An Ethnobotanical Study of Medicinal Plants Used in Hizan District (Bitlis-Turkey)

İbrahim DEMİR*1

1Bitlis Eren University, Department of Biology, Faculty of Science, 13100, Bitlis, Turkey

http://orcid.org/0000-0003-1533-556X

*Corresponding Author e-posta: idemir@beu.edu.tr

Abstract: Medicinal plant use culture is very rich in East Anatolia. Hizan district is one of the best examples of this. Hizan has a very hilly topography. In the past, people is living in Hizan developed alternative medicines to treat their illnesses because of geographical structure and harsh winter conditions. This study was conducted in Hizan (Bitlis) district and it was the first investigation of the knowledge of tra-ditional medicinal plants used in Bitlis Province. This research aims to scientifically identify the medicinal plants used by local people and record the culture of traditional medicinal plants use of local people living in Hizan. Face-to-face interviews were conducted with participants with ethnobotanical knowledge and experience in 2018 and 2019 and the collected samples were prepared according to herbarium techniques. Consequently 71 taxa belonging to 29 families used for the treatment of 35 different diseases were identified. The traditional medical use of some taxa was specific to Hizan. The results revealed that the taxonomic family with the greatest number of utilized plants was Asteraceae. These are followed by Rosaceae, Lamiaceae, Malvaceae, Polygonaceae and Apiaceae.
1. Introduction

The fossil records show that the human use of plants as medicines may be traced back at least 60,000 years (Solecki, 1975). According to some researchers (Miara et al., 2019), the great majority of developing countries (80%) use medicinal plants for health purposes. Documentation of ethnobotanical information is important for the conservation and use of biological resources (Muthu et al., 2006).

Medicinal plants in rural areas of developing countries have been used as the primary source of medicine in the treatment of human diseases (Palombo, 2009; Sönmez et al., 2019). Many ancient civilizations had flourished in Turkey, and thus many food and medicinal plant domestication began in this area (Altundağ and Öztürk, 2011). The Anatolian people have been used plants for medicinal purposes by Paleolithic period (50,000 BC). The plant specimens that were found in the Neanderthal tombs in Şanidar cave in the Zagros Mountains of northwestern Iraq, which is not far from Hizan (our research area), are solid proofs of this assumption (Baytop, 1999). Anatolia is the meeting place of three phytogeographical regions (Euro-Siberian, Mediterranean and Irano-Turanian). Thus, it has a very rich flora (Özhatay et al., 2005).

There are some ethnobotanical studies done in Eastern Anatolia, but they are inadequate (Akan et al., 2008). In the past, due to harsh winter conditions and deficiency, people who had difficulty accessing health facilities started looking for alternative medicines for treatment in Bitlis province. Thus, the use of the culture of the traditional medicinal plants has enriched. (Tabata et al., 1994). One of the best examples of this condition is Hizan district.

This study was carried out to scientifically identify the medicinal plants used by local people living in Hizan district, to record this cultural heritage and to convey it to future generations.

2. Materials and Methods

2.1. The study area

Hizan is located in Eastern Anatolia Region. It is located at 38°13′ N, 42°25′ E coordinates and is 1700 meter above average sea level. Hizan is neighbour to Bahçesaray and Gevaş (Van) in the east, Pervari and Şirvan (Siirt) in the south and Tatvan (Bitlis) in northwest (Figure 1).

Figure 1. Geographical location of the research area (Hizan).

Hizan has been a center of civilization since the Hittites. According to historical records, human settlements are known to be present there from the 2000s BC. Human settlements started with the Hittites and continued under Persian, Roman, Byzantine and Arab rule. It was ruled by Seljuks in the 11th century and by Ottomans period in the 16th century (Çiçek, 2016).
2.2. Interviews with healer people

In 2018 and 2019, interviews were held face-to-face with participants who have ethnotaxonomic knowledge and experience (Figure 2). The view was obtained from 68 people, including 39 men and 29 women and information was obtained recorded. The average age of the participants is over 40. The job of these people living in the villages are generally farming.

The following questions were asked to the participants and the answers were recorded.
- What is the domestic names of the plant used?
- For what kind of diseases are the plants used?
- Which part of the plant is used?
- How you prepare a plant for use?
- How is used the herbal medicine?

