Synthetic & Herbal Drugs are Used in the Treatment of Epilepsy: A Critical Review

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ABSTRACT

Epilepsy is a chronic neurological disorder affecting millions worldwide, characterized by recurrent seizures. Despite advancements in pharmacotherapy, a significant portion of patients remain refractory to conventional antiepileptic drugs (AEDs) like Clonazepam, Diazepam, and Lorazepam. This critical review examines the efficacy and safety of both synthetic and herbal drugs in the management of epilepsy. Synthetic AEDs have been the cornerstone of treatment, offering various diseases like Alzheimer's, Parkinson's disease, etc. When it comes to treating epilepsy, traditional herbal therapy is important. At the same time, herbal medicine is commonly used like Common Grape (Flavonoids), Sweet Thorn (Phenolic Acids), And Onion (Alkaloids) to cure epilepsy. Furthermore, a thorough examination of the herbal remedy should be based on data. To provide an overview of the impact of herbal medication on epilepsy, we have included this review. Still, the research that is now accessible has examined hundreds of herbal remedies. Anticonvulsants inhibit the swift neuronal firing that occurs during seizures. Anticonvulsants also stop seizures from propagating throughout the brain. Traditional antiepileptic medications can either increase GABA activity or block sodium channels. Result In this review I have studied 300 herbal medicinal plants for treating epilepsy. They consist of various phytoconstituents with an effective role in curing epilepsy. **Conclusion** The treatment landscape for epilepsy is evolving, with increasing recognition of the potential benefits of incorporating herbal medicines. The traditional AEDs remain essential in seizure management, herbal remedies offer complementary options that may address some of the limitations associated with synthetic drugs. And there are three inducing models of epilepsy. Chemical model, Genetic model, and Electrical Stimulation model.

Keywords: Neurological disorder, epilepsy, seizures, herbal drugs, GABA

INTRODUCTION

Most drugs that affect the Central Nervous System (CNS) act by alternating steps in the neurotransmission process. Drugs affecting the CNS may act presynaptically by influencing the production storage release of termination of action neurotransmitter agents may activate or block post-synaptic receptors. This article provides an overview of CNS.**[1]** These concepts are focused on the etiology and treatment of neurodegenerative disorders that respond to drug therapy.CNS diseases are included. Parkinson's disease (PD), Alzheimer's disease (AD), Multiple sclerosis (MS)Amyotrophic lateral sclerosis (ALS), Epilepsy**.[2]**

Epilepsy:-A class of CNS diseases known as epilepsies is characterized by paroxysmal cerebral dysrhythmia, which appears as brief occurrences (seizures) of unconsciousness or confusion, with or without detectable seizure-like movements of the body, sensory, or mental states. Neurons fire excessively and synchronize excessively during periods of epilepsy. This prevents the affected brain regions from operating normally, which results in the clinical signs and symptoms unique to that type of epilepsy. A seizure is a convulsive episode that begins with abnormal, excessive hyper-synchronous discharges from a cluster of neurons in the brain. Partial seizures involve recruiting neighboring neurons to comprise a specific area of the brain, while generalized seizures may impact nerve cells throughout the brain. **[3,4,5,6]**

