

# Herbal Remedies in Epilepsy: The Present Scenario

*Aamir Nabi Peer*<sup>1</sup>, *Parvaiz Ahmad Parry*<sup>2</sup>, *Aamir Bin Nazir*<sup>3</sup>,

*Shabir Ahmad Ganie*<sup>4</sup>, *Aziz Ahmed*<sup>5</sup>

<sup>5</sup>Assistant Professor, <sup>1,2,3,4</sup>Faculty of Pharmaceutical Sciences, Mewar University, Chittorgarh, 312901, Rajasthan, India.

## Abstract

Epilepsy is one of the normal incessant neurological issues, which amid lifetime influences around 1% of the total populace. The vast majority with epilepsy can achieve a sans seizure life upon treatment with antiepileptic drugs (AEDs); however, seizures in up to 30% cases do not react to treatment. 90% of individuals with epilepsy are accepted to live in creating nations, and a large portion of them does not get medical treatment for the malady. This treatment hole has roused examinations concerning the impacts of plants that have been utilized by conventional healers to treat seizures. In trial creatures concentrates of many plants have been appeared to display anticonvulsant action in phenotypic screens performed. A portion of those concentrates seems to show anticonvulsant viability like that of manufactured AEDs. This article is an endeavor to survey essential plants utilized for the antiepileptic movement.

**Keywords:** Home-grown medication, Epilepsy, Antiepileptic, Anticonvulsants

## Introduction

The plant sources in India are probably going to give effective antiepileptic specialists. Customary natural drug assumes a crucial part in the treatment of epilepsy in spite of the way that home-grown solution is prevalently utilized as a part of antiepileptic treatment, there is an absence of firm confirmation for adequacy and poisonous quality of generally herbs. The investigation of these herbs has added to some degree in this race for the disclosure of new antiepileptic drugs (AEDs). The home-grown medications have been dissected in the accessible examinations. Some normally utilized home-grown drugs for epilepsy have been recorded in our investigation.

An attempt has been made to abridge the different techniques and assess the potential normal mixes having antiepileptic movement. Roughly 1% of the total populace

is experiencing convulsion, which is the second most regular neurologic issue after stroke, which is where the patient experiences intermittent seizures. Huge regular medications appeared for control of seizures. The greater part of the epileptic patients require polytherapy of regular anticonvulsants and are still not cured legitimately. The significant disadvantage because of these specialists is their unending symptoms and medication collaborations, which limit its utilization, while nature has given us plants to be utilized as common solution for sicknesses with slightest reactions. This has roused the specialists towards home-grown solution for anticonvulsant movement.

Despite the fact that very particular from regular prescription, the natural medical standards are generally basic. India is a rich wellspring of therapeutic plants and in different frameworks of drugs, for example, Ayurveda, Unani and Siddha, various plant separates are utilized

**Corresponding Author:** Aamir Nabi Peer, Faculty of Pharmaceutical Sciences, Mewar University, Chittorgarh, 312901, Rajasthan, India.

**E-mail Id:** Peeramir00@gmail.com

**Orcid Id:** <https://orcid.org/0000-0002-2403-6265>

**How to cite this article:** Peer AN, Parry PA, Nazir AB et al. Herbal Remedies in Epilepsy: The Present Scenario. *J Adv Res Pharm Sci Pharmacol Interv* 2018; 2(1): 7-12.

against ailments; however, some of them have been experimentally investigated. In a situation where one trusts that no pharmacological model has been found outside the set of all animals, investigating the plant kingdom for a treatment or cure for shakings or seizures is not an irrational way to deal with the issue especially. The historical backdrop of home-grown medications for shaking has run as an inseparable unit with history of human advancement and with the historical backdrop of solution too.

The term epilepsy is altogether assigned for a gathering of incessant focal sensory system (CNS) issue (neurological turmoil) described by unconstrained event of seizures, by and large connected with the loss of awareness and body developments (shaking). Epilepsy is characterized as repetitive seizures that are not the quick aftereffect of an intense cerebral affront.

