WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

A Review on Herbal Plants and their Parts Used in the Treatment of Neurological Disorders.

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ABSTRACT:-

Neurological disorders such as Alzheimer's, Parkinson's, depression, and anxiety are increasing globally, with a significant number of unreported cases due to social stigma, especially in India. Conventional Psychotherapeutics often come with serious side effects and poor patient compliance. In contrast, herbal remedies rooted in Ayurvedic tradition are gaining attention for their safety and efficacy. This review highlights the therapeutic potential of herbs like Ashwagandha, Brahmi, Shankhpushpi, Mandukparni, Amla, and Tulsi in treating various neurological and psychological disorders. These herbs have shown promising results in reducing stress, anxiety, and depression, while also enhancing cognition and mental performance. Herbal treatment offers a natural, effective alternative to synthetic drugs for managing neurological disorders.

Keywords: - Herbal Plant, Neurological disorder, Alzheimer, Parkinson's disease, Epilepsy. Etc.

INTRODUCTION: -

The increasing prevalence of neurological disorders such as Alzheimer's disease, Parkinson's disease, multiple sclerosis, depression, anxiety, and neuropathic pain has posed significant challenges to global health systems. These conditions often lead to long-term health complications and mortality, prompting researchers to explore natural remedies and plant-based treatments as alternatives or complementary therapies. In recent years, traditional medicinal plants have garnered attention due to their therapeutic potential, particularly for neurological conditions.

In the rural regions of Dhule, Nandurbar, and Jalgaon in Maharashtra, a variety of indigenous plant species have been traditionally used to manage symptoms related to neurological diseases. These plants, such as Ashwagandha (Withania somnifera), Tulsi (Ocimum sanctum), Guduchi (Tinospora cordifolia), Ginger (Zingiber officinale), and Turmeric (Curcuma longa), have been recognized in both local practices and scientific studies for their medicinal properties. Many of these plants contain bioactive compounds with neuroprotective, anti-inflammatory, antioxidant, and mood-stabilizing properties, which may provide valuable support in managing and preventing neurological diseases.

This research paper focuses on evaluating the medicinal efficacy of these plant products found in the Dhule, Nandurbar, and Jalgaon regions of Maharashtra, specifically targeting their potential role in managing neurological diseases. The research aims to investigate the pharmacological properties of these plants, their active compounds, and their impact on neurological health, potentially offering sustainable, low-cost, and accessible alternatives to synthetic drugs. As the burden of neurological diseases continues to rise, particularly in developing regions, it is crucial to explore natural, plant-based solutions that can complement conventional treatments and enhance therapeutic outcomes. By bridging traditional knowledge with modern scientific research, this study seeks to contribute to the growing body of evidence on the importance of plant-based medicines in addressing global health challenges, with a focus on neurological health in the Maharashtra region.

INTRODUCTION OF NEURILOGICAL DISORDERS:-

1. Epilepsy: -

Epilepsy is a neurological disorder characterized by recurrent seizures, which are sudden bursts of electrical activity in the brain. Seizures can vary in intensity and type, ranging from brief lapses in attention to violent convulsions. The causes of epilepsy are diverse, including genetic factors, brain injuries, infections, or abnormal brain development. In some cases, the exact cause is unknown. Common triggers for seizures include stress, lack of

sleep, flashing lights, or certain medications. Epilepsy can affect people of all ages and often requires long-term management with medication to control seizures. Early diagnosis and treatment are essential to improving the quality of life for individuals with epilepsy.

2. Parkinson's disease: -

Parkinson's disease is a progressive neurological disorder that primarily affects movement. It is caused by the degeneration of dopamine-producing neurons in the brain, leading to symptoms such as tremors, stiffness, slowness of movement, and balance problems. The exact cause of Parkinson's disease is not fully understood, though genetics, environmental factors, and aging are believed to play a role. Early signs include subtle tremors, difficulty with fine motor skills, and changes in facial expression. As the disease progresses, individuals may also experience cognitive decline, depression, and sleep disturbances. While there is no cure, medications and therapies can help manage symptoms and improve quality of life.

3. Anxiety:-

Anxiety is a mental health condition characterized by excessive worry, fear, or nervousness, often without a clear or immediate cause. Common symptoms include restlessness, rapid heartbeat, sweating, difficulty concentrating, and sleep disturbances. Anxiety can be triggered by stressful events, trauma, or certain health conditions, and it may also have a genetic or biological component. It can present in various forms, such as generalized anxiety disorder (GAD), social anxiety disorder, or panic disorder. While anxiety is a normal response to stress, when it becomes chronic or overwhelming, it can interfere with daily life. Treatment typically includes therapy, medication, and lifestyle changes to manage symptoms.

4. Psychiatric disorders: -

Psychiatric disorders are a group of mental health conditions that affect mood, thinking, behaviour, and emotional regulation. They include a wide range of conditions such as depression, anxiety disorders, schizophrenia, bipolar disorder, and personality disorders. Symptoms vary depending on the disorder but can include changes in mood, perception, cognition, and social behaviour. The causes of psychiatric disorders are complex and may involve a combination of genetic, biological, environmental, and psychological factors. These disorders can significantly impact an individual's ability to function in daily life. Early diagnosis and treatment, including therapy and medication, are important for managing symptoms and improving quality of life.

