University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 4 (October to December, 2023)

# Emerging Trends of Pharmacotherapyin Phytomedicines and their Pharmacological Effects on Human Health

***JV'n Sarila*** (JV-P-22/6391)

**Abstract :**

Many priceless medications from traditional medicinal plants can be produced using a phytomedicine approach to drug research it is quite expansive because finding new and pure compound from the herbal plants takes time and it takes efforts and money. But it is miracle for the modern drug development of new compounds to treat disease. About 80% of world population used phytomedicines. Because they are trustworthy. it is estimated that about 7,500 plants are used in local health tradition in, rural area of medicines. The classical system of medicine such as, siddha, unani, amachi, ayurveda and Tibetan use 1,200 plants. This paper focus on pharmacological effects of phytomedicine on human health and how the plants show their therapeutic effect. This paper contains ,1] phytomecine and their therapeutic in drug development].2 ethnopharmacology and their role in phytomedicines.3phytomedicine control diabetes.4 phytomedicines and liver disease.

**Key word :** traditional, phytomedicine, ayurveda, siddha, unani, Tibetan, ethnopharmacology.

## Introduction :

Phytomedicines play a vital role in the human health care. Phytomedicine is the branch of science which deals with the study of herbs/plants and medicines. Medicine is composed of drug + API [active pharmaceutical ingredients]. drug is a substance that obtained from the animals, plants, by synthesis, chemicals used to treat, diagnosed, disease and disorders. Almost 80% of world population anticipate on the use of phytomedicines which is predominantly based on plants materials.[1]. It is estimated that about 7,500 plants are used in local health tradition in, approximately, rural area of the India. The classical system of medicine such as Siddha, Unani, Amchi, Ayurveda and Tibetan use about 1,200 plants.[2]. A complete investigation and documentation of plants used in local health traditions and pharmacological judgment of these plants and their taxonomical relatives can lead to the occurrence of invaluable herbal drugs for multiple dread disease. [3]. phytomedicines are agents that's have plants metabolites as their pharmacologically active compounds. The most widely used phytomedicine are plants extracts obtained through using maceration, percolation the crude plant. The active parts of the plats can used both as solid[powder] and liquid form.[4] In Indian system of medicine most practitioners formulate and dispense their own recipes.[5] India is the biggest producer of herbal herbs that's why it is called as botanical garden of the world.[5]in this review articles we mention various disease ant their treatments with herbs including their pharmacological action. it amazing that we can easily find both things together which will be very help full for the future. LikeIndia in the previous decades have highlighted that not only is the diabetes, joint disorders, skin wound healing, liver related disease, respiratory syndromes etc. Phytomedicines are the miracles to all to treats all kinds of disease, which was safe, effective with having sustained effects.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 4 (October to December, 2023)

**Phytomedicine and their therapeuticsin drug developments.**

Basically, therapeutics means treatment of a particular disease. Including pharmacotherapy and pharmacological action of the drug on particular disease. The importance in the developments of a new drug whose extraction and have fractionation have emerged on the basis of therapeutic activity. The fraction of an active compound or mixture of the fraction prove greater therapeutically, less toxic compared to clear isolated compound drugs. Although, herbal plant preparations need modern standards of safety and efficacy. Modern bioassay methods and herbal medicine profile to gives many ways and means of developing quality and determining the expiry date of crude preparations. Phytomedicine have lots of importance in recent and previous years because of their safety, efficacy and cost effectiveness. Many single plants material, which are tested for, at least, the opinion isavailable as prescription drugs in Europe. Few examples of these are Echinacea spp [extract of arial part of the plant]. To stimulate immune system. Panax ginseng [root extract]. To combat fatigue and feelings of lassitude, Allium Sativum [bulb extract].as antihyperlipidemic agent. Ginkgo biloba [leaf extract]. To treat cerebral and peripheral circulatory disturbance and serenoa repens [fruit extract]. To treat non-malignant prostate disease.[6].

