https://tbj.ui.ac.ir
Taxonomy and Biosystematics
E-ISSN: 2322-2190
Document Type: Research Paper
Vol. 17, Issue 3, No.64, (2025), P:1-22
Received: 22/01/2025 Accepted: 16/03/2025

Reaearch Paper

Investigation of commonly used medicinal plants in the herbal markets of Isfahan, Iran

Shabnam Abbasi
Assistant Professor, Department of Biology Education, Farhangian University, P.O. Box 14665-889, Tehran, Iran
sh.abbasi@cfu.ac.ir
Peyman Aghaie
Assistant Professor, Department of Biology, Faculty of Science, Payame Noor University, P.O. Box 19395-3697, Tehran, Iran
peyman.aghaie@pnu.ac.ir
Mohammad Sadegh Amiri
Assistant Professor, Department of Biology, Faculty of Science, Payame Noor University, P.O. Box 19395-3697, Tehran, Iran
m.s_amiri@pnu.ac.ir
Maryam Haerinasab*
Assistant Professor, Department of Biology, Faculty of Science, Payame Noor University, P.O. Box 19395-3697, Tehran, Iran
m.haerinasab@pnu.ac.ir

Abstract
Herbal markets play an important role in the exchange of medicinal knowledge between people. Studying the plants found in herbal markets is crucial for understanding their role in health, science, economics, and culture. This study aimed to investigate the contemporary usage of medicinal plants in traditional medicine practices in Isfahan, Iran. An ethnobotanical survey was conducted during different seasons of 2024. Data were collected through interviews with informants in the herbal markets of Isfahan by using a semi–structured questionnaire. Samples were collected and identified by botanical taxonomic method. Data were analyzed using quantitative value indices: RFC, UV, RI, and ICF. By surveying herbal markets and analyzing plant samples, 82 medicinal plants were documented. Most recorded medicinal plant species were used to treat respiratory system problems. This study found that Avishan, Ostokhodos, and Babooneh are the most popular medicinal plants among Isfahan residents. The study also revealed a preference for native plant species and the use of plant parts such as flowers, leaves, and seeds to treat different ailments. The results showed that while the study highlights the significance of medicinal plants in Isfahan's culture, it also identifies challenges such as a lack of standardized regulations, limited customer awareness, and quality control issues. Overall, this research underscores the potential of medicinal plants in Isfahan and emphasizes the need to address existing challenges to ensure the sustainable development of this industry.
Keywords: Ethnobotanical survey, Herbal stores, Indigenous knowledge, Traditional medicine, Isfahan.

Introduction

Medicinal plants have been an integral part of human health and well-being for centuries. These plants have served as a primary source of medicine and food, and they continue to be valued for their natural and organic characteristics. A diverse range of medicinal plants is used in various forms, both raw and processed, across the pharmaceutical, food, and cosmetic industries (Yang et al., 2024). The use of medicinal plants in traditional medicine can be traced back thousands of years. In ancient civilizations like Egypt, China, and India, these plants were widely employed in therapeutic practices. Traditional knowledge and experience related to medicinal plants have been passed down through generations. Medicinal plants are essential for sustainable development, and Asian countries possess significant potential in the field of medicinal plant products, offering promising opportunities for investment and growth (Astutik et al., 2019). Medicinal plants offer sustainable and natural alternatives to synthetic medicines, helping preserve the environment and natural resources. The cultivation of these plants can also support sustainable livelihoods in local communities. Compared to

*Corresponding author
Abbasi, S, Aghaei, P, Amiri, M. S. and Haerinasab, M. (2025). Investigation of commonly used medicinal plants in the herbal markets of Isfahan, Iran. *Taxonomy and Biosystematics*, *17*(3), 1-22.

http://dx.doi.org/10.22108/tbj.2025.144121.1296

conventional chemical drugs, medicinal plants have a lower environmental impact and contribute significantly to biodiversity conservation (Popoola, 2024). According to multiple sources, medicinal plants offer several benefits, including strengthening the immune system through their antioxidant, anti-inflammatory, and antimicrobial properties. They also support digestive health, alleviate pain and inflammation, and promote relaxation. Furthermore, medicinal plants play a significant role in treating various diseases, such as cardiovascular diseases, diabetes, cancer, lung diseases, and neurological disorders (Amiri & Joharchi, 2013; Fattahi Ardakani et al., 2024; Mahdavi et al., 2021; Majidi et al., 2024; Saadati et al., 2022; Umair et al., 2024; Uzun & Koca, 2020; Maleki et al., 2025). Iran has a long and rich history of traditional medicine. Today, medicinal plants continue to be widely used in Iran, and people from diverse cultural backgrounds incorporate them into their healthcare practices (Kiasi et al., 2023; Hajipour et al., 2024). The widespread use of medicinal plants in various cities underscores their enduring importance as natural resources. In many towns and villages, specialized stores, known as herbal shops, sell a diverse range of medicinal plants and are often operated by experienced herbalists. Isfahan province is a historical and tourist-attracting region in central Iran that borders the central desert. The province exhibits geographical diversity, with the Zagros Mountains to the west and desert plains to the east. The center of the province is Isfahan city (Figure 1). It is the third largest city in Iran after Tehran and Mashhad. The native culture of Isfahan province is deeply rooted in its ancient history (Eshrati & Doulabi, 2021). Isfahan province has a long-standing reputation as one of the primary centers of traditional medicine in Iran, with a rich history of using medicinal plants (Rafie Manzelat & Imani Emadi, 2015). Given Isfahan's rich history of traditional medicine and its abundance of herbal shops, this study aimed to explore the most popular medicinal plants sold by experienced herbalists in this city. By understanding the types, consumption methods, and therapeutic uses of these plants, we sought to shed light on contemporary practices in Isfahan's traditional medicine landscape. This research makes a novel contribution to the field, focusing specifically on the historical city of Isfahan.

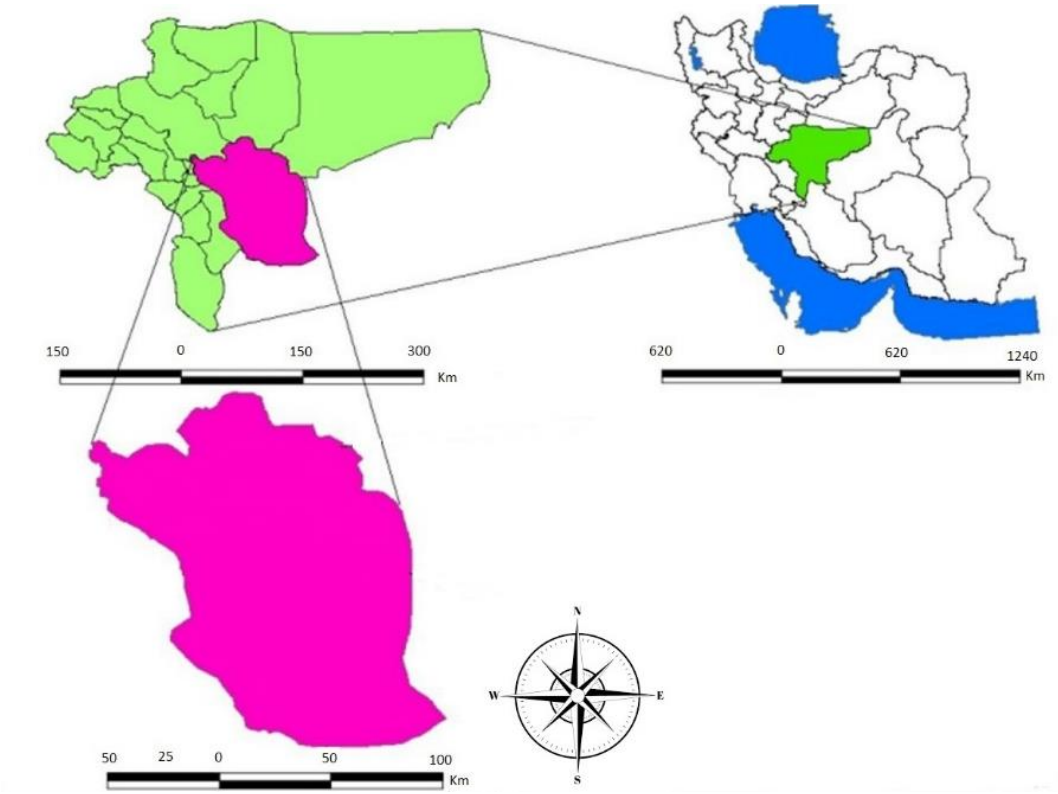

Figure 1. Geographical location of the study area, Isfahan, Iran.

Materials and methods

Data for this study were obtained through semi-structured questionnaires administered to 100 apothecaries. These individuals, as herbal medicine specialists, had years of experience in the field and were directly involved with medicinal plants and customers. The age distribution of the herbal shop owners interviewed was as follows: 10% were under 30 years of age, 33.33% were between 30 and 40 years, 48.33% were between 40 and 50 years, and 8.33% were over 50 years of age. The majority of respondents were male (71.67%). In terms of educational attainment, 58.33% held undergraduate degrees, while 41.67% had earned Bachelor's or Master's degrees. The structure of the questionnaire is shown in Table 1. Plant samples were obtained as dried plant organs from apothecaries. Macroscopic morphological analyses were conducted to ensure accurate identification of the samples. The majority of samples were readily identified through macroscopic examination. Taxonomic identification of plant species was performed by botanists using established taxonomic methods and identification keys (Assadi, 1989-2016). The specimens were deposited in the Herbarium of Payame Noor University of Isfahan. Their scientific names were verified using the POWO website (https://powo.science.kew.org/). Finally, the

http://dx.doi.org/10.22108/tbj.2025.144121.1296

collected data were analyzed using Microsoft Excel® 2019. Figure 2 shows some herbal markets of Isfahan.

Table 1. Structure of the questionnaire used to interview the informants.

Questionnaire parts	Details
Demographic information	Name, gender, age, address of herbal market, level of education, years of experience
Uses of plants	Category of medicinal use, list of diseases treated
Part used	Plant organs used
Preparation	Preparation method for use
Botanical information	Scientific name, family, Persian name
Complications of plant used	Side effects of the plant used
Companion plants	Common companion plants used with each listed species

Figure 2. A representative sample of the herbal shops surveyed for this study (photographed by the authors).

The data were also analyzed using quantitative ethnobotanical indices, such as RFC (Relative Frequency of Citation), UV (Use Value), RI (Relative Importance Index), and ICF (Informant Consensus Factor). RFC is calculated as the frequency of citation (FC, the number of informants mentioning the use of the species) divided by the total number of informants in the survey (N) [RFC = FC/N]. UV was calculated as UV = U/n, where U is the number of uses reported for a species and n is the total number of informants who cited the plant (Trotter & Logan, 1986). RI determines the importance of a plant species according to the number of uses of each plant and body organ systems treated by it. The RI index was calculated as RI = (Rel PH + Rel BS) × 100 / 2, where Rel PH is the relative number of pharmacological properties and Rel BS is the relative number of body systems treated (Bennett & Prance, 2000). The ICF index was calculated as ICF = (Nur - Nt) / (Nur - 1), where Nur is the number of uses reported for a disease category and Nt is the number of plant taxa used to treat the disease category (Sargin & Büyükcengiz, 2019; Yaseen et al., 2015). The classification of diseases

was based on the International Classification of Primary Care (ICPC-3) method.

Results

Isfahan's herbalists featured various combinations of local and traditional medicinal plants. Table S1 provides a detailed overview of the most frequently sold medicinal plants in Isfahan's herbal shops. This study identified 82 of the most popular plants sold by herbal stores. Avishan (*Thymus vulgaris* L.), Avishane Shirazi (*Zataria multiflora* Boiss.), Ostokhodos (*Lavandula angustifolia* Mill.), and Babooneh (*Matricaria chamomilla* L.) were the most widely used by Isfahan residents. The quantitative ethnobotanical indices for the medicinal plants are presented in Table 2. RFC is a quantitative index representing the relative importance of a plant species in a community. In other words, the RFC index quantifies the popularity of a specific plant. In this study, the RFC ranged from 0.02% (*Peganum harmala* L.) to 0.92% (*Zataria multiflora*). *Lavandula angustifolia* (0.88%) and *Matricaria chamomilla* (0.86%) also exhibited high RFC values (Table 2). A higher RFC indicates that the plant is more widely known and used by the community. By calculating the RFC for different plant species, researchers can identify the most important plants in a community and track changes in traditional knowledge over time (Ma'arif et al., 2023). Accordingly, Avishan, Ostokhodos, and Babooneh were the most consumed plants. However, the RFC has limitations. It does not account for the intensity of use or the cultural significance of the plant. Therefore, although RFC is a valuable tool, it is often used in conjunction with other indices to obtain a more comprehensive understanding of plant use.