5. Alzheimer's disease:-

Alzheimer's disease is a progressive neurological disorder that primarily affects memory, thinking, and behaviour. It is the most common cause of dementia among older adults. Early symptoms often include memory lapses, such as forgetting recent conversations or events. As the disease advances, individuals may experience confusion, mood swings, and difficulty with language and daily tasks. The exact cause remains unclear, but factors like age, genetics, and abnormal protein deposits in the brain are believed to contribute. While there is no cure, treatments focus on managing symptoms and slowing progression. Recent advancements include medications like Leqembi, which have shown potential in slowing cognitive decline in early-stage patients. The disease typically progresses over several years, leading to increased dependency and requiring comprehensive.

NEED TO REVIEW PARTS OF PLANTS AND THEIR INTRODUCTION:-

(Ashwagandha, Brahmi, Capsicum, Garlic, Ginger, Turmeric, Tulsi, Mahua, Lemongrass, Neem, Coriander.)

1. Ashwagandha: - ***(Withania somnifera)***

Ashwagandha is a medicinal plant commonly used for its therapeutic properties, particularly in managing neurological disorders. It is known for its adaptogenic, neuroprotective, and anti-inflammatory properties, making it beneficial for conditions like anxiety, stress, and cognitive decline. The plant has a long history of use in traditional Ayurvedic medicine and is found in various dry regions of India, especially Madhya Pradesh, Rajasthan, and Gujarat. Ashwagandha is rich in bioactive compounds like withanolides, which contribute to its medicinal effects. It is often used in the form of powder or extract to support brain health and reduce neurological symptoms.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Ashwagandha **Withania Somnifera** **Family-Solanaceae**	In Ayurveda, the ancient hindu system of medicine Certain herbs are in a category of functional use called adaptogenic means the herbs has the reputation of helping the body to resist damage from physical and mental stressors. As part of overall rejuvenation therapy to revitalize bodily function. Traditional use in optimal aging herb that increases longevity, premot resistance to disease. This traditional knowledge forms the codified system of medicine and exists in the form of Ayurveda, Unam. Siddha and	Indian ginseng. winter cherry	Withanone, Withaferin A, Withanolide D,Withanolide, dried roots are mostely used to treat a variety of ailments. [1] The root extract contains steroidal lactones with ergostane include. withanolides. which withaferin, withanolide C	**Beverly Yates, N.D Sarkhel Sum ana**

	Swa-riga (Tibetan) system of medicine. Plants are used either single or in combination, as antidotes for snake envenomation by rural populations in India.		sitoindosides and about 0.2% alkaloids	

Reported pharmacological activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
analgesic activity, neuropharmacological activity	plant roots	methanol, ethanol and chloroform	100, 150 mg/kg of body weight oral	Acetic acid induced writhing, Open field test: Forced swimming test, FST	Adult Swiss albino mice	plant root has significant analgesic activity and neuropharmacological action	**Shahriar, M.2014**
Scopolamine-Induced Changes in the Brain and Brain-Derived Cells	leaves	alcoholic extract	Extract 300 mg/kg oral	amnesia in rodent model,	mice and its effect on the brain	induced memory loss may be associated with oxidative stress	**Konarl A,2011**
Antidepressant Activity o	roots	Aqueous	40 and 50 mg/kg of body weight	Forced-swim test	Swiss albino mice		**Bharathi P. 2015**
Parkinson's disease	root	Ethanolic extract	(50 and 100 mg/kg body weight	model for the extrapyramida	Swiss albino mice		**Swiss albino mice**
Effect of ethanol-induced anxiolysis and withdrawal anxiety in rats	root	ethanolic root extract	50-500 mg/kg, oral	gold standard' test,	Rat		**G Gupta 2008**
neurobehavioral disorders induced by brain oxidative stress in rodents: a systematic review and meta-analysis			(100 and 200 mg/kg		mice and rat studies		**BDhadde 2014**

2. Brahmi: - *(Bacopa monnieri)*

Brahmi is a medicinal plant commonly used for its therapeutic properties, particularly in improving neurological health. It is known for its cognitive-enhancing, neuroprotective, and antioxidant properties, making it beneficial for conditions like memory loss, anxiety, and neurodegenerative disorders. The plant has a long history of use in traditional Ayurvedic medicine and is commonly found in wet and tropical regions of India, including Kerala, Uttar Pradesh, and Bengal. Brahmi is rich in bioactive compounds like bacosides, which contribute to its medicinal effects. It is often used in the form of extracts, powders, or syrups to support brain function and mental clarity.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Bramhi **Bacopa monniera**	A traditional Ayurvedicplant, used for centuries as a memory enhancing, anti-inflammatory analgesic, antipyretic, sedative and antiepileptic agent used by	Jalnaveri. jalanimba, sambranichitt u, bacopa	The isolation of D-mannitol and a saponin, hersaponin and potassium salts, triterpenoidsaponins, pseudojujubogening) ycoside, Bacosaponin A. Bacosaponin	**Srivastava Shikhal Mishra Nidhil. Misra Upama** **Ram Prakash**

