Traditional Uses of some Medicinal Plants in Gastrointestinal tract Treatment in East - Mazandaran (Iran)

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Abstract

Background: Iran has a long history of traditional medicine and medicinal plants use in Middle East. Many ethnics in several parts of Iran use medicinal plants for their illness.

Objective: Our aims were to identify which medicinal plants in the East- Mazandaran used for gastrointestinal problems and how the indigenous people treat their gastrointestinal problems.

Methods: An investigation was carried out for a period of 2 years (from 2014 to 2015) in the area of East- Mazandaran. A questionnaire was prepared through face-to-face interviews. In order to collect detailed information we visited the people who had knowledge of medicinal plants and identify their collected dried medicinal plants. Persian and local name of the plants, their utilized parts and preparation methods were investigated and recorded.

Results: After ethnobotanical study in the East-Mazandaran region we recorded 20 species belong to 10 family of medicinal plant in this area. The most common families are: Apiaceae and Rosaceae (4 plants). The aerial parts, Young silks, seed, fruits, roots, buds and leaves of plants were used by people. The plants were collected in desire months, dried and stored for use during the year seasons in order to use them later.

Conclusion: This study showed that, Heracleum persicum, Cichorium intybus, Mentha aquatica, Ziziphora clinopodioides and Mespilus germanica, are the plants used in high range by many people for their illness. Since these species have been used by ages in traditional therapy of the area, more attention should be paid for their scientific study.

Keywords: Ethnobotany, East- Mazandaran, Gastrointestinal, Iran, Medicinal plants, Traditional remedy
Traditional Uses of …

**Introduction**

Plants have highly important roles in human lives. Ethnobotany studies introduce various aspects of plants usage such as food, cosmetics, textiles, in gardening, and as medicine. Many ethnic groups rely on wild-collected plants for food and many other purposes from birth to death. Medicinal plants and their extracts comprise the natural sources of treatments used in ethnomedicine and phytotherapy [1, 2].

Many plants’ scientific knowledge can arise from people’s experiences in traditional use of medicinal plants. Traditional knowledge such as people’s experiences is a cumulative body of knowledge, practice and belief that passed over through generations by cultural transmission [3].

Traditions system of medicine such as Chinese, Ayurvedic, Unani, Jamu, Kampo, Iranian, Aztec or various forms of European and Arabic medicine are well known examples [4]. So it is important for us to know about which and how medicinal plants are used by tribes in Iran.

In this study we intended to identify the plants, local names and their usage for medicinal or other purposes by local people in the region. In addition, a comparative analysis between previous ethnobotanic and laboratory studies of plants was attempted.

**Materials and Methods**

**Study area**

The region is separated to three main townships: Neka, Behshahr, and Galogah. Low height in the region is relevant to Galogah and highest region was Neka. Rate of maximum and minimum temperature during last 30 years for this two region was 29.8 °C and 9.1 °C respectively. Also humidity average during last 30 years was 81 percent. It is located between 35°54’- 39°03’ northern latitudes and 38°54’- 39°08’ eastern longitudes. The native language of the people was Hyrcanian that is an ancient language in Iran (Figure 1).

![Figure 1- Study area: Iran map and East of Mazandaran](image-url)
Interviews with local people

An investigation was carried out for a period of 2 years from 2014 to 2015 in the area. A questionnaire was prepared through face-to-face interviews. It included the following information: (a) date of interview; (b) name of village; (c) name of interviewees; (d) age and educational level of interviewees; (e) local name of plants; (f) plants part/s used for GI system; (g) the method of preparation; (h) the dosage of use. In order to obtain detailed information from people who had knowledge of plants we visit them in their houses. After interview the dried medicinal plants that had been collected by them were identified and collected fresh from field. Some of them were recognizable but some was very grinded so informants were asked the fellow to come to the field to introduce the plants. Sometimes we showed these fresh specimens especially aromatic plants to the local people during the interview. The fresh specimens were pressed, preserved and identified by means of some different Floras, such as Flora of Iranica, Flora of Turkey, Flora of Iran. The voucher specimens of each plant were deposited in the Medicinal plants Institute herbarium (MPIH).