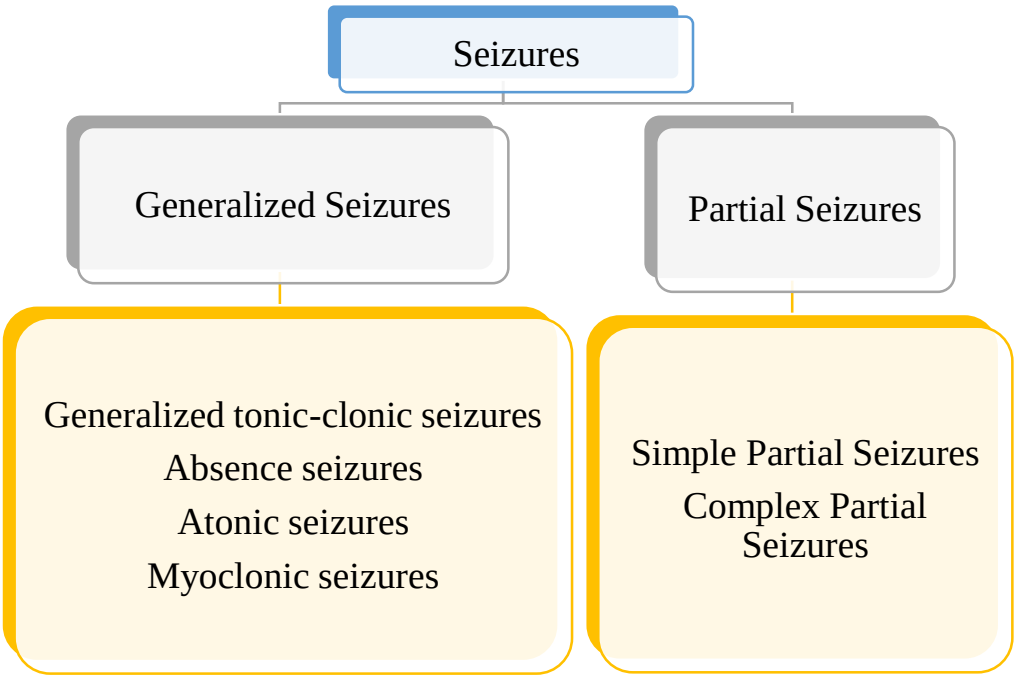
About 70 million people worldwide suffer from lifelong epilepsy, making it the most prevalent chronic neurological disorder.**[7]**

The initial identification of phenobarbital in 1912 marked the beginning of modern epilepsy treatment. Another significant development was the discovery of phenytoin in the late 1930s, which was made feasible by developing animal models with antiseizure efficacy. Comparable models were also crucial in the later creation of numerous other antiseizure drugs (ASDs). Nowadays, there are over thirty medications in the pharmacological toolbox to treat epilepsy. Due to the differences in these medications' pharmacokinetics, effectiveness, and adverse effect profiles, there are never-before-seen chances to customize treatment plans to meet specific demands. **[8,9,10,11]**

The categories of genetic, structural, infectious, immunological, metabolic, and unknown have been used for the known causes of epilepsy.Treatment for epilepsy, particularly combining Western and Chinese medicine,is receiving more attention. Perhaps more preferred. On the one hand, etiological, pharmacological, and surgical treatments for epilepsy in Western medicine can be broadly classified as levetiracetam and phenytoin sodium carbamazepine.**[7]**

However, it has been noted that natural medications are crucial in the clinical management of epilepsy. Several studies have documented how natural medications can treat epilepsy through different methods, with superior results.**[12,13]**

Epilepsies can be classified into various major types.**[2,4,14]**



The causes and symptoms of epilepsy:-

Multiple factors can contribute to epilepsy, including severe brain injury, infections of the brain, stroke, neurological diseases, brain tumors, developmental disorders, injuries sustained during pregnancy and after delivery, adverse drug reactions, etc. The location of the brain's abnormal neuronal activity determines where epileptic symptoms originate. Moreover, epilepsy can lead to psychological issues including anxiety and sadness as well as cognitive impairments.**[15-19]**

Etiology of epilepsy:-

The most prevalent causes of epilepsy change with age. The most prevalent reasons in children include congenital abnormalities, stroke, and genetic risk. In young adults, infections, tumors, scarring, and traumatic

brain injury become important causes. The most prevalent causes of stroke, are neurodegenerative illness, and cerebrovascular disease in older adults**. [8,20]**

Pathophysiology of Epileptic Seizures:- [8,21]

GABA and glutamate are two neurotransmitters that have been extensively studied related to with epilepsy.

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Because GABA is an inhibitory neurotransmitter, it contributes significantly to the development of seizures. Epileptic seizures are caused by a decrease in chloride conductance, which is a result of a reduction in GABA-ergic transmission.

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However, elevated glutamate levels, an excitatory neurotransmitter, may cause potassium and sodium ion channels to open, prolonging the depolarization state.

