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

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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

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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>	Phillicineae	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.

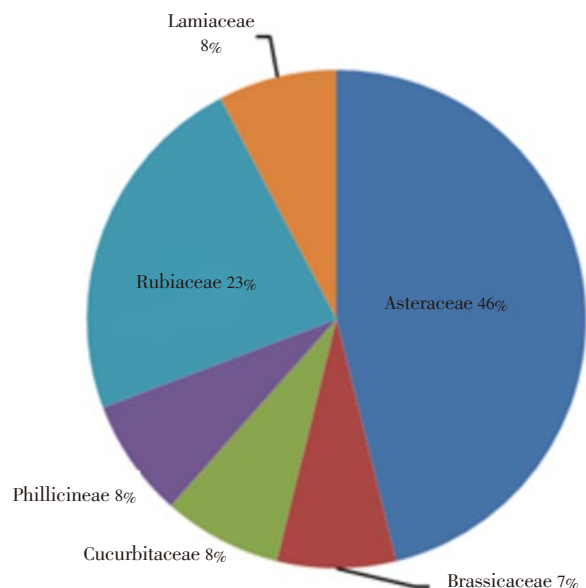


Figure 1. Percentage of plants family for traditional therapy of parasitic diseases.

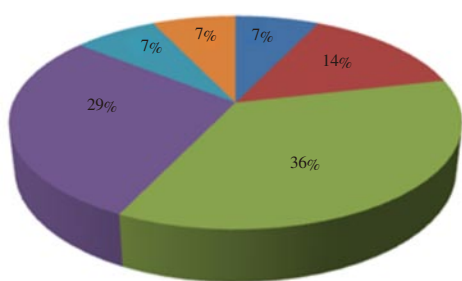


Figure 2. Percentage of plants organs used for traditional therapy of parasitic diseases.

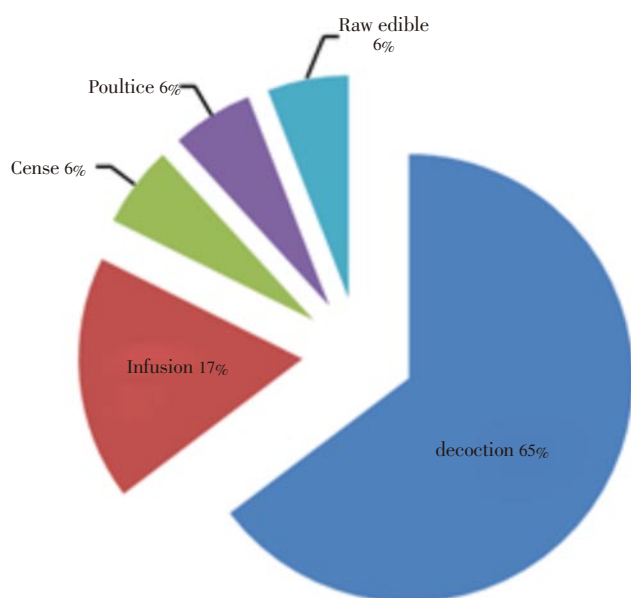


Figure 3. Percentage of using methods of plants.

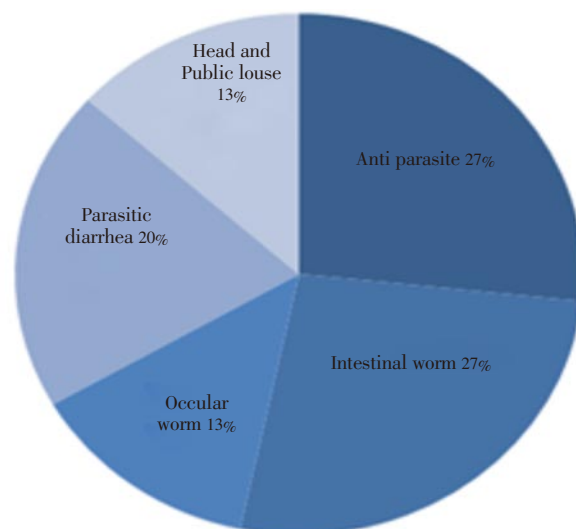


Figure 4. Percentage of anti-parasitic breakdown effects.

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.

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