The folk medicinal plants of Yüksekova (Hakkari-Turkey)

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Abstract: This study was made to reveal the plants used as traditional folk medicine in Yüksekova (Hakkari) situated in Southeastern of Turkey. The specimens of the plants used as folk remedies were collected and the information about the local names, the part(s) used, the ailments treated, the therapeutic effect, the preparation, the methods of administration, and the duration of treatment have been recorded. The plant specimens are kept in the Herbarium of the Faculty of Pharmacy, Marmara University. As a result of identification of the plant specimens, 25 species, used as a traditional folk medicine in Yüksekova, were determined. Among them, 18 species were wild and 7 species were cultivated plants. According to the majority of the plants which have similar usages, the plants were mostly used for urinary system diseases, wound, diabetes and stomach diseases.

Key words: Ethnobotany, folk medicinal plants, Yüksekova, Hakkari, Turkey

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Introduction

The Turkish flora contains 9582 species of the vascular plants of which about 3155 are endemic (Özhatay et al., 2012). As many Anatolian civilizations lived in the area, this region has historical and cultural heritage. This region has an important role in Turkey, due to this richness in traditional herbal medicine (Bulut & Tuzlacı, 2013). Eastern part of Turkey, which also includes the location of this research, has been the subject of limited ethnobotanical studies (Altun & Öztürk, 2011; Çakılçoğlu & Türkoğlu, 2007, 2010; Çakılçoğlu et al., 2010, 2011; Doğan & Tuzlacı, 2015; Kaval et al., 2014; Mükemre et al., 2015; Özgen et al., 2004; Övgökce & Özelcik, 2004; Sezik et al., 1997; Tabata et al., 1994; Tuzlacı & Dogan, 2010; Yezil & Akalin, 2009).
Yüksekova is situated (37° 34’ 0” N, 44° 17’ 0” E) in the southeastern part of Turkey at an altitude 1950 m above sea level (Figure 1). It covers an area of 2.291 km² and its population is 534,205. Yüksekova is flanked by Başkale (Van) to the north, Iraq to the south, Iran to the east and city of Hakkari to the west. Cilo Mountain (4168 m) is the highest elevation to the Yüksekova. Sat and Mor Mountains are other elevations (Figure 2).

**Figure 1.** Map of Hakkari (www.türkiyerehberi.com)

**Figure 2.** General view of Sat Mountain
Material and methods

Ethnobotanical data were collected through open and semi-structured interviews (Alexiades, 1996; Cotton, 1996; Martin, 1995) with local people. The interviews were made as general conversations with a strict questionnaire (Appendix 1). The information about the local names, the part(s) used, the ailments treated, the therapeutic effect, the preparation, the methods of administration, and the duration of treatment was recorded. The “Flora of Turkey and the East Aegean Islands” (Davis, 1965-1985; Davis et al., 1988; Güner et al., 2000) were mainly used for the identification of the plants. The plant specimens are kept in the Herbarium of the Faculty of Pharmacy, Marmara University (MARE).

Results and discussion

The plants used for medicinal purposes in Yüksekova are presented in Table 1 arranged alphabetically according to their botanical names, together with relevant information. Twenty-five medicinal plant species, belonging to 11 families, were recorded in the research area. Of these, 18 species were wild, and 7 species were cultivated plants (Figures 3 and 4). The most common usages of the plants were found to be urinary system diseases, wound, diabetes and stomach diseases.

The main preparation methods was decoction and usually aerial parts were used in the preparation.

We compared our results with other comprehensive ethnobotanical studies on folk medicinal plants which have already been carried out in the neighbouring areas (Altun & Öztürk, 2011; Kaval et al., 2014; Mükemre et al., 2015; Ö zgökce & Ö zcelik, 2004; Tabata et al., 1994) and presented in Table 1. Among them, Eryngium billardieri, Plantago lanceolata and P. major subsp. major recorded in five localities were the most commonly used herbal medicinal plants in Yüksekova and its surroundings.

Five taxa used medicinally (Eryngium billardieri, Mentha longifolia subsp. typhoides var. typhoides, Portulaca oleracea, Rheum ribes and Satureja hortensis) were also used as food plants. Apart from these, only 4 taxa were used as food plants in our results (Table 2).
Figure 3. *Chenopodium foliosum*

Figure 4. *Helichrysum armenium* subsp. *armenium*
Table 1 Folk medicinal plants of Yüksekova (Hakkari)

