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A mini-review on the most important effective medicinal plants to treat hypertension in ethnobotanical evidence of Iran

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ABSTRACT

Nowadays, cardiovascular diseases are highly prevalent in human communities. Hypertension is a multifactorial disease which causes a mortality twice higher than general population. Given the fact that medicinal plants have long been used to treat hypertension and are currently being administered for this disease, we sought to report the mostly effective and important medicinal plants on hypertension therapy in ethno-botanical evidence of Iran. In this study, hypertension, Iran, ethno-botany, medicinal plants, and traditional medicine were used as key words to search in Web of Science, PubMed, Scopus, EBSCO and EMBASE to select relevant articles. The findings of this study indicated that in Iran 40 plants in various provinces are used to treat hypertension. Because medicinal plants in this study contain effective compounds and have long been used to treat and reduce hypertension, they could provide suitable research arrangements for controlling hypertension, while effective natural drugs could be developed to control hypertension if their properties are confirmed in pharmacological studies.

Mini-Review

Implication for health policy/practice/research/medical education:
The medicinal plants may prevent or treat various diseases through exerting antioxidant and anti-inflammatory properties. Since they have long been applied to treat and reduce hypertension, they can be used to develop effective and natural drugs to control high blood pressure, however, their effect should confirm by pharmacological investigations and clinical trials.

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Introduction

Ethno-botany or traditional botany deals with the traditional therapeutic properties of the medicinal plants used by people of different cultures and regions (1-3). Since our surrounding nature and the flora of various regions is full of plant species with unknown pharmaceutical and therapeutic properties and discovering their properties may take a long time, then ethno-botany is useful because of transforming the pharmaceutical culture and herbal medicine of any regions from oral into a written one (4-7). Traditional knowledge and administration of medicinal plants help pharmaceutical industry develop new drugs and to use them for prevention and treatment of various diseases (8-10).

The people of different cultures and nations worldwide, particularly in Iran, China, Egypt, and Greece, have been assumed, chemical drugs are efficient to improve disease and expedite this process, however, medicine has been advancing and any chemical drugs, alongside therapeutic properties, have been demonstrated to cause side effects, the people have opted to use the medicinal herbs with minimal side effects (11-19). In this regard, different studies have investigated the effect of medicinal herbs for prevention and treatment of neurological disorders and infectious, gastrointestinal, and respiratory diseases. Beyond the effects of medicinal plants on neurological disorders, wounds, a variety of pains, migraine, cold, diabetes, hypertension, hyperlipidemia, skin problems, peptic ulcer, dysmenorrhea, and reproductive system have been studied (20-41).

Nowadays, cardiovascular diseases are highly prevalent in human communities and their treatment is a health priority in many countries. Among cardiovascular diseases, hypertension is a serious cardiovascular disease and mortality rate in the patients with hypertension is twice higher than general population. Hypertension

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contributes significantly to increasing sudden death in cardiac diseases patients, intensified by risk factors such as smoking, diabetes, and hypercholesterolemia (42). Since medicinal plants have long been administered and are still being used to treat hypertension, and some of chemical drugs fail to meet patients all needs and some of them may lead to side effects, hence this review article aimed to study the medicinal plants efficacy on hypertension in ethno-botanical evidence of Iran. This study secondly aimed to provide pharmacists and researchers with some ideas on development of the medicinal plants for hypertension therapy.

Materials and Methods

For this review, we used a variety of sources by searching through Web of Science, PubMed, EMBASE, Scopus and directory of open access journals (DOAJ). The search was performed by using combinations of the following key words and or their equivalents; hypertension, Iran, ethno-botany, medicinal plants, and traditional medicine.The articles with non-English full text were excluded from this review article.

Results

The findings of this study indicated that 40 medicinal plants are used in different provinces of Iran for treatment of hypertension. These plants are mostly from Asteraceae, Polygonaceae, Rosaceae, and Oleaceae families. Most plants have grown in different regions of Zagros mountains. The native plants of Iran that are effective on hypertension are listed in Table 1.

