Overview For Various Aspects of The Health Benefits of Piper Longum Linn. Fruit

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Abstract: Long pepper or Pippali (Piper longum Linn. L; family Piperaceae) is a veritably important medicinal factory. It's indigenous to South-India and Western Ghats of India, and is cultivated in hotter corridor of India substantially Orissa, Kerala and Central to North Eastern Himalayas. It's being used from thousands of times in colourful traditional medicinal practices similar as Ayurveda, Unani etc. Piper longum also shows colourful pharmacological conditioning similar as antifungal, insecticidal, antimicrobial, antiamoebic, antidiabetic, antioxidant, anti-cancerous and effect on respiratory system. Current review deals with the Botany, phytochemistry and pharmacology of P. longum.

I. INTRODUCTION

Medicinal plants are known as the ‘backbone of the Traditional medicinal system. Further than 3.3 billion People in developing countries calculate on medicinal plants To treat various disease conditions. One similar factory is Piper Longum which is also known as Javanese, Long pepper [1]. This plant have been the source of drugs since thousands Of times. Species of the rubric Piper are among the Important medicinal plants used in various systems of Medicine[2][3]. (Piper longumL. (Piperaceae), generally Known as “ long pepper ”, is extensively distributed in the Tropical and tropical regions of the world, throughout The Indian key, Sri Lanka, Middle Eastern Countries and the Americas. It's said that the Roman Emperors valued it indeed more largely than black pepper Due to its high commercial and provident significance. Pippali is a important goad for both respiratory and digestive systems and showed a reviving effect on Lungs. In Ayurveda, Pippali vardhmaan rasayana is veritably effective drug in treatment of rheumatoid Arthritis, habitual fever, malarial fever. Fruit and root factory corridor are used to treat colorful conditions and Infections. Pippali is used extensively as expectorant, Asthma, nausea, diarrhea, retain hypoglycemic, Medullary goad and cough suppressant goods. In fruits of P.longum scientific studies have linked The parcels like anti-inflammatory,anti-fertility and anti-allergic. In roots only anti-fertility eventuality is Reported [4].

Figure 1: Piper longum (Ppillimool)

Various chemical ingredients are present in the P.longum. Among all the phytochemicals Piperine is the Chief alkaloid(3-5) on the dry weight base. Fruit of long pepper correspond large number of alkaloids and Amides which is methyl piperine, along with iperonaline, piperetteine, asaririne, piperlongumine, Piperlonguminine, refractomide A. Lignans present are sesamin, fergasin and others.P.longum fruit Contains esters similar as tridecyl- dihydro- p- coumarate, eicosanyl-€- p-coumarate. unpredictable oil painting of pepper is A complex admixture of caryophyllene, pentadecane and bisaboline. Essential oil painting shows insecticidal and nonentity Repellent conditioning[5].
II. SYNONYMS

Piper latifolium Hunter, P. saramentosum Wall., Chavica roxburghii M.C.

2.1 Vernacular names

English: Long pepper,
Hindi: Pippali, Sanskrit: Ushana, Kana, Magadhri, Pippali, Krishnapippali

2.2 Morphological characters

Kingdom: Plantae
Division: Magnoliophyta
Class: Magnoliopsida
Order: Piperales
Family: Piperaceae
Genus: Piper
Species: P. Longum
Binomial name: Piper longum L.

Habitat: The native of factory is considered to be South Asia And is set up both wild as well as cultivated, throughout the hotter corridor of India from central to the north-eastern Himalayas. The condiment also grows wild in Malaysia, Singapore, Bhutan, Myanmar.

2.3 Ayurvedic properties

Rasa Katu( pungent)
Guna Lahu( light), snigdha( oleaginous), tikshna( sharp)
Veerya Anushashita( slight cold wave)
Vipaka Madhur( sweet)

III Botanical description

It's having slender, sweet, imperishable rambler with Woody roots and multitudinous wide ovate, cordate leaves. The inflorescence is a spherical, pedunculate shaft, the womanish flower is over to 2.5 cm long and 4-5 mm in Diameter but the manly flower is larger and slender. The Fruits are small, elliptical berries, candescent palish green, Bedded in fleshy harpoons[6].

