



Traditional uses of wild plants in Mardin central district and attached villages (Turkey)

Murat Kılıç^{*a}, Kemal Yıldız^b & Fatma Mungan Kılıç^a

^aMardin Artuklu University, Department of Crops and Animal Production, Artuklu, Mardin 47200, Turkey

^bManisa Celal Bayar University, Department of Biology, Yunusemre, Manisa 45140, Turkey

E-mail: muratkilic04@gmail.com

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This research reveals traditional uses of wild plants found in Artuklu district in Mardin Province in the Southeastern Anatolia Region of Turkey. This study, conducted between 2017 and 2019, gathered information on the medicinal and other uses of plant species traditionally used in Artuklu and the local names of these plants. Face to face surveys were conducted with 183 people in 91 neighbourhoods. The ethnobotanical uses of 125 plants belonging to 35 families, which are traditionally underutilized by the local people, have been recorded. Our results showed that the highest Relative Frequency of Citation (RFC) was recorded for the species *Lathyrus pseudocicera* Pamp. (0.32). 1 taxon is from Stereocaulaceae of Fungi, 2 taxa are from Pteridophyta and the others 122 taxa are from Magnoliophyta. In the region, plants mostly belonging to the families Fabaceae (21 taxa), Lamiaceae (11 taxa), Asteraceae (10 taxa) and Brassicaceae (10 taxa) were determined. The recorded ethnobotanical uses are for: food (64), medicinal (40), fodder (12), children's toys (5) and various other purposes (4). Due to the fact that Turkish, Kurdish, Arabic and Assyrian people have lived together in the Artuklu district, this ethnic diversity increased the use of wild plants and added richness. Preserving the coexistence of different cultural and religious groups in the research zone is essential for the maintenance of the rich wild plant local heritage.

Keywords: Artuklu, Ethnobotany, Mardin, Relative frequency of citation, Turkey, Wild plant

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Ethnobotany defines the full relation between humans and plants and investigates both the traditional botanical information of local people and how they use plants for various purposes¹. Ethnobotanical studies emphasise the dynamical relations among biological diversity and social and cultural systems².

Researches of conventional uses of wild plants and their products round the world have risen over recent years³. People have always used local flora, not only as a food, but also for medicine and various other purposes. Information and characteristics about plants collected from nature and used ethnobotanically were passed down from generation to generation through the natural flow of daily life. However, there is a problem in the transfer of this information between the older and the younger generation in the age we live in, the transfer of ethnobotanic data is in danger. Attention in ethnobotanical studies has increased significantly in recent years to withstand this washout of knowledge^{4,5}.

Currently, numerous wild food plants are being identified as foods with health benefits and could promote investigations on healthy diets and food tactics aimed at prevention of important illnesses⁶. However, their part, significance and potential have often been overlooked⁷. The documentation of this locality specific ethnobotanical information is, consequently, very important to prevent its loss⁸. Turkey has wealthy flora owing to its geographical location, geomorphologic structure and effect of several climate types. The number of species found in Turkish flora is 12.000, inclusive plants by foreign origins along with cultivated plants. Concerning endemism, the number of endemic species in the flora is 3.035. Addition of 500 endemic subspecies to this number along with 253 varieties, we get an aggregate number of 3.788 endemic taxa⁹. Endemism is one of the most serious indicators to appreciate the ecological worth of an area. In Turkey, the ratio of endemism in plant species is comparatively high when compared with other European countries¹⁰. The district of Artuklu is located in the Tigris part of the southeastern zone of Anatolia

*Corresponding author

and phytogeographically located in the Irano-Turanian zones. The district further has very few numbers of Euro-Siberian (Euxine) and Mediterranean phytogeographic elements.

Anatolian people living far from the city have traditionally used the plants grown around them for centuries. This traditional use is often the use of plants for nutritional and medicinal purposes¹¹. This traditional use of plants has attracted the attention of researchers in our country in recent years¹²⁻¹⁶.

No before floristic and ethnobotanical studies are stated to have been carried out in Artuklu. As a result of this study carried out in Artuklu District in the Southeastern Anatolia Region, both the plants usage areas and local names of these plants were determined with the ethnobotanical data obtained from the informants.

Materials and Methods

Study area

Mardin is located in southeastern Anatolia at the intersection of 36°55'- 38°51' North latitudes and 39°56'- 42°54' East longitudes. It is a city that connects the Upper Tigris basin to the Al-Jazeera plain and was established on the east slope of the Taurus Mountains at 1083 m above sea level on the roads from Iran, Azerbaijan and Anatolia to Syria and Iraq.

The Artuklu district of Mardin, which was selected as the study area, holds a significant place in world culture. It was located on the Tigris and Euphrates basin in southeastern Anatolia, eastern Nusaybin, Yesilli and Ömerli, west Kiziltepe and Mazidagi, north of Diyarbakir and Savur, in the south, surrounded by Syrian soil Artuklu (Fig. 1)¹⁷. The Mediterranean, terrestrial and desert climates in the region, and height between the mountain and plain sections at 600–800 m has resulted in increased plant diversity.

Artuklu is one of the few cities in the world that has maintained its culture and architecture over time. In this respect, this district was chosen because it is home to a wide range of cultures, and there have been no studies on medicinal, food and various other purposes in this area. There are not only different cultures in this area but also people from different religions. Muslim and Assyrian (Christian) people live together in the region. In addition to Turkish, Kurdish, Arabic, and Syriac are also spoken in the area.

Ethnobotanical data collection

Field studies conducted in the research area were aimed to be performed during the vegetative and reproductive terms of plants used by the local people and sold in markets as herbs. Thus, through field studies, it was aimed to ensure continuity in both collecting the plants at various stages and monitoring plants that were collected and brought to market or used. Surveys were conducted only with local people in the fields where the field studies were conducted.

