

Traditional Plants Used for Medicinal Purposes in Güroymak (Bitlis/Turkey) District

Ümit DEMİR¹, İbrahim DEMİR^{1*}

ABSTRACT: This study, which was conducted between 2020 and 2021 to record the traditional medicinal plant usage culture of the inhabitants of Güroymak (Bitlis), was the first to be conducted in the district. Face-to-face interviews with individuals with advanced ethnobotanical knowledge were conducted in the villages (29) of the district, and the medicinal plants which were used were gathered and identified. The information gathered as a result of the interviews with 120 participants was recorded for this purpose. As a result of the study, it was observed that 60 taxa from 26 families were used to treat 30 different diseases. The most used medicinal plants were from the family “Asteraceae” (13 taxa), followed by “Lamiaceae” (8 taxa), “Rosaceae” (7 taxa) and “Polygonaceae (3 taxa)”. The usage value (UV) was calculated for each species. *Malva neglecta*, *Rosa canina*, *Crataegus pseudoheterophylla*, *Crataegus monogyna*, *Juglans regia*, *Crataegus orientalis*, *Rumex scutatus*, *Celtis tournefortii*, *Alcea setosa*, and *Taraxacum kurdiciforme* were the most commonly used taxa in the study area. Furthermore, diseases for which medicinal plants were used were classified using The International Classification of Primary Care (ICPC), accepted by the WHO, and the Informant Consensus Factor (ICF) values for each disease category were calculated. Diseases with high ICF values are digestive problems (27 taxa). This is followed by the respiratory and skin disease categories (11 taxa for each).

Keywords: Ethnobotany, Bitlis, medicinal plants, traditional medicine, Turkey

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INTRODUCTION

Wild plants have had a significant impact on human life since the beginning of human history. Human beings have made use of the plants around them, particularly as a source of food and as a solution to solve health problems. The knowledge gained over time has been transferred to the present, thus ensuring the development of ethnobotanical culture (Baytop, 1999).

Although traditional medicine is used for primary health care by about 80% of the world's population, for centuries, medicinal plants have been used to treat a wide range of ailments all over the world. In fact, over fifty thousand of the world's estimated 422.000 plant species are used for medicinal purposes (Hamilton, 2004; Yeşil and İnal, 2021).

Anatolia has been home to numerous ancient civilizations, and humans have used plants for medical purposes since the Paleolithic period (Demir, 2020a). Moreover, due to its geographical, geological, and climatic diversity, Turkey is among the countries with high biodiversity, with more than twelve thousand plant taxa (Güner et al., 2012). The number of endemic taxa is around four thousand (Erik and Tarıkahya, 2004). The variety of cultural and biological diversity has enriched ethnobotanical uses. Although systematic ethnobotanical studies began Turkey in the mid-1990s (Ertuğ and Güner, 2014), about thousand medicinal plant species have been identified (Yeşilada, 2005). Many ethnobotany investigations have been conducted in Turkey in recent years (Bozkurt and Terzioğlu, 2017; Öztürk et al., 2018; Kılıç et al., 2020; Güler et al., 2020; Emre et al., 2021). Although a large portion of these studies were conducted in the eastern Anatolian region (Behçet and Arık, 2003; Özgökçe and Özçelik 2004; Polat et al., 2012; Dalar and Konczak, 2012; Kaval et al., 2014; Hayta et al. 2014; Mükemre et al., 2015; Korkmaz et al 2016a,b).

Bitlis is one of the provinces that has yet to be ethnobotanical study explored. Hence the studies available in this region are limited (Tabata et al., 1994; Demir, 2020a; b). Because of the severe winter circumstances and impossibilities, residents in Bitlis previously had difficulty in accessing health institutions. As a result, the local people began to seek alternative medicines to find a solution for their diseases (Tabata et al., 1994; Demir, 2020a). Due to these impossibilities, the inhabitants of the region have been forced to employ a variety of medicinal herbs that grow naturally in the area.