Discussion

Based on the written evidence originated from thousands of years ago, administration of medicinal plants has been one of the most primitive methods applied by humans

Table 1. Effective medicinal plants on hypertension by ethno-botanical evidence of Iran

Row	Scientific name	Family	Persian name	Part of plants	Distinct
1	*Allium sativum L.*	Aliaceae	Sir	Root	West Azerbaijan (43)
2	*Juglans regia L.*	Juglandaceae	Gerdou	Leaves and fruit	West Azerbaijan (43)
3	*Berberis vulgaris* L.	Berberidaceae	Zereshk	Leaves and fruit	Arasbaran (44)
4	*Achillea millefolium* L.	Asteraceae	Boumadaran	Shoot	Arasbaran (44)
5	Ecbalium elaterium	Cucurbitaceae	Khiare vahshi	Root and fruit	Arasbaran (44)
6	*Ribes orientale*	Grossulariaceae	Angour sharghi	Fruit	Arasbaran (44)
7	*Crataegus monogyna*	Rosaceae	zalzalak	Leaves and fruit	Arasbaran (44)
8	*Crataegus pontica* C. Koch.	Rosaceae	zalzalak	Leaves and fruit	Ilam (45)
9	*Paliurus spina-christi* Miller.	Rhamnaceae	Siah tale	Fruit	Ilam (45)
10	*Rheum ribes* L.	Polygonaceae	Rivas	Stem	Ilam (45)
11	*Suaeda altissima*	Chenopodiaceae	A type of Siah shor	Leaves and stem	North East Persian Gulf (46)
12	Olea europea	Oleaceae	Zeytoun	Fruit	North East Persian Gulf (46)
13	*Silybum marianum* L. Gaertn.	Asteraceae	Khar maryam	Stem and root	Khuzestan (47)
14	*Tragopogon aureus* Boiss.	Asteraceae	A type of Sheng	Leaves and fruit	Khuzestan (47)
15	Olea europea	Oleaceae	Zeytoun	Leaves and fruit	Khuzestan (47)
16	*Securigera securidaca* Degen & Dorfl.	Papilionacea	Adas talkh	Seed	Khuzestan (47)
17	*Rumex pulcher* L.	Polygonaceae	Torshak	Root	Khuzestan (47)
18	*Nigella sativa* L.	Ranunculaceae	Siah daneh	Seed	Sistan (48)
19	*Anthemis cotula* L.	Asteraceae	Babouneye bahari	Flower	North Iran (49)
20	*Suaeda altissima* Pall.	Chenopodiaceae	Zeytoun	Leaves and stem	North Iran (49)
21	*Olea europaea* L.	Oleaceae	Zeytoun	Fruit	North Iran (49)
22	*Silybum marianum* (L.) Gaerth.	Asteraceae	Khar maryam	Flower	Kazeroon (50)
23	*Rumex crispus* L.	Polygonaceae	Torshak	Leaves	Mobarakeh (50)
24	*Ziziphus jujuba*(L) H.Karst	Rhamnaceae	Anab	Fruit	Mobarakeh (50)
25	*Olea europaea* L	Oleaceae	Zeytoun	Fruit	Mobarakeh (50)
26	*Echium amoenum* L.	Boraginaceae	Gav zaban	Flower	Mobarakeh (50)
27	*Nasturtium officinale* R. Br.	Brassicaceae	Alafe cheshme	Shoot	Marivan (51)
28	*Fumaria asepala* Boiss	Fumariaceaea	Shahtareh bikasbarg	Shoot	Marivan (51)
29	*Rumex conglomerates* Murr	Polygonaceae	Torshak	Leaves and stem	Natanz (52)
30	*Nectaroscordeum tripedale*	Amaryllidaceae	Piaze tabestaneh lorestani	Shoot	Lorestan (53)
31	*Nectaroscordeum coelzi*	Amaryllidaceae	Piaze tabestaneh lorestani	Shoot	Lorestan (53)
32	*Falcaria vulgaris*	Apiaceae	Ghazyaghi	Leaves, flowers and stem	Lorestan (53)
33	*Smyrnium cordifolium*	Apiaceae	Andol	Seed	Lorestan (53)
34	*Crocus hasskenechtii*	Iridaceae	Pishouk	Root	Lorestan (53)
35	*Berberis integrima*	Berberidaceae	Zereshk	Leaves and stem	Lorestan (53)
36	*Ziziphus spina-christi*	Rhamnaceae	Sedr	Leaves, flowers and fruit	Lorestan (53)
37	Ziziphus nummularia	Liliaceae	Konar	Bulb	Lorestan (53)
38	*Allium ursinum*	Asteraceae	Valak	Shoot	Lorestan (53)
39	*Anethum graveolens*	Apiaceae	Shevid	Shoot	Lorestan (53)
40	*Amygdalus scoparia*	Rosaceae	Badam	Fruit	Lorestan (53)

