

Overview of Important Medicinal Plants at Fars Province, Iran

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Abstract

Fars province in southern Iran, with an area of 133000 square kilometers is one of the largest provinces of the country. There are different climates in the province that has caused it to be a pioneer at production and use of medicinal plants in the country, as it is the largest exporter of medicinal plants in the country. In this study, an overview of the most important medicinal species in this province has been dealt with. After the source and target data were collected and their accuracy were studied, according to the frequency of data and information contained in this field, the key points were extracted and to facilitate their use, was prepared in tabular form.

Keywords: Fars Province; Medicinal plants

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Received: August 24, 2017; **Accepted:** August 31, 2017; **Published:** September 07, 2017

Citation: Owfi RE and Nosratollah Safaian (2017) Overview of Important Medicinal Plants at Fars Province, Iran. Arch Chem Res. Vol.2 No.1: 2

Introduction

Herbal plants are the most important products in natural resources which directly have a positive impact on the lives of people. Many of drugs are directly or indirectly from herbal medicinal products. The importance of plants has been evident to humans since ancient times as Egyptians have been expertise from the sixteenth century BC in the extreme use of these plants [1-3].

As mentioned before, Egypt, has a long history in terms of research background in this area. From ancient times Jewish people used these plants too. India also has two very famous old books on herbs called Caraca and Susruta. China's oldest medical book is attributed to one of its emperors called Shinon who lived in 2800 BC. From 8 to 10th centuries, famous Iranian scientist Avicenna and Razi were shining in this field. In Western countries, progress in this science dates back to the early Middle Ages that continues to date and By scientists such as Constantine, Epitome Matthiol, and Dragendroff and so on has been done. In Iran, the most comprehensive investigation in this case was conducted by Ali Zargari and the result has been published in five volumes [4-7].

In Iran, with respect to special geographic locations and different climatic conditions is habitat of many varieties of medicinal plants and In the meantime, the Fars province is the most relevant So that, according to the provincial Department of Natural Resources, there are more than 1600 species of medicinal plants at Fars and more than 100 species of them are massively cultivated on 600 hectares of land in the province, Of course,

the data is not about tree species and garden species. Medicinal plants export from Fars province to abroad in 2015 was 48 tons So that the province has become the first exporter of these products in the country. It should be noted that the Fars province with an area of 133000 square kilometers includes 8.1% area of the country which is located in the southern part of the country and holds three climates in which the North and North West of the province has mountains with snow and rain and the amount of rainfall is over 400 millimeters a year. Central area with mild winter and hot and dry summer is with annual precipitation of 200 to 400 millimeters. Also South and South-East holds mild winter and very hot summer with annual precipitation of 100 to 200 millimeters [7-10]. **Figure 1** shows the location of Fars province in Iran.

Research Methodology

In this study, following steps were taken to conduct the research

Gathering information and data

There are a lot of resources of medicinal plants, but most of them are a reflection of people's experiences which not certain. Most of them have no formal training in this area and have just inherited and acquired these practices. Certainly will be helpful Using the information provided which the information be evaluated with scientific data that has been considered in this study. In addition,



Figure 1 The location of Fars province in Iran.

the relevant articles and books have also been used. Researches conducted by the departments of natural resources, agriculture office and the environment office of Fars province are also considered (Table 1).

Information and data evaluation

In this regard for other articles, books and academic researches there is no problem, but as mentioned before, information about people who have been working on an experimental basis in the field of medicinal plants should be evaluated and just the sort of information that is scientifically acceptable and consistent with their academic issues were used.

Extracting the desired and key data

Due to the large volume of literature on medicinal plants, at this stage, it was launched to extract key data which were useful for getting familiar with province medicinal plants and again to simplify using them, they have been tabulated.

Discussion

1. Climatic variations at Fars province has caused a wide range of plants from different families and this factor is the most important factor for changing the province to the largest exporter of medicinal plants of the country (Table 2).