When prescribing antiepileptic drugs (AEDs), it is important to consider the frequency of adverse effects (AEs) as some of the most effective seizure therapies come with a certain level of toxicity. Patient compliance with medication throughout their lifetime is crucial for successful treatment, and patient tolerability is a significant factor in managing epilepsy. Adverse event profiles are often utilized to predict drug retention rates. Adverse events associated with AEDs can vary from mild to severe, and even potentially life-threatening side effects.Phenobarbital was the first antiepileptic drug (AED) to be introduced in 1912 and is the only one whose discovery was not linked to animal seizure experiments. As a result, an increasing number of antiepileptic drugsphenytoin, carbamazepine, and valproateas well as eventually newer and more advanced AEDsbegan to be available on the market. AEDs either exert a single mechanism of action, like vigabatrin or tiagabine, or they share many mechanisms of action, like topiramate and valproate. Conventional (or first generation) antiepileptics include benzodiazepines, carbamazepine, ethosuximide, phenobarbital, phenytoin, and valproate; second generation antiepileptics include gabapentin, lamotrigine, levetiracetam, oxcarbazepine, pregabalin, tiagabine, topiramate, or vigabatrin. While older AEDs may have higher toxicity levels compared to newer options, they are often more cost-effective and have a longer history of use. Although newer agents are generally better tolerated, there may still be some behavioral adverse events (BAEs) to consider. Therefore, a comprehensive understanding of BAEs related to AEDs is essential for making informed treatment decisions. Phenobarbital and phenytoin, once commonly used, are now less frequently prescribed for epilepsy treatment.While side effects like drowsiness, upset stomach, and lightheadedness are commonly reported with the use of all antiepileptic drugs (AEDs), the occurrence of certain adverse effects may differ based on individual patient susceptibilities. Variances in metabolic rates between children and the elderly could impact the toxicity-related changes in adverse effects, necessitating further evaluation regarding potential interactions with concurrent medications. Factors such as pre-existing behavioral issues or psychiatric susceptibilities might also play a role in the manifestation of reported adverse effects.This review intends to offer a comprehensive and current overview of research studies that examine the behavioral effects linked to AEDs in individuals with epilepsy. It emphasizes significant changes in mood, emotional experiences, and other behavioral/psychiatric aspects that can significantly impact the quality of life and well-being of patients.**[22-24]**

Classification of anti-epilepsy drugs:-

a. Table no 01. Chemical classification of Anti-epileptic Drugs:-[4,8,25]

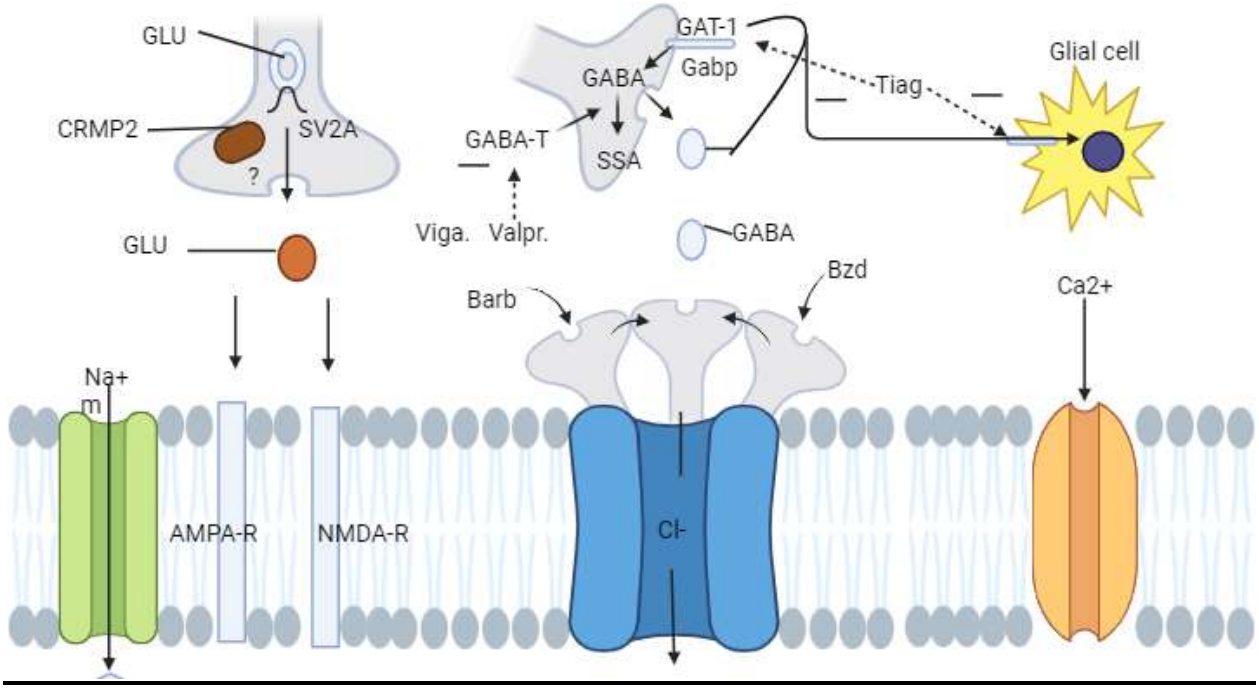
S.No	Class of Drug	Drug Name
01.	Barbiturate	Phenobarbitone