Family- **Scrophulariaceae**	tribal communities in this Himalayan region. Our traditional systems of medicines, for primary health care viz., Ayurveda, Yunanı Siddha and Homeopathy etc. use herbs for treatment. leaves, used as alterative tonic diuretic, blood purifier and antiphlogistic. Also called Brahmi, a name derived from Brahma, the creator God of the Hindu Pantheon. e Indian traditional memory enhancing herbs.		B. BacosaponinC,. Bacopaside 11. Bacopaside IV Bacopaside V, Bacopasa ponin D. Bacopasaponin G	**Natthawut Charoenphon,** **Nanthida** **Anandsongvitl**

Reported pharmacological activities	**Part used**	**Extract or** **Phytoconstit-uent's**	**Dose** **and route**	**Animal model**	**Experimental** **animals**	**Conclusion**	**References**
Nephroprotective effect of Brahmi Ghrita	leaves	Alcoholic extract	400 & 800 mg/kg body weigh			BrahmiGhrita decreased Serum Urea as well as Serum creatinine in dose dependent manner but did not show adverse effect on Haematological parameters	**Yadav** **K. 2015**
Vglutl Density in the Prefrontal Cortex, Striatum, and Hippocampus of Sub-Chronic Phencyclidine Rat Model of Schizophrenia			40 mg/kg/day of Brahmi daily Oral		Thirty-six male Wistar rats	Cognitive deficit observed in PCP-administered rats was mediated by VGLUTI reduction in prefrontal cortex, striatum, CAL and CA2/3 Interestingly, Brahmi could recover this cognitive de fi cit by increasing VGLUTI in CAI and CA2/3 to normal	**Pritsana Piyabha nP2013**
Alterations Of Cholinergic Neurotransmi Ssion In Rotenone Induced Parkinson's Disease Protective Role Of Bacopa Monnieri	plant material was collected and shade Dried to powder.	95% ethanol (200 ml)	10 mg/kg/day orally	One way ANOVA (F value) was used to test	male Wistar rats weighing 150±25g		**Gunduluru S2013**

Protective Effects of Bacopa Monnieri on Hydrogen Peroxide and Stauro-sporine Induced Damage of Human Neuroblastoma SH-SYSY Cells					In prepubertal male mice		**Maciej L** **ojewski 1**
Neuroprotective effect of Bacopamonniera on memory deficits and ATPase system in Alzheimer's disease (AD) induced mice		95% methanol for 2 days at room temperature	90mg/kg body weight	Morris water maze test:	Male albino mice		**Kunte,k 2013**

3. Capsicum: - *(Capsicum annuum)*

Capsicum commonly known as chili pepper, is a medicinal plant known for its therapeutic properties, including its use in managing certain neurological conditions. It possesses analgesic, anti-inflammatory, and neurostimulant properties, making it helpful in relieving nerve pain and improving circulation in neuropathic disorders. Traditionally used in various systems of medicine, Capsicum is widely cultivated in regions of India like Andhra Pradesh, Karnataka, and Maharashtra. It is rich in capsaicin, a bioactive compound responsible for its medicinal effects. Capsicum is often used in the form of topical creams or patches to manage neuropathic pain and improve nerve function.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Capsicum **capsicum annuum** **Family-Solanaceae**	Capsicum species are cultivated as vegetable and also they are used as condiment crops. The chilli variety is indigenous to the Northeast region of India and it is an important crop of the Northeast India. It has also been used conventionally treating various human ailments since time immemorial by the indigenous people of the Northeast India. Capsicum species have been widely used in Northeastern states of India for the treatment of various ailments such as Capsicum annum fruits are used for griping pain of the stomach and roots are used in asthma Capsicum frutesens leaves paste	Red chililli chilli peppers	Capsaicin, Capsicum oleoresins contain a complex mixture of essential oils, waxes, coloured (mainly materials capsanthin, capsorubin, zeaxanthin, cryptoxanthin, lutein), and Severalcapsaicinoids, Capsaicinoids, non-volatile alkaloids, are acid amides, vanillylamine, All hot pepper fruits utilized in this study were produced at the Horticultural Ex perimentStation. Non-ivamide, Nordihydrocapsaicin, Dihydrocapsaicin, Nvanillyldecanamide Homocapsaicin I, Homocapsaicin II, Homodihydrocapsaicin I,	**BaruahSang** **ceta Zaman. K.Plazapriyal ajbongphi 2014**

	are applied locally on joints, fruits are used in the treatment of tonsillitis, ulcer and dysentery.		Homodihydrocapsaicin II, vanillylamine with C9-C12 branched chain fatty acid. Capsaicin dihydrocapsaicin and together constitute more than 80% of total capsaicinoids content of capsicum	

Reported pharmacological activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Analgesic effects of Capsicum frutescens Linn. (Solanaceae) fruit aqueous extract in mice	Capsicum fruit	Aqueous exrtact	doses0.5-8 mg/Kg	hot plate test Method	mice (20-30 g body weight) of both sexes	human uses in intractable pain from sports injuriescancer management, and other forms of acuteor chronic pain	**Jolayemi A.T 2014**

