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AN ETHNOBOTANICAL STUDY ON THE KNOWLEDGE OF PEOPLE IN ALAMUT REGION, QAZVIN PROVINCE, IRAN

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ABSTRACT

An ethnobotanical survey was conducted from May 2009 to September 2011 in the villages adjacent to the Ovan Lake in Alamut region, 75km northeast of Qazvin city, Qazvin province, Iran. The survey was aimed to identify the indigenous knowledge about the traditional and medicinal usages of the plants growing in the region. The general pharmacopoeia among the Ovan's peoples was examined and recorded by means of standardized interviews, especially with housewives and elder lies assumed to have a rich knowledge about the plants. A total of 129 plant species, belonging to 40 families and103genera were found to be extensively used by local inhabitants for various purposes such as fuel, furniture, fodder, making baskets and mats, brushing teeth, vegetables, edible fruits and in the last resort medicinal uses. The documented medicinal plants were applied to treat a wide spectrum of syndrome and diseases, from common cold to cancer, many of which were justified by recent scientific surveys.

Keywords: Economic botany, indigenous, popular pharmacopoeia, medicinal plants, Ovan Lake.

INTRODUCTION

Term "ethnobotany", for the first time, was coined by John Harshberger in 1896 to delimit a specific field of study, as "the use of plants by aboriginal peoples" (Harshberger, 1896). Historically, the indigenous people live closely with nature and have a Cosmo centric view of life, *i.e.* a set of values and beliefs to celebrate and respect the mother Earth and live in balance with nature. As a result, a vast knowledge about the properties of various plant species, in addition to other natural elements, were gathered and accumulated by local people. The traditional healers in the indigenous cultures are whom responsible for the collection, retention, and education of the age-old healing knowledge that hold countless benefits for our health and wellness (Pesek et al., 2005). The use of traditional medicine and medicinal plants in most developing countries, as a normative basis for the maintenance of good health, has been widely observed (UNESCO, 1996).

Iran is a geographically a diverse country, with an area of 1,648,195 square

kilometers. The natural landscape of Iran included two mountainous belts, *i.e.* Alborz Mts. and Zagros Mts., a large central desert, and fertile plains, adjacent to the mountain ranges, in north, west, south, east and center of the country. Iran has a high floral diversity with more than 8000 vascular plant species (Ghahremaninejad et al., 2017), around 2600of which were endemic to the country (Noroozi et al., 2019).

Iran has been continuously inhabited ever since the Paleolithic period (Farhadi 1998), therefore, a rich history in the herbal medicine and traditional healthcare was developed through the time. Generation after generations, Iranian people accumulated pieces of knowledge about the local plants either by inheritance of their ancestors' knowledge, or by their own experiments based on methods such as trial and error (Ghahremaninejad & Hoseini, 2015). For more than 40 millennia, people of Iran have tried the properties of the plants thrived in the environment to find useful sources of food, medicine, fiber, timber, dye, forage and other cultural and economic means (Naghibi et al., 2005;Otte et al., 2007). Nowadays, plants are in use by the indigenous peoples of Iran, as a frequent and widespread phenomenon.

Ovan (also known as Evan) Lake is a small alpine lake in Alamut region, located at southern slopes of Alborz Mountain Range, in Qazvin province of Iran. The coordination of the lake, at its central point, is 36°28'5898"N and 50°26'3739"E. The lake is directly fed by Ovan River, flowing down from the Alborz Mountain in north. The north of the lake is also surrounded by three small villages, namely, from east to west, Varbon, Ovan and Zarabad. The combined population of the aforementioned villages is less than 1200. However, the area attracts thousands of tourists every year due to the presence of attractive natural sites, including the beautiful mountainous landscape and the lake itself, as well as local dishes, religious traditions and historic sites.

The area is also famous for its agricultural products such as bean, mungbean, barely, wheat, alfalfa and cucurbits, as well as fruits such as hazel, cherry, almond, cherry, apricot, and medlar. In addition, people of the region utilize their vast knowledge about the wild plants thriving in their environment to collect useful plants, mainly for the preparation of food and medicines. While modern healthcare and synthesized drugs have their own place in the everyday life of the local people, they usually combine modern medicinal procedures with traditional treatments. Traditional treatments include the general pharmacopoeia used mostly for self-treatment of common ailments such as fever and diarrhea, and specialized pharmacopoeia practiced under the supervision of traditional healers mainly for treating complex health problems.

This paper aims to describe the popular use of culinary, medicinal, economic and other sorts of plant usages by the people of Ovan, supplemented with notes about their domestic importance.

MATERIAL AND METHODS

This study followed the field techniques and methodologies which were well-described in papers previously published by Betti (1994),Betti and Lejoly (1999) and Betti and Van Essche (2001) in order to gathering data about the extent and frequency of the medicinal plants used in folk science of the residents of Ovan region.

Following the method, the pieces of data were obtained from direct interviews with the local people, conducted from May to September 2011 in the Alamut area. Adult women and elderlies were more frequently consulted, as they usually knew the plants and their properties better than other groups. There was no problem in

communication with the locals and the interviews were conducted directly by the third author. Standardized questionnaires have been used to collect data about the medicinal plants, their useful parts, their preparation methods and the ailments which were treated by them. The vernacular names of the plants were also recorded.

All the specimens were collected by the third author by following the standard botanical procedure (Ghahremaninejad & Hoseini, 2016) and subsequently identified according to the related literature (Assadi *et al.* 1988-2018; Rechinger 1963-2015).