02.	Hydantoin	Phenytoin, fosphenytoin
03.	Succinimide	Ethosuximide
04.	Benzodiazepines	Clonazepam, Diazepam, Lorazepam
05.	Newer drug	Topiramate, Vigabatrin
06.	Deoxybarbiturate	Primidone
07.	Iminostilbene	Carbamazepine, Oxcarbazepine
08.	Aliphatic carboxylic acid	Divalproex
09.	Phenyltriazine	Lamotrigine
10.	Cyclic GABA analogues	Gabapentin, pregabalin

b. Table no 02. Clinical classification of Anti-epileptic drug:-[25,26]

Seizure Type	Preferred Drug	Alternative drug
Generalized tonic-clonic seizures	• Sodium Valproate • Lamotrigine • Carbamazepine	• Oxcarbazepine • Levetiracetam • Phenytoin • Clobazam • Topiramate • Phenobarbitone
Simple/Partial Seizures (SPS)	• Carbamazepine • Lamotrigine • Sodium Valproate	• Levetiracetam • Topiramate • Gabapentin, Phenytoin • Tiagabine • Zonisamide
Absence Seizures	• Sodium Valproate • Ethosuximide	• Topiramate • Levetiracetam • Clobazam • Clonazepam • Lamotrigine
Myoclonic Seizures	• Sodium Valproate	• Topiramate • Levetiracetam • Clobazam • Clonazepam
Status Epilepticus	• Lorazepam • Diazepam • Fosphenytoin • Phenobarbitone	General Anesthetics • Midazolam • Propofol

Major Mechanisum of Anti-convulsant Action:-[4]



Mechanism of Action of anti-epileptic drug:-[27]

Bind to voltage dependent Na+ channels (prolong the inactivated state) and prevent further entry of Na+ ions into neurons (stabilize neuronal membrane)

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Inhibit generation of repetitive action potentials

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Therefore prevent or reduce the spread of seizure discharge

Herbal treatment of epilepsy:-

The natural world offers a vast array of biological and chemical variations, and numerous plant species have been utilized in traditional medicine systems. These plants have been employed for various purposes such as anticonvulsant, anxiolytic, analgesic, and antidepressant treatments. Throughout millennia, individuals with epilepsy have turned to a diverse range of botanicals and herbs, commonly known as herbal therapies (although this term does not imply any clinical benefits)**[3]** In developing countries, traditional medicine is widely embraced and around 80% of the population depends on it for their main healthcare requirements. Various plants utilized in different traditional medicine systems have demonstrated effectiveness in treating epilepsy, as confirmed by modern bioassays designed to detect anticonvulsant activity. Herbal medicine is a fascinating field within complementary alternative medicine that can be easily studied through empirical research. Many herbal medicines have been found to have an impact on the central nervous system and show potential in treating epilepsy. In this article, we will explore some of the significant herbal medicines that have been investigated over the past thirty years, along with their key active components as documented in scientific literature is given table no 03. **[28]**

Parts of Plants:-[15]

