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Medicinal Plants Used for Hypertension

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ABSTRACT

Hypertension is one of the most important diseases in industrialized&developing countries. Statistics display that greater than 7 million people global are suffering from this disease in a year. Hypertension is the third reason of death in the world. Chemical drug treatments used for high blood pressure commonly have side effects, so, the usage of medicinal herbs as herbal&healthful source of drug seemsimportant. The exploration was done by keywords such as blood pressure, medicinal herbs, extracts, essences, ethnobotanical & iran from scientific databases, & databases etc.After studying the documents of this study, medicinal herbs including sage, barberry, eastern grapes, yarrow, rhubarb, buckwheat, spring chamomile,hawthorn, rhubarb, sheng, olive, milk thistle, jujube, strawberry, ziziphus, indole, besides, garlic, fennel, almonds, etc. Have been recommended in the treatment of hypertension.

Keywords: Cardiovascular Diseases, Hypertension, Medicinal Herbs

Introduction:

Natural products from plants, animals&minerals have been the basis of the treatment of human disease. Today estimate that about 80 % of people in developing nations still relays on old-style medicine founded largely on species of plants&animals for their primary health care. Herbal medicines demand&their popularity is increasing day by day. About 500 plant life with medicinal use are noted in historical literature&round 800 plant life were utilized in indigenous structures of drugindia is a huge repository of plants which can be utilized in traditional medicine treatments[1]. There has been ahigh in demand for the phytopharmaceutical products of ayurveda in western countries, because of the fact that the allopathic drugs have side effects. Many pharmaceutical companies are now concentrating on manufacturing of ayurvedic&phytopharmaceutical products[2]. In India, around 20,000 medicinal plants have been verified. Chemical principles from natural sources have become much simpler&have contributed significantly to the development of new drugs from medicinal plants[3-4].

Herbal medicines used for the treatment of hypertension

Many antihypertensive agents used in the treatment of hypertension have some side effects. Therefore, scientific studies recommend diverse lifestyle alterations&the use of suitable medicinal plants in its treatment[5]. Secondary metabolites of some herbs&spices display antihypertensive properties. Most herbal medicines control&reduce hypertension by exerting antioxidant, anti-inflammatory,&anti-apoptosis properties, stimulating the enos-no signalling pathway, suppressing endothelial permeability,&activating angiogenesis[6].the mechanisms of some medicinal plants or their extracts in the management of hypertension

Ajwain (carumcopticum l.)

Carum copticum belongs to the apiaceae family&grows in various regions of central europe, iran (particularly the eastern areas of baluchistan), c. Copticumhasdistinguished role in regulating heart rate. Seeds (cse) (1-30 mg/kg) causes a decrease in bp&heart rate (hr) of normotensive (nmt) rats. At dosages (10-30 mg/kg), bradycardia has stated[7].

Bindii (tribulusterrestris)

Tribulus terrestris is a medicinal plant used for treating hypertension. Bindii causes a decrease in bp in spontaneously hypertensive (shr) rats. Its methanolic&aqueous extracts (0.3–15 mg/ml) shown to have vasodilatory properties[8]. Furthermore, all of the saponins (furostanol&spirostanol saponins&sulphated saponins of tigogenin&diosgenin) of this plant prevent the production of h2 o2 along with the proliferation of vsmcs[9].

Black cumin (nigella sativa)

The nigella sativa plant, well recognized as the seed of blessing, has been used in the middle east, europe,&africa for years. These plant & its components cause a decrease in bp[10]. Oral management of n. Sativa seed oil extract (100 or 200 mg) to mild hypertensive male patients for eight weeks results

in a decline of 10.6&9.6MM hg in sbp&dbp, respectively[11]. Black cumin also lowers bp through vasorelaxation by means of its ability to block ca2+ channels. Other mechanisms that may explain the hypotensive effect of n. Sativa relate to its diuretic function, antioxidant activities[12].

Black-jack (bidenspilosa l.)

