

Full Length Research Paper

# Ethnobotany and folk medicinal uses of major trees and shrubs in Northern Iran

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This research was carried out to introduce important useful plants and their medicinal characteristics in Heyrat indigenous region. Approximately 16 medicinal species of trees and shrubs belonging to 12 families were recorded. It is found that all these plants are used by the rural people in traditional uses and food consumption, and that the main species of them included: *Borago officinalis*, *Arctium lappa*, *Sambucus ebulus*, *Lamium album*, *Hyoscyamus niger*, *Mespilus germanica*, *Crataegus oxyacantha*, *Grossularia reclinata*, *Sorbus torminalis*, *Berberis vulgaris*, *Rosa canina*, *Ferula gummosa*, *Plantago major*, *Viscum album*, *Althaea officinalis*, and *Rosmarinus officinalis*. The conventional ethnomedicinal plants were mostly used as antipyretic, anti diarrheal, anti inflammatory, laxative, blood purifiers and for toothache. The studies presented here could suggest new inputs for further photochemical, pharmacological and toxicological studies among Iranian folk pharmacopoeia.

**Key words:** Ethnobotany, folk medicine, medicinal plants, Heyrat, Mazandaran province, Iran.

## INTRODUCTION

During recent decades, chemical side effects have been identified and measures have been taken to overcome this problem. Thus, people again turned to natural products, especially in pharmaceutical and food industry (Mozaffari Nejad, 2010). For example, the World Health Organization (WHO) reports that as many as 80% of the world's people depend on traditional medicine for their primary health care needs (Joudi and Habibi Bibalani, 2010). However, traditional medicines are wealthy source of metabolites that are potential source of drugs and essential oils (Unni et al., 2009). The variation of climate in different region of Mazandaran province has resulted in a very rich flora and a long history of medicinal plants. It has an extraordinarily rich flora and knowledge of their indigenous medicinal trees or shrubs. The seasonal climatic changes provide an abundance of medicinal plants diversity. Mazandaran province makes it an excellent area to study ethnomedicine. Traditional healers

and pharmacists tend to all their dried plant material (flower, leaves, stem or root bark).

Trees and shrubs in Mazandaran province are very important considering their medicinal properties. In the present studies, we report the ethnobotany and traditional pharmaceutical knowledge of one small autochthonous North Iranian communities, which are isolated in the inland part of Mazandaran region in the North of Iran. The focus of this study is on identification of medicine trees and shrubs, their useable parts, medical practices, material of plant and ethnopharmacological (Jalali et al., 2009). The aim of this study was to gather the knowledge about the use of traditional natural remedies and healing practices in one small rural community located in the Mazandaran province of in the North of Iran.

## MATERIALS AND METHODS

Heyrat is the name of a very beautiful village in Kojur zone, a suburb of Nowshahr city in Mazandaran. The village Heyrat is 50 km far from Nowshahr port city. This village connects to Gandiskola and Lashkenar from north, to Dasht-e Nazir from south, to Ali

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**Table 1.** List of the medicinal plants of the folk pharmacopoeias of the Heyrat in Mazandaran province, Iran.

Plant name	Family	Local name	Part (s) used	Chemical compounds	Uses in the local popular medicine	Reference
<i>Borago officinalis</i>	Boraginaceae	Sisenak	Flowers, aerial parts, leaves	Tannins, alkaloid, phenolics, steroids, terpenoids, essential fatty acids, linoleic acid and gamma-linolenic acid	Sedative, analgesic, blood purifier, measles, pneumonia, catarrh, swelling of limbs, cough	Seif Sahandi et al. (2011); Badi and Sorooshzadeh (2011)
<i>Arctium lappa</i>	Asteraceae	Palvarg	Root, leaves, berries	Tannins, inulin, sugar, resin, phenolic acids, mucilage, flavonoids, tannic acid, fatty oils	Alterative, gout, blood purifiers, diuretic, laxative, disinfectant, antiscorbutic, antioxidant	<a href="http://www.globalherbal-supplies.com">http://www.globalherbal-supplies.com</a> ; <a href="http://medicinalplants.us">http://medicinalplants.us</a>
<i>Sambucus ebulus</i>	Adoxaceae	Palam	Stem, root, flowers, fruit, berries	Sambunigrin, cyanogenic glucoside, tannins, flavonoids, steroids, caffeic acid derivatives, ebulitins, glycosides, cardiac glycosides	Anti rheumatoid, anti inflammatory, anti nociceptive, anti hemorrhoidal, sore throat, fever, infections, eczema, cold	Shokrzadeh and Saeedi Saravi (2010)
<i>Lamium album</i>	Lamiaceae	Gazena	Flowers, aerial parts, leaves	Flavonoids, tannin, mucilage, potassium, vitamin C, calcium, iron, urticine, acetophenone, fitosterin	Diuretic, blood purifiers, anti diarrhea, diaphoretic, anti diabetics, analgesic	Mobseri et al. (2009); Gotalipour et al. (2010)
<i>Hyoscyamus niger</i>	Solanaceae	Tatule	Leaves, berries	Alkaloids (hyoscine, atropine, scopolamine), phenolics, flavonoids, lignans, saponins, with anolides	Analgesic, anti-spasmodic, sedative, anti tumor, febrifuge, stomach cramps, heavy coughs, neuralgia, toothache, rheumatic pains	Sajeli Begum (2010)
<i>Mespilus germanica</i>	Rosaceae	Kenes	Leaves, fruit	Methanol, genipic acid, genipinic acid, flavanols, fatty acid, polyphenoloxidase	Diuretic, kidney and bladder stone, anti hemorrhages, anti diarrhea	Nabavi et al. (2011)

