

Traditional Usage of Some Natural Plant Taxa in Artvin/Tütüncüler Village of Türkiye

Artvin/Tütüncüler Köyünde (Türkiye) Geleneksel Olarak Kullanılan Bazı Doğal Bitki Taksonları

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Abstract

This study was carried out in Artvin/Tütüncüler Village in 2016-2017 vegetation period in order to determine the natural plants used by the local people. A face-to-face questionnaire was applied with 49 informants, 32 women and 17 men. Identification of 43 plant taxa belonging to 23 families has been confirmed. Present study recorded that these plant taxa are mostly used for various diseases, such as digestive, cardiovascular, musculoskeletal, neurological, respiratory, skin, urological and female genital. The collected data was analyzed quantitatively using two indices: use-value and Factor Informant Consensus (FIC). The highest use-value was recorded for *Fragaria vesca* L. (0.91), and the greatest informant consensus factor value (0.88) was observed in gynecological diseases. Infusion was the most popular traditional method of using medicinal herbs (22 taxa). The usage parts of these plants are; leaf, flower, fruit, root and aerial parts and the most used of the plant parts were the aerial parts (20 taxa). The most used families were Lamiaceae (5 taxa), Fabaceae and Rosaceae (4), Asteraceae and Polygalaceae (3).

Keywords: Artvin/Tütüncüler village, Medicinal plants, Plant taxa, Diseases

Özet

Artvin/Tütüncüler Köyü'nde yöre halkının kullandığı doğal bitkileri tespit etmek amacıyla yapılan bu çalışma 2016-2017 vejetasyon dönemi içerisinde gerçekleştirilmiştir. 32'si kadın, 17'si erkek olmak üzere 49 katılımcıya yüz yüze anket uygulanmıştır. Yapılan çalışma sonucunda, 23 familyaya ait 43 bitki taksonu tespit edilmiştir. Mevcut çalışmada bu bitki taksonlarının çoğunlukla sindirim, kalp-damar, kas-iskelet sistemi, nörolojik, solunum, deri, ürolojik ve kadın genital sistemi gibi çeşitli hastalıklarda kullanıldığı belirlenmiştir. Toplanan verilerin bilgilendirici konsensüs (FIC-Factor informant consensus) ve kullanım değeri (UV-use value) niceliksel olarak analiz edilmiştir. En yüksek kullanım değeri *Fragaria vesca* L. (0,91) için tespit edilirken, jinekolojik hastalıkların en yüksek bilgilendirici konsensüs değerine (0,88) sahip olduğu belirlenmiştir. Şifalı bitkiler arasında, en çok tercih edilen geleneksel kullanım yöntemi infüzyondur (22 takson). Bu bitkilerin kullanılan kısımları; yaprak, çiçek, meyve, kök ve bitkinin toprak üstü kısımlarıdır. En çok kullanılan bitki kısmı ise, bitkinin toprak üstü kısımlarıdır (20 takson). En çok kullanılan familyalar, Lamiaceae (5 takson), Fabaceae ve Rosaceae (4), Asteraceae ve Polygalaceae (3) olmuştur.

Anahtar Kelimeler: Artvin/Tütüncüler köyü, Tıbbi bitkiler, Bitki taksonları, Hastalıklar

1. Introduction

Plants have been used in traditional treatment for many years. These drugs took the form of raw medicine such as tinctures, teas, Salves, Tonics, and Syrups (Balick and Cox, 1997; Samuelsson, 2004; Balunas and Kinghorn, 2005). Early medications discovered through drug discovery from medicinal plants included cocaine and quinine in addition to morphine (Balunas and Kinghorn, 2005; Samuelsson, 2004; Butler, 2004; Newman et al., 2000). In recent years, due to the increase of the diseases and the usage of synthetic drugs people have turned to traditional treatment methods. Plants are also used as food. For that reason, especially in the last few years the researche about traditional usage of plant taxa has increased. Results of research into medicinal plants are necessary for further developing and 'upgrading' inhabitant and traditional medicine (Heinrich, 2000). The public availability of this research is a very important issue. Because, no matter how much scientific publications increase in this field, unless they are announced to the public and the results obtained are not delivered to the public, unfortunately, development and permanence cannot be talked about.

Traditional medicine has a rapidly growing economic importance and it is used globally. Because it is the only readily available, reasonably priced treatment in impoverished nations, traditional medicine is extremely significant (Bussmann and Sharon, 2006). Indigenous societies have a long history of using medicinal herbs, but in certain cases there are no written records or other proof to support the full historical context (Leonti et al., 2003). However, if indigenous knowledges is documented through ethnobotanical studies, it will be possible to protect biological resources (Muthu et al., 2006).

The present study aims to determine the unwritten ethnobotanical and ethnomedicinal uses of natural plant taxa of the local people in Tütüncüler village-Artvin province of Türkiye.

2. Material and Method

2.1. Study Area

The subject of this study is occured about the traditional usage of wild plant taxa in Tütüncüler village. Tütüncüler village is located in the central district of Artvin province. The distance of Tütüncüler Village to the Artvin city center is approximately 13 km (Anonymous 2017a). Figure 1 is shown the Tütüncüler Village on Turkiye map.



Figure 1. Location of the Tütüncüler Village on Türkiye Map (Adapted from Anonymous, 2017a and Anonymous, 2017b).

2.2. Data collection and analysis

This study was carried out in summer 2016. Within the scope of the study a face-to-face survey was conducted with rural inhabitants of Tütüncüler Village in Artvin via snowball sampling. Prior Informed Consent (PIC) was taken orally before starting each interview. The survey participants were mostly selected from among people who are middle aged and older (Table 1). Detailed information shared by participants about native plant taxa was recorded (App.1). Additionally, the author identified the plant taxa that were gathered from the study region using the guidelines provided in "Flora of Turkey and the East Aegean Islands Vol.1-9, " (Davis 1965-1985; Vol.10, Güner et al., 2000). The Turkish names of plant taxa were assigned in accordance with Güner et al. (2012). Every taxon has at least one prepared sample that is kept in the Herbarium of the Karadeniz Technical University Faculty of Forestry (KATO).