Figure 2. Geographical location of the research area (Hizan).

2.3. Collecting and identification of medicinal plants

Medically used plant samples were collected from their natural habitats with the participants. The collected plant samples were collected according to the information provided by the healers.

The collected samples were prepared according to herbarium techniques and herbarium samples were stored in the Biology Department of Faculty of Sciences, Bitlis Eren University.

Identification of plant taxa was performed by using Flora of Turkey. (Davis, 1965-1985; Davis et al., 1988; Güner et al., 2000). The scientific names of the plant taxa were confirmed by using (The Plant List, 2013) and The taxonomic categories (family, species etc.) of the identified samples were arranged in alphabetical order (Table 1).

2.4. Classification of diseases

The treated diseases were classified according to the international classifications of diseases of the by the WHO (Staub et al., 2015). These ailments are: Antidote; (for snake bites and bites of other venomous animals); Aphrodisias; (stimulant, anti-stimulant, impotency); Cancer, Cardiovascular; (anti-arrhythmic, cardiotonic, dropsy, blood circulation, haemorrhoids and varicose veins [both internal applications], hypertension); Dermatologic disorders;(incl. Infections, tonsillitis, mouth and throat infection, haemorrhoids and varicose veins, external applications), Metabolic syndrome; (diabetes, immunological problems), Gastrointestinal problems; (Ulcers, stomach ache), Gynaecology (women's medicine), Infections (protozoal, bacterial and viral infections), Nervous system (peripheral and central, incl. Headache and insomnia, anal-gesics and unspecific spasmyotics, stimulants and hallucinogens), Parasites; (helminths, lice, insects); Respiratory complaints; (tonsillitis, mouth and
throat infection, asthma, pulmonary problems), Skeleto-muscular system; (rheumatism, muscle relaxant, gout) and Urological problems; (infections, dropsy, prostate, diuretic action).

Herbal remedies prepared by the participants were arranged according to the diseases categories shown above.

3. Results and Discussion

3.1. Taxonomic identification of plants

The scientific name and voucher number, family name, local names, plant parts used of plants, preparation methods, utilization and uses of medicinal plants used in Hizan are given in Table 1. As a result of the study, 71 taxa relating to 29 families that are used for the treatment of 35 different diseases were detected.

The results revealed that the taxonomic family with the greatest number of utilized plants was Asteraceae (10 species). This is followed closely by Rosaceae, (9 species), and then comes Lamiaceae (5 species), Malvaceae, Polygonaceae and Apiceae (4 species each), Boraginaceae and Plantaginaceae (3 each). The remaining plant families were represented by only one or two taxa.

The medical use of 8 taxa listed in Table 1 was first encountered in Hizan district. These taxa are; *Paronychia kurdica* subsp. *Kurdica* Boiss. (wart treatment), *Rumex angustifolius* subsp. *Macranthus* (Boiss.) Rech.f. (cancer), *Scorzonera veratrifolia* Fenzl (cancer, diabetes), *Crataegus x sinaica* Boiss. (Cough, colds and flu), *Satureja macrantha* C.A.Mey. (Stomachache), *Scutellaria orientalis* subsp. *Porphyrostegia* J.R.Edm. (Hemorrhoids), *Eryngium thyrsoideum* Boiss. (Incision), *Salix acmophylla* Boiss. (Menstrual irregularities).