Black jack, from the asteraceae family, is an annual plant that grows in south america&is also found in tropical&subtropical regions around the world. Black jack leaf extract was able to inhibit&reduce hypertension in different rat models[13]. In fructose-fed rats, six hours after treatment with 75&150 mg/kg of methanolic leaf extract, sbp was decreased by 17%&21%, respectively.27 additionally, b. Pilosa has anti-cancer&anti-obesity effects as well as radical scavenging ability[13].

Black plum (vitex doniana)

After oral administration of the fresh black plum fruit, both sbp&dbp were considerably diminished in 45 minutes. Bp began returning to standard after 2 hours[14].

Greater burdock (arctiumlappa)

Burdock is also used for the treatment of hypertension. This plant has reactive oxygen species (ros) scavenging action, is able to inhibit vascular inflammation,&can stimulate vasorelaxation[15].

Arctigenin (a dietary phytoestrogen)

Is one of the bioactive components in the dry seeds of burdock that reasons an increase in no production&a lowering in the levels of superoxide anion[16].

Burhead (echinodorusgrandiflorus)

Echinoderm's grandifloras are used in brazilian folk medicine as a diuretic drug. The aqueous extracts of this plant can cause a decline in the mean arterial pressure (map) in addition to cardiac output&vascular resistance in shrs. Bur head also induces persistent diuresisandlow bp by activating muscarinic&bradykinin receptors with effects on prostaglandins[17].

Cardamom (elettaria cardamomum)

Elettaria cardamomum powder has been assessed for its antihypertensive capability. In form of powder, it has decrease mean map as well as sbp&dbp by 19&12MM hg, respectively in pre-hypertensive subjects by increasing the total antioxidant status[18].

Carrot (daucus carota l.)

Carrot has been used in traditional medicine as an antihypertensive mediator. Daucus carota l. Improves endothelial function&regulates fluid balance. Carrot juice is high in antioxidants, which reduction oxidative stress&control the function&structure of blood vessels. Carrot'scontrol bp because it contains of potassium. Intravenous administration of the bioactive components of the aerial parts of d. Carota, including dc-2&dc-3, triggered a decrease in arterial bp in nmt rats. Dc-2&dc-3 can act by cobstructing calcium channels.[19]

Cat's claw herb (uncariarhynchophylla)

Cat's claw is an herb used in traditional chinese medicine to treat hypertension. This plant causes a decrease in bp&relieves different neurological symptoms. Hirsutine (an indole alkaloid) is responsible for the hypotensive function of uncariarhynchophylla, which decreases intracellular ca2+ levels through its effect on the ca2+ store&its effects on the voltage-dependent ca2+ channel[20].

Celery (apium graveolens)

The seed extract of celery has been shown to have a bp-reducing effect in deoxycorticosterone acetate (doca)–induced hypertensive rats. The hexane extract is considerably more effective in reducing bp, probably by reducing levels of circulating catecholamines&diminishing vascular resistance. Extraordinarily, it has antioxidant effects due to the virtue of its flavonoid content[21].

Chakshushya (cassia absus l.)

Cassia absus plant belong to the family fabaceae with ayurvedic ethnomedical histories. This plant is found in tropical&subtropical regions of India. Intravenous administration of alkaloid isolated from cassia absuslinn seeds (1-30 mg / kg) reduces bp in mice. At high doses (10&30 mg / kg), it causes a decrease in hours. Regular injections of the same dose cause tachyphylaxis[22].

Chinese sage (salvia miltiorrhiza)

A traditional chinese herb, salvia miltiorrhiza, has been revealed to have cardioprotective effects on animals&humans. In addition to its vasodilatory capability, chinese sage possesses anti-hypertensive residences which include antioxidative consequences via reduced ros production, extended antioxidative enzymes,&anti-proliferative activities with the aid of using stopping platelet-derived growth factor (pdgf)-induced proliferation of vsmcs,&antiinflammatory capability by inhibiting tnf-α&nf-κb production[23-24].

