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# Overview of medicinal plants used for cardiovascular system disorders and diseases in ethnobotany of different areas in Iran

**Babak Baharvand-Ahmadi[1], Mahmoud Bahmani[2*], Zohreh Eftekhari[3], Mahyar Jelodari[4], Mahmoud Mirhoseini[5]**

[1]Razi Herbal Medicines Research Center & Madani Heart Hospital, Lorestan University of Medical Sciences, Khorramabad, Iran
[2]Food and Beverages Safety Research Center, Urmia University of Medical Sciences, Urmia, Iran
[3]Production and Research Complex, Pasteur Institute of Iran, Tehran, Iran
[4]Faculty of Veterinary, University of Urmia, Urmia, Iran
[5]Medical Plants Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran

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**ABSTRACT**

**Background and Aims:** Today, cardiovascular diseases are the prominent cause of death in industrialized countries which include a variety of diseases such as hypertension, hyperlipidemia, thromboembolism, coronary heart disease, heart failure, etc. Recent research findings have shown that not only the extent of cultivation and production of medicinal plants have not been reduced, but also day-to-day production and consumption have increased. In traditional botanical knowledge, herbal medicines are used for the treatment of cardiovascular disorders. In this study, we sought to gather and report medicinal plants used to treat these diseases in different regions of Iran.

**Methods:** The articles published about ethnobotanical study of cardiovascular diseases in various regions of Iran, such as Arasbaran, Sistan, Kashan, Kerman, Isfahan Mobarakeh, Lorestan and Ilam were prepared and summarized.

**Results:** The results of ethnobotanical studies of various regions of Iran, such as Arasbaran, Sistan, Kashan, Kerman, Isfahan Mobarakeh, Lorestan and Ilam were gathered. The results showed that sumac plants, barberry, yarrow, wild cucumber, horsetail, Eastern grape, hawthorn, wild rose, spinach, jujube, buckwheat, chamomile, chicory, thistle, Mary peas, nightshade, verbena, sorrel , cherry, citrullus colocynthis, Peganum harmala, sesame and so many other plants are used for the treatment of cardiovascular diseases and disorders.

**Conclusion:** Herbal medicines are used effectively for some cardiovascular diseases. Rigorous training of patients to take precautions and drug interactions into account and to avoid the arbitrary use of medicinal plants is very important.

*Implication for health policy/practice/research/medical education:*
Medicinal plants are used effectively for some cardiovascular diseases. Cautious about drug interactions and side effects of medicinal plants is very important.

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## Introduction

Studies show that cardiovascular diseases are currently the leading cause of death in industrialized countries. Documented reports indicate that cardiovascular diseases in the United States led to death of 950 000 people in 1998 and spending of 118 billion dollars (1). Cardiovascular diseases include a broad range of diseases, including hypertension, hyperlipidemia, thromboembolism, coronary heart disease, heart failure, etc (2-4). Hyperlipidemia is a predisposing factor for many diseases that can cause complications such as atherosclerosis, hypertension, increased risk of stroke and fatty liver (5,6). Hypertension is the most common disorder and is known as a risk factor for the diagnosis of myocardial infarction, stroke, peripheral vascular disease, and a major factor in the development of cardiovascular disease and mortality (7-9). Pathophysi-

***Corresponding author:** Dr. Mahmoud Bahmani; Food and Beverages Safety Research Center, Urmia University of Medical Sciences, Urmia, Iran. Email: mahmood.bahmani@yahoo.com

ological disorders such as type 2 diabetes occur due to impaired insulin secretion, insulin resistance, and overproduction of glucose by the liver (10). The usage of natural herbs increased because of beneficial effects of herbs and easier return to nature in comparison to chemical drugs (11-22). In some countries, 80% of the drugs supplied to the pharmaceutical market have natural origin, so that now 90% of people in these countries use herbal medicines (23-34). Recent research findings have shown that not only the extent of cultivation and production of medicinal plants have not been reduced, but also day-to-day production and consumption have increased (35-42). In traditional botanical knowledge, herbal medicines are used for the treatment of cardiovascular disorders. In this study, we tried to gather medicinal plants used to treat these diseases in different parts of Iran.

