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Ethenobothanical study of medicinal plants against parasites detected in Shiraz, southern part of Iran

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ABSTRACT

Parasitic diseases are a major public health problem with negative effects on the lives of hundreds millions of people around the world, especially in tropical developing countries. WHO estimates that three and a half billion people worldwide are infected with parasitic diseases that between four hundred and fifty million people suffer from this disease. Little research has been reported on use of medicinal plants in the region of Shiraz. Study was done through interviews to collect information on the direct method. The questionnaire will include personal information herbalists and native plant list with local information, including name of plant, parts used, use and effects of traditional treatment. The results showed last 15 plants from 12 families as antiparasitic drug used in Shiraz. Most parts of plants used include leaves and fruits that were allocated 25%. The highest form of traditional medicine recorded decoction with 82%. The results of comparing the different regions of Iran antiparasitic medicinal plants indicates that the *Artemisia absinthium*, *Artemisia*, *Sisymbrium irio*, *Asafoetida*, artichokes, almonds, thyme and chamomile in different cultures shared and used as an antiparasitic medicinal plants. Plants such as *Ficusjohannis Boiss*, *Acanthophyllum spp.*, *Lagenaria vulgaris*, *Achilleamillefolium L.*, *Cinnamomumverum* and *Nigella sativa* for the first time as antiparasitic herbs are reported. Based on the high prevalence of parasitic diseases, and number of herbs in this study are reported for the first time as an antiparasitic medicinal plants, it is suggested scientific study done for assaying antiparasitic effects reported and revealing effective ingredient of these plants.

Key words: parasites, Shiraz, herbs, Iran

INTRODUCTION

Parasitic diseases are now a major public health problem which has negative effects on the lives of hundreds of millions of people around the world, especially in tropical developing countries. The World Health Organization estimates that three and a half billion people worldwide are infected with parasitic diseases that between four hundred and fifty million people suffer from this disease [1].

Limited availability and high cost of synthetic drugs has caused the majority of the world's population will have to pay special attention to traditional medical treatments. It is estimated that about twenty thousand species of medicinal plants used around the world. Many of the known drugs mentioned in the modern pharmacopoeia, rooted in nature, for example quinine obtained from bark of *Cinchona pubesceas* and used for malaria treatment, and with further research derivative synthetic drugs mefloquine, primaquine, amodiaquine and chloroquine [2].

The identification of traditional herbal therapeutic properties led to new medicine as Ethnobotanical which use of the experiences of people in a particular culture and region make achieved properties of this plant species [3-12].

Nature around us is full of unknown species of medicinal properties which discover the benefits of them may be needed long time. Sometimes, in some areas, certain plant species used as medicinal plants and modern science can be achieved using indigenous people experience [13-21]. In some countries, results of research obtained from ethnobotanical studying have used to develop new drugs and optimize their development [22-34]. At the present time, because of the multiplicity of diseases, more people are thinking about treatment by their own. Technology development and industrialization of food and the use of chemicals in medicine is causing a variety of new diseases [35-40]. During the previous decayed, people tried to treatment the diseases use the chemical drugs, but with advances in medical sciences and prove that each chemical drugs cause side effects as well as effects of their treatment, people preferred to use plant drugs with minimal side effects. In recent years, in different cultures, people are thinking about using herbal medicines because the chemical drugs have deleterious side effects of a large number of patients to treat themselves to use [41-49]. Modern medicine has switched to medicinal plants in the treatment of many diseases, especially chronic diseases [50-58].

Little research on the use of medicinal plants in the region of Shiraz in Fars province was reported. No doubt the use of traditional medicines tested will continue and the urgent need to distinguish between effective and safe products and plants with ineffective and unsafe products increasingly felt.

MATERIALS AND METHODS

THE STUDY AREA

Fars province is one of the thirty-one provinces of Iran and known as the cultural capital of Iran. It is in the south of the country, in Iran's Region and its administrative center is Shiraz. Shiraz population in 1390 amounted to 1,460,665 tons, the figure including the solar population living in the suburbs to 1,700,687 tons. Shiraz, Fars province in the central part, at an altitude of 1486 meters above sea level and is located in the Zagros mountain region and has a moderate climate. Shiraz, Fars province has a length of 40 km and a width varying between 15 and 30 km with an area of 1268 square kilometers rectangle and geographically in the southwest of Iran and in the central part of Fars. The average temperature in July (the hottest month) to 30 degrees Celsius, in January (the coldest month), 5 degrees Celsius, on April 17 ° C and in September 20 ° C and average annual temperature of 18 ° C, annual rainfall of Shiraz is 3378 mm.

THE EFFICACY OF THE METHODOLOGY USED FOR GATHERING MEDICINAL PLANTS

Traditional health information collected for the period of July to September 2015 through interviews and questionnaires in the city of Shiraz. The questionnaire that was prepared in advance by the herbalists was trained. The questionnaire includes information on the location, the identity of the interviewer, the native plants, the use of native, parts used, mode of consumption, the growing season and the plants were kept at home. Interviewers personally go to the grocery to get information and to register their beliefs treatment plant. The results of the questionnaires were transferred exactly to the tables. Finally, data were analyzed by Excel.

