



Ethno-botanical study of sedative medicinal plants in Shahrekord

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Background, Sedatives are usually prescribed for people who are anxious and worried, and have developed depression. The use of these drugs in the short term can have benefits, but their use in the long term may develop drug addiction. Therefore, research attempts are being made to identify a natural and effective drug source to discover and ultimately produce effective sedative drugs. **The aim,** The aim of this study was to report plant species in Shahrekord, Iran, that are used as sedatives by collecting local people's information about their properties and methods of use. **Methods,** This study was conducted in 2017 using face-to-face interviews and a questionnaire distributed among 29 traditional therapists in the region under purpose. The data drawn from the questionnaires were meticulously and appropriately tabulated, and finally analyzed by the Excel software. **Results,** According to the ethnobotanical knowledge in the studied region, medicinal plants *Melissa officinalis*, *Hypericum scabrum* L, *Dracocephalum multicaule*, *Anchusa italyca* Retz, *Valeriana officinalis*, *Origanum vulgare* L, *Kelussia odoratissima*, *Tanacetum polycephal*, *Hyssopus augustifolia*, *Alcea* spp, *Dianthus capillus-veneris*, *Lavandula angustifolia* are used as herbal sedatives. **Conclusion,** These plants might be used as alternative or complementary remedies and might be used for preparation of new drugs.

Keywords, Ethnobotany, Study, Medicinal plants, Shahrekord, Iran

Introduction

Common psychiatric and neurodegenerative disorders including anxiety, stress, depression, and insomnia, and the resulting pain have a relatively high prevalence and adversely influence the quality of life [1,3]. These diseases cause anxiety, stress, depression, insomnia and a number of other symptoms. Sedative drugs are usually used for their treatment. Sedative drugs suppress the central nervous system, thereby causing calmness, nerve relaxation, relief of anxiety and stress, sleepiness, euphoria, respiratory depression, decreased

balance, muscle relaxation, impaired judgment, and slow and delayed reactions [4-7]. Although the use of sedatives can have advantages, they may also cause certain side effects. Studies show that medications used to induce sedation include different types of benzodiazepines, opioids, barbiturates and hypnotics. Opioids are one of the most sought after drugs because of inducing analgesia. In addition, they also produce sedative effect. Among opioids, morphine is known as a drug of choice to induce sedation in patients, but these types of drugs have side effects, so that they may lead to kidney failure by producing metabolites that

are 46 times stronger than the original drug [8, 9]. The complications of sedative drugs in the elderly are due to their excessive sensitivity to these drugs, which can lead to complications such as the weakened response of the nervous system to hypercapnia, hypoxia, treatment-requiring hypotension, and postoperative apnea [10-14]. Sedatives produce soothing and lethargic effects, and are usually prescribed to people who are anxious and worried, and have developed depression. The use of these drugs in the short term can be beneficial, but their long-term use may lead to drug addiction. Therefore, research to identify the natural and effective drug sources to discover and ultimately produce effective sedative medications continues. Some natural available substances can be somewhat soothing, one of which is medicinal plants. Medicinal plants have long been used as a usable and available drug source to human for the prevention, control and treatment of various types of their diseases such as digestive, genitourinary, neurological, infectious and non-infectious [15-26]. Since ancient times, the presence in the nature and the inhaling of the aromatic air due to plants have been known as relaxing activities. In the nature, there are medicinal plants that have relaxing properties as they have been used to reduce stress and anxiety. Ethnobotany is a kind of scientific research in the fields of botany and pharmacology that seeks to observe, record, introduce and document information about the traditional use of medicinal plants by different subpopulations and ethnicities in the traditional, rural and nomadic areas of countries. Some countries have used the results of the ethnobotanical research to produce new drugs and optimize their development [27]. Since ancient times to now, people are constantly thinking about using plants in their surroundings as foods, and to treat diseases and heal their illnesses. The aim of this study was to report plant species in Shahrekord that are used as sedatives by collecting local people's information about their properties and methods of use.

Materials and Methods

Studied region and data collection procedure

The Shahrekord County, located in Chaharmahal and Bakhtiari province, Iran, has

an area of around 2006 km², which covers 12% of the total area of the province. The city of Shahrekord is the capital of the County. Based on the 2011 Iranian Population and Housing Census, the city has 283210 population. In this study, the local knowledge of individuals about the sedative effects of medicinal plants was studied in 2017 by using face-to-face interviews and distributing a questionnaire among 29 traditional therapists in the region under purpose. A questionnaire that had previously been designed was distributed among the traditional therapists by the interviewers. The questionnaire included items regarding the place of occurrence of the plant, demographic characteristics of the respondent, and the local name of the plant and the organ of the plant used. The interviewers referred to the respondents in person, to elicit and record their viewpoints about herbal medicine. Among the respondents, 8 were female and 21 male. Their education level ranged from high school diploma to master's degree. The data drawn from the questionnaires were meticulously tabulated and registered, and were finally analyzed by the Excel software. To calculate the frequency of plant use, the formula below was used,

The frequency of use of the plant = (Number of people who have talked of the plant's effect divided by total number of people completing the questionnaires) × 100

Results

Results showed that 13 species of medicinal plants in Shahrekord are used as sedatives (Table 1).