*Scutellaria orientalis* subsp. *porphyrostegia* J.R.Edm. was detected to be endemic plant used for medicinal purpose from Hizan. When compared with some other studies conducted in the Eastern Anatolia region (Tabata et al., 1994; Altundağ and Öztürk, 2011; Kaval et al., 2014; Mükemre et al., 2015, Polat, 2019), it is seen that the local names of some commonly used plants are almost the same. *Malva neglecta* Wallr. (tolık, tollık, tollık), *Rheum ribes* L. (Rıbes, rıbez), *E. Billardierei* F.Delaroche (Tüsü), *Urticadioica* L. (Geznık, gezıng, gezgezok, gezne), *Allium cepa* L. (Pivaz, piyaz), *Allium sativum* L. (Sir) are some examples of this. However, some locally used names are specific to Hizan. The local names of plant species are: *Asparagus persicus* Baker (Tırhé mahré), *Arcticum tomentosum* Mill. (Belge tehl), *Chrysophthalmum montanum* (DC.) Boiss. (Meryemxur), *Scorzonera latifolia*(Fisch. & C.A.Mey.) DC. (Nerebend), *Bryonia multiflora* Boiss. & Heldr. (Ture Gur), *Quercus brantii* Lindl. (Berüyê Hırçė), *Paronychia kurdica* subsp. *Kurdica* var. *Kurdica* Boiss (Giyayê tüyan), *Satureja macrantha* C.A.Mey. (Reyhana çiya), *Scutellaria orientalis* subsp. *Porphyrostegia* J.R.Edm. (Giyayê bavesirê), *Hypericum scabrum* L. (Bizn bezo), *Teucrium polium* L.(Cehdet), *Rumex angustifolius* subsp. *Macranthus* (Boiss.) Rech. F. (Bėjek), *Potentilla recta* L. (Zıla sor), *Rosa canina* L. (Masürük), *Daphne mucronata* Royle (Turi), *Daucus carota* L. (Giyayê Dıran ėş). These names are only used in Hizan (Table 1).

Some local names of the plants are characterized by the disease treated. For instance; “Giyayê bavesirê” is used for *Teucrium chamaedrys* L. And *Scutellaria orientalis* subsp. *porphyrostegia* J.R.Edm. “Giya” means herb in Kurdish and “bavesir” is the name of the hemorrhoid disease.

Table 1. Database of ethnomedicinal plants of Hizan District

| Family, Plant species, Collector number | Local names | Part used | Preparation | Utilization method | Use |
|---------------------------------------|-------------|-----------|-------------|--------------------|-----|
| AMARYLLIDACEAE                         |             |           |             |                    |     |
| *Allium cepa* L. I.D. 2128             | Pivaz, piyaz| Bulb      | Boiled      | Ointment.          | Ringworm treatment |
| *Allium sativum* L. I.D. 2149          | Sir         | Bulb      | Crushed     | Ex(on face), Eat.  | Acne treatment, hypertension |
Table 1. Database of ethnomedicinal plants of Hizan District (continued)

| Family, Plant species, Collector number | Local names | Part used | Preparation | Utilization method | Use |
|----------------------------------------|-------------|-----------|-------------|--------------------|-----|
| **ANACARDIACEAE**                      |             |           |             |                    |     |
| *Pistacia khinjuk* Stocks. I.D. 2100,2105,2124,2138,2140,2144 | Kėzvan     | Gum, Fruit | Latex Crushed  | a. Wound b.Internally. | a.Inflamed wounds b. Gastric ulcer, aphrodisiac |