Results

Use of medicinal plants

The experiences of the local people were recorded during the interviews. We interviewed a total of 50 people (12 men and 38 women) whose age ranged from 30 to 90 years (median age 58 years). We found that women have better knowledge of the medicinal plants application and most collected plants were carried out by the women. All the medicinal plants were collected from the wild or cultivated in the native people’s gardens except Rosa damascena that is cultivated for its flowers. In brief we found that, the largest number of plant used by people belonging to Apiaceae and Rosaceae (with 4 species), Asteraceae and Lamiaceae (with 3 species).

The results of the field survey are presented in Tables 1 and plants are arranged in alphabetical order of their botanical names. For each species, the botanical name and family, local name, medicinal parts, preparation form and traditional uses are presented. Most of the plants were prepared by water infusion for orally use. Results showed species such as Heracleum persicum, Cichorium intybus, Mentha aquatica, Ziziphora clinopodioides, Mespilus germanica, are plants that used by most of the people. Solanum nigrum was in lowest level of medicinal use.

Different parts of medicinal plants were used by the inhabitants of the region as medicine for GI system treatment. The most common parts used were leaves by 24%, aerial parts 20%, seeds and fruits 16% and roots 12% whiles buds, flowers and young silks were used by 4% were lower than the others. As a result, we observed that aerial parts and leaves are main part for medicinal usage. (Figure 2).

