

## HERBAL REMEDIES IN AYURVEDA FOR BRAIN DISORDER- A NATURAL SOLUTION

Dr. Nutan Sharma\*

M.D Ayurveda (Dravyaguna), Assistant professor, Department of Dravyaguna Vigyan, Shree Lakshmi Naryan Ayurvedic College and Hospital, Amritsar, Punjab. Affiliated to Guru Ravidas Ayurved University, Hoshiarpur.

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**\*Corresponding Author: Dr. Nutan Sharma**

M.D Ayurveda (Dravyaguna), Assistant professor, Department of Dravyaguna Vigyan, Shree Lakshmi Naryan Ayurvedic College and Hospital, Amritsar, Punjab. Affiliated to Guru Ravidas Ayurved University, Hoshiarpur. DOI: <https://doi.org/10.5281/zenodo.14787040>

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### ABSTRACT

In recent years, there has been increasing interest in traditional herbal remedies for treating various brain disorders, offering hope to patients seeking alternative solutions. It is estimated that over 60 million people in India are affected by mental health issues, with the country falling behind in terms of treatment options and mental health care spending. Approximately 1-2% of the population suffers from conditions like schizophrenia and bipolar disorder, while around 5% experience common mental health issues<sup>[1]</sup> such as depression, anxiety, and seizures. Mental illness encompasses not only conditions like insanity but also emotional disorders, which can manifest when emotional disturbances go beyond normal limits. Given the current situation, it is crucial to turn to ancient Indian Ayurvedic practices, where numerous plants are recommended for treating a wide range of mental disorders<sup>[2]</sup>, including migraine, epilepsy, convulsions, hysteria, paralysis, Alzheimer's disease, insomnia, anxiety, Parkinson's disease, and depression. Ayurvedic remedies, whether composed of single plants or plant combinations, have shown considerable effectiveness in managing these conditions. The plant materials<sup>[3]</sup> used in these treatments range from herbs to perennial trees, utilizing various parts of the plants.

**KEYWORDS:** Traditional herbal remedies, brain disorders, mental health issues, India, treatment options, mental health care, depression, anxiety, seizures, emotional disorders, Ayurvedic practices, migraine, epilepsy, convulsions, hysteria, paralysis, Alzheimer's disease, insomnia, Parkinson's disease, Ayurvedic remedies, plant materials, herbs, perennial trees.

## INTRODUCTION

It is widely recognized that nature holds the key to healing many ailments affecting the human body. When synthetic<sup>[4]</sup> medications fail to provide effective results or cause harmful side effects, plant-based remedies often offer relief. Herbal medicine<sup>[5]</sup> serves as a natural healing approach to treat various human diseases. Recent studies have shown that the use of synthetic drugs to treat high blood pressure can have negative effects on mental health. Ayurveda, originating from the Atharvaveda, evolved into a comprehensive medical system through the dedicated work of ancient sages in "gurukuls." Ayurveda's influence on the Indian populace has been so profound that it remained widely practiced despite the influences of the Middle East and Europe. Ayurvedic herbal medicines continue to be accessible to the public, thanks to the efforts of companies such as Patanjali, Dabur, Zandu, Baidyanath, and Himalaya. Today, modern drug discovery often follows the principles of reverse pharmacology, where potential drug candidates are first identified based on traditional knowledge and then validated through clinical trials.

### Common Brain disorder<sup>[6]</sup>

The term "mental illness" or "brain disorder" is not limited to conditions such as insanity and related mental dysfunctions; it also encompasses various emotional disorders. When emotional factors exceed normal limits, they can lead to symptoms of mental health conditions. The brain contains approximately 100 billion nerve cells (neurons), each forming complex communication networks by connecting with others. These neurons are responsible for essential functions such as thinking, learning, memory, and sensory processing (sight, hearing, smell). Like small factories, brain cells manage tasks such as receiving supplies, generating energy, building components, and eliminating waste. Additionally, they process and store information to facilitate communication with other cells. Maintaining proper brain function requires substantial amounts of fuel and oxygen to ensure efficient coordination. When this system is disrupted, various brain disorders can arise, including Alzheimer's disease, Parkinson's disease, Huntington's disease, depression, epilepsy, schizophrenia, and anxiety. These conditions involve intricate disturbances in brain function, which are outside the scope of this review. However, a brief overview of these common brain disorders is provided for foundational understanding.