Table 2. Quantitative ethnobotanical indices for the best-selling medicinal plants in Isfahan herbal shops.

Scientific name	Persian name	Family	FC	RFC	RI	UV
Allium jesdianum Boiss. & Buhse*	Bonsorkh	Amaryllidaceae	6	0.06	2.50	0.01
Rhus coriaria L.*	Somagh	Anacardiaceae	12	0.12	8.0	0.17
Anethum graveolens L.*	Shevid	Apiaceae	60	0.60	32.60	0.52
Apium graveolens L.*	Karafs	Apiaceae	72	0.72	49.0	0.20
Conium maculatum L.*	Shokarane kabir	Apiaceae	82	0.82	50.00	0.34
Coriandrum sativum L. *	Geshniz	Apiaceae	17	0.17	8.0	0.15
Cuminum cyminum L.*	Zireh sabz	Apiaceae	20	0.20	9.0	0.09
Eryngium billardierei F.Delaroche*	Booghnagh	Apiaceae	45	0.45	16.3	0.19
Ferula assa-foetida L.*	Anghoozeh	Apiaceae	20	0.20	8.0	0.11
Ferula gummosa Boiss.*	Barijeh	Apiaceae	27	0.27	36.0	0.52
Foeniculum vulgare Mill.*	Razianeh	Apiaceae	21	0.21	8.50	0.111
Pimpinella anisum L.	Anison, Badian	Apiaceae	30	0.30	40.0	0.43
Trachyspermum ammi (L.) Sprague*	Zenian	Apiaceae	30	0.30	32.80	0.24
Panax ginseng C.A.Mey.	Jensing	Araliaceae	25	0.25	45.0	0.35
Phoenix dactylifera L.*	Khorma	Arecaceae	4	0.04	2.00	0.01
Aloe vera (L.) Burm.f.	Alovera, Sabre zard	Asphodelaceae	5	0.05	3.0	0.07
Achillea millefolium L.*	Boomadaran	Asteraceae	21	0.21	20.0	0.28
Arctium lappa L.*	Babaadam	Asteraceae	16	0.16	6.0	0.17
Cichorium intybus L.*	Kasni	Asteraceae	35	0.34	23.50	0.25
Echinops pungens Trautv. *	Shekartighal	Asteraceae	17	0.17	9.00	0.16
Matricaria chamomilla L.*	Babooneh	Asteraceae	86	0.86	45.60	0.25
Silybum marianum (L.) Gaertn.*	Kharmaryam	Asteraceae	23	0.23	10.0	0.18
Borago officinalis L.	Gole gavzaban	Boraginaceae	59	0.59	75.00	0.66
Cordia myxa L.*	Sepestan	Boraginaceae	19	0.19	8.0	0.11
Cuprella homalocarpa (Fisch. & C.A.Mey.) Salmerón-Sánchez, Mota & Fuertes*	Ghodomeh	Brassicaceae	18	0.18	23.0	0.21
Descurainia sophia (L.) Webb ex Prantl*	Khakeshir	Brassicaceae	80	0.80	46.50	0.30
Cassia angustifolia Vahl	Sana	Fabaceae	21	0.21	17.0	0.27
Glycyrrhiza glabra L.*	Shirinbayan	Fabaceae	34	0.34	29.3	0.20
Medicago sativa L.*	Yonjeh	Fabaceae	14	0.14	8.0	0.21
Trigonella foenum-graecum L.*	Shanbelileh	Fabaceae	22	0.22	28.0	0.38
Hypericum perforatum L.	Alafechay	Hypericaceae	16	0.16	42.4	0.32
Juglans regia L. *	Gerdoo	Juglandaceae	16	0.16	6.0	0.22
Dracocephalum officinalis (L.) Y.P.Chen & B.T.Drew*	Zoofa	Lamiaceae	75	0.75	26.00	0.17
Dracocephalum royleanum Benth.*	Balangu	Lamiaceae	58	0.58	22.80	0.42
Lavandula angustifolia Mill.	Ostokhodos	Lamiaceae	88	0.88	32.6	0.12
Melissa officinalis L.*	Badranjboyeh	Lamiaceae	62	0.62	38.60	0.23
Mentha × piperita L.*	Nanafelfeli	Lamiaceae	13	0.13	5.0	0.06
Mentha longifolia (L.) L.	Nana	Lamiaceae	41	0.41	60.00	0.52
Mentha pulegium L.*	Pooneh	Lamiaceae	29	0.29	25.0	0.23
Ocimum americanum L.	Tokhmsharbati	Lamiaceae	61	0.61	60.00	0.65
Origanum majorana L.	Marzanjoosh	Lamiaceae	64	0.64	39.00	0.65

Scientific name	Persian name	Family	FC	RFC	RI	UV
Salvia hispanica L.	Chia	Lamiaceae	28	9.28	45.7	0.34
Salvia hydrangea DC. ex Benth.*	Gole arvaneh	Lamiaceae	10	0.10	8.0	0.43
Salvia officinalis L.	Maryamgoli	Lamiaceae	70	0.70	29.3	0.12
Salvia rosmarinus Spenn.	Rozmari	Lamiaceae	68	0.68	23.00	0.28
Satureja hortensis L.	Marzeh	Lamiaceae	10	0.10	8.0	0.39
Stachys inflata Benth.*	Poolak	Lamiaceae	9	0.09	29.3	0.29
Stachys lavandulifolia Vahl*	Chayekoohi	Lamiaceae	23	0.23	8.0	0.07
Thymus vulgaris L.*	Avishan	Lamiaceae	89	0.89	35.9	0.15
Vitex agnus-castus L.*	Panjangosht	Lamiaceae	31	0.31	20.00	0.32
Zataria multiflora Boiss.*	Avishane Shirazi	Lamiaceae	92	0.92	19.5	0.19
Ziziphora clinopodioides Lam.*	Kakooti	Lamiaceae	74	0.74	32.60	0.15
Cinnamomum verum J.Presl	Darchin	Lauraceae	50	0.50	22.50	0.21
Linum usitatissimum L.*	Katan	Linaceae	14	0.14	9.0	0.20
Althaea officinalis L.*	Gole khatmi	Malvaceae	40	0.40	26.00	0.46
Hibiscus sabdariffa L.	Chaye torsh	Malvaceae	25	0.25	30.00	0.11
Malva sylvestris L.*	Panirak	Malvaceae	29	0.29	8.0	0.17
Myrtus communis L.*	Moord	Myrtaceae	12	0.12	6.0	0.31
Syzygium aromaticum (L.) Merr. & L.M.Perry	Mikhak	Myrtaceae	7	0.07	6.50	0.54
Peganum harmala L.*	Esfand	Nitrariaceae	2	0.02	8.0	0.11
Fumaria vaillantii Loisel.*	Shahtareh	Papaveraceae	34	0.34	40.00	0.19
Linaria vulgaris Mill.	Makhlaseh	Plantaginaceae	15	0.15	8.0	0.15
Plantago major L.*	Barhang	Plantaginaceae	42	0.42	32.60	0.24
Plantago ovata Forssk.*	Esparzeh	Plantaginaceae	65	0.65	29.3	0.27
Platanus orientalis L.*	Chenar	Platanaceae	8	0.08	9.0	0.34
Avena sativa L.*	Jo dosar	Poaceae	20	0.20	8.0	0.16
Adiantum capillus-veneris L.*	Parsiavashan	Pteridaceae	32	0.32	19.60	0.17
Nigella sativa L.*	Siahdaneh	Ranunculaceae	40	0.40	48.90	0.56
Ziziphus jujuba Mill.	Anab	Rhamnaceae	22	0.22	34.0	0.45
Crataegus azarolus L.*	Kialak, Zalzalak	Rosaceae	27	0.27	55.0	0.09
Rosa × damascena Herrm.	Roze Mohammadi	Rosaceae	37	0.37	28.00	0.43
Rosa canina L.*	Nastarane zard	Rosaceae	24	0.24	27.0	0.23
Salix aegyptiaca Thunb.*	Bidmeshk	Salicaceae	11	0.11	5.0	0.05
Salix babylonica L.*	Bide majnon	Salicaceae	11	0.11	6.0	0.21
Camellia sinensis (L.) Kuntze	Chaye sabz	Theaceae	30	0.30	32.0	0.25
Urtica dioica L.*	Gazaneh	Urticaceae	33	0.33	28.0	0.20
Valeriana officinalis L. *	Sonbolotib	Caprifoliaceae	50	0.50	24.00	0.24
Aloysia citrodora Paláu	Behlimoo	Verbenaceae	28	0.28	6.00	0.08
Curcuma longa L.	Zardchoobeh	Zingiberaceae	26	0.26	34.0	0.12
Elettaria cardamomum (L.) Maton	Hele sabz	Zingiberaceae	35	0.35	25.60	0.42
Zingiber officinale Roscoe	Zanjebil	Zingiberaceae	42	0.42	30.00	0.21
Tribulus terrestris L.*	Kharkhasak	Zygophyllaceae	22	0.22	8.0	0.10

* Native to Iran

FC (Frequency of Citation): The number of herbalists who mentioned the name of this plant. RFC (Relative Frequency Citation): The local importance of each taxon that is given by the FC divided by the total number of informants in the survey. RI (Relative importance): The importance of a plant species according to the number of uses of each plant taxa and body organ systems treated by it. UV (use value): The relative importance of locally known plant taxa. Among the plants introduced by herbal shops, native species were more common, reflecting a preference for locally sourced and culturally significant plants. Native plants constituted 68.3% of the medicinal plants sold by herb stores in Isfahan, whereas non-native plants constituted 31.7%. Other ethnobotanical indices, such as UV, RI and ICF, can provide additional insights into the importance of plants in a community. The UV index represents the relative importance of a plant species based on the number of reported uses for each species. Based on the results, the UV index varied between 0.01 (for *Phoenix dactylifera* L. and *Allium jesdianum* Boiss. & Buhse) and 0.66 (for *Borago officinalis* L..), while *Borago officinalis* L. recorded the highest RI value of 75.00. The ICF index expresses the consensus among informants regarding the use of plant taxa for treating different disease categories. Table 3 shows the ICF in this study.

Table 3. Informant Consensus Factor (ICF) for the diseases category

Disease category	Number of use report	Number of taxa	ICF
Respiratory system	548	44	0.92
Nervous system	160	22	0.87
Sensitivity	75	23	0.70
Blood system	66	66	0
Women's disease	45	10	0.79
Digestive system	274	58	0.79
Diabetes	37	16	0.58
Liver disorders	29	15	0.50
Infection	19	7	0.66
Headache	19	18	0.1
Heart disorders	16	15	0.1
Skin disorders	16	9	0.47

While medicinal plants are effective in treating various diseases, excessive or incorrect use can lead to side effects. Additionally, some medicinal plants are used in combination with others as supplements (Ekor, 2014; Singh & Gohil, 2024). Table 4 lists the potential side effects of each herb due to high consumption and its commonly used companion plants.

Table 4. A list of potential complications for medicinal plants and their commonly used companion plants in Isfahan.