Table 1. Contd.

<i>Crataegus oxyacantha</i>	Rosaceae	Serxe velik	Flowers, fruit	Vitamin C, glycosides, flavonoids, cratetegin, saponins, tannins, oligomeric procyanidins, anthocyanidin, proanthocyanidin, crategolic acid, caffeic acid	Cardio tonic, hypotensive, anti spasmodic, diuretic, nervine sedative properties, dilate blood vessel, heart disease, blood pressure	Verma et al. (2007)
<i>Grossularia reclinata</i>	Grossulariaceae	Galesh Engear	Fruit	Sugar, tannins, free acids, vitamin C, B and A, acid cianhidric (HCN), mucilage	Purgative, emollient, laxative, liver decongestant, gout, kidney stone, anti rheumatism	Zargari (1981); Mirhaydar (1994); www.botanical.com
<i>Sorbus torminalis</i>	Rosaceae	Alendri	Fruit, berries	Hyperoside, isoquercitrin, chlorogenic acid, neochlorogenic acid, galactopyranoside, vitamin C	Coughs, diarrhea, fever, diuretic, kidney stone, bronchitis, colic	Olszewska and Roj (2011)
<i>Berberis vulgaris</i>	Beberidaceae	Zereshk	Leaves, root, grass, fruit	Alkaloids (Berberine), vitamin C	Antibacterial, stimulate bile secretion, cancer, inhibiting, anti diabetic, peptic ulcers, icterus, antiseptic, gastro-intestinal infection, rickets, tonsillitis, antitussive	Farhadi et al. (2008); Jalali et al. (2009); Ibadullayeva et al. (2010)
<i>Rosa canina</i>	Rosaceae	Sag Gel – E Serx	Fruit	Tannins, sugar, carotenoids, tokepherol, organic acid, amino acids, volatile oils, vanillin, vitamin C, antioxidant, antimicrobials	Diuretic, flu, cold, cough, stomachic, pharyngitis, laxative, cold, infections, anti inflammatory	Celik et al. (2009); Ugulu et al. (2009); Sharafi (2010); Ghazghazi et al. (2010)
<i>Ferula gummosa</i>	Apiaceae	Barije	Whole plant but especially root	$\beta$ -pinene, $\alpha$ -pinene, $\alpha$ -thujene, sabinene, 3-carene, resin	Antispasmodic, toothache, asthma, impotence, anticonvulsant, antiepileptic	Mellati et al. (2005); sarabdani et al. (2003); Mandegary et al. (2004)
<i>Plantago major</i>	Plantaginaceae	Barang	Leaves, root, berries	Fatty acids, amino acids, proteins, carbohydrates, linolenic acid, tannins, flavonoids, antioxidant	Diuretic, anti ulcer, antitumor, anti diabetic, anti inflammatory, analgesic, antimicrobial, antiviral	Mao-ye and Li-guo (2011); Kobeasy et al. (2011)

Table 1. Contd.

<i>Viscum album</i>	Loranthaceae	Darvash	Leaves, berries	Glycoside, amino acids, alkaloids, tannins, sugar, lignins, viscotoxins, phenylpropanoids	Lower blood pressure and heart rate, anti diabetic, anxiety headache, epilepsy hyperactivity in children, difficulties in breathing, anticancer, history	jalali et al. (2009); Shahaboddin et al. (2011)
<i>Althaea officinalis</i>	Malvaceae	Gol Khatmi	Flowers, leaves, root	Herniarin, mucilage, caffeic acid, salicylic acid, polysaccharide, alanine, aesculetin, vanillic acid, valine	Respiratory tract infections, gastric ulcer, anti inflammatory, diarrhea, acute gastritis, cystitis, quinsy	Ross (2001); Ibadullayeva et al. (2010)
<i>Rosmarinus officinalis</i>	Lamiaceae	Term	Flowers, aerial parts, leaves	Mucilage, chrologenic acid, Tannin, gallic acid, caffeic acid, rosmarinic acid, flavonoids, antioxidants	Cholagogue, cholaretic, diuretic, antimicrobial, anti carcinogenic, hepatotonic, antispasmodic, anti inflammatory	Bustanji et al. (2010); Okoh et al. (2011).

