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Identification of Plant Flora Affecting Common Psychiatric Disorders Based on Ethnobotanical Knowledge of Ilam, Iran

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Abstract

Objective: The aim of the present study is to identify, report and compare native medicinal plants that are used for treatment of depression, anxiety and stress, anorexia, insomnia and headache and migraine in the city of Ilam, Ilam province, Iran.

Methods: A standard questionnaire was used to obtain information regarding traditional therapeutic uses of plants that are effective on common psychiatric disorders, such as depression, anxiety and stress, anorexia, insomnia, headache and migraine. Data collection instruments included a questionnaire and interview. The study population also included 37 perfumers. First, a complete list of the perfumers of Ilam city was extracted from the Food and Drug Vice-Chancellor of Ilam University of Medical Sciences. The questionnaires included questions on the personal information of perfumers and a list that contains the names of native plants, but included their used organs, usage, and traditional therapeutic effect. The results showed that twenty-two plant families are effective in treating common psychiatric disorders.

Results: Fabaceae plant family with 7 plants and Lamiaceae plant family with 5 plants were the most effective plant families used for the treatment of common psychiatric disorders. Also, the most plant organs

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used for the treatment of the above disorders included aerial parts (38%), leaves (14%), fruits (14%), flowering branches (14%), and seeds (12%).

Conclusion: Native medicinal plants of Ilam are traditionally used to treat common psychiatric diseases and can be used as natural and effective treatments of disorders such as depression, anxiety and stress, anorexia, insomnia, headache, and migraine.

Introduction

Exposure to nature has been linked to a healthier and the longer life. Humans are a part of nature and certainly nature has also provided a cure for every disease [1]. Medicinal plants (MPs) have been long used as an important treatment by humans and even animals. Traditional botany provides valuable methods for finding new Medicinal plants and herbal medicines [2, 3]. Currently, chemical drugs are used to prevent, control and treat depression, anxiety and stress disorders, anorexia, insomnia and headaches and migraines. Such treatments are associated with side effects. The aim of the present study is to identify, report and compare the use of native Medicinal plants that are used for the treatment of depression, anxiety and stress disorders, anorexia, insomnia, headache and migraine in the northern and southern areas of Ilam province so that we can produce effective natural medicines for psychiatric disorders. Considering current conditions and capabilities of Iran, as well as the historical taste of the consumer and the emphasis of international academic societies on use of traditional medicine as low-cost treatment with fewer complications, indicate that there are appropriate conditions for consuming Medicinal plants more frequently and appropriately [4].

The World Health Organization (WHO) estimates that currently about four billion people use MPs. According to statistics, approximately 25% of all Medicinal plants prescribed by doctors in current medicine are obtained from trees, bushes or grasses in different ways. Some of MPs are obtained directly from plant extracts and others are obtained artificially to induce effects similar to Medicinal plants [5, 6]. Mental disorders such as depression, anxiety and stress, headache and migraine are among the most common diseases worldwide [7].

There have been few domestic and international studies on ethnobotany and psychiatric disorders such as depression, anxiety and stress, anorexia, insomnia, headache and migraine. In their study, Bahmani et al., reported that 22 Medicinal plants from 10 plant families were effective on psychiatric and neurological disorders in Urmia, Iran [8]. Similarly, Delfan et al.in a study in Lorestan showed that 15 Medicinal plants are used to treat headaches and migraines due to psychological risk factors [9]. Yelda Güzel et al. (2015) also investigated the ethnobotany of Antakya region of Turkey, and found that some MPs of the region had anti-depressant, anxiety and stress, anorexia, insomnia and headache and migraine effects [10]. Ceuterick et al. (2008) investigated the London Pharmacopoeia and revealed that a number of MPs have beneficial therapeutic effects on depression, anxiety and stress, anorexia, insomnia, headache and migraine [11]. Kayani et al. (2015) investigated the ethnobotany of Pakistan and found that some Medicinal plants have therapeutic effects on the aforementioned psychiatric disorders [12].

Currently, chemical drugs are used to prevent, control and treat depression, anxiety and stress, anorexia, insomnia, headache and migraine. Such treatments have side effects. Attempts were made in the present study to identify, report and compare the effect of Medicinal plants, which are native to the northern region of Ilam, for the treatment of depression, anxiety and stress, anorexia, insomnia, headache and migraine, in order to find a way to produce natural medicines for such disorders.