**ARACEAE**

*Arum rupicola* Boiss. I.D. 2146,2163

**ASPARAGACEAE**

*Asparagus persicus* Baker. I.D. 2097

**ASTERACEAE**

*Achillea schischkinii* Sosn. I.D. 2098

*Achillea tenuifolia* Lam. I.D. 2093

*Achillea vermicularis* Trin. I.D. 2142,2166

*Achillea biebersteinii* Afan. I.D. 2155

*Arctium tomentosum* Mill. I.D. 2108,2169

*Chrysophthalmum montanum* (DC.) Boiss. I.D. 2174

*Helianthus tuberosus* L. I.D. 2119

*Onopordum carduchorum*. I.D. 2159

*Scorzonera latifolia*(Fisch. & C.A.Mey.) DC. I.D. 2154

*Scorzonera veratrifolia* Fenzl. I.D. 2175

**BORAGINACEAE**

*Anchusa azurea* var. *azurea* Mill. I.D. 2106,2187

*Anchusa azurea* var. *kurdica* (Guşul.) D.F. Chamb I.D. 2122

*Echium italicum* L. I.D. 2089

**BRASSICACEAE**

*Brassica oleracea* L. I.D. 2112

*Sinapis arvensis* L. I.D. 2180

**CUCURBITACEAE**

*Bryonia multiflora* Boiss. & Heldr. I.D. 2157

*Cucurbita maxima* Lam. I.D. 2126

**FABACEAE**

*Astragalus gummifer* Labill I.D. 2134

*Medicago sativa* L. I.D. 2168

**FAGACEAE**

*Quercus infectoria* Olivier I.D. 2167

*Quercus brantii* Lindl. I.D. 2147

**HERPIFICACEAE**

*Hypericum scabrum* L. I.D. 2162, 2179

Bizin bezo Aerial parts Crushed Oinment Incision

Günii Root Gum Eaten with honey Oinment Liver diseases

Once Leaves Crushed Oinment to step bleeding

Mazı Fruit Crushed Apply as powdered Toothache

Berüyê Hırçê Fruit Boiled Eat Diabetes, Gastric ulcer

Biz in bezo Aerial parts Crushed Oinment Incision

Zeyvan Gum, Fruit Latex Crushed a. Wound b. Internally. a. Inflamed wounds b. Gastric ulcer, aphrodisiac

Kari Leaves Cooked Eat. Lowering tapeworm in children

Trrhē mahrē Root Crushed Oinment Rheumatism

Pujdan Aerial parts Infusion Internally Diabetes

Pujdar Aerial parts Boiled Bath Body fatigue a. Diabetes, shortness of breath. b. Body fatigue

Pėşdang Capitulum Infusion a. Internally. b. Bath. a. Diabetes, shortness of breath. b. Body fatigue

Belge tehl Leaves Crushed Wound Rheumatism

Sėvka bınerd Tuber Eaten raw Eat Diabetes

Tovē karē Seed Crushed Eaten with honey Hemorrhoids, diabetes

Něrebend Root Latex Chew Gastric ulcer

Něrebend Root Latex Chew Diabetes

Güzürok Aerial parts Cooked Eat Antidote

Güzürok Aerial parts Cooked Eat Antidote

Gurz Aerial parts Cooked Eat Antidote

Kelem Leaves Boiled Oinment Rheumatism, to step bleeding

Xerdel Seed Crushed Eat with honey Aphrodisiac

Silk Leaves Decoction Internally Cholesterol

Ture Gur Fruit Crushed Oinment Rheumatism

Gundura şaş Fruit Boiled Oinment Anti-inflammatory

Mazü Fruit Crushed Apply as powdered Toothache

Bızın bezo Aerial parts Crushed Oinment Incision
Table 1. Database of ethnomedicinal plants of Hizan District (continued)

