

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/280290139>

Ethnobotanic study of medicinal plants in Urmia city: Identification and traditional using of antiparasites plants

Article in *Asian Pacific Journal of Tropical Disease* · September 2014

DOI: 10.1016/S2222-1808(14)60756-8

CITATIONS

13

READS

54

9 authors, including:



Mahmoud Bahmani

213 PUBLICATIONS 1,631 CITATIONS

SEE PROFILE



Seyed Ahmad Karamati

Shahid Beheshti University of Medical Sciences

32 PUBLICATIONS 147 CITATIONS

SEE PROFILE



Hassan Hassanzadazar

Zanjan University of Medical Sciences

29 PUBLICATIONS 148 CITATIONS

SEE PROFILE



Mahmoud Rafieian-kopaei

Shahrekord University of Medical Sciences

315 PUBLICATIONS 4,071 CITATIONS

SEE PROFILE

Some of the authors of this publication are also working on these related projects:



Effect of alcoholic extract of Green tea (*Camellia sinensis*) on intra-abdominal adhesion in rat [View project](#)



I dont have any project right now! [View project](#)

Contents lists available at ScienceDirect

Asian Pacific Journal of Tropical Disease

journal homepage: www.elsevier.com/locate/apjtd

Document heading

doi: 10.1016/S2222-1808(14)60756-8

© 2014 by the Asian Pacific Journal of Tropical Disease. All rights reserved.

Ethnobotanic study of medicinal plants in Urmia city: identification and traditional using of antiparasites plants

Mahmoud Bahmani^{1*}, Seyed Ahmad Karamati², Hassan Hassanzadazar³, Shirin Forouzan³, Mahmoud Rafeian-Kopaei⁴, Behzad Kazemi-Ghoshchi³, Jafar Asadzadeh³, Aghakhan Kheiri³, Ehsan Bahmani⁵

¹Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran

²Department of Parasitology and Mycology, Faculty of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³Deputy for Food and Drug, Urmia University of Medical Sciences, Urmia, Iran

⁴Medical Plants Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran

⁵Agri-Bank of Dehloran City, Ilam Province, Iran

ARTICLE INFO

Article history:

Received 10 Feb 2014

Received in revised form 7 May 2014

Accepted 15 Jun 2014

Available online 5 Aug 2014

Keywords:

Pharmaceutical plants

Parasitic infections

Urmia

Iran

ABSTRACT

Objective: To identify the native medicinal plants used in parasitic diseases treatment in Urmia.

Methods: This study was conducted among 35 Urmia herbalists to identify medicinal plants used in parasitic diseases treatment. We used direct observation and interviews with collected herbarium specimens by native herbs commonly in the treatment of parasitic diseases. Questionnaires were included apothecary personal information and native plants list with information includes plant local name, plant parts used, method of their use and traditional therapies. Herbarium samples listed in the questionnaire collected from the area and were sent to agricultural research centers and Urmia University Faculty of Agriculture for genus and species determination.

Results: Thirteen medicinal plants from six families for treatment of diabetes in Urmia were obtained from interviews. Most families have anti diabetic effect was included Asteraceae (36%). The most used was boiling (65%).

Conclusions: In view of the findings of this study indicate that plants have the potential to be a parasitic infection so it is necessary ingredients of native plants be studied to demonstrate therapeutic effects and provide field work to evaluate the clinical effects of these herbs and ingredients they claim on parasitic diseases.

1. Introduction

Parasitic infections and parasitic diseases can be considered as the most common diseases in the world that can be transmitted through the water, the soil, and food such as vegetables to humans^[1]. According to the World Health Organization about 3.5 billion people of the world population are infected with a parasitic infection^[2,3].

In Iran, because of the geographical location and climatic conditions, the large

area of cultural and biological properties, there is a suitable environment for various parasites and parasitic infections can occur in humans^[4].

In many parts of the world, especially in abandoned areas and places that do not have access to doctors and medicine, people use folk medicine and home treatment. Different regions of Iran have different cultures and customs in the use of medicinal plants and thus for gathering valuable information in the field of medicinal plants among the tribes, further investigation is needed. Identification and introducing of medicinal plants flora and traditional uses of these plants, provide useful information concerning the distribution and medicinal plants usage in the region and causes to

*Corresponding author: Dr. Mahmoud Bahmani, Razi Herbal Medicines Research Center, Lorestan University of Medical Sciences, Khorramabad, Iran.