Voucher specimens are kept at the herbarium of Kharazmi University (T).The herbarium acronyms follow *Index Herbariorum* (Thiers, continuously updated).The circumscription of the taxa mentioned in the present study as well as their authors are based on International Plant Names Index (IPNI, 2019). Persian names are based on Mozaffarian (1996) and Parsa (1960).

RESULTS & DISCUSSION

The diverse geographical and climatic condition of Qazvin Province (Iran) lead to a diverse vegetation, exploited by local people. The historical relationship between people and plants in Qazvin Province, and especially in Alamut region and Ovan area is traditionally strong. Hashashins (a.k.a. Assasins in western literature) were the eastern branch of Ismaili religio-political movement, centered in Alamut. It was said that their main source of income was gathering, planting, processing and dealing medicinal herbs (Bassil, 2007). Therefore, various studies were focused on the ethnobotanical knowledge of the local people in the region, the most notable of which were as follows.

Ahvazi and colleagues (2007) studied the knowledge of Alamut residents about the medicinal properties of species belong to Rosaceae and Lamiaceae families. Ahvazi and colleagues (2012) documented the usages of 16 plant species in the Alamut region. Maghsoudi and Salehi (2015) studied the ethnobotanical knowledge of Ovan region and recorded the medicinal and culinary usage of about 60 plants.

In this study, 129 plant species, belong to 40 families and 103 genera, were collected and found to be of great importance in the daily life, healthcare and well-being of the residents of Ovan (Table 1). The plant families were as follows (in alphabetical order) Amaryllidaceae (2 species), Apiaceae (14 species), Aristolochiaceae (1 species), Asteraceae (20 species), Berberidaceae (1 species), Boraginaceae (2 species), Brassicaceae (8 species), Campanulaceae (1 species), Capparaceae (1 species), Caryophyllaceae (5 species), Chenopodiaceae (1 species), Convulvulaceae (1 species), Corylaceae (1 species), Elaeagnaceae (2 species), Euphorbiaceae (1 species), Fabaceae (12 species), Geraniaceae (1 species), Hypericaceae (1 species), Iridaceae (1 species), Juglandaceae (1 species), Lamiaceae (7 species), Liliaceae (1), Malvaceae (3 species), Nitrariaceae (1 species), Papaveraceae (5 species), Plantaginaceae (1 species), Poaceae (1 species), Podophyllaceae (1 species), Polygonaceae (6 species), Portulacaceae (1 species), Ranunculaceae (1 species), Rhamnaceae (1 species), Rosaceae (13 species), Rubiaceae (1 species), Salicacea (3 species), Scrophulariaceae (1 species), Solanaceae (1 species), Urticaceae (1 species), Violaceae (1 species) and Vitaceae (1 species), of which plant families Asteraceae, Apiaceae, Rosaceae and Fabaceae were found to be the most extensively used by Ovan people. Most widely used genera were *Rumex* (Polygonaceae, 4 species), *Prangos* (Apiaceae, 3 species), *Vicia* (Fabaceae, 3 species), *Alcea* (Malvaceae, 3 species), *Cerasus* (Rosaceae, 3 species) and *Salix* (Salicaceae, 3 species).

The usages of plants in Ovan areas could be categorized into 6 groups, *i.e.* edible, economic, medicinal, ritual, forage crop and fuel. Among the 129 species recorded in the current ethnobotanical survey, 91 were edible, 89 were of medicinal importance, 28 species were used as forage crops, 16 species had economic applications,8 species were used in rituals and ceremonies and 4 species were used as fuel; it should be noted that each species could have several usages simultaneously.

The current ethnobotanical study in the Ovan area aimed to understand how rural people take care of their healthcare and improve their daily life with plants. The medicinal properties of many of plants which Ovan people assumed to be effective against certain ailments and maladies were proved by various scientific studies. The examples are as follows:

1. The tonic and nourishing effects of *Echinophora sibthorpiana*, especially for sheep and cows were found to be due to the presence of δ-3-carene, methyleugenol, and α-phellandrene in its essential oil (Özcan & Akgül, 2003).
2. The methanol extract of *Grammosciadium platycarpum* showed one of the highest level of free radical scavenging activity among the herbal extracts (Nazemiyeh et al.,2009).
3. The medicinal properties of *Heracleum persicum* were extensively examined by various studies and anti-microbial, anti-septic and other therapeutic effects of its extract were stressed (Hemati et al., 2010).
4. The tonic properties of *Prangos* spp. was attributed to its richness in minerals (Coşkun et al., 2004).
5. It was shown that extracts of *Prangos uloptera* has a strong antibacterial properties against *Staphylococcus aureus* and *Bacillus subtilis* (Razavi et al., 2010) and its arial parts and roots contain coumarin which has a considerable anticoagulative and antioxidant property (Razavi et al., 2008).
6. The hepato-protective and anti-inflamatory effects of the extract of *Zosima absinthifolia* were reported (Bahadir et al., 2010).
7. It was shown that he extract of *Achillea wilhelmsii*is full of flavonoids and sesquiterpene lactones, which have been shown to be effective in lowering blood lipids and hypertension (Asgary et al., 2000).
8. The flavonoid-containing total extract of *Anthemiscotula* flowers showed interesting antimicrobial activity against both gram-negative and gram-positive microorganisms (Quarenghi et al., 2000).
9. The extract of *Tanacetum parthenium* showed significant analgesic, anti-inflammatory, antipyretic, antispasmodic and uterine-stimulant activities, in addition to its cytotoxic effects in vitro (Rateb et al., 2007).
10. It was shown that the extract of *Centaurea depressa* has antioxidant effects and scavenging properties (Hosseinimehr et al., 2007).
11. A close relative of *Berberis vulgaris, i.e.B. integerimma* Bunge, was shown to possess antibacterial properties (Alimirzaee et al., 2009).
12. The medicinal properties of *Salix* spp. were well-known to science, especially as the traditional source for salicin, the precursor of Aspirin (Mahdi, 2010).