According to the results obtained from data analysis, 13 plant species were found to belong to eight families. The most (n, 5) medicinal plants belong to the Lamiaceae family. Additional information is illustrated in Figure 1.

In addition, the most frequently used organ was flowers (31%) and then leaves with 27% was in the next category. Additional information is illustrated in Figure 2.

TABLE 1. Medicinal plants with sedative property according to the ethnobotanical knowledge in Shahrekord

Effect	Organs used	Frequency of use	Local name	Herbal family	Scientific name
Sedative	Flower	24%	Babouneh	Asteraceae	<i>Anthemis hyalina</i> DC.
Sedative	Leaf, stem	31%	Marzanjoush	Lamiaceae	<i>Origanum vulgare</i> L.
Sedative	Aerial organs, root	34%	Sonbolatieb	Caprifoliaceae	<i>Valeriana officinalis</i>
Sedative	Flower, root, leaf	44%	Gavzaban	Boraginaceae	<i>Anchusa italyca</i> Retz. (L.) DC.
Sedative	Leaf, flower	3%	Zarrin giah	Lamiaceae	<i>Dracocephalum multicaule</i> Montbr & Auch.
Sedative	Flower, stem	24%	Gole raei	Hypericaceae	<i>Hypericum scabrum</i> L.
Sedative	Aerial organs	1%	Badranjbouyeh	Lamiaceae	<i>Melissa officinalis</i> L.
Sedative	Aerial organs	6%	Ostokhodous	Lamiaceae	<i>Lavandula angustifolia</i>
Sedative	Leaf, stem	6%	Parsiavash	Polypodiaceae	<i>Adiantum capillus-veneris</i> L.
Sedative	Flower	6%	Gole khatmi	Malvaceae	<i>Alcea</i> spp.
Sedative	Leaf, stem, flower	3%	Zoofa	Lamiaceae	<i>Hyssopus angustifolias</i> M.B.
Sedative	Leaf, stem	6%	Mokhalaseh	Asteraceae	<i>Tanacetum polycephalum</i> (L.) Schultz-Bip.
Sedative	Leal, seed	3%	Karafs kouhi	Apiaceae	<i>Kelussia odoratissima</i> Mozaff

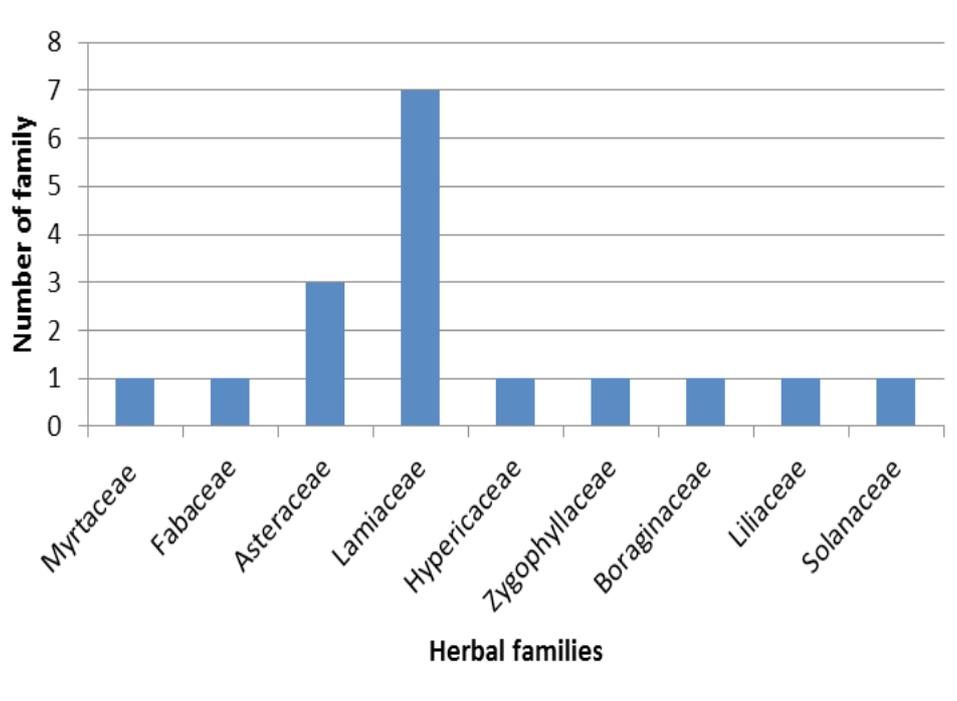


Fig. 1. Distribution of the families of medicinal plants with sedative effect in Shahrekord.