to treat various diseases. In addition, documented data from thousands of years ago in pharmacy and medical history imply existence of valuable data on phytotherapy. Additionally, growing interest of researchers of different fields has caused to name the current century as the century of return to nature, and most researchers of pharmacognosy and related sciences have conducted some studies to identify effective substances, pharmacologic property, and therapeutic uses and develop plant-derived drugs to treat a variety of diseases such as cardiovascular and gastrointestinal and cancers, and even to control infertility (54-58). In this regard, the present study intended to investigate the most important medicinal plants that are effective on hypertension in ethno-botanical evidence of Iran, indicated that 40 medicinal plants in different provinces of Iran are administered to treat hypertension, which could provide a good background to do further studies on hypertension control.

Most identified medicinal plants in this study are from Asteraceae, Polygonaceae, Rosaceae, and Oleaceae families. Phytochemical studies have found that many of these plants contain flavonoids and terpenes components flavonoids are one of the most important phenol groups in nature which are abundantly found in Asteraceae and Polygonaceae families and also have been reported to exist in Rosaceae and Oleaceae families. Polyphenols have been known as a protective factor against many diseases such as cardiovascular and a preventive factor for hypertension (59-64). Sesquiterpene lactones are from terpenes family and a salient feature of Asteraceae family. Furthermore, they may be found in certain families including Apiaceae. Over 6000 compounds related to sesquiterpenes have been so far identified in the plants from these families. A feature of all the sesquiterpene lactones which seem to be closely associated with their biological activity is removal of unsaturated gamma-lactone at alpha-beta. Most sesquiterpene lactones are non-toxic and taste bitter. Moreover, most of them have been reported to exert antitumor, antibacterial, cardiotonic and anti-inflammatory effects and relax smooth muscles (65-69). Polystyrenes are another large group of secondary metabolites. To date, over 1400 polystyrenes and the compositions derived from them have been isolated and identified. Polystyrenes are commonly found in the plants from Araliaceae, Apiaceae, and Asteraceae families. Polystyrenes exert considerable toxic side effects against fungi, bacteria, breast carcinoma cells. These compounds also exert anti-platelet aggregation properties (70).

Conclusion

The medicinal plants may prevent or treat various diseases through exerting antioxidant and anti-inflammatory properties. Since they have long been applied to treat and reduce hypertension, they can be used to develop effective and natural drugs to control high blood pressure, however, their effect should confirm by pharmacological investigations and clinical trials.

Authors' contribution

BBA completed the article and MAS reviewed the article. All authors read and signed the final draft.

Conflicts of interest

The authors declared no competing interests.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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References