The cultural role of plants in Ovan region was found to be impressive. Plants were used in occasions and ceremonies, in new year festivals, weddings and funerals. Some, such as *Peganum harmala* and *Heracleum persicum* were believed to prevent whammy, some others such as

Centaurea depressa, which was used to make necklaces for young couples, *Scariola orientalis* and *Helichrysum oligocephalum* were believed to bring happiness and good luck. The Ovan people made species dishes of *Capparis spinosa* to wish joy and happiness in the new year. Serving date (the fruit of *Phoenixdactylifera*, not grown in the region and excluded from the final assessment) in funerals is considered to ease the pain of the mourners. Plants play they role even in the lives of new-borns in Ovan, as the fruits of *Bongardia chrysogonum* were traditionally used in making baby rattles. From birth to death, Ovan people show their attraction and respect to the plants growing in their neighborhood. However, this particular relationship was found to be stronger in elderlies than the younger generations. The gradual reduction in the knowledge about the plants and the extent of their usage in youngsters should be addressed, and further studies to gather a more inclusive data set about the plants and their applications in Qazvin Province could be strongly recommended.

Table1: Plants collected from villages of Ovan region and their ethnobotanical applications according to the local people

No.	Family	Scientific name	Persian name	Local vernacular name	Properties	Part(s) used	Using method
1	Amaryllidaceae	*Alliumakaka* S.G. Gmelin ex Roem. & Schult.	Valak	Sirak	edible, medicinal, ritual; tonic, hypolipidemic and antihypertensive, used routinely to prevent circulatory problems and stroke, as well as treating cold, sore throat and other infections	bulbs and aerial parts	raw, dried, baked with rice, vegetable cutlet
2	Amaryllidaceae	*Allium schoenoprasum* L.	Piaw-e Kuhi	Atek	Edible	aerial parts	baked in soup, with rice and lamb stew
3	Apiaceae	*Coriandrum sativum* L.	Geshniz	Geshniz-e Vahshi	edible, medicinal; anxiolytic, used to treat insomnia	aerial parts	baked in vegetable cutlet, soup, vegetable bread and with rice
4	Apiaceae	*Diplotaenia cachrydifolia* Boiss.	Kozal	Bu Vash	forage crop, positively affect the scent and quality of the	aerial parts	raw

					milk and flesh of livestock		
5	Apiaceae	*Echinophora sibthorpiana* Guss.	Khusharizeh-e Moattar	Kalam Bu	forage crop, positively affect the scent and quality of the milk of livestock, increase the livestock weight	aerial parts	raw
6	Apiaceae	*Eryngium caucasicum*Fisch. ex Steud.	Chuchagh	Shushagh	edible, medicinal; spasmolytic, used to treat kidney and digestive system problems	aerial parts	baked and blended with yogurt
7	Apiaceae	*Falcaria vulgaris* Bernh.	Ghaziaghi	Vanak, Venak	edible, medicinal; antibacterial, used to treat digestive system problems and stomachache	aerial parts, seeds	raw, baked in in vegetable cutlet, soup and with rice
8	Apiaceae	*Ferula persica* Willd. var. *persica*	Koma-ye Irani	Kuveh Zang	forage crop, positively affect the scent and quality of the milk of livestock, increase the livestock weight	aerial parts	raw
9	Apiaceae	*Foeniculum vulgare* Mill.	Razianeh	Razianeh	edible, medicinal; ??	aerial parts, seeds	raw, baked in in vegetable cutlet, and with rice
10	Apiaceae	G*rammosciadium platycarpum* Boiss. & Hausskn.	Shevid-e Kuhi	Quainak	edible, medicinal; diuretic, carminative, tonic, used to prevent stomach problems	aerial parts	baked in vegetable cutlet, and with rice
11	Apiaceae	*Heracleumpersicu*	Golpar	Golpar	edible,	vegetati	dried,

		m Desf. ex Fischer			medicinal, ritual; carminative, lipotropic, suitable for treating stomachache	ve aerial parts, seeds	mixed with yogurt, pickle, rice, bean and stew
12	Apiaceae	*Prangos ferulacea* (L.) Lindl.	Jashir	Jashir	forage crop, positively affect the scent and quality of the milk of livestock, increase the livestock weight, deodorizatio n of animal oils	aerial parts	raw
13	Apiaceae	*Prangos pabularia* Lindl.	Jashir	Jashir	forage crop, positively affect the scent and quality of the milk of livestock, increase the livestock weight, deodorizatio n of animal oils	aerial parts	raw
14	Apiaceae	*Prangosuloptera* DC.	Jashir, Vayeh	Vayeh	forage crop, positively affect the scent and quality of the milk of livestock, increase the livestock weight, deodorizatio n of animal oils	aerial parts	raw
15	Apiaceae	*Scandix pecten-veneris* L.	Shane-venus	Hil-e Sahraee	Edible	aerial parts	baked in vegetable cutlet, soup, and with rice
16	Apiaceae	*Zosima absinthifolia*Link	Gwatk	Engeram	forage crop, edible, medicinal;	aerial parts, fruits	raw, dried, used as