In order to collect and identify plants that were collected and benefited from in accordance with the information of the local people, they were photographed in their habitats and stored in the herbarium in accordance with scientific regulations. Other materials of vegetable origin that could not be brought to the herbarium after drying were preserved in plastic and paper bags. The date of sample collection and name of the village/locality where they were located were recorded and GPS records were also taken. In the identification of the plants whose use has been determined, various flora books have been used^{9,18}. The scientific names of the plant species are determined according to the International Plant Name Index with the site “bizimbitkiler.org”⁹. Endemism and risk categories¹⁹ of ethnobotanical plants whose taxon names were determined.



Fig. 1 — Map of the study area

Interviews with local people

The local people were those whose names were obtained during ethnobotanical studies. Individually, in the collection of information about local folk food and remedies, mukhtars were interviewed in villages and the names of people who had knowledge of and experience with traditional uses of wild plants were collected. During the research, “Traditional Uses of Wild Plants” questionnaire form was used to compile information about the plants (Appendix A). After the study area was determined, it was ensured that information was obtained in consequence of face-to-face interviews with resource persons living in the regions of the rural area of Artuklu and surrounding areas.

Within the scope of this study, the number of local people interviewed was 183, of which 119 were male (65%) and 64 were female (35%). Herein, students aged 18 and over, women and men over middle age, shepherds, those treating people using certain plants, village headmen, religious leaders, agriculturalists, academics, and teachers were selected.

Students were requested to fill out the questionnaires with their families. We aimed to learn how much of the use and interest in plants was transferred from previous generations to the present generation, to develop a sense of curiosity and learn this information, which was about to be forgotten. In light of the data obtained as a result of the surveys, research trips were organized to the neighbourhoods and parents of the students were visited (Fig. 2).

Local people were taken into consideration when determining ethnic backgrounds. Four ethnic groups were found in the study area: Turks, Kurds, Arabs and Assyrians. Neighbourhood visits with the local people turned into collective conversations in their houses, gardens and village squares. Thus, the information obtained was verified by more than one person (Fig. 3).



Fig. 2 — View from the surveys conducted in schools
a. Gökçe Multi-Program High School b. Fehim Adak Vocational Technical Anatolian High School

Relative frequency of citation (RFC)

The gathered ethnobotanical knowledge was quantitatively analyzed using an index of relative frequency citation (RFC) as: $RFC_s = FC_s/N \rightarrow RFC = FC/N$ ($0 < RFC < 1$)

This index indicates the local significance of each species and obtained by dividing the number of informants who mention the use of the species, also known as the frequency of citation (FC), by the number of informants participating in the survey (N)²⁰. This index theoretically varies from 0, when nobody refers to the plant as useful, to 1 in the unlikely case that all the informants would mention the use of the species²¹.

Result and Discussion

The main idea of this research was to determine the medicinal use of wild plants rather than cultivated plants. This research will contribute to the elimination of the deficiencies in the literature of endemic and rare plants especially used as medicinal and food. In our research, Artuklu was chosen because of the different cultures and the fact that no ethnobotany or floristic research had been carry out in this area. This study focal point on determining uses of medicinal plant, describing uses of new ethnobotanical and perusing our findings with regards to cultural ethnobotany.



Fig. 3 a-e — View of the plants grown in the region in Artuklu centre sold in herbal and markets and from interviews with local people

Demographic features of the resource people

Considering the questionnaire data of high school and university students, visits were made to the district center and villages to interview expert persons. As a result of questionnaires and face-to-face interviews with resource persons, the demographic characteristics of the persons were determined and recorded. 183 persons over the age of 18 were interviewed.

The local people interviewed in the study area were generally farmers, farmer's wives and mukhtars. Of these, 119 were male (65%) and 64 were female (35%). As for their ages, 20 were 18 years old (11%), 120 were between 18 and 60 years old (66%) and 43 were 60 years old or older (23%). With regards to their education, 30 were illiterate (16%), 69 only completed primary

school (38%), 54 only ended high school (30%) and 30 were university graduates (16%) (Table 1).

Taxonomic identification

The ethnobotanical methods and their uses, scientific naming of the wild plants used in Artuklu is given in Table 2.

Table 1 — Demographic characteristics of the local people interviewed (n= 183)

| Demographical characteristics | Number % | Demographical characteristics | Number % |
|-------------------------------|----------|-------------------------------|----------|
| Age | | Educational level | |
| 18 | 11 | Illiterate | 16 |
| 18-60 | 66 | Primary school | 38 |
| ≥ 65 | 23 | High school | 30 |
| Sex | | University | 16 |
| Male | 65 | Residential status | |
| Female | 35 | Villages | 75 |
| | | City center | 25 |

Table 2 — The list of wild plant species and their uses in the study area (A: Arabic, E: Endemik, K: Kurdish, S:Syriac)

| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|--|--|------------------|--------------------------|--------------|--|------|
| Stereocaulaceae | | | | | | |
| <i>Lepraria finkii</i> M.Kılıç 171 | Henetitik (K) | Medicinal | Fresh | As a whole | Nappy rash in children | 0.12 |
| Equisetaceae | | | | | | |
| <i>Equisetum giganteum</i> L. M.Kılıç 171 | Fırçeşişe (K) | Medicinal | Decoction | Aerial parts | Common cold | 0.11 |
| Pteridaceae | | | | | | |
| <i>Adiantum capillus-veneris</i> L. M.Kılıç 171 | Şair el Cebbâr (A) | Medicinal | Decoction | Leaf | Gynaecological diseases | 0.11 |
| Apiaceae | | | | | | |
| <i>Eryngium creticum</i> Lam. M.Kılıç 146 | Greg, Şekirok (K), İkkeyde (A), Bellikraned (S). | Medicinal | As food | Base leaf | Diabetes | 0.11 |
| <i>Scandix stellata</i> Banks & Sol. M.Kılıç 144 | Hizemok, Ârafat (K), Hırfrac (A). | Food | Fresh | Aerial part | Salad | 0.13 |
| <i>Tordylium aegyptiacum</i> (L.) Lam. M.Kılıç 163 | Hizemok, Ârafat (K). | Food | Fresh | Aerial part | Salad | 0.11 |
| <i>Torilis arvensis</i> (Huds). Lunk M.Kılıç 158 | Kurincok (K) | Food | Fresh | Aerial part | Salad | 0.11 |
| <i>Zosima absinthifolia</i> (Vent.) Link M.Kılıç 171 | Birik (K) | Food | Fresh | As a whole | Joins into cheese | 0.11 |
| Asparagaceae | | | | | | |
| <i>Ornithogalum narbonense</i> L. M.Kılıç 149 | Sersipik, Ağbandır, Pılneğş, Gula spi (K), Mığtıl ans (A). | Food | Roasted | Aerial parts | Cracked wheat cooked with tomatoes | 0.23 |
| Asteraceae | | | | | | |
| <i>Arctium minus</i> (Hill) Bernh. M.Kılıç 160 | Ğır, Karç (K) | Food | Fresh | Tuber | Eat raw | 0.13 |
| <i>Bellis perennis</i> L. M.Kılıç 143 | Gulnişan (K) | Medicinal | Infusion | Aerial part | Headache treatment | 0.11 |
| <i>Carthamus lanatus</i> L. M.Kılıç 187 | Strizerk, Trizerk (K), Şevketil kelbe (A). | Food | Fresh | Base leaf | As food | 0.16 |
| <i>Chardinia orientalis</i> (L.) Kuntze M.Kılıç 176 | Tokayê zaroka (K) | Children's toys | Buckle | Flower | To fix the leaves of the <i>Verbascum</i> sp. plant to their heads | 0.14 |
| <i>Cichorium intybus</i> L. M.Kılıç 178 | Taliye, Tehli, Tali (K). | Medicinal | Decoction Mash | Base leaf | Gall bladder, liver Inflammation | 0.11 |

(Contd.)

Table 2 — The list of wild plant species and their uses in the study area (A: Arabic, E: Endemik, K: Kurdish, S:Syriac) (Contd.)

| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|---|---|------------------|--------------------------|-------------|--|------|
| <i>Crepis foetida</i> subsp. <i>rheoadifolia</i> (M.Bieb.) Čelak. M.Kılıç 175 | Taliye, Tehli, Tali (K). | Fodder | Fresh | Base leaf | Animal feed | 0.11 |
| <i>Leontodon crispus</i> DC. ex Nyman M.Kılıç 176 | Taliye, Tahli, Tali (K). | Medicinal | Mash | Base leaf | Diabetes | 0.11 |
| <i>Scorzonera cana</i> (C.A.Mey.) O.Hoffm. M.Kılıç 175 | Gepa miye, Barıka miye, Sping (K), Jınebil ğeyr, Gezrik (A). | Food | Fresh Roasted | Aerial part | Eat raw With onions and eggs | 0.22 |
| <i>Siebera pungens</i> (Lam.) J.Gay M.Kılıç 176 | Çavbelok (K) | Children's toys | Buckle | Flower | To fix the leaves of the <i>Verbascum</i> sp. plant to their heads | 0.14 |
| <i>Tragopogon bupthalmoides</i> Boiss. M.Kılıç 175 | Gepa miye, Barıka miye, Sping (K), Jınebil ğeyr, Gezrik (A). | Food | Roasted | Base leaf | With onions and eggs | 0.17 |
| Boraginaceae | | | | | | |
| <i>Onosma alborosea</i> Fisch. & C.A.Mey. M.Kılıç 177 | Mijmjok (K) | Food | Fresh | Flower | Its nectar sucked | 0.14 |
| <i>Onosma bourgaei</i> Boiss. M.Kılıç 169 | Mijmjok (K) | Food | Fresh | Flower | Its nectar sucked | 0.15 |
| <i>Onosma gigantea</i> Lam. M.Kılıç 178 | Mijmjok (K) | Food | Fresh | Flower | Its nectar sucked | 0.13 |
| <i>Onosma lanceolata</i> Boiss. & Hausskn. M.Kılıç 178 | Mijmjok (K) | Food | Fresh | Flower | Its nectar sucked | 0.14 |
| <i>Onosma orientalis</i> (L.) L. M.Kılıç 162 | Mijmjok (K) | Food | Fresh | Flower | Its nectar sucked | 0.12 |
| <i>Onosma sericea</i> Willd. M.Kılıç 160 | Mijmjok (K) | Food | Fresh | Flower | Its nectar sucked | 0.11 |
| <i>Paracaryum sintenisii</i> Hausskn. ex Bornm. M.Kılıç 186 | Guriz, Mijmjok (K). | Food | Fresh | Flower | Its nectar sucked | 0.10 |
| Brassicaceae | | | | | | |
| <i>Arabis aucheri</i> Boiss. M.Kılıç 189 | Nançük (K) | Food | Fresh | Leaf | Salad | 0.17 |
| <i>Arabis montbretiana</i> Boiss. M.Kılıç 190 | Nançük (K) | Food | Fresh | Leaf | Salad | 0.17 |
| <i>Brassica cretica</i> Lam. M.Kılıç 144 | Gihaye küruma, Ğerdela küruma (K). | Medicinal | Decoction Cook | Leaf | Lowering intestinal worms | 0.11 |
| <i>Brassica elongata</i> Ehrh. M.Kılıç 145 | Ğerdel (K, A) | Food | Roasted | Base leaf | As food | 0.10 |
| <i>Brassica napus</i> L. M.Kılıç 163 | Şelim (K) | Food | Roasted | Base leaf | As food | 0.13 |
| <i>Hirschfeldia incana</i> (L.) Lagr.-Foss. M.Kılıç 165 | Ğerdel, Ğerdel (K, A) | Food | Fresh Roasted | Leaf | Salad With onions and eggs | 0.15 |
| <i>Lepidium coronopus</i> (L.) Al-Shehbaz M.Kılıç 166 | Pirkelaç, Harık (K). | Food | Roasted | Base leaf | With onions and eggs | 0.21 |
| <i>Lepidium ruderales</i> L. M.Kılıç 173 | Tuzık (K) | Food | Fresh Roasted | Leaf | Salad With onions and eggs | 0.20 |
| <i>Neslia paniculata</i> subsp. <i>thracica</i> (Velen.) Bornm. M.Kılıç 184 | Ğerdel (K) | Food | Fresh Roasted | Leaf | Salad With onions and eggs | 0.18 |
| <i>Sisymbrium loeselii</i> L. M.Kılıç 183 | Harık, Hârık (K). | Food | Fresh Roasted | Leaf | Salad With onions and eggs | 0.18 |
| Caprifoliaceae | | | | | | |
| <i>Scabiosa calocephala</i> Boiss. M.Kılıç 147 | Merkes (K) | Tool making | Fresh | Aerial part | Broom | 0.10 |
| <i>Scabiosa rotata</i> M.Bieb. M.Kılıç 144 | Merkes(K) | Tool making | Fresh | Aerial part | Broom | 0.12 |
| <i>Valeriana dioscoridis</i> Sm. M.Kılıç 171 | Giyakitik (K) | Food | Fresh Roasted | Base leaf | Salad With onions and eggs | 0.12 |
| Caryophyllaceae | | | | | | |
| <i>Dianthus floribundus</i> Boiss. M.Kılıç 175 | Nıkıla dika, Nıkla dika, Nıkile dika, Nıkle dika (K), Denil eşer (A). | Food | Fresh | Flower | Its nectar sucked | 0.14 |