<table>
<thead>
<tr>
<th>Botanical name, family and specimen number</th>
<th>Local name</th>
<th>Plant part used</th>
<th>Ailments treated/Therapeutic effect</th>
<th>Preparation, Administration</th>
<th>Similar usage in literature</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Achillea vermicularis</em> Trin. (Asteraceae, MARE 15304)</td>
<td>Mevijan</td>
<td>Capitulum</td>
<td>Asthma</td>
<td>Decoction, int.</td>
<td>(1,3, 4, 5) †</td>
</tr>
<tr>
<td><em>Alcea rosea</em> L. a (Malvaceae, MARE 15312)</td>
<td>Hero</td>
<td>Aerial parts</td>
<td>Dyspepsia, Headache</td>
<td>Decoction, int.</td>
<td>Decoction, int.</td>
</tr>
<tr>
<td><em>Anethum graveolens</em> L. a (Apiaceae, MARE 15302)</td>
<td>Sibit</td>
<td>Aerial parts</td>
<td>Urinary system diseases</td>
<td>—, eaten</td>
<td>(2) †</td>
</tr>
<tr>
<td><em>Beta vulgaris</em> L. (f. <em>alăssima</em>) a (Chenopodiaceae, MARE 15318)</td>
<td>Silk</td>
<td>Roots</td>
<td>Kidney stones</td>
<td>Decoction, int.</td>
<td></td>
</tr>
<tr>
<td><em>Chenopodium foliosum</em> (Moench) Aschers. (Chenopodiaceae, MARE 15296)</td>
<td>Tiriyeçükkan</td>
<td>Aerial parts</td>
<td>Hematinic</td>
<td>Decoction, int.</td>
<td></td>
</tr>
<tr>
<td><em>Eryngium billardieri</em> Delar (Apiaceae, MARE 15324)</td>
<td>Tüsi</td>
<td>Roots</td>
<td>Toothache</td>
<td>Decoction, int.</td>
<td>Wound (1,4,5) (2, 3) †</td>
</tr>
<tr>
<td><em>Euphorbia denticulata</em> Lam. (Euphorbiaceae, MARE 15325)</td>
<td>Hetletis</td>
<td>Latex</td>
<td>Constipation</td>
<td>Dropped into the meal, int.</td>
<td>(2) †</td>
</tr>
<tr>
<td><em>Helianthus tuberosus</em> L. a (Asteraceae, MARE 15315)</td>
<td>Sevağ</td>
<td>Roots</td>
<td>Diabetes</td>
<td>Decoction, int.</td>
<td>Diabetes (1,2,3)</td>
</tr>
<tr>
<td><em>Helichrysum armenium</em> DC. subsp. <em>armenium</em> (Asteraceae, MARE 15386)</td>
<td>Sarı sosin</td>
<td>Aerial parts</td>
<td>Hematinic</td>
<td>Decoction, int.</td>
<td>(3) †</td>
</tr>
</tbody>
</table>
| **Hypericum scabrum** L.  
(Hypericaceae, MARE 15322) | Giyasork  | Flowering branches | Stomach diseases | Decoction, int. | Stomach diseases (1,3) |
| Malva neglecta Wallr.  
(Malvaceae, MARE 15317) | Tolk  | Aerial parts | Anthelmintic | Decoction, int. | (1,2,3,4) |
| **Mentha longifolia** (L.) Hudson  
subsp. **typhoides** (Briq.) Harley var. **typhoides**  
(Lamiaceae, MARE 15292) | Pünge  | Leaves | Asthma | Infusion, int. | (1, 5) |
| **Ocimum basilicum** L.  
(Lamiaceae, MARE 15309) | Rihan  | Leaves | Sedative | Infusion, int. |
| **Petroselinum crispum** (Miller) A.W.Hill  
(Apiaceae, MARE 15303) | Maydanoz  | Aerial parts | Urinary system diseases | Infusion, int. |
| **Pimpinella kotschyana** Boiss.  
(Apiaceae, MARE 15321) | Kakilgiya  | Aerial parts | Urinary system diseases | Infusion, int. |
| **Plantago lanceolata** L.  
(Plantaginaceae, MARE 15288) | Hevizar  | Leaves | Wound | Crushed, ext. | Wound (1,2,3,4,5) |
| **Plantago major** L. subsp. **major**  
(Plantaginaceae, MARE 15285) | Hevizar  | Leaves | Wound | Crushed, ext. | Wound (1,2,4,5) |
| **Portulaca oleracea** L.  
(Portulacaceae, MARE 15289) | Pörpine  | Aerial parts | Varicosity | Decoction, int. | (1) |
| **Rheum ribes** L.  
(Polygonaceae, MARE 15295) | Revas, Işkın  | Aerial parts | Diabetes | Decoction, int. | Diabetes (1,3) |
| **Rumex scutatus** L.  
(Polygonaceae, MARE 15281) | Tırsok  | Aerial parts | Antihypertensive | Decoction, int. | (1) |
<table>
<thead>
<tr>
<th>Species</th>
<th>Common Name</th>
<th>Part Used</th>
<th>Use</th>
<th>Preparation</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Satureja hortensis</em> L.</td>
<td>Catır</td>
<td>Aerial parts</td>
<td>Headache</td>
<td>Decoction, int.</td>
<td>(1)</td>
</tr>
<tr>
<td>(Lamiaceae, MARE 15309)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Scorzonera latifolia</em> (Fisch. et Mey.) DC.</td>
<td>Kevi</td>
<td>Aerial parts</td>
<td>Urinary system diseases</td>
<td>Decoction, int.</td>
<td>(1, 2)</td>
</tr>
<tr>
<td>(Asteraceae, MARE 15293)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Sonchus asper</em> (L.) Hill subsp. glaucescens (Jordan) Ball</td>
<td>Giya bırink</td>
<td>Latex</td>
<td>Wound</td>
<td>—, ext.</td>
<td>(3)</td>
</tr>
<tr>
<td>(Asteraceae, MARE 15314)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Stachys lavandulifolia</em> Vahl var. <em>lavandulifolia</em> (Lamiaceae, MARE 15283)</td>
<td>Kasel mahmud</td>
<td>Aerial parts</td>
<td>Diuretic Tonic</td>
<td>Decoction, int.</td>
<td>(1)</td>
</tr>
<tr>
<td>(Lamiaceae, MARE 15283)</td>
<td></td>
<td>Aerial parts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Zea mays</em> L.subsp. <em>mays</em> a (Poaceae, MARE 15307)</td>
<td>Baçık, Genmok</td>
<td>Stylus Stylus</td>
<td>Urinary system diseases</td>
<td>Decoction, int.</td>
<td>(4)</td>
</tr>
</tbody>
</table>