					hepatoprotective, anti-inflammatory		spice
17	Aristolochiaceae	*Aristolochiabottae* Jaub. & Spach	Chopoghak	Lubia Tork	edible; mucilaginous, thickener	aerial parts	baked in soup and vegetable stew
18	Asteraceae	*Achilleawilhelmsii* C. Koch	Bumadaran	Bumadaran	forage crop, edible, medicinal; styptic, anthelmintic, suitable for treating cold, fever, irregular menstruation, insomnia, acne, migraine, neuralgia and rheumatism	flowers	raw, herbal tea and essence
19	Asteraceae	*Anthemis cotula* L.	Babuneh	Babuneh	forage crop	aerial parts	raw
20	Asteraceae	*Anthemis triumfettii*All.	Babuneh	Babuneh	forage crop	aerial parts	raw
21	Asteraceae	*Carduus pycnocepalus* L.	Tatari	Outif	forage crop, edible (young leaves)	aerial parts	raw, baked in soup and with rice
22	Asteraceae	*Carthamus tinctorius* L.	Golrang	Gol Zard	Edible	flowers	used as spice in soup and on bread
23	Asteraceae	*Centaurea depressa* M.Beib.	Gol-e Gandom	Vash	ritual, medicinal; used for treating typhoid; used in making ceremonial necklace	flowers	raw and dried, aquatic extract
24	Asteraceae	*Centaurea solstitialis* L.	Gol-e Gandom	Shiraki	forage crop	aerial parts	raw
25	Asteraceae	*Cichorium intybus* L.	Kasni	Kasni, Khar Chook	medicinal; used for treating sore throat, vomiting, flushing, skinrash, acne, constipation, hemo-	leave, roots	raw, dried, aquatic extract

					concentration, visual problem, smoothing of lips, cholecystitis and lotfoot		
26	Asteraceae	*Cirsium hygrophilum* Boiss.	Kangar	Kangar	edible, medicinal; anti-rheumatism, hypolipidemic	aerial parts, roots	raw, dried, baked in a vegetable stew
27	Asteraceae	*Helichrysum oligocephalum* DC.	Gol-e Bimarg	Gol-e Namir	edible, ritual; believed to bring good-omen and happiness to newlyweds and prevent whammy	aerial parts, flowers	raw
28	Asteraceae	*Scariola orientalis*(Boiss.) Sojak	Gav Chaghkon	Gav Chaghkon	forage crop, edible, ritual; believed to bring good-omen and happiness to newlyweds and prevent whammy	aerial parts, flowers	raw
29	Asteraceae	*Scorzonera calyculata* Boiss.	Sheng-e Asbi	Sheng	utility; used as firewood	aerial parts	raw
30	Asteraceae	*Sonchus asper* (L.) Hill	Shir Tighak	Shiraki, Tif Dar	forage crop	aerial parts	raw
31	Asteraceae	*Tanacetum parthenium* (L.) Schultz-Bip.	Babuneh Gavi	Bumadaran	medicinal; skin-softener, hair-polisher, used for treating hair loss, common cold and sore throat	aerial parts, flowers	dried, powdered, aquatic extract, vapor
32	Asteraceae	*Tanacetum polycephalum* Schltz-Bip.	Mina	Bumadaran	forage crop, edible, medicinal; styptic, anthelmintic, suitable for treating cold, fever, irregular menstruation	flowers	raw, herbal tea and essence

					, insomnia, acne, migraine, neuralgia and rheumatism		
33	Asteraceae	*Taraxacum montanum* (C.A.Mey.) DC.	Ghasedak	Shiraki	forage crop, medicinal; diuretic, pain killer, anti-cancer, used in treating bile and liver problems	aerial parts	raw, aquatic extract,
34	Asteraceae	*Tragopogon buphthamoides* (DC.) Boiss.	Sheng	Sheng	edible, medicinal; used in treating stomachache	aerial parts	raw, baked with rice
35	Asteraceae	*Tragopogon graminifolius* DC.	Sheng	Sheng	edible, medicinal; used in treating stomachache	aerial parts	raw, baked with rice
36	Asteraceae	*Tripleurospernum disciforme* (C.A.Mey.) Schultz-Bip.	Babuneh Kazeb	Darzan Kik	medicinal;tranquilizer, skin-softener, hair-polisher, used for treating hair loss, headache and sore throat, suitable for GI disorder	flowers	raw, dried, powdered, aquatic extract
37	Asteraceae	*Willemetia tuberosa* Fisch.	-	Sorkhe Shalvarak	edible; mucilaginous, thickener	aerial parts	baked in soup and vegetable cutlet
38	Berberidaceae	*Berberis vulgaris* Bunge	Zereshk	Bi Alask	edible, medicinal; anti-cancer, hypolipidemic, blood-purifier, used in treating hypertension	fruits	raw, dried, pickled, baked with rice
39	Boraginaceae	*Anchusa italica* Retz.	Gavzaban	Gol-e Gavzaban	edible, medicinal; anxiolytic, tonic, used in treating headache, stomach	flowers, leaves	dried, aquatic extract, baked in vegetable cutlet