(Contd.)

Table 2 — The list of wild plant species and their uses in the study area (A: Arabic, E: Endemik, K: Kurdish, S:Syriac) (Contd.)

| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|--|---|------------------|--------------------------|-------------|-------------------------------|------|
| <i>Dianthus hymenolepis</i> Boiss. M.Kılıç 175 | Nıkıla dika, Nıkla dika, Nıkile dika, Nıkile dika (K), Denil êser (A). | Food | Fresh | Flower | Its nectar sucked | 0.15 |
| <i>Silene brevicaulis</i> Boiss. (E) M.Kılıç 162-1 | Nıkıla dika, Nıkla dika, Nıkile dika, Nıkile dika (K), Denil êser, Hinekıl cec, Ğınağcec (A). | Food | Fresh | Flower | Its nectar sucked | 0.11 |
| <i>Silene subconica</i> Friv. M.Kılıç 164 | Nıkıla dika, Nıkla dika, Nıkile dika, Nıkile dika (K), Denil êser, Hinekıl cec, Ğınağcec (A). | Food | Fresh | Flower | Its nectar sucked | 0.21 |
| Chenopodiaceae | | | | | | |
| <i>Atriplex tatarica</i> L. M.Kılıç 170 | Seromask (K) | Food | Roasted | Aerial part | With onions and eggs | 0.10 |
| <i>Chenopodium album</i> L. M.Kılıç 159 | Seromask, Selmast (K). | Food | Roasted | Aerial part | With onions and eggs | 0.12 |
| Colchicaceae | | | | | | |
| <i>Colchicum serpentinum</i> Woronow ex Misch. M.Kılıç 191 | Pivok, Pivokatal (K). | Medicinal | Fresh | Tuber | Diabetes | 0.12 |
| Convolvulaceae | | | | | | |
| <i>Convolvulus betonicifolius</i> Mill. M.Kılıç 154 | Lavlavk (K) | Food | Roasted | Leaf | With onions and eggs | 0.12 |
| Crassulaceae | | | | | | |
| <i>Sedum album</i> L. M.Kılıç 168 | Tiryre pire (K) | Food | Fresh | Aerial part | As food | 0.12 |
| <i>Sedum pallidum</i> M.Bieb. M.Kılıç 164 | Tiryre pire (K) | Food | Fresh | Aerial part | As food | 0.12 |
| Cyperaceae | | | | | | |
| <i>Carex pachystylis</i> J.Gay M.Kılıç 162-1 | Çırg, Nankê çivikê (K). | Fodder | Fresh | Seed | Bird fodder | 0.10 |
| Fabaceae | | | | | | |
| <i>Alhagi maurorum</i> Medik. M.Kılıç 147 | Agul (K) | Medicinal | Infusion | Aerial part | Kidney stone lowering | 0.10 |
| <i>Astragalus cretaceus</i> Boiss. M.Kılıç 182 | Dorpsik, Gunpsik (K). | Fodder | Fresh | Aerial part | Animal feed | 0.12 |
| <i>Astragalus lamarckii</i> Boiss. (E) M.Kılıç 149 | Guni, Guni (K). | Glue | Putty | Root | As adhesive | 0.10 |
| <i>Astragalus mardinensis</i> Nábělek (E) M.Kılıç 176 | Dorpsik, Gunpsik (K). | Food | Fresh | Seed | Eat raw | 0.11 |
| <i>Cercis siliquastrum</i> L. M.Kılıç 179 | Ergevan (K) | Food | Fresh | Flower | Eat raw | 0.13 |
| <i>Hippocrepis unisiliquosa</i> L. M.Kılıç 178 | Nefel (K) | Medicinal | Fodder | Aerial part | Digestive diseases of animals | 0.11 |
| <i>Lathyrus annuus</i> L. M.Kılıç 152 | Şokıl (K), Bakille, Keşşun (A), Şokkille (S). | Food | Fresh | Seed | Eat raw | 0.14 |
| <i>Lathyrus aphaca</i> L. M.Kılıç 161 | Şokıl (K), Bakille, Keşşun (A), Şokkille (S). | Food | Fresh | Seed | Eat raw | 0.15 |
| <i>Lathyrus gorgoni</i> Heldr. ex Nyman M.Kılıç 148 | Şokıl, Keşşun (K), Bakille, Keşşun (A), Şokkille (S). | Food | Fresh | Seed | Eat raw | 0.14 |
| Fabaceae | | | | | | |
| <i>Lathyrus pseudocicera</i> Pamp. M.Kılıç 152 | Bakıla ğatuni, Keşşun (K), Bakille, Keşşun (A), Şokkille (S). | Food | Fresh | Fruit | Eat raw | 0.32 |
| <i>Lens culinaris</i> subsp. <i>orientalis</i> (Boiss.) Ponert M.Kılıç 182 | Nisk (K), Ades, İtluk (A), Havhe (S). | Medicinal | Fresh Chewing | Aerial part | Cancer treatment | 0.12 |
| <i>Onobrychis aequidentata</i> (Sibth. & Sm.) d Urv. M.Kılıç 169 | Nefel (K) | Fodder | Fresh | Aerial part | Animal feed | 0.12 |

