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Der Pharmacia Lettre, 2016, 8 (3):37-42
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A review of the medicinal plants effective on headache based on the ethnobotanical documents of Iran

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ABSTRACT

Headache is one of the ten most common reasons for consulting with a doctor. Healthcare community is seeking to identify nature-based drugs with no side effects and a higher efficiency for treating headache. This review article introduced the plants used to treat headache in ethnobotany and traditional culture of different regions of Iran. The key words consisting of ethnobotany, ethnopharmacology, ethnomedicine, phytopharmacology, traditional medicine, phytomedicine, and Iran, accompanied with headache, pain and analgesic, were used to search for relevant publications in PubMed, Web of Science, Scopus, Islamic World Science Citation Center, and Magiran. Overall, 59 medicinal plants from 29 families are used to treat headache specifically in Iranian traditional medicine. Most plants presented in this study were analgesic and anti-inflammatory, and affected the inflammation and cortical vascular contractile dysfunction. Because of the widespread use of traditional medicinal plants and wide acceptance of herbal drugs and traditional medicine, large studies in pharmacy and pharmacology areas are recommended to inform pharmaceutical industries.

Key words: Headache, Traditional medicine, Medicinal plants, Ethnobotany, Iran.

INTRODUCTION

Pain is one of the most common phenomena that forces people to refer health care centers. Pain affects life variously, and not only causes stress and discomfort but also leads to other stressors, such as treatment costs [1]. In most epidemiological studies, headache symptoms have been reported to be common with high frequency and to be caused by different factors such as tension or migraine. Headache is one of the ten most common reasons for consulting with a doctor [2, 3]. Chronic tension-type headache is characterized by frequent attacks, often daily, non-pulsatile and bilateral pain behind the head without nausea, vomiting or visual disturbances. Pain is described as a tight band wrapped around head. To relieve pain, different chemical and synthetic drugs with various side effects are commercially available [4]. Therefore, healthcare community is seeking to identify nature-based drugs with no side effects and a higher efficiency. Medicinal plants have been used to treat different diseases for many years. Further, therapeutic effects of these plants have already been investigated for neurological [5-11] and fungal [12-26] diseases, diabetes [27], respiratory diseases [28], children's diseases [29, 31], hyperlipidemia and obesity [32-34], liver diseases [35, 36], cardiovascular diseases [37], and other diseases [38-56]. These studies have caused at least one-fourth of conventional drugs to include at least one plant-derived component [57]. Ethnobotany is referred to the science of how people from a culture, ethnicity, or a region use the native plants of their regions. The findings of ethnobotanical studies could be greatly useful in other disciplines, particularly pharmacognosy, and indeed may assist in drawing the native people's knowledge about the use of plants to produce commercial products. Therefore,

gathering data on medicinal plants and the methods of using these plants in different regions is a valuable medical resource at present time, which helps to discover new drugs in pharmaceutical industry [58].

Iran community with long cultural and ethnic diversity, climate and weather diversity and more than 8000 species is a proper case of ethnobotanical study. Therefore, this study was to identify and report the plants that are used to relieve and treat headache in traditional culture and ethnobotany of Iran's different regions.

MATERIALS AND METHODS

In this review article, the key words including ethnobotany, phytomedicine, ethnomedicine, phytopharmacology, ethnopharmacology, traditional medicine, and Iran combined with headache and pain were searched for in Web of Science, PubMed, Scopus, International Science Citation Center, ISD, and Magiran. Duplicate articles and the articles with no accessible full text were excluded from analysis.

RESULTS

The present study indicated that Iran's people from different cultures and regions such as Ghazvin, Sistan and Baluchistan, Turkmen Sahra, Kerman, Lorestan, Chaharmahal and Bakhtyari, hormozgan, Mashhad, Isfahan, and Kordestan province use 59 medicinal plants from 29 families according to traditional medicine to treat headache specifically. Most of these plants were from Lamiaceae families (figure1). Table 1 gives further data on the medicinal plants effective on headache.