As the figure 3 shows the preparation modes for infusion 30%, edible and decoction 25% and 20%. Other type of preparation is plant powder for foods and sometimes people eat fresh fruit of the plants. Some medicinal
<table>
<thead>
<tr>
<th>No.</th>
<th>Scientific name</th>
<th>Persian name</th>
<th>Local name</th>
<th>Medicinal parts</th>
<th>Preparation form</th>
<th>Traditional uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apiaceae</td>
<td>Raziyaneh</td>
<td>Vatek</td>
<td>Seed and leaf</td>
<td>Powder</td>
<td>Carminative</td>
</tr>
<tr>
<td>2</td>
<td>Haraelemum persicum Desf. ex Fischer 4550 (MPIH)</td>
<td>Golpar</td>
<td>Kohkpar</td>
<td>Seed and leaf</td>
<td>Decocion, Infusion</td>
<td>GI cramps, stomachache</td>
</tr>
<tr>
<td>3</td>
<td>Fritieipa subpinata (Lede.) Bail 4554 (MPIH)</td>
<td>Zolong</td>
<td>Zolong, anarjate</td>
<td>Leaf</td>
<td>Edible</td>
<td>Tonic</td>
</tr>
<tr>
<td>4</td>
<td>Lasor trilobum (L.) Borkh. (Akharzadeh)*</td>
<td>Komaye-jangali</td>
<td>Goezeze</td>
<td>Seed</td>
<td>Edible</td>
<td>Tonic</td>
</tr>
<tr>
<td>5</td>
<td>Asterraceae</td>
<td>Bomadaran</td>
<td>Munabo</td>
<td>Aerial part</td>
<td>Infusion</td>
<td>Constipation</td>
</tr>
<tr>
<td>6</td>
<td>Cichorium inpybus L. 4562 (MPIH)</td>
<td>Kasni</td>
<td>Kasl alaf</td>
<td>Root and leaf</td>
<td>Fresh, cooked</td>
<td>Constipation</td>
</tr>
<tr>
<td>7</td>
<td>Siblyum mariamum (L.) Gaertn</td>
<td>Khar maryam</td>
<td>Kargar</td>
<td>Root</td>
<td>Edible</td>
<td>Fatty liver</td>
</tr>
<tr>
<td>8</td>
<td>Berberidaceae</td>
<td>Zereshke zarafshani</td>
<td>Zershik</td>
<td>Root</td>
<td>Infusion</td>
<td>Intestinal worms</td>
</tr>
<tr>
<td>9</td>
<td>Convvolaceae</td>
<td>Pichak sahacae</td>
<td>Kalmairim</td>
<td>Aerial part, bud</td>
<td>Infusion</td>
<td>Stomachache</td>
</tr>
<tr>
<td>10</td>
<td>Fagaceae</td>
<td>Siyahmazoo</td>
<td>Balst</td>
<td>Seed</td>
<td>Cooked</td>
<td>Stomach bleeding</td>
</tr>
<tr>
<td>11</td>
<td>Lamiaceae</td>
<td>Sasmanbar</td>
<td>Ojes-alaf</td>
<td>Aerial part</td>
<td>Edible</td>
<td>Flatulence, tonic</td>
</tr>
<tr>
<td>12</td>
<td>Origanum vulgare L. 4553 (MPIH)</td>
<td>Marzangosh</td>
<td>Marzanjogho</td>
<td>Aerial part</td>
<td>Infusion</td>
<td>Stomachache, Appetizing</td>
</tr>
<tr>
<td>13</td>
<td>Zeiphora clinocephales Llam. 4565 (MPIH)</td>
<td>Kakotli</td>
<td>Karbarbandi</td>
<td>Aerial part</td>
<td>Powder</td>
<td>Tonic</td>
</tr>
<tr>
<td>14</td>
<td>Poaceae</td>
<td>Balal, zorat</td>
<td>Zort</td>
<td>Young silk</td>
<td>Infusion</td>
<td>Stomachache</td>
</tr>
<tr>
<td>15</td>
<td>Polygonaceae</td>
<td>Torshake-baghi</td>
<td>Telpa</td>
<td>Leaf</td>
<td>Edible</td>
<td>Tonic</td>
</tr>
<tr>
<td>16</td>
<td>Rosaceae</td>
<td>Tootfarangii</td>
<td>Sennak</td>
<td>Fruit</td>
<td>Edible</td>
<td>Pain and inflammation of the liver</td>
</tr>
<tr>
<td>17</td>
<td>Malus orientalis Ugl. (Akharzadeh)*</td>
<td>Seeb</td>
<td>Senn jangali</td>
<td>Fruit</td>
<td>Decoction</td>
<td>Stomachache</td>
</tr>
<tr>
<td>18</td>
<td>Mespilus germanico L. 4558(MPIH)</td>
<td>Azigil</td>
<td>Kosdes</td>
<td>Leaf, fruit</td>
<td>Decoction</td>
<td>Stomachache, dysentery, vomiting, hypoglycemic agent</td>
</tr>
<tr>
<td>19</td>
<td>Rosa damascenna Mill. (Akbarzadeh)*</td>
<td>Ghol-mohammadi</td>
<td>Ghol-mohammadi</td>
<td>Flower</td>
<td>Decoction</td>
<td>Tonic, constipation</td>
</tr>
<tr>
<td>20</td>
<td>Solanaceae</td>
<td>Tajrizi</td>
<td>Sozhenar</td>
<td>Ripe fruit</td>
<td>Edible</td>
<td>Stomachache, appetizing</td>
</tr>
</tbody>
</table>

* = The plant was identified in the area by Akharzadeh
plants with thick tissue are cooked or boiled before usage such as root of *Chichorium intybus* (constipation treatment) or seed of *Quercus castaneifolia* (stomach bleeding treatment).

**Discussion**

**Ethnobotanical comparison with other studies**

This paper is focused on ethnobotanical and medicinal use of wild plants for GI system illness. The results of the comparisons are presented in Tables 2.