3.1 Geographical Distribution

It's a native species of the Indo-Malaya region. It's substantially grown in limestone soil and heavy downfall areas Having high moisture[11]. The factory is substantially set up in the 'Tropical rainforests of Nepal, India, Indonesia, Malaysia, Sri Lanka, Rhio, Philippines and Timor. In India, the Factory is distributed from the central Himalayas to Assam, Tamil Nadu, Andhra Pradesh, Madhya Pradesh, Maharashtra, Kerala, Karnataka, lower hills of West Bengal, Khasi hills, Mikir hills and evergreen timbers of The Western Ghats from Konkan to Kerala and Nicobar islets.

III Phytochemistry

The chemical constituents of Pepper Piperine is the major and active element of long Pepper( Piper longum). The piperine content is 3-5( on Dry weight base) in P. longum Isolation and birth of Piperine from Piper species Piperine can be insulated from the oleoresin of P. nigrum Or P. longum. The powdered fruits of the factory are uprooted with dichloromethane at room temperature With stirring for 12 hours. The excerpt is filtered, Concentrated in vacuum and also the residue is purified On an alumina column. Pure piperine can also be attained By crystallization from ethanol, which may be needed for Food and/ or medicinal exercises. Piperine is attained Directly from the crude residue in lower quantities by birth in alcohol, filtration and consecutive Crystallization.

3.1 PROPERTIES OF PIPERINE[8]

I Chemical names

a) Piperoyl piperidine
b) (E, E) 1-( 5-( 1, 3- Benzodioxol-5-yl)-1-oxo-2, 4 Pentadienyl) piperidine

II Molecular weight: 285.33

III Chance composition: C = 71.55, H = 6.71, N = 4.91 And O = 16.82.

The fruits gave positive tests for the presence of unpredictable oil painting, bounce, protein and alkaloids, saponins, carbohydrates, And amygdalin and negative test for tannins[9]. Sylvaine And dieudesmin were present in the seeds of P. longum (10) Adipose acids of crushed seeds were reported to be Palmitic, hexadecenoic, stearic, linoleic,

3.2 Alkaloids and amides
The fruit of P. longum contains a large number of Alkaloids and related composites, the most abundant of Which is piperine, together with methyl piperine, Iperonaline, pipertetine, asaramine, pellitorine, Piperundecalidine, piperlongumine, piperlonguminine, Refractomide A, pregumidiene, brachystamide, Brachystamid- A, brachystine, picercide, piperderidine, Longamide and tetrahydropiperine, terahydro Piperlongumine, dehydropiperonaline piperidine, Piperine, terahydro piperlongumine and trimethoxy Cinnamoyl- piperidine and piperlongumine have been set up in the root of P. longum[12][13].

3.3 Lignans
Sesamin, pulvuatilol, fargesin and others have been insulated from the fruit of P. longum [14][15][16][17]

3.4 Esters
The fruit of P. longum contains tridecyl- dihydro- pcoumaarate, eicosanyl-€- p- coumarate and Z- 12 Octadecenoic – glycerol monoester [14][15][16][18].

3.5 Volatile oil
The essential oil painting of the fruit P. longum is a complex Admixture, the three major factors of which are (banning the unpredictable piperine) caryophyllene and Pentadecane (both about 17.8) and bisabolene [11]. Others include thujine, terpinoline, zingiberine, pcyocene, p- methoxy acetophenone and dihydrocarveol[14]-[21]. Long pepper contains lower essential oil painting than Its cousins( about 1), which consists of sesquiterpene Hydrocarbons and ethers( bisabolene, β- caryophyllene, β Caryophyllene oxide, each 10 to 20 %; α- zingiberene, 5%), And impregnated aliphatic hydrocarbons similar as 18% Pentadecane, 7% tridecane, 6% heptadecane [21]