| Family, Plant species, Collector number | Local names | Part used | Preparation | Utilization method | Use |
|----------------------------------------|-------------|-----------|-------------|--------------------|-----|
| **ILLECEBRACEAE**                      |             |           |             |                    |     |
| *Paronychia kurdica* ssp. kurdica var. kurdica Boiss. l.D. 2091,2130,2172 | Giyayė tūyan | Aerial parts | Eaten raw | Eat with salt | Wart treatment |
| **JUNLANDACEAE**                       |             |           |             |                    |     |
| *Juglans regia* l.D. 2111,2148 | a. Pota güza b. Xiça Guzė | Fruit, Sap | a. Boiled b. Sap | a. Internally b. Drop | a. Diabetes b. stomachache in newborn child, ear pain |
| **LAMIACEAE**                          |             |           |             |                    |     |
| *Origanum vulgare* ssp. gracile (K.Koch) Ietsw. l.D. 2095, 2110 | Cantıra reş | Aerial parts | Infusion | Internally | Shortness of breath, enuresis |
| Scutellaria orientalis ssp. porphyrostegia. l.D. 2177 | Giyayė bavesirė | Aerial parts | Infusion | Internally | Hemorrhoids |
| *Teucrium chamadrys* ssp. sinuatum (Celak.) Rech. f. l.D. 2109,2186 | Giyayė bavesirė | Aerial parts | Infusion | Internally | Hemorrhoids |
| *Teucrium polium* l.D. 2092, 2129 | 1.Meryemkot 2.Cehdet | Leaves | a. Eaten raw b. Infusion | a. Eat b. Internally | a. Diabetes b. Afterpains |
| **MALVACEAE**                          |             |           |             |                    |     |
| *Alcea flavovirens*(Boiss. & Buhse) Iljin. l.D. 2116 | Gûl | Root | Boiled | Internally | Heart disease |
| *Alcea remotiflora*(Boiss. & Heldr.) Alef. l.D. 2117,2160 | Hėro | Aerial parts | Crushed | Hair washing | Hair care |
| *Malva neglecta* l.D. 2121, 2123 | Tulık, Giya dupnu | Fruit | a. Decoction b. Cooked | a. Internally b. Eat | a. Stomachache b. Afterpains |
| *Malva sylvestris* l.D. 2156 | Tulık | Aerial parts | Decoction | Internally | Gastric ulcer |
| *Ficus carica* ssp. rupestris (Hausskn.) Browicz l.D. 2161. | Hejira reş | Bark | Crushed | Sniff | Nosebleed |
| *Morus nigra* l.D. 2132,2143 | Tüye reş | Fruit | Crushed | a. Drop b. Eat | a. Eye pain, redout b. Icterus |
| **PLANTAGINACEAE**                     |             |           |             |                    |     |
| Plantago lanceolata l.D. 2087, 2120 | Giyabirin | Aerial parts | a. Eaten raw b. Crushed | a. Eat b. wound | a. Stomachache b. to stop bleeding a. Stomachache b.Inflamed wounds |
| Plantago major subsp. intermedia (Gilib.) Linge l.D. 2088,2102,2107 | Takėş, Heyiso | Aerial parts | a. Decoction b. Crushed | a. Internally b. Externally |     |
| **PLATACEAE**                          |             |           |             |                    |     |
| Platanus orientalis l.D. 2086 | Çınar | Leaves | Infusion | Internally | Rheumatism |
| **POACEAE**                            |             |           |             |                    |     |
| *Zea mays* l.D. 2115 | Bacük | Tassel of corn | Decoction | Internally | Kidney disease |
| **POLYGONACEAE**                       |             |           |             |                    |     |
| *Rheum ribes* l.D. 2139,2143 | Rbės | Root | Boiled | Internally | Diabetes |
| *Rumex angustifolius* ssp. macranthus (Boiss.) Rech. f. l.D. 2188 | Bėjek | Aerial parts | Cooked | Eat | Cancer |
| *Rumex crispus* l.D. 2085 | Avilok | Fruit | Crushed | Ointment a. Internally b. Ointment | Inflamed wounds a. Intestinal ulcer b. to stop bleeding |
| *Rumex patientia* l.D. 2118 | Avilok | Aerial parts | a. Decoction b. Crushed | a. Internally b. Ointment |     |
| **RANUNCULACEAE**                      |             |           |             |                    |     |
| *Nigella sativa* l.D. 2096 | Çörek otu | Seed | Crushed | Eat with honey | Cancer |
| *Ranunculus kotschyi* Boiss. l.D. 2135 | Çüng | Aerial parts | Eaten raw | Eat | Cancer |
### Table 1. Database of ethnomedicinal plants of Hizan District (continued)