Method

The study population included 37 traditional medical persons and perfumers of Ilam city whose knowledge about herbal medicines was collected through a questionnaire. The map of Ilam province located in Iran is shown in Figure no. 1. The present study used self-made ethnobotanical questionnaires that were published in previous ethnobotanical studies. Traditional therapeutic information of effective MPs used for the treatment of depression, anxiety and stress, anorexia, insomnia and headache and migraine was collected by questionnaires. The questioner personally referred to each apothecary and traditional medical person,

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interviewed them in person and enter their knowledge about herbal medicines in the questionnaire.

Figure 1. *Map of Ilam province located in Iran*

Results

Based on the results obtained from the analysis of the questionnaires, it was determined that from 37 apothecary, 78% (29 people) were men and 22% (8 people) were women. In terms of education, 5 people had a Less than a diploma, 16 had a diploma, 4 had a post-graduate degree, 10 had a bachelor's degree, and 2 had a master's degree. Apothecary's age range was from 22 years to 72 years (average age was 45.72 years). In terms of ethnicity and race, 92% of apothecary were Kurdish. 5% were Lak and 3% were Arab.

Many medicinal plants are used to treat depression, anxiety and stress, anorexia, insomnia, headache and migraine in the city of Ilam (Table 1). According to the above table and results of statistical analysis, twenty-two medicinal plants are effective in treating common psychiatric disorders and Fabaceae plant family with 7 plants and the Lamiaceae plant family with 5 plants were the most effective Medicinal plants in this regard (Figure 2).

Table 1. *Scientific name, plant family, Persian name, used organ and therapeutic effect*

Scientific name	Herbal family	Persian name	Used organ	Therapeutic
Amygdalus Arabica Olivier *Amygdalus communis* L. *Amygdalus elaeagnifolia* Spach *Amygdalus Haussknechtii* (C.K. Schneider) Bornm.	Rosaceae	Badameh kouhi	Oil, fruit	Headache, migraine, appetite
Rhamnus pallasii Fisch. & C.A. Mey	Rhamnaceae	Siah tangers	Leaf, fruit	Headache
Anthemis cotula L. *Anthemis haussknechtii* Boiss. & Reut *Anthemis usiana* nabelek	Asteraceae	babouneh	Flower	Headache, anxiety, insomnia, migraine, stress, sedative
Cichorium intybus L.	Asteraceae	Kasni	Aerial organs, sweats	Appetite, stress, anxiety
Centaurea solstitialis L.	Asteraceae	Gole gandome zard	Flowering branch	Appetite, anxiety
Crataegus pontica K.Koch	Rosaceae	Zalzalak	Fruit	Anxiety, stress
Avena sativa L.	Poaceae	Youlaf	Aerial organs	Insomnia

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Astragalus gossypinus Fischer	Fabaceae	Gavaneh panbei	Aerial organs	Stress, depression
Cannabis sativa L.	Cannabaceae	Shahdaneh	Seed	Headache, anxiety, insomnia, stress, sedative
Syzygium aromaticum (L.) Merr. & L.M.Perry	Myrtaceae	Mikhak	Seed	Headache, anxiety, insomnia, migraine, stress, appetite suppressant
Crocus sativus L.	Iridaceae	Zafaran	Leaf	Headache, anxiety, insomnia, migraine, stress, sedative, depression
Anchusa Italica Retz.	Boraginaceae	Gavzaban	Flower	Headache, anxiety, stress, sedative
Peganum harmala L.	Boraginaceae	Esopand	, seed Leaf	Stress, migraine, anxiety
Ferulago macrocarpa (Fenzl) Bioss. *Ferulago macrocarpa* *Ferulago angulata*	Umbelliferae	Chavil	Aerial organs	Stress
Ficus carica	Moraceae	Anjir	Fruit	Appetite, headache
Malva neglecta Wallr *Malva nicaensis* All.	Malvaceae	Panirak	Leaf	Appetizer
Menta longifolia (L.) Hudson	Lamiaceae	Poneh kouhi	Aerial organs	Stress, appetite, anxiety
Salvia lanigera Poir.	Lamiaceae	Maryam goli	Aerial organs	Soothing
Salsola spp.	Amaranthaceae	Alafe shoor	Aerial organs	Headache
Rhus coriaria L.	Anacardiaceae	Somagh	Aerial organs	Appetite
Tymbra spicata L.	Lamiaceae	Avishanak	Aerial organs	Headache, migraine, appetite
Medicago sativa	Fabaceae	Younjeh	Leaf	Appetite
Linum usitatissimum	Linaceae	Katan	Fruit	Appetite
Hypericum asperulum jaub. & Spach *Hypericum helianthemoids* (Spach) Bioss. *Hypericum scabrum* L.	Hypericaceae	Gole raei	Aerial organs	Headache, anxiety, stress, depression
Trifolium repens	Fabaceae	Shabdar	Leaf	Migraine
Rosa foetida J. Herrman *Rosa canina* L.	Rosaceae	Nastaran	Flower	Headache, migraine, insomnia, sedative
Biebersteinia multifida DC.	Biebersteiniaceae	Adamak	Aerial organs	Stress, anxiety