RESULTS

The results of the analysis of the data showed last 15 medicinal plants from 12 plant families as antiparasitic which used in Shiraz (graph 1). Most parts was used includes the leaves and the fruit which had accounted for 25% (graph 2). The highest form of traditional medicine reported decoction form (82%) (graph 3). Additional information about medicinal herbs with anti-parasitic effect mentioned in Table 1.

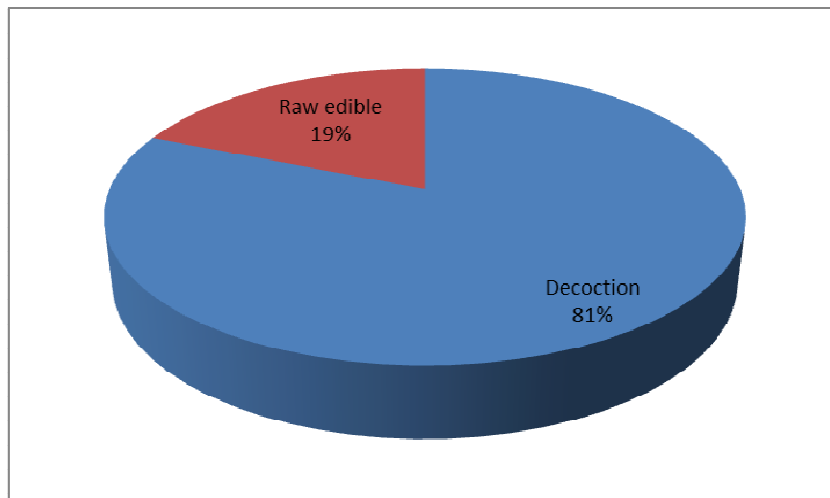
Table1. antiparasitic medicinal plants of Shiraz

Scientific name	Family	Persian names	Usable Part of plant	How to use	Traditional Therapeutic effect in Shiraz
<i>Ferula assafoetida L</i>	Umbelliferae	Anghozeh	Leaf	Herbal tea/decoction	Antiparasitic
<i>Nigella Sativa</i>	Caryophyllaceae	Siah doom	Seed	Herbal tea/decoction	Antiparasitic
<i>Zataria multiflora</i>	Lamiceae	Avishan	Leaf	Herbal tea/decoction	Antiparasitic
<i>Borago officinalis</i>	Boraginaceae	Gholegavzaban	Flower	Herbal tea/decoction	Antiparasitic
<i>Achillea millefolium L.</i>	Compositae	Boomadaran	Aerial	Herbal tea/decoction	Antiparasitic
<i>Cinnamomum verum</i>	Lauraceae	Darchin	Fruit shells	Herbal tea/decoction	Antiparasitic
<i>Artemisia absinthium</i>	Asteraceae	Ofsantin	Leaf	Herbal tea/decoction	Antiparasitic
<i>Matricaria recutita</i>	Asteraceae	Babooneh	Flower & Leaf	Herbal tea/decoction	Antiparasitic
<i>Descurainia Sophia (L.) Schr.</i>	Cruciferae	Khakeshir	Fruit	Fresh food	Antiparasitic
<i>Ficus johannis Boiss.</i>	Moraceae	Anjire vahshi	Fruit	Fresh food & Herbal tea/decoction	Antiparasitic
<i>Gundelia tournefortii</i>	Asteraceae	Kanghar	Fruit	Fresh food	Antiparasitic
<i>Amygdalus communis</i>	Rosaceae	Baadam	Fruit	Herbal tea/decoction	Antiparasitic
<i>Lagenaria vulgaris</i>	Cucurbitaceae	Kadoo	Seed	Herbal tea/decoction	Antiparasitic
<i>Acanthophyllum spp.</i>	Caryophyllaceae	Chobak	Aerial	Herbal tea/decoction	Antiparasitic
<i>Allium cepa</i>	Alliaceae	Piaz	Bulb	Herbal tea/decoction	Antiparasitic

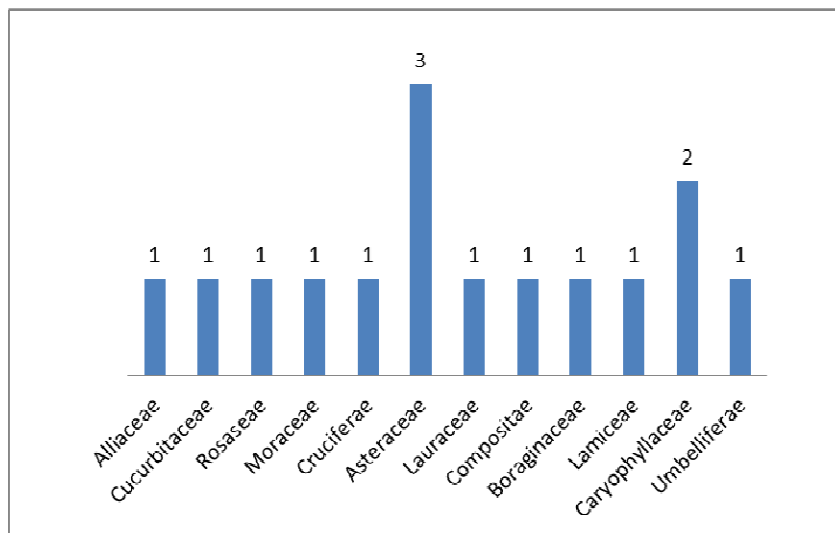
The highest FC% were recorded to *Artemisia absinthium*, *Matricaria recutita*, *Amygdalus communis*. %FC for other medicinal plants antiparasitic this study is presented in Table2.