- The Most families of medicinal plants of Fars province are *Leguminosae- Rosaceae- Cruciferae* and *Umbelliferae* (Table 3).
- Many medicinal plants at Fars Province like *Crocus sativus- Oryza sativa- Cerasus arium, Citrus limonum* are found only in certain parts and their distribution is limited (Table 4).
- Some of medicinal plants such as *Peganum harmala- Punica granatum- Triticum sp.* have been widely distributed and are observed in other places too (Table 5).
- Development of production and utilization of medicinal plants is one of the most important ways of creating jobs

for local people and it would only be possible with the cooperation of government.

- Due to the current situation in the province, the possibility of expanding production of medicinal plants and products is more than before.

Conclusion

In this part, all results have been tabulated according to plants division and their deviations and also key and detail information of each species have presented subsequently and in the table above.

Table 1 Fars Province important medicinal plants. (Spermatophytes Division-Angiosperms Subdivision-Dicotyledons Class-Dialypetalae Subclass).

Health benefits	Effective substance	Usable parts	Major features of Botany	Species name	Family name
Anti diarrhea- Coagulator	Tannic acid	The whole plant	Bushy tree-Small fruit-Leaves change into red and green in autumn	Rhus coriaria	Anacardiaceae
Anti diarrhea and bleeding and gingivitis	Berberine- Berbamin- Palmatin Berberobin	Root-Flower- Fruit-Skin of stem and root	Spiny bushy tree- Yellow flower and wood	Berberis vulgaris	Berberidaceae
Anti scurvy - Diuretic- Treatment of kidney stone	Vitamins- Minerals	Root	Herbal-Leaves without trichome -Swollen root	Brassica napus	Cruciferae
Anti scurvy - Wound healing	Sulforaphane	Leaf	Grass- Leaf with trichome		
Headache and stuffy nose curing	Quercitin- Quinoline Glucokinoline	seed-leaf	Herbal-Narrow Leaves with lots Brown of hairs yellow flower	Cheiranthus cheiri	Cruciferae
Wound healing- Anti fever and worm	Protein-Fat	seed	Herbal-Stem Branches at ground level	Descurainia sophia	Cruciferae
Mucus producing- Treatment of gout and rheumatism	Gluconasturtin- Phenylethyl	The whole plant	Herbal-Fleshy leaves - Growing in clear water	Nasturtium officinale	Cruciferae
Whooping cough and rheumatism curing-Treatment of gallbladder stone	Sulforaphane	Juice-Root	Herbal-Swollen White or rootyellow or violet flower	Raphnus sativus	Cruciferae
Diuretic- Laxative	Sinalbin	Seed	Herbal-Covered with trichome Yellow flower	Sinapis alba	Cruciferae
Diuretic- Anti fever and infection	Citrullin	Fruit-Seed	Yellow Bushy flower-Fleshy fruit	Citrullus vulgaris	Cucurbitaceae
Anti worm - Diuretic	Vitamin Avitamin C- Cellulose	Fruit-Seed	Bushy Yellow flower -Fleshy fruit	Cucumis melo	Cucurbitaceae
Dialysis-Diuretic- Anti wormHygiene of skin	Mucilage-Erepsin	Fruit-Seed	Bushy-Stem with rough hairs-Big yellow flower	Cucumis sativus	Cucurbitaceae
Sweaty-Appetizer	Protopine- Fumofincaline	The whole plant	Herbal-Dusty leaves- White flower	Fumaria parviflora	Fumariaceae
Diuretic- -Tonic Constipater	Ellagic acid- Geranin	The whole plant	Herbal-Multi parts Bad smell leaves-	Geranium robertianum	Geraniaceae