Scientific name	Complications	Common companion plants
Achillea millefolium L.	-	-
Adiantum capillus-veneris L.	-	-
Allium jesdianum Boiss. & Buhse	-	-
Aloe vera (L.) Burm.f.	-	-
Aloysia citrodora Paláu	-	*Matricaria chamomilla* L., *Melissa officinalis* L., *Citrus* × *aurantium* L, *Borago officinalis* L., *Carthamus tinctorius* L., *Lavandula angustifolia* Mill.
Althaea officinalis L.	drug interaction	*Ziziphus jujuba* Mill., *Thymus vulgaris* L., *Matricaria chamomilla* L., *Coriandrum sativum* L., *Malva sylvestris* L., *Adiantum capillus-veneris* L., *Cordia myxa* L., *Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew
Anethum graveolens L.	-	-
Apium graveolens L.	-	-
Arctium lappa L.	-	-
Avena sativa L.	increased blood sugar	-
Borago officinalis L.	heart palpitations, high pulse, increased blood pressure, addictive, liver poisoning, stomach pain, sleep disorder	*Hypericum perforatum* L., *Citrus* × *aurantium* L, *Borago officinalis* L., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Origanum majorana* L., *Lavandula angustifolia* Mill., *Valeriana officinalis* L
Camellia sinensis (L.) Kuntze	iron deficiency, coldness, leg pain and back pain, anemia	*Cinnamomum verum* J.Presl, *Foeniculum vulgare* Mill.
Cassia angustifolia Vahl	gastrointestinal fuzz, colic and intestinal laziness	*Rosa* × *damascena* Herrm
Cichorium intybus L.	-	*Fumaria vaillantii* Loisel.
Cinnamomum verum J.Presl	toxic and poisoning	*Pimpinella anisum* L., *Camellia sinensis* (L.) Kuntze, *Citrus* × *aurantiifolia* (Christm.) Swingle, *Salvia officinalis* L., Masala tea, *Syzygium aromaticum* (L.) Merr. & L.M.Perry, *Lavandula angustifolia* Mill., *Foeniculum vulgare* Mill. *Salvia rosmarinus* Spenn., *Zingiber officinale* Roscoe
Conium maculatum L .	poisoning	-
Cordia myxa L.	-	-
Coriandrum sativum L.	drunkenness combined with fatigue	-
Crataegus azarolus L.	-	-
Cuminum cyminum L.	skin drying, facial wrinkles, increased blood pressure, decreased blood sugar	*Foeniculum vulgare* Mill., *Ocimum americanum* L., *Trachyspermum ammi* (L.) Sprague, *Pimpinella anisum* L., *Ziziphora*

Scientific name	Complications	Common companion plants
		clinopodioides Lam.
Cuprella homalocarpa (Fisch. & C.A.Mey.) Salmerón-Sánchez, Mota & Fuertes	-	*Plantago major* L., *Dracocephalum royleanum* Benth., *Plantago ovata* Forssk., *Sisymbrium officinale* (L.) Scop.
Curcuma longa L.	Liver problems	-
Descurainia sophia (L.) Webb ex Prantl	harmful for arthritis and rheumatism	*Ziziphus jujuba* Mill., *Dracocephalum royleanum* Benth., *Plantago major* L., *Portulaca oleracea* L., *Mentha longifolia* (L.) L., *Ocimum americanum* L.
Dracocephalum officinalis (L.) Y.P.Chen & B.T.Drew	seizures and liver problems	*Ziziphus jujuba* Mill., *Thymus vulgaris* L., *Matricaria chamomilla* L., *Viola odorata* L., *Althaea officinalis* L., *Origanum majorana* L., *Melilotus officinalis* (L.) Lam., *Lavandula angustifolia* Mill., *Malva sylvestris* L., *Adiantum capillus-veneris* L., *Foeniculum vulgare* Mill.
Dracocephalum royleanum Benth.	harmful for pregnancy	*Dracocephalum royleanum* Benth., *Plantago major* L., *Cuprella homalocarpa* (Fisch. & C.A.Mey.) Salmerón-Sánchez, Mota & Fuertes, *Cordia myxa* L., *Plantago ovata* Forssk., *Ocimum americanum* L.
Echinops pungens Trautv.	-	-
Elettaria cardamomum (L.) Maton	intestinal disease	*Pimpinella anisum* L., *Camellia sinensis* (L.) Kuntze, *Cinnamomum verum* J.Presl, *Syzygium aromaticum* (L.) Merr. & L.M.Perry, *Crocus sativus* L., *Zingiber officinale* Roscoe
Eryngium billardierei F.Delaroche	-	-
Ferula assa-foetida L.	irritation of the throat, swelling of the lips, bad for epilepsy, causing sensitivity	*Cinnamomum verum* J.Presl, *Zingiber officinale* Roscoe
Ferula gummosa Boiss.	poisoning, nausea	*Ferula assa-foetida* L.
Foeniculum vulgare Mill.	harmful for pregnant and children, people with allergies, kidney disease, not good for breast cysts, harmful for hot temper and slow digestion, not good for men.	*Ziziphus jujuba* Mill., *Arctium lappa* L., *Thymus vulgaris* L., *Matricaria chamomilla* L., *Pimpinella anisum* L., *Achillea millefolium* L., *Marrubium vulgare* L., *Coriandrum sativum* L., *Calendula officinalis* L., *Cichorium intybus* L., *Cichorium intybus* L., *Silybum marianum* (L.) Gaertn., *Origanum majorana* L., *Foeniculum vulgare* Mill., *Salvia rosmarinus* Spenn. *Aloe vera* (L.) Burm.f., *Fumaria vaillantii* Loisel., *Anethum graveolens* L., *Curcuma longa* L., *Trachyspermum ammi* (L.) Sprague, *Cuminum cyminum* L.
Fumaria vaillantii Loisel.	diarrhea, shortness of breath	*Cichorium intybus* L.
Glycyrrhiza glabra L .	high blood pressure, harmful for spleen and kidney	*Thymus vulgaris* L., *Achillea millefolium* L., *Origanum majorana* L., *Mentha longifolia* (L.) L.
Hibiscus sabdariffa L.	stomach pain, constipation, nausea, tinnitus, dizziness and fatigue	*Camellia sinensis* (L.) Kuntze, *Citrus* × *aurantiifolia* (Christm.) Swingle, *Zingiber officinale* Roscoe
Hypericum perforatum L.	harmful for pregnancy, increased sensitivity to sunlight, interference with chemicals	-
Juglans regia L.	-	-
Lavandula angustifolia Mill.	diarrhea, headache and skin irritation, increased eye pressure, excessive consumption of sedatives is harmful, hot-tempered people should observe, harmful for pregnancy, thirst, heart palpitations	*Matricaria chamomilla* L., *Citrus* × *aurantium* L., *Borago officinalis* L., *Althaea officinalis* L., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Salvia officinalis* L., *Origanum majorana* L., *Malva sylvestris* L., *Valeriana officinalis* L, *Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew

Scientific name	Complications	Common companion plants
Malva sylvestris L.	-	*Matricaria chamomilla* L., *Viola odorata* L., *Althaea officinalis* L.
Matricaria chamomilla L.	harmful for prostate, high blood pressure, heart disease, pregnant, diarrhea and upset stomach, harmful for pregnancy, hypnotic	*Thymus vulgaris* L., *Viola odorata* L., *Borago officinalis* L., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Origanum majorana* L., *Lavandula angustifolia* Mill., *Malva sylvestris* L., *Valeriana officinalis* L
Medicago sativa L.	-	-
Melissa officinalis L.	drug interactions, harmful for thyroid	*Thymus vulgaris* L., *Citrus* × *aurantium* L, *Borago officinalis* L., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Salvia officinalis* L., *Lavandula angustifolia* Mill.
Mentha × *piperita* L.	headache, sore mouth, sensitivity	-
Mentha longifolia (L.) L.	sensitivity	*Thymus vulgaris* L., *Matricaria chamomilla* L., *Descurainia sophia* (L.) Webb ex Prantl, *Citrus* × *aurantiifolia* (Christm.) Swingle, *Origanum majorana* L., *Foeniculum vulgare* Mill., *Berberis vulgaris* L., *Cuminum cyminum* L.
Mentha pulegium L.	-	*Thymus vulgaris* L., *Matricaria chamomilla* L., *Stachys lavandulifolia* Vahl, *Origanum majorana* L., *Mentha longifolia* (L.) L., *Lavandula angustifolia* Mill.
Myrtus communis L.	-	-
Nigella sativa L.	harmful for pregnant, kidneys, in hot-tempered people, it causes swelling, pain and throat congestion, lowering blood pressure, poisoning.	-
Ocimum americanum L.	lowering blood pressure, weakness and lethargy and body coldness, should be consumed less for people who have constipation and stomach problems, dizziness and visual impairment.	*Melissa officinalis* L., *Dracocephalum royleanum* Benth., *Plantago major* L., *Plantago ovata* Forssk., *Cuprella homalocarpa* (Fisch. & C.A.Mey.) Salmerón-Sánchez, Mota & Fuertes, *Descurainia sophia* (L.) Webb ex Prantl, *Rhus coriaria* L., *Zingiber officinale* Roscoe
Origanum majorana L.	kidney problems	*Thymus vulgaris* L., *Matricaria chamomilla* L. *Viola odorata* L., *Urtica dioica* L., *Coriandrum sativum* L., *Borago officinalis* L., *Lavandula angustifolia* Mill., *Malva sylvestris* L., *Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew
Panax ginseng C.A.Mey.	heart palpitations, increased eye pressure, effect on the brain and nerves, increased blood pressure	*Elettaria cardamomum* (L.) Maton, *Myristica fragrans* Houtt.
Peganum harmala L .	the seeds are poisoning if chewed.	-
Phoenix dactylifera L.	-	-
Pimpinella anisum L.	harmful for men, drug interaction	*Thymus vulgaris* L., *Foeniculum vulgare* Mill., *Anethum graveolens* L., *Trachyspermum ammi* (L.) Sprague, *Cuminum cyminum* L.
Plantago major L.	-	*Dracocephalum royleanum* Benth., *Plantago ovata* Forssk., *Mentha longifolia* (L.) L., *Ocimum americanum* L.
Plantago ovata Forssk .	intestinal laziness, digestive chelation and weight gain, people with intestinal obstruction, constipated pregnant women, children under two years old, and diabetic patients should not consume	*Dracocephalum royleanum* Benth., *Sisymbrium officinale* (L.) Scop., *Descurainia sophia* (L.) Webb ex Prantl, *Origanum majorana* L., *Mentha longifolia* (L.) L.
Platanus orientalis L.	-	-
Rhus coriaria L.	-	-
Rosa × *damascena* Herrm.	harmful for people with intestinal obstruction, damage to stomach villi, sensitivity	*Arctium lappa* L., *Citrus* × *aurantium* L, *Borago officinalis* L., *Origanum majorana* L., *Rosa canina* L., *Lavandula angustifolia* Mill. Sana
Rosa canina L.		-

http://dx.doi.org/10.22108/tbj.2025.144121.1296

Scientific name	Complications	Common companion plants
Salix aegyptiaca Thunb.	-	-
Salix babylonica L.	-	-
Salvia hispanica L.	flatulence and diarrhea, digestive problems, suffocation risk, sensitivity, calcium deposits in kidney	*Descurainia sophia* (L.) Webb ex Prantl, *Ocimum americanum* L.
Salvia hydrangea DC. ex Benth.	-	-
Salvia officinalis L.	harmful for acute liver problem and people receiving insulin, low blood sugar and low blood pressure, vomiting kidney dizziness, slow heart rate, gastrointestinal disease	*Thymus vulgaris* L., *Achillea millefolium* L., *Sisymbrium officinale* (L.) Scop., *Camellia sinensis* (L.) Kuntze, *Cinnamomum verum* J.Presl, *Peganum harmala* L., *Pinus eldarica* Medw., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Origanum majorana* L., *Foeniculum vulgare* Mill., *Olea europaea* L.
Salvia rosmarinus Spenn.	anesthesia, pulmonary edema, vomiting, high blood pressure, liver problem, harmful for high fever, children under 12 years old are prohibited	*Thymus vulgaris* L., *Matricaria chamomilla* L., *Stachys lavandulifolia* Vahl, *Althaea officinalis* L., *Mentha longifolia* (L.) L., *Lavandula angustifolia* Mill.
Satureja hortensis L.	-	-
Silybum marianum (L.) Gaertn.	not good for cold-tempered people	*Cichorium intybus* L., *Fumaria vaillantii* Loisel.
Valeriana officinalis L.	harmful for pregnant and nursing mothers, kidney weakness, hearing and vision weakness	*Pimpinella anisum* L., *Citrus* × *aurantium* L, *Borago officinalis* L., *Lavandula angustifolia* Mill.
Stachys inflata Benth.	-	*Althaea officinalis* L., *Adiantum capillus-veneris* L.
Stachys lavandulifolia Vahl	allergic mouth ulcer, headache	*Matricaria chamomilla* L., *Citrus* × *aurantium* L, *Borago officinalis* L., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Lavandula angustifolia* Mill.
Syzygium aromaticum (L.) Merr. & L.M.Perry	Harmful for people with acid stomach and reflux	-
Thymus vulgaris L.	-	*Ziziphus jujuba* Mill., *Matricaria chamomilla* L., *Viola odorata* L., *Achillea millefolium* L., *Salvia hydrangea* DC. ex Benth., *Althaea officinalis* L., *Salvia officinalis* L., *Origanum majorana* L., *Melilotus officinalis* (L.) Lam., *Mentha longifolia* (L.) L., *Lavandula angustifolia* Mill. *Malva sylvestris* L., *Adiantum capillus-veneris* L., *Cordia myxa* L., *Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew
Trachyspermum ammi (L.) Sprague	drug interactions, lowering blood pressure, causing constipation, women should not use too much because it contains male hormones	*Thymus vulgaris* L., *Pimpinella anisum* L., *Achillea millefolium* L., *Foeniculum vulgare* Mill., *Anethum graveolens* L., *Cuminum cyminum* L.
Tribulus terrestris L.	-	*Alhagi persarum* Boiss. & Buhse
Trigonella foenum-graecum L.	-	*Urtica dioica* L., *Portulaca oleracea* L., *Teucrium chamaedrys* L., *Olea europaea* L.
Urtica dioica L.	skin sensitivity	-
Vitex agnus-castus L.	nausea, harmful for pregnants, body itching, menstrual, bleeding, not suitable for men, highly toxic for women, low blood pressure, low blood sugar, headache and dizziness	*Matricaria chamomilla* L., *Viola odorata* L., *Achillea millefolium* L., *Pinus eldarica* Medw., *Artemisia absinthium* L., *Foeniculum vulgare* Mill.
Zataria multiflora Boiss.	sensitivity, harmful for stomach, intestines, and gastric reflux, anemia, increased blood sugar, palpitation and liver problems	*Ziziphus jujuba* Mill., *Matricaria chamomilla* L., *Viola odorata* L., *Achillea millefolium* L., *Coriandrum sativum* L., *Salvia hydrangea* DC. ex Benth., *Althaea officinalis* L., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Salvia officinalis* L., *Origanum majorana* L., *Mentha longifolia* (L.) L., *Lavandula angustifolia* Mill.,