Tel: 0989186157084

E-mail: mahmood.bahmani@gmail.com

Foundation Project: Food and Drug, Urmia University of Medical Sciences, Iran (Grant No. 22-11-99-20).

Table 1

Used plants information in this study.

Scientific name	Family	Farsi name	Used organ	Using method	Therapeutical effects
<i>Alitaria petiolata</i> (M.B.) cavora Grande	Brassicaceae	Alafe sir	Leaf	Decoction; brew	anti-parasite
<i>Artemisia sieberi</i> Besser	Asteraceae	Dermaneh	Flowered branches	Decoction; brew fumigation	anti-parasite pubic and head louse ocular worm (thelazia)
<i>Artemisia vulgaris</i> L.	Asteraceae	Berenjasef	Flowered branches, root, extract	Decoction; brew	anti-intestinal worm
<i>Bryonia dioica</i> L.	Cucurbitaceae	Fashra	Root, fruit powder	Decoction	anti-intestinal worm
<i>Centaurea iberica</i> Trev. Ex sprengel	Asteraceae	Gole gandom	Inflorescences	Decoction	ocular worm(thelazia)
<i>Ceterach officinalis</i>	Phlilicineae	Sarakhs	Aerial parts	Pomade	pubic and head louse
<i>Cirsium arvense</i> L.	Asteraceae	Kangare harz	Flowered branches	Raw edible	anti-intestinal worm
<i>Galium humifusum</i> Bieb.	Rubiaceae	Shir panir	Aerial parts	Decoction	Parasitic diarrhea
<i>Galium verum</i> L.	Rubiaceae	Shir panir	Aerial parts, Root	Decoction	Parasitic diarrhea
<i>Mentha spicata</i> .	Lamiaceae	Poune kohi	Aerial organ	Decoction	Parasitic diarrhea
<i>Rubia tinctorum</i> L.	Rubiaceae	Ronas	Root Fruit	Decoction	anti-intestinal worm
<i>Scrozonera cinerea</i> Boiss.	Asteraceae	Sheng	Root	Decoction	anti-parasite
<i>Tragopogon carcifolius</i> Boiss.	Asteraceae	Sheng	Leaf	Decoction	anti-parasite

various pharmacological activities in connection with this matter^[5,6].

In addition to the Third World, especially in Western Europe, despite the availability of modern medicine, tendency to traditional medicine is growing^[7]. Nowadays herbal science has advanced and medicinal plants along with chemical drugs are used to treat some diseases^[8]. The report shows that about 30% of drugs have plant origin^[9]. Different herbs with anti-parasitic treatment effects have been studied^[10–21].

According to importance of parasitic diseases and the recognize necessity of anti parasitic pharmaceutical plants of each region, so the aim of this study has 2 points: survey of Urmia apothecaries native knowledge on the use of medicinal plants in the treatment of parasitic diseases and determination of anti-parasitic species of plants in the region.

2. Materials and methods

2.1. The study area

Ghasemlou valley with an area of 577 hectares is located in the south of Urmia. Longitudes is between 45°5' to 45°10' E and latitude is between 37°15' and 37°20' N. This area is located on the right side of the Urmia– Oshnavieh road. This region is mountainous, and the lowest point of 1420 m and its highest peak is 2280 m above sea level^[22].

According to local meteorological data and annual soil moisture conditions, irrigation area (Xeric) and thermal regime (Mesic) is dominant^[23]. The point of climatic divisions the studied region, has been located in cold semi-arid climate. The average annual rainfall is 367.5 mm and the annual mean maximum temperature is 33.1 °C and

the average minimum temperature is –15.5 °C. January is the coldest month and July is the warmest month of the year in the region^[24].

2.2. Questionnaire methods and sample collection

This study was done by using a provided questionnaire and interviews with Urmia city herbalists listed in food and drug deputy of Urmia university of medical science during October 2013 to January 2014. Direct observation, interview and collection of native herbarium medical plants and their usual effectiveness on diabetes disease were used. The questionnaires included personal information's of herbalists, native plants therapeutic effects and their used organs with their using methods without naming them.