Health benefits	Effective substance	Usable parts	Major	Species name	Family name			
			features of					
			Botany					
Tonic-Digestive- Pain killer- Anti Bile	Hyperin- Hypericin	Twig with flower	Herbal-Stem Featured numerous longitudinal lines- Oval leaves	Hypericum perforatum	Hypericaceae			
Anti worm - Curing Itching Treatment of Asthma Laxative- Medications sweetener	Albizzin		Stem-Skin- -Root			Tree without Flower in thornswite , pink and red	Albizzia lebbek	Leguminosae
Camphor oil supply			Manna			Herbal-Barbed stem		
Constipater- Bronchitis Curing tonic-Curing Fatigue- Anti paroxysm Curing cough and inflammation of stomach Anti inflammation	Oleic acid- Palmitic acid	Fruit	Herbal-yellow flower	Arachis hypogaea	Leguminosae			
Curing rickets	Asparagine- Leuzin-Arginin	Twig	Herbal-Big blue and violet flower	Medicago sativa	Leguminosae			
Diuretic – Curing chest pain diabetes Curing	Coumarin- Melilotic acid	Twig with flowers	Herbal-Yellow small and aromatic flower – Trichomeless fruit	Melilotus officinalis	Leguminosae			
Diuretic	Arginine-Fazin	Skin-Fruit- Seed	Herbal-Flower in white and yellow	Phasaeolus vulgaris	Leguminosae			
Tonic -Softener	Legumolin- Vicilin-Legumin Trigonellin- Nicotinic acid	Seed	Herbal	Pisum sativum	Leguminosae			
measles Curing and smallpox and inflammation	Vicin-Legumalin- Legumin	Stem -Seed	Herbal- Single and yellow flower	Trigonella foenum- graecum	Leguminosae			
Stomach tonic	Calycanthin	Seed	Herbal-Violet flower	Vicia sativa	Leguminosae			
Softener -Curing skin irritation	Mucilage	Root	Bushy tree – Flower herbaceous in lemon- Jar like fruit	Chimonanthus fragrans	Magnoliaceae			
Disinfectant – Constipater-Anti fever	Eucalyptic acid- Eucalyptol	-Root-Flower Leaf	Herbal-Stem with trichome- Long , Spindle like root	Althaea officinalis	Malvaceae			
Disinfectant	Myrtidana- Tannin-Linolein	Leaf	Tree- firm wood	Eucalyptus globolus	Myrtaceae			
Insomnia- Curing Laxative	Papaveric acid	Leaf-Fruit- Flower	Evergreen bushy tree -Leather leaves-Big and white flower	Myrtus communis	Myrtaceae			
Curing Loss of appetite and diarrhea and hemorrhage and anemia	Punicatanic acid-	Petal	Herbal-Leaf with trichome- Single and red flower	Papaver rhoeas	Papaveraceae			
Sweaty-Diuretic- Anti scurvy	Hydrogen cyanide	Leaf-Flower- Root	Bushy tree- Rugged and firm stem- Multiple Spiny twig	Punica granatum	Punicaceae			
Strong aperient- Skin irritative	Delsoline- Delcozine kaempferol	Fruit with seed	Herbal- The upper surface of the leaves dusty- Blue and purpleF flower -	Aquilegia vulgaris	Ranunculaceae			
		Seed	Herbal- Beautiful blue and white flower	Consolida regalis	Ranunculaceae			

