IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, June 2022
Impact Factor: 6.252

Medicinal Plants Used to Treat Epilepsy

Saksham Kaldante[1], Shaibaj Pathan[2], Akshada Gund[3], Pratik Datir[4], Gadge Shubham C.[5]
Samarth Institute of Pharmacy Belhe, Pune, Maharashtra, India[1,2,3,4]
Dr. Vitthalrao Vikhe Patil's Foundation of College of Pharmacy, Ahemednagar, Maharashtra, India[5]

Abstract: *Epilepsy is a neuropsychological disorder, in which occurs due to over release of neurotransmitter substance. Epilepsy is different from the seizures, a seizure occurs due to abnormal and excessive hyper synchronous release from an aggregate CNS. There are lot of drugs available in market to treat epilepsy. But the major problem behind these drugs is patient faces chronic side effects. There are number of patients who faces resistant to antiepileptic drugs. Since from the ancient time, plants are used by the people to treat epileptic seizures. Different herbs plays vital role in prevention and treatment of convulsions. Convulsion is the second most common neurological disorder which is present among the world's population. Approx. 1% of the world's population suffers from this neurological disorder. Most of the patient requires polytherapy to cure from convulsions with minimum resistant and disadvantages, but somehow still this therapy does not show 100% cured effect. Hence, this review represents some of the herbal plants which can cure this condition and motivates researchers and patients to turn towards herbal remedies. Herbal drugs shows same action on their target side as that of synthetic drugs. Plants with certain active constituents shows pharmacological action on various organs in human body. Various herbal drugs can combined together to show antiepileptic effect through various mechanisms such as ant oxidation, anti-inflammation, modulation of NMDA channels and sodium channel, GABAergic effect enhancement and neuroprotection.*

Keywords: Epilepsy, polytherapy, convulsions, antiepileptic, herbs, medicinal plants

I. INTRODUCTION

Epilepsy is a common chronic neurological condition that affects around 50 million people in world's population. Seizure episodes occurs due to excessive discharge from brain cells. An epileptic seizure is a sudden of uncontrolled discharges of neurons causing an event that is visible by the person experiencing the seizures or by the observer this tendency to reoccurrence attacks is denoted as epilepsy. Epilepsy can occur due to underlying brain issues such as depression, sleep, migraine, memory problems, etc. Electroencephalogram, Magnetic resonance imaging, etc are the methods to diagnosis the presence of seizures in the patient.

II. TYPES OF SEIZURES

- Generalised Seizures
- Partial Seizures

2.1 Generalised Seizures

- Tonic-clonic: Patient experiences instant loss of consciousness, even person may cry out and bite their tongue.
- Tonic: Patient experiences instant loss of consciousness and they falls on the ground usually on their back,
- Atonic seizures: Patient experiences muscle relaxation and they fall forwards and this shows potentially injuring themselves.
- Absence seizures: Patient experiences, as pause and stares at one place for few seconds. This is more common in children.
- Myclonic seizures: Patient experiences brief loss of consciousness and involuntary jerking of arms and legs.

2.2 Partial Seizures

- Simple partial seizures
- Complex partial seizures.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, June 2022
Impact Factor: 6.252

III. MEDICINAL PLANTS USED IN TREATMENT OF EPILEPSY

- Cannabis sativa
- Datura metel L
- Nardostachys jaramansi
- Panax ginseng
- Rauwolfia serpentine

3.1 Cannabis sativa

Fig 01- *Cannabis sativa*

A. Scientific Classification

- Kingdom : Plantae
- Subkingdom : Tracheobionta
- Division : Magnoliophyta
- Class : Magnoliopsida
- Subclass : Hamamelididea
- Order : Urticales
- Family : Urticaceae
- Genus : *Cannabis*
- Species : *sativa*

B. Chemical Constituents

It consist of 20% of resin which is present in glandular trichomes, which have major active constituent euphoric principle 1-3-4 Trans tera-hydrocannabinal. It also comprises of choline, volatile oil and trigonelline. Mainly this plant consist of Cannabinoids which is present in plant of *C.sativa* which is used as anti-convulsant. The resin of this plant also comprises of cannabidiolic acid, cannabinol, cannabidiol, cannabigerol and connabichromene.

3.2 *Datura metel l.*

Fig 02- Datura metel

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, June 2022
Impact Factor: 6.252

A. Scientific Classification:

- Kingdom : Plantae
- Common name : Devil's trumpet
- Order : Solanales
- Family : Solanaceae
- Genus : *Datura*
- Species : *metel*

B. Chemical Constituents

It consist of phytoconstituents such as flavonoids, phenols, tannins, saponins and sterols are found in *D. metel*. Some other phytoconstituents such as alkaloids. The extract of this plant prevents convulsions induced by agents may indicates that enhancement of GABA neurotransmission which are responsible for its anticonvulsant activity.

3.3 *Nardostachys jatamansi*

Fig 03 *Nardostachys jatamansi*

A. Scientific Classification

- Kingdom : Plantae
- Division : Mangnoliophyta
- Order : Dipsacales
- Family : Valerianaceae
- Genus : *Nardostachys*
- Species : *jatamansi*

B. Phytochemical Constituents

It consist of 1 to 2% of pale yellow volatile oil, resin, sugar, starch and bitter constituent, an alcohol and its isovaleric ester. It also consist jatamsic acid and ketones jatamansone and nardostachone Jatamansinone. Nardostachys jatamansi is stimulant where as it is used in small doses and also useful in epilepsy, hysteria and palpitation of heart.

