

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

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Article Info

Article type:

Review Research Article

Article History:

Received: 08 May 2022

Received in revised form:
07 August 2022

Accepted: 20 August 2022

Published online: 29
August 2022

Keywords:

Medicinal plants,
Ethnobotany, Ilam,
Treatment

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 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,

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

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

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



Figure 1. Map of Ilam province located in Iran

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.

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
<i>Amygdalus Arabica</i> Olivier	Rosaceae	Badameh kouhi	Oil, fruit	Headache, migraine, appetite
<i>Amygdalus communis</i> L.				
<i>Amygdalus elaeagnifolia</i> Spach				
<i>Amygdalus</i> <i>Haussknechtii</i> (C.K. Schneider) Bornm.				
<i>Rhamnus pallasii</i> Fisch. & C.A. Mey	Rhamnaceae	Siah tangers	Leaf, fruit	Headache
<i>Anthemis cotula</i> L.	Asteraceae	babouneh	Flower	Headache, anxiety, insomnia, migraine, stress, sedative
<i>Anthemis haussknechtii</i> Boiss. & Reut				
<i>Anthemis usiana</i> nabelek				
<i>Cichorium intybus</i> L.	Asteraceae	Kasni	Aerial organs, sweats	Appetite, stress, anxiety
<i>Centaurea solstitialis</i> L.	Asteraceae	Gole gandome zard	Flowering branch	Appetite, anxiety

<i>Crataegus pontica</i> K.Koch	Rosaceae	Zalzalak	Fruit	Anxiety, stress
<i>Avena sativa</i> L.	Poaceae	Youlaf	Aerial organs	Insomnia
<i>Astragalus gossypinus</i> Fischer	Fabaceae	Gavaneh panbei	Aerial organs	Stress, depression
<i>Cannabis sativa</i> L.	Cannabaceae	Shahdaneh	Seed	Headache, anxiety, insomnia, stress, sedative
<i>Syzygium aromaticum</i> (L.) Merr. & L.M.Perry	Myrtaceae	Mikhak	Seed	Headache, anxiety, insomnia, migraine, stress, appetite suppressant
<i>Crocus sativus</i> L.	Iridaceae	Zafaran	Leaf	Headache, anxiety, insomnia, migraine, stress, sedative, depression
<i>Anchusa Italica</i> Retz.	Boraginaceae	Gavzaban	Flower	Headache, anxiety, stress, sedative
<i>Peganum harmala</i> L.	Boraginaceae	Esopand	, seed Leaf	Stress, migraine, anxiety
<i>Ferulago macrocarpa</i> (Fenzl) Bioss. <i>Ferulago macrocarpa</i> <i>Ferulago angulata</i>	Umbelliferae	Chavil	Aerial organs	Stress
<i>Ficus carica</i>	Moraceae	Anjir	Fruit	Appetite, headache
<i>Malva neglecta</i> Wallr <i>Malva nicaensis</i> All.	Malvaceae	Panirak	Leaf	Appetizer
<i>Menta longifolia</i> (L.) Hudson	Lamiaceae	Poneh kouhi	Aerial organs	Stress, appetite, anxiety
<i>Salvia lanigera</i> Poir.	Lamiaceae	Maryam goli	Aerial organs	Soothing
<i>Salsola</i> spp.	Amaranthaceae	Alafe shoor	Aerial organs	Headache
<i>Rhus coriaria</i> L.	Anacardiaceae	Somagh	Aerial organs	Appetite
<i>Tymbra spicata</i> L.	Lamiaceae	Avishanak	Aerial organs	Headache, migraine, appetite
<i>Medicago sativa</i>	Fabaceae	Younjeh	Leaf	Appetite
<i>Linum usitatissimum</i>	Linaceae	Katan	Fruit	Appetite
<i>Hypericum asperulum</i> jaub. & Spach <i>Hypericum</i> <i>helianthemoids</i> (Spach) Bioss.	Hypericaceae	Gole raei	Aerial organs	Headache, anxiety, stress, depression

<i>Hypericum scabrum</i> L.				
<i>Trifolium repens</i>	Fabaceae	Shabdar	Leaf	Migraine
<i>Rosa foetida</i> J. Herrman <i>Rosa canina</i> L.	Rosaceae	Nastaran	Flower	Headache, migraine, insomnia, sedative
<i>Biebersteinia multifida</i> DC.	Biebersteiniaceae	Adamak	Aerial organs	Stress, anxiety
<i>decumbens</i> Oliveria Vent	umbelliferae	Laeleh kohestan	Flower	Stress
<i>Niglea sativa</i>	Ranunculaceae	Siah daneh	Seed	Headache, migraine, insomnia
<i>Ziziphora tenuir</i> L. <i>Ziziphora</i> <i>clinopodioidesc</i> Lam.	Lamiaceae	kakoutri	Aerial organs	Appetite, anxiety
<i>Punica granatum</i> L.	Lythraceae	Anar	Fruit	Stress
<i>jujube</i> Mill. <i>Ziziphus</i>	Rhamnaceae	Anab	Fruit	Stress, headache
<i>Lavandula angustifolia</i> Mill.	Lamiaceae	Ostokhodous	Aerial organs	Anxiety
<i>Achillea Wilhelmsii</i> C. Kock	Asteraceae	Boumadaran	Aerial organs	Headache, anxiety, insomnia, migraine, stress, appetite suppressant
<i>Verbascum</i> <i>agrimoniifolium</i> (C. Kock) Hub.-Mor	Scrophulariaceae	Gole mahour	Flower	Headache, anxiety, insomnia, migraine, stress
<i>Alhagi persarum</i> Boiss. & Buhse	Fabaceae	Kharshotor	Aerial organs	Appetite
<i>Althaea officinalis</i> L.	Malvaceae	Khatmi	Flower	Insomnia, headache
<i>Alyssum campestre</i> (L.) L.	Brassicaceae	Ghodoumeh	Aerial organs	Appetite