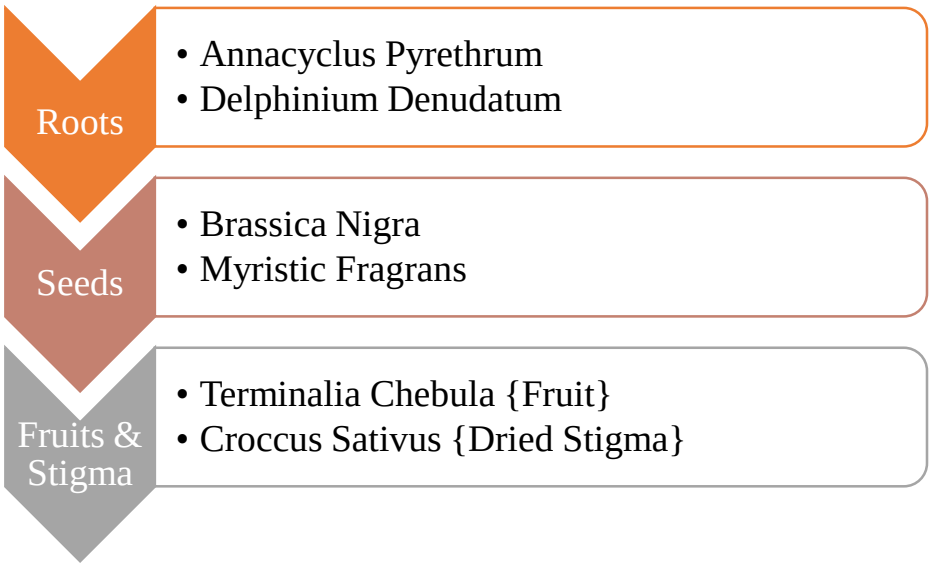

Table no 03.Classification of herbal medicine used in the treatment of epilepsy:-[29-42]

S. No	Plant Name	Botanical name/ Family	Part used	Phyotoconsituent	Uses& other uses
01	Jequirity	*Abrus precatorius L/* ***Leguminosae***	Leaves	Polyphenols Flavonoids Beta carotene Glutathione Alpha tocopherol	Anticonvulsant

02	Shepherd tree	*Boscia albitrunca* / ***Capparaceae***	Roots, Leaves, Fruits	alkaloids, coumarins, flavonoids, saponins, steroids, tannins, and triterpernoids	Hemorrhoids, inflamed eyes, epilepsy
03	Corn	*Zea mays L* / ***poaceae***	Root	Phenolic compounds, resveratrol, steroids, flavones	Livestock
04	Chinese chaste tree	*Vitex negundo L* / ***lamiaceae***	Whole part	Flavonoids, Alkaloids phenolic compound	Anti-inflammatory, Anti-cancer, Anti-microbial
05	Chinaberry tree	*Melia azedarach linn* / ***meliaceae***	Heartwood, root bark, leaves	Alkaloids, tannins, phenols, flavonoids	Abdominal pains, swollen legs, epilepsy fits
06	Southern cattail	*Typha domingensis* / ***typhaceae***	Petiole	Flavonoids, steroids, carboxylic acid	Anti-microbial
07	Common grape	*Vitis vinifera* / ***vitaceae***	Fruit	Phenolic compounds, Aromatic acid, flavonoids	epilepsy fits, Anti-microbial
08	Sweet indrajao,	*Wrightia tinctoria* / ***apocynaceae***	Root sub steam bark	Steroids, Terpenoids, flavonoids, phenols	Analgesic, anti-inflammatory, anti-ulcer, Anti-diabetics, anti-cancer
09	Vetivergrass	*Vetiveria zizanioides* / ***poaceae***	Root sub steam bark	Sponnins, flavonoids, phenols	Stress, traumas and shocks
10	Dikbas	*Lannea discolor* / ***Anacardiaceae***	Fruits. stem bark	Flavonoids, tetracyclic, pentacyclic, phenolic compounds	Convulsions & fits, diarrhea
11	Sensitive plant	*Mimosa Linn* / ***Febaceae***	Whole plant	Alkaloids, flavonoids, saponins, phenols	Epilepsy, heart palpitation
12	Common vervain	*Verbena officinalis L.* / ***Verbenaceae***	Whole plant	Alkaloids, carbohydrate protein, flavonoids	Sore throats, respiratory tract diseases, Asthma
13	Sweet thorn	*Acacia karroo*	Stem-bark,	Phenolic acids	Colds, oral