Table2. % FC herbs antiparasitic in Shiraz

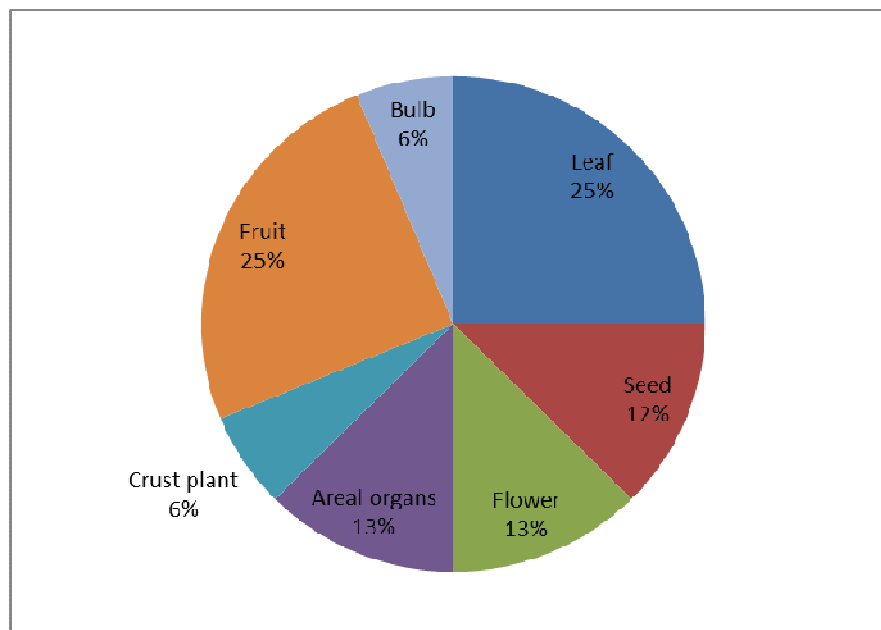
Scientific name	Persian names	The number of herbalists mentioned the plant	The total number of herbalists	Frequency of citation (FC) percentage (%)
<i>Ferula assafoetida L.</i>	Anghozeh	9	27	33.32%
<i>Nigella Sativa</i>	Siah doom	9	27	33.32%
<i>Zataria multiflora</i>	Avishan	6	27	22.22%
<i>Borago officinalis</i>	Gholegavzaban	10	27	37.03%
<i>Achillea millefolium L.</i>	Boomadaran	7	27	25.92%
<i>Cinnamomum verum</i>	Darchin	8	27	29.62%
<i>Artemisia absinthium</i>	Ofsantin	14	27	51.85%
<i>Matricaria recutita</i>	Babooneh	14	27	51.85%
<i>Descurainia Sophia (L.) Schr.</i>	Khakeshir	5	27	18.51%
<i>Ficus johannis Boiss.</i>	Anjirevahshi	6	27	22.22%
<i>Gundeliatournefortii</i>	Kanghar	5	27	18.51%
<i>Amygdalus communis</i>	Baadam	14	27	51.85%
<i>Lagenaria vulgaris</i>	Kadoo	10	27	37.03%
<i>Acanthophyllum spp.</i>	Chobak	5	27	18.51%
<i>Allium cepa</i>	Piaz	5	27	18.51%



Graph1. Distribution of the number of plant families in the study of medicinal plants anti-parasitic Shiraz



Graph 2. The distribution of plant organs used in traditional medicine for the treatment of parasite in Shiraz



Graph 3. Distribution of the traditional use of medicinal plants antiparasitic in Shiraz

DISCUSSION

The results revealed that 15 types of medicinal plants from 12 plant families in Shiraz are used as anti-parasitic plants. In present study of medicinal plants in different regions of the country reported as anti-parasitic effects to identifying new medicinal plants with new effects.

Ethnobotanical region in western Azerbaijan used *Prangosferulacea Fumaria officinalis* L. plant as a medicinal plant against parasites (). In traditional medicine in Arasbaran region *Artemisia absinthium* L. and *Alliariapetiolatato* use as anti-parasitic plant [57].

In Ilam province, *Allium akaka* Gmelin., *Artemisia sieberi* Besser., *Nasturtium officinale*, *Narcissus tazetta* L., *Nicotianatabacum* L., *Portulacaoleracea* L., *Rubusanatolicus* use as anti-parasitic plants [58].