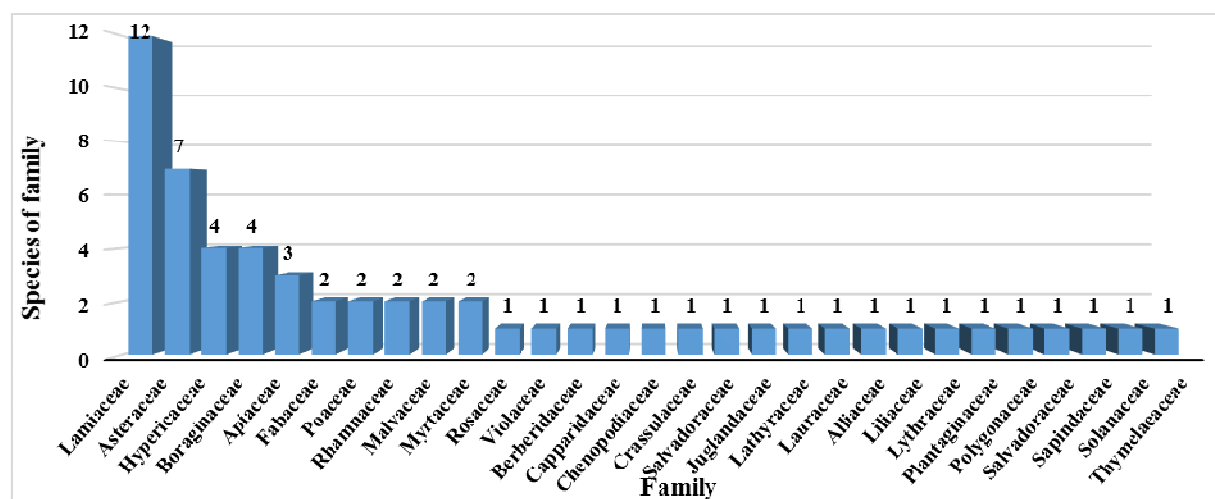


Figure 1: The number of medicinal species effective on headache in each family

DISCUSSION

In this review article, 59 medicinal plants from 29 families were reported to treat headache specifically. This represents the richness of Iran's traditional medicine, which has long addressed the use of nature-based resources to treat various diseases such as headache.

Identifying various medicinal plants in different countries and studying their therapeutic and pharmaceutical effects has created new treatments for many diseases. Many species of medicinal plants are still unknown while they are used for treatment by indigenous people across the world. Such information is orally transmitted among different ethnic groups and from one generation to the next, which can gradually disappear in modern societies. Drawing useful hidden information from such societies may help to provide a detailed list of medicinal plants, their uses and how to use these plants.

Since many of the plants presented in this study contain effective analgesic, anti-inflammatory compounds, their effects in treating headache may be attributable to their analgesic, anti-inflammatory property [71-73]. Most of these

plants are from Lamiaceae families which contain phenolic compounds and are able to exert great anti-inflammatory effects [74, 75].

Table 1: Medicinal plants effective on headache in different subcultures and regions of Iran