					pain, common cold		
40	Boraginaceae	*Echium amoenum* Fisch & C.A.Mey.	Gol-e Gavzaban-e Irani	Gol-e Gavzaban	edible, medicinal; anxiolytic, tonic, used in treating headache, stomach pain, common cold	flowers, leaves	dried, aquatic extract, baked in vegetable cutlet, borani
41	Brassicaceae	*Aethionema grandiflorum* Boiss. & Hohen.	Atashin	Qalandar, Chay-e Kuhi	edible, medicinal; tranquilizer, used in treating hypertension	flowers	herbal tea
42	Brassicaceae	*Barbarea plantaginea* DC.	Tartizak	Ravulak	medicinal; used in treating anthrax and other skin ulcers	aerial parts	poultice
43	Brassicaceae	*Capsella bursa-pastoris* (L.) Medicus	Kiseh Keshish	Qalach Bek	edible, medicinal; analgesic, used in treating stomachache	aerial parts	herbal tea, baked in soup and with rice
44	Brassicaceae	*Cardaria draba* (L.) Desv.	Ozmak	Aardaki	medicinal, economic; used as firewood	aerial parts	raw, dried
45	Brassicaceae	*Descurainia sophia* (L.) Schur.	Khakshir-e Irani	Khakshi	edible, medicinal; laxative, tonic, used in treating constipation and heat stroke	seeds	raw, mixed in syrup (herbal cold drink)
46	Brassicaceae	*Lepidium perfoliatum* L.	Tartizak	Vash	Edible	leaves	baked in soup and with rice
47	Brassicaceae	*Lepidium sativum* L.	Shahi	Tartizak	edible, medicinal; appetizer, blood-purifier, anti-flatus	leaves	raw, herbal tea
48	Brassicaceae	*Nastartium officinale*R.Br.	Bulaqoti, Alaf-e	Aab Tareyi	edible, medicinal;	aerial parts	raw, herbal tea,

			Cheshme		analgesic, used to lowering blood pressure and treating kidney stone, colic pain, diabetes and mouth malodor		baked in borani
49	Campanulaceae	*Mindium laevigatum* (Vent.) Rech.f. & Schiman-Czeika	Gol Shekafteh	Shekar Le Le	edible, medicinal; suitable for kidney and neurologic problems	aerial parts	raw
50	Capparaceae	*Capparis spinosa* L.	Kabar, Kavar, Alaf-e Mar	Kamar Gol	edible, ritual, medicinal; used in special dishes to bring good omen in new year, suitable for treating rheumatic musculoskeletal pain and stomachache	flowers	raw, dried, pickled, baked
51	Caryophyllaceae	*Cerastium perfoliatum* L.	Daneh Morgh	Roghan Tare	Edible	leaves	baked in various stews, specially lamb stew
52	Caryophyllaceae	*Holosteum umbellatum* L.	-	Roghan Tare	Edible	leaves	baked in various stews, specially lamb stew
53	Caryophyllaceae	*Lepyrodiclis stellaroides* Schrenk ex Fisch. & C.A.Mey.	Jo Gandomak	Bal Bon Butak, Lu Tarak	edible; sweet and mucilaginous	leaves	baked in various stews, specially lamb stew
54	Caryophyllaceae	*Silene conoidea* L.	Silen, Magas-Gir	Shirin Tarak	Edible	leaves	baked in soup and with rice
55	Caryophyllaceae	*Stellaria media* (L.) Cyr.	Gandomak	Papu Tarak	edible; sweet and mucilaginous	leaves	baked in various stews, specially lamb stew
56	Chenopodiaceae	*Chenopodium*	Salmak,	Salme Tarak	edible,	aerial	herbal tea,

		album L.	Salme Tareh		medicinal; carminative, laxative, suitable for treating gastric and respiratory system problems	parts	baked in soup, vegetable cutlet and with rice
57	Convulvulaceae	*Convolvulus arvensis* L.	Pichak	Gusale Kak	forage crop	aerial part	raw
58	Corylaceae	*Corylus avellana* L.	Fandogh	Fandogh	edible, medicinal; tonic, suitable for hair and treating abdominal pain, spasm and colic	fruits, leaves	raw, dried, roasted, powdered
59	Elaeagnaceae	*Elaeagnus angustifolia* L.	Senjed	Senjed	ritual, edible, medicinal; tonic and energizer, used for treating cold as well as bone and joint pain	fruits, seeds	raw, powdered
60	Elaeagnaceae	*Hippophae rhamnoides* L.	Senjed-e Talkh	Kum	economic, edible, medicinal; suitable for treating bone and leg pain, scalp ringworm	roots, aerial parts, fruits, sap	raw , jam
61	Euphorbiaceae	*Euphorbia* sp.	Farfion	Vash	edible, medicinal; used for treating foot corns	leaves, sap	raw, baked in vegetable cutlet and with rice
62	Fabaceae	*Astragalus microcarpus* DC.	Gavan	Gavanm Katira	forage crop, edible, medicinal (gum); thirst quencher, suitable for hairs and skin	all parts, gum	raw and dried to make fire, build houses and walls (cob); gum: used as natural shampoo, hair gel and skin