		Hayne / ***Fabaceae***	leaves, gum	Flavonoids Caumarins Tannins Polysaccharides	thrush, stomach ache, osteomyelitis, dizziness, convulsions
14	Sweet flag	*Acorus calamus* / ***Araceae***	Rhizome	Alkaloids Flavonoids Carbohydrates Triterpenoids saponins	Insomnia, melancholia, neurosis, epilepsy, antioxidant activity, antistressor activity
15	Winged-Stem Laggera	*Blumea alata* / ***Asteraceae***	Roots, Leaves	Terpenoids, fatty acid, phenols, alcohol, pyridines, ketone	Fever, Convulsion, Constipation
16	Flannel weed	*Sida cardifolia L* / ***Malvaceae***	Root bark	β-phenethylamine, ephedrine, pseudoephedrine,hypaphorine, vaticinate, vaticinal, choline, and betaine	Treat bronchial asthma, cold, lack of perspiration
17	Swamp pea	*Sesbania grandiflora* / ***Fabaceae***	Leaf	Alkaloids, flavonoids, glycosides, tannin, Terpenoids	epilepsy, antioxidant activity, Fever, Convulsion
18	Forest champa	*Spemadictyon suaveolens* / ***rubiaceae***	Flower	Alkaloids, flavonoids, Sponnins	Treat wounds
19	Barbados nut,	*Jatropha curcas linn* / ***Euphorbiaceae***	Roots seeds leaves	Phenols, tannins, amino acid	Angina, malaria, jaundice
20	Bellyache bush	*Jatropha gossypiifolia linn* / ***Euphorbiaceae***	Leaves, roots	Alkaloids, flavonoids, tannins, phenolic compound	Hypertension, convulsions, fever
21	Duthie	*Syzygium heyneanum* / ***myrtaceae***	Stem bark	Tannins, alkaloids, steroids, flavonoids	Gastro intestinal upset, Diarrhea
22	Country mallow	*Abutilon indicum* / ***Malvaceae***	Root sub-stem bark	Alkaloids, flavonoids, amino acid	anti-inflammatory, anti-ulcer, Anti-diabetics, urinary disease

23	Common Yarrow	*Achillea millefolium* / ***Asteraceae***	Whole pant	Apigenin, rutin, lutein, camphor	Bleeding wounds, healing properties
24	Horsewood	*Clausena Anisata* / ***Rutaceae***	Roots, Leaves, Fruits	Tannins, alkaloids, steroids, flavonoids	Convulsions, malaria & Fever
25	Bagflower	*Clerodendrum glabrum E. mey* / ***Verbenaceae***	Roots, Leaves	sesquiterpene, diterpenoids, triterpenoids, flavonoid and flavonoid glycosides, phenylethanoid glycosides, steroids and steroid glycosides, cyclohexylethanoids, Anthraquinones, cyanogenic glycosides	Child hood convulsion, colds
26	Common yellow commelina	*Commelina Africana linn.* / ***Commelinaceae***	Roots	Vitamin, Tannins, alkaloids, steroids, flavonoids	Insomnia, epilepsy
27	Sweet flag	*Acorus calamus L.* / ***Acoraceae***	Rhizome	Tannins, Terpenoids, alkaloids, phenols	Epilepsy, mental aliment
28	Powder Puff	*Calliandra portoricensis* / ***mimosaceae***	Roots & steam	saponins, tannins, flavonoids and glycosides	GIT Problem
29	Onion	*Allium cepa L.* / ***Liliaceae***	Bulb	Alkaloids, Flavanoids, tannins, saponins	Asthma, Bronchitis, Gastro intestinal disorder
30	Fleabane Indian Wormwood Mugwort	*Artemisia nilagirica* /	Whole plant	Alkaloids, Flavanoids, sterol, glycosides	Epilepsy, skin disorder, nervous disorder, diuretic
31	Hairy wild cucumber	*Cucumis hirsutus sond* / ***cucurbitaceae***	Roots, fruits	Tannins, alkaloids, flavonoids reducing sugar, Anthraquinone	Convulsions, penal
32	Thorn apple	*Datura stramonium linn* / ***solanaceae***	Leaves, fruits, aerial parts	Hyoscyamine & Scapolamine and several mirror tropane, Alkaloids	Sore throat motion sickness