In Kerman plants such as *Descurainiasophia*, *Ferula assa-foetida* and *Juglans regia* are used as anti-parasitic drug (). In Jondagh city, the *Artemisia Sieberi* Besser and *Halothamnusaureiculis* (Moq.) Botsch used to treat parasitic diseases (). *Calotropis Procera* and *Plantago Coronopus* plants in the Persian Gulf used for parasitic diseases [59]. Plants such as *Ferula assa-foetida* L., *Pimpinella anisum*, *Smyrniuncordifolium* Boiss., *Trachyspermum copticum* L., *Artemisia maritima* L., *Artemisia sieberi* Besser., *Bellisannua* L., *Calendula officinalis* L., *Gundeliatourneforti* L., *Descurainiasophia*, *Eruca sativa* Mill., *Nasturtium officinale* L., *Lavandula angustifolia* Mill., *Peganum harmala* L., *Reseda lutea* L. and *Ziziphus nummularia* in Khuzestan use as anti-parasitic plants in herbal medicine of this area [60]. In Sirjan, Kerman, *Descurainiasophia*, *Juglans regia* and *Morus nigra* used for parasitic infections [61]. In Kazeroun, *Conyzacanadensis* (L.) Cronq. and *Fraxinus angustifolia* Vahl. are anti-parasitic plants [62]. In herbal medicine of Mobarakeh city, *Thymus daenensis* Celak., *Allium sativum* L., *Punicagranatum* L., *Tragopogon graminifolius* DC., *Cucurbitapepo* and *Foeniculum vulgare* Mill is listed as an anti-parasitic plants [63]. In Marivan, *Falcaria vulgaris* Bernh., *Anthemis altissima* L. var., *Anthemis tinctoria* L., *Helichrysum oligocephalum* DC. and *Euphorbia macrocarpa* are as antiparasitic plants (64).

The results of comparing the different regions of Iran antiparasitic medicinal plants indicates that the *Artemisia absinthium*, *Artemisia*, *Sisymbrium irio*, *Asafoetida*, artichokes, almonds, thyme and chamomile in different cultures shared and used as an antiparasitic medicinal plants. Plants such as *Ficus johannis* Boiss, *Acanthophyllum* spp., *Lagenaria vulgaris*, *Achillea millefolium* L., *Cinnamomum verum* and *Nigella sativa* for the first time as anti-parasitic herbs are reported.

The mechanism by which the introduced plants have anti-parasite activities is not clear. Phenolic components of the plants have been demonstrated to have various activities including anti-bacterial, anti-parasite and anticancer properties [65-84]. The presented plants in this study also have phenolic compounds which possess antioxidant activities. Antioxidants can scavenge a wide variety of diseases [85-93]. Many diseases are extremely important and

the need for medical treatment to be felt, in particular treatment with herbal medicines [94-123]. Based on the high prevalence of parasitic diseases, and a number of herbs in this study are reported for the first time as an antiparasitic medicinal plants, scientific studies are suggested for assaying antiparasitic effects reported in order to reveal effective ingredient of these plants.

REFERENCES

- [1] A Degarege and Berhanu Erko. **2014**: e109793.
- [2] S Tagboto and S Townson. *Advances in Parasitology*. **2001**: 199-295.
- [3] A Ghasemi Pirbalouti, M Momeni and M Bahmani. *Afr J Tradit Complement Altern Med*. **2013**: 10(2):368-000.
- [4] M Bahmani, T Farkhondeh and P Sadighara. *Comp Clin Pathol*. **2012**: 21(3): 357-359.
- [5] M Bahmani, SA Karamati, EK Bahnihabib, K Saki. *Asian Pac J Trop Dis*. **2014**:4(Suppl 1): 477-480.
- [6] B Delfan, M Bahmani, M Rafieian-Kopaei, M Delfan, K Saki. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 2): 879-884.