Scientific name	Complications	Common companion plants
		Malva sylvestris L., *Adiantum capillus-veneris* L., *Cordia myxa* L., *Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew
Zingiber officinale Roscoe	increased body temperature and blood pressure, harmful for cold, pregnant and nursing mothers, liver problems	*Thymus vulgaris* L., *Cinnamomum verum* J.Presl, *Elettaria cardamomum* (L.) Maton, *Myristica fragrans* Houtt.
Ziziphora clinopodioides Lam.	women's autoimmune disease, kidney problems	*Ziziphus jujuba* Mill., *Thymus vulgaris* L., *Achillea millefolium* L., *Stachys lavandulifolia* Vahl, *Althaea officinalis* L., *Origanum majorana* L., *Mentha longifolia* (L.) L., *Malva sylvestris* L., *Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew
Ziziphus jujuba Mill.	-	*Thymus vulgaris* L., *Matricaria chamomilla* L., *Sisymbrium officinale* (L.) Scop., *Citrus* × *aurantiifolia* (Christm.) Swingle, *Lavandula angustifolia* Mill.

The most important and widely used plant families were Lamiaceae, Apiaceae, and Asteraceae, respectively, highlighting the diversity of plant groups used in traditional medicine in Isfahan (Figure 3). The results showed that the plant parts most commonly used by the people of Isfahan were flowers (41.1%), leaves (24.8%), and seeds (20.8%), respectively (Figure 4).

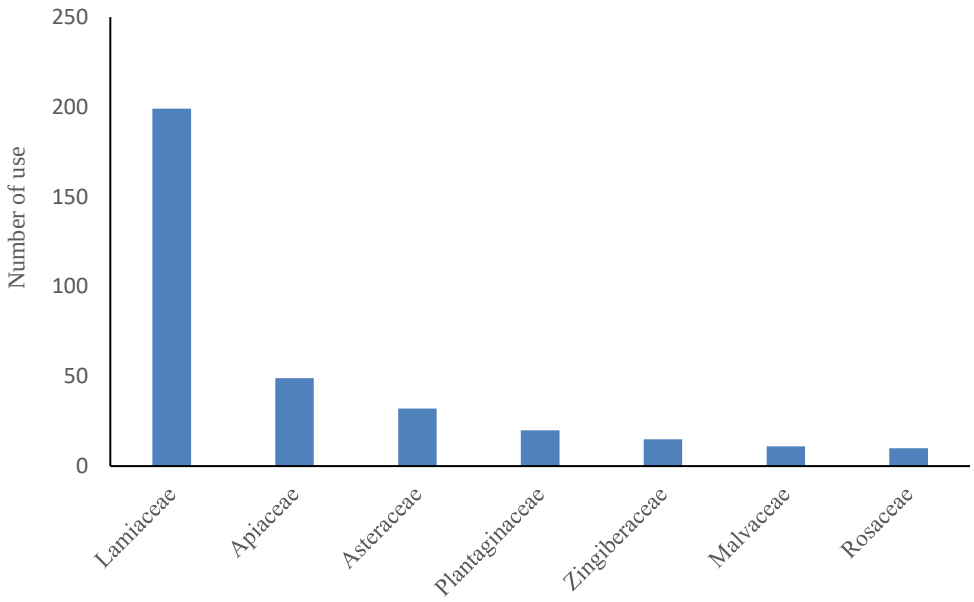

Figure 3. A visual representation of the most popular plant families in traditional medicine in Isfahan.

http://dx.doi.org/10.22108/tbj.2025.144121.1296

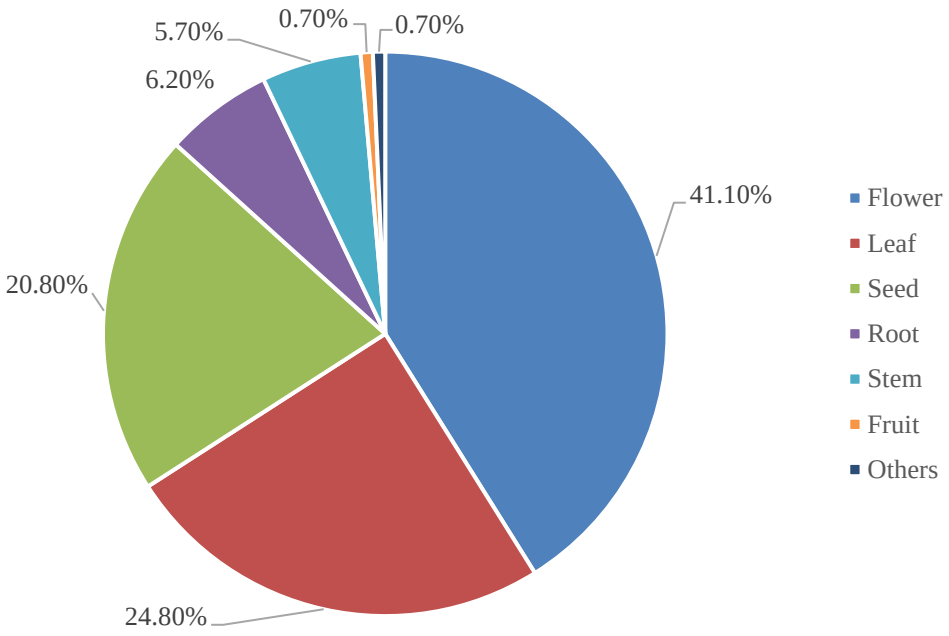

Figure 4. A visual representation of the most popular plant organs used in traditional medicine in Isfahan.

According to the results, the most common health conditions treated with medicinal plants in Isfahan were respiratory illnesses (such as colds), intestinal disorders, and nervous system ailments (Figure 5). The most commonly used forms of medicinal plants in Isfahan were infusions, decoctions, and distillates, respectively (Figure 6).

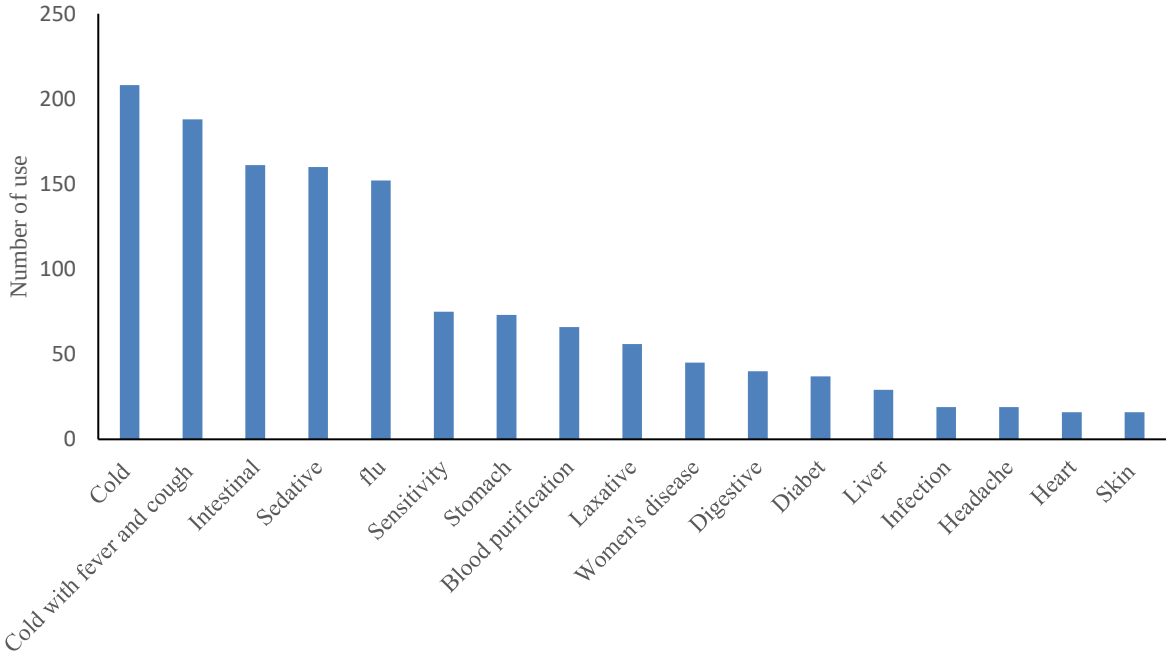

Figure 5. A visual representation of the primary therapeutic applications of medicinal plants in Isfahan.

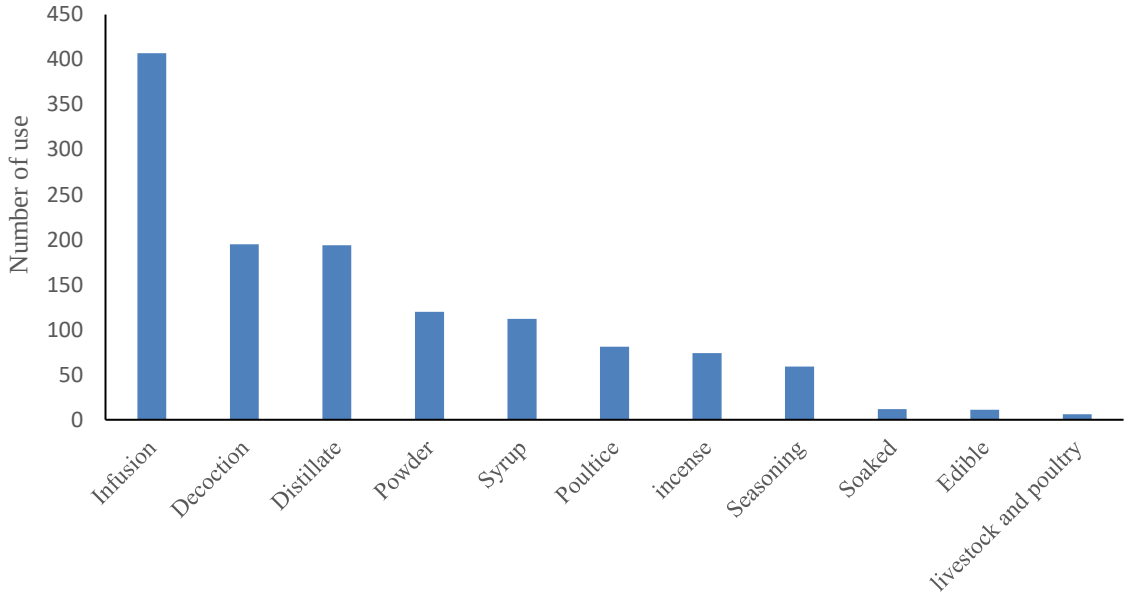

Figure 6. A visual representation of the traditional preparation methods of medicinal plants in Isfahan.