1. Bahmani M, Banihabib EK. Comparative assessment of the anti-annelida (Limnatis nilotica) activity of nicotine with niclosamide. Global Veterinaria. 2013; 10:153-7.
2. Amirmohammadi M, Khajoenia SH, Bahmani M, Rafieian-Kopaei M, Eftekhari Z, Qorbani M. In vivo evaluation of antiparasitic effects of Artemisia abrotanum and Salvia officinalis extracts on Syphacia obvelata, Aspiculoris tetrapetra and Hymenolepis nana parasites. Asian Pac J Trop Dis. 2014;4:250-4.
3. Bahmani M, Eftekhari Z. An ethnoveterinary study of medicinal plants in treatment of diseases and syndromes of herd dog in southern regions of Ilam province, Iran. Comp Clin Path. 2012;22:403-7.
4. Eftekhari Z, Bahmani M, Mohsenzadegan A, Gholami-Ahangaran M, Abbasi J, Alighazi N. Evaluating the anti-leech (Limnatis nilotica) activity of methanolic extract of Allium sativum L. compared with levamisole and metronidazole. Comp Clin Path. 2012;21:1219-22.
5. Bahmani M, Sarrafchi A, Shirzad H, Rafieian-Kopaei M. Autism: pathophysiology and promising herbal remedies. Curr Pharm Des. 2015;22:277-85.
6. Bahmani M, Abbasi J, Mohsenzadegan A, Sadeghian S, Gholami Ahangaran M. Allium sativum L.: the anti-immature leech (Limnatis nilotica) activity compared to Niclosomide. Comp Clin Pathol. 2013;22:165-8.
7. Gholami-Ahangaran M, Bahmani M, Zia-Jahromi N. Comparative and evaluation of anti-leech (Limnatis Nilotica) effect of Olive (Olea Europaea L.) with levamisol and tiabendazole. Asian Pac J Trop Dis. 2012;2:S101-3.
8. Bahmani M, Golshahi H, Mohsenzadegan A, Ghollami-Ahangarani M, Ghasemi E. Comparative assessment of the anti- Limnatis nilotica activities of Zingiber officinale methanolic extract with levamisole. Comp Clin Pathol. 2013;22:667-70.
9. Forouzan S, Bahmani M, Parsaei P, Mohsenzadegan A, Gholami-Ahangaran M, Sadeghi E, et al. Anti-parasitic activites of Zingiber officinale methanolic extract on Limnatis nilotica. Glob Vet. 2012;9:144-8.
10. Gholami-Ahangaran M, Bahmani M, Zia-Jahrom

