WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.074
Volume 7, Issue 12, 182-187. Review Article ISSN 2277–7105

REVIEW OF *LYCOPODIUM CLAVATUM* WITH HOMEOPATHIC PERSPECTIVE AND MODERN PHARMACOLOGY

Sriram B. S.*[1], Dr. Ravichandra V.[2], Dr. Patanjali K. V.[3], Dr. Rajendra Holla[4], Dr. Chandrashekharayya H. H.[5]

[1]Research Scholar, Department of Pharmacology, K.S Hegde Medical Academy, Mangaluru, Karnataka. India.
[2]Associate Professor, Department of Pharmacology, K. S Hegde Medical Academy, Mangaluru, Karnataka.India.
[3]General Medical Practitioner, Primary Health Care Centre, Purappemane Shimoga, Karnataka. India.
[4]Professor & HOD, Dept. of Pharmacology, K. S. Hegde Medical Academy, Mangaluru, Karnataka. India.
[5]Junior Resident, Department of Opthalmology, K. S. Hegde Hospital, Mangaluru, Karnataka, India.

Article Received on
24 April 2018,
Revised on 14 May 2018,
Accepted on 04 June 2018
DOI: 10.20959/wjpr201812-12559

***Corresponding Author**
Sriram B. S.
Research Scholar, Department of Pharmacology, K.S Hegde Medical Academy, Mangaluru, Karnataka. India.

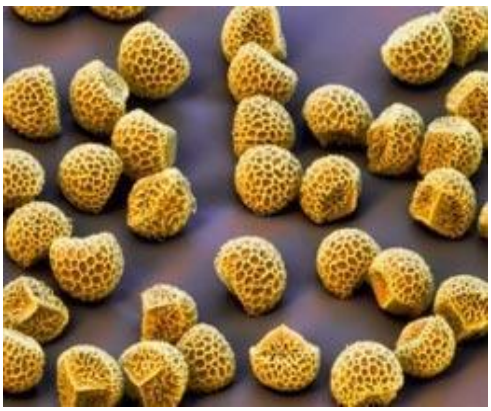
ABSTRACT

Homeopathy is the second most practiced system of medicine in the world next to the modern medicine. Chronic cases can be managed well without any adverse drug effects. Thus majority of people are seeking treatment with homeopathy for its gentle and beneficial actions Interesting aspect about homeopathic treatment is, it is independent of age groups and based on nature, duration and frequency of illness the right potency is selected before the establishment of diagnosis. At the current situation, numerous preclinical and cell line studies are conducted in which beneficial aspects of homeopathy has been found. *Lycopodium clavatum* commonly known as club moss or ground pine is the most widespread species in the genus lycopodium of lycopodiaceae family. In Homeopathy mainly Spores of lycopodium are used for preparation of mother tincture Whole plant is enriched with medicinal properties and pharmacological studies has shown that decoction of the plant possess mainly analgesic, antirheumatic, carminative, hepatoprotective activities. This review attempts to understand its properties in context of homeopathic and pharmacological background.

KEYWORDS: Homeopathic medicine, *Lycopodium clavatum*, Spores, Pharmacology.

INTRODUCTION

The concept of homeopathy is based on ‘’like cures like’’ principle, which states that any drug which can produce disease in a healthy individual can cure the same disease in diseased individual when given in low doses. Thus homeopathy is a form of energetic medicine acting on vitality of a person to produce cure. Various drugs are obtained from plants, animals, minerals and sometimes from diseased organs also called as nosodes[1] Among which plant sources provides numerous remedies in materia medica. According to homeopathic system of medicine lycopodium clavatum is remedy where some evidence of urinary or digestive disturbance is found and it is more adapted to the ailments which are gradually developing, functional power weakening with failures of digestive powers and function of liver is seriously disturbed.[2] Pharmacological research has shown that lycopodium clavatum posess numerous health benefits such as hepatoprotective, anticancer, analgesic, anti inflammatory actions etc.[3]



a) spores of Lycopodium clavatum.

b) Lycopodium clavatum plant.

Figure 1: Images of spores and Lycopodium clavatum plant.

Taxonomical classification

Kingdom:	Plantae
Division:	Lycopodiophyta
Class:	Lycopodiopsida
Order:	Lycopodiales
Family:	Lycopodiaceae
Genus:	*Lycopodium*
Species:	L. clavatum
Binomial name	
Lycopodium clavatum	

Distribution

Lycopodium clavatum has a broad distribution across north Asia, North America and Europe and in tropical and subtropical mountains in the Caribbean, South America and East Africa.[4]

Description of plant

This plant grows well in grassy, high altitude regions .