| Family, Plant species, Collector number | Local names | Part used | Preparation | Utilization method | Use |
|----------------------------------------|-------------|-----------|-------------|-------------------|-----|
| **ROSACEAE**                           |             |           |             |                   |     |
| Amygdalus orientalis Miller. I.D. 2158 | Bıhēv       | Seed      | Eaten raw   | Eat with honey    | Diabetes, headache |
| Crataegus meyeri Pojark. I.D. 2151     | Reyē gūhūja spi | Root      | Decoction   | Internally        | Tuberculosis      |
| Crataegus x sinaica Boiss. I.D. 2190   | Gūhūj       | Fruit     | Infusion    | Internally        | Cough, colds and flu |
| Crataegus curvisepala Lindm. I.D. 2176 | Reyē gūhūjē | Root      | Boiled      | Internally        | Tuberculosis      |
| Malus sylvestris subsp. orientalis var. orientalis (Uglitzk.) Browicz. I.D. 2103, 2133 | Sēva gevr | Fruit | Cooked | Eat | Tuberculosis |
| Potentilla recta L. I.D. 2182          | Zila gevr    | Aerial parts | Boiled | Oinment | Rheumatism |
| Rosa canina L. I.D. 2104,2125,2137     | Masūrēk     | Fruit     | Decoction   | Internally        | Cough, colds, flu and stomachache, Cough, colds and flu |
| Rosa puberulenta Rydb. I.D. 2191      | Masūrēk     | Fruit     | Decoction   | Internally        | Cough, colds and flu |
| Rubus idaeus L. I.D. 2153              | Tütürk      | Fruit     | Eaten raw   | Eat               | Blood thinner     |
| **SALIČACEAE**                         |             |           |             |                   |     |
| Salix acmophylla Boiss. I.D. 2152     | Dara biyē   | Leaves    | Decoction   | Internally        | Menstrual irregularities |
| **SCROPHULARIACEAE**                   |             |           |             |                   |     |
| Verbascum oreophilum var. joannis. (Bordz.) Hub.-Mor. I.D. 2184 | Sinem | Aerial parts | Boiled | Bath. | Diabetes |
| **THEACEAE**                           |             |           |             |                   |     |
| Daphne macronata Royle. I.D. 2189     | Turi        | Fruit     | Crushed     | Oinment            | Rheumatism |
| **TILIACEAE**                          |             |           |             |                   |     |
| Tilia tomentosa Moench I.D. 2094      | Ihlamur     | Flower    | Infusion    | Internally        | Cough, colds and flu |
| **UMBELLIFERAE**                       |             |           |             |                   |     |
| Daucus carota L. I.D. 2101             | Giyayė Dran ėş | Crushed  | Mouthwash  | Toothache          | Burns |
| Eryngium billardierei F. I.D. 2136    | Tūsū       | Fresh shoots | Crushed | Oinment | Burns |
| Eryngium pyramidal Boiss. & Hausskn., I.D. 2165 | Tūsū | Root  | Decoction  | Internally         | Shortness of breath |
| Eryngium thyrsoides Boiss. I.D. 2170   | Xiča tūsū   | Fresh shoots | Crushed | Powder | Incision |
| *Petroselinum crispum* (Mill.) A.W.Hill. I.D. 2114 | Maydanoz | Root | Decoction | Internally | Kidney diseases |
| Prangos pabularia Lindl. I.D. 2178    | Xiča heliz  | Aerial parts | Ointment | Wound | Erysipeloid |
| **URTICACEAE**                         |             |           |             |                   |     |
| Urtica dioica L. I.D. 2099, 2127,2141,2145,2164,2183 | Geznik | Seed Aerial parts Root | Crushed a. Eatwith honey b. Oinment c. Oinment | a. a. aphrodisiac, cancer b. Rheumatism c. bone fracture treatment |     |

I.D: İbrahim DEMİR
*Cultivated plants

### 3.2. Parts used and preparation method

Generally used plant parts are the following ones; Aerial part (32%), Fruits (21%), Leaves (15%), Roots (15%), Seeds (5%). Other parts were represented by only one or two percent (total 17%). (Figure 3).
3.3. Traditional medicinal plants used for the treatment of different diseases in Hizan

The plants used for types of diseases below are arranged according to the diseases classified by some authors (Staub et al., 2015). Dermatologic disorders (13), Metabolic syndromes (12), Gastrointestinal problems (11), Skeleto-muscular system disorders (10), Cardiovascular problems (10), Respiratory complaints (8), Nervous system diseases (5), Cancer (5), Infections (5), Gynecological diseases(4), Urological problems (3), Antidote (3), Aphrodisias (3) and Parasites (1). The reported ailments were grouped into 14 categories basing on the information gathered from the interviews (Figure 4).

The most used plants in the research area are:

*Urtica dioica* L., (for aphrodisias, cancer and skeleto-muscular system) *Achillea vermicularis* Trin. (metabolic syndromes, respiratory complaints, skeleto-muscular system), *Plantago lanceolata* and *Plantago major* L. (dermatologic disorders, gastrointestinal problems), *Rheum ribes* L. (diabetes), *Pistacia khinjuk* Stocks (dermatologic disorders, gastrointestinal problems and aphrodisias), *Malva neglecta* Wallr. (gastrointestinal problems and Gynaecology) *Teucrium chamaedrys* subsp *sinuatum* (Celak.) Rech.f. and *Onopordum carduchorum* Bornm. & Beauverd (hemorrhoids), *Anchusa azurea* (for antidote) and *Paronychia kurdica* subsp. *kurdica* var. *kurdica* Boiss. (wart treatment) are most used species.