Table 1. Demographic characteristics of the informants.

| Features | | Number of informants | Percentage (%) |
|---------------------|------------------|----------------------|----------------|
| Gender | Male | 17 | 34.69 |
| | Female | 32 | 65.31 |
| Degree of education | University | 4 | 8.16 |
| | High school | 10 | 20.40 |
| | Secondary school | 7 | 14.28 |
| | Primary school | 19 | 38.77 |
| | Illiterate | 9 | 18.36 |
| Age groups | >55 | 11 | 22.44 |
| | 45-55 | 20 | 40.81 |
| | 35-45 | 11 | 22.44 |
| | 25-35 | 7 | 14.28 |
| Employment | Worker | 7 | 14.28 |
| | Farmer | 8 | 16.32 |
| | Retired | 12 | 24.48 |
| | Housewife | 17 | 34.69 |
| | Self-employment | 5 | 10.20 |

For the plants in the study area, use-value (UV) and the Factor of Informant Consensus (FIC) were computed. UV is a way to quantify the frequency with which people use plants in their daily lives. The homogeneity between a particular disease and the ethnomedicinal use of the plants was assessed using the Factor of Informant Consensus (FIC) (Trotter and Logan 1986; Heinrich et al., 1998).

$$UV = U / N \quad \text{and} \quad FIC = Nur - Nt / (Nur - 1)$$

U = total number of informants' usage citations

N = number of informants.

Nur = quantity of citations for each group

Nt = number of taxa of plants utilized

3. Results and Discussion

At the end of the study, the most commonly used families of the identified 43 plant taxa were Lamiaceae (5 taxa), Fabaceae and Rosaceae (4), Asteraceae and Polygalaceae (3) (Figure 2). Considering the utilized plant parts, the preparations and applications mostly used aerial parts (20 taxa), followed by leaves (11 taxa) and flowers (10 taxa) (Figure 3). The most preferred traditional uses of medicinal plants were infusion (22 taxa), followed by fresh (11 taxa) and crushed (6 taxa) (Figure 4). The highest UV value was recorded for *Fragaria vesca* L. (0.91) (Table 2), and gynecological diseases had the highest informant consensus factor value (0.88) (Table 3).

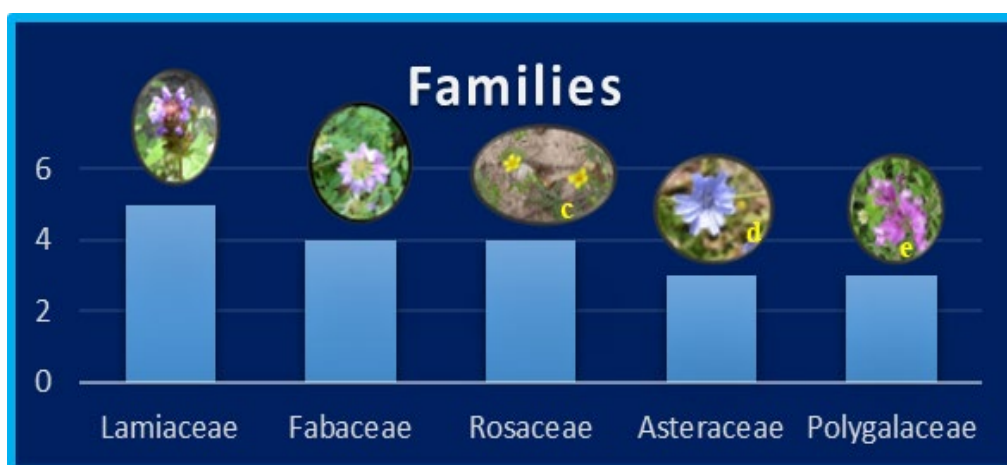


Figure 2. Plant taxonomic families with the most numbers (a: *Prunella vulgaris*, b: *Securigera varia*, c: *Potentilla recta*, d: *Cichorium intybus*, e: *Polygala major*).

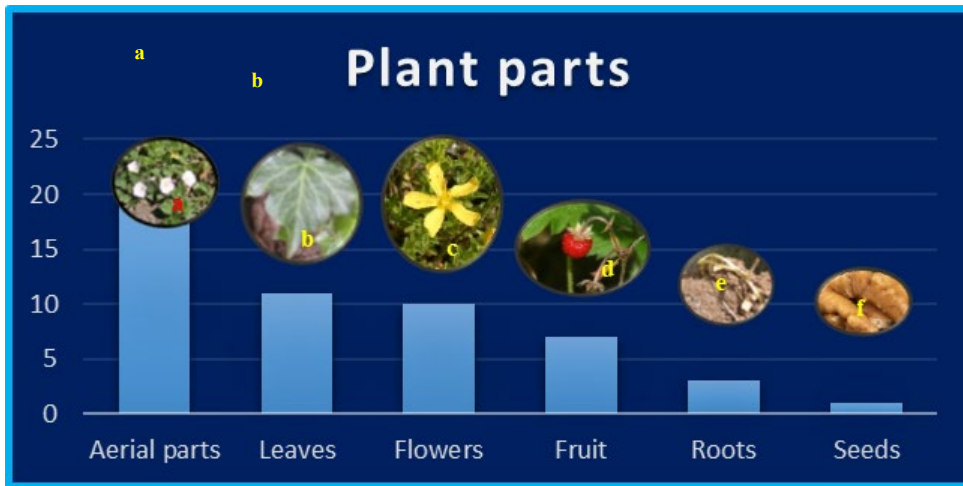


Figure 3. The most frequently used plant parts (a: *Convolvulus cantabrica*, b: *Hedera helix*, c: *Hypericum orientale*, d: *Fragaria vesca*, e: *Aristolochia pontica*, f: *Juglans regia*).