Discussion

Based on interviews conducted with herbal shop owners as part of the present study, Isfahan residents demonstrated a strong preference for using medicinal plants throughout the year. This preference was attributed to several factors reported by the interviewees, including the potential side effects of chemical drugs, the time-consuming nature of medical appointments, and the often shorter treatment duration associated with medicinal plants. Consequently, individuals in Isfahan extensively use plant organs to manage and treat various health conditions. According to the interviews, most treatment periods lasted between 2 weeks and 2 months. This study showed that native plants constitute most of the medicinal plants sold by herbal stores in Isfahan. This could be due to cultural factors, historical use, or perceived benefits of using locally adapted plants. Approximately 68% of the plants used by the people of Isfahan province are native to Iran. Due to the diverse climate of Isfahan province, Isfahan is one of the main centers for the production and supply of medicinal plants in Iran. A significant volume of the medicinal plants available in this province are native and locally grown. However, some medicinal plants are also imported from abroad, due to specific needs or the inability to cultivate them domestically. Plants such as Ostokhodos, Zanjebil, Darchin, and certain special spices are among the imported medicinal plants. In some other studies in Iran, the majority of plants used by people were also native species (such as: Maleki et al., 2025; Ghafouri et al., 2025).). Therefore, it can be said that the results show that both indigenous and imported plants are used in traditional Iranian medicine, and both groups play an important role in meeting the therapeutic needs of the people. However, given the high biodiversity of Iran, indigenous plants have a significant contribution in this field (Maleki et al., 2025).

According to the results, the most important and widely used plant families included Lamiaceae, Apiaceae, and Asteraceae, respectively, indicating the diversity of plant groups used in traditional medicine in Isfahan. Lamiaceae plants are often known for their aromatic properties and potential medicinal benefits for the respiratory system (Sim et al., 2019), whereas Asteraceae plants are known for their diverse pharmacological activities (Bessada et al., 2015; Nadaf et al., 2025). In this study, the highest RFC values were observed for *Zataria multiflora*, *Thymus vulgaris*, *Lavandula angustifolia*, and *Matricaria chamomilla*. *Thymus* is a widely used plant for treating colds and as a spice (Uzun & Koca, 2020). *L. angustifolia* and *M. chamomilla* are frequently used to relieve stress (Vitalini et al., 2013). Notably, most of the species in this study exhibited high RFC values and are well-known among the local people of Isfahan. The results showed that Avishan, Ostokhodos, and Babooneh were among the most frequently used medicinal plants. Avishan (*Thymus vulgaris*), a plant rich in phytochemical compounds such as phenols, flavonoids, and terpenoids (including monoterpenes and sesquiterpenes), is widely recognized for its numerous health benefits. These include pain relief, immune system stimulation, and antibacterial, antifungal, and antioxidant properties (Shokrzadeh et al., 2015). Avishan is highly valued among Iranians (Meamari et al., 2022). The aerial parts of Avishan are used in Isfahan to treat stomach, kidney, and lung disorders, headaches, colds with cough symptoms, flu, cancer, and various other ailments.

Ostokhodos (*Lavandula angustifolia*) is one of the most valuable medicinal plants in the economic industry due to its diverse applications, including essential oil production, the dried flower market, and pharmaceutical and nutraceutical uses (Batiha et al., 2023). In addition to its wide applications in the preparation of cosmetics, pharmaceuticals, the food industry and environmental products, this plant has a solid by-product rich in polyphenols and polysaccharides (Crișan et al., 2023). Ostokhodos exhibits antioxidant properties due to its phenolic acid, flavonoid, and coumarin compounds (Dobros et al., 2022). It is used widely in Iran for treating nervous, digestive, and respiratory diseases (Golfakhrabadi et al., 2017). According to reports from herbal shop owners, Isfahan residents use the Ostokhodos to alleviate headaches and nervous disorders, aid digestion, promote weight loss, cleanse the liver, treat wounds, and reduce joint pain associated with increased blood circulation.

http://dx.doi.org/10.22108/tbj.2025.144121.1296

Babooneh (*Matricaria chamomilla*) is a versatile herbal remedy with diverse and valuable properties. This plant is widely used in traditional medicine and has significant economic value. Babooneh has been used to treat stomach problems, muscle cramps, dermatitis, and minor infections. It contains phytochemical compounds such as flavonoids, coumarins, volatile oils, terpenes, organic acids, and polysaccharides (Dai et al., 2022). Based on the results, Isfahan residents use the leaves and flowers of this plant for various ailments, including digestive issues, pulmonary problems, headaches, colds with fever and cough, influenza, cancer, menstrual disorders, skin and hair conditions, and allergies. Babooneh is also used as a blood purifier (Kimura et al., 2024), milk enhancer (Bebitoglu, 2020), antibiotic, hematopoietic agent (Abbasi et al., 2022), sedative, carminative (Kabiraj & Deshmukh, 2024), choleretic (Paniagua-Zambrana et al., 2024), anti-nausea medication, pain reliever, and lubricant (Bakhtiari et al., 2023).

In this study, *Borago officinalis* exhibited the highest UV at 0.66. This plant, which contains various phytochemical compounds such as trans-anethole, estragole, and fenchone, has diverse applications (Rather et al., 2016). According to the results, *F. vulgare* was found to have 16 reported uses. *Borago officinalis*, on the other hand, had the highest RI at 75.00. This species is widely consumed by residents of Isfahan and neighboring cities and affects 11 body systems.

Based on Table 3, we categorized the diseases into 12 groups. The highest ICF values were observed for cold-related ailments (respiratory system) at 0.92, sedative-related conditions (nervous system) at 0.87, and digestive system and women's health at 0.79. High ICF values for specific disease categories may indicate strong local confidence in medicinal plant use for treating these ailments (Mohammadi et al., 2023). Notably, these disease categories are commonly reported in ethnobotanical studies (Arvin & Firuzeh, 2022; Karaköse, 2022). A study of high-demand medicinal plants in Mashhad's herbal markets found that most medicinal plants were used for digestive problems (Motahhari et al., 2022), whereas the present study (in Isfahan) found a focus on respiratory ailments. Different climates and environmental conditions can influence the prevalence of certain diseases and, consequently, the types of medicinal plants used to treat them. For example, a drier climate might lead to more respiratory issues, while a more humid environment might result in more digestive problems. Conversely, the lowest ICF value was found for blood system disorders (0), which is consistent with findings from other ethnobotanical studies conducted in Iran (Mohammadi et al., 2023). This observation clearly highlights that blood disorders have received less attention in our study. There are several reasons for this. Firstly, blood disorders, such as anemia or polycythemia, may be less frequently addressed in herbal markets due to their clinical complexities and the need for specialized treatments. Additionally, many individuals may seek herbal remedies for more common ailments, such as respiratory or gastrointestinal issues, which are more widely recognized in public culture. Consequently, the medicinal plants associated with these more prevalent conditions tend to receive greater attention. Furthermore, we utilized complementary indices such as Use Value (UV) and Relative Importance (RI) in our study to provide a more comprehensive picture of the use of medicinal plants in treating various diseases. These indices helped us examine factors like frequency and diversity of plant use among informants, thereby compensating for the limitations present of the ICF.

The results showed that Isfahan residents use various medicinal plants throughout the year. During spring, when allergic diseases are prevalent due to plant pollination, they frequently consume herbal distillates such as Baharnarenj, Golab, Kasni, and Shahtareh. In summer, to combat the heat, they use herbal syrups such as Tokhmeh Sharbati, Khakeshir, Baharnarenj, and Bidmeshk. During the cooler autumn and winter seasons, when viral diseases like colds are common, they switch to plants such as Anab, Nakhonak, Sepestan, Panirak, Avishan, and Geshniz seeds. This seasonal use of medicinal plants aligns with the preferences and needs of Isfahan's population. Similar findings have been reported in other studies (Ashayeri et al., 2013; Hosseini et al., 2017; Majidi et al., 2024). According to this study, the most frequently used medicinal plants in Isfahan are for treating cold-related, intestinal, and sedative disorders. Intestinal diseases, including colon cancer, have become increasingly prevalent in Isfahan province, mirroring a global trend (Saberzadeh-Ardestani et al., 2024). The increased prevalence of intestinal diseases in Isfahan province can be attributed to a combination of factors, including the local climate, diet, and specific health challenges (Jafari et al., 2016). Lifestyle changes and non-standard dietary habits have also contributed to the increasing incidence of these conditions among adults (Sámano et al., 2022).

Based on our observations, herbal shops in different parts of Isfahan, both in the northern (less affluent) and southern (more affluent) regions, offer a similar range of medicinal herbs, which indicates that the demand for various medicinal herbs is relatively uniform across the city. Herbal shops usually have customers from different parts of the city and do not serve only residents of their own neighborhood, which makes it difficult to link consumption patterns to a specific area. For example, herbal shops in Isfahan's Naqsh-e Jahan Square, which are traditional and famous, are visited by customers from different geographical locations in the city who come to purchase medicinal herbs. Therefore, a precise division cannot be provided in this regard. However, in general, it can be stated that residents of the upper city, due to greater economic and welfare opportunities, prioritize the use of chemical drugs and modern medical services and are less likely to visit apothecaries or rely on traditional medicine. A study conducted by Poli et al. (2025) confirms that residents of urban areas with greater economic and welfare opportunities are more inclined towards modern medicine. Flowers are the most commonly used plant organ by Isfahan residents, reflecting their significance in herbal treatments. Flowers are often valued for their aromatic and medicinal properties, whereas leaves and seeds are often valued for their nutritional and therapeutic properties. Pigments found in flowers, such as flavonoids and terpenoids, possess numerous therapeutic properties, including antioxidant, anti-inflammatory, and anticancer effects (Liu et al., 2023). The results of this study are consistent with our earlier findings. An ethnobotanical study conducted in Ardestan city (Isfahan province) highlighted the widespread use of flowers in traditional medicine (Haerinasab & Abbasi, 2019). As with other studies conducted in the herbal market of Turkey (Uzun & Koca, 2020; Emre et al., 2021), infusion was the most common method of consuming medicinal plants in Isfahan. Infusions might be preferred due to their ease of preparation and mild effects, whereas decoctions can be used to extract concentrated compounds from plant materials (Melnyk et al., 2021).

Conclusion

Based on the results of this research, Isfahan's traditional apothecaries are significant repositories of medicinal plant knowledge. These establishments play a pivotal role in disseminating information about herbal remedies and promoting their use. However, challenges such as a lack of regulations, limited consumer awareness, inconsistent quality control, and diverse plant nomenclature hinder the full

potential of medicinal plants in Isfahan. Despite these challenges, the future of medicinal plants in Isfahan appears promising. By standardizing products, providing customer education, reviving cultivation, fostering research collaborations, and developing local brands, apothecaries can contribute to the sustainable growth of the industry. The rich historical and cultural heritage associated with Isfahan's medicinal plants underscores the importance of preserving and promoting this knowledge. By addressing these challenges and capitalizing on opportunities, the future of medicinal plants in Isfahan can be secured.

Contribution statement

Shabnam Abbasi: Collected, analyzed, and interpreted the data; wrote the original draft. Peyman Aghaei: Conducted interviews and collected data. Mohammad Sadegh Amiri: Provided the initial idea and approved the final version of the manuscript. Maryam Haerinasab: Supervised the research project; contributed to the conceptualization, methodology, and evaluation of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

Acknowledgement

The authors wish to thank Payame-Noor University and Farhangian University for supporting this work.

References

Abbasi, F., Khazaie, S., & Motamayel, F. A. (2022). Evaluation of pharmaceutical use of chamomile in dentistry: A review. *Journal of Craniomaxillofacial Research*, *9*(3), 110-117. https://doi.org/10.18502/jcr.v9i3.12693

Amiri, M. S., & Joharchi, M. R. (2013). Ethnobotanical investigation of traditional medicinal plants commercialized in the markets of Mashhad, Iran. *Avicenna Journal of Phytomedicine*, *3*(3), 254-271. https://doi.org/10.22038/ajp.2013.487

Arvin, P., & Firuzeh, R. (2022). Ethnobotany of medicinal plants in Razo-Jargalan district in North Khorasan province. *Iranian Journal of Medicinal and Aromatic Plants Research*, *37*(6), 873-907. https://doi.org/10.22092/ijmapr.2021.355645.3048 [In Persian].

Ashayeri, N., Abbassian, A., Janbakhsh, S., Sheibani, S., Sodagari, F., & Minaie, M. (2013). The more prevalent medicinal herbs which have been purchased from herbal medicine stores in Tehran, 2008. *Journal of Islamic and Iranian Traditional Medicine*, *3*(4), 477-482. http://jiitm.ir/article-1-170-en.html [In Persian].