N. In vitro antileech effects of Vitis vinifera L., niclosamide and ivermectin on mature and immature forms of leech Limnatis nilotica. Glob Vet. 2012;8:229-32.
11. Bahmani M, Zargaran A, Rafieian-Kopaei M. Identification of medicinal plants of Urmia for treatment of gastrointestinal disorders. Rev Bras Farmacogn. 2014;24:468-48.
12. Bahmani M, Banihabib E, Rafieian-Kopaei M, Gholami-Ahangaran M. Comparison of Disinfection Activities of Nicotine with Copper Sulphate in water Containing Limnatis nilotica. Kafkas Univ Vet Fak Derg. 2015;21:9-11.
13. Delfan B, Bahmani M, Eftekhari Z, Jelodari M, Saki K, Mohammadi T. Effective herbs on the wound and skin disorders: a ethnobotanical study in Lorestan province, west of Iran. Asian Pac J Trop Dis. 2014;4:938-42.
14. Bahmani M, Saki K, Rafieian-Kopaei M, Karamati SA, Eftekhari Z, Jelodari M. The most common herbal medicines affecting Sarcomastigophora branches: a review study. Asian Pac J Trop Med. 2014; 7: 14-21.
15. Asadi-Samani M, Bahmani M, Rafieian-Kopaei M. The chemical composition, botanical characteristic and biological activities of Borago officinalis: a review. Asian Pac J Trop Med. 2014; 7: 22-28.
16. Bahmani M, Zargaran A, Rafieian-Kopaei M, Saki M. Ethnobotanical study of medicinal plants used in the management of diabetes mellitus in the Urmia, Northwest Iran. Asian Pac J Trop Med. 2014;7:348-354.
17. Delfan B, Bahmani M, Hassanzadazar H, Saki K, Rafieian-Kopaei M. Identification of medicinal plants affecting on headaches and migraines in Lorestan Province, West of Iran. Asian Pac J Trop Med. 2014;7:376-9.
18. Bahmani M, Rafieian-Kopaei M, Hassanzadazar H, Saki K, Karamati SA, Delfan B. A review on most important herbal and synthetic antihelmintic drugs. Asian Pac J Trop Med. 2014;7:29-33.
19. Saki K, Bahmani M, Rafieian-Kopaei M. The effect of most important medicinal plants on two important psychiatric disorders (anxiety and depression)-a review. Asian Pac J Trop Med. 2014;7:34-42.
20. Bahmani M, Shirzad HA, Majlesi M, Shahinfard N, Rafieian-Kopaei M. A review study on analgesic applications of Iranian medicinal plants. Asian Pac J Trop Med. 2014;7:43-53.
21. Asadbeigi M, Mohammadi T, Rafieian-Kopaei M, Saki K, Bahmani M, Delfan B. Traditional effects of medicinal plants in the treatment of respiratory diseases and disorders: an ethnobotanical study in the Urmia. Asian Pac J Trop Med. 2014; 7: S364-S368
22. Karamati SA, Hassanzadazar H, Bahmani M, Rafieian-Kopaei M. Herbal and chemical drugs effective on malaria. Asian Pac J Trop Dis. 2014;4:599-601.
23. Bahmani M, Rafieian-Kopaei M, Jeloudari M, Eftekhari Z, Delfan B, Zargaran A, et al. A review of the health effects and uses of drugs of plant licorice (Glycyrrhiza glabra L.) in Iran. Asian Pac J Trop Dis. 2014;4:847-9.
24. Saki K, Bahmani M, Rafieian-Kopaei M, Hassanzadazar H, Dehghan K, Bahmani F, et al. The most common native medicinal plants used for psychiatric and neurological disorders in Urmia city, northwest of Iran. Asian Pac J Trop Dis. 2014;4:895-901.
25. Bahmani M, Karamati SA, Hassanzadazar H, Forouzan SH, Rafieian-Kopaei M, Kazemi-Ghoshchi B, et al. Ethnobotanic study of medicinal plants in Urmia city: identification and traditional using of antiparasites plants. Asian Pac J Trop Dis. 2014;4:906-10.
26. Rabiei Z, Bigdeli MR, Asadi-Saamni M. The effect of dietary virgin olive oil on brain lipid levels and brain edema in rat stroke models. ZUMS Journal. 2013;21:56-64.
27. Bahmani M, Rafieian M, Baradaran A, Rafieian S, Rafieian-kopaei M. Nephrotoxicity and hepatotoxicity evaluation of Crocus sativus stigmas in neonates of nursing mice. J Nephropathol. 2014;3:81-5.
28. Kooti W, Ghasemiboroon M, Asadi-Samani M, Ahangarpoor A, Noori Ahmad Abadi M, Afrisham R, et al. The effects of hydro-alcoholic extract of celery on lipid profile of rats fed a high fat diet. Adv Environ Biol. 2014;8(9):325-30.
29. Bahmani M, Rafieian-Kopaei M, Saki K, Majlesi M, Bahmani F, Bahmani F, et al. Identification of medical plants acting on reproductive system disorders:An ethnobotanical study in Urmia, Northwest of Iran. J Chem Pharm Res. 2015;7:493-502.
30. Delfan B, Kazemeini HR, Bahmani M. Identifying effective medicinal plants for cold in Lorestan province, West of Iran. J Evid Based Complementary Altern Med. 2015;20:173-9.
31. Delfan B, Bahmani M, Hassanzadazar H, Saki K, Rafieian-Kopaei M, Rashidipour M, et al. Ethnobotany study of effective medicinal plants on gastric problems in Lorestan province, West of Iran. J Chem Pharm Res. 2015;7:483-92.
32. Bahmani M, Eftekhari Z, Jelodari Z, Saki K, Abdollahi R, Majlesi M, et al. Effect of Iranian herbal medicines in Dysmenorrhea phytotherapy. J Chem Pharm Res. 2015;7: 519-26.
33. Bahmani M, Mirhoseini M, Shirzad H, Sedighi M, Shahinfard N, Rafieian-Kopaei M. A review on promising natural agents effective on hyperlipidemia. J Evid Based Complementary Altern Med. 2015;20:228-38.
34. Bahmani M, Forouzan SH, Fazeli-Moghadam E, Rafieian-Kopaei M, Adineh A, Saberianpour SH. Oak (Quercus branti): An overview. J Chem Pharm Res. 2015;7:634-9.
35. Bahmani M, Shirzad H, Rafieian S, Rafieian-Kopaei M. Silybum marianum: beyond hepatoprotection. J Evid Based Complementary Altern Med. 2015;20:292-