## Methods

The articles published about ethnobotanical study of cardiovascular diseases in various regions of Iran, such as Arasbaran, Sistan, Kashan, Kerman, Isfahan Mobarakeh, Lorestan and Ilam were prepared and summarized.

## Results

The findings on native medicinal plants used for the treatment of cardiovascular disorders in different areas of Iran including Arasbaran, Sistan, Kazeroon, Kashan, Kerman, Isfahan (Mobarakeh), Ilam and Lorestan are respectively summarized in Tables 1 to 8.

## Conclusion

The herbal medicines can be beneficial for some heart diseases. Rigorous training of patients to take precautions and drug interactions into account and to avoid the arbitrary use of medicinal plants is very important (34).

Along with the increased use of herbal medicines, useful information about the interactions of these supplements and medications should be given to the patients to prevent the complications resulting from their interactions that are sometimes very critical. There are many plants that have therapeutic effects, may prevent cardiovascular diseases, and influence hypolipidemia, blood pressure and heart failure through antioxidant, anti-clotting, hypotensive, anti-atherosclerosis, heart rate-regulating and vasodilating properties (6,7). The plants may also have a negative impact on the performance of the heart and blood vessels, including the development of arrhythmia, blood pressure and similar effects on the sympathetic nervous currents that cause interference in the activity of the heart.

## Authors' contributions

All the authors contributed in design and preparation

**Table 1.** Medicinal plants used in the treatment of cardiovascular diseases in Arasbaran (43)

| Scientific name | Family Name | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Cotinus coggygria* | Anacardiaceae | Derakht Par | Leaf | Astringent |
| *Rhus coriaria* L. | Anacardiaceae | Sumagh | Leaf and Fruit | Blood purification |
| *Berberis vulgaris* L. | Berberidaceae | Zereshk | Fruit | Reduction of blood pressure |
| *Achillea millefolium* L. | Compositae | Boomadarn | Flowering branches | Reduction of blood pressure |
| *Ecbalium elaterium* L. | Cucurbitaceae | Khiare Vahshi | Fruit | Reduction of blood pressure |
| *Juniperus communis* | Cupressaceae | Pirou | Fruit | Blood purification |
| *Equisetum arvense* | Equisetaceae | Dom Asb | Aerial | Diabetes |
| *Ribes orientale* | Grossulariaceae | Ghalesh Anghour | Fruit | Regulation of blood pressure, removal of bile |
| *Polypodium vulgare* | Polypodiaceae | Besfij | Rhizome | Removal of bile, fat digestion and fat reduction |
| *Portulaca olraca* | Portulaceae | Khorfeh | Aerial | Blood purification |
| *Crataegus monogyna* | Rosaceae | Zalzalak | Flower and Leaf | Nourishing of the heart, regulation of heart rate and blood pressure |
| *Rosa canina* | Rosaceae | Nastaran Vahshi | Flower and Leaf | Blood purification |
| *Fragaria vesca* L. | Rosaceae | Tootfarangi Vahshi | Leaf, rhizome and Fruit | Nourishing of the heart, treatment of anemia |
| *Rubus caesius* L. | Rosaceae | Tameshk | Fruit and Leaf | Astringent, anti-diabetic, tonic and blood purification |
| *Taxus baccata* L. | Taxaceae | Sorkhedar | Leaf | Reduction of blood pressure |

**Table 2.** Medicinal herbs used in the treatment of cardiovascular diseases in Sistan (44)

| Scientific name | Family Name | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Capparis spinosa* L. | Capparidaceae | Koor | Root | Treatment of anemia |
| *Eucalyptus camaldulensis* Dehnh. | Myrtaceae | Moort | Leaf | Astringent |
| *Nigella sativa* L. | Ranunculaceae | Siah Daneh | Fruit | Treatment of blood fat, blood pressure, diabetes |
| *Suaeda aegyptiaca* | Chenopodiaceae | Esfenaj | Leaf | Treatment of anemia, blood purifier |
| *Zizyphus jujube* | Rhamnaceae | Annab | Fruit | Blood purifier |