Sample of herbarium plants were collected based on local herbalists information's in questionnaire. After drying, samples were sent to Urmia agricultural research center and agriculture faculty of Urmia University for genus and species determination using various scientific sources^[25–28].

2.3. Data analysis

The obtained results were analyzed by using word excel software 2010. The detail information of medicinal plants have indicated in Table 1.

3. Results

Percentage of plants family, percentage of plants organs, percentage of using methods of plants and percentage of anti-parasitic breakdown effects of the present study is indicates in Figure 1, 2, 3 and 4.

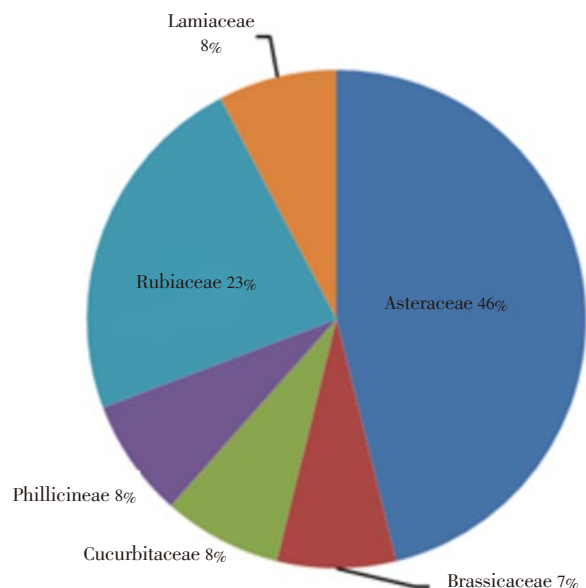


Figure 1. Percentage of plants family for traditional therapy of parasitic diseases.

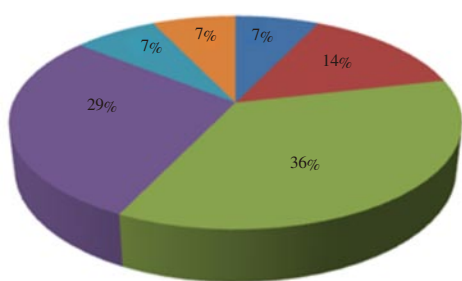


Figure 2. Percentage of plants organs used for traditional therapy of parasitic diseases.

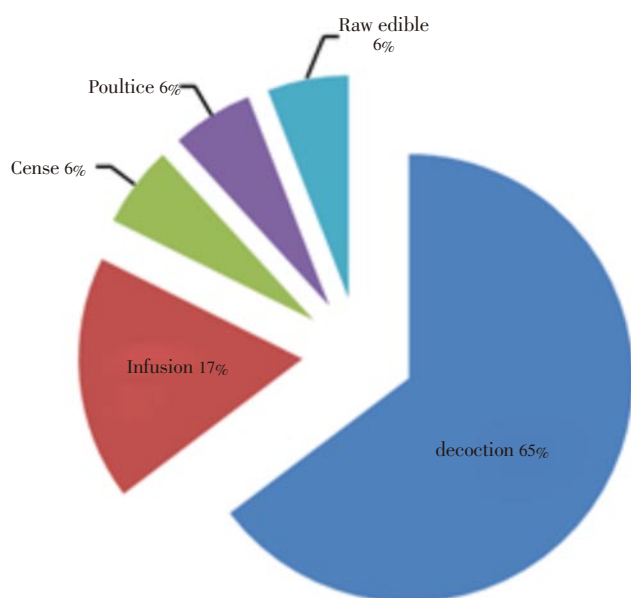


Figure 3. Percentage of using methods of plants.

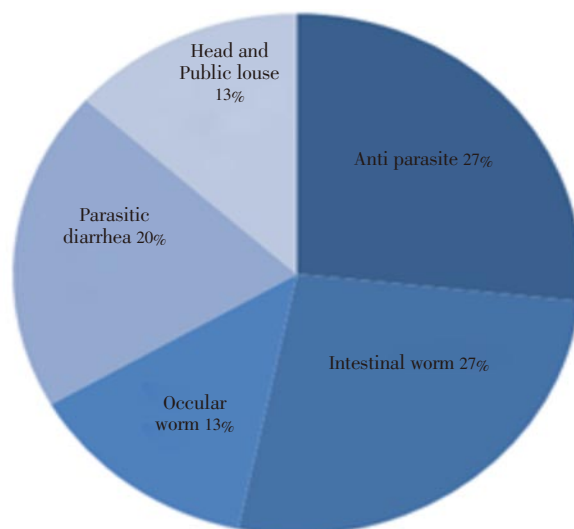


Figure 4. Percentage of anti-parasitic breakdown effects.