Morphology (micro and macro)

Macro

The leaves of plant are small (3-5 mm long and 1 mm wide) and spore cones are green to yellow in colour. It is an pteridophyte.

Micro

Longitudinal section (L.S.) of mature strobilus shows sporophyll bearing sporangium with numerous spores.[5]

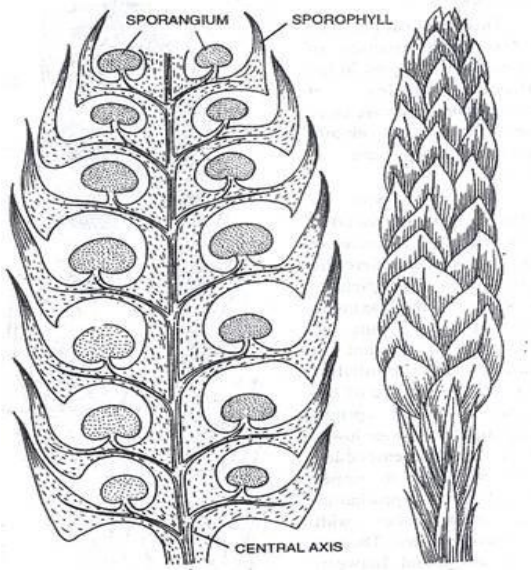
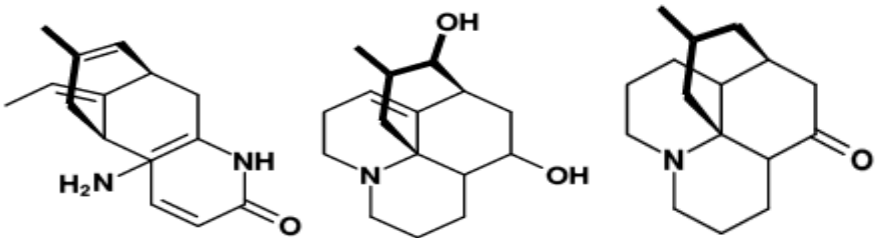


Figure 2: showing L.S of strobilus Lycopodium clavatum.

Chemical composition

Lycopodium is the rich source of various alkaloids and phytoconstituents however many compounds have not been well studied. The main constituents are huperzine A, lycopodine, lycoflexine, Alpha-onocerin and sporopollenin etc. Another important compound called apogenin which is having potent antioxidant property has been isolated from *Lycopodium clavatum.* There are reports of some toxicological studies on this plant.[6]



Huperzine A **Lycofoline** **Lycopodine**

Figure 3: shows the important phytochemical constituents structures obtained from *Lycopodium clavatum*.

Parts used: Spores are crushed and mother tincture is obtained.

Homeopathic dose: 30 c, 200c, 1M.

Homeopathic pharmacological actions

In nearly all cases where Lycopodium is the remedy, some evidence of urinary or digestive disturbance will be found. In homeopathic practice lycopodium is very valuable remedy and having broad spectrum of activity, thus it is indicated only in selected cases where similarity matches. Deep seated progressive diseases are benefited and also conditions with liver problems.

Other indications where it can be administered which are indicated in materia medica are.
MIND - Melancholy with afraid to be alone, apprehensive, writes or spells wrong words.
HEAD – Shakes head without any apparent cause, Preamature baldness and grey hair.
EYES – Styes on lids near internal canthus, Day blindness, eyes half open during sleep.
EARS – Humming and roaring with hardness of hearing.
NOSE – Nose stopped up, child starts from sleep rubbing nose.
FACE – Grayish yellow colour of face, with bluish circle around eyes.
MOUTH – Teeth extensively painful to touch, blisters on tongue, bad odour from mouth.
THROAT – Dryness of throat.
SKIN – Abscess, Acne, viscid and offensive perspirations.
according to homeopathy Lycopodium is also valuable remedy for diabetes mellitus if the constitution of person matches.[7]

Pharmacological actions

Antiprotozoal activity - Studies shows that petroleum and ether extract of *Lycopodium clavatum* has P. *falciparum* growth inhibiting activity.[8]

Anticancer properties - Lycopodine from *Lycopodium clavatum* extract inhibits proliferation of HeLa cells through induction of apoptosis via caspase-3 activation.[9]