Assadi, M. (ed.). (1989-2016). *Flora of Iran* (Vol. 1-85). Research Institute of Forests and Rangelands (RIFR). [In Persian].

Astutik, S., Pretzsch, J., & Ndzifon Kimengsi, J. (2019). Asian medicinal plants' production and utilization potentials: A review. *Sustainability*, *11*(19), 5483. https://doi.org/10.3390/su11195483

Bakhtiari, S., Khalili, G., & Zadak, R. S. (2023). The effect of chamomile on nausea and vomiting after laparoscopic cholecystectomy: A triple-blind randomized clinical trial. *Journal of Experimental and Clinical Medicine*, *40*(1), 31-36. https://doi.org/10.52142/omujecm.40.1.7

Batiha, G. E. S., Teibo, J. O., Wasef, L., Shaheen, H. M., Akomolafe, A. P., Teibo, T. K. A., ... & Papadakis, M. (2023). A review of the bioactive components and pharmacological properties of Lavandula species. *Naunyn-schmiedeberg's Archives of Pharmacology*, *396*(5), 877-900. https://doi.org/10.1007/s00210-023-02392-x

Bebitoglu, B. T. (2020). Frequently used herbal teas during pregnancy-short update. *Medeniyet Medical Journal*, *35*(1), 55-61. https://doi.org/10.5222/mmj.2020.69851

Bennett, B. C., & Prance, G. T. (2000). Introduced plants in the indigenous pharmacopoeia of Northern South America. *Economic Botany*, *54*, 90-102. https://doi.org/10.1007/BF02866603

Bessada, S. M., Barreira, J. C., & Oliveira, M. B. P. (2015). Asteraceae species with most prominent bioactivity and their potential applications: A review. *Industrial Crops and Products*, *76*, 604-615. https://doi.org/10.1016/j.indcrop.2015.07.073

Crișan, I., Ona, A., Vârban, D., Muntean, L., Vârban, R., Stoie, A., Mihăiescu, T., & Morea, A. (2023). Current trends for Ostokhodos (*Lavandula angustifolia* Mill.) crops and products with emphasis on essential oil quality. *Plants*, *12*(2), 357. https://doi.org/10.3390/plants12020357

Dai, Y.-L., Li, Y., Wang, Q., Niu, F.-J., Li, K.-W., Wang, Y.-Y., Wang, J., Zhou, C.-Z., & Gao, L.-N. (2022). Chamomile: a review of its traditional uses, chemical constituents, pharmacological activities and quality control studies. *Molecules*, *28*(1), 133. https://doi.org/10.3390/molecules28010133

Dobros, N., Zawada, K., & Paradowska, K. (2022). Phytochemical profile and antioxidant activity of *Lavandula angustifolia* and *Lavandula xintermedia* cultivars extracted with different methods. *Antioxidants*, *11*(4), 711. https://doi.org/10.3390/antiox11040711

Ekor, M. (2014). Nephrotoxicity and nephroprotective potential of African medicinal plants. In *Toxicological Survey of African Medicinal Plants* (pp. 357-393). Elsevier. https://doi.org/10.1016/B978-0-12-800018-2.00012-1

Emre, G., Dogan, A., Haznedaroglu, M. Z., Senkardes, I., Ulger, M., Satiroglu, A., ... & Tugay, O. (2021). An ethnobotanical study of medicinal plants in Mersin (Turkey). *Frontiers in Pharmacology*, *12*, 664500. https://doi.org/10.3389/fphar.2021.664500

Eshrati, P., & Doulabi, P. (2021). Analysis of the historic urban landscape of Isfahan based on the cultural and natural foundations from the beginning to the end of the Safavid era. *Armanshahr Architecture & Urban Development*, *13*(33), 153-166. https://doi.org/10.22034/aaud.2019.163987.1761 [In Persian].

Fattahi Ardakani, M., Namiranian, N., Afkhami Ardekani, M., Zareipour, M., Asadian, A., & Heydari, S. (2024). Consumption of medicinal plants among patients with diabetes in eastern mediterranean regional office countries: A systematic review and meta-analysis. *Journal of Nutrition and Food Security*, *9*(1), 116-131. https://doi.org/10.18502/jnfs.v9i1.14846

Ghafouri, S., Safaeian, R., Ghanbarian, G., Lautenschläger, T., & Ghafouri, E. (2025). Medicinal plants used by local communities in southern Fars Province, Iran. *Scientific Reports*, *15*(1), 5742. https://doi.org/10.1038/s41598-025-88341-5

Golfakhrabadi, F., Yousefbeyk, F., Hassanzadeh, A., & Sadat Hamedi, S. (2017). Ostokhodos in Iranian traditional medicine and new studies. *Journal of Islamic and Iranian Traditional Medicine*, *8*(2), 161-172. https://doi.org/10.1016/j.seizure.2014.01.013

Haerinasab, M., & Abbasi, S. (2019). Ethnobotanical study of medicinal plants and introduction to some poisonous plant species of Ardestan (Isfahan province). *Journal of Medicinal Plants*, *18*(70), 122-143. http://jmp.ir/article-1-1770-en.html [In Persian].

Hajipour, S., Ghonoudi, A., Alinia-Ahandani, E., & Riaz, A. (2024). A short review of the current and future prospects of herbal medicine and natural products. *Journal of Human Environment and Health Promotion*, *10*(4), 191-198. http://dx.doi.org/10.61186/jhehp.10.4.191

Hosseini, Z., Feizi, H., & Moradi, R. (2017). Assessing supply and demand of medicinal plants in Shiraz apothecaries. *Journal of Islamic and Iranian Traditional Medicine*, *8*(1), 123-133. http://jiitm.ir/article-1-849-en.html

Jafari, R., Sharifi, F., Bagherpour, B., & Safari, M. (2016). Prevalence of intestinal parasites in Isfahan city, central Iran, 2014. *Journal of Parasitic Diseases*, *40*, 679-682. https://doi.org/10.1007/s12639-014-0557-9

Kabiraj, A., & Deshmukh, R. (2024). A review on chinese herbal medicine used as carminative. *Pharmacological Research-Modern Chinese Medicine*, *11*, 100409. https://doi.org/10.1016/j.prmcm.2024.100409

Karaköse, M. (2022). An ethnobotanical study of medicinal plants in Güce district, north-eastern Turkey. *Plant Diversity*, *44*(6), 577-597. https://doi.org/10.1016/j.pld.2022.03.005

Kiasi, Y., Forouzeh, M. R., Mirdeilami, S. Z., & Niknahad-Gharmakher, H. (2023). Ethnobotanical study of medicinal plants used by QizilbashTribe in North of Iran. *Environmental Resources Research*, *11*(2), 239-256. https://doi.org/10.22069/ijerr.2024.20098.1372

Kimura, R., Schwartz, J. A., Romeiser, J. L., Senzel, L., Galanakis, D., Halper, D., & Bennett-Guerrero, E. (2024). The acute effect of chamomile intake on blood coagulation tests in healthy volunteers: A randomized trial. *The Journal of Applied Laboratory Medicine*, *9*(3), 468-476. https://doi.org/10.1093/jalm/jfad120

Liu, X., Wang, S., Cui, L., Zhou, H., Liu, Y., Meng, L., Chen, S., Xi, X., Zhang, Y., & Kang, W. (2023). Flowers: precious food and medicine resources. *Food Science and Human Wellness*, *12*(4), 1020-1052. https://doi.org/10.1016/j.fshw.2022.10.022

Ma'arif, B., Nurfadhilah, E., Muslikh, F. A., Aditama, A. P. R., Suryadinata, A., Ahdi, I. R., ... & Maulina, N. (2023). Formulation of aromatherapy massage oil from Lavender (*Lavandula angustifolia*), Chamomile (*Matricaria recutita*), and Petitgrain (*Citrus aurantium*) for stress relief. *Journal of Medicinal and Chemical Sciences*, *6*(12), 3078-3086. https://doi.org/10.26655/JMCHEMSCI.2023.12.23

Mahdavi, A., Bagherniya, M., Mirenayat, M. S., Atkin, S. L., & Sahebkar, A. (2021). Medicinal plants and phytochemicals regulating insulin resistance and glucose homeostasis in type 2 diabetic patients: a clinical review. In Barreto, G.E., Sahebkar, A. (Eds.) *Pharmacological Properties of Plant-Derived Natural Products and Implications for Human Health* (pp. 161-183). Springer. https://doi.org/10.1007/978-3-030-64872-5_13

Maleki, T., Leonti, M., Dal Cero, M., Sonboli, A., & Weckerle, C. S. (2025). Kurdish ethnomedicine in the context of historic migration. *Journal of Ethnopharmacology*, *339*, 119132. https://doi.org/10.1016/j.jep.2024.119132

Majidi, A. H., Arifi, A., & Qasimi, A. B. (2024). Traditional use of medicinal plant diversity in the Yawan district of Badakhshan, Afghanistan. *Vegetos*, 1-9. https://doi.org/10.1007/s42535-024-00926-z

Meamari, S., Yavari, A., & Bikdeloo, M. (2022). Comparison of antioxidant activity, phenolic and flavonoid Contents of *Zataria Multiflora* Populations in Iran. *Journal of Medicinal plants and By-Products*, *11*(Special), 10-106. https://doi.org/10.22092/jmpb.2021.356755.1427

Melnyk, H., Yarnykh, T., & Buryak, M. (2021). Pharmacopeial aspects of preparation of infusions and decoctions in pharmacies. *EUREKA: Health Sciences,(4)*, 87-93. https://doi.org/10.21303/2504-5679.2021.001971

Mohammadi, T., Moazzeni, H., Pirani, A., Vaezi, J., Motahhari, K., Joharchi, M. R., & Bussmann, R. W. (2023). Ethnobotany of plants used by indigenous communities in Birjand, a dry region with rich local traditional knowledge in eastern Iran. *Ethnobotany Research and Applications*, *26*, 1-40. http://dx.doi.org/10.32859/era.26.21.1-40

Motahhari, K., Pirani, A., Moazzeni, H., Joharchi, M. R., & Bussmann, R. W. (2022). High–demand medicinal plants of herbal markets in Mashhad, Iran. *Economic Botany*, *76*(4), 414-433. https://doi.org/10.1007/s12231-022-09557-4

Nadaf, M., Halimi Khalil Abad, M., Omidipour, R., Soorgi, H., Riahi-Madvar, A., & Ghamari, E. S. (2025). Ethnobotanical knowledge, chemistry, and pharmacology of the Asteraceae Family in Iran: A review. *Ethnobotany Research and Applications*, *30*, 1-27. https://ethnobotanyjournal.org/index.php/era/article/view/6544

Paniagua-Zambrana, N. Y., Bussmann, R. W., & Kikvidze, Z. (2024). *Matricaria chamomilla* L. *Matricaria discoidea* DC. Asteraceae. In *Ethnobotany of the Mountain Regions of Eastern Europe: Carpathians* (pp. 1-10). Springer International Publishing. https://doi.org/10.1007/978-3-030-98744-2_188-1

Poli, M. A., Hossain, M. J., Kholil, I., Yasmin, S., Bhowmick, B., & Kundu, L. R. (2025). Traditional medicine use and associated factors in chronic patients in Jamalpur, Bangladesh: a cross-sectional study. *Frontiers in Public Health*, *13*, 1548728. https://doi.org/10.3389/fpubh.2025.1548728

Popoola, O. M. (2024). Towards sustainability in the source of raw materials for herbal remedies. In *Herbal Medicine Phytochemistry: Applications and Trends* (pp. 1547-1570). Springer. https://doi.org/10.1007/978-3-031-21973-3_49-1

Rafie Manzelat, R., & Imani Emadi, M. (2015). A review on development of historical city center and revitalization process in Isfahan/Iran. *World Academy of Science, Engineering, and Technology*, *9*(6), 789-794. https://api.semanticscholar.org/CorpusID:47867152

Rather, M. A., Dar, B. A., Sofi, S. N., Bhat, B. A., & Qurishi, M. A. (2016). *Foeniculum vulgare*: A comprehensive review of its traditional use, phytochemistry, pharmacology, and safety. *Arabian Journal of Chemistry*, *9*, S1574-S1583. https://doi.org/10.1016/J.ARABJC.2012.04.011

Saadati, R., Sattarian, A., Daneshvar, A., Amini, E., & Nasrollahi, F. (2022). Study on supply and consumption of medicinal plants in perfumeries of Eastern Golestan province. *Iranian Journal of Medicinal and Aromatic Plants Research*, *38*(2), 332-344. https://doi.org/10.22092/ijmapr.2022.357299.3118 [In Persian].