**Ethnopharmacology and their role in phytomedicines.**

Ethnopharmacology is the branch of science which deals with study of herbal or traditional medicine.it is also called as light of modern science which gives complete uses, and details of traditional medicines. In 1981, Bruhn and Holmstedt defined ethnopharmacology as an interdisciplinary scientific exploration of biologically active agents traditional observed by man.[7] pharmacology is the branch of science which provide knowledge of drugs its action, excretion, metabolism, biotransformation etc. A drug is widely defined as any herb [chemical agent] that's harm living. the main component of ethnopharmacology may be defined as pharmacology of drugs used in ethnomedicines.[8] there are several medicinal plants in which drug is obtained and used in modern medicine for ethnopharmacological studies. More than 100 drugs of known structure that are extracted from higher plants and used in allopathic medicines. [7,8]. invention of new drug is not an easy task, it is time consuming and expensive methods, it requires among other things complete toxicological studies. In United States of America, the developments of a new drugs take hundreds of millions of dollars. A complete team of the scientist discovered a one molecule within 10 to 15 years. But the success rate of discovered molecule is risky or less.[9] currently some drugs launched which having activity to enhance the of memory. [memory plus, velvette International Pharma products] discovered at CDRI is an active fraction from Bacopa Monniera containing bacoside's. Some research for isolated compounds as drugs by CIBA Geigy Research centre [Mumbai, India]. Did not prove productive.10

**Phytomedicines control diabetes**

Diabetes is common major health problem all over the world. Every 3rd person of the total world population suffers from diabetes. insulin dysfunction is the main cause of diabetes. It is of two types Type I and Type II. Traditional phytomedicines has been used since ancient time in many parts of the world. Plants like mucuna pruriens, brassica juneca, m. charantia, Eugenia Jambolana have found to have a anti diabetic property.11more than 500 Phyto drugs recently discovered having antidiabetic activity. The principal antidiabetics plants included carica apapaya, citrus aurantifolia, bidens Pilosa, Momordica charantia.12

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 4 (October to December, 2023)

**Momordica charantia :**

It is also known as bitter gourd or bitter melon belong to family Cucurbitaceae, most grown in Africa and Asia.it cantain charatin, charatoside, and other terpenoids including momordol, momordenol, Momordica and momordicoside. 13,14 outcomes of Momordica charantia fruit powder on serum glucose level and body weight in alloxan induced diabetic rats has been studied.15,16 momordica charantia has been found to enhance insulin sensitivity17.gymneme Sylvester was discovered to provide antidiabetic and hypolipidemic effects on both normal and alloxan- induced diabetics rats.gymnemic acids, which have antisweat action, were found from a leaf extract 18gymeneme sylvestrehas very useful as therapeutic agents for the single stimulation of insulin section in type II diabetes.19 liver produce glucose by stimulating adrenal hormone and gymnema helps to reduce blood sugar levels.20

**Azardicachta Indica;**

It is commonly called as Neem, Margosa or Indian lilac. Belong to family meliaceous. Neem and its chemical constituents much beneficial for human health. Now a days neem used as ornamental plants because it has may properties like antiallergic, anti-diabetic, antiseptic etc. Complete plants used in the Phyto medicines. Mostly three compounds were extracted from neem oil, that were named as nimbin, nimbinin, and nimbidin.

**Liver disease and phytomedicine.**

Liver has a major role in regulation of physiological processes.it regulate several major functions such as secretion, storage and metabolism. However, detoxification of the herbal drug and chemical agents present in liver. Secretion of bile from the liver has an important role in metabolism and digestion. Liver is major organ of the human body and secretion of the drugs from liver main cause of liver inflammation. Liver problems occur by toxic chemicals, irrational use of antibiotics, chemotherapeutics, carbon-tetrachloride, chlorinated hydrocarbons etc. probably hepatotoxic chemicals effects liver cells mostly by inducing lipid oxidative damage and peroxidation in liver.21,22Hepatitis and cirrhosis may arise from enhanced lipid peroxidation brought on by the livers, microsomal breakdown of ethanol.23about 90% of acute hepatitis is thought to be caused by viruses. the primary virus at play hepatitis B, A, C, D [[Delta agents]. E and G are few examples of them. Hepatitis B infection frequently causes chronic liver conditions and liver cirrhosis. These viruses have also been demonstrated to cause primary liver cancer. According to estimates, the South East ASIA region is home to between 14 to 16 million people who suffer this virus, making up around 6% of the region's overall population .24hepatitis B virus immunisation is now possible with a vaccine HIV and hepatitis C.

**Pharmacology and hepatoprotective plants.**

Typically, experimentally ill animals are used to evaluate a drug, therapeutic benefits. Clinical trials, should come after thorough efficacy and toxicity testes on experimental animals. To ascertain the mode of action, thorough biochemical and other in vitro experiments are required. The hepatoprotective effect of herbal medicines is evaluate using both in vivo and in vitro test method. However, a single straight forward screening technique is not available to find hepatoprotective drugs with confidence.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 4 (October to December, 2023)