Health benefits	Effective substance	Usable parts	Major	Species name	Family name
			features of		
			Botany		
Aperient- Anti worm	Nigellone- Melantin Melantigentin	Seed	Herbal-Multi parts leaves-Flower in white	Nigella sativa	Ranunculaceae
Laxative	Zizyphutanic acid- Zizynic acid	Fruit	Bushy tree - Small and yellow green flower	Zizyphus jujuba	Rhamnaceae
Anti bile -Diuretic -Curing cough - Aperient	Albuminoid- Amygdolinozid	Flower-Skin- Fruit-Seed kernel	Tree- Plain and oval leaf- Pink flower	Amygdalus communis	Rosaceae
Constipater- Dialysis	Conglotin pangamic acid	- Seed Kernel- Fruit	Tree- Big , white and pink flower	Armeniaca vulgaris	Rosaceae
-Skin hygiene Treatment of kidney	Folic acid- Choline	Fruit	Long living tree - Aspheric fruit	Cerasus arium	Rosaceae
Curing Kidney and .liver diseases	Folic acid- Choline	Fruit	Bushy tree-With lots of shoots- Aspheric fruit	Cerarus vulgaris	Rosaceae
Curing Shortness of breath – Dialysis-Curing body	Tannin- Glucoside	Leaf-Rhizome- Fruit	Bushy tree-White flower	Fragaria vesca	Rosaceae
hypothermia and diarrhea					
Diuretic- Constipater –Anti fever	Phlorizin- phloritin	Leaf-Fruit- Stem skin	Bushy tree-Upper leaf with level trichome-Big, white and pink flower	Malus orientalis	Rosaceae
Constipater- Curing hemorrhage	Malic acid- Tannin- Citric acid- Tartaric acid	Fruit-Leaf	Spiny bushy tree- Big flower in white and pink	Mespilus germanica	Rosaceae
Aperient-Skin hygiene-Anti fever	Amygdalin- Conglotin	Skin--Fruit Leaf-Flower-	Bushy tree- Narrow and long leaf	Persica vulgaris	Rosaceae
Tonic-Curing gout and rheumatism	Pyranose	Fruit	Tree-Big fruit	Prunus sativum	Rosaceae
Constipater- Diuretic- Sedative	Arbutin-phlorizin	Stem-Fruit- Leaf-Skin	Bushy tree- White and pink flower	Pyrus communis	Rosaceae
Curing Bloody diarrhea and kidney inflammation– Anti scurvy Constipater-	Tannin-Malic acid-Citric acid	Leaf-Flower	Bushy tree-Flower in white and pink	Rose canina	Rosaceae
Curing hemorrhage-Skin hygiene	Cyanine	Flower bud	Spiny bushy treered and flower in aromatic	Rose gallica	Rosaceae
Digesting - Anti paroxysm	Stachydrin- Hesperidin	Leaf- Flower_Fruit	Evergreen treearomatic and thick and juicy petal	Citrus bigaradia	Rutaceae
Increasing white globules- Anti rheumatism and asthma	Camphen- Limonen Geraniol-Citral	Fruit	Small tree-Strong root in white Spiny twig	Citrus limonum	Rutaceae
Antiseptic - Mucus producing	Diastase-Citric acid- Malic acid	Fruit	Small tree-White flower with weak smell	Citrus sinensis	Rutaceae
Constipater- Diuretic- Appetizer	Scoline-Gallic acid	Manna-Skin	Tree-Narrow and dark green leaf Dark red branch	Tamarix gallica	Tamaricaceae
Anti nausea and stomach ache	Limonene- Carvon phellandren	Leaf-Fruit	Herbal-White root-Small and yellow flower	Anethum graveolens	Umbelliferae
Diuretic-Anti bloating	Apiine-APIIOSE	The whole plant	Herbal—Small flower in white green	Apium graveolens	Umbelliferae
Diuretic-Anti bloating and paroxysm	Wax-Mucilage- Carvon Dihydrocarveol	Stem-Leaf- Fruit	Herbal-White pink flower small	Carum carvi	Umbelliferae
Diuretic– Anti bloating and paroxysm	Phellandren- Coriandrol	Seed	Herbal-Full of leaves in green- Big and white flower	Coriandrom sativum	Umbelliferae
Diuretic-Skin hygiene	Limonin	Fruit-Root	Herbal-Small flower in yellow	Daucus carota	Umbelliferae

