal medicines are used in treating a broad range of psychiatric disorders including anxiety, depression, obsessive-compulsive, affective, bipolar maniac-depressive, psychotic, phobic and somatoform disorders. Currently, there is insufficient clinical evidence for the use of many herbal medicines in psychiatric disorders. Significant and urgent research are required to address current issues in herbal psychotherapy such as herbal safety, future areas of application, the relationship of herbal medicine with pharmaceuticals and the potential prescriptive integration of phytomedicines with synthetic psychotropic medicines.

**Keywords:** Drug-herb interaction, herbal medicine, medicinal plants, mental disorder, phytomedicine and phytotherapy.

### 1. Introduction

According to the World Health Organization[1], mental health is 'a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make meaningful contribution to his or her community'. Mental health can also be defined as a state of mind in which an individual can effectively utilize his or her capacities by displaying psychological resilience in making personal and social adjustments to fit the dynamic environment within which he or she co-exists with other persons [2]. It also represents one's ability to adapt to internal and external environmental stressors. Successful adaptation to a range of demands is manifested in thoughts,

emotions and behaviours that are in congruence with age, local and cultural norms or expectations [3]. To be mentally unhealthy signifies a psychological state that results in behavioural anomalies that affect daily functioning. Mental health problems may be associated with genetics, environmental stressors, psychological factors, brain defects, substance abuse, amongst other factors [4]. The prevalence of mental illness is linked to the many socio-economic problems which may be regarded as precipitating factors [5].

Persons with mental health problems have been perceived with a sense of suspicion for many decades[6], just as mental health problems have been associated with several misconceptions. The most common misconceptions

about mental health illness are damaging and pervasive. Some of these misconceptions are that people with mental illness are dangerous and violent; that mental illness is the same as mental retardation; that mental health problems are as a result of poor parenting; that it is impossible to recover from mental illness; that persons with mental health problems cannot work; that lack of personal hygiene and physical unattractiveness are indicators of mental illness and unintelligent persons are prone to mental illness. Most of these misconceptions have however been disproved as being unfounded [7-9] and can thus be regarded as largely being unscientific or unverifiable. Societies across the world have different explanatory perspectives as it relates to the nature, causes and interventions for mental health problems [10]. In this light, cultural misconceptions significantly affect the level of stigma that is attached to mental illness as well as the social support likely to be received [11]. A country like Nigeria in West Africa, for instance, is a multi-ethnic state with a myriad of cultures, traditions, customs and beliefs at the center of its worldview. All of these aspects or dimensions of the Nigerian State influence, amongst many matters, the perception of mental health problems. Specifically, the belief in the supernatural is reinforced in the daily cosmology of many Nigerians. Health is viewed by many as being underpinned by supernatural dimensions [12,13]. Supernatural beings or powers (God, gods, good and evil spirits, witches) coupled with their activities [14] are believed to be sources of mental health problems as well as part of the cultural asset that is usually mobilized to cure mental health problems. Many Nigerian cultures attribute mental illness to angered ancestors and spirit possession or a punishment meted by a retributive god [15].

## 2. Prospects of Medicinal Plants in the Treatment of Mental Disorders

Medicinal plants have great prospects in healthcare delivery worldwide. These prospects have more impact in developing countries where 70-80% of the population rely on traditional medicine for primary healthcare [16]. It is reported that 25% of prescribed drugs in conventional healthcare were derived from their ethnomedicinal use in traditional medicine [16]. Medicinal plants still provide hope for discovery of new drugs for the resistant diseases and those that were not treated by conventional prescription drugs. The symptoms of mental illness often are effectively controlled through herbal medication and/or psychotherapy, and may even go into remission. For some people, the illness continues to cause periodic episodes that require treatment. Consequently, some people with mental illness will need no support, others may need only occasional

support and still others may require more substantial, ongoing support to maintain their productivity [17].