Number	Scientific name	Family	Local name	Used organs	Province	Ref.
1	<i>Heracleum persicum</i>	Apiaceae	Golpar	Flowers, seeds	Alamut mountainous, Ghazvin Province	[59]
2	<i>Viola odorata L.</i>	Violaceae	Banafshe	Flowers	Alamut mountainous, Ghazvin Province	[59]
3	<i>Echium amoenum</i>	Boraginaceae	Gole gavzaban	Flowers	Alamut mountainous, Ghazvin Province	[59]
4	<i>Stachys lavandulifolia</i>	Lamiaceae	Kaklikoti	Flowers	Alamut mountainous, ortheast of Ghazvin Province	[59]
5	<i>Ziziphora clinopodioides</i>	Lamiaceae	Kakoti	Aerial parts	Alamut mountainous, ortheast of Ghazvin Province	[59]
6	<i>Astragalus ammodendron L</i>	Fabaceae	Gonjet	Resin, root stem	Saravan region, Sistan and Baluchistan province	[60]
7	<i>Leontice leontopetalum L.</i>	Berberidaceae	Cheshme shir	tuber	Turkmen Sahra, north of Iran	[61]
8	<i>Capparis spinosa L.</i>	Capparidaceae	Kavar	Root, Leaves, fruit, seeds	Alamut mountainous, Ghazvin Province and Turkmen Sahra, north of Iran	[59, 61]
9	<i>Seidlitzia rosmarinus Bunge ex Boiss.</i>	Chenopodiaceae	oshnan	stem, Leaves	Turkmen Sahra, north of Iran	[61]
10	<i>Ziziphus vulgaris L.</i>	Rhamnaceae	Annab	Leaves, fruit	Turkmen Sahra, north of Iran	[61]
11	<i>Plantago lanceolata L.</i>	Plantaginaceae	kardi	Seed and leaves	Sirjan, Kerman Province	[62]
12	<i>Echeveria elegans</i>	Crassulaceae	Pinome	Seed	Lorestan Province	[9]
13	<i>Alhagi persarum</i>	Fabaceae	Hashtarkhar	Root	Lorestan Province	[9]
14	<i>Allium haemanthoides</i>	Liliaceae	Ben sor	Leaves	Lorestan Province	[9]
15	<i>Althaea officinalis</i>	Malvaceae	Gole hiru	Flower	Lorestan Province	[9]
16	<i>Anchusa italica</i>	Boraginaceae	Gole gazo	Flower, seed, root	Lorestan Province	[9]
17	<i>Artemisia annua</i>	Asteraceae	Khers dari	Flower, stem	Lorestan Province	[9]
18	<i>Cichorium intybus</i>	Asteraceae	Cheghcheqhe	Root	Lorestan Province	[9]
19	<i>Daphne mucronata</i>	Thymelaeaceae	Tolik	Bark , Leaves Root	Lorestan Province	[9]
20	<i>Falcaria vulgaris</i>	Apiaceae	Paghazou	Leaves, flower, stem	Lorestan Province	[9]
21	<i>Ferula angulata</i>	Apiaceae	Chavir	Flower, stem	Lorestan Province	[9]
22	<i>Viola tricolor</i>	Apiaceae	Gole banoushe	Flower	Lorestan Province	[9]
23	<i>Ziziphus jujuba</i>	Rhamnaceae	Ano	Fruit, shell, core	Lorestan Province	[9]
24	<i>Lavandula vera L.</i>	Lamiaceae	Ostokhoddos	Aerial parts	Kerman Province	[63]
25	<i>Rosmarinus officinalis L.</i>	Lamiaceae	Aklile koohi	Aerial parts	Kerman Province	[63]
26	<i>Hypericum scabrum L.</i>	Hypericaceae	Golraye dayhimi	Leaves, flowers	Chaharmahal and Bakhtyari Province and Mashhad, Razavi Khorasan province	[64, 65]
27	<i>Tanacetum polycephalum L.</i>	Asteraceae	Mokhaleseh	leaves, flowers	Hormozgan province	[66]
28	<i>Achillea wilhelmsii C.</i>	Asteraceae	sazard	Aerial parts	Hormozgan province	[66]
29	<i>Amygdalus lycoides Spach</i>	Asteraceae	Kutur	Aerial parts	Hormozgan province	[66]
30	<i>Centaurea Bruguerana DC.</i>	Asteraceae	Balehbord	Leaves, flower	Hormozgan province	[66]
31	<i>odonaea viscosa L.</i>	Sapindaceae	Shahaf	Leaves	Hormozgan province	[66]
32	<i>Heliotropium europaeum L.</i>	Boraginaceae	Kolohmu	Leaves, flower, seed, twigs	Hormozgan province	[66]
33	<i>Mentha longifolia L.</i>	Lamiaceae	Poden	Leaves, root	Hormozgan province	[66]
34	<i>Mentha mozaffariani Jamzad</i>	Lamiaceae	Poden kuhi	Leaves, twigs	Hormozgan province	[66]
35	<i>Orostegia persica (Burm.) Boiss.</i>	Lamiaceae	Golder	Leaves, flower, thistle	Hormozgan province and Saravan region, Sistan and Baluchistan province	[60, 66]
36	<i>Pteropyrum Aucheri Jaub. & Spach</i>	Polygonaceae	Parand	Leaves, flower, root, stem	Hormozgan province	[66]
37	<i>Salvadora persica L.</i>	Salvadoraceae	Chooch	Leaves, root	Hormozgan province	[66]
38	<i>Salvia Mirzayanii Rech. F. & Esfand</i>	Lamiaceae	Moortalkh	Leaves	Hormozgan province	[66]
39	<i>Teucrium pollium L.</i>	Lamiaceae	Kerishk	Flower, leaves, seed	Hormozgan province	[66]
40	<i>Trichodesma africanum (L.) R. Br.</i>	Boraginaceae	Chaarmaahang	Root, leaves	Hormozgan province	[66]
41	<i>Zataria multiflora Boiss.</i>	Lamiaceae	Oshen	Leaves	Hormozgan province	[66]
42	<i>Hypericum perforatum L.</i>	Hypericaceae	Chayoti	Aerial parts	Maraveh Tappeh Region, North of Iran	[67]
43	<i>Cinnamomum zeylanicum Nees</i>	Lauraceae	Darchin	Bark	Mashhad, Razavi Khorasan province	[65]
44	<i>Lawsonia inermis L.</i>	Lythraceae	Hana	Leaves	Mashhad, Razavi Khorasan province	[65]