4. Discussion

High tendency of people to natural, harmless and economic remedies that adapted with their cultural aspects, makes extensive use of medicinal plants in Iranian traditional medicine. To prevent losing the useful information's about traditional medicinal plants after the old herbalists die, because keeping and recording of this knowledge is essential. Thirteen medicinal plants from six families that used for treatment of diabetes were identified by interviews in Urmia. Common family with antidiabetic effects belonged to Asteraceae (46%). Plants root were the most organs used (36%), and mainly have been used as a decoction (65%).

Artichoke as a type of *Acanthus* of the Compositae or Asteraceae family has a hot and dry nature that is beneficial for various diseases such as diabetes, obesity, urticaria, asthma, kidney stones, atherosclerosis, rheumatism and skin disease like eczema and inflammations[29]. hypoglycemic and hypolipidemic effects of this plant in experimental models of diabetes mellitus have been reported[30,31]. Cinnamom is the most important ingredients of artichokes[32]. Traditional antiparasitic effect of the artichokes was introduced for the first in this study.

Gundelia tournefortii L. is used for disposal of mange's in sheep and goat[33]. A species of Asteraceae that scientifically named *Artemisia maritima* L. has antiparasitic effects (anti-ascaris) and is used for producing a drug named santonian[32]. *Artemisia salina*

has anti-larval and insecticide property and *Artemisia inculata* has anti-worm effect^[32]. Antiparasitic effects of *Artemisia abrotanum* on *Syphacia obvelata*, *Aspiculoris tetrapetra*, *Hymenolepis nana* has been demonstrated^[33]. Obtained results of this study confirms previous studies results.

A species of Cucurbitaceae named *Bryonia aspera* is used in gastrointestinal and digestive problems in horses. One of the digestive problems is parasitic diarrhea. *Artemisia vulgaris* L. is used as an antiparasitic (anti-worm)^[32]. *Galium verum* L. is used for improving digestive disorders^[32]. Galitanic acid, citric acid and a red colorant of alizarin group are the active ingredients of *Galium verum* L. that has astringent effect^[34]. Probably the antiparasitic effects of *Galium verum* L. is due to its active ingredients effects.

A species of Phillicineae named *Pteridium aquilinum* L. used as antiparasitic and is effective in repelling parasites^[32]. *Alliaria petiolata* extract is tonic, diaphoretic, diuretic, anti-scurvy, expectorant and anti-helminth^[34]. In ethnobotany of Kazeroon in Iran, *Mentha longifolia* (L.) is used to reduce gastric acid and bloating^[35]. A species of Asteraceae named *Acinus graveolens* is used as expectorant in Kerman province of Iran^[36,37]. This species is differs from species we studied.

According to this study, old herbalists believe the use of herbs in the treatment of diseases. They believed that all plants are useful, but young herbalists did not have enough information about medicinal plants. The old herbalists and traditional medicine scholars because of their experiences not recommended overdose using of herbs.

The obtained results of this scientific research can provide appropriate field for use medicinal plants to produce products with greater efficacy and less detriments, due to the high importance of medicinal plants in Urmia region^[38].

Conflict of interest statement

We declare that we have no conflict of interest.

Acknowledgements

The authors would like to appreciate financial support of Deputy for Food and Drug, Urmia University of Medical Sciences, Iran (Grant No. 22–11–99–20).