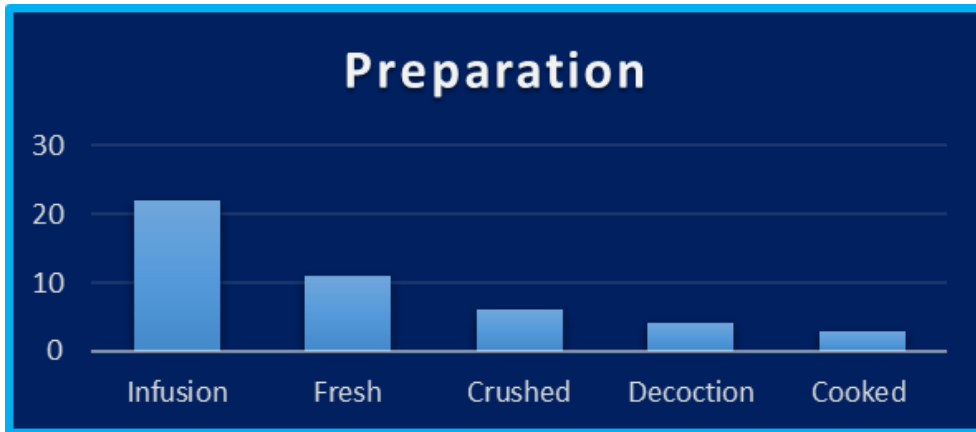


Figure 4. Techniques used for prepare traditional medicines.

43 plant taxa from 23 families that were found to be important for ethnobotany and ethnomedicine are listed in Table 2 of this study. The list of these plant taxa's traditional uses was displayed in Table 2.













Table 2. Ethnobotanical and ethnomedicinal usage of plant taxa.










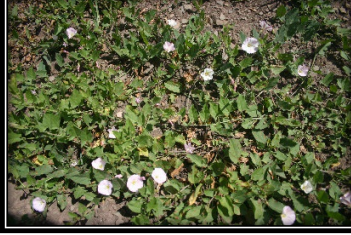


| Family | Botanical name | Local names | Plant parts | Collecting Time | Traditional Usage | Preparations | UV |
|------------------|----------------------------------|-----------------|-----------------|-------------------------|--|--------------|------|
| Araliaceae | <i>Hedera helix</i> L. | Duvar sarmaşığı | Leaves | From May to October | Rheumatism | Infusion | 0.40 |
| Aristolachiaceae | <i>Aristolochia pontica</i> Lam. | Gangırdak | Roots | From April to June | Stomach disorder, Gynecological diseases | Decoction | 0.30 |
| Asteraceae | <i>Bellis perennis</i> L. | Koyungözü | Flowers, Leaves | From March to August | Common cold | Infusion | 0.51 |
| | <i>Cichorium intybus</i> L. | Hindiba | Aerial parts | From April to September | Wound healing | Crushed | 0.14 |











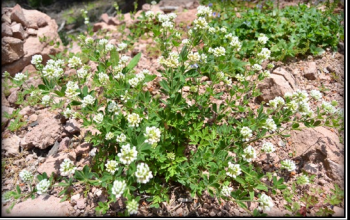
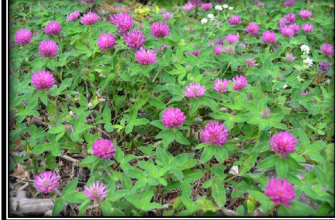
| Family | Botanical name | Local names | Plant parts | Collecting Time | Traditional Usage | Preparations | UV |
|------------------|--|---------------------|-----------------------------|-------------------------|--|----------------------|------|
| | <i>Senecio vernalis</i> Waldst. & Kit. | Kanarya otu | Aerial parts | From February to August | Wound healing | Crushed | 0.10 |
| Boraginaceae | <i>Buglossoides arvensis</i> (L.) I. M. Johnst. subsp. <i>sibthorpiana</i> (Griseb.) R.Fern. | Tarla taşkeseni | Leaves | From February to June | Diuretic | Infusion | 0.12 |
| | <i>Echium vulgare</i> L. subsp. <i>vulgare</i> L. | Engerek otu | Leaves, Flowers | From May to September | Lung disease, Bone fracture | Infusion | 0.16 |
| Cistaceae | <i>Cistus creticus</i> L. | Laden | Leaves, Flowers | From March to June | Constipation | Infusion | 0.30 |
| | <i>Cistus salvifolius</i> L. | Kartli | Leaves, Flowers | From March to May | Gynecological diseases | Infusion | 0.32 |
| Convolvulaceae | <i>Calystegia sepium</i> (L.) R. Br. subsp. <i>sepium</i> | Çit sarmaşığı | Stalks, Young shoots, Roots | From July to September | Intestinal disorder | Cooked | 0.32 |
| | <i>Convolvulus cantabrica</i> L. | Çadırçiçeği | Aerial parts | From April to August | Stomach disorder | Infusion | 0.26 |
| Dennstaedtiaceae | <i>Pteridium aquilinum</i> (L.) Kuhn | Eğreli | Aerial parts | From May to September | The plant prevent the decay of the fruits and vegetables | Fresh | 0.71 |
| Dipsacaceae | <i>Scabiosa columbaria</i> L. subsp. <i>columbaria</i> var. <i>columbaria</i> | Uyuz otu | Roots | From June to September | Constipation, Diuretic | Infusion | 0.14 |
| Equisetaceae | <i>Equisetum palustre</i> L. | Kırkbacak | Aerial parts | From April to July | Diuretic | Infusion | 0.22 |
| Ericaceae | <i>Rhododendron luteum</i> Sweet | Zifin | Leaves | From April to September | Foot swelling, Wound healing | Crushed | 0.28 |
| | <i>Vaccinium arctostaphylos</i> L. | Likarpa | Leaves, Flowers, Fruits | From May to July | Kidney disorder, Urinary tract infection | Jam, Infusion, Fresh | 0.75 |
| Fabaceae | <i>Securigera varia</i> (L.) Lassen | Körigen | Aerial parts | From June to November | Insecticide | Fresh | 0.20 |
| | <i>Dorycnium pentaphyllum</i> Scop. subsp. <i>anatolicum</i> (Boiss.) Gams | Kaplanotu | Aerial parts | From May to June | Fodder | Fresh | 0.48 |
| | <i>Genista tinctoria</i> L. | Boyacı katirtirnağı | Aerial parts | From April to July | Urinary tract infection | Infusion | 0.28 |
| | <i>Trifolium pratense</i> L. var. <i>pratense</i> | Çayır üçgülü | Aerial parts | From May to September | Sore throat, Diarrhea | Infusion | 0.55 |
| Geraniaceae | <i>Geranium robertianum</i> L. | Dağ ıtırı | Leaves | From June to September | Stomach disorder | Infusion | 0.16 |
| Hypericaceae | <i>Hypericum perforatum</i> L. subsp. <i>perforatum</i> | Kantaron | Aerial parts | From June to July | Haemorrhoids, Cardiovascular | Decoction | 0.28 |
| | <i>Hypericum orientale</i> L. | Sandık çiçeği | Flowers | From May to July | Haemorrhoids, Gynecological diseases, Bone fracture | Decoction | 0.30 |