### Alzheimer's Disease<sup>[7]</sup>

Alzheimer's disease (AD) was initially referred to as presenile dementia, which is an acquired mental disorder characterized by a decline in intellectual abilities that disrupt social and occupational functioning. It is linked to the localized loss of neurons and brain atrophy, particularly in areas such as the basal forebrain and hippocampus. A key factor in the development of AD is the beta-amyloid peptide (BAP). While there is no cure for AD through synthetic drugs, they can help manage the condition to some extent. Research has shown that natural antioxidants, including vitamin E, vitamin C, and beta-carotene, can help neutralize free radicals produced during the progression of the disease. Memory loss in AD is often attributed to deficiency of the neurotransmitter acetylcholine. By inhibiting the enzyme acetylcholinesterase, which breaks down acetylcholine, it is possible to raise the levels of this neurotransmitter in the brain. Synthetic drugs that prevent the breakdown of acetylcholine may help slow the progression of the disease.

### Anxiety

Anxiety<sup>[8]</sup> is both a psychological and physiological condition that involves cognitive, physical, emotional, and behavioral elements. These components work together to produce an uncomfortable feeling, often linked to fear, worry, or unease. Anxiety, unlike fear, does not have a clear external trigger and is considered a generalized emotional state. It

differs from fear in that fear is triggered by an immediate external threat, while anxiety arises from perceived threats that seem uncontrollable or inevitable. Therefore, anxiety is associated with a sense of unease, whereas fear leads to behaviors aimed at avoiding or escaping the threat.

### **Depression**

Depression<sup>[9]</sup> is a prevalent mood disorder characterized by emotional disturbances rather than cognitive or thought-related issues. It is the most common mood disorder and often occurs with symptoms like delusions and hallucinations. This condition is associated with elevated levels of neurotransmitters such as dopamine, acetylcholine, and norepinephrine in the brain. The symptoms of depression can be categorized into two types: (a) biological symptoms, including slowed thought processes, loss of libido, sleep disturbances, and decreased appetite, and (b) emotional symptoms, such as feelings of guilt, lack of motivation, and negative self-perception. Depression can be classified into two types: (1) unipolar depression, where mood remains consistently low, and (2) bipolar depression, where periods of depression alternate with episodes of mania.

### **Huntington's Disease**

Huntington's disease<sup>[10]</sup> (HD), a progressive and incurable neurodegenerative disorder, is named after the American physician George Huntington, who first described it in the late 19th century. It is also known as Huntington's chorea, chorea major, and is the genetic cause of chorea. In Western Europe, it affects up to 70 individuals per million, with higher prevalence in certain localized areas. In the 1990s, genetic testing for HD became available, leading to the development of counseling methods, which also became a model for other genetic disorders. While the exact mechanisms of the disease remain unclear, several contributing factors have been identified. Currently, there is no cure for HD, though treatments can help alleviate some symptoms. The disease is characterized by early physical signs such as involuntary, jerky movements called chorea. As the condition progresses, symptoms like rigidity and dystonia gradually become more pronounced, eventually dominating the physical manifestations of the disorder.

### **Epilepsy**

A seizure is the hallmark symptom of epilepsy<sup>[11]</sup>, a condition characterized by the excessive discharge of electrical impulses from a group of neurons in the brain. Epilepsy can be classified into two types: (a) Partial epilepsy, where specific, localized areas of the brain are affected, and the symptoms vary depending on the regions involved, and (b) Generalized epilepsy, where the entire brain, including the reticular system, is impacted. While long-term use of common synthetic medications can provide relief from seizures, these treatments often come with side effects that patients must endure.

### **Parkinson's disease**

Parkinson's disease<sup>[12]</sup> primarily affects the elderly and is a progressive movement disorder characterized by persistent tremors. It is often linked with dementia, and its symptoms typically begin with a resting tremor, usually in the hands. Muscle rigidity can be identified by increased resistance during passive limb movement, while hypokinesia refers to the suppression of voluntary muscle movements. In this condition, there is a reduction in neurotransmitters such as dopamine, serotonin (5-hydroxytryptamine), acetylcholine, and norepinephrine, particularly in the substantia nigra and caudate striatum of the brain. While synthetic medications can offer short-term relief, a complete cure for Parkinson's disease is generally not attainable.