4. Garlic: - *(Allium sativum)*

Garlic (Allium sativum) is a medicinal plant commonly used for its therapeutic properties, including benefits in neurological health. It is known for its antioxidant, anti-inflammatory, and neuroprotective properties, making it useful in managing conditions like neurodegeneration, cognitive decline, and neural inflammation. With a long history in traditional medicine, garlic is widely cultivated across India, especially in states like Madhya Pradesh, Gujarat, and Rajasthan. It contains bioactive compounds such as allicin, which contribute to its medicinal effects. Garlic is often consumed raw, cooked, or in extract form to support brain health and protect against oxidative stress.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Garlic **Allium sativum** **Family- Alliaceae**	It was used by Greek physicians Hippocrates and Galen to treat intestinal and extra-intestinal diseases. In India, it was used to treat common colds, hay fever and asthma. Garlic is nicknamed as Russian penicillin for its widespread use as a topical and systemic antimicrobial agent; it is commonly used in many cultures as an excitement and reputation of healing power.	Lahsun garlic Russian penicillin	Garlic contains at least 33 sulfur compounds, several enzymes and the minerals germanium, calcium, copper, iron, potassium, magnesium, selenium and zinc. vitamins A. Bl and C fiber and water. contains 17 amino acids to be found in garlic lysine. Histidine, arginine, aspartic acid threonine, glutamine. glycine, cysteine, swine, proline, alanine, valine, methionine, tsoleucine, leucine, tryptophan and phenylalanine allicin (diallylthiosulfinate or diallyldisulfide).	**Gebreselema Gebreyohann esGebreyohan nes Mebrahtu**

Reported pharmacologic al activities	**Part used**	**Extract or phytoconstitu ent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Evidences for the involvement of monoaminergic and GABAergic systems in like activity of garlic extract in mice antidepressant	Garlic extrac	Ethanolic extract	25, 50 and 100 mg/kg orally	antidepressa nt-like activity was evaluated employing suspension test (TST) and forced swim test (FST)	Male albino mice	antidepressant-like activity probably by inhibiting MAO-A and MAO-B levels and through interaction with adrenergic, dopaminergic, serotonergic and GABAergic systems	**Dhingra, D 2008**
Alzheimer and Parkinson. extracts garlic on depression induced by reserpine in rat	roots	hydro - alcoholic extract	150 and 200 mg doses in early days intra peritone all YIP		Forty two Sprauge Dawley rats with weight average of 200 -250 grams	Depression was made in rats by reserpine. First on the basis of previous experiments 18 5mg kg of thisdrug was used	**Hashemi H 2009**
Learning and memory promoting effects of crude garlic extract	crude garlic extract Lasuna	dissolved in water	40 mg/kg/d ay for 21 day oral administ ra tion	step down latency (SDL). transfer latency (TL)	Swiss albino mice (25-30 g)		**Mukherj ee. D 2013**

5. Ginger: - (Zingiber officinale)

Ginger is a medicinal plant commonly used for its therapeutic properties, including its role in supporting neurological health. It is known for its anti-inflammatory, antioxidant, and neuroprotective effects, making it beneficial in conditions like neurodegeneration, cognitive impairment, and migraines. Widely used in traditional medicine, ginger is cultivated in several parts of India, particularly in Kerala, Karnataka, and Northeast regions. It contains bioactive compounds like gingerol and shogaol, which contribute to its medicinal effects. Ginger is often used in the form of fresh root, powder, or extract to help manage neurological symptoms and enhance brain function.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacul ar name**	**Chemical constituent. part and chemical**	**References**
Ginger **Zingiber officinale** **Roscoe** **Family - Zingiberacea**	Ginger is known as Sunthi In Ayurveda and description of the plant appears in the old text like Charaka, Sushruta, Vagbhata and Chakra-dutta. (Malhotra& Singh, 2003) The use of drug is mentioned in form of Trikatu a famous Ayurvedic remedy for the treatment of digestive disorders In Ashtanga. Hridaya the plant has been used	Sunthi, Adrak	The volatile oil components consists mainly of sesquiterpene hydrocarbons, zingeberene, curcumene andfarneseneZingiberol, zingiberene phellandrene linalool. and Non-volatile pungent compounds include gingerols. shogaols, paradols and zingerone Paradol is similar to gingerol and is formed from hydrogmation of shogoal zingerunc, gingerdiol, zingibrene, gingerols and shogaols, are known to possess anti-exidant activities.	**Shakya 2015 S**

	in RasnaSaptak Quath. (a decoction based on seven medicinal herbs), and a traditional remedy of arthritis Pharmacologically, the drug in Ayurveda has been described as appetizer It is also indicated in ointment form for local application in pains.			