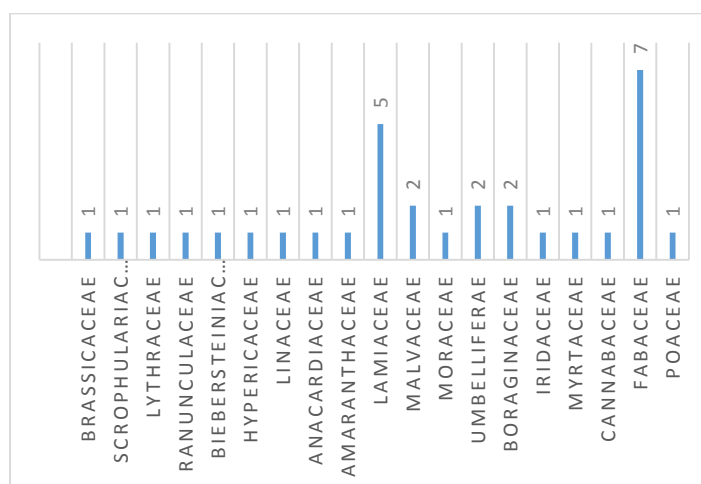


Figure 2. Use of each medicinal plant for the treatment of depression, anxiety and stress, anorexia, insomnia, headache and migraine in the city of Ilam

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).

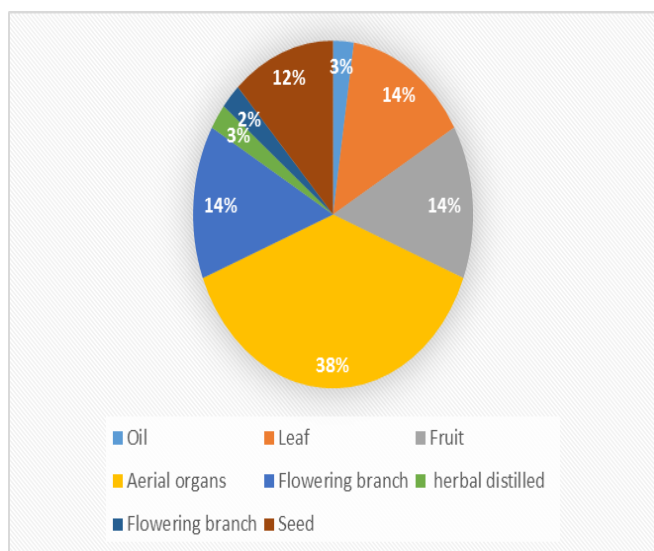


Figure 3. Percentage of plant organs used to treat depression, anxiety and stress, anorexia, insomnia, headache and migraine in Ilam city

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 ingredients 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.

Funding/Support

None. The code of ethics/IRCT of this study is IR.MEDILAM.REC.1400.179.