### Herbal Solution and Its Significance

In various conventional therapeutic frameworks, plants are dependably the key wellspring of medication or treatment system. In later past, the vast majority are planting based solutions or items to enhance their wellbeing conditions or as healing substance either alone or in relationship with others. Herbs or natural items are utilized by the extensive number of populaces for essential medicinal services needs according to WHO. It is trusted that about 75% of the plant-based helpful substances utilized everywhere throughout the world were incorporated from conventional/society prescription. Home-grown pharmaceutical incorporates herbs, handled and completed natural items, dynamic fixings home-grown materials (like plant parts) or arrangements. Presently a days, a colossal resurgence of the utilization of natural item because of the reactions of current medications, microbial protection and disappointment of present day treatments for against unending maladies. In India, next to 70% of current medications are found from normal assets and number of manufactured analogs have been set up from model mixes detached from plants. It was accounted for that over 60% of malignancy medicate accessible in showcase or in testing depend on normal items. As of now, around 80% of antimicrobial, immunosuppressive, cardiovascular, and anticancer medications are gotten from plant sources. Over 70% elements among 177 anticancer medications affirmed depend on characteristic items or mimetic. Around 121 such medication substances are being used and 25% physician-endorsed sedates discovered all around are gotten from plant sources, and. Thirteen medications of characteristic inception are affirmed in United States in the vicinity of 2005 and 2007, and clinical trials are going on in excess of 100 common item-based medications. It was likewise evaluated that 11% of the aggregate 252 medications found in basic drug rundown of WHO are only of plant starting point. In Indian customary pharmaceutical, an

expansive number of plants are utilized. Three traditional Ayurvedic writings *CharakaSamhita*, *Sushruta Samhita* and *Astanga Hridaya* said around 526, 573 and 902 number of plants. It was evaluated that Ayurveda utilizes 1200–1800 plants, Siddha prescription incorporates 500–900 plants, Unani uses 400–700 restorative plants and Amchi drug utilizes about 300 plants while people healers of India utilize in excess of 7500 therapeutic plants in various pharmaceuticals.

### Advancement of Natural Pharmaceutical – Issues to be Addressed

Natural pharmaceutical faces a number of difficulties around the world predominantly in created countries despite worldwide redesign and extremely solid history of customary uses and advancement. Following issues should be tended to before the advancement of customary natural learning far and wide.

- **Quality issues:** Adulteration, misidentification of plant, flawed gathering and planning, inaccurate detailing process are the fundamental issues that decrease the adequacy of natural arrangement and can be considered as key variables influencing quality and immaculateness of home-grown pharmaceuticals.
- **Processing and gathering issues:** Indiscriminate collecting, poor horticulture and engendering strategy, poor pre- and post-reap rehearses, conflicting preparing procedures prompts the substandard nature of home-grown medications.
- **Quality control-related issues:** Standardization, low quality control method and absence of present day fabricating hones are the fundamental difficulties to keep up the steady nature of home-grown medications. Absence of mindfulness with respect to the benchmarks, best practices and rule among cultivators and makers, absence of execution and direction of the rule are additionally huge in little and medium-scale enterprises.
- **Administrative issues:** Lack of direction and controlling specialist in home-grown part, absence of appropriate observing and controlling are supreme requirements for the nature of medications.
- **Infrastructure-related issue:** Lack of preparing strategy, prepared individual, refined instrument, use of current procedures, office to create instrument locally are the real issues.
- **Pharmacogivilane:** Proper pharmacogivilane in home-grown division is the need of time to locate the toxicological information and unfavorable medication response of home-grown medications. Antagonistic responses, contraindications, cooperation with other medication, nourishment and existing universal pharmaceuticals should be screened appropriately.
- **Clinical trial:** Since the security keeps on being a first

issue with the utilization of home-grown cures in this way, clinical trials are important to comprehend the wellbeing and adequacy of these medications, previously presented in worldwide market.