Reported pharmacologic al activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Modulation of Disorders in Excitatory and Inhibitory Neurotransmitter Metabolism Related to Ethanol Withdrawal Can Be Achieved with Ginger Extract Administration	ginger roots, rhizomes	Ethanol, distilled water	(200 mg/kg body weight) Via Intra	statistical Analysis System (SAS)	Wistar strain male albino rats (3 months old)	Neuronal hyperexcitibility during ethanol withdrawal, which may in the future fead to the development of new therapeutic strategies for the treatment of neurological disorders that involve disturbances	**Marella $2012**
Anti-tumour promoter activity in Malaysian ginger rhizobia used in traditional medicine	rhizomes	petroleum ether, chloroform and ethanol solvents					**Vimala S 1998**
Alzheimer's Disease	ginger rhizomes extract	Aluminum chloride, sodium chloride, Tris HCI, sucrose and ginger rhizomes oil	orally administer ed 100 mg/kg of ginge		Seventy male Wistar rats		**Ahmed H 2014**
Dementia and Alzheimer Diseas	Rhizome	acetycholinesteras e (AchE)	(108 and 216 mg/kg/day) Orally	behavioral stress tests, Rotarod and T Maze tests	90 Male rats	This study revealed that the treatment of AD-induced rats with Rivastagmine, and Ginger significantly ameliorates theneurodegenera tion characteristic of Alzheimer's diseases in rats	**Mahdy K 2014**
To Investigate The Effects Of Ginger-Juice (Zingiber Officinale Roscoe) On Cns (Locomotor Activity) Parameters In Rat	ginger juice					Ginger-juice ute and chronic administered did not aff ect loco motor activity	

6. Turmeric: - ***(Curcuma longa)***

Turmeric is a medicinal plant commonly used for its therapeutic properties, including its effectiveness in neurological health. It is known for its strong anti-inflammatory, antioxidant, and neuroprotective effects, making it beneficial in conditions like Alzheimer's disease, depression, and cognitive decline. Traditionally used in Ayurvedic medicine, turmeric is widely cultivated in India, especially in states like Andhra Pradesh, Tamil Nadu, and Maharashtra. It contains curcumin, a powerful bioactive compound responsible for its medicinal effects. Turmeric is often used in the form of powder, paste, or extract to support brain function and reduce neurological inflammation.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Turmeric **Curcuma longa** **Family-Zingiberaceae**	Traditional use of turmeric is as a food colorant and dye for cloth. Marco Polo refers to turmeric as Indian saffron used for dying cloth. Used orange-yellow dyes to make useful in disinfecting cuts and burns. Anti-inflammatory.	yellow ginger, saffron or turmeric root	Turmeric contains carbohydrates, protein. fat, minerals, The essential oil possesses Sesquiterpenes (53%), zingiberene (25%). a-phellandrene sabinene, cineol, andborneol, (0.5%), Curcumin (3-4%) is responsible forthe yellow colour, and curcumin 1 (94%), curcumin 11 (6%) and curcumin III (0.3%) Presence of tumerone a, tumerone curzerenone, curdione, contain b, linalool, caryophyllene, geraniol, a-pinene, B-pinene, myrcene, sabinene, a-phellandrene, 1,8-cineole, p-cymene, C8-aldehyde, and methyl heptanone contain caryophyllene, linalool, geraniol, a-pinene, ß-pinene, myrcene, a-phellandrene, sabinene, 1,8-cineole, p-cymene, C8-aldehyde, and methyl heptanone.	**Debjit Bhow mik Chiranjib K Sampath P** **Nasril Hamid,** **SahınfardN ajmeh,** **RaficianMo rtaza. -2014**

Reported pharmacologic al activities	**Part used**	**Extract or phytoconstit uent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Metformin like Stress Response Modulating Effects of turmeric Curcuminoids in Mice A Potential Role of the Curry Spice Curcumin in Alzheimer's Disease	Rhizome, or root of the plant.	demethoxycur cu min, bisdemethoxy cur-cumin, and cyclocurcumi n), it composes a yellow pigment that is poorly soluble in water	(400 mg or 3.6 mmol/kg body weight orally		In rats	In addition, studies in animal models of AD indicate a direct effect of curcumin in decreasing the amyloid pathology of AD	**Ringman M 2005**
Neuroprotective actions of curcumin	fresh rhizome						**M Villar 2010**

Neuroprotective Role of Curcumin from Curcuma Longa on Ethanol-induced Brain Damage	fresh rhizome	Ethanolic extract	Oral administration of curcumin to rats	Histopathological changes inbrain of control, alcohol and alcohol curcumin treated rats	Neuroprotective Role of Curcumin from Curcuma Longa on Ethanol-induced Brain Damage 150-170g	The levels of TBARS, cholesterol phospholipid and free fatty acids were increased significantly in the brain after alcohol treatment	**Rajakris hnan V 2006**.