**In vivo models.**

**Effects of chemicals in liver**

To cause liver damage in laboratory animals a hazardous dosage or repeated doses of a recognised hepatotoxin's [ carbon tetrachloride, pcm.] thioacetamides alcohol, d galactosamine, allyl alcohol, etc. are given the test substance is given before, during of after the toxin treatments. The test, arterial is successful if hepatotoxicity is avoided or reduced. The test material is given concurrently with, a head of or following the toxin treatment. If the hepatoxicity is avoided or diminished, the test substance is successful. Serum marker enzyme, bilirubin, histological changes in the liver and biochemical changes in the liver such as lipid, hydroxyprollin.are used to measure liver damage and recovery from damage.25when liver is damaged liver enzymes such as GOT, [Glutamate oxaloacetate transaminase] or GPT [ glutamate pyruvate transaminase]. Enter into the circulation, the level of these marker enzymes enhanced present in the serum are main caused of liver damaged.26some other effects of influencing liver damaged such as prothrombin. when MOA, of the toxins are diverse, a drugs hepatoprotective activity against various hepatotoxins will vary .27as result, it is essential to find the drugs effectiveness against hepatotoxins, that act in various ways.

**Anti-hepatitis virus role.**

In this paper, simple in vivo test system is not present to examine the antihepatitic virus role in rodent models. Therefore, monkey and duck models have been introducing to test antihepatitic B role which provide the strength.28,29

**Chloral activity.**

There are several methods for cannulating the bile duct to collect bile from conscious and anaesthetized animals to explore how drugs affect the secretion of bile.30,31.

**Prevention of liver damage by in vitro studies.**

A good diet is a permanent solution of any disease. The main cause of liver damage inappropriate food diet, because is the major organ of the body responsible for metabolism and secretion of the body material. in significant part, liver damage caused by harmful environmental pollutants can be ignored through dietary changes. Hepatotoxins cause oxidative damage to the liver, either directly or indirectly. There are lots of vegetables that consumed high number of antioxidants such as carrot, turmeric, vitamin E, etc.32curcuminoids present in turmeric have strong antihepatotoxic.33

**Conclusion :**

This review emphasises the value of medical plants for maintaining human health there have been several studies in this field. Even the fact that the majority of investigation have been performed at the extract level, human trials have not yet been conducted. Numerous experiments will be conducted using isolated antioxidant molecules on different diabetic animal in order to better understand its mechanism of action. The main goal of study of phytomedicine and their pharmacological effect on human body to find new compound as medicine. Hepatitis one of the common and trending disease that have not permant cure. allopathy is good but addition of phytomedicine it will give sustained release which may be more beneficial.

University Research Resource Journal
ISSN : 2581-3730
JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR
Volume 6, Issue 4 (October to December, 2023)