References

- [1] Nazemi S, Raei M, Amiri M, Chaman R. Parasitic Contamination of raw vegetables in Shahrud, Semnan. *Zahedan J Res Med Sci* 2012; **14**(8): 84–86.
- [2] Rafieian–Kopaei M. Medicinal plants and the human needs. *J HerbMed Pharmacol* 2012; **1**(1):1–2.
- [3] Köksal F, Başlantı I, Samasti M. [A retrospective evaluation of the prevalence of intestinal parasites in Istanbul, Turkey]. *Turkiye Parazitol Derg* 2010; **34**(3): 166–171. Turkish.
- [4] Gharavi MJ. *Textbook of clinical protozoology*. Teimourzadeh, Iran: Mir Publishers; 2004.
- [5] Bahmani M, Rafieian–Kopaei M, Avijgan M, Hosseini S, Golshahi H, Eftekhari Z, et al. Ethnobotanical studies of medicinal plants used by Kurdish owner's in south range of Ilam province, west of Iran. *Am–Euras J Agric Environ Sci* 2012; **12**(9): 1128–1133.
- [6] 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**(3): 403–407.
- [7] Mander M, Mander J, Breen C. Promoting the cultivation of indigenous plants for markets: experiences from KwaZulu–Natal, South Africa. Rome, Italy: FAO Forestry Department; 1997. [Online] Available from: <http://www.fao.org/docrep/w3735e/w3735e16.htm> [Accessed on 20 December, 2013]
- [8] Doubova SV, Morales HR, Hernández SF, del Carmen Martínez–García M, de Cossío Ortiz MG, Soto MA, et al. Effect of a *Psidium guajavae* folium extract in the treatment of primary dysmenorrhea: a randomized clinical trial. *J Ethnopharmacol* 2007; **110**(2): 305–310.
- [9] Yuan R, Lin Y. Traditional Chinese medicine: an approach to scientific proof and clinical validation. *Pharmacol Ther* 2000; **86**(2): 191–198.
- [10] Bahmani M, Avijgan M, Hosseini SR, Qorbani M. Evaluating the anti-*Limnatis nilotica* effects of tobacco methanol extract compared with succinyl choline and some other anti-parasite drugs. *Shahrekord J Med Sci* 2010; **12**(3): 53–59.
- [11] Eftekhari Z, Bahmani M, Mohsenzadegan A, Ahangaran MG, 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**: 1219–1222.
- [12] Bahmani M, Avijgan M, Ahangaran MG, Rafieian M. The comparison of anti *Limnatis nilotica* effects of albendazole and some of the Iranian medicinal plants. *Iran South Med J* 2012; **15**(1): 25–34.
- [13] Bahmani M, Abbasi J, Mohsenzadegan A, Sadeghian S, Ahangaran MG. *Allium sativum* L.: the anti-ammature leech