7. Tulsi: - ***(Ocimum sanctum)***

Tulsi also known as Holy Basil, is a medicinal plant commonly used for its therapeutic properties, including its role in promoting neurological health. It is known for its adaptogenic, anti-inflammatory, and neuroprotective effects, making it beneficial in managing stress, anxiety, and cognitive dysfunction. Widely used in traditional Ayurvedic medicine, Tulsi is cultivated across India, particularly in Uttar Pradesh, West Bengal, and Madhya Pradesh. It contains bioactive compounds like eugenol and ursolic acid, which contribute to its medicinal benefits. Tulsi is often consumed as herbal tea, juice, or extract to support mental clarity and reduce neurological stress.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Tulsi **Ocimum Sanctum** **Family- Labiatae**	Different parts of plant are used in ayurveda and siddha systema of medicine for prevention and cure common cold, headache, cough flu, earache, and fever. Colic pain sore throat. Bronchitis, asthma, hepatic diseases, malaria fever, as an antidote for snake bite and scorpion sting. Flatulence. Migraine headaches, fatigue, skin diseases, wound. Digestive insomnia. arthritis, disorders, night blindness, diarrhoea and influenza	Tulsi	The leaf of OS contains 0.7% volatile oil71% cugenol and 20% methyl cugenol.oil also contains carvacrol and sesquiterpene caryophyllene, leaves and stem of extract some phenolic cirsilineol, circimaritin isothymusin, Two flavonoids, orientin and from extract VIZ vicenin aqucous leaf isolated ursolic acid apigenin, apigenin-7-0 luteolin, glucuronide, luteolin-7 Oglucuronide, hydrocarbon compounds such as also contains a number of cholesterol. sesquiterpenes and monoterpenes bonyl acetate, neral o and a-elemene, B-pinenes, camphene, campesterol stigmasterol and B sitosterol.	**Singh Ekta** **Sharma Sheel.** **Dwivedi Jaya and Sharma Swaptral**

Reported pharmacological activities	**Part used**	**Extract or phytoconsti tuent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Antipsychotic Potentials of Ocimum sanctum Leaves	leaves of Ocimumsa n ctu	Aqueous extract	200 mg/kg) oral	Head Bobbing Behavior of Mice, Ataxia Behavior of Mic, Weaving Behavior of Mice	Male Wistar rats (180-220 g) and albino mice (25-30 g)	the blockade of dopamine neurotransmissio n In the present study, administrationof OCLP in a specially prepared diet for 15 successive days in different c oncentrations showed significant (P<0.05, P <0.01) dose dependent potentiating of haloperido induced catalepsy	**Kadian R 2015**

Reported pharmacological activities	**Part used**	**Extract or phytoconstit uent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Antihypertensive, CNS Depressan, antitumour	leaves	alcoholic extract of leaves	210 mg/kg)Or al			Tulsi has been widely used for curing various ailments due to its great therapeutic potentials A number of pharmacological effects like antistress, anti-hypertensive, CNS depressant, radioprotective, antitumour	**Kumar S 2006**
A Review on Antianxiety Plants	leaves	Ethanolic extract	(8.0 mg/kg. 10.0 mg/kg or 12.0 mg/kg	Head Bobbing Behavior of Mice, Ataxia Behavior of Mic, Weaving Behavior of Mice	reduced conflict behaviour in female Wistar rats	plants are yet to be evaluated clinically and active constituents from most of these plants need to be isolated to establish them as potential antianxiety plants	**Gilhotra N.2008**

8. Mahua: - ***(Madhuca indica)***

Mahua is a medicinal plant traditionally used for various therapeutic purposes, including support for neurological health. It is known for its antioxidant, anti-inflammatory, and neuroprotective properties, making it beneficial in managing stress-related disorders and neurodegeneration. Widely found in central and eastern India, especially in states like Chhattisgarh, Jharkhand, and Odisha, Mahua has a long history of use in tribal and Ayurvedic medicine. It contains bioactive compounds such as saponins and flavonoids that contribute to its medicinal effects. Mahua is often used in the form of oil, extracts, or decoctions to help nourish the nervous system and promote brain health.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Mahua **Madhuca Mongifolia** **Family-Sapotaccac**	The bark of Madhucalongifoliais used for Rheumatism, chronic bronchitis, decoction for rheumatism, bleeding and spongy gums.It is a good remedy for itch, swelling, fractures and snake bite poisoning, internally employed in diabetes mellitus, fruits are astringent and largely employed as a lotion inchronic ulcer, in acute and chronic tonsillitis and pharyngitis. The seeds cake is used as antiinflammatory, antiulcer and in hypoglycemic activity. Bark of Madhucalongifolia is very useful for the treatment of diabetes, rheumatism bleeding spongy gum ulcer and tonsillitis. The leaves play a very important role for wound healing. hepatoprotective, antioxidant, antimicrobial, astringent,stimulant, emollient, demulcent, Rheumatism, piles, nutritive, verminosis, gastropathy, dipsia, bronchitis, derma topathy, cephalgia, hemorrhoids and cushing's disease. The roots of Madhucalongifolia have Antipyretic, antunflammatory properties. Internally roots are used in phthisis and scrofula,the root powder is useful in diarrhea and other chronic fluxes. The root have antioxidant activity and also given in debility.	Mahuha, Mahua, Mahu da.etc	Leaves Dglucoside, stigmasterol, Bcarotene, xanthophylls, erthrodiol,palmitic acid, myricetin, Bark Ethylcinnamate, sesquiterene alcohol, aterpeneol, 3ß monocaprylic ester of eythrodiol 3ßcapryloxy oleanolic acid. aand ß amyrın acetates. Seeds Myrisic, palmitic and stearic acids, aalanine, aspartic acid, cystine, glycine, isoleucine and leucine, lysine, methionine, serine, proline, threonine, myricetin, quercetin, Misaponın A, saponin B, arachidic, linolelic, oleic Fruits hexacosanolquercetin and dihyroquercetin, ßsitosterol and 3ßDglucoside, a and ß amyrin acetates Flower Vitamins A & Vitamins C	**Verma N 2014**