| Family | Botanical name | Local names | Plant parts | Collecting Time | Traditional Usage | Preparations | UV |
|----------------|---|-----------------|-----------------|-------------------------|---|------------------------------|------|
| Juglandaceae | <i>Juglans regia</i> L. | Ceviz | Seeds, Fruits | May | Cholesterol, Mixed with henna to dye hair | Fresh, Decoction | 0.34 |
| Juncaceae | <i>Juncus effusus</i> L. subsp. <i>effusus</i> | Has kofa | Aerial parts | From April to June | Basketry, Plaited crafts | Fresh | 0.42 |
| Lamiaceae | <i>Prunella vulgaris</i> L. | Gelinciklemeotu | Aerial parts | From June to August | Common cold | Infusion | 0.18 |
| | <i>Prunella laciniata</i> (L.) L. | Bodur fesleğen | Flowers | From June to August | Headache | Infusion | 0.12 |
| | <i>Stachys annua</i> (L.) L. subsp. <i>annua</i> var. <i>annua</i> | Haciosmanotu | Aerial parts | From March to September | Cough, Headache | Infusion | 0.14 |
| | <i>Thymus nummularius</i> M. Bieb. | Limon kekiği | Leaves, flowers | From July to August | Stomach disorder | Infusion | 0.51 |
| | <i>Thymus praecox</i> Opitz subsp. <i>grossheimii</i> (Ronniger) Jalas | Yayla kekiği | Aerial parts | From May to August | Stomach disorder | Infusion | 0.55 |
| Orchidaceae | <i>Serapias orientalis</i> (Greuter) H.Baumann & Künkele subsp. <i>orientalis</i> | Dillikulak | Tuber | From March to May | Sahlep, Edible | Fresh | 0.10 |
| Plantaginaceae | <i>Plantago major</i> L. subsp. <i>major</i> | Sinirotu | Aerial parts | From May to August | Wound healing, Joint pain, Rheumatism | Crushed, Infusion | 0.57 |
| Polygalaceae | <i>Polygala major</i> Jacq. | Koca sütotu | Aerial parts | From May to September | Intestinal disorder, Kidney disorder | Infusion | 0.22 |
| | <i>Rumex crispus</i> L. | Labada | Aerial parts | From March to August | Stomach disorder | Cooked | 0.61 |
| | <i>Rumex alpinus</i> L. | Şortah | Aerial parts | From March to August | Stomach disorder | Cooked | 0.65 |
| Primulaceae | <i>Anagallis arvensis</i> L. var. <i>arvensis</i> | Farekulaği | Aerial parts | From April to September | Wound healing, Anti-inflammatory | Crushed | 0.28 |
| | <i>Lysimachia vulgaris</i> L. | Kargaotu | Aerial parts | From April to September | Rheumatism, Lung disease | Infusion (very small amount) | 0.06 |
| Ranunculaceae | <i>Ranunculus cappadocicus</i> Willd. | Yağlıçanak | Flowers | From April to July | Rheumatism | Infusion | 0.26 |
| Rosaceae | <i>Fragaria vesca</i> L. | Dağ çileği | Fruits | From April to June | Kidney disorder, Diuretic | Fresh, Jam | 0.91 |
| | <i>Potentilla recta</i> L. | Su parmakotu | Flowers | From May to July | Wound healing | Crushed | 0.14 |
| | <i>Rubus caesius</i> L. | Büküzümü | Fruits | From May to August | Diarrhea | Fresh, Jam, Marmalade | 0.57 |
| | <i>Rubus idaeus</i> L. subsp. <i>idaeus</i> | Ahududu | Fruits, Leaves | July | Diuretic | Fresh, Jam, Marmalade | 0.63 |
| Smilacaceae | <i>Smilax excelsa</i> L. | Dikenucu | Fruits | From July to September | Stomach ache | Fresh | 0.18 |

Photographs of the plant taxa, which were identified in the research area, taken from the field are shown in Figure 5.

| | | |
|---|---|---|
|  |  |  |
| <i>Hedera helix</i> L. | <i>Hypericum orientale</i> L. | <i>Prunella laciniata</i> (L.) L. |
|  |  |  |
| <i>Aristolochia pontica</i> Lam. | <i>Juglans regia</i> L. | <i>Juncus effusus</i> L. subsp. <i>effusus</i> |
|  |  |  |
| <i>Bellis perennis</i> L. | <i>Cichorium intybus</i> L. | <i>Cistus creticus</i> L. |
|  |  |  |
| <i>Senecio vernalis</i> Waldst. & Kit. | <i>Thymus nummularius</i> M. Bieb. | <i>Prunella vulgaris</i> L. |