							cream
63	Fabaceae	*Astragalus* sp.	Gavan	Vash	medicinal; used for treating ulcer and blister of foot	flowers, fruits	poultice
64	Fabaceae	*Glycyrrhiza glabra* L.	Shirin Bayan	Shir Mukha	medicinal; suitable for treating gastric ulcer pain, bowel fluctuation, intestine spasm, foot and hand traumatic pain and rheumatism	aerial parts, roots, sap	raw, dried, powdered, juice, herbal tea
65	Fabaceae	*Medicago sativa* L.	Yonjeh	Kor Yonjeh	forage crop, edible, medicinal; tonic, suitable for treating bleeding ulcers	aerial parts, sap	raw, baked in various stews
66	Fabaceae	*Melilotus officinalis* (L.) Desr.	Yonjeh-e Zard	Yonjeh	forage crop	aerial parts	raw
67	Fabaceae	*Onobrychis haussknechtii* Boiss.	Espars	Esbas	edible, medicinal; tonic, suitable for stomach and intestine	fruits, seeds	raw, roasted
68	Fabaceae	*Sophora alopecuroides* L.	Talkheh Bayan	Tal Mukha	medicinal; suitable for treating musculoskeletal pain and rheumatism	aerial parts	aquatic extract
69	Fabaceae	*Trifolium pratense* L.	Shabdar	Kaf Kane Vash, Kaf Kane Vashak	forage crop, medicinal; laxative	aerial parts	raw
70	Fabaceae	*Trigonella monantha* C.A.Mey.	Shanbalileh	Kor Yonjeh, Shabdar-e Vahshi	forage crop	aerial parts	raw
71	Fabaceae	*Vicia angustifolia* L.	Mashak	Marju Vashak	forage crop	aerial parts	raw
72	Fabaceae	*Vicia sativa* L.	Gav Daneh	Tarpile	forage crop	aerial parts	raw
73	Fabaceae	*Vicia variabilis* Freyn & Sint.	Kalu	Esbas	forage crop	aerial parts	raw
74	Geraniaceae	*Erodium cicutarium* (L.)	Nok Laklaki	Soozan-e Choopan,	utility, used as needle		raw

		L'Her.		Gol-e Sa'ati			
75	Hypericaceae	*Hypericum scabrum* L.	Gol-e Raei, Gol-e Chai	Zarde Gol Vashak	medicinal; suitable for disinfecting skin lesions	aerial parts	poultice
76	Iridaceae	*Ixiolirion tataricum* (Pall.) Herb.	Khiarak	Sadaf, Khiarak	Edible	leaves, bulbs	baked with rice
77	Juglandaceae	*Juglansregia* L.	Gerdoo	Gerdoo	economic, edible, medicinal; suitable for treating bone and muscle injuries such as muscle contusion	aerial parts, seeds	raw,pickle, poultice; used to make tools and extract dye for wool dyeing
78	Lamiaceae	*Calamintha grandifolia* (L.) Moench	Naena Ziba	Kukunar	Edible	aerial parts	baked in vegetable cutlet
79	Lamiaceae	*Lallemantia royleana* Benth.	-	Avishan	edible, medicinal; suitable for treating common cold	aerial parts	raw, dried, herbal tea
80	Lamiaceae	*Mentha longifolia* (L.) Huds.	Pooneh	Pooneh, Poona	edible, medicinal; appetizer, suitable for heart and nerves, treating stomachache, bloat, abdominal pain, constipation, genital infection	vegetative aerial parts	raw, dried, herbal essence, herbal tea, baked, blended in yogurt and doogh
81	Lamiaceae	*Mentha piperita* L.	Naena	Naena	edible, medicinal; appetizer, suitable for treating abdominal pain, common cold, food intoxication, constipation and fluctuation.	vegetative aerial parts	raw, dried, herbal essence, herbal tea, baked, blended in yogurt and doogh
82	Lamiaceae	*Stachyslavandulifol*	Chay-e Kuhi	Ku-Chai,	medicinal;	aerial	herbal tea

		ia Vahl		Chai-e Pashmool, Tuklijeh, Gorbeh Domak	diuretic, anti-bacterial, suitable for treating arthralgia, dysmenorrhea, headache, stomachache, diabetes, blood pressure	parts	
83	Lamiaceae	*Thymusfalax* Fisch. & C.A.Mey.	Avishan	Chai-e Kuhi	edible, medicinal; tranquilizer, suitable for treating abdominal pain, musculoskeletal pain and common cold,	all aerial parts	raw, dried or boiled, poultice
84	Lamiaceae	*Thymus pubescens* Boiss. & Kotchy. ex Celak	Avishan	Chai-e Kuhi	edible, medicinal; tranquilizer, suitable for treating abdominal pain, musculoskeletal pain and common cold,	all aerial parts	raw, dried or boiled, poultice
85	Liliaceae	*Eremurus spectabilis*M.Beib.	Sirish	Sirish	edible, medicinal; useful for treating heart, skin diseases and constipation	aerial parts, roots	raw, juice, baked
86	Malvaceae	*Alcea flavovirens* (Boiss. & Buhse) Iljin	Khatmi	Khatni	edible, medicinal; hair softener, suitable for treating constipation, acne, itching, asthma, fever, skin lesions, lung disease as well as abdominal and	flowers, roots, seeds	herbal tea, enema