- [7] M Bahmani and EK Bahnihabib. *Global Veterinaria*. **2013**: 10 (2): 153-157.
- [8] M Amirmohammadi, SH Khajoenia, M Bahmani, M Rafieian-Kopaei, Z Eftekhari, M Qorbani. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 1): 250-254.
- [9] M Bahmani, Z Eftekhari. *Comp Clin Path*. **2012**: 22: 403-407.
- [10] Z Eftekhari, M Bahmani, A Mohsenzadegan, M Gholami-Ahangaran, J Abbasi, N Alighazi. *Comp Clin Path*. **2012**:21: 1219-1222.
- [11] M Bahmani, J Abbasi, A Mohsenzadegan, S Sadeghian, M Gholami-Ahangaran. *Comp Clin Path*. **2013**: 22:165-168.
- [12] M Bahmani, J Abbasi, A Mohsenzadegan, S Sadeghian, M Gholami-Ahangaran. *Comp Clin Pathol*. **2013**: 22:165-168.
- [13] M Gholami-Ahangaran, M Bahmani, N Zia-Jahromi. *Asian Pac J Trop Dis*. **2012**: 2(1): S101-S103.
- [14] M Bahmani, H Golshahi, A Mohsenzadegan, M Ghollami-Ahangarani, E Ghasemi. *Comp Clin Pathol*. **2013**: 22(4): 667-670.
- [15] S Forouzan, M Bahmani, P Parsaei, A Mohsenzadegan, M Gholami-Ahangaran. *Glob Vet*. **2012**: 9(2): 144-148.
- [16] M Gholami-Ahangaran, M Bahmani, N Zia-Jahromi. *Glob Vet*. **2012**: 8: 229-232.
- [17] M Bahmani, A Zargarani, M Rafieian-Kopaei. *Rev Bras Farmacogn*. **2014**: 24(4): 468-48.
- [18] M Bahmani, EK Bahnihabib, M Rafieian-Kopaei and M Gholami-Ahangaran. *Kafkas Univ Vet Fak Derg*. **2015**: 21 (1): 9-11.
- [19] B Delfan, M Bahmani, Z Eftekhari, M Jelodari, K Saki, T Mohammadi. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 2): 938-942.
- [20] M Bahmani, K Saki, M Rafieian-Kopaei, SA Karamati, Z Eftekhari, M Jelodari. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 14-21.
- [21] M Asadi-Samani, M Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 22-28.
- [22] M Bahmani, A Zargarani, M Rafieian-Kopaei, M Saki. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 348-354.
- [23] B Delfan, M Bahmani, H Hassanzadazar, K Saki, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 376-379.
- [24] M Bahmani, M Rafieian-Kopaei, H Hassanzadazar, K Saki, SA Karamati, B Delfan. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 29-33.
- [25] K Saki, M Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**:7(Suppl 1): 34-42.
- [26] M Bahmani, HA Shirzad, M Majlesi, N Shahinfard, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 43-53.
- [27] M Asadbeigi, T Mohammadi, M Rafieian-Kopaei, K Saki, M Bahmani, B Delfan. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): S364-S368.
- [28] SA Karamati, H Hassanzadazar, M Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 2): 599-601.
- [29] M Bahmani, M Rafieian-Kopaei, M Jeloudari, Z Eftekhari, B Delfan, A Zargarani, SH Forouzan. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 2): 847-849.
- [30] K Saki, M Bahmani, M Rafieian-Kopaei, H Hassanzadazar, K Dehghan, F Bahmani, J Asadzadeh. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 2): 895-901.
- [31] M Bahmani, SA Karamati, H Hassanzadazar, SH Forouzan, M Rafieian-Kopaei, B Kazemi-Ghoshchi, J Asadzadeh, AGh Kheiri, E Bahmani. *Asian Pac J Trop Dis*. **2014**: 4(Suppl 2): 906-910.
- [32] SA Karamati, H Hassanzadazar, M Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Dis*. **2014**:4(Suppl 2): 599-601.
- [33] M Bahmani, M Rafieian, A Baradaran, S Rafieian, M Rafieian-kopaei. *J Nephrothol*. **2014**: 3(2): 81-85.
- [34] M Bahmani, K Saki, M Rafieian-Kopaei, SA Karamati, Z Eftekhari, M Jelodari. *Asian Pac J Trop Med*. **2014**: 7(Suppl 1): 14-21.