| | | |
|---|--|--|
|  |  |  |
| <p><i>Buglossoides arvensis</i> (L.) I. M. Johnst. subsp. <i>sibthorpiana</i> (Griseb.) R.Fern.</p> | <p><i>Cistus salviifolius</i> L.</p> | <p><i>Polygala major</i> Jacq.</p> |
|  |  |  |
| <p><i>Stachys annua</i> (L.) L. subsp. <i>annua</i> var. <i>annua</i></p> | <p><i>Echium vulgare</i> L. subsp. <i>vulgare</i> L.</p> | <p><i>Serapias orientalis</i> (Greuter) H.Baumann & Künkele subsp. <i>orientalis</i></p> |
|  |  |  |
| <p><i>Thymus praecox</i> Opitz subsp. <i>grossheimii</i> (Ronniger) Jalas</p> | <p><i>Plantago major</i> L. subsp. <i>major</i></p> | <p><i>Calystegia sepium</i> (L.) R. Br. subsp. <i>sepium</i></p> |
|  |  |  |
| <p><i>Convolvulus cantabrica</i> L.</p> | <p><i>Scabiosa columbaria</i> L. subsp. <i>columbaria</i> var. <i>columbaria</i></p> | <p><i>Vaccinium arctostaphylos</i> L.</p> |

| | | |
|---|---|---|
|  |  |  |
| <i>Pteridium aquilinum</i> (L.) Kuhn | <i>Rumex alpinus</i> L. | <i>Rumex crispus</i> L. |
|  |  |  |
| <i>Equisetum palustre</i> L. | <i>Anagallis arvensis</i> L. var. <i>arvensis</i> | <i>Lysimachia vulgaris</i> L. |
|  |  |  |
| <i>Ranunculus cappadocicus</i> Willd. | <i>Geranium robertianum</i> L. | <i>Rhododendron luteum</i> Sweet |
|  |  |  |
| <i>Genista tinctoria</i> L. | <i>Dorycnium pentaphyllum</i> Scop. subsp. <i>anatolicum</i> (Boiss.) Gams | <i>Trifolium pratense</i> L. var. <i>pratense</i> |








| | | |
|---|---|---|
|  |  |  |
| <i>Fragaria vesca</i> L. | <i>Potentilla recta</i> L. | <i>Securigera varia</i> (L.) Lassen |
|  |  |  |
| <i>Hypericum perforatum</i> L. subsp. <i>perforatum</i> | <i>Rubus idaeus</i> L. subsp. <i>idaeus</i> | <i>Rubus caesius</i> L. |
| |  | |
| | <i>Smilax excelsa</i> L. | |

Figure 5. Field photographs of medicinal plant taxa in this study.

The International Classification of Primary Care, Second Edition (ICPC-2) disease categories (WHO, 2002) show that the most commonly used plants were for skin disorders (7 taxa), urological disorders (10 taxa), and digestive disorders (14 taxa). FIC values showed that neurological disorders (0.87), respiratory disorders (0.86), and gynecological diseases (0.88) were the top three categories (Table 3).

Table 3. FIC values according to ICPC-2 ailments categories.

| ICPC-2 Categories | Ailments | Number of use report (Nur) | Number of taxa (Nt) | FIC |
|-------------------|--|----------------------------|---------------------|------|
| D-Digestive | Constipation (UR:13), diarrhea (UR:12), stomach disorder (UR:9), stomach ache (UR:6), intestinal disorder (UR:5) | 43 | 14 | 0.69 |
| K-Cardiovascular | Cardiovascular (UR:18), cholesterol (UR:7), haemorrhoids (UR:5) | 19 | 4 | 0.83 |
| L-Musculoskeletal | Rheumatism (UR:9), joint pain (UR:8), bone fracture (UR:1) | 31 | 7 | 0.80 |
| N-Neurological | Headache (UR:12) | 9 | 2 | 0.87 |
| R-Respiratory | Common cold (UR:46), cough (UR:22), sore throat (UR:3), lung disease (UR:2) | 39 | 6 | 0.86 |
| S-Skin | Wound healing (UR:20), antiinflammatory (UR:10), | 30 | 7 | 0.79 |
| U-Urological | Diuretic (UR:21), urinary tract infection (UR:7), kidney disorder (UR:4), | 45 | 10 | 0.79 |
| X-Female Genital | Gynecological diseases (UR:4), | 18 | 3 | 0.88 |

It was determined that 38 of the 43 plant taxa (88.37%) were used for traditional treatment. The study was showed that the plants in the region were mostly used for medical purposes, such as *Hedera helix*, *Aristolochia pontica*, *Bellis perennis*, *Cichorium intybus*, *Senecio vernalis*, *Buglossoides arvensis*, *Echium vulgare*, *Cistus creticus*, *C. salviifolius*, *Calystegia sepium*, *Convolvulus cantabrica*, *Scabiosa columbaria*, *Equisetum palustre*, *Rhododendron luteum*, *Vaccinium arctostaphylos*, *Genista tinctoria*, *Trifolium pratense*, *Geranium robertianum*, *Hypericum perforatum*, *H. orientale*, *Juglans regia*, *Prunella vulgaris*, *P. laciniata*, *Stachys annua*, *Thymus nummularius*, *T. praecox* subsp. *grossheimii*, *Plantago major*, *Polygala major*, *Rumex crispus*, *R. alpinus*, *Anagallis arvensis*, *Lysimachia vulgaris*, *Ranunculus cappadocicus*, *Fragaria vesca*, *Potentilla recta*, *Rubus caesius*, *R. idaeus* and *Smilax excelsa*. It is also observed in similar studies that these plants are used for the same purposes (Passalacqua et al., 2007; Karakaş et al., 2012; Şener, 2001; Menković et al, 2010; Lutsenko et al. 2010; Barnes et al., 2001; Karakas et al., 2015; Samuelsen, 2000; Guarrera et al., 2005; Redzic, 2010; Mazzanti, et al.,2005; Özbucak et al., 2006).