The culture of this usage has improved through trial and error and has reached the present day. The Güroymak (Bitlis) district is one of the best examples of this. This study presents the first ethnobotanical study carried out in the Güroymak district. This study was carried out to scientifically determine the medicinal plants used by the local inhabitants of the Güroymak region and to record their traditional knowledge.

MATERIALS and METHODS

Study Area

The research area is the a district of Bitlis Province, which is located the eastern Anatolian region of Turkey. The Güroymak district is located between 38°56'55" N and 42°03'14" E, covering an area of 88,891 km². Some regions in the district, which has an average altitude of 1400 m, may reach 2000 m. Güroymak is located in the west of Lake Van near the eastern end of the Mus Plain in a flat location between two mountain ranges extending westward and eastward. Nemrut Crater Lake and its environs, located in the east of the district, extend westward. It is the world's second biggest crater lake and Turkey's largest. In 2003, the Nemrut Caldera was declared as a Natural Monument; and in 2005, it was recognized as an Important Plant Area; and in 2006, it was designated as an Important Nature Area (Akın and Seven, 2020). Kilhar Mountain, located in the south of the district, is an extension of the eastern Taurus Mountains with a little westward slope (Figure 1).

This study was conducted in all of the villages within Güroymak district through interviews with 120 participants.

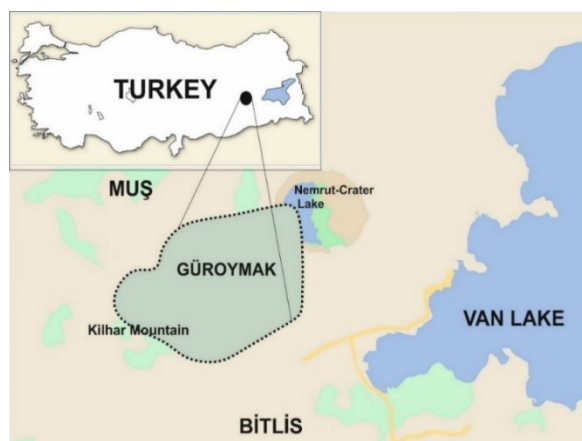


Figure 1. The study area's geographic position. (Güroymak).

Interviews with healer people

Face-to-face interviews with individuals with ethnobotanical knowledge and experience were conducted. The opinions of 120 individuals, including 85 men and 35 women, were gathered, and the information was recorded.

The participants were asked the following questions, and their responses were recorded.

What is the plant's local name?

- For which disease are you using the plant?
- Which part of the plant are you using (seeds, roots, etc.)?
- How do you prepare the plant for usage (drying, grinding, making a tea)?

In addition, the participants' information was recorded (name, surname, gender, age, education, employment, etc.).

The participants were chosen based on the advice of the local elders in the villages where the study was carried out. This category was consisted of people who had a lot of ethnobotanical expertise.

The interviews were conducted in accordance with the Code of Ethics of the International Society of Ethnobiology. The study was declared verbally to the participants and their consents were received verbally.

Collection and identification of medicinal plant

Plant specimens were collected during the interviews with the participants between 2020 and 2021, and the information (GPS coordinates, locations, etc.) was recorded. Flora of Turkey was used to identify the plant taxa (Davis, 1965-1985). In addition, Turkey Plants List was used (Güner et al., 2012).

The taxa were presented in alphabetical order. Because Bitlis Eren University does not have an official herbarium, the collector number of the taxa listed in Table 2 was used instead of the herbarium number, and the taxa were recognized and stored at the Biology Department of the University.

Classification of diseases

The diseases for which medicinal plants were used were classified using The International Classification of Primary Care (ICPC), accepted by the WHO.

Medical ethnobotanists and ethno-pharmacologists can easily classify reported symptoms and complaints with the ICPC in one of the "chapters" based on 17 body systems (Staub et al., 2015) Table 1.

Table 1. Disease categories in which medicinal plants are used

A) General	B) Blood forming organs	C) Digestive	D) Eye
E) Ear	F) Circulatory	G) Musculoskeletal	H) Neurological
I) Psychological	J) Respiratory	K) Skin	L) Endocrine, metabolic
M) Urology	N) Pregnancy, childbirth	O) Female genital system and breast	P) Male genital system
Q) Social problems			

Calculations

Usage value (UV)

The usage value (UV) index, developed by Phillips and Gentry (1993), is widely used in ethnobotanical studies to assess the relative significance of species.