- **IPR and biopiracy:** Biopiracy is the real trouble in advancement of natural customary prescription. Documentation of people information is consequently essential for our future.
- **Irrational utilization:** It is by and large trusted that natural items do not have any reactions, association, yet shockingly it is not valid. Accordingly, unreasonable routine with regards to these medications can prompt different issues which can prevent the advancement of such medications.
- **R&D:** Research and advancement on measurement, preparing, strategies are the key requirements for any medication, yet in natural segment it is very less contrast with allopathic drug. Despite the fact that as of late, the pattern is evolving. Research to comprehend the method of activity and pharmacokinetics marvel, change/making of monographs and reference measures for marker-based examination are important of time. Definitive hole in flow ethnopharmacological and present day restorative plant inquire about is another issue for economical, socio-socially evenhanded and safe supply of natural meds.
- **Other issues:** Unethical routine with regards to home-grown pharmaceutical, absence of qualified doctor, introduction of problematic and deceiving data, absence of adequate store, nonappearance of centered showcasing and marking, absence of learning sharing likewise keep down the worldwide advancement of home-grown drug. Absence of security of biodiversity and ensuring the customary therapeutic plants is likewise a major test.

### Modernization and Incorporation of Home-Grown Solution in Clinical Practice – Encounter from India

Notwithstanding the number of obstacles, the conventional drug of India is perceived generally everywhere throughout the world and the request is expanding ceaselessly. Joint exertion of open and government division is fundamental for the advancement of home-grown medication. Here we are talking about the circumstance and conceivable outcomes of advancement of Indian conventional home-grown prescription in India.

#### Tenets, Control and Administering Body

In India, the national strategy on customary and elective solution was presented in 1940 as Drug and Cosmetic Act 1940 and Drug and Cosmetic Rule, which was refreshed in a few in state. In 1959, the Government of India perceived customary Indian System of Medicine (ISM) and refreshed

Drug and Cosmetic Act. A few master boards of trustees for various ISM were set up every now and then and the most punctual was set up in 1962. In the year 1969, isolate section identified with Ayurveda, Siddha and Unani drugs was embedded. Later, the demonstration was changed again with a few substitutions in the year 1983, 1987, 1994 and 2002. In 2006 and 2008 rule for assessment and examination of medications under ISM was given under Drug and Cosmetic Rule 1945. The Central Council of Indian Medicine (CCIM) was constituted in the year 1970, which is associated with the encircling and actualizing diverse controls including the educational program and syllabi in ISM (i.e., Ayurveda, Siddha and Unani). In 2012, Sowa Rigpa arrangement of drug was consolidated in the CCIM. Bureau of Indian Medicine and Homeopathy (ISM and H) was framed with the target to build up the ISM. In 2003, this department was renamed as Department of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy (AYUSH), and in 2014 a separate service on AYUSH was framed.

#### AYUSH and Wellbeing Approach

Bureau of AYUSH focuses on the general administration, training, control, improvement and development of ISM in India and abroad. The division has few subordinate workplaces, a few self-ruling bodies as research boards, proficient gathering, pharmacopeia labs, national establishments, institutes and clinics. In the year 2002, the National Policy on Indian Systems of Medicine and Homeopathy was presented. Real goals of this strategy are:

- Utilize the AYUSH to support great wellbeing and spread out the effort of human services to our kin (for the most part who cannot manage the cost of or reach the advanced social insurance offices) through preventive, promotive, mitigative and corrective methodologies.
- To give reasonable AYUSH administrations and medications which are sheltered and efficacies;
- To guarantee the accessibility and bona fide of crude medications as required by pharmacopoeial principles to help enhance nature of AYUSH drugs, for residential as well as fare reason.
- To ensure AYUSH is integrated in healthcare delivery system and national programs to enable the optimum utilization of the existing healthcare infrastructure.
- To offer full open door for the development and improvement of ISM and usage of the inactive, quality and incitement of their eminence.