Saberzadeh-Ardestani, B., Khosravi, A. A., Mansour-Ghanaei, F., Vahedi, H., Baniasadi, N., Seyyedmajidi, M., Parhizkar, B., Hormati, A., Naghshbandi, S. J., & Matin, S. (2024). Clinical phenotype and disease course of inflammatory bowel disease in Iran: Results of the Iranian Registry of Crohn's and Colitis (IRCC). *Archives of Iranian Medicine*, *27*(4), 183. https://doi.org/10.34172/aim.2024.27

Sámano, R., Esparza-Juárez, F., Chico-Barba, G., González-Medina, E., Sánchez-Jiménez, B., & Hernández-Trejo, M. (2022). Association of diet, body mass index, and lifestyle on the gastrointestinal health risk in a sample of adults. *International Journal of Environmental Research and Public Health*, *19*(17), 10569. https://doi.org/10.3390/ijerph191710569

Sargin, S. A., & Büyükcengiz, M. (2019). Plants used in ethnomedicinal practices in Gulnar district of Mersin, Turkey. *Journal of Herbal Medicine*, *15*, 100224. https://doi.org/10.1016/j.hermed.2018.06.003

Shokrzadeh, M., Chabra, A., Ahmadi, A., Naghshvar, F., Habibi, E., Salehi, F., & Assadpour, S. (2015). Hepatoprotective effects of *Zataria multiflora* ethanolic extract on liver toxicity induced by cyclophosphamide in mice. *Drug Research*, *65*(04), 169-175. https://B2n.ir/fm5282

Sim, L. Y., Abd Rani, N. Z., & Husain, K. (2019). Lamiaceae: an insight on their anti-allergic potential and its mechanisms of action. *Frontiers in Pharmacology*, *10*, 677. https://doi.org/10.3389/fphar.2019.00677

Singh, M. P., & Gohil, K. J. (2024). Therapeuticefficacy andcost effectiveness ofherbal drugs–A reasonable approach. *Pharmacological Research-Natural Products*, *2*, 100009. https://doi.org/10.1016/j.prenap.2023.100009

Trotter, R. T., & Logan, M. H. (1986). Informant consensus: a new approach for identifying potentially effective medicinal plants. In *Plants and indigenous medicine and diet* (pp. 91-112). Routledge. https://B2n.ir/dr2600

Umair, M., Altaf, M., Ahsan, T., Bussmann, R. W., Abbasi, A. M., Gatasheh, M. K., & Elrobh, M. (2024). Study of medicinal plants used in ethnoveterinary medical system in riverine areas of Punjab, Pakistan. *Journal of Ethnobiology and Ethnomedicine*, *20*(1), 48. https://doi.org/10.1186/s13002-024-00686-9

Uzun, S. P., & Koca, C. (2020). Ethnobotanical survey of medicinal plants traded in herbal markets of Kahramanmaraş. *Plant Diversity*, *42*(6), 443-454. https://doi.org/10.1016/j.pld.2020.12.003

Vitalini, S., Iriti, M., Puricelli, C., Ciuchi, D., Segale, A., & Fico, G. (2013). Traditional knowledge on medicinal and food plants used in Val San Giacomo (Sondrio, Italy)—An alpine ethnobotanical study. *Journal of Ethnopharmacology*, *145*(2), 517-529. https://doi.org/10.1016/j.jep.2012.11.024

Yang, Z., Bi, J., Li, B., Mao, F., Jiang, J., Gu, X., Fang, H., Wang, Q., Zheng, K., & Zhao, Y. (2024). Phytochemical profile and antimicrobial, anti-inflammatory, antioxidant activities of the essential oils in the aerial part and root of *Glehnia littoralis* Fr. Schmidt ex Miq. *Physiological and Molecular Plant Pathology*, *132*, 102288. https://doi.org/10.1016/j.pmpp.2024.102288

Yaseen, G., Ahmad, M., Sultana, S., Alharrasi, A. S., Hussain, J., & Zafar, M. (2015). Ethnobotany of medicinal plants in the Thar Desert (Sindh) of Pakistan. *Journal of Ethnopharmacology*, *163*, 43-59. https://doi.org/10.1016/j.jep.2014.12.053

Table S1. Most-selling medicinal plants in herbal shops of Isfahan.

No	Scientific name	Part used	Usage	Preparation	Voucher No.
1	*Achillea millefolium* L.*	flower	invigorating, heart strengthening, anticonvulsant, blood purification	decoction	1700
2	*Adiantum capillus-veneris* L.*	leaf	gastrointestinal, cold, fever and cough, flu, corona, prevent hair loss, its poultice for swelling of the testicles	decoction, infusion, poultice	1701
3	*Allium jesdianum* Boiss. & Buhse*	leaf	excretion of kidney stones	decoction, infusion	1702
4	*Aloe vera* (L.) Burm.f.	leaf	strengthening the skin and purifying the blood	edible and raw	1703
5	*Aloysia citrodora* Paláu	leaf	balancing, relaxing, relieving headaches	infusion	1704
6	*Althaea officinalis* L.*	leaf, flower, root (each separately)	treatment of asthma, bronchitis, muscle nerve, cold with symptoms of fever and cough, influenza, corona, lubricant, pulmonary, antibacterial, pain reliever for general body pain, useful for sore throat, skin diseases	decoction, infusion, poultice	1705
7	*Anethum graveolens* L.*	leaf	blood fat reducer, wind breaker, hiccups relief	edible	1706
8	*Apium graveolens* L.*	leaf	treatment of rheumatism, stone breaker, fat burner and anti-migraine	edible	1707
9	*Arctium lappa* L.*	leaf, flower (each separately)	blood purification, slimming, prevent hair loss	infusion	1708
10	*Avena sativa* L.*	seed	rich in vitamins and fiber, weight loss control, rich in antioxidants	powder	1709
11	*Borago officinalis*	fruit	headache, cold with symptoms of fever and cough, influenza, sedative, lubricant, anti-hot flush, aid in digestion, help in the treatment of premature ejaculation, hypnotic, increase in blood pressure, pulmonary, head, sedative, cold with fever and cough, blood purifier, heart booster and nerve tonic, anti-bronchitis, anticonvulsant, kidney blockage, pulmonary, blood purifier, nerve tonic, diuretic, kidney swelling	decoction, infusion, distillate, poultices	1710
12	*Camellia sinensis* (L.) Kuntze	leaf	relaxing, cold, slimming and fat burning, digestion and bile, headache, blood purification, strong antioxidant, cancer treatment, slimming, platelet anti-adhesion, blood pressure reducer	infusion	1711
13	*Cassia angustifolia* Vahl	leaf	lubricant, pulmonary, fatty liver cleansing, amenorrhea and increased bleeding	infusion	1712
14	*Cichorium intybus* L.*	leaf, flower (each separately)	fever and liver and kidney diseases, liver, strengthening sexual powers, eliminating jaundice, facial acne	decoction, distillate	1713
15	*Cinnamomum verum* J.Presl	stem	cold with symptoms of fever and cough, mild and warming, relaxing, diabetes, joint pain, blood purifier, energizing, stomach tonic, warming, anti-humidity, general body pain, fatty liver, pulmonary, headache, cancer treatment, anti-inflammatory, slimming	infusion, powder, distillate, food seasoning, food	1714
16	*Conium maculatum* L.	seed	anti-epileptic, treatment of intestinal disease, rheumatic, sedative, cold with symptoms of fever and cough, influenza, accelerating the shedding of smallpox and measles seeds, hypnotic and invigorating, antibacterial, cooling	infusion, decoction, powder, distillate, seasoning, food	1715
17	*Cordia myxa* L.*	fruit	cold with symptoms of fever and cough,	infusion	1716

No	Scientific name	Part used	Usage	Preparation	Voucher No.
			flu; coronavirus		
18	*Coriandrum sativum* L.	leaf	morrissey's disease (nerve disease that leads to hair loss).		1717
19	*Crataegus azarolus* L.*	flower, seed (each separately)	cardiovascular and biliary disorders	infusion, distillate	1718
20	*Cuminum cyminum* L.*	seed	gastrointestinal infection, slimming (black cumin), digestive (cumin), amenorrheal, urinary tract infection, anti-lipidemia, warm temperament, rheumatic, increased appetite, anti-bloating, improving digestion, anti-spasm, worm, diarrhea and heart piche, breast milk booster	decoction, food, distillate, tincture, essential oil	1719
21	*Cuprella homalocarpa* (Fisch. & C.A.Mey.) Salmerón-Sánchez, Mota & Fuertes*	root, fruit (each separately)	cold with symptoms of fever and cough, allergy, shortness of breath, hoarseness, dry cough	infusion	1720
22	*Curcuma longa* L.	root	cancer treatment, wound treatment, anti-inflammatory, asthma, alzheimer's, rheumatoid arthritis treatment, fatty liver treatment, warm and moist nature	infusion, powder, seasoning, food consumption	1721
23	*Descurainia sophia* (L.) Webb ex Prantl*	seed	lung, liver and kidney, complete body purification, constipation, gastrointestinal, lubricant, thirst quencher, hot and humid nature, cold with symptoms of fever and cough, flu, beneficial for the digestive system but harmful for gastritis, blood purification, brightens the skin of the body and face, relieves fatigue and removes toxins from the body, cleanses the liver, with hot water (treatment of constipation), cold water (treatment of diarrhea)		1722
24	*Dracocephalum officinalis* (L.) Y.P.Chen & B.T.Drew*	flower, root (each separately)	colds with symptoms of fever and cough and sore throat, flu, corona, rheumatic fever, muscle pain, increased blood circulation, strengthening the immune system, sedative, anti-allergic	infusion, decoction, extract, distillate, syrup, incense, poultice	1723
25	*Dracocephalum royleanum* Benth.*	seed	lubricant, cold with symptoms of fever and cough, pulmonary, headache, relaxing, anti-allergic, blood purification, analgesic, strengthening the immune system	infusion, soaked, decoction, powder, syrup	1724
26	*Echinops pungens* Trautv.*	flower	anti-cough, clearing voice and treatment of constipation	infusion, powder	1725
27	*Elettaria cardamomum* (L.) Maton	seed	headache, sedative, cold with symptoms of fever and cough, anti-flatulent and stomach tonic, anti-nausea and stomach pain reliever, general body tonic, anti-allergic, blood purification, cancer treatment	infusion, decoction, powder, distillate, seasoning, food, syrup, oil	1726
28	*Eryngium billardierei* F.Delaroche*	flower	reducing blood sugar, purifying blood, reducing heart attack	infusion	1727
29	*Ferula assa-foetida* L.*	fruit	head, cold with symptoms of fever and cough, flu, blood purification, anti-microbial, reducing chronic bronchitis, toothache, intestinal, pulmonary,	powder, seasoning, capsule, oil, decoction, poultice, infusion	1728

http://dx.doi.org/10.22108/tbj.2025.144121.1296

No	Scientific name	Part used	Usage	Preparation	Voucher No.
			lubricant, anti-allergic, blood purification, intestinal, anti-cancer, stomach germ		
30	*Ferula gummosa* Boiss.*	gum	pulmonary, antiseptic property, nervous disease, weakness of stomach and liver and spleen, head, sedative, cold with symptoms of fever and cough, flu, anti-allergic	poultice, flavoring, essential oil, infusion, powder, syrup, food	1729
31	*Foeniculum vulgare* Mill.*	seed	gastrointestinal, anti-allergic, blood purification, reducing menstrual pain, slimming, sore throat, sedative, regulating menstruation, anti-cough, relaxing, amenstrual, strengthening ovaries, colds with symptoms of fever and cough and sore throat, women's hormonal problems, amenorrhoeic, anti-flatulent, removal of cysts, lactation enhancer, reduction of bleeding, removal of excess hair, antibiotic, useful for the digestive system, removal of excess hair, slimming	decoction, infusion poultices, incense	1730
32	*Fumaria vaillantii* Loisel.*	seed, all parts (each separately)	gastrointestinal, cold with symptoms of fever and cough, gall bladder, liver, liver heat removal, blood purification, gum strengthening, anti-jaundice	infusion, decoction, distillate	1731
33	*Glycyrrhiza glabra* L.*	root	gastrointestinal, pulmonary, head, cold with symptoms of fever and cough, anti-bronchitis, nervous cough reliever, vision enhancement and expectorant.	infusion, decoction, distillate, poultices	1732
34	*Hibiscus sabdariffa* L.	flower	lowering blood pressure, blood sugar control, colds, fever and cough, liver, blood concentration	infusion	1733
35	*Hypericum perforatum* L.	flower	gastrointestinal, infection, kidney and liver anti-inflammation, treatment of children's nocturnal enuresis	infusion, oil	1734
36	*Juglans regia* L. *	leaf	reducing blood sugar, treating gout, treating arthritis	decoction	1735
37	*Lavandula angustifolia* Mill.	flower	treatment of headache and nervous disorders, gastrointestinal disorders, slimming and weight loss, cleansing the liver, treating wounds, reducing joint pain due to increased blood circulation.	infusion, distillate, decoction	1736
38	*Linaria vulgaris* Mill.	Flower	laxative, tonic, detoxification, anti-backache	distillate	1737
39	*Linum usitatissimum* L.*	seed	pulmonary, lubricant, anti-allergic, blood purification, slimming	powder, salad, poultice, seasoning, poultry	1738
40	*Malva sylvestris* L.*	flower	cold with symptoms of fever and cough, flu, allergy	infusion	1739
41	*Matricaria chamomilla* L.*	flower	gastrointestinal, pulmonary, headache, colds with symptoms of fever and cough, flu, cancer, menstruation, skin and hair, and allergies. also, this plant is used in isfahan city as a blood purifier, breast milk booster, antibiotic, hematopoietic, sedative, carminative and choleretic, anti-nausea, pain reliever and lubricant.	infusion, decoctions, distillate, combined poultices, incense	1740
42	*Medicago sativa* L.*	leaf, flower (each separately)	fattening, blood producing, bone supply, livestock and poultry feed	decoctions and raw	1741
43	*Melissa officinalis* L.*	leaf	gastrointestinal, sedative, cold with symptoms of fever and cough, influenza,	infusion, distillate, syrups, decoctions,	1742