3.4. Panax ginseng

Fig 04- *Panax ginseng*

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, June 2022
Impact Factor: 6.252

A. Scientific Classification

- Kingdom : Plantae
- Order : Apiales
- Family : Araliaceae
- Genus : *Panax*
- Species : *ginseng*

B. Chemical Constituents

It consist a mixture of saponin glycosides whereas this belongs to triterpeniod group. They are grouped as Ginsenosides, Panaxosides and Chikusetsusaponin as a constituent. The Chikusetsu saponinsaponin from panax ginseng shows anticonvulsant property.

3.5 Rauwolfia serpentine

Fig 05- *Rauwolfia serpentine*

A. Scientific Classification:

- Kingdom : Plantae
- Division : Magnoliophyta
- Class : Magnoliopsida
- Order : Gentianales
- Family : Apocynaceae
- Genus : *Rauwolfia*
- Species : *serpentine*

B. Chemical Constituents

It consist of constituents such as about 30 indole alkaloids have been reported in drug and total alkaloidal content of rauwolfia root ranges from 0.7 to 3% depending upon the source. The main alkaloid of this plant is reserpine. The major alkaloids present in this plant is reserpine and rescinnamine are ester derived from methyl reserpate and trimethoereybenoic acid in reserpine and trimethoxybenzoic acid in case of rescinnamine. Reserpine lowers the blood pressure by depending stores of catecholamines at nerve ending which is present in *R.serpentine*.

III. CONCLUSION

There are various drugs available in market to treat epileptic seizures. But this review study shows that there are some of the plants which shows the anti-convulsant or anti-epileptic activity. Plants with certain active constituents shows pharmacological action on various organs in human body. Various herbal drugs can combined together to show antiepileptic effect through various mechanisms such as antioxidation, anti-inflammation, modulation of NMDA channels and sodium channel, GABAergic effect enhancement and neuroprotection. Herbal medicine plays important role in overall aspects such as economical and medicinal. Although usage of these herbal medicines is increased day by day because of their quality, efficacy and safety. As compared to allopathic medicines herbal medication is considered as safer. Whereas allopathic medications are associated with some side effects. Hence, this medicinal plants can be used in various formulations and further studies are also possible.

IJARSCT
ISSN (Online) 2581-9429
International Journal of Advanced Research in Science, Communication and Technology (IJARSCT)
Volume 2, Issue 2, June 2022
Impact Factor: 6.252

REFERENCES

[1]. Papiya Bigoniya, Medicinal plants used in the treatment of epilepsy, Article in International Research Journal of Pharmacy • January 2011.
[2]. Chaudhary Bhawana, Suthar Sushil and Sharma Amit, evaluation of antiepileptic activity of datura metel leaf extract in experimental animal, international journal of research in pharmacy and chemistry, IJRPC 2016, 6(3), 451-457.
[3]. Wei Liu1, Tongtong Ge, The effects of herbal medicine on epilepsy, Oncotarget, 2017, Vol. 8, (No. 29), pp: 48385-48397.
[4]. Anwuli Endurance Odieka , Gloria Ukalina Obuzor, The Medicinal Natural Products of Cannabis sativa Linn.: A Review, Published: 4 March 2022.
[5]. Chia-Hui Lin and Ching-Liang Hsieh, Chinese Herbal Medicine for Treating Epilepsy, published: 02 July 2021 doi: 10.3389/fnins.2021.682821.
[6]. E. Ngo Bum et al, Antiepileptic Medicinal Plants Used in Traditional Medicine to Treat Epilepsy.
[7]. Sachchidanand Pathak, L singh, T singh, S K Sharma, herbal remedies used in the treatment of epilepsy, July 2013.
[8]. E. Ngo bum, G.S. Taiwe, F.C.O Moto, G. T. Ngoupaye, R.R.N. Vougat, V.D. Sakoue, C. Gwa, E.R. Ayissi, C. Dong, A. Rakotonirina and S.V.. Rakotonirina, antiepileptic medicinal plants used in traditional medicine to treat epilepsy, : october 27th, 2010 reviewed: June 3rd, 2011 published: september 15th, 2011 doi: 10.5772/18469.
[9]. Ra. Ahirrao, RV Nearkar, GP. Nikum and SP. Pawar, A review of herbal drugs used in the treatment of epilepsy.
[10]. Malvi Reetesh, K.bibonoya papaya, medicinal plant used in the treatment of epilepsy, Radharaman college of Pharmacy,bhopal, M.P., India.
[11]. Lian Xiao-yua, Zhang Zhizhen, Stringer Janet l., anticonvulsant and neuroprotective effect of ginsenosoids in rats, epilepsy research, 70, 2006, 244-256.
[12]. Eva M. Jimenez- Mateos, David C.Henshall, Review Articles Seizure preconditioning and epileptic tolerance: Models and mechanism department of physiology & medical physics, Royal college of surgeons in Ireland, Dublin, Ireland recived October 15, 2009.
[13]. Paul A.Modica Rene Temopelhoff, and Paul F.white, Review Articles Pro - and Anticonvulsant Effects of Anesthetics.