Plant taxa, which were used for the 25 diseases, identified as a result of the study are shown in Table 4. Some of the 38 plant taxa used for the treatment of diseases were found to be used in the treatment of more than one disease. When these taxa are ranked from most to least in terms of usage status; *Hypericum orientale* (Bone fracture, Gynecological diseases

and Haemorrhoids) and *Plantago major* (Joint pain, Rheumatism and Wound healing) are used for the treatment of three different diseases, while *Anagallis arvensis* (Anti-inflammatory and Wound healing), *Echium vulgare* (Bone fracture and Lung disease), *Hypericum perforatum* (Cardiovascular and Haemorrhoids), *Scabiosa columbaria* (Constipation and Diuretic), *Stachys annua* (Cough and Headache), *Trifolium pratense* (Diarrhea and Sore throat), *Fragaria vesca* (Diuretic and Kidney disorder), *Rhododendron luteum* (Foot swelling and Wound healing), *Aristolochia pontica* (Gynecological diseases and Stomach disorder), *Polygala major* (Intestinal disorder and Kidney disorder), *Vaccinium arctostaphylos* (Kidney disorder and Urinary tract infection) and *Lysimachia vulgaris* (Lung disease and Rheumatism) are used for two different treatments. The other plant taxa identified were found to be used for only one therapeutic purpose. According to Table 4, it was recorded that these plant taxa are mostly used for Stomach disorder (7 plant taxa), Wound healing (6 plant taxa), Diuretic (5 plant taxa) and Rheumatism (7 plant taxa). Rize and Trabzon, which were provinces neighboring Artvin province located in the Eastern Black Sea region, were obtained overlapping data like current study (Saraç et al., 2013; Sağıroğlu et al., 2012; Baykal and Atamov, 2017; Gürdal and Öztürk, 2022; Akbulut and Özkan, 2014).

Table 4. Plants that are used to cure diseases.

| Diseases | Plant taxa |
|-------------------------|--|
| Anti-inflammatory | <i>Anagallis arvensis</i> |
| Bone fracture | <i>Echium vulgare</i> , <i>Hypericum orientale</i> |
| Cardiovascular | <i>Hypericum perforatum</i> |
| Cholesterol | <i>Juglans regia</i> |
| Common cold | <i>Bellis perennis</i> , <i>Prunella vulgaris</i> |
| Constipation | <i>Cistus creticus</i> , <i>Scabiosa columbaria</i> |
| Cough | <i>Stachys annua</i> |
| Diarrhea | <i>Trifolium pratense</i> , <i>Rubus caesius</i> |
| Diuretic | <i>Buglossoides arvensis</i> subsp. <i>sibthorpiana</i> , <i>Scabiosa columbaria</i> , <i>Equisetum palustre</i> , <i>Fragaria vesca</i> , <i>Rubus idaeus</i> |
| Fodder | <i>Dorycnium pentaphyllum</i> subsp. <i>anatolicum</i> |
| Foot swelling | <i>Rhododendron luteum</i> |
| Gynecological diseases | <i>Aristolochia pontica</i> , <i>Cistus salvifolius</i> , <i>Hypericum orientale</i> |
| Haemorrhoids | <i>Hypericum perforatum</i> , <i>H. orientale</i> |
| Headache | <i>Prunella laciniata</i> , <i>Stachys annua</i> |
| Insecticide | <i>Securigera varia</i> |
| Intestinal disorder | <i>Calystegia sepium</i> , <i>Polygala major</i> |
| Joint pain | <i>Plantago major</i> |
| Kidney disorder | <i>Vaccinium arctostaphylos</i> , <i>Polygala major</i> , <i>Fragaria vesca</i> |
| Lung disease | <i>Echium vulgare</i> , <i>Lysimachia vulgaris</i> |
| Rheumatism | <i>Hedera helix</i> , <i>Plantago major</i> subsp. <i>major</i> , <i>Lysimachia vulgaris</i> , <i>Ranunculus cappadocicus</i> |
| Sore throat | <i>Trifolium pratense</i> |
| Stomach ache | <i>Smilax excelsa</i> |
| Stomach disorder | <i>Aristolochia pontica</i> , <i>Convolvulus cantabrica</i> , <i>Geranium robertianum</i> , <i>Thymus nummularius</i> , <i>T. praecox</i> subsp. <i>grossheimii</i> , <i>Rumex crispus</i> , <i>R. alpinus</i> |
| Urinary tract infection | <i>Vaccinium arctostaphylos</i> , <i>Genista tinctoria</i> |
| Wound healing | <i>Cichorium intybus</i> , <i>Senecio vernalis</i> , <i>Rhododendron luteum</i> , <i>Plantago major</i> , <i>Anagallis arvensis</i> , <i>Potentilla recta</i> |

Some of them from these plant taxa such as *Rumex alpinus*, *R. crispus* and *Serapias vomeracea* subsp. *orientalis* used for food purposes. It is also observed in similar studies that these plants are used for the same purposes (Pieroni and Giusti, 2009; Mojab et al., 2003; Şen, 2016).

Coronilla varia subsp. *varia*, *Dorycynium pentaphyllum*, *Juncus effusus*, *Pteridium aquilinum* plant taxa were evaluated other traditional usage purposes (such as insecticide, fodder, basketry and prevent the decay of the fruits) in Tütüncüler Village. It is observed in other studies that these plants are used for especially medicinal purposes (Baharvand-Ahmadi et al., 2016; Turker and Yıldırım, 2015; Carvalho et al., 2006; Menendez-Baceta et al., 2012).

It is possible to confirm, based on the research data, that the residents of the rural communities in the Tütüncüler village region are highly knowledgeable about the uses of natural plant taxa, both edible and medicinal. It is important to use the traditional knowledge of using plants to raise the standard of living for the local population.

The current study on the customary use of plants demonstrated the value of local research once more. An important source of traditional treatments is plants. That is why it is indisputable how important it is to preserve the biocultural information about edible and medicinal plants. Faster and better methods for plant collection should be developed because drug discovery from medicinal plants has historically taken a very long time (Do and Bernard, 2004; Koehn and Carter, 2005; Jachak and Saklani, 2007; Sharma and Gupta, 2015).