301.
36. Bahmani M, Saki K, Asadbeygi M, Adineh A, Saberianpour SH, Rafieian-Kopaei M, et al. The effects of nutritional and medicinal mastic herb (Pistacia atlantica). J Chem Pharm Res. 2015;7:646-53.
37. Bahmani M, Saki K, Golshahi H, Rafieian-Kopaei M, Abdali N, Adineh A, et al.Ethnobotanical and therapeutic uses of camomille. J Chem Pharm Res. 2015;7:640-45.
38. Nasri H. Know your blood pressure; the theme of world hypertension day 2014. Iran J Public Health. 2014;43:1154-6.
39. Bahmani M, Farkhondeh T, Sadighara P. The anti-parasitic effects of Nicotina tabacum on leeches, Comp Clin Pathol. 2012;21:357-9.
40. Bahmani M, Karamati SA, Banihabib EK, Saki K. Comparison of effect of nicotine and levamisole and ivermectin on mortality of leech. Asian Pac J Trop Dis. 2014;4:477-80.
41. Delfan B, Bahmani M, Rafieian-Kopaei M, Delfan M, Saki K. A review study on ethnobotanical study of medicinal plants used in relief of toothache in Lorestan Province, Iran. Asian Pac J Trop Dis. 2014;4: 879-84.
42. Baharvand B, Esmailidehaj M, Alihosaini J, Bajoovand S, Esmailidehaj S, Hafizi Barjin Z. Prophylactic and therapeutic effects of oleuropein on reperfusion-induced arrhythmia in anesthetized rat. IBJ. 2016;20: 41-8.
43. Azizi H, Keshavarzi M. Ethnobotanical study of medicinal plants of Sardasht, Western Azerbaijan, Iran. Journal of Herbal Drugs. 2015;6:113-9.
44. Zolfaghari A, Adeli A, Mozafarian V, Babaei S, Habibi-Bibalan G. Identification of medicinal plants and indigenous knowledge of local people Arasbaran. J Med Arum Plants. 2013;28:534-50.
45. Ghasemi Pirbalouti A, Momeni M, Bahmani M. Ethnobotanical study of medicinal plants used by Kurd tribe in Dehloran and Abdanan districts, Ilam Province, Iran. Afr J Tradit Complement Altern Med. 2013; 10: 368-000.
46. Dolatkhahi M, Nabipour I. Evaluation the ethnobotanical medicinal plants of epiphora region of Presian Golf northeast. J Med Plants. 2014;2:129-43.
47. Khodayari H, Amani SH, Amiri H. Ethnobotanical study of North east of Khuzistan province. Eco-Phytochemical Journal Of Medical Plants 2013;4:12-26.
48. Ranmanesh M, Najafi SH, Yousefi M. Ethnobotanical study of Medicinal Plants of Sistan region. J Herbal Drugs. 2010;2:61-8.
49. Alavi SZ, Rabiei E, Saeeidi-Goraghani HR, Ghordouei-Millan GH. Alternative and Traditional uses of medicinal plants of North of Iran. J Herbal Drugs. 2011;2:113-120.
50. Mardaninejad SH, Vazirpour M. Ethnobotany of medicinal plants by Mobarake people (Isfahan). J Herbal Drugs. 2013;3:111-29.
51. Aref-Tabad M, Jalilian N. Ethnobotanical study of medicinal plants of Zarival region of Marivan city. J Med Plants. 2014;14:55-75.
52. Abbasi SH, Afsharzadeh S, Mohajeri A. Ethnobotanical study of medicinal plants in Natanz region (Kashan), Iran. J Herbal Drugs. 2012;3:157-66.
53. Asadi-Samani M, Kafash-Farkhad N, Azimi N, Fasihi A, Alinia-Ahandani E, Rafieian-Kopaei M. Medicinal plants with hepatoprotective activity in Iranian folk medicine. Asian Pac J Trop Biomed. 2015;5:146-57.
54. Kooti W, Ghasemiboroon M, Asadi-Samani M, Ahangarpoor A, Zamani M, Amirzargar A, Hardani A. The effect of halcoholic extract of celery leaves on the delivery rate (fertilization and stillbirths), the number, weight and sex ratio of rat off spring. Adv Environ Biol. 2014;8:824-30.
55. Kooti W, Ghasemiboroon M, Ahangarpoor A, Hardani A, Amirzargar A, Asadi-Samani M. The effect of hydro-alcoholic extract of celery on male rats in fertility control and sex ratio of rat offspring. J Babol Univ Med Sci. 2014;16:43-9.
56. Asadi-Samani M, Kooti W, Aslani E, Shirzad H. A systematic review of Iran's medicinal plants with anticancer effects. J Evid Based Complementary Altern Med. 2015 Aug 21. pii: 2156587215600873.
57. Beyrami-Miavagi A, Farokhi F, Asadi-Samani M. A study of the effect of prostodin and hydroalcoholic extract of Malva neglecta on kidney histopathology and renal factors in female rats. Adv Environ Biol. 2014;8:942-7.
58. Yarnell E, Abascal K. Treating hypertension botanically. Altern Complement Ther. 2001;7:284-90.
59. Tabassum N, Ahmad F. Role of natural herbs in the treatment of hypertension. Pharmacogn Rev. 2011; 5:30.
60. Ogah O, Watkins CS, Ubi BE, Oraguzie NC. Phenolic Compounds in Rosaceae Fruit and Nut Crops. J Agric Food Chem. 2014;62:9369-86.
61. Dekdouk N, Malafronte N, Russo D, Faraone I, De Tommasi N, Ameddah S, et al. Phenolic compounds from Olea europaea L. possess antioxidant activity and inhibit carbohydrate metabolizing enzymes in vitro. Evid Based Complement Alternat Med. 2015;2015:684925.
62. Narasimhulu G, Reddy KK, Mohamed J. The genus polygonum (Polygonaceae): an ethnopharmacological and phytochemical perspectives - review. J Pharm Pharm Sci. 2014;6:21-45.
63. Muley B, Khadabadi S, Banarase N. Phytochemical constituents and pharmacological activities of Calendula officinalis Linn (Asteraceae): a review. Tropical Journal of Pharmaceutical Research. 2009;8:455-465.
64. Rodriguez E, Towers G, Mitchell J. Biological activities of sesquiterpene lactones. Phytochemistry. 1976;15:1573-80.