Darreh from east and to Kenis from west. This village has mild and humid weather. The weather does not have a seasonal order, often winters are very cold with rain and snow and summers are humid and mild. Rain fall in this zone is much and this causes variety of plant coverage.

## RESULTS

In this study, the enumerated 16 species of trees and shrubs belonging to 12 families were recorded and found to be useful to cure various disease or ailments. A botanical specimen was identified according to the standard botanical work given in flora Iranica (Akhani, 1994; Rechinger, 1963).

The plants are enumerated with their family, local name, parts used, chemical compounds and uses as shown in (Table 1). Also, some of these

plants, above all medical values, have had industrial-business application as shown in (Table 2). Overusing of *Borago officinalis* is not harmful. Overusing of *Sambucus ebulus* causes disorders like diarrhea and vomiting, and also, *Reclinata grossularia* causes disorders and risk.

If *Viscum album* products are over used none medically, it often causes severe disorders like nervous system weakness, limbs palsy, heart infarction, pulmonary dyspnea, congestion of the viscera which frequently bring about suffocation and death. So, this plant should be used with care and as much as is necessary for treatment. *Althaea officinalis* is a helpful and harmless plant but only pregnant and breast feeding mothers should not overuse it. Those who are cool-tempered should eat *A. officinalis* with honey.

*Hyoscyamus niger* is a poisonous plant, its

poison is very similar to *Atropa belladonna*, but people may be poisoned by this plant, because firstly, its fruit is located in a bowl with sharp dents and also few individuals can touch it; secondly, its leaf and other components are sticky and have a bad aroma which causes people to avoid it. Thirdly, if its fresh leaf gets mixed with edible ceases of other plants mistakenly, while cooking, a bit of its poison would be reduced.

## DISCUSSION

All the plants aforesaid in this study are very favorite among the societies of Mazandaran province and enjoys a good renown in commerce medicinal practice in the zones. Many researches carried out reported the medicinal plants all over

**Table 2.** List of the medicinal plants which have industrial business application.

Plant name	Type of use
<i>Borago officinalis</i>	Coloring vinegar
<i>Grossularia reclinata</i>	Wine, jam, jelly, conserve, vinegar
<i>Berberis vulgaris</i>	Coloring types wood fiber
<i>Ferula gummosa</i>	Industries making perfume and cologne , canvas, loom, making glue for lapidary
<i>Viscum album</i>	Glue
<i>Althaea officinalis</i>	Paper, fibers
<i>Rosmarinus officinalis</i>	Industries making perfume and cologne

the world, especially in Iran where the medicine effects, economic and diversity of plant species are shown in every region. The results of Mehrabian et al. (2005) indicate that 296 species out of 214 genera belong to 56 plant families that exist: Composite with 47 species, Papilionaceae with 32 species, Cruciferae with 30 species, Graminae with 30 species, Labiatae with 17 species comprise the highest number of species. Jalali et al. (2009) survey of ethnobotany and folk pharmaceutical properties of major tree or shrubs in two regions, Ziarat and Charbagh of Semnan province showed that around 56 species of trees and shrubs belonging to 27 families were recorded, and were used for food and medicine or other purposes, internal and external uses in both cases that the infusion or decoction of them (bark, in Florence, root, stem and leaves) were the main preparation from used. The results of Joudi and Habibi Bibalani (2010) in Ilkhji region, Eastern Azerbaijan province (Northwestern Iran) showed that 16 species among the Lamiaceae family belong to eight genera and all of them are medicinal plants and 21 species of Fabaceae family belong to 10 genera and nine of them have medicinal properties, and finally, among the Asteraceae family, 30 species belong to 23 genera and only 8 of them are considered to be medicinal plants. In a study on phenolics and antioxidant activity of some selected plant of Mazandaran province, Jamshidi et al. (2010) showed that the antioxidant activity could be correlated with the phenolic components in the extracts. The results of the research of Noorhosseini Niyaki et al. (2011), demonstrated that the most important socio- economical factors that have influence on the adoption of medicinal plants cultivation in Eshkevarat region Guilan province are marriage status, number of farm patches, yearly income from agricultural activities, and utilization system. However, the results of this research demonstrated that most of the studied plants, especially trees and shrubs are potentially a good source of medicinal agent and the use of plants are still of great importance in Iran.

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