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decumbens Oliveria Vent	umbelliferae	Laeleh kohestan	Flower	Stress
Niglea sativa	Ranunculaceae	Siah daneh	Seed	Headache, migraine, insomnia
Ziziphora teniur L. *Ziziphora clinopodioidesc* Lam.	Lamiaceae	kakoutri	Aerial organs	Appetite, anxiety
Punica granatum L.	Lythraceae	Anar	Fruit	Stress
jujube Mill. *Ziziphus*	Rhamnaceae	Anab	Fruit	Stress, headache
Lavandula angustifolia Mill.	Lamiaceae	Ostokhodous	Aerial organs	Anxiety
Achillea Wilhelmsii C. Kock	Asteraceae	Boumadaran	Aerial organs	Headache, anxiety, insomnia, migraine, stress, appetite suppressant
Verbascum agrimoniifolium (C. Kock) Hub.-Mor	Scrophulariaceae	Gole mahour	Flower	Headache, anxiety, insomnia, migraine, stress
Alhagi persarum *Boiss. & Buhse*	Fabaceae	Kharshotor	Aerial organs	Appetite
Althaea officinalis L.	Malvaceae	Khatmi	Flower	Insomnia, headache
Alyssum campestre (L.) L.	Brassicaceae	Ghodoumeh	Aerial organs	Appetite

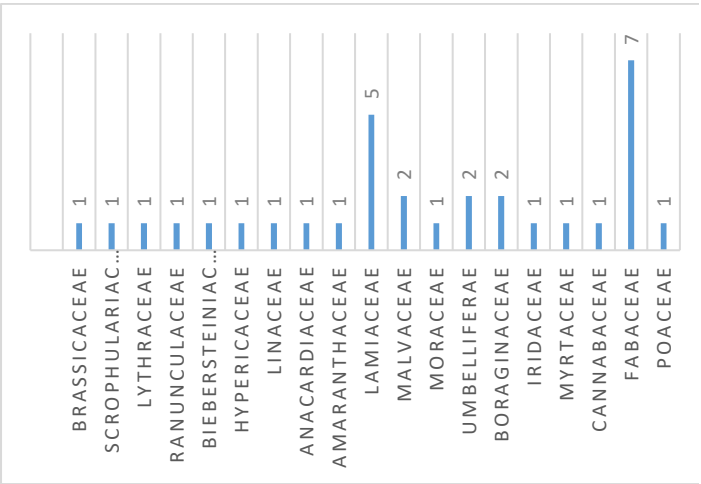

Figure 2. *Use of each medicinal plant for the treatment of depression, anxiety and stress, anorexia, insomnia, headache and migraine in the city of Ilam*

The most widely used plant organs for the treatment of common psychiatric disorders include aerial parts (38%), leaves, fruits and flowering branches (each with 14%) and seeds (12%) (Figure 3).