The following formula is used to compute it: $UV = \sum u_i / n$.

here, u_i is the number of uses for a given species stated by each informant, and n is the total number of participants (Albuquerque et al., 2006)

The UV was computed for each of the identified taxa.

Informant consensus factor (ICF)

On the other hand, the informant consensus factor (ICF) was utilized to determine the homogeneity of the information on specific plants that were used to treat a certain group of diseases. The ICF value must be between 0 and 1. A high value (close to 1) indicates that relatively few taxa are used by a large proportion of the healers, while a low value indicates that the informants disagree on the taxa to be used in the treatment within a category of illness (Heinrich et al., 1998).

The below formula was used to calculate the ICF:

$$ICF = \frac{Nur - Nt}{Nur - 1} \quad (1)$$

Nur: It is the total number of use reports for each illness group (as cardiovascular, gynecology etc.)

Nt: It is the total number of plant species used in that disease category.

RESULTS and DISCUSSION

Traditional Medicinal Plants and Its Knowledge Related

Table 2 lists the scientific names and voucher numbers, the family native names, plant parts, preparations, utilization methods, and diseases in Güroymak. As a result of the study, it was determined that 60 taxa belonging to 26 families were used in the treatment of 30 different illnesses. While most of the taxa used in the study area were herbaceous plants, only 10 of these taxa were trees (in the Rosaceae family in particular). According to the findings, the largest number of plants used was from the Asteraceae family (13 species), which was followed by Lamiaceae (8 species), Rosaceae (7 species), and Polygonaceae (3 species) (Figure 2). Only one or two taxa were found in the other plant families. Some medicinal plant taxa were also used as food. Asteraceae, Lamiaceae, and Rosaceae were the families used for medicine at the most in other studies conducted around the eastern Anatolia (Altundag and Ozturk, 2011; Cakilcioglu et al., 2011; Kaval et al., 2014; Tetik et al., 2013; Mükemre et al., 2015; Demir, 2020a). In terms of the number of taxa in Turkey flora, these families are among the richest (Davis, 1965-1985). These families also have antioxidant and anticoagulant activity effects through their secondary compounds, such as phenols and flavonoids (Pawlaczyk et al., 2009; Michel et al., 2020).