Comparison with traditional therapy in other studies showed that there exists considerable similarity with respect to plants used and the way of use. But among plants that studied in several references we found that for example *Foeniculum vulgare* use for several illnesses such as eyes blurry, antihypertensive,
<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Traditional Preparation</th>
<th>Traditional uses in East - Mazandaran</th>
<th>Traditional and medicinal uses in references</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Foeniculum vulgare</em></td>
<td>carminative</td>
<td>Antioxidant and antimicrobial [5], digestive ailments [6], eyes blurry and itching, digestive [7], Fruit: antiemic, emmenagogue, galactogen, leaf: carminative, root: diuretic, antihypertensive, anti - cholesterolemic, appetizer, diuretic [8], cough, stomachache, bronchitis [9], galactogenous [10], cancer, conjunctivitis, gastroitis, nursing, relaxant [11], kidney, digestive system, diabetes [12], cough [13], diuretic, kidney, infections [14], renal ailments, flatulence and to enhance lactation, digestive ailments, obstipation, flatulence, loss of appetite and stomach spasms, increased diuresis, renal and urinary bladder stones; cough, bronchitis, as expectorant; and for gingivitis, eye inflammations and eye purification [15], hyperton, diabetes [16], flatulence, appetite stimulant, kidney pain, catarrh, infant colic, diarrhea, concentration, lactation [17], diuretic, diarrhoea, digestive, eye inflammation, catarrh and bronchitis, impotence and frigidity [18], flatulence, irritable colon, abdominal cramps [19], diabetes [20], colds and coughs, mouth ulcers, digestive [21], abdominal pains [22], antiseptic, carminative, flavoring [23], diuretic, kidney infections [14]</td>
<td></td>
</tr>
<tr>
<td><em>Horeculium persicum</em></td>
<td>GI cramps, stomachache</td>
<td>Antioxidant activity [24], antimycotic, flavoring, digestive, antiseptic [23], antioxidant [25], cytotoxic [26], anti-inflammatory and analgesic [27], spice, flatulence, indigestion [28], anticonvulsant activity [29], tremor, migraine, headache caused by sinusitis (It is harmful for eyes), ascetic worms [29]</td>
<td></td>
</tr>
<tr>
<td><em>Froviopia subpinata</em></td>
<td>tonic</td>
<td>Mineral elements: iron, zinc and manganese, antioxidant [30], antioxidant [31]</td>
<td></td>
</tr>
<tr>
<td><em>Laser trilobum</em></td>
<td>tonic</td>
<td>Antimicrobial effect [32], immunobiological properties [33], antioxidant and antihaemolytic activities [34], treatment of liver, kidney, gall and urinary tract as well as bleeding [35]</td>
<td></td>
</tr>
<tr>
<td><em>Achilea wilmansi</em></td>
<td>constipation</td>
<td>Diuretic, abdominal pain, stomachache, emmenagogues, women’ s fertility, antihypertensive [36], hemorrhoid [37], digestive, for hemorrhoids, high cholesterol [38], blood coagulation, diabetes, hypertension, kidney stone, constipation [14]</td>
<td></td>
</tr>
<tr>
<td><em>Cichorium intybus</em></td>
<td>constipation</td>
<td>Diabetic [40], diarrhea [41], treat menopausal symptoms, hot flashes, nervousness [42], renal disease [16], epilepsy, asthma, ulcer, dermatitis, vulcany, herpes labialis, balding [48], epistaxis, hyperlipidemia and diabetes, eye problem, jaundice, stomach problem [14]</td>
<td></td>
</tr>
<tr>
<td><em>Silybum marianum</em></td>
<td>fatty liver</td>
<td>Sedative, stomach reflux, galactogenic [14]</td>
<td></td>
</tr>
<tr>
<td><em>Berberis integerrima</em></td>
<td>intestinal worms</td>
<td>Eye problems, hyperlipidemia, diabetes [14], enteric fever, hyperlipidemia, diabetes, anemia [29]</td>
<td></td>