Health benefits	Effective substance	Usable parts	Major	Species name	Family name
			features of		
			Botany		
Diuretic-Sedation	Anethol-Estragolphenone phellandren	Root-Leaf-	Herbal-Aromatic -	Foeniculum vulgare	Umbelliferae
		Fruit	Yellow flower		
Anti paroxysm and ache stomach	Cadinen-Cadinol-	Plant juice	Thick Stemyellow – Flower in	Frula gumosa	Umbelliferae
	Umbelliferon		Leaf with trichome		
Anti bloating	Butyrate	Root-Stem-	Herbal-Aromatic-	Heracleum persicum	Umbelliferae
	Methylic-	Flower	White flower		
	Butyrate ethylic-Acetate				
Diuretic-Curing	Apiiosid-Apioose-	Root-Stem-	Herbal-Small and green flower	Petroselinum crispum	Umbelliferae
Shortness of breath and hepatitis	Apiine	Flower			
Anti bloating	Anisic acid-Methyl chavi	Fruit	Herbal-flower in white Small	Pimpinella anisum	Umbelliferae
Softener-Sweaty_Mucus producing	Violin	Flower -Leaf-Root-Seed	Herbal-Heartlike Leaf-Single violet flower-Frout with trichome	Viola odorata	Violaceae
Tonic-Constipater-Diuretic-Anti fever blister	Succilic acid-Vitin-Glucolic acid	Plant jouce-Fruit-Leaf	Climber tree – Knotted stem	Vitis vinifera	Vitaceae
Sleep cousing-Sweaty-Anti worm	HarminHarmalin-Harmalol	Seed	Herbal-Full of green leaves-Big white flower	Peganum harmala	Zygophyllaceae
-Tonic- Appetizer Bladder and kidney stone exertion- Blood pressure reduction	ResinPolyphenol-Arabinose	Fruit -Root Seed-Leaf	Herbal-Stem with hairs	Tribulus terrestris	zygophyllaceae

Table 2 Fars province important medicinal plants. (Spermatophytes Division-Angiosperms Subdivision-Dicotyledons Class-Sympetalaes Subclass).

Health benefits	Effective substance	Usable parts	Major	Species name	Family name
			features of		
			Botany		
Curing paroxysm and dizziness	Citronel-Citral	Shoot-Leaf	Herbal-Sharp tip leaf-White	Melissa officinalis	Lobiateae
			flower		
Anti bloating	Tannin-Menthol-Isomenthol	Flowering Leaf shoot-	Herbal-With rhizome and stolon	Mentha piperata	Lobiateae
- Anti bloating Disinfectant	Pectin-Resin-Pulegiun	Aerial parts of the plant	Herbal-Cylindrical appereance	Mentha pulegium	Lobiateae
Curing dizziness and nausea and cough	Estragol-Ocimune	Whole of the plant	Herbal-Sharp tip leaf – White	Ocimum basilicum	Lobiateae
			flower		
Anti Diuretic bloating	Citrosol-Ursolic acid	Aerial parts of the plant	Herbal- stem color darker than leaves	Satureia hortensis	Lobiateae
Dialysis-Curing	mucilage	Leaf-Root-	Herbal-Nervure	Plantago major	Plantaginaceae
Diarrhea and asthma		Seed	Throughout the leaf		
Aperient	Tannin-Amidone-	Root	Herbal-Leaves aspheric at base, other leaves	Plumbago europaea	Plumbaginaceae
	Plumbagin-Gallic acid		sharp tip and narrow - Light blue flower		
Curing bloating and epilepsy y and paroxysm	Tannin-Valeric acid-Valerin	Root-	Herbal-	Voleriana officinalis	Volerianaceae
		Rhizome	Aromatic white pink flower- With Rhizome plenty of roots		

Table 3 Fars province important medicinal plants. (Spermatophytes Division-Angiosperms Subdivision-Dicotyledons Class- Monochlamideas Subclass).

Health benefits	Effective substance	Usable parts	Major features of Botany	Species name	Family name
Curing asthma, constipation and rheumatism	Spinacine Neoxanthin Violaxanthin	Leaf	Herbal- Triangular leaf	Spinacia oleraceae	Chenopodiaceae
Constipater-Anti fever	Amino acids	Leaf- Dried fruit	Tree- Small flower	Elaeagnus angostifolia	Elaeagnaceae
Aperient	Euphorbon- Euphorbic acid	Root- Seed	Herbal- Small red flower	Euphorbia helioscopia	Euphorbiaceae
Curing tuberculosis and hemorrhage and rickets	Tannin- Galotanic acid- Digallic acid	Leaf Skin Fruit- Gall	Tree-Aspheric female flower- hanging male flower	Quercus tourn	Fagaceae
Diabetes Curing and tuberculosis – Anti worm	Juglon-Citric acid-Gallic acid- Digallic acid	Wood Leaf - Fruit	Tree-Hanging male flower- Vertical female flower	Juglans regia	Juglandaceae
Aperient- Anti parasite	Vitamin C- Betacarotene	Fruit- Leaf Latex	Tree-Rough leaf	Ficus carica	Moraceae
Curing - Laxative chest pain	Resveratrol- Tannin	Fruit	Tree-Light green leaf	Morus alba	Moraceae
Anti worm- Curing sore throat	Gallic acid- Ellagic acid Anthocyanin	Fruit- Skin- Root	Tree-Dark green leaf	Morus nigra	Moraceae
Curing skin rash and voice hoarseness	Tannin-phenol	Skin- Leaf- Root	Tree-White trunk	Platanus orientalis	platanaceae
Curing Gingivitis	Remicin	LeafSeed- Root	Herbal-Sharp tip leaf- Small flower	Rumex acetosa	polygonaceae
Anti fever-Anti paroxysm	Salicid-Helicin- Salicozid	Skin	Tree- Silver white leaf- Surface of the leaf with white hairs	Salix alba	Salicaceae