(Contd.)

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| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|---|---|------------------|--------------------------|-----------------|-------------------------------|------|
| <i>Onobrychis kotschyana</i> Fenzl M.Kılıç 177 | Nefel (K) | Fodder | Fresh | Aerial part | Animal feed | 0.14 |
| <i>Ononis viscosa</i> subsp. <i>sicula</i> (Guss.) Hub.-Mor. M.Kılıç 177 | Heştrav, Heştrav (K). | Medicinal | Mash Burn | Root | Callus treatment | 0.10 |
| <i>Trifolium bullatum</i> Boiss. & Hausskn. M.Kılıç 169 | Nefel, Yonja (K). | Medicinal | Fresh | Aerial part | Digestive diseases of animals | 0.12 |
| <i>Trifolium boissieri</i> Guss. ex Soy.-Will. & Godr. M.Kılıç 177 | Nefel, Yonja (K). | Medicinal | Fresh | Aerial part | Digestive diseases of animals | 0.12 |
| <i>Trifolium stellatum</i> L. M.Kılıç 169 | Nefel, Yonja (K). | Medicinal | Fresh | Aerial part | Digestive diseases of animals | 0.14 |
| <i>Trigonella monspeliaca</i> L. M.Kılıç 182 | Indeko, Indeko bave zeko, Nefel (K). | Fodder | Fresh Dried | Aerial part | Animal feed | 0.14 |
| <i>Trigonella spruneriana</i> Boiss. M.Kılıç 183 | Indeko, Indeko bave zeko, Nefel (K). | Fodder | Fresh Dried | Aerial part | Animal feed | 0.14 |
| <i>Vicia cracca</i> subsp. <i>stenophylla</i> (Velen.) C.D.Preston M.Kılıç 182 | Bakıl, Şolık (K). | Food | Fresh | Flower Fruit | Eat raw | 0.16 |
| <i>Vicia sativa</i> subsp. <i>nigra</i> (L.) Ehrh. M.Kılıç 193 | Bakıl, Şolık (K) | Food | Fresh | Flower Fruit | Eat raw | 0.17 |
| Gentianaceae | | | | | | 0.12 |
| <i>Gentiana olivieri</i> Griseb. M.Kılıç 171 | Gihayê tîrsê (K), Heşşîşil hepta (A). | Medicinal | Infusion | Leaf | Fear relief | |
| Geraniaceae | | | | | | |
| <i>Erodium ciconium</i> (L.) L Her. M.Kılıç 181 | Derziya pire, Derbı pire (K). | Food | Roasted | Base leaf | With onions and eggs | 0.11 |
| <i>Erodium cicutarium</i> (L.) L Hér. M.Kılıç 140 | Derziya pire, Derbı pire (K). | Food | Fresh | Fruit | Eat raw | 0.22 |
| <i>Geranium purpureum</i> Vill. M.Kılıç 155 | Derziya pire, Derbı pire (K). | Food | Fresh | Fruit | Eat raw | 0.20 |
| <i>Geranium rotundifolium</i> L. M.Kılıç 156 | Derziya pire, Derbı pire, Gelilok (K). | Food | Roasted | Base leaf | With onions and eggs | 0.20 |
| <i>Geranium tuberosum</i> L. M.Kılıç 150 | Penırok, Kındazo, Sabinok (K), Cezuğaraban (A). | Food | Fresh | Tuber | Eat raw | 0.18 |
| Hypericaceae | | | | | | |
| <i>Hypericum lysimachioides</i> Boiss. & Noë M.Kılıç 175 | Botav, Bahtof, Batof (K), Aran (A). | Medicinal | Decoction | Aerial part | Stomach diseases | 0.16 |
| Iridaceae | | | | | | |
| <i>Gladiolus atroviolaceus</i> Boiss. M.Kılıç 156 | Gangılok (K), Cezuğarab (A). | Food | Fresh | Corm | Eat raw | 0.11 |
| <i>Iris persica</i> L. M.Kılıç 191 | Bılbêzık, Bilbizek (K). | Food | Fresh | Corm | Eat raw | 0.13 |
| Ixioliriaceae | | | | | | |
| <i>Ixiolirion tataricum</i> Herb. M.Kılıç 164 | Ğiyar (K), Terğuzılcebel (A). | Food | Fresh | Flower | Its nectar sucked | 0.11 |
| Lamiaceae | | | | | | |
| <i>Clinopodium serpyllifolium</i> subsp. <i>brachycalyx</i> (P.H.Davis) Brauchler M.Kılıç 188 | Rıhan (K) | Medicinal | Infusion | Leaf | Tension (Balances) | 0.10 |
| <i>Marrubium cuneatum</i> Banks & Sol. M.Kılıç 190 | Çaya çıyan (K) | Medicinal | Infusion | Flower | Cough Common cold | 0.10 |
| <i>Nepeta cataria</i> L. M.Kılıç 190 | Nânê (K), Nınhe (A), Nunıvo (S). | Medicinal | Infusion | Leaf | Throat ache | 0.10 |
| <i>Phlomis armeniaca</i> Willd. M.Kılıç 192 | Çaya çıyan, Guhbelok (K). | Medicinal | Infusion | Leaf | Common cold | 0.14 |

(Contd.)