**Table 3.** Medicinal plants used in the treatment of cardiovascular diseases in Kazeroon (45)

| Scientific name | Family Name | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Anthemis austro-iranica* | Asteraceae | Babooneh | Aerial | Cardiac tonic |
| *Cichorium intybus* L. | Asteraceae | Kasni | Aerial | Blood purifier and cardiac tonic |
| *Silybum marianum* | Asteraceae | Kharmaryam | Fruit and leaf | Lowering of blood pressure |
| *Capsella bursa-pastoris* | Brassicaceae | Kiseh Keshish | Leaf and stem | Astringent |
| *Teucrium polium* L. | Lamiaceae | Maryam Nokhodi | Leaf | Diabetes, blood fat |
| *Melilotus indicus* | Papilionaceae | Shabdar | Leaf | Increase in venous blood |
| *Prosopis farcta* | Papilionaceae | Jagjege | Fruit | Anti-atherosclerosis |
| *Portulaca oleracea* L. | Portulacaceae | Khorfe | Aerial | Blood purification |
| *Rosa canina* L. | Rosaceae | Nastaran | Flower | Astringent |
| *Solanum nigrum* L. | Solanaceae | Tajrizi | Fruit and leaf | Diabetes and blood fat |
| *Verbena officinalis* L. | Verbenaceae | Shahpasand | Fruit and leaf | Blood fat |

**Table 4.** Medicinal plants used in the treatment of cardiovascular disease in Kashan (46)

| Scientific name | Family Name | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Anthemis gayana* Boiss. | - | Babooneh | Leaf and flower | Treatment of blocked arteries |
| *Rumex conglomerates* Murr | - | Torshak | Leaf and stem | Blood purification |

**Table 5.** Medicinal plants used in the treatment of cardiovascular disease in Kerman (47)

| Scientific name | Family Name | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Berberis integerrima* | Berberidaceae | Zereshk | Fruit | Blood purification |
| *Cerasus vulgaris* | Rosaceae | Albaloo | Fruit | Reduction in blood fat |
| *Citrullus colocynthis* | Cucurbitaceae | Hendevane Aboljahl | Fruit | Diabetes |
| *Coriandrum sativum* | Apiaceae | Ghashniz | Fruit | Reduction in blood fat Hypoglycemic effect |
| *Hordeumvulgare* | Poaceae | Joo | Fruit | Hypoglycemic effect |
| *Peganumharmala* | Zygophyllaceae | Esfand | Seed | Hypoglycemic effect |
| *Sesamun indicum* | Pedaliaceae | Konjed | Seed | Reduction in blood fat |

**Table 6.** Medicinal plants used in the treatment of cardiovascular disease in Mobarakeh, Isfahan (48)

| Scientific name | Family Name | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Gundelia tournefortii* L | Asteracea | Kangar | Leaf | Reduction in blood fat |
| *Ziziphus jujuba*(L) H.Karst | Rhamnaceae | Annab | Fruit | Blood purification |
| *Mentha spicata* L | Lamiaceae | Nana | Leaf | Reduction in blood fat |
| *Cichorium intybus L* | Asteraceae | Kasni | Aerial | Blood purification |
| *Rumex crispus* L. | Polygonaceae | Torshak | Fruit | Reduction in blood fat |
| *Arctium minus* Hill. | Asteraceae | Baba Adam | Root | Blood purification |
| *Anethum graveolens* L. | Apiaceae | Shavid | Leaf | Reduction in blood fat |
| *Zingiber officinale* Roscoe | Zingiberaceae | Zanjebil | Leaf | Reduction in blood fat |
| *Trigonella foenum-graecum* L. | Papilionaceae | Shanbalileh | Leaf and Seed | Reduction in blood fat |
| *Senna alexandrina* Mill | Papilionaceae | Sana | Leaf | Reduction in blood fat |
| *Rumex crispus* L. | Polygonaceae | Torshak | Leaf | Reduction in blood pressure |
| *Ziziphus jujuba*(L) H.Karst | Rhamnaceae | Annab | Fruit | Reduction in blood pressure |
| *Olea europaea* L | Oleaceae | Zeytoon | Fruit | Reduction in blood pressure |