Table 4 Fars province important medicinal plants. (Spermatophytes Division-Angiosperms Subdivision-Monocotyledons Class).

Health benefits	Effective substance	Usable parts	Major features of Botany	Species name	Family name
	Narcinin-Tazenin	Bulb	White flower and aromatic- Narrow and long leaf	Narcissus tazetta	Amarylliaceae
Curing hepatitis- Diuretic	Coniferin- Asparaguse	Rhizome-Root	Herbal- Squamous leaf –With rhizome	Asparagus officinalis	Asparagaceae
Diuretic - Laxative– Wound healing	Vitamin A-E-B - Betaglucan	Bud-Seed	Herbal- Long fruit	Avena sativa	Graminaceae
Anti fever- Diuretic-Curing Diarrhea and nephritis	Albuminoid – Diastase-Enzyme- Amylose	Bud-Seed	Herbal- Rough and intermittent leaf	Hordeum vulgare	Graminaceae
Curing diarrhea and ulcers	Amidone-Niacin- Thiamin-Riboflavin	Seed	Herbal-Annual- Large and narrow leaf	Oryza sativa	Graminaceae
Laxative- Softener	Amidone-Secalose	Bud-seed	Herbal- Rough and wide leaf	Secale cereale	Graminaceae
Curing asthma and inflammation Anti poison	Gluten-Amidone- Cellulose	Bud-seed	H-erbal- Annual	Triticum sp	Graminaceae
Curing toothache	Crocic-Crocetin	Stigula -Style	Herbal-Hard bulb-violet flower	Crocus sativus	Iridaceae
Diuretic- Aperient-Curing whooping cough –Anti worm	Ascorbic acid- Iridine-Irigenin	Rhizome	Herbal-With rhizome Large , fragrant and white flower	Iris florentina	Iridaceae

Health benefits	Effective substance	Usable parts	Major features of Botany	Species name	Family name
Antiseptic- Diuretic-Curing diabetes	Citric acid- Anthocyanin	Bulb	Herbal	Allium capa	liliaceae
Curing Indigestion, obesity and joint pain	Hemolysin- Maltase	Bulb-Leaf	Herbal- Band and wide leaf	Allium porrum	liliaceae
Disinfectant- Anti worm- Decreasing blood pressure	Allyl-Allylpropylle	Bulb	Herbal- White flower	Allium sativum	liliaceae
Curing cough and chest pain	Mucilage-Glucose	Fruit	Tree-Big trunk- Big leaf	Phonix dactylifera	Palmaceae

Table 5 Fars province important medicinal plants. (Spermatophytes Division-Gymnosperms Subdivision).

Health benefits	Effective material	Usable parts	Major features of Botany	Species name	Family name
Vasoconstrictor -Curing diarrhea and .bleeding	Tannin-Essence	Wood- Fruit	Tree-Very small and triangular leaf- Smooth and red grey trunk	Cupressus sempervirens	Cupressaceae
Curing cough- Diuretic	Coniferylic acid	Seed- Bud	Tree-Fractured and red Skin trunk	Pinus silvestris	pinaceae

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