Cinnamon (cinnamomum zeylanicum)

Other plant used for the treatment of hypertension is cinnamomum zeylanicum. Cinnamon has decrease bp in numerous rat models&in people with prediabetes&type2 diabetes (t2d). The aqueous extract of its stem bark sources a decrease in sbp&prevents contractions encouraged by potassium chloride (also known as kcl), related to the endothelium, no,&atp-sensitive k+ channel (k atp channel). The methanolic extract of the bark increases no levels[25].

Cocoa bean (theobroma cacao)

Cocoa powder, added with flavonoid components, is used for inhibiting cvds by motivating the creation of no, increasing vasodilatation. Daily use of dark or milk chocolate (40 to 105 g) can decrease sbp&dbp[26].

Coffee weed (cassia occidentalis)

Coffee weeds also reduce bp. The leaf of this plant is used as an antihypertensive agent. Coffee weed has been found to decrease bp levels, probably through the suppression of external ca2+ influx. Coffee weed leaves have diuretic effects along with anti-inflammatory&anti-oxidant properties[27].

Coriander (coriandrum sativum)

Coriander is used as a traditional medicine for the treatment of cardiovascular&gastrointestinal diseases. It has been shown to display antioxidant effects[28]. Intravenous use of the aqueous methanolic extract of the seeds (1–30 mg/ml) causes a reduction in sbp, dbp,&mabp, possibly through the ca2+ antagonist. Additionally, has exhibits diuretic affects[29].

Dogbane (apocynumvenetum)

The leaves of the dogbane plant seem to be rich in flavonoids&quercetin variants, which have been found to help fight hypertension. Extracts of dogbane leaves (10 µg/ ml) induce vasorelaxation by enhancing no, causing the scavenging of ros. This plant's extracts improve renal function as an antihypertensive effect[30].

Dog-strangling vine (cynanchumwilfordii)

Cynanchumwilfordii is used in old-styleChineseremedy. Ethanolic extracts (100&200 mg/kg/d) of c. Wilfordii reduced bp in high fat/cholesterol-fed rats, by motivating akt, triggering increased enos activity as well as increased no&cyclic guanosine monophosphate (cgmp) production in addition to a decline in the expression of vcam-1&endothelin-1 (et-1)[31].

Harmel (peganum harmala)

Wild syrian rue (family zygophyllaceae) is termed "espand" in persian,&different parts of this plant as well as its seeds, bark,&root used in folk medicine[32]. Espand is used for the treatment of hypertension. Peganum harmala prompts relaxation through both endothelial cells&vsmcs. Three harmala alkaloids, i.e.,Harmine, harmaline,&harmalol, are espand's active constituents which have shown vasodilatory properties by increasing no production[33].

Fang ji (stephaniatetrandra)

Stephania tetrandra is able to regulate high bp by reducing inducible nitric oxide synthase (inos) expression&blocking ca2+ channels. An alkaloid tetrandrine, the bioactive constituent of this plant, has anti-inflammatory&anti-oxidant effects, both of which are probably involved in the plant's antihypertensive effects[34].

Garden cress (lepidium sativum l.)

The hypotensive effect of garden cress is associated with the augmented urinary removal of sodium, potassium,&chlorides. Lepidium sativum has revealed anti-inflammatory effects. Lepidium sativum induces diuresis&effective antioxidant capability, to which its antihypertensive effects may be ascribed[35].

Garden nasturtium (tropaeolum majus l.)

Studies have confirmed that tropaeolum majus has a helpful influence on the circulatory system. Hydroethanolic extracts of garden nasturtium have been revealed to reduction map in shr rats. The ethanolic abstract of t. Majus (300 mg/kg), cure element (100 mg/ kg), or isoquercitrin (10 mg/kg), have diuretic activities. All the above-mentioned constituents are able to reduce plasma ace levels[36].