IV ACTIONS AND PROPERTIES
I. Doshkaram: It alleviates the vitiated Kapha, Piita and Vata dosha and is used to treat the diseases that arise Due to misbalance in Kapha, Vata and Pitta.
II. Sansthanik Karam: The topical operation of the factory Helps in head evacuation. It's also used as a blood Cleaner and possesses anthelmintic properties.
III. Abhyantranadisansathan: It's used as a brain alcohol and Balances Vata dosha.
IV. Paanchansansathan: It’s used to cure bellyache, Constipation, dysentery, diarrhea, pacify thirst, stimulate the spleen and also act as a mild laxative.
V. Raktabahsanthan: It's used as a blood cleaner.
VI. Shawasansathan: It's used to stop interruptions and is Associated with antitussive and anti-asthmatic properties.
VII. Mutravahsanthan: It acts as a diuretic agent.
VIII. Prajanansasnthan: It stimulates the uterine muscles and Acts as an aphrodisiac agent.
IX. Twacha: It’s effective against skin diseases.
X. Taapkram: It's used as an antipyretic agent.

4.1 Pharmacology Properties
4.1.1 Antifungal Activity
Essential oil extracted uprooted from Piper longum showed fungicidal exertion. Hexane bit ofP.longum used to insulate piperonaline, a piperadine alkaloid showed potent fungicidal exertion at attention of 0.250.5 mg/ ml against Puccinia recondita. Fruit deduced material containing piperonaline was tested towards Six phytopathogenic fungi [22].

4.2.2 Insecticidal Activity
Essential oil derived from fruits of Piper longum showed insecticidal and nonentity- repellant exertion. Piperonaline and pipercotadecalidine were figured out against five species of arthropod pests.

4.2.3 Antimicrobial Activity
Various extracts like fruit and root excerpts were prepared assessed against bacterial pathogens like Salix Alba, Salmonella typhi,E.coli and one fungus Aspergillus niger. In comparison with Streptomycin factory Excerpt showed good antibacterial exertion. Against all the tested bacteria N-Hexane excerpt and insulated ingredients showed varying degree of antibacterial exertion[23].
4.2.4 Antiamoebic Activity
Histolytica infecting the caecum of mice were studied (Sawangjaroen Net et al. 2004). The n-butanol answerable bit, hexane bit, ethanolic excerpt of Both P. longum roots and fruit containing Piperine parade antiamoebic exertion[24].

4.2.5 Effect on respiratory system
Piperine insulated from factory material was tested on laboratory creatures similar as Frogs, mice, rats and tykes. It showed central goad action. Respiratory stimulation was produced in lower cure by petroleum ether Excerpt of Piper longum but advanced cure of excerpt cause upheaval in laboratory creatures[25].

4.2.6 Antidiabetic Activity
A study was conducted on rats suffering from alloxan- convinced diabetes, anti-hyperglycemic and anti-lipid peroxidative goods of ethanolic fruit excerpt of P. longum. Dried fruit’s oral operation has shown Antioxidant, anti-hyperglycemic, anti-lipid peroxidative goods[26].

4.2.7 Antioxidant Activity
Amrita bindu is the combination of mariners, spices (Piper nigrum, Piper longum and zingiber officinale) and Sauces (Cyperus rotundus and Plumbago zeylanca) and this combination was tested for anti-oxidant exertion[27]

4.2.8 Anti cancer Activity
Significant anti-tubercular exertion is reported to displayed by Piper longum. A major alkaloid, piperine is Present in P. longum which showed significant anti metastasis exertion (Pradee C Ret al. 2002). Chemopreventive goods are also shown by piperine when it's conducted orally on the creatures suffering From lung cancer. Cytotoxic exertion is showed towards excrescence cell lines by alkaloidal amides similar as Piplartine and piperine[28].

V. CONCLUSION
Then, an attempt was made to address chemistry and Pharmacology of the P. longum. thus, the review of Plant Piper longum revealed that it has got a variety of pharmacologically and medicinally significant ingredients, which are being employed in the field of Ayurveda. It's a factory of high marketable and provident significance and its use as a bioavailability enhancer can be explored in colorful phrasings. The below review provides information of its phytopharmacology.

REFERENCES

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[19] Internet search, www.uni-graz.at/~katzer/ergl/spicebot.html#piperace