</tr>
<tr>
<td><em>Convolvulus arvensis</em></td>
<td>stomachache</td>
<td>Stomachachic [36], diuretic [43], antioxidant [44], immunostimulant effects [45], Hepatoprotective [46], antiinflamatory [47], antihelminthic, skin disorders, remove from stomach [48]</td>
<td></td>
</tr>
<tr>
<td><em>Quercus castaneifolia</em></td>
<td>stomach bleeding</td>
<td>Antibacterial of pathogenic enteric [49]</td>
<td></td>
</tr>
<tr>
<td><em>Mentha aquatica</em></td>
<td>flatulence, tonic</td>
<td>Stomatache, food digestion, flavoring, respiratory complaints [50], antimicrobial, antioxidant [51], antibacterial [52]</td>
<td></td>
</tr>
<tr>
<td>Scientific name</td>
<td>Traditional Preparation</td>
<td>Traditional uses in East-Mazandaran</td>
<td>Traditional and medicinal uses in references</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------</td>
<td>--------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><em>Origanum vulgare</em></td>
<td>stomachache, appetizing</td>
<td>Antibacterial [53], anti-spoiling yeasts in food [54], antiproliferative activity [55], infection of the urinary tract [41], abdominal pain [56], vulinery, stomach pain, hypotension, epilepsy, headache, internal medicine, asthma, stomachic, toothache, cold (subsp. gracile), stomachic (subsp. viride) [36], cold, flu (subsp. hirtum) [43], colds and flu, sedative [57], kidney stone, colitis, food digestion [50]</td>
<td></td>
</tr>
<tr>
<td><em>Ziziphus clinopodioides.</em></td>
<td>tonic</td>
<td>Antinflammatory, antiseptic [23], strengthening stomach, stomachalgia, typhus, cold, antiseptic [58, 59], antibacterial activity [60], supported stomach, heart ailment [58], antibacterial [60], stomach ache, carminative, orexigenic, colds [36], cold [14], cold, infections, stomachache, headache, increase nausea [29]</td>
<td></td>
</tr>
<tr>
<td><em>Zea mays</em></td>
<td>stomachache</td>
<td>Constipation [2], diuretic [41], high blood pressure [56], urinary system, digestive system, panacea, symptoms and conditions badly defined, osteomuscular system [61], diarrhea [62], urethral stone, hemorrhoid [11], regulate menses [46], renal disease [47], infection of urinary system, heart tonic [14], to encourage lactation [63], postpartum remedy [64], stomach ache, kidney stone [43], kidneys, urinary tract [65], aphrodisiac [66], goa, kidney stones [57], kidney stones, diuretic [67], prostatitis, diuretic [68], kidney stone [50]</td>
<td></td>
</tr>
<tr>
<td><em>Rumex acetosa</em></td>
<td>tonic</td>
<td>Antiviral activity against HSV-1 [69], antiphlogistic and immunostimulating effects for treatment of sinusitis [70], anti-influenza agent [71], inhibit cell proliferation in human (antiproliferative effect) [72], antimitogen and cytotoxicity [73], diuretic, anti-hypertensive, anti-oxidative, anti-cancer effects [74]</td>
<td></td>
</tr>
<tr>
<td><em>Fragaria vesca</em></td>
<td>pain and inflammation of the liver</td>
<td>Cardiovascular effects [75], analgesic property central and peripheral analgesic activity [76], antioxidant [77]</td>
<td></td>
</tr>
<tr>
<td><em>Malus orientalis</em></td>
<td>stomachache</td>
<td>Vitamin-rich [35], recurrent hunger-induced headache [78], anti-constipation, laxative, febrifuge, antihelminthic, purgative, carminative [79]</td>
<td></td>
</tr>
<tr>
<td><em>Mesopila germanica</em></td>
<td>stomachache, dysentery, vomiting, hypoglycemic agent</td>