### Table 2 Wild edible plants of Yüksekova (Hakkari)

<table>
<thead>
<tr>
<th>Botanical name, family and specimen number</th>
<th>Local name</th>
<th>Plant part used</th>
<th>Uses</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Eryngium billardieri</em> Delar (Apiaceae, MARE 15324)</td>
<td>Tüsi</td>
<td>Young shoot</td>
<td>Eaten fresh after peeling</td>
</tr>
<tr>
<td><em>Lathyrus satdaghensis</em> P.H.Davis (Fabaceae, MARE 15290)</td>
<td>Gendel</td>
<td>Young aerial parts</td>
<td>Eaten fresh</td>
</tr>
<tr>
<td><em>Papaver psudo-orientale</em> (Fedde) Medw. (Papaveraceae, MARE 15294)</td>
<td>Haçke</td>
<td>Young fruit</td>
<td>Eaten fresh</td>
</tr>
<tr>
<td><em>Mentha longifolia</em> (L.) Hudson subsp. <em>typhoides</em> (Briq.) Harley var. <em>typhoides</em> (Lamiaceae, MARE 15292)</td>
<td>Püne</td>
<td>Leaves</td>
<td>As spice</td>
</tr>
<tr>
<td><em>Portulaca oleracea</em> L. (Portulacaceae, MARE 15289)</td>
<td>Pörpine</td>
<td>Young aerial parts</td>
<td>Cooked as meal</td>
</tr>
<tr>
<td><em>Rheum ribes</em> L. (Polygonaceae MARE 15295)</td>
<td>Revas, Işkın</td>
<td>Peduncul</td>
<td>Eaten fresh after peeling</td>
</tr>
<tr>
<td><em>Rumex</em> sp. (Polygonaceae, MARE 15326)</td>
<td>Tırşoki biyan</td>
<td>Leaves</td>
<td>Wrapped around a stuffing mixture made from rice and cooked</td>
</tr>
<tr>
<td><em>Sanguisorba minor</em> Scop. subsp. <em>lasiocarpa</em> (Boiss. et Hausskn.) Nordh. (Rosaceae, MARE 15323)</td>
<td>Haçke</td>
<td>Young fruits</td>
<td>Eaten fresh</td>
</tr>
<tr>
<td><em>Satureja hortensis</em> L. (Lamiaceae, MARE 15309)</td>
<td>Catır</td>
<td>Aerial parts</td>
<td>As spice</td>
</tr>
</tbody>
</table>
Acknowledgements

The authors wish to thank all the informants who contributed to this study with their knowledge and friendship.

Appendix 1
Questionnaire Form
1. Name and surname of the participant
2. Age and sex of the participant
3. Telephone and address of the participant
4. Educational level of the participant
5. Date of interview
6. Place of residence of the participant
7. Duration of residence of the participant
8. Local name of the plant
9. Human health or Animal health
10. Ailments treated /therapeutic effect
11. Plant part used
12. Preparation
13. Administration
14. Dosage
15. Duration of treatment
16 Age group of patients (baby, children, adults)
17. Side effect
18. Different ethnobotanical use

References