Discussion

Hypertension called arterial hypertension is an incurable disease in which the blood pressure in the arteries rises. In this study, medicinal herbs of sage, barberry, oriental grapes, yarrow, haw-thorn, rhubarb, sheng, olive, rhubarb, buckwheat, spring chamomile, milk thistle, jujube, strawberry, indole, besides, garlic, zinnel, almonds, etc. It has been recommended for the treatment of high blood pressure. In order to quickly reduce high blood pressure, blood pressure measurements should be used in the diet instead of over-the-counter medications. Remedies are one of the solutions based on the results obtained, high blood pressure can be treated in many ways including lifestyle changes or the use of herbal medicines. The mechanical actions of these plants are unclear. They may be acting, in part, on antioxidant activity. The antioxidants shown, in addition to the antihypertension function, have a variety of beneficial effects on diseases. Therefore, some plants or agents with these properties can reduce high blood pressure.

Conclusion:

Lifestyle changes, along with diet, exercise,&stress management, also play a key role in lowering blood pressure. Supplements including potassium, magnesium, coq10, omega3 fatty acids, amino acids arginine&taurine, as well as nutrients c&e were used effectively in the treatment of cardiovascular disease, as well as high blood pressure. high. They have been shown to be effective in lowering blood pressure&improving cardiovascular function. Among the many studied&commonly used for high blood pressure are hawthorne, arjuna, olive leaf, european mistletoe, yarrow, black cumin seeds,

forskolin, indian snakeroot,&-garlic. Further research is being shown to determine the strength that every other drug should give within the control of high blood pressure. With the growing number of patients suffering from high blood pressure&over-the-counter folk remedies, alternative therapies offer hope.

REFERENCES:

