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Original Article

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 & Tuzlaci, 2013). Eastern part of Turkey, which also includes the location of this research, has been the subject of limited ethnobotanical studies (Altun & Öztürk, 2011; Çakılcıoğlu & Türkoğlu, 2007, 2010; Çakılcıoğlu et al., 2010, 2011; Doğan & Tuzlaci, 2015; Kaval et al., 2014; Mükemre et al., 2015; Özgen et al., 2004; Özgökce & Özcelik, 2004; Sezik et al., 1997; Tabata et al., 1994; Tuzlaci & Dogan, 2010; Yesil &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 km^2 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 11families, 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; Özgökce & Özcelik, 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. *Helichyrsum armenium* subsp. *armenium*

Table 1 Folk medicinal plants of Yüksekova (Hakkari)

Botanical name, family and specimen number	Local name	Plant part used	Ailments treated/ Therapeutic effect	Preparation, Administration	Similar usage in literature
Achillea vermicularis Trin. (Asteraceae, MARE 15304)	Mevijan	Capitulum	Asthma	Decoction, int.	(1,3, 4, 5)[b]
Alcea rosea L.[a] (Malvaceae, MARE 15312)	Hero	Aerial parts Aerial parts	Dyspepsia Headache	Decoction, int. Decoction, int.	
Anethum graveolens L.[a] (Apiaceae, MARE 15302)	Sıbıt	Aerial parts	Urinary system diseases	–, eaten	(2)[b]
Beta vulgaris L. (f. ***altissima***)[a] (Chenopodiaceae, MARE 15318)	Sılk	Roots	Kidney stones	Decoction, int.	
Chenopodium foliosum (Moench) Aschers. (Chenopodiaceae, MARE 15296)	Tiriyeçüçkan	Aerial parts	Hematinic	Decoction, int.	
Eryngium billardieri Delar (Apiaceae, MARE 15324)	Tüsi	Roots Leaves	Toothache Wound	Decoction, int. Crushed, ext.	Wound (1,4,5) (2, 3)[b]
Euphorbia denticulata Lam. (Euphorbiaceae, MARE 15325)	Hetletis	Latex	Constipation	Dropped into the meal, int.	(2)[b]
Helianthus tuberosus L.[a] (Asteraceae, MARE 15315)	Sevağ	Roots	Diabetes	Decoction, int.	Diabetes (1,2,3)
Helichyrsum armenium DC. subsp. ***armenium*** (Asteraceae, MARE 15386)	Sarı sosın	Aerial parts	Hematinic	Decoction, int.	(3)[b]

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)[b]
Mentha longifolia (L.) Hudson subsp. ***typhoides*** (Briq.) Harley var. ***typhoides*** (Lamiaceae, MARE 15292)	Pünge	Leaves	Asthma	Infusion, int.	(1, 5)[b]
Ocimum basilicum L. [a] (Lamiaceae, MARE 15309)	Rıhan	Leaves	Sedative	Infusion, int.	
Petroselinum crispum (Miller) A.W.Hill [a] (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) (3)[b]
Portulaca oleracea L. (Portulacaceae, MARE 15289)	Pörpine	Aerial parts	Varicosity	Decoction, int.	(1)[b]
Rheum ribes L. (Polygonaceae, MARE 15295)	Revas, Işkın	Aerial parts	Diabetes	Decoction, int.	Diabetes (1,3)
Rumex scutatus L. (Polygonaceae, MARE 15281)	Tırşok	Aerial parts	Antihypertensive	Decoction, int.	(1)[b]

Satureja hortensis L. (Lamiaceae, MARE 15309)	Catır	Aerial parts	Headache	Decoction, int.	(1)[b]
Scorzonera latifolia (Fisch. et Mey.) DC. (Asteraceae, MARE 15293)	Kevi	Aerial parts	Urinary system diseases	Decoction, int.	(1, 2)[b]
Sonchus asper (L.) Hill subsp. ***glaucescens*** (Jordan) Ball (Asteraceae, MARE 15314)	Giya bırink	Latex	Wound	–, ext.	(3)[b]
Stachys lavandulifolia Vahl var. ***lavandulifolia*** (Lamiaceae, MARE 15283)	Kasel mahmud	Aerial parts Aerial parts	Diuretic Tonic	Decoction, int. Decoction, int.	(1)[b]
Zea mays L.subsp. ***mays*** [a] (Poaceae, MARE 15307)	Baçik, Genmok	Stylus Stylus	Urinary system diseases Urinary system diseases	Decoction, int. Decoction, int.	(4)[b]

Int.; Internal use. Ext.; External use. [a]Cultivated plant [b] Different usage. (1) Altun & Öztürk, 2011 (2) Kaval et al., 2014 (3) Mükemre et al., 2015 (4) Özgökce & Özcelik, 2004 (5)Tabata et al., 1994

Table 2 Wild edible plants of Yüksekova (Hakkari)

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

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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

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