45	<i>Eucalyptus sp.</i>	Myrtaceae	Okaliptus	Leaves, fruit	Mashhad, Razavi Khorasan province	[65]
46	<i>Hyoscyamus niger L.</i>	Solanaceae	Bangdaneh	Seed	Mashhad, Razavi Khorasan province	[65]
47	<i>Mentha spicata L.</i>	Lamiaceae	Nana	Aerial parts, Leaf, essence	Mobarakeh region, Isfahan province	[68]
48	<i>Matricaria chamomilla L.</i>	Asteraceae	Baboneh	Flower	Mobarakeh region, Isfahan province	[68]
49	<i>Allium cepa L.</i>	Alliaceae	Sir	Root, aerial parts	Mobarakeh region, Isfahan province	[68]
50	<i>Eucalyptus camaldulensis Dehnh</i>	Myrtaceae	Ocalyptus	Leaves	Mobarakeh region, Isfahan province	[68]
51	<i>Lavandula angustifolia Mill</i>	Lamiaceae	Ostokhodos	Aerial parts, essence	Mobarakeh region, Isfahan province	[68]
52	<i>Hordeum vulgare L</i>	Poaceae	Jo dosar	Seed	Mobarakeh region, Isfahan province	[68]
53	<i>Althaea officinalis L.</i>	Malvaceae	Hero	Flowers, roots and leaves	Mobarakeh region, Isfahan province	[68]
54	<i>Juglans regia L.</i>	Juglandaceae	Gveze	Leaves and fruit	Mobarakeh region, Isfahan province	[68]
55	<i>Lawsonia inermis L.</i>	Lathyraceae	Khana	Leaves	Mobarakeh region, Isfahan province	[68]
56	<i>Cynodon dactylon L.</i>	Poaceae	margh	Leaves	Natanz region, Isfahan province	[69]
57	<i>Potentilla elvendenis Boiss.</i>	Rosaceae	Panjeh bargalvandi	Flowers and leaves	Natanz region, Isfahan province	[69]
58	<i>Hypericum scabrum L.</i>	Hypericaceae	Hangoul	Flowers and leaves	Zarivar region, Kordestan province	[70]
59	<i>Hypericum perforatum L.</i>	Hypericaceae	Hangoul	Flowers and leaves	Zarivar region, Kordestan province	[70]

CONCLUSION

With a focus on the plants used to treat headache in Iran's traditional medicine, researchers are recommended to conduct studies on the plants from these families whose effects on headache have been investigated less frequently to develop anti-headache herbal drugs.

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