*Urtica dioica* L. is plants which are commonly used across the world and in Turkey. It is commonly used to treat cancers. In addition, this herb is used to diabetes disease, rheumatism, stomachache, colds, and flu arthritis, digestive, diuretic, genital disorders, in East Anatolia (Altundağ and Özturk, 2011; Mükemre et al., 2015).
Plantago species (P. lanceolata L. and P. major L.) are widespread in Anatolia. They are used to treat abscess, gastric pain, hemorrhoidal, anti-inflammatory, stomatitis, ulcer, antihemorrhoidal, gynecologic diseases, to cure wounds, embolism, urinary inflammations, to heal wounds, antitussive, bronchitis, diarrhea, expectorant, urinary inflammations (Tabata et al., 1994; Kaval et al., 2014; Mükemre et al., 2015).

Rheum ribes L. is one of the most collected plants from natural areas in East Anatolia. Fresh shoots of this plant are consumed as food in Eastern Anatolia and they are used for the treatment of diabetes (Tabata et al., 1994; Altundağ and Öztürk, 2011; 2015; Mükemre et al., 2015).

Pistacia khinjuk Stocks has antibacterial, antifungal, antioxidant, and wound healing properties (Al-Alfy et al., 2019).

Pistacia khinjuk widely used both for the treatment of diseases and as nutrient in Hizan. Also a latex ointment made from the trunk of the tree is also applied to inflamed wounds. Pistacia khinjuk Stocks was used for stomachache in the study conducted in Hakkâri province (Kaval et al., 2014). P. khinjuk has been used as an indigestion, tonic, toothache and astringent folk medicine. In addition, fruits of it used edible wild fruits (Pirbalouti and Aghaee 2011).

The use of malva neglecta Wallr. is common in all regions of Turkey. It is commonly consumed as food. And it is commonly used as a folk medicine in a number of conditions. In Hizan it is widely used for the treatment of stomachache as a pain reliever.

Many species of Teucrium are known for their utilization in traditional folk medicine. They are claimed to exhibit interesting biological properties such as; hypoglycaemic, hypolipidemic, antioxidant, antipyretic, anti-inflammatory, antulcer, antitumor and anti bacterial (Bruno et al., 2004).

Onopordum carduchorum Bornm. & Beauverd is used for the treatment of hemorrhoids in Hizan. Ethnobotanical use of this plant for the same disease is found in Savur district (Mardin). (Arasan and Kaya, 2015).

The study called “Effects of Paronychia kurdica Boiss. on teat and udder papillomatosis in cows” was investigated and successful results were obtained (Apaydin et al., 2010).

Ethnobotanical record of Rumex angustifolius subsp. macranthus (Boiss.) Rech.f. plants were not found.

4. Conclusion

Plants, which are of great importance for the continuity of life, are among the most important natural resources of a country.

Plant-human relationship is as old as human history. Almost all civilizations have used plants as a mean of treatment. The culture of medicinal plant use is very rich in Anatolia. It has hosted many civilizations throughout history. In the past, people who lived in places like Hizan where they had difficulty in accessing health care facilities due to challenging geographical structures and harsh winter conditions began to look for alternative remedies to treat their illnesses. Undoubtedly, the rich plant diversity in the region played an important role in alternative treatments. Ethnobotanical uses are gaining value day by day. Unfortunately, the value of this knowledge is not well known enough by younger generations. The number of people who have this knowledge is decreasing day by day. Therefore, ethnobotanical knowledge has to be recorded as soon as possible. Ethnobotanical research is important because it contains valuable information that has been acquired by trial and error and has been passed down from generation to generation as a result of a long period of time. With this study, it was aimed to record the plants’ use culture of the local people living in Hizan district which has rich plant diversity and plant use accumulation.

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