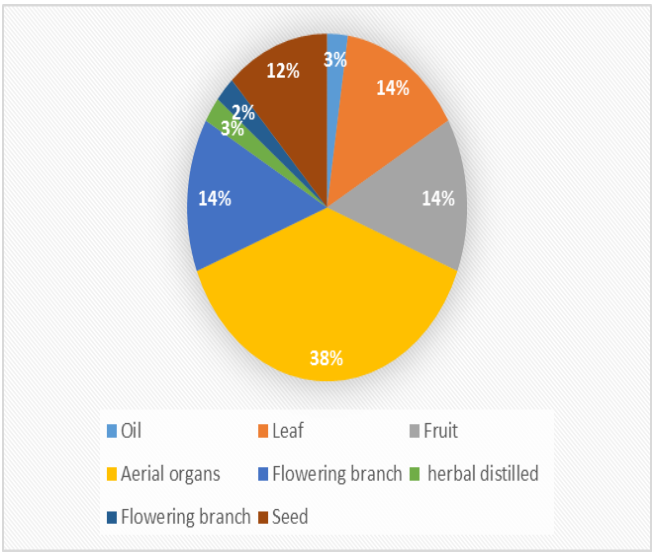

Figure 3. *Percentage of plant organs used to treat depression, anxiety and stress, anorexia, insomnia, headache and migraine in Ilam city*

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Discussion

There have been few domestic and international studies on ethnobotany and psychiatric disorders such as depression, anxiety and stress, anorexia, insomnia, headache and migraine. Ethnobotany studies how people of a particular tribe, culture or region use native plants in that region. Considering their region, language and culture, Iranian people use their native MPs to treat common psychiatric diseases such as depression, anxiety and stress, anorexia, insomnia, headache and migraine.

People in Abhar city (northwest of Iran) use Conium maculatum for migraine pain and headache, *Grammosciadium platycarpum* as a muscle relaxer, *Cota tinctoria* and *Descurainia sophia* as sedatives, *Herniaria hirsute* and *Lotus corniculatu* as antidepressant, *Lamium* plant

amplexicaule L. as an analgesic, *Mentha longifolia* for headache [13]. *Artemisia aucheri* and *Dianthus crinitus* are used for headache, *Verbascum cheiranthifolium* for insomnia, *Satis minima* for migraine in Abadeh Fars, a city in southern Iran [14]. Hypericum perforatum L., *Origanum vulgare*, *Ballota nigra*, *Rosa canina*, *Papaver orientale* & *Lotus corniculatus*, *Asperula odorata* are used to treat pain, migraine, nerve weakness, insomnia stress in Arasbaran region, northern Iran, respectively [15]. People of Kashan region, located in the center of Iran, use *Potentilla elvendensis* Boiss to relieve headache [16]. *Heracleum persicum*, *Kelussia odoratissima* and *Pimpinella anisum* are used as sedatives, *Sinaps nigra* L. and *Stachis lavandulifoli* as appetite stimulants, *Cynodon dactylon* as hypnotics and *Crataegus curvisepal* as anti-anxiety and stress drug in Khuzestan, south of Iran [17]. *Allium akaka* Gmelin is used as an appetite stimulant, *Echium italicum* L. and *Hypericum scabrum* L. as a sedative in Ilam, Iran [18]. People of Sistan region, located in the south-east of Iran, use *Datura innoxia* Mill. and *Solanum nigrum* for their sedative property, *Mentha longifolia* as appetite stimulant, *Portulaca oleracea* to treat migraine [19].

Plantago major is also a native plant to Mashhad, northeast of Iran, which is used to treat various types of pain such as headache and migraine [20]. The results of the present study show that some of MPs are pharmacologically similar or have close therapeutic effects with those studied in other studies. Some of our MPs have different and new therapeutic effects.

The properties of MPs are attributed to secondary metabolites [21-23]. To ensure the optimal use of effective ingreiients of MPs, it is necessary to identify medicinal species, record and revitalize herbal medicine traditions and train harvest basics to indigenous people.

One of the controversial issues regarding MPs is indigenous knowledge. This knowledge is very broad and includes different aspects including ethnobotany of MPs. The present study can be useful both in terms of managing the exploitation of medicinal and food plants in the region and in terms of keeping alive the indigenous knowledge of older people and transferring this precious treasure to younger generations. Considering the existence of various MPs in this area, this grassland ecosystem can serve as a local natural habitat and provide extensive knowledge of traditional botanical information.

Conflict of interest

None of the authors have any conflict of interest to declare.

Consent for publications

All authors approved the final manuscript for publication.

Availability of data and material

Data are available on request from the authors.

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