<td>Antihelminthic (cattle) [68], edible as wild fruit [50], enteritis [4], asthma, hemorrhoid [80], leishmaniasis phytotherapy [81], antioxidant [82], to stop diarrhea, for cough, rheumatism, diabetes and haemorrhoids, to treat inflammations [83], aphthae [84], hematopoietic, treatment of large intestine infection, diarrhea treatment, internal hemorrhage treatment, elimination of oral abscess, treatment of Cutaneous, leishmaniasis, strengthened fine skin, stimulation treatment throat [85], diuretic, kidney and bladder, stone, anti hemorrhages, anti diarrhea [86], antibacterial activity [87], stomach ache and dysentery [88]</td>
<td></td>
</tr>
<tr>
<td><em>Rosa damascena</em></td>
<td>tonic, constipation</td>
<td>digestive system, urinary system, symptoms and conditions badly defined, nervous system, respiratory system, skin's ailments [61], sedative, stomach ulcer and reflux [14], eye disease [64]</td>
<td></td>
</tr>
<tr>
<td><em>Solanum nigrum</em></td>
<td>stomachache, appetizing</td>
<td>Indigestion [89], high blood pressure, anemia, tonic [56], leukorrhea [62], constipation [14], fever: washings with sap of squeezed fruits [65]</td>
<td></td>
</tr>
</tbody>
</table>
cancer, conjunctivitis, bronchitis, diabetes, gingivitis, impotence and frigidity. *Heracleum persicum* has antimycotic, cytotoxic, migraine, ascaris worms effects. *Froriepia subpinata* has mineral elements such as iron, zinc and manganese. *Laser trilobum* has immunobiological properties and use for treatment of liver, kidney, gall blader diseases. *Achillea wilhelmsii* in addition to GI system was used for treatment of women sterility, genital disorders, hemostatic [4]. *Cichorium intybus* also has hemorrhoids, urinary disorders effects. On the other hand, some plants have unusual or less known phytotherapeutic uses. Such as *Foeniculum vulgare* (bronchitis, cancer, obstipation, gingivitis), *Heracleum persicum* (anticonvulsant activity, migraine, sinusitis), *Froriepia subpinata* (antioxidant), *Laser trilobum* (antihaemolytic activities), *Achillea wilhelmsii* (high cholesterol, diabetes), *Cichorium intybus* (treat menopausal symptoms, epilepsy, epistaxis, eye problem), *Silybum marianum* (sedative), *Berberis integerrima* (eye problems), *Origanum vulgare* (toothache, kidney stone), *Ziziphora clinopodioides* (typhus), *Zea mays* (panacea, osteomuscular system, heart tonic, postpartum remedy, aphrodisiac, prostatitis), *Rumex acetosa* (sinusitis, antimutagenicity and cytotoxicity, anti-cancer), *Rosa damascena* (eye disease), *Solanum nigrum* (anemia). *Quercus castaneifolia* is noted has antibacterial of pathogenic enteric effect. So perhaps it prevented stomach bleeding because of antibacterial effect.

**Conclusion**

People living in East-Mazandaran usually collect medicinal plants from the wild or cultivate in their gardens. Some species has several effects additional to GI system treatment except *Froriepia subpinata, Quercus castaneifolia* and *Rumex acetosa*. In the presented survey less known plants which have been used since ages in traditional therapy of this area and which are potential sources for new therapies were identified. On the other hand, if a plant is used to treat the same disease in different places across the world then its pharmacologic effect could be accepted but if it has unusual or less known phytotherapeutic uses it seem the plant must be has a supplementary examination.

**References**

4. Tetik F, Civelek S, and Cakicioglu U. Traditional uses of some medicinal plants in...


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43. Kültür Ş. Medicinal plants used in Kırklareli province (Turkey). *Journal of Ethnopharmacol.* 2007; 111: 341-64.


65. Monigatti M, Bussmann RW, and Weckerle CS. Medicinal plant use in two Andean communities located at different


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