65. de P. Emerenciano V, S. Ferreira Z, Auxiliadora C. Kaplan M, R. Gottlieb O. A chemosystematic analysis of tribes of asteraceae involving sesquiterpene lactones and flavonoids. Phytochemistry. 1987;26:3103-15.
66. Asadi-Samani M, Rafieian-Kopaei M, Azimi N. Gundelia: a systematic review of medicinal and molecular perspective. Pak J Biol Sci. 2013;16:1238-1247.
67. da Silveira e Sá Rde C, Andrade LN, de Sousa DP. Sesquiterpenes from essential oils and anti-inflammatory activity. Nat Prod Commun. 2015;10:1767-74.
68. Bosio C, Tomasoni G, Martinez R, Olea AF, Carrasco H, Villena J. Cytotoxic and apoptotic effects of leptocarpin, a plant-derived sesquiterpene lactone, on human cancer cell lines. Chem Biol Interact. 2015;242:415-21.
69. Negri R. Polyacetylenes from terrestrial plants and fungi: Recent phytochemical and biological advances. Fitoterapia. 2015;106:92-109.
70. Chen Y, Peng S, Luo Q, Zhang J, Guo Q, Zhang Y, et al. Chemical and pharmacological progress on polyacetylenes isolated from the family apiaceae. Chem Biodivers. 2015;12:474-502.