33	The bidi leaf tree	*Bauhinia racemosa L./* ***Caesalpiniaceae***	Stem bark	Methyl gallate, gallic acid, kaempferol	Headache, fever, skin disease, blood disease
34	Bastard teak.	*Butea monosperma /* ***Fabaceae***	Root sub steam bark	Alkaloids, Flavanoids, glycosides, phenolic compound	Brain disease, urinary discharge
35	Crested Fever Nut	*Caesalpinia crista L /*	Root sub steam bark	protein, Flavanoids, reducing sugar, Caumarins, tannin	Leprosy, edema, malaria, abdominal pain
36	Red Crassula	*Crassula alba forssk /* ***Crassulaceae***	Leaves, twigs	Tannins, alkaloids, steroids, flavonoids, glycosides, phenolic compound	Epilepsy, bloody stool
37	Golden Shower Tree	*Cassia fistula L /* ***Caesalpiniaceae***	Seed	Alkaloids, Flavanoids, terpenoids, Anthraquinones	Laxative and constipation
38	Pomelo	*Citrux maxima /* ***Rutaceae***	Leaf	Hesperidin, ferulic acid, vanillic acid	Ulcer, fever CVD (cardiovascular disease) diabetes
39	White sapote	*Casimiroa edulis /* ***Rutaceae***	Leaves	alkaloids, flavonoids, coumarins, limonoids, and quinolones	Sedative, Anti-epileptic
40	Salparni	*Desmodium gangeticum /* ***Fabaceae***	Whole plant	Alkaloids, steroids, Terpenoids, sponnins, volatile oils	Diarrhea, fever, asthma, vomiting
41	Flea-bane.	*Conyza scabrida DC. /* ***Asteraceae***	Leaves, Roots	Flavanoids, terpanoids, Anthraquinones	Convulsion, colds & coughs pleuritic pains
42	Sea onion	*Drimia indica /* ***Liliaceae***	Bulb	Alkyl resorcinols, flavonoids, Phytosterols	Cardiac disease, asthma, leprosy
43	Spiny corianderindian	*Eryngium foetidum /* ***Apiaceae***	Whole plant	Aromatic and Aliphatic aldehyde	Burns, earache, stomachache, hypertension,

					malaria
44	Coral tree	*Erythrina stricta* / ***Fabaceae***	Stem bark	Alcohol, Flavanoids	Asthma, Stomachache, skin inflammation
45	Large leaf flemingia	*Flemingia macrophylla* / ***Fabaceae***	Root sub steam bark	Flavones, isoflavones flavonoids, glycosides, phenolics	Weed control, mulching
46	Yellow bedstraw	*Galium verum L.* / ***Rubiaceae***	Whole plant	Flavones, flavonoids, glycosides, phenolics	Sweating, incerses, sexual desire, purgative
47	Cassia indigo	*Indigofera cassioides DC* / ***Fabaceae***	Petiole	Anthraquinone derevatives, chrysophanic acid, alkaloids, flavonoids, amino acid, saponins	Hair treatment
48	Henna Tree	*Lawsonia inermis L.* / ***lythraceae***	Leaf	tannins, flavanoids, alkaloids, terpenoids, saponins	Dandruff, fungal infection, wounds
49	Ceylon Ironwood	*Musua ferrea L.* / ***Calophyllaceae***	Leaf	tannins, flavanoids, alkaloids, terpenoids, saponins, phenolic compound	fever, migraine, vomiting, urinary tract infection
50	Chinese hibiscus	*Hibiscus rosa sinensis* / ***Malvaceae***	Fresh flower	Flavonoids, tannins Terpenoids cyclopeptide alkaloids	Brain chronic, anticonvulsant

Table no 04. Ayurveda provides a detailed description of various herbs that possess anticonvulsant properties, which are essential for managing Epilepsy:-[43-45]

Common name	Plant name	Active principle	Mechanism of action
Clove	Eugenia caryophyllus Myrtaceae	The substance contains eugenol, acetyl eugenol, β-caryophyllene, vanillin, crategolicaci, tannins, gallotanic acid methylsalycylate, flavonoids, eugenin, kaempferol,	Enhances the initiation of convulsions. Shortens the duration of seizures. Slows down the onset of seizures. Boosts GABAergic and glycinergic activity.