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References

Akbulut, S. & Özkan, Z.C. (2014). Traditional usage of some wild plants in Trabzon region (Turkey), *Kastamonu University Journal of Forestry Faculty*, 14(1), 135-145.

- Anonymous,(2017a).<https://www.haritatr.com/tutunculer-koyu-haritasi-m16ad>,
Access Date: 25.09.2017.
- Anonymous,(2017b).<http://www.lafsozluk.com/2012/01/artvin-ilinin-turkiye-haritasindaki-yeri.html>, Access Date: 25.09.2017.
- Baharvand-Ahmadi, B., Bahmani, M., Tajeddini, P., Naghdi, N., & Rafieian-Kopaei, M. (2016). An ethno-medicinal study of medicinal plants used for the treatment of diabetes. *J. Nephropathol.*, doi: 10.15171/jnp.2016.08.
- Balick, M.J & Cox, P.A. (1997). *Plants, People, and Culture: the Science of Ethnobotany*. Scientific American Library, New York, NY.
- Balunas, M.J. & Kinghorn, A.D. (2005). Drug discovery from medicinal plants. *ELSEVIER, Life Sciences*, 78, 431 – 441.
- Barnes, J., Anderson, L.A. & Phillipson, J.D. (2001). St John's wort (*Hypericum perforatum* L.): a review of its chemistry, pharmacology and clinical properties, Review. *Journal of Pharmacy and Pharmacology*, 53, 583–600, ISSN 0022-3573.
- Baykal, H. & Atamov, V. (2017). Ethnobotanical documentation of plants of başhemşin valley, Kaçkar mountains national park, rize, Turkey. *Bangladesh Journal of Botany*, 46(2), 767-773.
- Bussmann, R.W. & Sharon, D. (2006). Traditional medicinal plant use in Northern Peru: tracking two thousand years of healing culture. BioMed Central, *Journal of Ethnobiology and Ethnomedicine*, doi:10.1186/1746-4269-2-47.
- Butler, M.S. (2004). The role of natural product chemistry in drug discovery. *Journal of Natural Products*, 67(12), 2141 – 2153.
- Carvalho, A.M., Pardo-De-Santayana, M., & Morales, R. (2006). *Traditional knowledge of basketry practices in a Northeastern region of Portugal*. Proceedings of the IVth International Congress of Ethnobotany (ICEB 2005), 335-338.
- Davis, P.H., Tan, K., Mill, R.R. (1988). *Flora of Turkey and the East Aegean Islands and supplement I. Volume X*, Edinburgh University Press, Edinburgh, 1-590.
- Do, Q.T. & Bernard, P. (2004). Pharmacognosy and reverse pharmacognosy: a new concept for accelerating natural drug discovery. *IDrugs*, 7(11), 1017 – 1027.
- Guarrera, P.M., Salerno, G. & Caneva, G. (2005). Folk phytotherapeutical plants from Maratea area (Basilicata, Italy), *ELSEVIER, Journal of Ethnopharmacology*, Volume 99, Issue 3, <https://doi.org/10.1016/j.jep.2005.01.039>.
- Guner, A., Akyildirim, B., Alkayış, M.F., Cingay, B., Kanoğlu, S.S., Ozkan, A.M., Oztekin, M., Tuğ, G.N. (2012). *Turkce Bitki Adlari*. in: Guner A, Aslan S, Ekim T, Vural M,

- Babac MT. (Eds.), *Türkiye Bitkileri Listesi (Damarlı Bitkiler)*, İstanbul, Nezahat Göküğü Botanik Bahçesi ve Flora Araştırmaları Derneği Yayını, 1290.
- Güner, A., Özhatay, N., Ekim, T., Başer, K.H.C. (2000). *Flora of Turkey and the East Aegean Islands and supplement II. Volume XI*, Edinburgh University Press, Edinburgh, 1-680.
- Gürdal, B., & Öztürk, F. (2022). *Ethnobotanical research in Sürmene district (Trabzon-Turkey, Black Sea region)*. *Advances in Traditional Medicine*, 1-12.
- Heinrich, M. (2000). Ethnobotany and its role in drug development. *Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives*, 14(7), 479-488.
- Heinrich, M., Ankli, A., Frei, B., Weimann, C., Sticher, O. (1998). Medicinal plants in Mexico: healers' consensus and cultural importance. *Social Science and Medicine*, 47, 1859-1871.
- Jachak, S.M. & Saklani, A. (2007). Challenges and opportunities in drug discovery from plants. *Current science*, 1251-1257.
- Karakas, F.P., Yildirim, A.B., Bayram, R., Yavuz, M.Z., Gepdiremen, A. & Turker, A.U. (2015). Antiproliferative Activity of Some Medicinal Plants on Human Breast and Hepatocellular Carcinoma Cell Lines and their Phenolic Contents, Original Research Article, *Tropical Journal of Pharmaceutical Research*, ISSN: 1596-5996 (print); 1596-9827 (electronic).
- Koehn, F.E. & Carter, G.T. (2005). The evolving role of natural products in drug discovery. *Nature Reviews Drug Discovery*, 4(3), 206 – 220.
- Leonti, M., Sticher, O. & Heinrich, M. (2003). Antiquity of medicinal plant usage in two Macro-Mayan ethnic groups (México). ELSEVIER, *Journal of Ethnopharmacology*, 88, 119–124.
- Lutsenko, Y., Bylka, W., Matławska, I. & Darmohray, R. (2010). *Hedera helix* as a medicinal plant, *Kerva Polonica*, 56(1).
- Mazzanti, M.B., Bosi, G., Mercuri, A.M., Accorsi, C.A. & Guarnieri, C. (2005). Plant use in a city in Northern Italy during the late Mediaeval and Renaissance periods: results of the archaeobotanical investigation of “The Mirror Pit” (14th–15th century a.d.) in Ferrara, Original Article, *Veget Hist Archaeobot*, 14, 442–452.
DOI 10.1007/s00334-005-0082-y.
- Menendez-Baceta, G., Aceituno-Mata, L., Tardi’o, J., Reyes-García, V. & Pardo-de-Santayana, M. (2012). Wild edible plants traditionally gathered in Gorbeialdea