Reported pharmacologic al activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Neuropharmcolog ical potential of methanolic extract and a triterpene isolated from Madhucalongifoli leaves in mice	dried leaves	Petroleum ether (40-60°C).chloroform, methanol and water	(10 mg/kg and 2 mg/kg) oral route respectively	marble burying test and Eddy's hot plate method	Mice	The present study reports CNS depressant effect of MLME and dMA in mice	**Inganaka IT 2012**
Investigation into the Mechanism of Action of Madhuca longifolia for its Anti-epileptic Activity	Dried Leaves	Shade dried heart wood was powdered and extracted by Soxhlet-apparatus Female ICR Mice (25-30 g)	dose of 400 mg/kg	S.E.M. and tested with one-way ANOVA	Female ICR Mice (25-30 g)	It appears that Madhucalongifolia may be useful for the treatment of absence seizures and that these effects may be related to its effect on GABAergic and opioid systems	**Patel S2 011**

9. Lemongrass: - ***(Cymbopogon citratus)***

Lemongrass is a medicinal plant known for its therapeutic properties, including benefits for neurological health. It is recognized for its anti-inflammatory, antioxidant, and calming effects, making it useful in managing stress, anxiety, and neurodegenerative conditions. Traditionally used in various forms of alternative medicine, lemongrass is cultivated in tropical regions of India, particularly in states like Kerala, Tamil Nadu, and West Bengal. The plant contains bioactive compounds like citral, which contribute to its neuroprotective and cognitive-enhancing effects. Lemongrass is commonly used in the form of tea, oil, or extracts to support brain function and reduce neurological stress.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Lemon grass **Cymbopogon citratus** **Family- Gramineac**	As a medicinal plant, lemongrass has been considered a carminative and insect repellent. Lemongrass is used in herbal teas and nonalcoholic beverages in other baked goods, and in confections Oil from lemongrass is widely used as a fragrance in perfumes and cosmetics, such as soaps and creams. Citral, extracted from the oil, is used in flavoring soft drinks in scenting soaps and detergents, as a fragrance in perfumes and cosmetics, and as a mask for disagreeable odors in several industrial products.	Gavati Chaha	Essential oils the chemical composition of the essential oil of C. citratus varies according to the geographical origin, the compounds as hydrocarbon terpenes, alco hols, ketones, esters and mainlyaldehydes have constantly been registered [21,22] The essen tial oil (0.2 to 0.5%, West Indian lemon grass oil) consists of mainly citral [23]. Citral is a mi xture of two stereoisomericmonterpe ne aldehydes, the trans isomer geranial (40 to 62%) dominates over the cis isomerneral (25 to 38%) 1 Triterpenoids Isolated and identified new tripernoids from leaf w ax namely cymbopogone and cymbopogonol.	**Kumar R 2010**

Reported pharmacological activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
The GABA adrenergic system contributes to the anxiolytic-like effect of essential oil from Cymbopogon citratus (lemongrass)	Leaves of Cymbopog on citratu	Essential oil extraction	100, 150 mg/kg oral	Dark box (LDB) and marble-burying test (MBT), forced-swimming. Rota-rod test (RRT)	Mice	Was studied Skeletal muscle relaxant or central nervous system depressant	**Celso A.2011**
Evaluation of In Vitro anthelmintic activity of Cymbopogon citratus (lemon grass) extract	grass tea	5% concentration (5 grams of weighted lemon grass tea added in 100 ml of distilled water)	oral	Swimming, rota -rod test	Swiss male mice 30 min before experimental procedure	showed anthelmintic activity and could be apply as an effe ctive agent in future after further exploration	**Khan S 2013**

10. NEEM: - ***(Azadirachta indica)***

Neem is a medicinal plant widely recognized for its therapeutic properties, including its role in supporting neurological health. It is known for its anti-inflammatory, antioxidant, and neuroprotective effects, which make it beneficial for conditions such as neurodegeneration, cognitive decline, and stress-

related disorders. Neem is native to the Indian subcontinent and is commonly found in regions like Rajasthan, Uttar Pradesh, and Tamil Nadu. The plant contains bioactive compounds such as azadirachtin, which contribute to its medicinal effects. Neem is often used in the form of leaves, oil, or extracts to support brain health and reduce inflammation in neurological conditions.