		rhamnetil, eugenitin, and triterpenoids like oleanolic acid.	
Coconut	Cocos nucifera Arecaceae	Monounsaturated fatty acid, Saponins	Enhance GABA and serotonin levels to inhibit PTZ-induced convulsions.
Karkandu	Zizphus jujube Rhamnaceae	Flavonoids, saponins, tannins, vitamin A, vitamin B, sugars, mucilage, calcium, phosphate, and iron are all present in the composition	Suppression of convulsive activity
Lotus	Nelumbo nucifera Nelumbonaceae	N-nornuciferine, O-nornuciferine, nuciferine, and roemerine, along with protein, amino acids, unsaturated fatty acids, minerals, starch, and tannins are present	Reduce tonic extensor convulsions. Anticonvulsant effect.
Mango	Mangifera indica Anacardiaceae	The compounds present in the text include polyphenolics, triterpenoids, mangiferin, catechin, iso-mangiferin, alanine, glycine, γ-aminobutyric acid, and kinic acid.	The anticonvulsant action of this substance is demonstrated by its ability to inhibit convulsions Induced by PTZ and Maximum electroshock seizures (MES). Additionally, it has been found to increase GABA levels, further supporting its anticonvulsant properties.
Nutmeg	Myristica fragrans Myristicaceae	Myristicin and Macelignan are two important compounds.	The inhibition of seizures and the assessment of seizure severity are the primary objectives.
Saffron	Crocus sativus Iridaceae	Crocetin, picrocrocin, safranal, and isophorone are chemical compounds commonly found in saffron.	Enhances seizure threshold, inhibits Pentylenetetrazole (PTZ)-induced convulsions, boosts GABAergic neurotransmission, suppresses absence seizures, and ameliorates tonic clonic seizures.
Spikenard	Nardostachys jatamansi Caprifoliaceae	Valeranone, Calerene, patchouol, α-gurjunene, aristolone, β-maalien, and spathulenol	Raises the threshold for seizures and prevents electroshock-induced convulsions by enhancing GABA, 5-HT (5- Hydroxytryptamine), and 5-HIAA (5-hydroxyl indoleacetic acid levels.
Sesame	Sesamum indicum Pedaliaceae	Acetone, methyl ketone.	Reduce the levels of ROS and Methylenedioxyamphetamine(MDA)in individuals with epilepsy.
Sway	Acorus tatarinowii schott	Aromatic oils and asarone.	Protects against GABA-ergic neuron damage in the brain, safeguarding against convulsions. Exhibits neuroprotective properties by preventing N-methyl-D-aspartate or Glucose - induced excitotoxicity in neuronal cells. Demonstrates specific binding to striatal dopamine D1 and D2 receptors, as confirmed by the receptor-binding assay.
Musta	cyperus rotundus cyperaceae	Sesquiterpene derivatives include cyperone, selinene, cyperene, cyperotundone,	Anticonvulsive effect.

		patchulenone, sugeonol, kobusone and isokobusone, and pinene (monoterpene). comparable to cyperone, isocyperol, and cyperol	
Nagkesara	mesua ferra Calophyllaceae	Saturated hydrocarbons, carboxylic acids, diterpenes, and triterpenes	decrease HLTE. inhibit convulsions brought on by MES. lengthens the duration of seizures and delays their start seizures
Tagara	valeriana wallichi Caprifoliaceae	GABA, sesquiterpene, diterpenes, triterpenes, carboxylic acids, and saturated hydrocarbons are all present in Valerian.	Sedativebehavior. Reduce the HLTE. action of anticonvulsants.

Conclusion

A neurological condition primarily affecting the central nervous system is epilepsy. It affects a person's family, career, psychological, and physical health. Consequently, The effectiveness of anticonvulsant medication in treating specific types of epileptic seizures and epilepsy is a major factor in its selection. The treatment landscape for epilepsy is evolving, with increasing recognition of the potential benefits of incorporating herbal medicines and different synthetic drugs of mechanism of action. The traditional AEDs remain essential in seizure management, herbal remedies offer complementary options that may address some of the limitations associated with synthetic drugs. And there are three inducing models of epilepsy. Chemical model, Genetic model, and Electrical Stimulation model. They have studied 300 herbal drugs used in the treatment of epilepsy and there was included 50-60 herbal drugs in this review.

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