## 3. Nature of Mental Disorders

Mental illness is a term that describes a broad range of mental and emotional conditions, and is different from other covered mental impairments such as mental retardation, organic brain damage and learning disabilities. The term 'psychiatric disability' is used when mental illness significantly interferes with the performance of major life activities, such as learning, working and communicating, among others [17]. The most common forms of mental illness are anxiety disorders, mood disorders and schizophrenic disorders.

### 3.1 Anxiety Disorders

The most common group of mental illnesses are anxiety disorders which is often characterized by severe fear or anxiety associated with particular objects and situations. Anxiety disorders may occur in any of the following ways:

- Panic disorder – the sudden onset of paralyzing terror or impending doom with symptoms that closely resemble a heart attack.
- Phobias – excessive fear of particular objects (simple phobias), situations that expose a person to the possible judgment of others (social phobias), or situations where escape might be difficult (agoraphobia).
- Obsessive-compulsive disorder – persistent distressing thoughts (obsessions) that a person attempts to alleviate by performing repetitive, intentional acts (compulsions) such as hand washing.
- Post-traumatic stress disorder (PTSD) – a psychological syndrome characterized by specific symptoms that result from exposure to terrifying, life-threatening trauma such as an act of violence, war or a natural disaster[17].

### 3.2 Mood Disorders

These involve changes in mood, usually involving either depression or mania (elation). Mood disorders are also known as affective disorders.

- Major depression – an extreme or prolonged episode of sadness in which a person loses interest or pleasure in previously enjoyed activities.
- Bipolar disorder (also referred to as maniac-depressive illness) – alternating episodes of mania (“highs”) and depression (“lows”).
- Dysthymia – continuous low-grade symptoms of major depression and anxiety.
- Seasonal affective disorder (SAD) – a form of major depression that occurs in the fall or winter and may be related to shortened periods of daylight [17].

### 3.3 Schizophrenic Disorders

Research has not yet determined whether schizophrenia is a single disorder or a group of related illnesses. The illness is highly complex, and few generalizations hold true for all people diagnosed with schizophrenic disorders. However, most people initially develop the symptoms between the ages of 15 and 25. Typically, the illness is characterized by thoughts that seem fragmented and difficulty in processing information. Symptoms of schizophrenic disorders are categorized as either “negative” or “positive”. Negative symptoms include social isolation or withdrawal, loss of motivation and a flat or inappropriate affect (mood or disposition). Positive symptoms include hallucinations, delusions and thought disorders [17].

## 4. Commonly Used Medicinal Plants for the Treatment of Mental Disorders

The following herbs are known to have a traditional history of promoting mental health:

### 4.1 Mulungu Bark (*Erythrina mulungu*)

The indigenous people of South and Central America have used mulungu for centuries to calm nerves, improve mood and aid sleep. Erythravine, one of mulungu’s active alkaloids, may also help reduce anxiety and protect brain function [18]. Flavonoids present in this herb are known antioxidants and have been shown to support cardiovascular health and a healthier brain [19].

### 4.2 Bacopa (*Bacopa monnieri*)

Commonly known as Brahmi, Ayurvedic medicine uses bacopa to improve memory, reduce stress and support cognitive function. Researchers observed that cortisol, the body’s stress hormone, decreased in study participants who took bacopa compared with those taking a placebo [20]. Additional research indicates it may support the physical health of brain cells and offer some protection against brain aging and age-related diseases such as Alzheimer’s disease [21].

### 4.3 Mucuna pruriens

Mucuna contains L-dopa, a biochemical precursor to several neurotransmitters. One of those neurotransmitters is dopamine, and increasing dopamine levels may improve brain function and support memory. This effect probably contributes to Mucuna’s popularity as an anti-aging herb. Antioxidant properties linked to Mucuna also discourage inflammation and suggest protective effects for neurons [22].