Table 2 — The list of wild plant species and their uses in the study area (A: Arabic, E: Endemik, K: Kurdish, S:Syriac) (Contd.)

| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|--|---|------------------|--------------------------|--------------|-----------------------------------|------|
| <i>Salvia montbretii</i> Benth. M.Kılıç 181 | Çaya çıyan (K), İkoru, Bızzeyn (A). | Medicinal | Decoction | Aerial parts | Urticaria | 0.12 |
| <i>Salvia spinosa</i> L. M.Kılıç 185 | Çaya çıyan (K), İkoru, Bızzeyn (A). | Medicinal | Decoction | Aerial parts | Urticaria | 0.11 |
| <i>Salvia trichoclada</i> Benth. M.Kılıç 203 | Çaya çıyan (K), İkoru, Bızzeyn (A). | Medicinal | Decoction | Aerial parts | Urticaria | 0.10 |
| <i>Sideritis libanotica</i> subsp. <i>kurdica</i> (Bornm.) Hub.-Mor. M.Kılıç 206 | Çaya çıyan (K) | Medicinal | Dried | Leaf | Diabetes (Swallow) | 0.13 |
| <i>Stachys megalodonta</i> subsp. <i>mardinensis</i> R.Bhattacharjee (E) M.Kılıç 162 | Rihana tehtan (K) | Medicinal | Dried | Leaf | Diabetes (Swallow) | 0.10 |
| <i>Stachys menthoides</i> Kotschy & Boiss. (E) M.Kılıç 179 | Rihana tehtan (K) | Medicinal | Dried | Leaf | Diabetes (Swallow) | 0.10 |
| <i>Teucrium paederotoides</i> Boiss. & Hausskn (E) M.Kılıç 179 | Gihabok (K) | Medicinal | Dried,Fresh | Aerial parts | Stomach ache (Swallow with water) | 0.11 |
| <i>Ziziphora capitata</i> L. M.Kılıç 185 | Cahter (K) | Spice | Dried | Leaf | Used to impart flavor to food | 0.20 |
| Liliaceae | | | | | | |
| <i>Fritillaria pinardii</i> Boiss. M.Kılıç 181 | Gulanisanê (K) | Food | Fresh | Corm | Eat raw | 0.10 |
| Linaceae | | | | | | |
| <i>Linum nodiflorum</i> L. M.Kılıç 198 | Gihakê malamelê (K) | Medicinal | Mash | Aerial parts | Rheumatic diseases (externally) | 0.11 |
| Malvaceae | | | | | | |
| <i>Malvella sherardiana</i> (L.) Jaub. & Spach M.Kılıç 153 | Zırtolık (K) | Food | Roasted | Leaf | With onions and eggs | 0.11 |
| Papaveraceae | | | | | | |
| <i>Papaver arenarium</i> M.Bieb. M.Kılıç 158-1 | Bukuzava, Kulilkabukuzava, Zengılzeva, Kulilka erêba (K), Ceybuğuten (A), Kırceh, Şuşanê (S). | Food | Roasted | Base leaf | With onions and eggs | 0.12 |
| <i>Papaver argemone</i> L. M.Kılıç 151 | Bukuzava, Kulilkabukuzava, Zengılzeva, Kulilka erêba (K), Ceybuğuten (A), Kırceh, Şuşanê (S). | Food | Roasted | Base leaf | With onions and eggs | 0.12 |
| <i>Papaver clavatum</i> Boiss. & Hausskn. ex Boiss. (E) M.Kılıç 174 | Bukuzava, Kulilkabukuzava, Zengılzeva, Kulilka erêba (K), Ceybuğuten (A), Kırceh, Şuşanê (S). | Food | Roasted | Base leaf | With onions and eggs | 0.09 |
| <i>Papaver glaucum</i> Boiss. & Hausskn. ex Boiss. M.Kılıç 188 | Bukuzava, Kulilkabukuzava, Zengılzeva, Kulilka erêba (K), Ceybuğuten (A), Kırceh, Şuşanê (S). | Food | Roasted | Base leaf | With onions and eggs | 0.11 |
| <i>Papaver macrostomum</i> Boiss. & A.Huet M.Kılıç 175 | Bukuzava, Kulilkabukuzava, Zengılzeva, Kulilka erêba (K), Ceybuğuten (A), Kırceh, Şuşanê (S). | Food | Roasted | Base leaf | With onions and eggs | 0.12 |

(Contd.)

Table 2 — The list of wild plant species and their uses in the study area (A: Arabic, E: Endemik, K: Kurdish, S:Syriac) (Contd.)

| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|--|---|------------------|--------------------------|-------------|--|------|
| <i>Papaver orientale</i> L. M.Kılıç 175 | Bukuzava, Kulilkabukuzava, Zengilzeva, Kulilka erêba (K), Ceybuğuten (A), Kırceh, Şuşanê (S). | Food | Roasted | Base leaf | With onions and eggs | 0.12 |
| Plantaginaceae | | | | | | |
| <i>Veronica anagallis-aquatica</i> L. M.Kılıç 165 | Bennik (K) | Food | Fresh | Leaf | Salad | 0.21 |
| Poaceae | | | | | | |
| <i>Arrhenatherum palaestinum</i> Boiss. M.Kılıç 188 | Fêrız (K) | Fodder | Fresh Dried | Aerial part | Animal feed | 0.11 |
| <i>Briza humilis</i> M.Bieb. M.Kılıç 148 | Gihareş (K) | Children's toys | Fresh Dried | Flower | Attaches to the ears as earrings | 0.12 |
| <i>Hordeum murinum</i> subsp. <i>glaucum</i> (Steud.) Tzvelev M.Kılıç 182 | Ceh (K) | Fodder | Fresh Dried | Aerial part | Animal feed | 0.15 |
| <i>Hordeum spontaneum</i> K.Koch M.Kılıç 156 | Ceh (K) | Fodder | Fresh Dried | Aerial part | Animal feed | 0.20 |
| <i>Saccharum strictum</i> (Host) Spreng. M.Kılıç 151 | Kamuş (K), Sikke nebet (A). | Medicinal | Sugar | Aerial part | Treatment of intra-oral wound | 0.11 |
| <i>Secale cereale</i> L. M.Kılıç 147 | Çevder (K) | Fodder | Fresh Dried | Aerial part | Animal feed | 0.18 |
| Polygonaceae | | | | | | |
| <i>Rumex pulcher</i> L. M.Kılıç 193 | Tırşoka ga (K) | Fodder | Fresh | Base leaf | Animal feed | 0.13 |
| Ranunculaceae | | | | | | |
| <i>Ranunculus arvensis</i> L. M.Kılıç 138 | Kulilka kevenden (K) | Medicinal | Raw | Flower | Rheumatic diseases (externally) | 0.13 |
| <i>Ranunculus damascenus</i> Boiss. & Gaill. M.Kılıç 141 | Kulilka kevenden (K) | Medicinal | Raw | Flower | Rheumatic diseases (externally) | 0.10 |
| <i>Ranunculus ficaria</i> subsp. <i>ficariiformis</i> Rouy & Foucaud M.Kılıç 175 | Kulilka kevenden (K) | Medicinal | Raw | Flower | Rheumatic diseases (externally) | 0.11 |
| <i>Ranunculus repens</i> L. M.Kılıç 192 | Kulilka kevenden (K) | Medicinal | Raw | Flower | Rheumatic diseases (externally) | 0.10 |
| Rhamnaceae | | | | | | |
| <i>Rhamnus punctata</i> Boiss. M.Kılıç 177 | Rihok, Riğok (K). | Food | Jam | Fruit | As food | 0.15 |
| Rosaceae | | | | | | |
| <i>Crataegus monogyna</i> Jacq. M.Kılıç 190 | Guhij (K) | Food | Fresh | Fruit | Eat raw | 0.20 |
| <i>Prunus spinosa</i> L. M.Kılıç 186 | Ëlûce, Erûk (K), Aluce, Aluciye (A). | Food | Fresh | Fruit | Eat raw | 0.13 |
| <i>Rosa orientalis</i> A.Dupont ex DC. M.Kılıç 190 | Gul, Şilan (K), Verdenif (A). | Food | Fresh | Fruit | Eat raw | 0.13 |
| Salicaceae | | | | | | |
| <i>Salix acmophylla</i> Boiss. M.Kılıç 184 | Darabihe (K) | Medicinal | Incinerate Mash | Bark | Rheumatic diseases (externally) | 0.12 |
| Scrophulariaceae | | | | | | |
| <i>Verbascum laetum</i> Boiss. & Hausskn. ex Boiss. M.Kılıç 174 | Guluberğik (K) | Children's toys | Fresh | Leaf | Girls ornaments they wear on their heads as children | 0.13 |
| <i>Verbascum speciosum</i> Schrad. M.Kılıç 178 | Guluberğik (K) | Children's toys | Fresh | Leaf | Girls ornaments they wear on their heads as children | 0.13 |

(Contd.)

Table 2 — The list of wild plant species and their uses in the study area (A: Arabic, E: Endemik, K: Kurdish, S:Syriac) (Contd.)

| Family, Plant species, voucher specimen and endemism | Local names | Purpose of usage | Preparations utilization | Part used | Uses | RFC |
|--|------------------------|------------------|--------------------------|-----------|----------------------------|------|
| Solanaceae | | | | | | |
| <i>Hyoscyamus albus</i> L. M.Kılıç 181 | Bızre bence, Benc (K). | Medicinal | Burn | Fruit | Earache (fume with funnel) | 0.12 |
| <i>Hyoscyamus aureus</i> L. M.Kılıç 182 | Bızre bence, Benc (K). | Medicinal | Burn | Fruit | Earache (fume with funnel) | 0.12 |
| <i>Hyoscyamus niger</i> L. M.Kılıç 185 | Bızre bence, Benc (K). | Medicinal | Burn | Fruit | Earache (fume with funnel) | 0.12 |
| <i>Hyoscyamus reticulatus</i> L. M.Kılıç 187 | Bızrı bence, Benc (K). | Medicinal | Burn | Fruit | Earache (fume with funnel) | 0.12 |

As a result of the interviews with the local people living in Artuklu District and its villages, it was determined that 125 plants were used in the research region. The most used families in the region are given in Figure 4.

These families are Fabaceae (21 taxa), Lamiaceae (11), Asteraceae (10), Brassicaceae (10). Asteraceae (15), Lamiaceae (11), Fabaceae (9), Rosaceae (6)¹²; Asteraceae (10), Rosaceae (7), Fabaceae (6), Lamiaceae (4)¹⁴ were compared in studies conducted in the vicinity of our area of research.

In a study performed in Şanlıurfa, it was observed that plants related to the families of Fabaceae, Asteraceae, Poaceae, Lamiaceae²²; Lamiaceae, Asteraceae, Fabaceae in İzmir²³; Fabaceae, Asteraceae, Lamiaceae, Rosaceae in Denizli⁸; Asteraceae, Lamiaceae, Rosaceae in Malatya²⁴; Asteraceae, Lamiaceae, Rosaceae, Fabaceae in Batman¹⁴ are used prevalently by the folks of the regions.