- (Biscay, Basque Country), Research Article, *Genet Resour Crop Evol*, 59, 1329–1347
DOI 10.1007/s10722-011-9760-z.
- Menković, N., Šavikin, K., Tasić, S., Zdunić, G., Stešević, D., Milosavljević, S. & Vincek, D. (2010). Ethnobotanical study on traditional uses of wild medicinal plants in Prokletije Mountains (Montenegro), ELSEVIER, *Journal of Ethnopharmacology*, Volume 133, Issue 1, <https://doi.org/10.1016/j.jep.2010.09.008>.
- Mojab, F., Kamalinejad, M., Ghaderi, N. & Vahidipour, H.R. (2003). Phytochemical Screening of Some Species of Iranian Plants. Original Article, *Iranian Journal of Pharmaceutical Research*, 77-82.
- Muthu, C., Ayyanar, M., Raja, N. & Ignacimuthu, S. (2006). Medicinal plants used by traditional healers in Kancheepuram District of Tamil Nadu, India. BioMed Central, *Journal of Ethnobiology and Ethnomedicine*, doi:10.1186/1746-4269-2-43.
- Newman, D.J., Cragg, G.M. & Snader, K.M. (2000). The influence of natural products upon drug discovery. *Natural Product Reports*, 17(3), 215 – 234.
- Özbucak, T.B., Akçin, Ö.E. & Yalçın, S. (2006). Nutrition Contents of the Some Wild Edible Plants in Central Black Sea Region of Turkey, *International Journal of Natural and Engineering Sciences*, 1, 11-13.
- Passalacqua, N.G., Guarrera, P.M. & De Fine, G. (2007). Contribution to the knowledge of the folk plant medicine in Calabria region (Southern Italy). Short report (ethno), *Fitoterapia*, 78, 52–68.
- Pehlivan Karakaş, F., Yıldırım, A. & Türker, A. (2012). Biological screening of various medicinal plant extracts for antibacterial and antitumor activities. *Turk J Biol*, 36, 641-652 © TÜBİTAK doi:10.3906/biy-1203-16.
- Pieroni, A. & Giusti, M.E. (2009). Alpine ethnobotany in Italy: traditional knowledge of gastronomic and medicinal plants among the Occitans of the upper Varaita valley, Piedmont. *Journal of Ethnobiology and Ethnomedicine*, <https://doi.org/10.1186/1746-4269-5-32>.
- Rasoo, R., Ganai, B.A., Akbar, S., Kamili, A.N. & Masood, A. (2010). Phytochemical Screening of *Prunella Vulgaris* L. – An Important Medicinal Plant of Kashmir. *Pak. J. Pharm. Sci.*, 23(4), 399-402.
- Redzic, S. (2010). Wild medicinal plants and their usage in traditional human therapy (Southern Bosnia and Herzegovina, W. Balkan), Full Length Research Paper, *Journal of Medicinal Plants Research*, Vol. 4(11), pp. 1003-1027, DOI: 10.5897/JMPR09.254, ISSN 1996-0875.

- Sađirođlu, M., Arslantürk, A., Akdemir, Z.K., & Turna, M. (2012). An ethnobotanical survey from Hayrat Trabzon and Kalkandere Rize/Turkey. *Biyolojik Çeşitlilik ve Koruma*, 5(1), 31-42.
- Samuelsen, A.B. (2000). The traditional uses, chemical constituents and biological activities of *Plantago major* L. A review, ELSEVIER, *Journal of Ethnopharmacology*, 71, 1–21.
- Samuelsson, G. (2004). *Drugs of Natural Origin: a Textbook of Pharmacognosy*. 5th Swedish Pharmaceutical Press, Stockholm.
- Saraç, D.U., Özkan, Z.C., & Akbulut, S. (2013). Ethnobotanic features of Rize/Turkey province. *Biological Diversity and Conservation*, 6(3), 57-66.
- Sharma, S.B. & Gupta, R. (2015). Drug development from natural resource: a systematic approach. *Mini reviews in medicinal chemistry*, 15(1), 52-57.
- Şen, M.A. (2016). Türkiye'nin Deđişik Yörelerinden Toplanan Orkidelerden Elde Edilen Saleplerin Özelliklerinin Belirlenmesi ve Geleneksel Yöntemle Maraş Usulü Dondurma Yapımında Ürün Kalitesine Etkilerinin Araştırılması, Doktora Tezi, T.C. Namık Kemal Üniversitesi Fen Bilimleri Enstitüsü, Tekirdađ.
- Şener, B. (2001). *Biodiversity: Biomolecular Aspects of Biodiversity and Innovative Utilization*. Springer Science & Business Media, ISBN 0-306-47477-8.
- Trotter, R.T. & Logan, M.H. (1986). *Informant census: A new approach for identifying potentially effective medicinal plants*. In: Etkin LN. (Ed.), *Plants in indigenous medicine and diet*. Routledge, Bedford Hill, NY, pp. 91-112.
- Turker, H. & Yıldırım, A.B. (2015). Article; Agriculture and Environmental Biotechnology, Screening for antibacterial activity of some Turkish plants against fish pathogens: a possible alternative in the treatment of bacterial infections. *Biotechnology & Biotechnological Equipment*, 29(2), 281-288.
<http://dx.doi.org/10.1080/13102818.2015.1006445>.
- WHO. World health organization traditional medicine strategy 2002–2005. Geneva: World Health Organization; 2002. Access Date: 27.08.2017.

Appendix 1

A questionnaire used during an Ethnobotanical and ethnomedicinal study

Informants Details

Name:

Gender:

Education:

Employment:

Questions

1. Which plants have you used for medicinal puposes, if any?
2. For what ailments do you use the plant?
3. Which part of the plant do you use?
4. How do you prepare it for use?
5. How is the preparation administered?
6. Apart from medicinal purposes, for what other purposes do you use these plants?