### 4.4 Rhodiola Rosea

This traditional medicinal herb contains two powerful natural compounds that have been proven to play a role in brain health. Salidroside is one of these

compounds and is known as a potent antioxidant. Rosin is the other, and this compound appears to reduce inflammation of neural cells, possibly protecting against neurotoxicity [23]. The results of one Swedish study showed that both of these compounds reduced fatigue, improved mood and lowered stress hormones [24]. This may lead to better mental performance and a more positive response to stress and anxiety.

### 4.5 Ziziphus jujube

Also known as “sour date” *Ziziphus jujube* is one of the many herbs that may support mental health while encouraging a good night’s rest. Day-to-day activities can be draining on energy levels, not to mention mental strength. The plant’s saponins have demonstrated sedative effects on animal models, possibly supporting relaxation [25].

### 4.6 Passiflora incarnata (Passionflower)

This traditional herbal sedative has been used as a sleep aid for years. Passionflower also appears to help relieve anxiety, a major cause of sleep disturbance for many individuals. Without a good night’s sleep, mental acuity becomes compromised and memory also degrades. Initial studies indicate consuming low doses of passionflower in a tea helps healthy adults achieve better sleep [26].

### 4.7 Scutellaria lateriflora (Skullcap)

Native to North America, this plant has a history of use for calming nerves, easing stress, lifting the mood and aiding sleep. Research suggests it possesses mood enhancing effects and its antioxidant properties may provide significant protection for the brain against the damaging effects of inflammation [27,28].

### 4.8 Kava

Kava is used traditionally to relieve stress, anxiety and insomnia. Kava contains compounds known as kavalactones. These compounds offer non-opiate alternatives against anxiety. Some studies indicate kavalactones is as effective as certain orthodox drugs [29].

### 4.9 Saffron

Saffron, also known as *Crocus sativus*, does more than add color and flavor to food. It has a long history of use for mood disorders, stress and anxiety. Studies have also found it as effective as antidepressants for lifting mood and relieving anxiety, significantly out performing placebo in clinical trials [30].

### 4.10 Ficus ingens (Miquel) Miquel

*Ficus ingens* which belongs to the Moraceae family, is one of the many medicinal plants with long historical use in traditional medical practices [31,32]. A research reported that the methanolic stem bark extracts of *Ficus ingens* (Miquel) Miquel prolonged the duration of diazepam induced sleep time in mice, which is suggestive of sedative property of the methanolic stem bark extracts of

*Ficus ingens* (Miquel) Miquel using animal model[31,32]. The prolongation of diazepam-induced sleeping time may be attributed to an action on the central mechanism involved in the regulation of sleep [31].

## 5. Drug-Herb Interactions Particularly with Orthodox Drugs for Treating Mental Disorders

The use of herbal supplements has a long history, dating back thousands of years. Examples of important orthodox medicines extracted from botanicals include reserpine, morphine, penicillin and vinca alkaloids[33]. Herbal products can frequently have drug interactions with prescription medications. Herbal interactions with prescriptions can interfere with how the drug may be broken down in the body, enhance side effects of prescription medications or block the intended therapeutic effect of a drug [34].

*Ginkgo biloba* extract, advertised as improving cognitive functioning, has been reported to cause spontaneous bleeding, and it may interact with anticoagulants and antiplatelet agents. St. John's wort, promoted as a treatment for depression, may have monoamine oxidase-inhibiting effects or may cause increased levels of serotonin, dopamine and norepinephrine. Ephedrine-containing herbal products have been associated with adverse cardiovascular events, seizures and even death. Ginseng, widely used for its purported physical and mental effects, is generally well tolerated, but it has been implicated as a cause of decreased response to warfarin[35].

## 6. Conclusion

In conclusion, the preference and utilisation of natural medicine derived from plant sources in the treatment of mental disorders over orthodox medicine can never be over-emphasized. A significant number of herbal extracts derived from medicinal plants have been shown to be effective in treating mental disorders in the traditional setting. There is, therefore, a dire need to encourage the recommendation and use of these medicinal plants as they are relatively safe, efficacious and readily available; particularly in the depressed economic and poor resource setting prevalent in developing countries.

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