#### Herbs related with Seizures

Generally herbs are exceptionally valuable and fundamental in the battle for seizure administration and future AED advancement. Along these lines, some elective treatment including home-grown medications and integral drug is

ending up progressively well known. Restorative plants have contributed a rich wellbeing to individuals. Plant separates and their bioactive mixes display in them which are in charge of antiepileptic movement must be minutely examined for their important commitment. As opposed to utilizing an entire plant, pharmacologists recognize, separate, extricate, and orchestrate singular segments, therefore catching the dynamic properties or constituents. Home-grown meds are moderate as well as they do not have any reactions. Albeit natural drugs can possibly cure numerous afflictions, the curing time frame is generally longer in contrast with ordinary solution.

A new plant named *Daturametel Linn* (Solanaceae) is being utilized as a part of the customary solution for quite a while to treat epilepsy and different issues. In Africa and in Cameroon especially, phytotherapy in customary solution still assumes a vital part in the administration of ailments, primarily among populaces with low wage (Geoffrey and Kirby, 1996) and phytotherapy depends on the utilization of a wide assortment of plant species.

Valerian, another antispasmodic pharmaceutical, is generally utilized as a part of Russia and Germany. It is its anticonvulsant activity that has been helpful in treating epilepsy. Valerian was utilized as a part of the First World War to anticipate shell stun in forefront troops. Valerian is delegated a tonic herb moreover. It can manage and adjust inverse extremes. Despite the fact that current research has demonstrated it to relieve however more

research has detailed it as a stimulator which enhances synchronization, increment fixation and vitality. This tonic nature of Valerian either discourage or empower contingent upon the prerequisites of the sensory system. Clinical examinations has demonstrated its neurotropic impacts straightforwardly on higher focuses of the focal sensory system. Another celebrated therapeutic plant is Mistletoe which has been being used since verifiable circumstances for epilepsy. On the off chance that appropriate consideration be given to its right organic and current wellbeing notices, the poisonous quality of this herb can be controlled. Motherwort, another essential plant, was utilized to quiet epileptics amid the seventeenth century and now is utilized as a nerve tonic and narcotic. Current proof has set up its advantages as a cardiogenic. Mugwort separates have been tried on lab creatures to confirm its calming impacts and it is reasoned that the herb could be useful for epilepsy. Mugwort has been utilized for this condition for quite a while. Sage is acclaimed since memorable circumstances as a supernatural occurrence herb in various societies. Scullcap has dependably been known as a gentle and safe nervine. Traditionally it has been utilized for different sicknesses in particular insanity tremens, St. Vitus' move, shakings, seizures, insane states, tetanus, tremors and epilepsy. Blue Vervain is another awesome herb nervine being utilized by numerous societies everywhere throughout the world. It is an American-Indian solution for a few maladies including apprehensive sufferings. Some home-grown anticonvulsant operator alongside their family and their synthetic constituents are displayed in Table 1.

**Table 1. List of Herbs for Epilepsy**

S. No.	Name of the Herb	Family	Chemical Constituents
1.	Ginger	Zingibraceae	Gingerol, phenylpropanoid
2.	Ladys slipper	Orchidaceae	Phenoanthrenequinones, alkaloids
3.	Skull cap	Lamiaceae	Lignin, tannin, scutellonin
4.	Kava	Kawakava	Kavin Variegatum
5.	Flax seed oil	Linaceae	Alpha-linolenic acid, lignin
6.	Geranium	Geraniaceae	2,4,6-hydroxyethylbenzoate
7.	Lindera	Lauraceae	proanthocynidin, tannin, trimmer
8.	Gatukala	Apiaceae	Triterpenoids
9.	Betony	Lamiaceae	Phenylethamide, glycosides, tannin
10.	Ginceng	Araliaceae	Gincenoside, phenozoside
11.	Lily of the valley	Lily	Geraniol, citranello