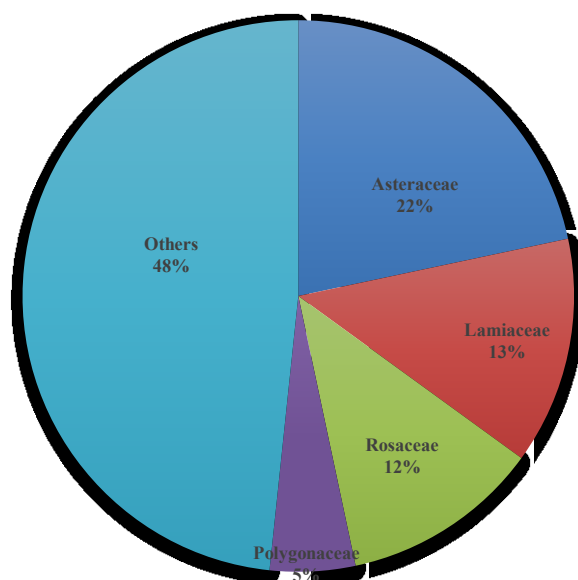


Figure 2. The percentages of the most often utilized plant families

Table 2. List of plants used for medicinal purposes in Güroymak

Family, Plant species, Collector number	Local names	Part used	Preparation	Utilization method	Used	UV
ACANTHACEAE <i>Acanthus dioscoridis</i> L., ÜD001	Parimiyan	Aerial parts	Infusion	Drink	Stomachache	0.025
AMARANTHACEAE <i>Amaranthus retroflexus</i> L., ÜD002	Sılmık	Aerial parts	Boiled	Eat	Stomachache	0.40
APIACEAE <i>Ferula hausknechtii</i> H.Wolff ex Rech.f., ÜD008	Kefçık	Root	Boiled or Crushed	Eaten with honey	Male infertility	0.01
<i>Prangos pabularia</i> Lindl, ÜD009	Kefkork	Root	Boiled or Crushed	Eaten with honey	Male infertility	0.01
ARACEAE <i>Arum rupicola</i> Boiss. var. <i>virescens</i> (Stapf) P.C.Boyce, ÜD012	Kari	Root	Decoction	Drink or Externally	Hemorrhoids	0.31
ASPARAGACEAE <i>Ornithogalum sphaerocarpum</i> A.Kern., ÜD013	Hephebok	Bulb	Crushing with vaseline	Ointment	Skin wounds, Hemorrhoids	0.01
ASTERACEAE <i>Achillea biebersteinii</i> Afan, ÜD014	Pujang	Aerial parts	Infusion	Drink or Bath	- Cough - Uterine	0.09
<i>Achillea schischkini</i> Sosn. ex Grossh., ÜD015	Pujang	Aerial parts	Infusion	Drink or Bath	Liver disease, Cough, Uterine	0.05
<i>Anthemis cotula</i> L, ÜD016	Papatya	Aerial parts	Infusion	Drink or Bath	Stomachache, Asthma Intestinal pain	0.21
<i>Cota tinctoria</i> (L.) J.Gay var. <i>tinctoria.</i> , ÜD017	Papatya	Aerial parts	Infusion	Drink or Bath	Stomachache, Asthma Intestinal pain	0.05
<i>Arctium minus</i> (Hill) Bernh., ÜD018	Belghewcz	Aerial parts	Crushing with vaseline	Ointment	Dermatitis	0.30
<i>Artemisia vulgaris</i> L., ÜD020	Gêzik	Aerial parts	Infusion	Drink	Stomachache	0.05
<i>Centaurea virgata</i> Lam., ÜD022	Sıvnik	Aerial parts	Infusion	Drink	Stomachache	0.01
<i>Cichorium intybus</i> L., ÜD023	İndiba	Aerial parts	Infusion	Drink	Liver disease	0.30

Table 2. List of plants used for medicinal purposes in Güroymak (continued)