### **Schizophrenia**

Individuals with this disorder often lose awareness of their present situation and may resist cooperating with both society and healthcare providers during treatment. Schizophrenia<sup>[13]</sup> presents with two main types of symptoms: (1) Positive symptoms, which include abnormal behaviors, delusions, hallucinations, and thought disorders, and (2) Negative symptoms, which involve a reduction in emotional responses and social withdrawal. In this condition, neurotransmitter levels, such as dopamine, serotonin (5-hydroxytryptamine), acetylcholine, and norepinephrine, are elevated in the brain. While synthetic medications can help alleviate symptoms like hallucinations, delusions, and disordered thinking, they can also lead to problematic side effects such as tremors and weight gain and may interact with other medications or supplements. In most cases, medication remains essential for managing schizophrenia.

### **Attention Deficit Hyperactivity Disorder (ADHD)**

Attention-deficit/hyperactivity disorder (ADHD) is commonly associated with children, but it is not exclusive to them. Around 30-70% of children with ADHD<sup>[14]</sup> continue to exhibit symptoms into adulthood. Additionally, some individuals who were never diagnosed with ADHD in childhood may develop more pronounced symptoms as adults, which can impact their work and personal relationships. In those with ADHD, neurotransmitter activity is reduced in brain regions responsible for attention control. The exact cause of this chemical imbalance is unclear, but it is believed that genetic factors may contribute, as the disorder often runs in families. Studies have shown that adults treated with stimulants experience a reduction in ADHD symptoms, and some report improved concentration, although a complete cure is rarely achieved.

### **Natural Ways of Healing Mind**

Over time, traditional and natural healing practices such as herbal medicine, yoga, meditation, naturopathy, and acupuncture are gaining renewed interest in the medical field. Many individuals and organizations are working to address the body's fundamental healing needs through these methods. People's attitudes have shifted significantly, with many who once relied on pharmaceutical painkillers now turning to alternative treatments, including Ayurveda, Traditional Chinese Medicine<sup>[15]</sup>, Siddha, Unani, Homeopathy, and other traditional remedies. Yoga and meditation are particularly important for maintaining both physical and mental well-being, as they improve circulation and help calm the mind. Globally, plant-based medicine systems have made significant contributions in treating various illnesses, including mental health conditions. It is well-documented that certain herbs offer effective treatments for issues such as anxiety and panic, often mimicking the effects of prescription medications without their harmful side effects. For example, lemon balm is known to reduce stress and anxiety, chamomile tea is frequently used for anxiety relief, and kava root is recognized for its benefits in managing anxiety and sleep disorders like insomnia.

### **Ayurvedic<sup>[16]</sup> plants related to brain related disorder**

Currently, there is growing global interest in the brain-healing properties of traditional medicines, including Ayurveda, as a dependable treatment for psychiatric disorders with little to no side effects. Indian medicinal systems have made significant advancements in addressing brain-related conditions, with Ayurveda being the most prominent. Ayurveda utilizes a wide range of plants<sup>[17]</sup>, either individually or in combinations, to treat various mental health issues.

Information on some medicinal plants is provided in Table-A.

**Table-A**

S. No	Hindi Name	Latin Name	Ayurvedic Recommendations
1	BRAHMI	<i>Bacopa monnieri</i>	Its juice is taken with kuth" ( <i>Costus speciosus</i> root) powder in honey to help in hysteria.
2	KUSHAMANDA, PETHA	<i>Benincasa hisipida</i>	Its juice when given with mulethi helps in epilepsy.
3	BHANG	<i>Cannabis sativa Linn.</i>	Useful in treating sleeplessness.
4	JYOTISHMATI	<i>Celastrus paniculatus</i>	Its seed powder in combination with almond, pepper and cardamom powder helps treating in dementia.
5	MANDUKPARNI	<i>Centella asiatica</i>	Its powder mixed with honey or purified butter (cow's ghee) taken to ease in anxiety.
6	SHANKPUSHPI	<i>Convolvulus microphyllus</i>	Its juice with honey cures the epilepsy, psychosis and insanity.
7	KEWANCH	<i>Mucuna pruriens</i>	Scientifically it has also been found to be effective in Parkinson's disease.
8	JATAMANSI	<i>Nardostachys jatamansi</i>	It is useful in hysteria, epilepsy when taken with "ghee". "Jatamansi", "bach" and "brahmi" juice are mixed in honey and given in mental problem.
9	MUNAKKA	<i>Vitis vinifera</i>	"Munakka" is roasted and given for dizziness
10	ASHWAGANDHA	<i>Withania sominifera</i>	Scientifically, it has also been found to be effective in ischemia.