- (*Limnatis nilotica*) activity compared to niclosomide. *Comp Clin Pathol* 2013; **22**(2): 165–168.
- [14] Bahmani M, Rafieian–Kopaei M, Parsaei P, Mohsenzadegan A. The anti–leech effect of *Peganum harmala* L. extract and some anti–parasite drugs on *Limnatis nilotica*. *Afr J Microbiol Res* 2012; **6**: 2586–2590.
- [15] Ahangaran MG, 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*. *Global Veterinaria* 2012; **8**(3): 229–232.
- [16] 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**(4): 667–670.
- [17] Gholami–Ahangaran M, Bahmani M, Zia–Jahromi N. Comparative and evaluation of anti–leech (*Limnatis nilotica*) effect of olive (*Olea Europaea* L.) with levamisole and tiabendazole. *Asian Pac J Trop Dis* 2012; **2**(Suppl 1): S101–S103.
- [18] Bahmani M, Banihabib E, Saki K, Kazemi–Ghoshji B, Heydari A, Hashemi M. Anti–leech and disinfection activities of methanolic extracts of Walnut (*Juglans regia* L.) and Oleander (*Nerium oleander* L.) on *Limnatis nilotica*. *World J Zool* 2012; **7**(3): 267–272.
- [19] Forouzan S, Bahmani M, Parsaei P, Mohsenzadegan A, Gholami–Ahangaran M, Sadeghi E, et al. Anti–parasitic activities of *Zingiber officinale* methanolic extract on *Limnatis nilotica*. *Global Veterinaria* 2012; **9**(2): 144–148.
- [20] Bahmani M, Karamati SA, Banihabib E, Saki K. Comparison of effect of nicotine and levamisole and ivermectin on mortality of leech. *Asian Pac J Trop Dis* 2014; **4**(Suppl 1): S477–S480.
- [21] Amirmohammadi M, Khajoenia S, 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*, *Aspiculuris tetrapetra* and *Hymenolepis nana* parasites. *Asian Pac J Trop Dis* 2014; **4**(Suppl 1): S250–S254.
- [22] Rikan HM, Malekmoohamadi L. Medicinal plants in Ghasemloo Valley of Uromieh. *Iran J Med Aromat Plants* 2007; **23**(2): 234–250.
- [23] Banaei MG, cartographer. Map of soil thermal and moisture regimes, scale 1:250000 [map]. Iran: Soil and Water Research Institute; 1998.
- [24] West Azerbaijan Regional Water Authority. Summary statistics for measuring evaporation Ghasemloo, 1998–2004. Iran: West Azerbaijan Regional Water Authority. [Online] Available from: <http://agr.wa.gov.ir/index.php?lang=fa> [Accessed on 18 December, 2013]
- [25] Zargari A. *Iran–colored flora. Volumes 1–23*. Iran: Botanical Research Institute of Forests and Rangelands; 1975–2002.
- [26] Asadi M, Masumi AS, Khatamsaz CE, Mozaffarian M. *Iranian flora. Numbers 1 to 59*. Iran: Press Releases Research Institute of Forests and Rangelands; 1998–2008.
- [27] Reshinger KH, editor. *Flora Iranica, vols. 1–173*. Graz, Austria: Akademische Druck–u. Verlagsanstalt; 1963–1998.
- [28] Davis PH, editor. *Flora of Turkey and the East Aegean islands, vols. 1–10*. Edinburgh: Edinburgh University Press; 1965–1988..
- [29] Zargari A. *Medicinal plants, volume II*. Tehran: Institute of Tehran University Press; 1998.
- [30] Wegener T. [The status of herbal antilipemic agents]. *Wien Med Wochenschr*. 2002; **152**: 412–417. German.
- [31] Shimoda H, Ninomiya K, Nishida N, Yoshino T, Morikawa T, Matsuda H, et al. Anti–hyperlipidemic sesquiterpenes and new sesquiterpene glycosides from the leaves of artichoke (*Cynara scolymus* L.): structure requirement and mode of action. *Bioorg Med Chem Lett* 2003; **13**(2): 223–228.
- [32] Ghasemi–Pirbalouti A. Third listen: plants, traditional medicine and ethnoveterinary. In: *Medicinal and aromatic plants*. Shahrekord: Saman–Danesh Pub; 2009, p. 158–190.
- [33] Kouhpayeh A, Ghasemipirbalouti A, Yazdanpanah Ravari MM, Nasab EP, Arjomand D. Study the ethno–veterinary of medicinal plants in Kerman province, Iran. *J Herb Drugs* 2011; **2**(3): 2012: 211–216.
- [34] Zolfeghari I, Adeli E, Mozafarian V, Babaiy S, Habibi Bibalan G. Identification of Arasbaran medicinal plants and ethnobotanical study of rural people knowledge (Case Study: Arasbaran forest, Mardanaghom watershed. *Iranian J Med Aromat Plants* 2012; **28**(3): 534–550.
- [35] Dolatkhahi M, Ghorbani Nohooji M, Mehrafarin A, Amini Nejad GR, Dolatkhahi A. Ethnobotanical study of medicinal plants in Kazeroon, Iran: identification, distribution and traditional usage. *J Med Plants* 2012; **11**(42): 163–178.
- [36] Sharififar F, Kouhpayeh A, Motaghi M, AmirKhoisravi A, Nasab EP, Khodashenas M. Study the ethnobotany of medicinal plants in Sirjan, Kerman province, Iran. *J Herb Drugs* 2012; **1**(3): 19–28.
- [37] Bahmani M, Saki K, Gholami–Ahangaran M, Parsaei P, Mohsenzadegan A, Zia–Jahromi N. Evaluating the anti–leech activity of methanolic extract of *Matricaria chamomilla* L. comparing with ivermectin, mebendasole, praziquantel, rafoxanide, febantel and albendasole. *Middle–East J Sci Res* 2012; **12**(2): 260–263.
- [38] Bahmani M, Rafieian–Kopaei M. Medicinal plants and secondary metabolites for leech control. *Asian Pac J Trop Dis* 2014; **4**(4): 315–316.