**Table 7.** Medicinal plants used in the treatment of cardiovascular disease in Ilam (49)

| Scientific name | Family | Persian name | Organ used | Treatment effect |
|---|---|---|---|---|
| *Anethum graveolens* | Umbelliferae | Shevid | All parts of Plant | Reduction in blood fat |
| *Cichorium intybus* | Asteraceae | Kasni | Root | Reduction in blood fat |
| *Lactuca sativa* | Compositae | Kahoo | Leaf | Reduction in blood fat |
| *Malva neglecta* | Malvaceae | Panirak | Leaf and Stem | Blood purification |
| Nectaro scordeum tripedale N. coelzi | Alliaceae | Piaz Lorestani | Aerial | Treatment of hypolipidemia |
| *Ocimum bacilicum* | Laminaceae | Reyhan | Leaf | Reduction in blood fat |

**Table 8.** Medicinal plants used in the treatment of cardiovascular disease in Lorestan (50)

| Scientific name | Family | Persian Name | Organ Used | Treatment Effect |
|---|---|---|---|---|
| *Citrullus colocynthis* (L.) Schrad. | Cucurbitaceae | Henzel | Fruit | Diabetes |
| *Crataegus pontica* C. Koch. | Rosaceae | Zalzalk | Fruit | Blood pressure |
| *Glycyrrhiza glabra* L. var. *glabra* | | Shirin Bayan | Root and flower | Diabetes |
| *Gundelia tournefortii* L. | Asteraceae | Kangar | Leaf and stem | Diabetes |
| *Nerium oleander* L. | Apocynaceae | Khar Zahre | Leaf and flower | Cardiac tonic |
| *Paliurus spina-christi* Miller. | Rhamnaceae | Darg dar | Fruit | Blood pressure |
| *Prosopis farcta* | Mimosaceae | Kohorak | Fruit | Diabetes |
| *Quercus brantii* | Fagaceae | Baloot | Fruit | Diabetes |
| *Rheum ribes* L. | Polygonaceae | Rivas | Stem | Blood pressure |
| *Ulmus glabra* Hudson. | | Vazm | Leaf | Cardiac disorders and arrhythmias |
| *Olea europea* | Oleaceae | Zeitoon | Leaf and seed | Blood fat control |
| *Urtica dioica* | Urticaceae | Ghazane | Leaf and branches | Reduction in blood fat |
| *Vitis vinifera* | Vitaceae | Angour | Fruit | Reduction in blood fat |
| *Morus alba* | Moraceae | Toot | Fruit | Reduction in glycemia |
| *Berberis integrima* | Berberidaceae | Zereshk | Leaf and stem | Treatment of diabetes |
| *Pistacia atlantica* | Anacardiaceae | Boneh | Juice | Treatment of glycemia |
| *Capparis spinosa* | Capparaceae | Hendevne Aboljahl | Fruit and leaf | Reduction in glycemia |
| *Urtica dioica* | Urticaceae | Ghazane | Branches | Reduction in glycemia |
| *Valeriana officinalis L* | Valerianaceae | Sonboleteib | Fruit | Reduction in glycemia |
| *Melilotus officinalis* | Leguminosae | Yonje | Flower, Leaf and Stem | Reduction Blood Glucose |
| *Nectaroscordeum tripedale Nectaroscordeum coelzi* | Amaryllidaceae | Piaze Lorestani | Branches | Reduction in blood pressure |
| *Falcaria vulgaris* | Apiaceae | Gazayaghi | Leaf, flower and Stem | Reduction in blood pressure |
| *Smyrnium cordifolium* | Umbelliferae | Andool | Seed | Reduction in blood pressure |
| *Crocus hasskenechtii* | Iridaceae | Zaferan | Root | Reduction in blood pressure |
| *Berberis integrima* | Berberidaceae | Zereshk | Leaf and Stem | Reduction in blood pressure |
| *Ziziphus spina-christi Ziziphus nummularia* | Rhamnaceae | Sedr | Flower, leaf and Fruit | Reduction in blood pressure |
| *Allium ursinum* | Liliaceae | Sir | Bulb | Reduction in blood pressure |
| *Tragapogon caricifolius* | Compositae | Shang | All parts of plant | Reduction in blood pressure |
| *Anethum graveolens* | Umbelliferae | Shevid | All parts of plant | Reduction in blood pressure |
| *Amygdalus scoparia* | Rosaceae | Badam | Fruit | Reduction in blood pressure |

of the data, read and confirmed the final version of the manuscript.

## Conflict of interests

The authors declared no competing interests.

## Ethical considerations

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