<i>Lactuca serriola</i> L., ÜD026	Gula kewe	Aerial parts	Infusion	Drink	Cough, Hoarseness	0.03
<i>Onopordum candidum</i> Nábëlek, ÜD027	Hiyaro	Seed	Crushed	Eaten with honey	Hemorrhoids	0.01
<i>Scorzonera latifolia</i> DC., ÜD028	Giya nêrebend	Aerial parts	Crushed, Infusion	Eaten with honey, Drink	Sinusitis	0.01
<i>Taraxacum kurdiciforme</i> G.E.Haglund, ÜD030	Hindiba	Aerial parts	Infusion	Drink	Liver disease	0.41
<i>Tragopogon coloratus</i> C.A.Mey., ÜD031	Sıpıng	Aerial parts	Eaten raw	Eat	Stomachache	
BORAGINACEAE						
<i>Anchusa azurea</i> Mill., ÜD033	Guris	Aerial parts		Drink	Liver disease	0.27
CAMPANULACEAE						
<i>Campanula stricta</i> L. ÜD035	Uğurotu	Aerial parts	Infusion	Drink	Stress	0.02
CANNABACEAE						
<i>Celtis tourneforti</i> Lam., ÜD036	Tewo	Fruit	Eaten raw	Eat	Diarrhea	0.42
CARYOPHYLLACEAE						
<i>Silene dichotoma</i> Ehrh., ÜD037	Cantr	Aerial parts	Infusion	Drink	Stomachache	0.02
CUCURBITACEAE						
<i>Bryonia alba</i> L., ÜD040	Kondirebeji	Root	Crushed	Chew	Hypertension, Diabetes	0.01
ELAEAGNACEAE						
<i>Elaeagnus angustifolia</i> L., ÜD041	Pıřavt	Fruit	Eaten raw	Eat	Cough, hoarseness	0.01
EQUISETACEAE						
<i>Equisetum arvense</i> L., ÜD042	Giyagezik	Aerial parts	Infusion	Drink	Urinary calculus, Diarrhea,	0.01
EUPHORBIACEAE						
<i>Euphorbia denticulata</i> Lam., ÜD043	Ğořil	Latex (*It should be used with caution and in certain doses)	Drink	Drink, Externally	Dermatitis	0.05
<i>Euphorbia esula</i> L., ÜD044	Ğořil	*Latex	Drink	Drink, Externally	Diarrhea, Dermatitis	0.05
HYPERICACEAE						
<i>Hypericum perforatum</i> L., ÜD050	Kantarona zer	Aerial parts	Infusion	Drink	Eye pain	0.02
<i>Hypericum scabrum</i> L., ÜD051	Kantarona sor	Aerial parts	Infusion	Drink	Eye pain	0.02
JUGLANDACEAE						
<i>Juglans regia</i> L., ÜD053	Goz	Fruit	Eaten raw	Eat	Hypertension, Cholesterol	0.44
LAMIACEAE						
<i>Phlomis rigida</i> Labill., ÜD057	Cantiyana	Aerial parts and flower	Infusion	Drink	Cough, Stomachache	0.02
<i>Salvia microstegia</i> Boiss. & Balansa, ÜD058	Belghekim	Aerial parts	Crushed	Externally (Ointment)	Dermatitis	0.04
<i>Salvia nemorosa</i> L., ÜD059	Belghekim	Aerial parts	Infusion	Drink	Stress	0.01
<i>Salvia pocolata</i> Náb, ÜD060	Belghekim	Aerial parts	Eaten raw,	Eat, Drink	Stress	0.01
<i>Salvia virgata</i> Jacq., ÜD061	Cantiyana	Aerial parts	Infusion	Drink	Anemia	0.03
<i>Stachys cretica</i> L., ÜD062	Cantiyana	Aerial parts	Infusion	Drink	Urinary tract infection	0.03
<i>Stachys lavandufolia</i> Vahl, ÜD063	Bareř	Aerial parts	Infusion	Drink	Headache	0.05
<i>Teucrium polium</i> L., ÜD064	Giyawermen	Seed	Crushed, Infusion	Drink	Anemia, Toothache, Rheumatism	0.01
MALVACEAE						
<i>Alcea setosa</i> (Boiss.) Alef., ÜD067	Hêro	Aerial parts	Seed Infusion, Crushed	Drink, Ointment,	Stomachache, Dermatitis	0.42
<i>Malva neglecta</i> Wallr., ÜD068	Tolik	Aerial parts	Infusion	Drink	Stomachache	0.45

Table 2. List of plants used for medicinal purposes in Güroymak (continued)