					musculoskeletal pain		
87	Malvaceae	*Alcea sulphurea* (Boiss. & Hohen.) Aleff	Khatmi	Khatni	edible, medicinal; hair softener, suitable for treating constipation, acne, itching, asthma, fever, skin lesions, lung disease as well as abdominal and musculoskeletal pain	flowers, roots, seeds	herbal tea, enema
88	Malvaceae	*Alcearosea*L.	Khatmi	Khatni	edible, medicinal; hair softener, suitable for treating constipation, acne, itching, asthma, fever, skin lesions, lung disease as well as abdominal and musculoskeletal pain	flowers, roots, seeds	herbal tea, enema
89	Nitrariaceae	*Peganum harmala* L.	Esfand, Espand	Esfand	ritual, medicinal; believed to prevent whammy, suitable for treating measles and typhoid fever	seeds	burned to make smoke
90	Papaveraceae	*Fumaria asepala* Boiss.	Shah Tareh, Shatareh	Shatareh	edible, medicinal; suitable for treating stomachache, chest pain, acne, urinary infection and hair loss	all parts	herbal tea, poultice, baked with rice, fried
91	Papaveraceae	*Fumaria parviflora* Lam.	Shah Tareh, Shatareh	Shatareh	edible, medicinal;	all parts	herbal tea, poultice,

					suitable for treating stomachache, chest pain, acne, urinary infection and hair loss		baked with rice, fried
92	Papaveraceae	*Hypecoum pendulum* L.	Shah Tarehie	Shatareh	edible, medicinal; suitable for treating stomachache, chest pain, acne, urinary infection and hair loss	all parts	herbal tea, poultice, baked with rice, fried
93	Papaveraceae	*Papaver rhoeas* L.	Shaghayegh	Shaal Tareh	edible, medicinal; suitable for treating cough, colitis and bellyache	flowers, leaves	raw, herbal tea, pickled
94	Papaveraceae	*Romeria refracta* DC.	Gol-e Aroosak	Shaghayegh	edible, medicinal; suitable for treating cough, colitis and bellyache	flowers, leaves	raw, herbal tea, baked with rice, pickled
95	Plantaginaceae	*Plantagomajor* L.	Barhang	Rivanj	edible, medicinal; diuretic, aphrodisiac, suitable for treating diarrhea, bone pain, edema, inflammation, cough, pneumonia and bowel disease	seeds and leaves	raw, soaked, herbal tea, poultice, blended in yogurt or syrup
96	Poaceae	*Phragmites australis* (Cav.) Trin. ex Steud	Ney, Ghalam Ney	Ney	Economic	aerial parts	raw, dried, blended with mud to make thatch and cob, used as calligraph y pen and

							decorative element
97	Podophyllaceae	*Bongardia chrysogonum* (L.) Boiss.	Sineh Kabki	Jeghjegheh	Economic	fruits	dried, used as baby rattle and decorative element
98	Polygonaceae	*Polygonum alpestre* C.A.Mey.	Alaf-e Haftband	Taj-e Khoroos, Shirin Tarak, Shekar Tareh	edible, medicinal; energizer, used to treat common cold	leaves	Baked with rice and in vegetable stew
99	Polygonaceae	*Rheumribes* L.	Rivas	Rivas, Rivasak	edible, medicinal; suitable for treating edema, hyperglycemia and hypertension	aerial parts	raw, pickle, baked in stew
100	Polygonaceae	*Rumex acetosella* L.	Torshak	Chucham Torshalak	edible, medicinal; blood purifier, suitable to gut cleanse	young aerial parts	raw, pickled, baked in vegetable stew
101	Polygonaceae	*Rumex dentatus* L.	Torshak	Chucham	edible, medicinal; laxative, suitable for treating cough, colitis and bellyache	seeds, young aerial parts	raw, dried, herbal tea (seeds) pickled, baked in vegetable stew
102	Polygonaceae	*Rumex conglomeratus* Murr.	Torshak	Chucham	edible, medicinal; laxative, suitable for treating cough, colitis and bellyache	seeds, young aerial parts	raw, dried, herbal tea (seeds) pickled, baked in vegetable stew
103	Polygonaceae	*Rumex scutatus* L.	Torshak	Torshak	economic, edible, medicinal; blood purifier, used for treating kidney and stomach problems, diabetes,	young aerial parts	raw, dried, baked in vegetable stew, leaves are used for the extraction of dye (in

					hypertension and lowering cholesterol		wool dyeing)
104	Portulacaceae	*Portulaca oleracea* L.	Khorfeh	Dandoone Sa	edible, medicinal; blood purifier, suitable for gut cleansing, lowering blood glucose and decreasing flatulence	aerial parts, seeds	herbal tea, baked with garlic and other spices in vegetable stew
105	Ranunculaceae	*Ranunculus arvensis* L.	Alaleh	Akhlat kik	forage crop	aerial parts	raw
106	Rhamnaceae	*Ziziphus jujube* Mill.	Annab	Annab	medicinal, suitable for treating respiratory problem, pulmonary, asthma, back pain, fever, common cold and abdominal pain	fruits	soaked, herbal tea
107	Rosaceae	*Amygdalus communis* L.	Badam	Badam	edible, medicinal; tonic, suitable for treating kidney pain, spasmodic crisis of flank pain, colitis, beneficial for respiratory system	leaves, seeds, oil	raw, dried, roasted, poultice, baked in almond porridge
108	Rosaceae	*Armeniaca vulgaris* Lam.	Zardaloo	Gheysi	economic, edible, medicinal; laxative, suitable for treating constipation	fruits	raw, dried
109	Rosaceae	*Cerasusavium* (L.) Moench	Gilas	Gilas	economic, edible	fruits	raw, jam
110	Rosaceae	*Cerasus pseudoprostrata* Pojark.	Albaloo	Albaloo	economic, edible, medicinal;	fruits	raw, herbal tea, jam