## Conclusion

Epilepsy is not kidding mind issue; tranquilize which is utilized as a part of treatment of epilepsy ought to have most extreme impact for controlling seizure with lesser symptom. All AEDs accessible in advertise have some unfavorable symptom and prompts neuronal cell misfortune and, as it has been as of now said, neuro degeneration may influence the defensive action of some antiepileptic drugs. Home-grown anticonvulsant medicate like *Caesalpinia pulcherrima*, *Becopamoniera*, *Droseraburmannii*, *Nelumbonucifera* and numerous more have a wonderful anticonvulsant impact with lesser or no symptom. Thus present examination needs a union and definition of joined concentrate of at least one novel home-grown medications to treat the seizure adequately.

**Conflict of Interest:** None

## References

- Anonymous. Amendments and Notifications. *Drugs and Cosmetics Rules* 1945.
- Anonymous. AYUSH. About the System. 2015. Accessed From: <http://www.indianmedicine.nic.in>.
- Ansari AA. Global status of Unani medicine. In The Proceeding of International Conclave on Traditional Medicine (16 & 17 Nov 2006), National Agriculture Science Complex, New Delhi.
- Asadi Pooya Ali A et al. Nutritional supplements, foods, and epilepsy: Is there a relationship? *Epilepsia* 2008; 49 (11): 1819-27.
- Bandaranayake WM. Quality control, screening, toxicity and regulations of herbal drugs. In: Ahmad I, Aquil F, Owais M, Eds. Modern Phytomedicine: Turning Medicinal Plants into Drugs. Germany: *Wiley-VCH Verlag GmbH & Co* 2006: 25-27.
- Barar FSK. Essentials of Pharmacotherapeutics, 3rd Edition. New Delhi: *S Chand and Company Ltd* 2005: 95-101.
- Booker A, Johnston D, Heinrich M. Value chains of herbal medicines research needs and key challenges in the context of ethnopharmacology. *J Ethnopharmacol* 2012; 140: 624-33.
- Debnath PK, Banerjee S, Debnath P et al. Ayurveda E opportunity for developing safe and effective treatment choice for the future. In: Mukherjee PK, Ed. Evidence-Based Validation of Herbal Medicine. Amsterdam: *Elsevier Science Publishing Co Inc* 2015: 427-54.
- Ekor M. The growing use of herbal medicines: Issues relating to adverse reactions and challenges in monitoring safety. *Front Pharmacol* 2013; 4: 177.
- Foye WO. Principle of Medicinal Chemistry, 3rd Edition. Mumbai: *Vargheese Publication House* 1989; 173-88.
- Gurmet P. "Sowa-Rigpa": Himalayan art of healing. *Indian J Tradit Know* 2004; 3: 212-18.
- Herbal Anticonvulsant Agents: A Brief Review.
- Joshi K. Indian Herbal Sector. 2008.
- Kumar D, Sing J. Anticonvulsant effect of the ethanol extract of *Caesalpinia Pulcherrima* (L.) Sw., Fabaceae, Leaves, *Revista Brasileira De Farmacognosia. Brazilian J. Pharmacog* 2009: 1410-15.
- Mangathayaru K. Pharmacognosy: An Indian Perspective. Chennai: *Pearson* 2013.
- Ministry of Health and Family Welfare, Govt. Of India. *Regulation of Manufacture and Sale of ASU Drugs* 2006
- Natural Medicine Database Reference (Www. Naturaldatabase.Com) .
- Pan S, Litscher G, Gao SH et al. Historical perspective of traditional indigenous medical practices: The current renaissance and conservation of herbal resources. *Evid Based Complement Alternat Med* 2014; 1-20.
- Pan S, Zhou D, Gao S et al. New perspectives on how to discover drugs from herbal medicines: Cam's outstanding contribution to modern therapeutics. *Evid Based Complement Altern Med* 2013; 1-25.
- Rang HP, Dale MM, Ritter JM. Pharmacology, Edinburg: *Churchill Livingstone* 199-201.
- Sahoo N, Manchikanti P. Herbal drug regulation and commercialization: An Indian industry perspective. *J Altern Complement Med* 2013; 19: 957-63.
- Samuels N et al. Herbal medicine and epilepsy: Proconvulsive effects and interactions with antiepileptic drugs. *Epilepsia* 2008; 49(3): 373-80
- Schachter SC. Complementary and alternative medical therapies. *Current Opinion in Neurology* 2008; 21: 184-89.
- Sen S, Chakraborty R, De B et al. Analgesic and inflammatory herbs: A potential source of modern medicine. *International Journal of Pharmaceutical Sciences and Research* 2010; 1: 32-44.
- Sen S, Chakraborty R, De B et al. Plants and phytochemicals for peptic ulcer: An overview. *Phcog Rev* 2009; 3: 270-79.
- Sen S, Chakraborty R, De B. Challenges and opportunities in the advancement of herbal medicine: India's position and role in a global context. *J Herb Med* 2011; 1: 7-75.
- Sen S, Chakraborty R. Traditional knowledge digital library: A distinctive approach to protect and promote Indian indigenous medicinal treasure. *Current Science* 2014; 106(10): 1340-43.
- Sen S, Chakraborty R. Toward the integration and advancement of herbal medicine: A focus on traditional Indian medicine. *Bot Target Ther* 2015; 5: 33-44.
- Shankar D, Majumdar B. Beyond the biodiversity convention: The challenges facing the bio cultural heritage of India's medicinal plants. In: Bodeker G, Bhat KKS, Burley J et al., Eds. Medicinal Plants for Forest Conservation and Health Care. Rome: *Food and Agriculture Organization of the United Nations* 1997: 87-99.