ORCHIDACEAE	Hephebok	Bulb	Crushed	Ointment	Hemorrhoids	0.02
<i>Dactylorhiza iberica</i> (M. Bieb. ex Willd.) Soó, ÜD069						
PAPAVERACEAE	Bükok	Aerial parts	Infusion	Drink	Indigestion, Skin care	0.11
<i>Papaver persicum</i> Lindl., ÜD070						
<i>Papaver rhoeas</i> L., ÜD071	Bükok	Aerial parts	Infusion	Drink	Indigestion, Skin care	0.12
PLANTAGINACEAE	İlandilan	Leaves	Crushed	Ointment,	DermatitisSto	0.13
<i>Plantago atrata</i> Hoppe, ÜD072			Infusion	Drink	machache	
<i>Plantago media</i> L., ÜD073	Belgetehl	Leaves	Infusion	Drink	Mouth sore	0.13
POLYGONACEAE	Havilok	Leaves	Eaten raw	Eat	Stomachache	0.21
<i>Rumex crispus</i> L., ÜD076						
<i>Rumex scutatus</i> L., ÜD077	Tırşok	Leaves	Eaten raw	Eat	Stomachache	0.42
<i>Rumex tuberosus</i> L., ÜD078	Tırşok	Leaves	Eaten raw	Eat	Stomachache	0.41
RANUNCULACEAE	Senemene	Aerial parts	Crushed	Eaten with	Cough	0.02
<i>Thalictrum minus</i> L., ÜD080	ki			honey		
ROSACEAE	Bilanok	Fruit	juicing	Drink	Heart diseases	0.45
<i>Crataegus monogyna</i> Jacq., ÜD081						
<i>Crataegus orientalis</i> Pall. ex Bieb., ÜD082	Gühüj	Fruit	juicing	Drink	Heart diseases	0.44
<i>Crataegus pseudoheterophylla</i> Pojark., ÜD083	Gıvıj	Fruit	juicing	Drink	Heart diseases	0.45
<i>Malus sylvestris</i> Mill., ÜD084	Sêv	Fruit	Eaten raw	Eat	Anemia	0.35
<i>Prunus spinosa</i> L., ÜD085	Alicark	Fruit	Eaten raw	Eat	Diabetes	0.05
<i>Rosa canina</i> L., ÜD086	Şilan	Fruit	Eaten raw	Eat	Asthma	0.45
<i>Rubus caesius</i> L., ÜD088	Tüntürk	Fruit	Eaten raw	Eat	Anemia	0.36
SCROPHULARIACEAE	Denekutnu	Aerial parts	Crushed	Ointment	Skin itching	0.02
<i>Scrophularia scopolii</i> Loisel., ÜD089			Boiled			
URTICACEAE	Duvarfesle	Aerial parts	Infusion	Drink	Cough	0.06
<i>Parietaria judica</i> L., ÜD090	ğeni					
<i>Urtica dioica</i> L., ÜD091	Gerzink	Aerial parts	Crushed, Cooked	Ointment, Drink, Eat	Indigestion, Hair care, Toothache	0.40

Parts of plant used, preparation, and utilization methods

The aerial parts (27) of medicinal parts were the most widely used in the medicinal plants to treat diseases, followed by the leaves (12), fruit (10), roots (4) and latex, bulbs, seeds (2 or 3 for each) (Figure 3). The most common method of preparation was infusion (31), because it is probably the most practical preparation method. Plant parts such as aerial parts and leaves were used in this preparation method because they are thin. As a result, most of the ethnobotanical studies in Turkey have come to the same conclusion (Kaval et al., 2014; Özdemir and Alpinar, 2015; Mükemre et al., 2015; Dalar et al., 2018). After being dried, the aerial parts or leaves of the plants were used in infusions. The liquids obtained through infusion were generally consumed by drinking. This method is followed by crushing (15) and eaten raw (11). The others (boiled, decoction etc.) were rare. For the plant parts such as seeds and roots, the crushing method was used. This method is applied to maximize the use of the secondary metabolites found in these coarse parts. Crushed plant parts, such as leaves and bulbs, were commonly used to make ointments. Medicinal plants that were eaten raw were used to treat internal diseases such as stomach aches and diarrhea. Supplementary materials were sometimes used in the medicinal plants (Ekpo et al., 2008; Tugume et al., 2016). Sweeteners such as honey, for example, were used when eating unpleasant *Onopordum candidum* seeds or the roots of plants such as *Ferula hausknechtii*, and

Prangos pabularia or vaseline was applied to wounds to improve the adherence of the plants, such as *Ornithogalum sphaerocarpum* and *Arctium minus*, which were used to treat skin diseases.