1. Conlin PR, Chow D, Miller ER. The effect of dietary patterns on blood pressure control in hypertensive patients: results from the Dietary Approaches to Stop Hypertension (DASH) trial. Am J Hypertens 2000; 13:949-955
2. Chopra RN, Nayar SL&Chopra I.C.Glossary of Indian medicinal plant, Council of scientific&industrial research, New Delhi, 1956, 1,197.
3. P. A. Cox, Ciba Foundation Symposium 154, Chichester, John Wiley & Sons, 40 1990; 23-27.
4. Richard C, Jurgens M. Effects of natural health products on blood pressure. Ann Pharmacother. 2005; 39:712–720.
5. Pourjabali M, Mohammadrezaei-Khorramabadi R, Medicinal plants&hypertension Advanced Pharmaceutical Bulletin, 2021, Volume 11, Issue 4 613 Abbaszadeh S, Naghdi N, Naji-Haddadi S, Bahmani F. Medicinal plants used for hypertension. J Pharm Sci Res 2017;9(5):537-41.
6. Liu C, Huang Y. Chinese herbal medicine on cardiovascular diseases&the mechanisms of action. Front Pharmacol2016;7:469. doi: 10.3389/fphar.2016.00469
7. Boskabady MH, Alitaneh S, Alavinezhad A. Carum copticum L.: a herbal medicine with various pharmacological effects. Biomed Res Int 2014;2014:569087. doi: 10.1155/2014/569087
8. Kumar K, Sharma YP, Manhas RK, Bhatia H. Ethnomedicinal plants of Shankaracharya Hill, Srinagar, J&K, India. J Ethnopharmacol2015;170:255-74. doi: 10.1016/j.jep.2015.05.021
9. Sharifi AM, Darabi R, Akbarloo N. Study of antihypertensive mechanism of Tribulus terrestris in 2K1C hypertensive rats: role of tissue ACE activity. Life Sci 2003;73(23):2963-71. doi: 10.1016/j.lfs.2003.04.002
10. Leong XF, Rais Mustafa M, Jaarin K. Nigella sativa&its protective role in oxidative stress&hypertension. Evid Based Complement Alternat Med 2013;2013:120732. doi: 10.1155/2013/120732
11. Jaarin K, Foong WD, Yeoh MH, Kamarul ZY, Qodriyah HM, Azman A, et al. Mechanisms of the antihypertensive effects of Nigella sativa oil in L-NAME-induced hypertensive rats. Clinics (Sao Paulo) 2015;70(11):751-7. doi: 10.6061/ clinics/2015(11)07
12. Kundu JK, Liu L, Shin JW, Surh YJ. Thymoquinone inhibits phorbol ester-induced activation of NF-κB&expression of COX-2,&induces expression of cytoprotective enzymes in mouse skin in vivo. BiochemBiophys Res Commun 2013;438(4):721-7. doi: 10.1016/j.bbrc.2013.07.110
13. Bartolome AP, Villaseñor IM, Yang WC. Bidens pilosa L. (Asteraceae): botanical properties, traditional uses, phytochemistry,&pharmacology. Evid Based Complement Alternat Med 2013;2013:340215. doi: 10.1155/2013/340215
14. Ladeji O, Udoh FV, Okoye ZS. Activity of aqueous extract of the bark of Vitex doniana on uterine muscle response to drugs. Phytother Res 2005;19(9):804-6. doi: 10.1002/ ptr.1588
15. Lee YJ, Choi DH, Cho GH, Kim JS, Kang DG, Lee HS. Arctium lappa ameliorates endothelial dysfunction in rats fed with high fat/cholesterol diets. BMC Complement Altern Med 2012;12:116. doi: 10.1186/1472-6882-12-116
16. Cheng Y, Zhou M, Wang Y. Arctigenin antagonizes mineralocorticoid receptor to inhibit the transcription of Na/K-ATPase. J Recept Signal Transduct Res 2016;36(2):181- 8. doi: 10.3109/10799893.2015.1075039
17. Prando TB, Barboza LN, Araújo Vde O, Gasparotto FM, de Souza LM, Lourenço EL, et al. Involvement of bradykinin B2&muscarinic receptors in the prolonged diuretic&antihypertensive properties of Echinodorusgrandiflorus (Cham. &Schltdl.) Micheli. Phytomedicine 2016;23(11):1249-58. doi: 10.1016/j.phymed.2015.10.020
18. Verma SK, Jain V, Katewa SS. Blood pressure lowering, fibrinolysis enhancing&antioxidant activities of cardamom (Elettaria cardamomum). Indian J BiochemBiophys 2009;46(6):503-6.
19. Kaur R, Khanna N. Pathophysiology&risk factors related to hypertension&its cure using herbal drugs. Spatula DD 2012;2(4):245-56. doi: 10.5455/spatula.20121223101221.
20. Lamba A, Oakes AK, Roberts L, Deprele S. The Effects of Crude&Purified Cat's Claw Extracts on Viability&Toxicity of HeLa Cells. Southern California Conference for Undergraduate Research (SCCUR); 2018.
21. Siska S, Mun Im A, Bahtiar A, Suyatna FD. Effect of Apium graveolens extract administration on the pharmacokinetics of captopril in the plasma of rats. Sci Pharm 2018;86(1):6. doi: 10.3390/scipharm86010006
22. Ahmad S, Hassan A, Abbasi WM, Rehman T. Phytochemistry&pharmacological potential of Cassia absus - a review. J Pharm Pharmacol 2018;70(1):27-41. doi: 10.1111/jphp.12816
23. Cho YH, Ku CR, Hong ZY, Heo JH, Kim EH, Choi DH, et al. Therapeutic effects of water soluble danshen extracts on atherosclerosis. Evid Based Complement Alternat Med 2013;2013:623639. doi: 10.1155/2013/623639
24. Jiang B, Li D, Deng Y, Teng F, Chen J, Xue S, et al. Salvianolic acid A, a novel matrix metalloproteinase-9 inhibitor, prevents cardiac remodeling in spontaneously hypertensive rats. PLoS One 2013;8(3):e59621. doi: 10.1371/journal. pone.0059621
25. Nyadjeu P, Nguelefack-Mbuyo EP, Atsamo AD, Nguelefack TB, Dongmo AB, Kamanyi A. Acute&chronic antihypertensive effects of Cinnamomum zeylanicum stem bark methanol extract in L-NAME-induced hypertensive rats. BMC Complement Altern Med 2013;13:27. doi: 10.1186/1472-6882-13-27
26. Irondi AE, Olawuyi AD, Lawal BS, Boligon AA, Olasupo F, Olalekan SI. Comparative inhibitory effects of cocoa bean&cocoa pod husk extracts on enzymes associated with hyperuricemia&hypertension in vitro. Int Food Res J 2019;26(2):557-64.