Hepatoprotective effects – Extract of *Lycopodium clavatum* has found to be effective against p-dimethylaminoazobenzene induced hepatocarcinogenesis.[10]

Action on Enzymes – Lycopodium is having favourable influence on neuropeptides by having action on proline containing neuropeptides metabolism which are involved in learning and memory process.[11]

Analgesic activity – Studies has shown that lycopodium possess analgesic effects.[12]

Anti inflammatory effects – Lycopodium has been used by Lohit community of Arunachal pradesh, India for its anti inflammatory actions which has been now supported by some studies.[13]

Central nervous system effects – Lycopodium is found to have acetylcholinesterase inhibiting and anti oxidant activity.[14]

Immunomodulatory effects – In a study on mices, it is found that Ovalbumin (as the vaccine antigen) and formulation of *Lycopodium clavatum* (as the vaccine delivery vehicle) consistently produced a very strong immune response, which depicts its immunomodulating activity.[15]

Other effects - CYP3A4 inhibiting action of *Lycopodium clavatum* ethanolic extracts have been found thereby has an additional potential to be used as antidiabetic.[16]

REFERENCES

1. Boericke W. *Lycopodium clavatum*. Pocket manual of Homoeopathic Materia Medica and Repertory. NewDelhi: B. Jain Publishers, 2007; 409-13.
2. T.S.Iyer.Beginners guide to Homeopathy.B.Jain publishers, 2017; 579-580.
3. Ma X, Gang DR. The Lycopodium alkaloids. Nat ProdRep, 2004; 21: 752-772.
4. Nadkarni KM. Indian plants and drugs, Ajay BookServices 2010, New Delhi, India.

5. Zimudzi C, Bosch CH. *Lycopodium clavatum* L. In:Schmelzer GH, Gurib-Fakim A, [Editors]. Prota 11(1): Medicinal plants/Plantes Medicinals, 2007; 1-7.
6. Ayer W. The Lycopodium alkaloids. Nat Prod Rep, 1991; 8: 455-463.
7. Boericke W. *Lycopodium clavatum*. Pocket manual of Homoeopathic Materia Medica and Repertory. NewDelhi: B. Jain Publishers, 2007; 409-13.
8. Orhan IE, Şener B, Kaiser M, Brun R, Tasdemir D.Antiprotozoal activity and cytotoxicity of *Lycopodium clavatum* and *Lycopodium complanatum* sub sp.chamaecyparissus extracts. Turkish Journal of Biochemistry, 2013; 38(4): 403–408.
9. Mandal SK, Biswas R, Bhattacharyya SS, Paul S, Dutta S, Pathak S *et al*. Lycopodine from *Lycopodium clavatum* extract inhibits proliferation of HeLa cells through induction of apoptosis via caspase-3 activation. European Journal of Pharmacology, 2010; 626: 115-122.
10. Pathak S, Das JK, Biswas SJ, Khuda-Bukhsh AR.Protective potentials of a potentized homoeopathic drug, Lycopodium-30 in ameliorating azo dye induced hepatocarcinogenesis in mice. Molecular and CellularBiochemistry, 2006; 285: 121-131.
11. Rollinger JM, Ewelt J, Seger C, Sturm S, Ellmere EP, Stuppner H. New insights into the acetylcholinesterase inhibitory activity of *Lycopodium clavatum*. Planta Med, 2005; 71: 1040-3.
12. Sundaram EN, Singh K, Reddy K, Kumar S, Nair KRJ, Khurana A *et al*. Preliminary study to evaluate analgesic and behavioural effects of *Lycopodium clavatum* in experimental animals. Indian Journal of Research in Homoeopathy, 2013; 7(4): 168-174.
13. Namsa ND, Tag H, Mandal M, Kalita P, Das AK. An ethnobotanical study of traditional anti-inflammatory plants used by the Lohit community of ArunachalPradesh. Indian Journal of, 2009; 125(2): 234-245.
14. Orhan I, Terzioglu S, Sener B. Alpha-onocerin: an acetylcholinesterase inhibitor from *Lycopodium clavatum*.Planta Med, 2003; 69(3): 265.
15. Mackenzie G, Shaw G. Sporopollenin. A novel, naturally occurring support for solid phase peptide synthesis. Int J Pept Protein Res, 1980; 15(3): 298-300.
16. Tam TW, Liu R, Arnason JT, Krantis A, Staines WA, Haddad PS *et al*. Cree antidiabetic plant extracts display mechanism-based inactivation of CYP3A4. Can J Physiol Pharmacol, 2011; 89(1): 13-23.