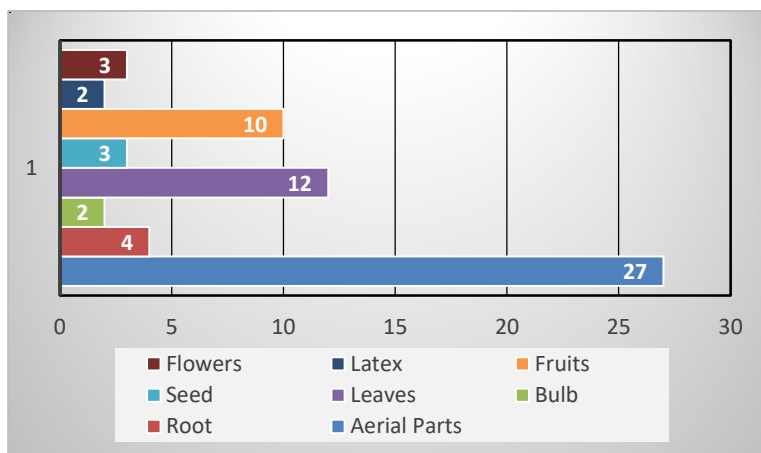


Figure 3. Used parts of plants

Demographic characteristics of participants

120 informants were interviewed, including 85 men (70.84%) and 35 women (29.16%). Most of the participants were at the of age of between 45–65. The educational background of most of the participants was at the level of illiterate or primary school (70.84%) (Table 3), and most of these were women. The social and cultural circumstances in the south-eastern and eastern Anatolian areas contributed to the lack of female participants. The findings were consistent with the ethnobotanical studies in these regions (Kaval et al., 2014; Mükemre et al., 2015; Çakır, 2017; Demir, 2020a).

Table3. Classification of participants according to their demographic feature

Total people	Status	Number of people	Percent (%)
Gender	Man	85	70.84
	Women	35	29.16
Age groups	25-44	39	32.50
	45-65	66	55.00
	Over 65	15	12.50
Literacy level	Illiterate or Primary	96	80.00
	Middle, High)	13	10.83
	University	11	9.17

Diseases to be treated with medicinal plants

The International Classification of Primary Care (ICPC), accepted by the WHO, was used to classify the diseases treated with medicinal plants in the study area.

Diseases in which medicinal plants are used in the area are categorized according to International Classification of Primary Care (ICPC). The most used medicinal plants in Güroymak were used for Digestive problems (27 species). And, it was followed by respiratory and skin diseases (11 species for each), general diseases (7), blood diseases (6), neurologic (5), psychological and endocrine metabolic (3 species for each) (Table 4, Figure 4).

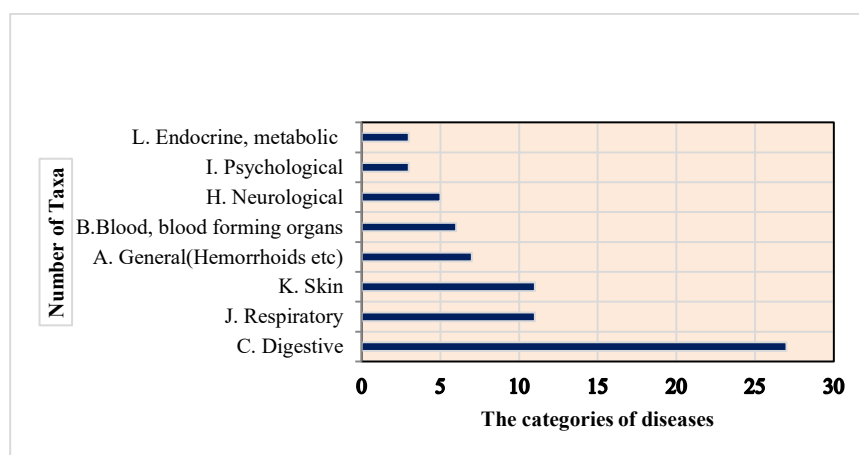


Figure 4. The most prevalent illnesses cured by medicinal plants in Güroymak

Calculations

Usage value (UV)

The most used taxa were: *Malva neglecta* (UV 0.45), *Alcea setosa* (UV 0.42), *Rosa canina* (UV 0.45) *Crataegus pseudoheterophylla* (UV 0.45), *Crataegus monogyna* (UV 0.45), *Juglans regia* (UV 0.44), *Crataegus orientalis* (UV 0.44), *Rumex scutatus* (UV 0.42), *Celtis tournefortii* (UV 0.42), and *Taraxacum kurdiciforme* (UV 0.41). Some taxa have low x values. This is because the number of participants giving specific information about these taxa is low.