27. Ali M, Ansari SH, Ahmad S, Sanobar S, Hussain A, Khan SA, et al. Phytochemical&pharmacological approaches of traditional alternate Cassia occidentalis L. In: Ozturk M, Hakeem KR, eds. Plant&Human Health, Volume 3: Pharmacology&Therapeutic Uses. Cham: Springer; 2019. p. 321-41. doi: 10.1007/978-3-030-04408-4_15
28. Ramkissoon JS, Mahomoodally MF, Ahmed N, Subratty AH. Antioxidant&anti-glycation activities correlates with phenolic composition of tropical medicinal herbs. Asian Pac J Trop Med 2013;6(7):561-9. doi: 10.1016/s1995- 7645(13)60097-8
29. Wu TT, Tsai CW, Yao HT, Lii CK, Chen HW, Wu YL, et al. Suppressive effects of extracts from the aerial part of Coriandrum sativum L. on LPS-induced inflammatory responses in murine RAW 264.7 macrophages. J Sci Food Agric 2010;90(11):1846-54. doi: 10.1002/jsfa.4023
30. Chen M, Zhao XY, Zuo X. Comparative reproductive biology of Apocynumvenetum L. in wild&managed populations in the arid region of NW China. Plant SystEvol 2015;301(6):1735-45. doi: 10.1007/s00606-014-1192-8
31. Choi DH, Lee YJ, Kim JS, Kang DG, Lee HS. Cynanchumwilfordii ameliorates hypertension&endothelial dysfunction in rats fed with high fat/cholesterol diets. ImmunopharmacolImmunotoxicol 2012;34(1):4-11. doi: 10.3109/08923973.2011.569889
32. Moloudizargari M, Mikaili P, Aghajanshakeri S, Asghari MH, Shayegh J. Pharmacological&therapeutic effects of Peganum harmala&its main alkaloids. Pharmacogn Rev 2013;7(14):199-212. doi: 10.4103/0973-7847.120524
33. CheraghiNiroumand M, Farzaei MH, Amin G. Medicinal properties of Peganum harmala L. in traditional Iranian medicine&modern phyto-therapy: a review. J Tradit Chin Med 2015;35(1):104-9. doi: 10.1016/s0254-6272(15)30016- Kamyab et al 614 Advanced Pharmaceutical Bulletin, 2021, Volume 11, Issue 4 9
34. Dang Y, Xu Y, Wu W, Li W, Sun Y, Yang J, et al. Tetrandrine suppresses lipopolysaccharide-induced microglial activation by inhibiting NF-κB&ERK signaling pathways in BV2 cells. PLoS One 2014;9(8):e102522. doi: 10.1371/ journal.pone.0102522
35. Fan QL, Zhu YD, Huang WH, Qi Y, Guo BL. Two new acylated flavonol glycosides from the seeds of Lepidium sativum. Molecules 2014;19(8):11341-9. doi: 10.3390/ molecules190811341
36. Junior AG, Prando TB, Leme Tdos S, Gasparotto FM, Lourenço EL, Rattmann YD, et al. Mechanisms underlying the diuretic effects of Tropaeolum majus L. extracts&its main component isoquercitrin. J Ethnopharmacol 2012;141(1):501-9. doi: 10.1016/j.jep.2012.03.018