- [35] M Bahmani, M Rafieian-Kopaei, K Saki, M Majlesi, F Bahmani, A Sharifi, SH Rasouli, R Sepahvand, R Abdollahi, O Moghimi-Monfared and S Baharvand. *Journal of Chemical and Pharmaceutical Research*. **2015**; 7(2):493-502.
- [36] B Delfan, HR Kazemeini and M Bahmani. *Journal of Evidence-Based Complementary & Alternative Medicine*. **2015**: 1-7. DOI: 10.1177/2156587214568458
- [37] B Delfan, M Bahmani, H Hassanzadazar, K Saki, M Rafieian-Kopaei, M Rashidipour, F Bagheri and A Sharifi. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(2):483-492.
- [38] M Bahmani, Z Eftekhari, Z Jelodari, K Saki, R Abdollahi, M Majlesi, M Rafieian-Kopaei and SH Rasouli. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(2):519-526.
- [39] M Bahmani, M Mirhoseini, H Shirzad, M Sedighi, N Shahinfard and M Rafieian-Kopaei. *Journal of Evidence-Based Complementary & Alternative Medicine*. 1-10. DOI: 10.1177/2156587214568457.
- [40] M Bahmani, SH Forouzan, E Fazeli-Moghadam, M Rafieian-Kopaei, A Adineh and SH Saberianpour. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(1):634-639.
- [41] M Bahmani, H Shirzad, S Rafieian, and M Rafieian-Kopaei. *Journal of Evidence-Based Complementary & Alternative Medicine*. **2015**: doi:10.1177/2156587215571116
- [42] M Bahmani, K Saki, M Asadbeygi, A Adineh, SH Saberianpour, M Rafieian-Kopaei, F Bahmani and E Bahmani. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(1):646-653.
- [43] M Bahmani, K Saki, H Golshahi, M Rafieian-Kopaei, N Abdali, A Adineh, F Namdari and F Bahmani. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(1):640-645.
- [44] Y Song, JE Manson, JE Buring, HD Sesso, S Liu. *J Am Coll Nutr*. **2005**: 24: 376-84.
- [45] M Bahmani, M Rafieian-Kopaei, K Saki, M Majlesi, F Bahmani, F Bahmani, A Sharifi, SH Rasouli, R Sepahvand, R Abdollahi, O Moghimi-Monfared and S Baharvand. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(2):493-502.
- [46] B Delfan, HR Kazemeini and M Bahmani. *Journal of Evidence-Based Complementary & Alternative Medicine*. **2015**: 1-7. DOI: 10.1177/2156587214568458
- [47] B Delfan, M Bahmani, H Hassanzadazar, K Saki, M Rafieian-Kopaei, M Rashidipour, F Bagheri and A Sharifi. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(2):483-492.
- [48] M Bahmani, Z Eftekhari, Z Jelodari, K Saki, R Abdollahi, M Majlesi, M Rafieian-Kopaei and SH Rasouli. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(2):519-526.
- [49] M Bahmani, M Mirhoseini, H Shirzad, M Sedighi, N Shahinfard and M Rafieian-Kopaei. *Journal of Evidence-Based Complementary & Alternative Medicine*. 1-10. DOI: 10.1177/2156587214568457.
- [50] M Bahmani, SH Forouzan, E Fazeli-Moghadam, M Rafieian-Kopaei, A Adineh and SH Saberianpour. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(1):634-639.
- [51] M Bahmani, H Shirzad, S Rafieian, and M Rafieian-Kopaei. *Journal of Evidence-Based Complementary & Alternative Medicine*. **2015**: doi:10.1177/2156587215571116
- [52] M Bahmani, K Saki, M Asadbeygi, A Adineh, SH Saberianpour, M Rafieian-Kopaei, F Bahmani and E Bahmani. *Journal of Chemical and Pharmaceutical Research*. **2015**:7(1):646-653.
- [53] M Bahmani, K Saki, H Golshahi, M Rafieian-Kopaei, N Abdali, A Adineh, F Namdari and F Bahmani. *Journal of Chemical and Pharmaceutical Research*. **2015**: 7(1):640-645.
- [54] B Baharvand-Ahmadi, M Bahmani, N Naghdi, K Saki, S Baharvand-Ahmadi and M Rafieian-Kopaei. *Der Pharmacia Lettre*. **2015**: 7 (11):160-165.
- [55] B Baharvand-Ahmadi, M Bahmani, A Zargarani, Z Eftekhari, K Saki, S Baharvand-Ahmadi and M Rafieian-Kopaei. *Der Pharmacia Lettre*. **2015**: 7 (11):172-173.
- [56] B Baharvand-Ahmadi, M Bahmani, N Naghdi, K Saki, S Baharvand-Ahmadi and M Rafieian-Kopaei. *Der Pharmacia Lettre*. **2015**: 7 (11):189-196.
- [57] A Zolfaghari, A Adeli, V Mozafarian, S Babaei, Gh Habibi-Bibalan. *J Med Arum Plants*. **2013**:28(3): 534-550.
- [58] A Ghasemi Pirbalouti, M Momeni and M Bahmani. *Afr J Tradit Complement Altern Med*. **2013**: 10(2): 368-000.
- [59] Sharififar F, Kouhpayeh A, Mottaghi MM, Amirhosravi A, Pourmohseninasab E. Study of ethnobotany of Sirjan city of Kerman province. *J Herbal Drugs* 2010; 3: 19-28.
- [60] N Ghassemi Dehkordi, M Norouzi, A Safaei Aziz. **2012**: 3(1):105-112.
- [61] B Zolfaghari, M Sadeghi, I Tiri, M Yousefali Tabar. **2012**: 3(1): 113-124.
- [62] H Khodayari, SH Amani, H Amiri. *Med Plants Ecophytochemistry J*. **2013**: 2(4): 12-26.
- [63] Sh Mardani-Nejhad; M Vazirpour. *J Herbal Drugs*. **2012**: 3(2): 111-126.
- [64] MA Tabad, N Jalilian. *JMP*. **2015**: 2(54): 55-75.
- [65] R Sharafati-chaeshtori, M Rafieian-kopaei. *J Herbmed Pharmacol*. **2014**; 3(1): 31-34
- [66] R Amanpour, S Abbasi-Maleki, M Neyriz-Naghadehi, M Asadi-Samani. *J Herbmed Pharmacol*. **2015**; 4(2): 45-48.
- [67] M Rafieian-Kopaei, A Baradaran, AR Maghsoudi, Sh Ghobadi, H Nasri. *Life Sci J*. **2012**; 9(4): 3696-3702.