					blood purifier, tonic, suitable for treating heart and stomach discomforts as well as diarrhea		
111	Rosaceae	*Cerasusvulgaris* Miller	Albaloo	Albaloo	economic, edible, medicinal; ; blood purifier, tonic and diuretic	fruits	raw, herbal tea, jam
112	Rosaceae	*Crataegus melanocapa* M.Bieb.	Siah Valik	Siamarak	edible, medicinal; cardio-tonic, suitable for fortifying stomach and treating diarrhea and skin lesion	fruits, leaves	raw,dried
113	Rosaceae	*Crataegus azarolus* L. subsp. *aronia* (L.) Riedl.	Zalzalak	Geri	edible, medicinal; cardio-tonic, suitable for fortifying stomach and treating diarrhea and skin lesion	fruits, leaves	raw, dries
114	Rosaceae	*Cydoniaoblunga* Mill.	Beh	Beh	edible (fruit), medicinal (seeds); suitable for treating sore throat, cough, bronchitis, stomach diseases and diarrhea	fruits	fruits: raw, jam; seeds: boiled, soaked, herbal tea
115	Rosaceae	*Pyrus elaeagnofolia* Pall.	Golabi	Amrud, Golabi Vahshi, Khajek	economic, edible, medicinal; anti-parasitic	fruits, seeds	fruits, raw, dried, jam; seeds: soaked
116	Rosaceae	*Rosa canina* L.	Nastaran	Kilek	edible, medicinal; suitable for	fruits	raw,herbal tea, baked

					treating hyperglycemia, hypercholesterolemia, headache and stomachache		
117	Rosaceae	*Rosa orientalis* Dupont ex Ser.	Gol-e Sorkh	Kilek	edible, medicinal; suitable for treating hyperglycemia, hypercholesterolemia, headache and stomachache	fruits	raw,herbal tea, baked
118	Rosaceae	*Rubus caesius* L.	Tameshk	Bor, Portu	economic, edible, medicinal; tonic, tranquilizer, anti-cancer, suitable for treating aphtus ulcer and hypertension	fruits	raw, jam, dried, fruit roll-ups, pickled
119	Rosaceae	*Rubus sanctus*Schreber.	Goje Tameshk	Bor, Portu	economic, edible, medicinal; tonic, tranquilizer, anti-cancer, suitable for treating aphtus ulcer and hypertension	fruits	raw, jam, dried, fruit roll-ups, pickled
120	Rubiaceae	*Galium verum* L.	Shir Panir	Zaban Zanak, Dast Masak, Zaban Borunak	Edible	aerial parts	baked with rice, vegetable cutlet and vegetable stew
121	Salicaceae	*Salixalba* L.	Bid-e Sefid	Bid	economic, edible, medicinal; aphrodisiac, sedative, laxative, suitable for treating fever,	leaves, flowers, fruits, roots, wood	herbal essence, poultice, ash, making wooden tools

					headache, skin lesions and musculoskeletal pain		
122	Salicaceae	*Salixelbursensis* Boiss.	Bid-e Sorkh	Bid	economic, edible, medicinal; aphrodisiac, sedative, laxative, suitable for treating fever, headache, skin lesions and musculoskeletal pain	leaves, flowers, fruits, roots, wood	herbal essence, poultice, ash, making wooden tools
123	Salicaceae	*Salix excelsa*S.G. Gmelin	Bid-Siah	Bid	economic, edible, medicinal; aphrodisiac, sedative, laxative, suitable for treating fever, headache, skin lesions and musculoskeletal pain	leaves, flowers, fruits, roots, wood	herbal essence, poultice, ash, making wooden tools
124	Scrophulariaceae	*Verbascum speciosum* Schrad.	Gol-e Mahuor	Gushil	fuel, honey bee forage plant	aerial parts, flowers	raw
125	Scrophulariaceae	*Veronica anagallis - aquatica* L.	Sizab	Rashke Vashak	forage crop	aerial parts	raw
126	Solanaceae	*Hyoscyamus niger* L.	Bazrol-Banj	Vash	medicinal; analgesic for a wide spectrum of painful syndromes	leaves, seeds	herbal tea, soaked
127	Urticaceae	*Urticadioica* L.	Gazaneh	Gazaneh	edible, medicinal; anti-microbial, blood purifier, suitable for treating dysmenorrhe	aerial parts	dried, herbal tea, essence, mixed with yogurt, baked, vegetable cutlet

					a, diabetes, hypertension, hypercholesterolemia, musculoskeletal pain and edema		
128	Violaceae	*Viola occulta* Lehmann	Banafsheh	Karake Kine	edible, medicinal; suitable for treating stomachache, common cold, pertussis, abdominal pain, influenza, eye problems	flowers	herbal tea, soaked, baked with rice and in vegetable cutlet
129	Vitaceae	*Vitis vinifera* L.	Angoor, Mou	Mou, Raz	edible, medicinal, suitable for treating arthralgia, muscle pain, stomach problems and decreasing blood pressure	leaves, fruits	raw, dried, poultice, baked

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