#### Side and aftereffects of synthetic drugs for brain disorders

The primary reason for the widespread use of allopathic medicines globally is their effectiveness in emergency situations. In allopathy, doctors focus on addressing the symptoms of a disease rather than identifying and treating the underlying causes. It often seems that there is a specific medication for every symptom, followed by another to manage the side effects. However, allopathic treatments typically offer only partial relief, as these drugs are designed to alleviate symptoms rather than tackle the root cause of the condition. The harmful side effects of synthetic drugs used for brain disorders, such as psychostimulants, antidepressants, antipsychotics, and antianxiety medications, have been extensively documented. While the details of these side effects are not the focus of this paper, an example can be drawn from anticonvulsant medications. These drugs, like phenytoin (PHT), diazepam, valproate (VPA), and levetiracetam, are commonly used to manage epilepsy by controlling convulsions, often inducing sedation. Despite their broad effectiveness, these medications are associated with significant adverse effects. In contrast, the use of Ayurvedic herbal treatments for conditions like epilepsy is gaining traction due to their minimal side effects and growing popularity as a safer alternative.

#### Ayurvedic medicines are known for having minimal side effects and aftereffects

Ayurveda is based on the core principle of five fundamental<sup>[18]</sup> elements, which emphasizes that the body's faults, tissues, and impurities must align with the five elements that constitute the human body: earth (Prithvi), water (Jala), fire (Agni), air (Vayu), space (akash). This perspective suggests that a balance must be maintained among the three elemental energies: Vata (air + space = wind), Pitta (fire + water = bile), and Kapha (water + earth = phlegm). Ayurveda posits that when these energies are in harmony or present in equal proportions, the body remains healthy, but imbalance leads to various health issues. Ayurveda is primarily focused on utilizing nature's remedies and addresses the root causes of diseases, often offering long-lasting cures. Typically, patients treated with Ayurvedic methods not only recover but also gain lasting immunity. One of Ayurveda's key advantages over allopathic medicine is its exclusive use of natural healing methods, making it a more environmentally friendly approach to achieving sustainable health. The use

of prescribed Ayurvedic medicines is known to enhance concentration and other cognitive functions. Notable extracts such as *Bacopa monnieri* (brahmi), *Acorus calamus* (vach), and *Celastrus paniculatus* (jyotismati) are widely regarded as effective in improving mental health. While a comprehensive list of Ayurvedic plants and their potential to address brain-related disorders is provided in Table A, a few specific treatments for common mental conditions can be highlighted. For instance, depression, characterized by a sense of sadness that affects both mental and physical well-being, can be managed using herbal remedies containing ingredients like *Crataegus oxyacantha* (hawthorn), *Eschscholzia californica* (California poppy), *Ginkgo biloba*, and *Lavandula angustifolia* (lavender). Since Ayurveda focuses on addressing the root causes of illnesses by balancing the three energies—vata, pitta, and kapha—its treatments tend to provide long-lasting and irreversible results. This makes Ayurvedic medicine largely free from side effects, which contributes to its increasing acceptance over synthetic drugs, which primarily target symptoms and often offer only temporary relief with potential side effects.

## CONCLUSION

The allopathic and Ayurvedic medical systems operate based on distinct principles. Allopathic treatments focus on alleviating symptoms, whereas Ayurveda<sup>[19]</sup> aims to restore balance among the three vital energies (vata, pitta, and kapha) essential for maintaining health. As a result, there has been limited research directly comparing the effectiveness of drugs in treating brain-related conditions. Nevertheless, it is widely acknowledged that synthetic medications typically provide symptomatic relief but rarely offer a permanent cure. With over 60 million individuals in India affected by mental health issues, and the country falling behind globally in terms of mental health care spending and resources, it is crucial to explore well-established alternative treatments. In recent times, there is growing global interest in the brain-healing potential of traditional medicines like Ayurveda, which is considered a promising option with minimal or no side effects.

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