- [68] N Bagheri, Gh Rahimian, L Salimzadeh, F Azadegan, M Rafieian-Kopaei, A Taghikhani, H Shirzad. *EXCLI J.* **2013**; 12:5-14.
- [69] A Azadmehr, R Hajiaghaee, A Afshari, Z Amirghofran, M Refieian-Kopaei, H yousofi. *J Med Plants Res.* **2011**; 5(11): 2365–2368.
- [70] S Mardani, H Nasri, S Hajian, A Ahmadi, R Kazemi, M Rafieian-Kopaei. *J Nephropathol.* **2014**; 3(1):35-40.
- [71] H Nasri, A Ahmadi, A Baradaran, A Momeni, P Nasri, S Mardani, M Rafieian-Kopaei, M Mubarak. *J Nephropathol.* **2014**; 3(3):115-20.
- [72] H Nasri, M Rafieian-Kopaei. *Iran J Public Health.* **2013**; 42(10):1194-1196.
- [73] H Nasri, M Rafieian-Kopaei. *Int J Prev Med.* **2013**; 4(9): 1101-1102.
- [74] M Setorki, M Rafieian-Kopaei, A Merikhi, E Heidarian, N Shahinfard, R Ansari, H Nasri, N Esmael, A Baradaran. *Int J Prev Med.* **2013**; 4(8):889-5.
- [75] M Akhlaghi, Gh Shabaniyan, M Rafieian-Kopaei, N Parvin, M Saadat, M Akhlaghi. *Revista Brasileira de Anestesiologia* **2011**; 61(6):702-712.
- [76] R Sharafati, F Sharafati, M Rafieian-kopaei.. *Turk J Biol.* **2011**:635-9.
- [77] Rafieian-Kopaei M, Nasri H , Alizadeh F, Ataebi B, Baradaran A. *Iranian J Pub Health* **2013.** 42(5):529-533.
- [78] SE Sajjadi, M Ghanadian, M Haghighi, L Mouhebat. *J Herbmed Pharmacol* **2015**; 4(1): 15-19.
- [79] J Kaboutari, MS Haydarnejad, R FatahianDehkordi, S Raeisi-Vanani. *J Herbmed Pharmacol* **2015**; 4(1): 20-24.
- [80] Karamian R, Mohammadian A, Hassanimoghadam E, Alizadeh L, Abdali N, Keshvari M, et al. *J Herbmed Pharmacol* **2015**; 4(1): 25-28.
- [81] N Amini-Sarteshnizi, M Mobini-Dehkordi, S Khosravi-Farsani, H Teimori. *J Herbmed Pharmacol* **2015**; 4(1): 29-34.
- [82] M Rafieian-Kopaei, A Baradaran, A Merrikhi, M Nematbakhsh, Y Madihi, H Nasri. *International Journal of Preventive Medicine.* **2013**; 4(3):258-64.
- [83] H Nasri, M Nematbakhsh, M Rafieian-Kopaei. *Iran J Kidney Dis.* **2013** Sep; 7(5):376-82.
- [84] SY Asadi, P Parsaei, M Karimi, S Ezzati, A Zamiri, F Mohammadzadeh, M Rafieian-Kopaei. *Int J Surg.* 2013; 11(4):332-7. doi: 10.1016/j.ijssu.2013.02.014. Epub **2013** Feb 28.
- [85] P Parsaei, M Karimi, SY Asadi, M Rafieian-Kopaei. *Int J Surg.* 2013; <http://dx.doi.org/10.1016/j.ijssu.2013.08.014>
- [85] N Bagheri, A Taghikhani, G Rahimian, L Salimzadeh, H Azadegan-Dehkordi, H Zandi, MH Chaleshtori, M Rafieian-Kopaei, H Shirzad. *Microb Pathog.* 2013 Dec; 65:7-13. doi: 10.1016/j.micpath.2013.08.005. Epub 2013 Sep 10.
- [86] G Rahimian, MH Sanei, H Shirzad, F Azadegan-Dehkordi, A Taghikhani, L Salimzadeh, M Hashemzadeh-Chaleshtori, M Rafieian-Kopaei, N Bagheri. *Microb Pathog.* **2014** Feb-Mar; 67-68:1-7. doi: 10.1016/j.micpath.2013.12.006. Epub 2014 Jan 21.
- [87] H Roohafza, N Sarrafzadegan, M Sadeghi, M Rafieian-Kopaei, F Sajjadi, H Khosravi-Boroujeni. *Arch Iran Med.* **2013** Mar; 16(3):145-8. Doi: 013163/AIM.005.
- [88] A Baradaran, H Nasri, M Rafieian-Kopaei. *Cell J.* **2013**; 15(3): 272-3. Epub 2013 Aug 24.
- [89] H Nasri, M Rafieian-Kopaei. *Iranian J Publ Health.* **2013**; 42(10): 1194-1196
- [90] A Baradaran, H Nasri, M Nematbakhsh, M Rafieian-Kopaei. *Clinica Terapeutica.* **2014**; 165(1):7-11. doi: 10.7471/CT.2014.1653.
- [91] H Nasri, M Rafieian-Kopaei. *J Res Med Sci.* **2014**; 19(1):82-3.
- [92] M Rafieian-Kopaei, A Baradaran, M Rafieian.. *J Res Med Sci.* **2013**; 18(7): 628.
- [93] N Sarrafzadegan, H Khosravi-Boroujeni, A Esmailzadeh, M Sadeghi, M Rafieian-Kopaei, S Asgary. *Arch Iran Med.* **2013**; 16(3):161-166.
- [94] SH Ahmadipour, A Mohsenzadeh, S Ahmadipour, Z Eftekhari and P Tajeddini. *Der Pharmacia Lettre.* **2015**; 7 (12):419-426.
- [95] P Asadollahi, M Akbari, S Soroush, M Taherikalani, K Asadollahi, K Sayehmiri, A Maleki, MH Maleki, P Karimi, M Emameini. *Burns.* **2012**; 38(8):1198-203.
- [96] M Taherikalani, A Maleki, N Sadeghifard, D Mohammadzadeh, S Soroush, P Asadollahi, K Asadollahi, M Emameini. *Pol J Microbiol.* **2011**; 60(2):169-74.
- [97] B Fatholahzadeh, M Emameini, MM Feizabadi, H Sedaghat, M Aligholi, M Taherikalani, F Jabalameli. *Int J Antimicrob Agents.* **2009**; 33(3): 264-5.
- [98] M Emameini, M Taherikalani, MA Eslampour, H Sedaghat, M Aligholi, F Jabalameli, S Shahsavan, N Sotoudeh. *Microb Drug Resist.* **2009**; 15(2):129-32.
- [99] F Jabalameli, A Mirsalehian, N Sotoudeh, L Jabalameli, M Aligholi, B Khoramian, M Taherikalani, M Emameini. *Burns.* **2011**; 37(7):1202-7.
- [100] S Soroush, MT Haghi-Ashtiani, M Taheri-Kalani, M Emameini, M Aligholi, N Sadeghifard, I Pakzad, M Abedini, Yasemi, H Paiman. *Acta Med Iran.* **2010**; 48(3):178-84.
- [101] M Taherikalani, G Etemadi, KN Geliani, B Fatollahzadeh, S Soroush, MM Feizabadi. *Saudi Med J.* **2008**; 29(4):623-4.