No	Scientific name	Part used	Usage	Preparation	Voucher No.
			headache, anti-allergic, ringing in the ears, anti-inflammatory, raising blood pressure, hematopoietic, anticonvulsant, heart tonic, hypnotic	poultry	
44	*Mentha* × *piperita* L.*	leaf, flower (each separately)	gastrointestinal, the slimmer	infusion	1743
45	*Mentha longifolia* (L.) L.	leaf	stomach inflammation, reducing and treating respiratory disorders, fighting the effects of colds, treating diarrhea and heartache, strengthening the stomach, generating blood, relieving heartache and colic, gastrointestinal infection, relaxing, lubricating, intestinal, pulmonary, headache, cold with symptoms of fever and cough, flu, blood purification, bladder stone expeller and anti-nausea	infusion, decoction, distillate, powder, food	1744
46	*Mentha pulegium* L.*	leaf, flower (each separately)	appetizer, carminative, anti-diarrhea, hiccup reliever, relieves heartburn, anti-cough, expectorant, gastrointestinal infection, stomach warming, women's infection, gastrointestinal, pulmonary, cold with fever and cough symptoms, anti-allergic, relieves irritation stomach	decoction, infusion, powder	1745
47	*Myrtus communis* L.*	leaf	relieving skin diseases, itchy skin, removing the smell of sweat, removing parasites	decoction	1746
48	*Nigella sativa* L.*	seed	hair loss, rheumatism, rheumatic, pulmonary, head, sedative, cancer, pulmonary, general body tonic, anti-jaundice, blood sugar reducer, wind breaker and anti-spasm, cold with symptoms of fever and cough, flu, blood purification, blood sugar reduction, stomach and hair tonic, bone strengthening, sedative, muscle pain, gallstones	powder, salad, seasoning, food, tea, distillate, poultice, oil (joint pain and hair strengthening), lotion	1747
49	*Ocimum album* L.	seed	quenching thirst, helping bone health due to the presence of calcium, reducing stress levels, colds with symptoms of fever and cough, high in calcium, properties of fish and shrimp, maintaining body water, slimming, lubricant, high in iron, less mucilage, relieving constipation, blood purification, coolness, relief of eczema and skin itching, lung, headache, anti-allergy, bronchitis	syrup, infusion, decoction, poultice, livestock and poultry	1748
50	*Origanum majorana* L.	leaf, flower, root (each separately)	digestive diseases, anti-stress, anti-cancer, increase blood pressure, solve hormonal problems, pulmonary, head, sedative, flu, cold with symptoms of fever and cough, flu, sedative, sinusitis, anti-obsession, rheumatic, pulmonary, head, sedative, cold with symptoms of fever and cough, flu, anti-allergic, blood purification	decoction, distillate, syrup, incense	1749
51	*Panax ginseng* C.A.Mey.	root	strengthening the immune system and sexual powers, head, colds with symptoms of fever and cough, soothing	infusion, powder, capsule, tincture, extract, compote,	1750

http://dx.doi.org/10.22108/tbj.2025.144121.1296

No	Scientific name	Part used	Usage	Preparation	Voucher No.
			general body pains, relieving fatigue, tonic for thinking and memory.	pharmaceutical industry	
52	*Peganum harmala* L.*	seed	headache, sedative, cold with symptoms of fever and cough, flu, anti-allergic, blood purification, cancer	edible, poultice	1751
53	*Phoenix dactylifera* L.*	seed	gallstones		1752
54	*Pimpinella anisum* L.	seed, leaf, flower (each separately)	women's diseases, heartache and colic, rheumatic, lubricant, anti-allergic, blood purification, rheumatic, head, anti-allergic, pulmonary, relaxing, anti-flatulence	decoction, powder, distillate, poultice, incense	1753
55	*Plantago major* L.*	seed	gastrointestinal, lung lubricant for colds with symptoms of fever and cough and sore throat, flu, blood purification, cancer treatment, stomach cold, anti-allergy, insect bites, skin and hair health, sunburn	boil powder, poultice, syrup, decoction, decoction, peppermint distillate and pour the barhang into it, let it stay for 15 minutes, then use it.	1754
56	*Plantago ovata* Forssk.*	seed	constipation, treatment of menstrual discomfort, relief of inflammation, relief of rheumatism, cold with fever and cough and sore throat, flu, lung, blood purification, body cooler	infusion, decoction, soaked in water	1755
57	*Platanus orientalis* L.*	leaf	fattening, antipyretic, anti-asthmatic, nerve weakness and skin strengthening	decoction	1756
58	*Rhus coriaria* L.*	seed	blood purification, fat, sugar, blood pressure	powder, seasoning, food	1757
59	*Rosa* × *damascena* Herrm.	flower	calming, lubricating, sensitivity and itching and strengthening nerves, aromatic, strengthening the heart, strengthening the gums and gall bladder, treating constipation, rose oil to strengthen the sexual powers, pulmonary vein, headache	infusion, powder, distillate, golab, yogurt and buttermilk have a warm taste, seasoning	1758
60	*Rosa canina* L.*	flower	strengthening the nerves, stomach ache, relieving diarrhea, purifying the blood	decoctions, syrups, distillate	1759
61	*Salix aegyptiaca* Thunb.*	flower	strengthening the heart and nerves	distillate	1760
62	*Salix babylonica* L.*	flower	stomach strengthening, sedative, heart tonic and antipyretic	decoction	1761
63	*Salvia hispanica* L.	seed	epilepsy treatment, blood sugar, bone health, reducing the risk of heart disease, lowering blood pressure, lubricant, high calcium and omega-3, diabetes treatment, blood pressure regulation, appetite suppressant, weight loss,	decoction, infusion, syrup	1762
64	*Salvia hydrangea* DC. ex Benth.*	flower	gastrointestinal, flu, strengthening the immune system, gynecological disease (cyst)	infusion	1763
65	*Salvia officinalis* L.	flower	intestinal pulmonary, pulmonary, cold with symptoms of fever and cough, flu, antiseptic, blood sugar, anti-allergic, blood purification, antimicrobial	infusion, distillate, powder, incense, poultice	1764
66	*Salvia rosmarinus* Spenn.	leaf	sedative, flu, headache (oil), cold with symptoms of fever and cough, flu, hair loss, aid in digestion, anti-allergic	oil, tincture, essential oil, tea, distillate, tea, powder, salad, poultice,	1765

No	Scientific name	Part used	Usage	Preparation	Voucher No.
				incense, seasoning, food, food, syrup	
67	*Satureja hortensis* L.	leaf	enhance sexual power, treat gout, anti-diarrhea, digestive, anti-parasitic	edible	1766
68	*Silybum marianum* (L.) Gaertn.*	flower, seed (each separately)	hepatic, blood purification, fatty liver treatment	infusion, distillate	1767
69	*Stachys inflata* Benth.*	leaf, stem (each separately)	cold with symptoms of fever and cough, flu, women's infection	decoction	1768
70	*Stachys lavandulifolia* Vahl*	leaf, flower (each separately)	sedative, gastrointestinal, infection	infusion	1769
71	*Syzygium aromaticum* (L.) Merr. & L.M.Perry	leaf, flower, seed (each separately)	stomach problems, toothache, stomach tonic, anti-nausea, febrifuge, amenorrhea, strengthening women after childbirth, elimination of body toxins.	infusion, powder, seasoning, decoction	1770
72	*Thymus vulgaris* L.*	leaf, flower (each separately)	intestinal, pulmonary, head, sedative, cold with symptoms of fever and cough, flu, anti-allergic, digestive, anti-inflammatory, menstrual problems and cleansing the uterus.	infusion, powder, seasoning, decoction	1771
73	*Trachyspermum ammi* (L.) Sprague*	seed, flower (each separately)	intestinal, anti-allergic, cancer treatment, gastrointestinal, pulmonary, cold with symptoms of fever and cough, flu, antiparasitic, anti-inflammatory, blood purification, diarrhea, stomach antiseptic, paralysis and tremors, has male hormone. for heartache and heartache, slimming, removing the side effects of addiction	decoctions, powders, distillate, infusions, poultices, syrups, incense, powders, oils (joint pain and hair strengthening)	1772
74	*Tribulus terrestris* L.*	flower	intestinal, cardiac, antidiabetic, kidney stones	infusion	1773
75	*Trigonella foenum-graecum* L.*	leaf, stem, flower (each separately)	reducing blood sugar, fattening, hair strengthening, ruddy, sedative, cancer prevention, especially cancer of the gastrointestinal tract, neck, uterus and breast in women.	food, infusion, decoction, powder, distillate, food	1774
76	*Urtica dioica* L.*	leaf, root (each separately)	reduces blood sugar, relieves shortness of breath, strengthens gums, tonsillitis, reduces blood sugar, relieves shortness of breath, anemia, reduces inflammation, slimming	infusion, distillate, decoctions	1775
77	*Valeriana officinalis* L. *	root	headache, sedative, hypnotic, neurodiabetes, anti-anxiety, hypnotic, nerve pain reliever and anti-depressant, fever reducer, cardiovascular diseases, anti-hysteria	infusion, distillate, decoctions, syrups, pills	1776
78	*Vitex agnus-castus* L.*	seed, root, flower (each separately)	headache, lubricant, regulation of menstruation, ovarian cyst, rheumatic, cancer, ovarian cyst, cancer treatment, regulation of menstruation, uterine and breast cyst	decoctions, infusion, incense	1777
79	*Zataria multiflora* Boiss.*	leaf, flower (each separately)	gastrointestinal, pulmonary, headache, cold with cough symptoms, flu, cancer treatment, antibacterial, antimicrobial, anti-inflammatory, vision problems	infusion, powder, distillate, syrup, incense, poultice, food, hot and cold compresses	1778
80	*Zingiber officinale* Roscoe	rhizome	headache, blood purification, respiratory tract of colds with symptoms of fever and cough, flu, warming, joint pain, anti-nausea, anti-jaundice and useful for colds, strengthening intelligence and memory, reducing blood cholesterol.	infusion, decoction, powder, ditillate, seasoning, infusion, decoction, syrup	1779
81	*Ziziphora clinopodioides* Lam.*	flower, stem, leaf (each separately)	relieving indigestion, strengthening vision, antiseptic for respiratory tract, body pain, rheumatic, head, sedative, cold with symptoms of fever and cough, flu, anti-flatulence, antiseptic, antibacterial	infusion, decoction, distillate, syrup, seasoning, food, incense, seasoning	1780
82	*Ziziphus jujuba* Mill.	fruit	cold with symptoms of fever and cough, flu, corona, blood purification	infusion, edible	1781

* Native of Iran

http://dx.doi.org/10.22108/tbj.2025.144121.1296