## Reference :

1. Who, Regional Office for the Western Pacific, Research guidelines for evaluating the safety and efficacy of herbal medicines, Manila WHO. 1993.
2. Pushpangadan P, role of traditional medicine in primary health care, in; lyengar PK, Damodaran, VK. Pushpangadan P, edition science for health. Published by state committee on science, technology and environment, govt. of kerala,1995.
3. Aszalos A, editor. Antitumour compound of natural origin. Boca Raton, CRC press, 1982.
4. Rosendo Augusto Yunes, curso de, pos graduacao, em quimica, Universiade federal d Santa Catarina [UFSC]. 88.040-900, Florianopolis-SC, Brazil.
5. Seth SD. Sharma B. Medicinal plants of India. [Indian]. Med.Res.2004;20;9-11.
6. Suck Dev.Ethnotherapeutics and modern drug developments; The potential of Ayurveda. Curr sci 1997;73;909-28.
7. Bruhn, J Homlstedt Ethnopharmacology. Objectives, principles and perspective. In Beal JL, Reinhard E, editor. Natural products as medicine. HIppokrates Verlag 1981;405-30.
8. Subhramoniam A, Pushpangandan P, Ethnopharmacological validation of traditional medicines. In pupanangadan P, Nyman U, ceorge V, editor, glimpses of Indian ethnopharmacology. TBGRI Publication 1995;351-60.
9. Balandin MF, Klocke JK, Wurtele ES, Bollinger WH. Natural plant chemicals; sources of industrials and medicinal materials. Science 1985;288;1154-6.
10. Suck Dev. Ethanotherapeutics and Modern Drug developments, The potential of Ayurveda. Curr sci 1997;73;909-28.
11. Grover JK, Yadav S and Vats V, Medicinal plants of India with antidiabetics potential, J ethanopharmacol 2002;81[1]-81-100.
12. Jia W, Gao W, and Tang L, Antidiabetics herbal drugs officially approved in China. Phytother Res 2003, 17, 1127-1134.
13. Mamata Chandrakar, Sachin Palerkar, Sudhir Chirade and Shiba Almas M. Hafiz, Hypo cholesterol emic effects of Aloe vera [L], Extract on high cholesterol fed calotesversicolor Daudin. AsianJ. Exp. Sci 2008,22[3], 2008, 295-295.
14. Begum S, A hmed M, Siddiqui BS, Khan A, Saify ZS, and Arif M. Triterpenes, A sterol, and an amonocyclic alcohol from Momordica charantia. Phytochem 1997.44[7], 1313-1320.
15. Jafri SA. Ismail MS, and Zaman G, Effect of Momordica charantia [Kerala]. In alloxan induced diabetic rat, Pak, J. sci, 2009, 61[4]; 220-222.
16. Kimura Y, Akihisa T, Yuasa N, Ukiya M, Suzuki T, Toriyama Y, motohashi S and Tokuda H. Cucurbitane type triterpenoids from the fruits of Momordica charantia. J Nat. prod 2005;68.[5], 807-809.
17. Sridhar MG, Vimayagamoorthi R, Arul Sambhunath V, Bobby Z, and Selvaraj N. Biter gourd improves insulin sensitivity by increasing skeletal muscles insulin- stimulating IRS-1 tyrosine phosphorylation in high fat fed rats. Brit. J NUTR 2008; 99[4]. 806-812.
18. Kinghorn AD and Compadre CM. 2001. Less Common High-Potency Sweeteners. In Nabors, Lyn O'Brien. Alternative Sweeteners, CRC Press 209-233.
19. Asare-Anane H, Huang GC, Amiel SA, Jones PM and Persaud SJ. Stimulation of insulin secretion by an aqueous extract of Gymnema sylvestre: role of intracellular calcium. Endocrine 2005 Abstracts, 10: DP1.
20. Gholap S, and Kar A. Effects of Inula racemose root and Gymnema sylvestre leaf extracts in the regulation of corticosteroid induced diabetes mellitus: involvement of thyroid hormones. Pharmazie 2003; 58: 413-415.
21. Recknagel, RO. A new direction in the study of carbon tetrachloride hepatotoxicity. Life sci,1983,33.401-8.
22. Hiroshi A, Toshiharu H. Masahiro H, Shoji A. an alteration in liver microsomal membrane of the rat following paracetamol overdose. J pharm pharmocol 1987;34-79-1047-9
23. Smucker EA. Alcoholic drink: Its production and effects. Fed Proe 1975; 34:2038-44.

24. WHO, Regional Health Report. South East Asia Region Viral Hepatitis. Regional Office for South-East Asia, New Delhi, 1997:45-7.
25. Bickel M, Baader E, Brocks DG, Engelbart K, Gunzber V, et al. Beneficial effects of inhibitors of prohyl-4-hydroxylase in CCl4 induced fibrosis of the liver in rats. J Hepatol 1991;13 suppl3: S26-S34.
26. Subramoniam A, Evans DA, Rajasekharan S, Pushpangadan P. Hepatoprotective activity of Trichopus zeylanicus extract against paracetamol induced hepatic damage in rats. Indian J Exp Biol 1998; 36:385-9.
27. Chrungo VJ, Singh K, Singh J. Differential biochemical response of freshly isolated rat hepatocytes to paracetamol, CCl4 and D-galactosamine toxicity. Indian J Exp Biol 1997; 35:603-10
28. Freiman JS, Gilbert AR, Dixon RJ, Holmes M, Rowans EJ, et al. Experimental duck Hepatitis B virus infection. Hepatology 1988; 8:507-13.
29. Panda SK, Datta R, Kaur J, Zuckerman AJ, Nayak NC. Enterically transmitted non-A, non-B hepatitis. Recovery of virus like particle from an epidemic in south Delhi and transmission of studies in Rhesus monkey. Hepatology 1989; 10:466-72.
30. Shukla B, Visen PKS, Patnaik GK, Tripathi SC, Srimal RC, Dayal R, Dobhal PC. Hepatoprotective activity in the rat of ursolic acid isolated from Eucalyptus hybrid. Phytotherapy res, 1999;6;74-9.
31. Chaudhury SK, Influence of Andrographis paniculate (Kalmegh) on bile flow and hexabarbitone sleeping time in experimental animals. Indian J Exp Biol 1978; 16:830-6.
32. Bishayee A, Sarkar A, Chatterjee M. Hepatoprotective activity of carrot (Daucus carota L.) against carbon tetrachloride intoxication in mouse liver. J Ethnopharmacology 1995; 7:69-94.
33. Evans WC. An overview of drugs having antihepatotoxic and oral hypoglycaemic activities. In: Trease and Evans' pharmacognosy, 14th ed. U.K., W.D. Sanders Company Ltd. 1996