Malva neglecta is one of Anatolia’s most frequently used medicinal and edible plants (Turan et al., 2003; Özbucak et al., 2006; Dalar et al., 2012; Özgen et al., 2012; Özdemir and Alpınar 2015; Güneş et al., 2017; Kayabaş et al., 2018). The usage of the genus *Rosa*, which is consisted of a large number of species, is widespread in Turkey as medicinal plants (Sargın et al., 2013; Han and Bulut, 2015). *Crataegus* taxa in Turkey contain high levels of antioxidants and antimicrobials (Güven et al., 2006; Özyürek et al., 2012). Walnut (*Juglans regia*) used for its therapeutic purposes, is extremely prevalent in Bitlis Province (Özgökçe and Özçelik, 2014; Demir, 2020a).

Table 4. The categories of diseases and the values of the informant consensus factor (ICF)

Disease Categories According to the ICPC approach	Diseases for which medicinal plants were used in Güroymak	Total number of species (Nt)	Number of use report (Nur)	ICF
A. General	Hemorrhoids, hoarseness, mount sore	4+2+1=7	44+56+16=116	0.94
B. Blood, blood forming organs	Cholesterol, Anemia, Heart diseases,	1+4+1=6	53+11+161=225	
C. Digestive	Stomachache, liver diseases, intestinal pain, diarrhea, indigestion	15+4+2+3+3=27	298+99+15+63+77=552	0.97
D. Eye	Eye pain	2	58	0.98
E. Ear	-			
F. Circulatory	Hypertension	2	55	0.98
G. Musculoskeletal	Rheumatism	1	2	
H. Neurological	Sinusitis, headache, toothache	1+2+2=5	2+11+2=15	0.71
I. Psychological	Stress	3	10	0.77
J. Respiratory	Cough, asthma	8+3=11	90+32=122	0.91
K. Skin	Dermatitis, skin wound, skin care, skin itching, hair care	6+1+2+1+1=11	124+2+28+3+49=206	0.95
L. Endocrine, metabolic	Diabetes	3	15	0.85
M. Urology	Urinary calculus, urinary tract infection	1+1=2	1+4=5	0.75
N. Pregnancy, childbirth	Uterine	2	18	0.94
O. Female genital system	-	-	-	
P. Male genital system	Male infertility	2	4	0.66
Q. Social problems	-	-	-	

Informant consensus factor (ICF)

In Güroymak district, plants are used for the treatment of 30 different diseases. These diseases were categorized according to The International Classification of Primary Care (ICPC) (14 categories), and ICF values of each category were calculated. The highest ICF score was in the Eye pain and Hypertension diseases (0.98 each), followed by the digestive category (0.97), Skin problems (0.95), then Hemorrhoids, hoarseness, mouth sore (0.94) and Uterine (0.94) diseases. Due to harsh conditions and impossibilities, in ancient times, the people of Güroymak developed traditional ways to treat sudden-onset diseases such as severe earaches and high blood pressure. In the Eastern Anatolia region, it is common for people to use plants for stomach diseases. Stomach diseases are the most complained disease group in these regions (Çakılcıoğlu et al., 2011; Kaval, 2014; Mükemre 2015; Demir, 2020a).

CONCLUSION

Plants are among most valuable natural resources of a country since they are essential for the continuation of life. They have been utilized to cure diseases in almost every civilization. Anatolia has a long history of therapeutic plant use. Throughout history, it has been home to several civilizations.

Long ago, the people who lived in locations such as Bitlis, where access to health care was difficult owing to tough topographical structures and severe winter circumstances, began to seek for alternative treatments for their diseases. Without doubt, the region's vast plant diversity had a major influence on alternative approaches. Thus, a rich ethnobotanical culture was formed there. Unfortunately, newer generations are not aware of the importance of this information. At the same time, the number of people who possess this information is steadily reducing. As a result, ethnobotanical information must be documented as quickly as possible. Ethnobotanical studies are significant because they include useful information that has been obtained by trial and error and passed down from one generation to another over a long period of time. The goal of this study is to document the plant usage culture of the local people in the Güroymak district, which has a large plant diversity and accumulation of knowledge about plants.

Conflict of Interest

The article authors declare that there is no conflict of interest between them.

Author's Contributions

The authors declare that they have contributed equally to the article.

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