30. Sharma SK, Katoch DC. Current Status & Infrastructure of Ayurveda 2006.
31. Shikha S, Nidhi M, Bacopa Monniera – A Future Perspective. *Int J Pharm Sci And Drug Res* 2009; 13: 154-57.
32. Siddiqi T. Unani Medicine in India. *Indian J Hist Sci* 1981; 16: 22-25.
33. Silva TD. Industrial utilization of medicinal plants in developing countries. In: Bodeker G, Bhat KKS, Burley J et al., Eds. Medicinal Plants for Forest Conservation and Health Care. Rome: *Food and Agriculture Organization of the United Nations* 1997; 34-44.
34. Spinella M. Herbal medicines and epilepsy: The potential for benefit and adverse effects. *Epilepsy Behavior* 2001; Dec 2 (6), 524-32.
35. Thillaivanan S, Samraj K. Challenges, constraints and opportunities in herbal medicines: A Review *Int J Herb Med* 2014; 2: 21-24.
36. Tripathi KD. Essentials of Medical Pharmacology. 5th Edn. New Delhi: *Jaypee Brothers, Medical Publisher* 2004; 369-74.
37. Tyagi A, Delanty N. Herbal remedies, dietary supplements, and seizures. *Epilepsia* 2003; 44(2): 228-35.
38. Wachtel-Galor S, Benzie IFF. Herbal medicine: An introduction to its history, usage, regulation, current trends, and research needs. In: Benzie IFF, Wachtelgalor S, Eds. Herbal Medicine: Biomolecular and Clinical Aspects. 2nd Edition. Boca Raton (FL): *CRC Press/Taylor & Francis* 2011.
39. World Health Organization. National Policy on Traditional Medicine and Regulation of Herbal Medicines - Report of a WHO Global Survey. Geneva: *WHO* 2005.

Date of Submission: 2018-05-03

Date of Acceptance: 2018-05-28