- [102] I Pakzad, S Ghafourian, M Taherikalani, N Sadeghifard, H Abtahi, M Rahbar, N Mansory Jamshidi. *Iran J Basic Med Sci.* **2011**; 14(5):458-64.
- [103] S Shahsavan, M Emaneini, B Noorazar Khoshgnab, B Khoramian, P Asadollahi, M Aligholi, F Jabalameli, MA Eslampour, M Taherikalani. *Burns.* **2012**; 38(3):378-82.
- [104] B Baharvand-Ahmadi, M Bahmani, A Zargar, Z Eftekhari, K Saki, S Baharvand-Ahmadi and M Rafieian-Kopaei. *Der Pharmacia Lettre.* **2015**, 7 (11):172-173.
- [105] M Haghi-Ashtiani, N Sadeghifard, M Abedini, S Soroush, M Taheri-Kalani. *Acta Med Iran.* **2007**; 45(2):153-157.
- [106] SS Khoramrooz, A Mirsalehian, M Emaneini, F Jabalameli, M Aligholi, B Saedi, A Bazargani, M Taherikalani, P Borghaei, E Razmpa. *Auris Nasus Larynx.* **2012**; 39(4):369-73.
- [107] B Baharvand-Ahmadi, M Bahmani, N Naghdi, K Saki, S Baharvand-Ahmadi and M Rafieian-Kopaei. *Der Pharmacia Lettre.* **2015**, 7 (11):189-196.
- [108] K Asadollahi, M Taherikalani, A Maleki, E Alizadeh, H Valadbaigi, S Soroush, H Maleki, P Asadollahi, M Emaneini. *Acta Microbiol Immunol Hung.* **2011**; 58(4):359-70.
- [109] M Akbari, M Niakan, M Taherikalani, MM Feizabadi, NA Azadi, S Soroush, M Emaneini, A Abdolkarimi, A Maleki, A Hemati. *Acta Microbiol Immunol Hung.* **2010**; 57(2):87-94.
- [110] B Baharvand-Ahmadi, M Bahmani, A Zargar, Z Eftekhari, K Saki, S Baharvand-Ahmadi and M Rafieian-Kopaei. *Der Pharmacia Lettre.* **2015**, 7 (11):172-173.
- [111] F Jabalameli, A Mirsalehian, B Khoramian, M Aligholi, SS Khoramrooz, P Asadollahi P, M Taherikalani, M Emaneini. *Burns.* **2012**; 38(8):1192-7.
- [112] A Mohsenzadeh, SH Ahmadipour, S Ahmadipour and Z Eftekhari. *Der Pharmacia Lettre.* **2015**; 7 (12):279-284.
- [113] N Sahebkhari, Z Nochi, MA Eslampour, H H Dabiri, M Bolfion, M Taherikalani, B Khoramian, MR Zali, M Emaneini. *Acta Microbiol Immunol Hung.* **2011**; 58(2):113-21.
- [114] SH Ahmadipour, S Ahmadipour, A Mohsenzadeh and H Hassanzadazar. *Der Pharmacia Lettre.* **2015**; 7 (12):313-315.
- [115] N Kalantari, M Taherikalani, N Parvaneh, S Mamishi. *Iran J Public Health.* **2007**; 36 (3): 27-32.
- [116] FA Nakhjavani, M Emaneini, H Hosseini, H Iman-Eini, M Aligholi, F Jabalameli, MT Haghi-Ashtiani, M Taherikalani, A Mirsalehian. *J Med Microbiol.* **2013**; 62(Pt 2):191-5.
- [117] B Baharvand-Ahmadi, M Bahmani, P Tajeddini, N Naghdi, M Rafieian-Kopaei. *J Nephrothol.* **2016**; 5(1):44-50.
- [118] S Khodadadi. *Immunopathol Persa.* **2015**; 1(1):e01.
- [119] M Kafeshani. *J Renal Endocrinol.* **2015**; 1:e04.
- [120] MR Tamadon, M Zahmatkesh. *J Parathyroid Dis.* **2015**; 3(2):34-36.
- [121] AR Soleimani, H Akbari, S Soleimani, S Beladi Mousavi, MR Tamadon. *J Renal Inj Prev.* **2015**; 4(3): 73-79.
- [122] A Asgari. *J Nephrothol.* **2014**; 3(1): 5-6.
- [123] M Rafieian-Kopaei, A Baradaran, M Rafieian. *J Nephrothol.* **2013**; 2(2):152-153.