References

- Hafez Ghoran S, El-Shazly M, Sekeroglu N, Kijjoa A. Natural products from medicinal plants with anti-human coronavirus activities. *Molecules* 2021; 26(6):1754. doi: 10.3390/molecules26061754.
- Zeidali E, Korrani HM, Alizadeh Y, Kamari F. Ethnopharmacological survey of medicinal plants in semi-arid rangeland in western Iran. *Cent Asian J Plant Sci Inno* 2021; 1; 1(1):46-55. doi: http://www.cajpsi.com/article_126633.html
- Rasool Hassan BA. Medicinal plants (importance and uses). *Pharmaceut Anal Acta*. 2012; 3(10):2153-435. doi: 10.4172/2153-2435.1000e139
- Shokri F. Herbal magic, *Iran Daily*, 2005; Nov 26, 6. (www.Iran-daily.com/1384/2435/html/focus.htm).
- Edzard E. The efficacy of herbal medicine an overview. *Fundam Clin Pharmacol* 2005;19: 405-409. doi: 10.1111/j.1472-8206.2005.00335.x.
- Merylly A. Complementary therapies for health care providers. Lippincott Williams and Wilkins., 1999. <https://doi.org/10.1111/j.1442-2018.2011.00587.x>
- Griffiths KM, Tang TT, Hawking D, Christensen H. Automated assessment of the quality of depression websites. *J Med Int Res* 2005; 7(5): 59. doi: 10.2196/jmir.7.5.e59
- Saki K, Bahmani M, Rafieian-Kopaei M, Hassanzadazar H, Dehghan K, Bahmani F, Asadzadeh J. The most common native medicinal plants used for psychiatric and neurological disorders in Urmia city, northwest of Iran. *Asian Pacific J Trop Dis* 2014; 4(2): 895–901. [https://doi.org/10.1016/S2222-1808\(14\)60754-4](https://doi.org/10.1016/S2222-1808(14)60754-4)
- Delfan B, Bahmani M, Hassanzadazar H, Saki K, Rafieian-Kopaei M. Identification of medicinal plants affecting on headaches and migraines in Lorestan Province, West of Iran. *Asian Pacific J Tropical Med* 2014; 7(Suppl 1): 376–379. doi: 10.1016/S1995-7645(14)60261-3.
- Güzel Y, Güzelşemme M, Miski M. Ethnobotany of medicinal plants used in Antakya: A multicultural district in Hatay Province of Turkey. *J Ethnopharmacol* 2015; 174: 118–152. doi: 10.1016/j.jep.2015.07.042. Epub 2015 Jul 31.
- Ceuterick M, Vandebroek I, Torry B, Pieroni A. Cross-cultural adaptation in urban ethnobotany: The Colombian folk pharmacopoeia in London. *J Ethnopharmacol* 2008; 120: 342–359. doi: 10.1016/j.jep.2008.09.004.
- Kayani S, Ahmad M, Sultana SH, Shinwari ZKH, Zafar M, Yaseen GH, Hussain M, Bibi T. Ethnobotany of medicinal plants among the communities of Alpine and Sub-alpine regions of Pakistan. *J Ethnopharmacol* 2015; 164: 186–202. doi: 10.1016/j.jep.2015.02.004.
- Vafadar M, Toghranegar Z. Ethnobotanical study of some medicinal plants of Abhar county, Zanjan province. *J Med Plants* 2020; 19 (75): 30-54. doi: 10.29252/jmp.19.75.30
- Razmjooi D, Zarei Z, Akbari M. Ethnobotanical study of some medicinal plants of Abadeh city located in Fars province. *J Ecophysiol Crop Plants* 2014; 7(3): 234-222.
- Zulfqalari A, Adeli A, Mozafarian and A, Baabiy S, Jabibi Q. Local native people of Danesh Todhu and Arsbaran, medicinal plants area. *Iran J Med Arom Plants* 2003; 28(3): 534-550.
- Abbasi S, Afsharzadeh S, Mohajeri A. Introduction of plant species with medicinal properties in Natanz region (Kashan). *J Herbal Drugs* 2012; 3(3): 147-156.
- Amani S, Amiri H. Ethnobotany of medicinal plants in the northeast of Khuzestan province. *Ecofitnoximi Quarterly J Med Plants* 2014; 8(2): 12-26.
- Ghasemi Pirbalouti A, Momeni M, Bahmani M. Ethnobotanical study of medicinal plants used by kurd tribe in Dehloran and Abdanan Districts, Ilam Province, Iran. *Afr J Tradit Complement Altern Med* 2013; 10(2):368-000. doi: 10.4314/ajtcam.v10i2.24.
- Iranmanesh M, Najafi S, Yousefi M. Ethnobotanical survey of medicinal plants in Hesistan region. *Ecofitnoximi Quarterly J Med Plants* 2014; 2(1): 61-68.
- Jafarirad S, Rasoulpour I. Pharmaceutical ethnobotany in the Mahabad (West Azerbaijan) biosphere reserve: ethno-pharmaceutical formulations, nutraceutical uses and quantitative aspects. *Brazilian Journal of Pharmaceutical Sciences* 1-13. <http://dx.doi.org/10.1590/s2175-97902019000118133>

21. Mussavi M, Asadollahi K, Janbaz F, Mansoori E, Abbasi N. The evaluation of red reflex sensitivity and specificity test among neonates in different conditions. *Iranian J Pediatr* 2014; 24(6), 697-702. PMID: [26019774](https://pubmed.ncbi.nlm.nih.gov/26019774/)
22. Ma D, Han T, Karimian M, Abbasi N, Ghaneialvar H, Zangeneh A. Immobilized Ag NPs on chitosan-biguanidine coated magnetic nanoparticles for synthesis of propargylamines and treatment of human lung cancer. *Int J Biolog Macromol* 2020; 165: 767-775. <https://doi.org/10.1016/j.ijbiomac.2020.09.193>
23. Karimi E, Abbasi S, Abbasi N. Thymol polymeric nanoparticle synthesis and its effects on the toxicity of high glucose on OEC cells: Involvement of growth factors and integrin-linked kinase. *Drug Des Develop Ther* 2019; 13: 2513-2532. <https://doi.org/10.2147/DDDT.S214454>