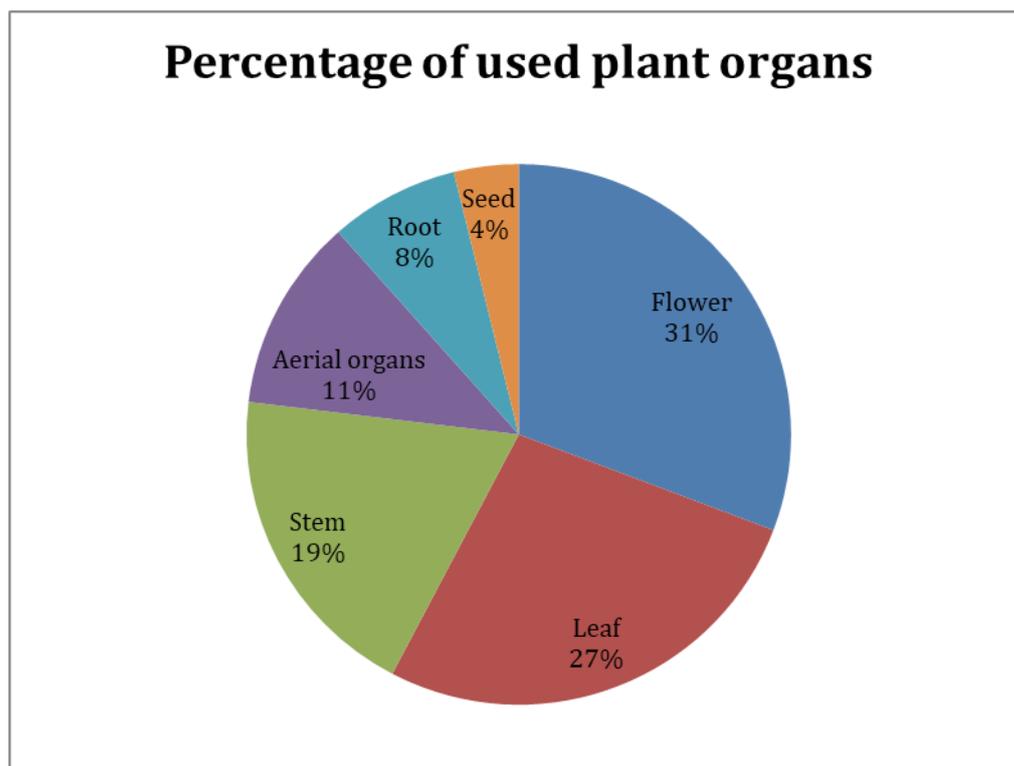


Fig. 2. The percentage of the frequency use of plants organs according to the ethnobotanical study in Shahrekord.

Discussion

Sedation or mild anesthesia is a method that reduces the amount of pain and stimulation caused by the painful therapeutic or diagnostic procedures using sedative medications. In this ethnobotanical study, medicinal plants used to induce sedation in the Shahrekord region were reported. According to the ethnobotanical knowledge in the region under purpose, medicinal plants *Melissa officinalis*, *Hypericum scabrum* L, *Dracocephalum multicaule*, *Anchusa italyca* Retz, *Valeriana officinalis*, *Origanum vulgare*, *Kelussia odoratissima*, *Tanacetum polycephalu*, *Hyssopus angustifolias*, *Alcea* spp, *Dianthus capillus-veneris*, *Lavandula angustifolia* are used as herbal sedatives. Medicinal plants are very strong, but their effects depend on several factors, such as how much of them is used and how much the tolerance of the consumer is.

Nowadays, these plants are mostly used for insomnia which is a conspicuous problem or in today's restless societies. More than 20% of adults suffer from sleep problems and mostly have chronic insomnia [28]. Sleep problems are usually secondary to other conditions which might be due to pain, life events, alcohol usage, mental

disorders, hormone shift or various diseases. Most of these conditions are associated with increased in oxidative stress. Medicinal plants mostly have antioxidant activities and multiple effects on various diseases [29-36]. Therefore, these plants might also be useful on the conditions which have caused insomnia.

Insomniac subject are mostly inclined to take herbal medicines because of their low level of adverse effects. Most of these plants have been used since ancient times with no report of side effects [37,38]. These plant not only have low side effects, but also may reduce the toxicity of other agents [39,41]. Therefore, they may have multiple beneficial effects.

Conclusion

These plants might be used as alternative or complementary remedies and might be used for preparation of new drugs.

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Conflict of interest

The authors stated that there was no conflict of interest.

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