Plant name with family	Traditional use, ethno Botanical Reports	Vernacular name	Chemical constituent. part and chemical	References
Neem **Azadirachta indica.** **Family-Maliaceae**	**Hair care:** A decoction prepared of the leaves of neem is used as a head wash to remove premature greying of hair, hair loss, lice infestation and dandruff. **Conjunctivitis:** Juice of neem leaves (5-10 ml) is warmed slightly and applied as eye drops. Fresh juice is prepared by grinding fresh leaves and squeezing it through a double folded cotton cloth. **Ear drops:** Juice of neem leaves (5 ml) and equal quantity of honey when mixed well and instilled as car drops, reduces oozing from the ear and also removes Inflammation. However, if the oozing persists and is painful and foul smelling, expert guidance should be sought. **Jaundice:** Juice of neem leaves (15-30ml) and half the quantity of honey is taken on an empty stomach for seven days. Stomatitis: For infantile stomatatis 10-15 dry neem leaves along with 5 gm of Pippali (long pepper) and honey should be ground and applied on the tongue. **Worms:** The juice of neem leaves (10 ml) along with honey and asafoetida powder (5 gm) remove intestinal worms in children. Stomach problem 5 gm of dried neem flowers mixed and fried with 5gm each of rock salt, old tamarind, chillies and curry leaves is prepared into chutney and given in conditions such as vomiting, anorexia, sour belching and worms. **Urinary stones:** Kshara or ash is prepared by burning the dry neem leaves in an earthen pot. The ash is mixed well with water and allowed to stand st ill for 24 hours. The sediment is used as kshara after filtering the water out.	Nimb	Nimbinl, Nimbidin Nimbidol Gedunin Sodium nimbinate Queceretin Salannin Azadirachti	**R.L.Bhardwa**

Reported pharmacological activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Analgesic and Anti-inflammatory Activity of Various Fractions of Azadirachtaindica Leaf in Experimental Animals	leaf	Alcoholic extract	100 mg/kg body weight	Hot plate method. Tail flick method	Adult albino rats (150-200 g)	Since the plant extract reduced significantly the formation of oedema induced by carrageenan as well as reduced the number of writhes in acetic acid induced writhing models the Azadirachtaindica	**Dind A Dasi D 2013**

11. Coriander: - *(Coriandrum sativum)*

Coriander is a medicinal plant known for its therapeutic properties, including its benefits for neurological health. It is recognized for its antioxidant, anti-inflammatory, and neuroprotective effects, making it helpful in managing conditions like cognitive decline, stress, and anxiety. Traditionally used in various forms of medicine, coriander is widely cultivated in India, particularly in states like Rajasthan, Gujarat, and Punjab. The plant contains bioactive compounds such as linalool and geraniol, which contribute to its medicinal effects. Coriander is commonly used in the form of seeds, powder, or extracts to support brain function and promote mental clarity.

Plant name with family	**Traditional use, ethno Botanical Reports**	**Vernacular name**	**Chemical constituent. part and chemical**	**References**
Coriander **Coriandrum sativum L.** **Family- Umbelliferae**	Traditionally powder seed is used for worm in children. The juice of leave is used externally for allergies rashes And internally for allergic rhinitis.	kothembir	Volatile oil corandrol. limonene, p-cymene Flavonoide, Coucoumarines	**Pathan A R 2011**

Reported pharmacological activities	**Part used**	**Extract or phytoconstituent's**	**Dose and route**	**Animal model**	**Experimental animals**	**Conclusion**	**References**
Anxiolytic & analgesic effect of seeds of coriandrumsativuml inn	Seeds	Dried under shade and crushed into coarse powder. Coare powder was extracted by cold maceration method at room temperature (24-26°C) using methanol:wat(1:1)	(50,100,200 mg/kg, i.p.)	plus-maze as an animal model of anxiety, Locomotor activity, Muscle Relaxant activity, Hot plate method	male albino mice	The Anxiolytic effect, percent of open arm entries and time spent in the open arm are sensitive to agents thought to act via the GABAA receptor complex	**Pathan R 2011**

CONCLUSION: -

Based on a comprehensive review of various research studies, it is evident that herbal medicine holds significant potential in the treatment and management of neurological disorders. Traditional medicinal plants have been used for centuries to support brain health, and modern scientific research is beginning to validate many of these practices. Herbs such as Ginkgo biloba, Bacopa monnieri, Curcuma longa (turmeric), and Withania somnifera (Ashwagandha) have demonstrated beneficial effects including neuroprotection, anti-inflammatory activity, antioxidant properties, and cognitive enhancement. These findings suggest that herbal medicines may offer safer, more natural alternatives or complements to conventional pharmaceuticals, which often come with side effects and long-term use concerns. While synthetic drugs remain the primary treatment for conditions such as Alzheimer's disease, depression, epilepsy, and Parkinson's disease, the integration of herbal remedies may enhance therapeutic outcomes and improve patients' quality of life. The convergence of data from multiple studies indicates that, when used carefully and under proper guidance, herbal medicine can play a valuable role in brain health management. However, to ensure safety and effectiveness, further research is required to standardize dosages, understand mechanisms of action, and evaluate potential interactions with conventional drugs. In conclusion, herbal medicine represents a promising and growing area in the field of brain disorder treatment. Continued scientific exploration, clinical trials, and regulatory oversight will be essential to support its integration into modern healthcare practices.

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