Astragalus lamarckii, *Astragalus mardinensis*, *Stachys megalodonta* subsp. *mardinensis*, *Stachys menthoides*, *Teucrium paederotoides*, *Silene brevicaulis*, *Papaver clavatum* were found to be the endemic plants used for ethnobotanical purposes in Artuklu (Mardin-Turkey). According to the Red Data Book of Turkish Plants¹⁸, *Teucrium paederotoides* is grouped under “endangered” category, whereas other six taxons are categorized as “least concern” and phytogeographic regions were given (Table 3).

In the literature analysis of the plants used in our study, 125 plants were found to be already in use for ethnobotanical purposes, whereas seven plants presented no literature records. The ethnobotanical uses of *Astragalus lamarckii*, *A. mardinensis*, *Stachys megalodonta* subsp. *mardinensis*, *S. menthoides*, *Teucrium paederotoides*, *Silene brevicaulis* and

Table 3 — Danger categories and phytogeographical distributions of endemic taxa

| Endemic taxa | Danger category | Phytogeographical distribution |
|--|--------------------|--------------------------------|
| <i>Astragalus lamarckii</i> | LC (Least concern) | Iran-Turan |
| <i>Astragalus mardinensis</i> | LC (Least concern) | Iran-Turan |
| <i>Stachys megalodonta</i> subsp. <i>mardinensis</i> | LC (Least concern) | Iran-Turan |
| <i>Stachys menthoides</i> | LC (Least concern) | Iran-Turan |
| <i>Teucrium paederotoides</i> | EN (Endangered) | Mediterranean |
| <i>Silene brevicaulis</i> | LC (Least concern) | Iran-Turan |
| <i>Papaver clavatum</i> | LC (Least concern) | Iran-Turan |

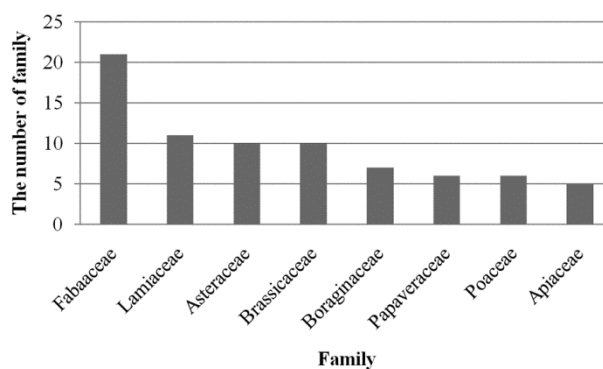


Fig. 4 — Most representative families

Papaver clavatum which were found being used in our study area were recorded for the first time.

Plant uses

Five primary uses were recorded: food (64 taxa), medicinal (40 taxa), fodder (12 taxa), children’s toys (5 taxa) and various other purposes (4 taxa) uses (Fig. 5). Quantitatively, food and medicinal species are by far the most important in this area.

Informants report using different plant parts for different ethnobotanical purposes: leaf 40 (32%), aerial part 34 (27.2%), flower 23 (18.4%), fruit 13 (10.4%), seed 5 (4%) tuber 3 (2.4%), corm 3 (2.4%), root 2 (1.6%) and whole 2 (1.6%) (Table 4).

Highly utilized species

According to the calculation of the relative frequency of citation (RFC)²⁰, the 20 most culturally important taxa in Artuklu district are shown in Figure 6. *L. pseudocicera* (0.32) has the highest value, and *P. clavatum* (0.09) has the lowest. Based on our analyses, RFC ranged from 0.09 to 0.32 and revealed the common ethnobotanical usages for the following taxa: *E. creticum* (0.11), *S. stellata* (0.11), *H. niger* (0.12), *S. rotata* (0.12), *I. persica* (0.13), *R. orientalis* (0.13), *C. orientalis* (0.14), *P. armeniaca* (0.14), *H. murinum* subsp. *glaucom* (0.15), *H. lysimachioides*

(0.16), *A. aucheri* (0.17), *T. buphthalmoides* (0.17), *G. tuberosum* (0.18), *N. paniculata* subsp. *thracica* (0.18), *S. cereale* (0.18), *C. monogyna* var. *monogyna* (0.20), *G. purpureum* (0.20), *L. ruderales* (0.20) and *Z. capitata* (0.20). The highest RFCs are recorded for *L. pseudocicera* (0.32), *O. narbonense* (0.23), *E. cicutarium* (0.22), *S. cana* (0.22), *L. coronopus* (0.21), *S. subconica* (0.21), and *V. anagallis-aquatica* (0.21).

Especially those living in Artuklu villages have no difficulty in reaching the widely used species. The villagers always keep plant materials for medical or food use, as they dry and store the plants they have collected on time under suitable conditions. Most of the plant species that have high RFCs can be grown easily such as *L. pseudocicera*, *O. narbonense*, and *E. cicutarium*. The plants used as animal fodders in Artuklu are collected because they are grown easily and are numerous.

Some highly utilized plant species have been investigated in terms of ethnobotanical uses. For example, *L. pseudocicera* is traditionally used as a food in the region. In our study, fruits of *L. pseudocicera* are used as food. The *Lathyrus* genus includes 160 species, some of which have economic importance as food, fodder and ornamental crops²⁵. This species are being used as food in Jordan²⁶; food and fodder in Nepal²⁷ and food in Şanlıurfa²⁸.

O. narbonense is traditionally used as a food in the region. In our study, aerial parts of *O. narbonense* are used as food. This species are being used as food in Middle Anatolia²⁹, Adana³⁰ and Şanlıurfa¹⁶. They were reported in previous studies carried out in Adana and Canary Islands that they are used to treat acne disease, emetic, diuretic, cardioactive in Adana³⁰; and for diuretic, expectorant in Canary Islands³¹.

Table 4 — Plant parts used by local people in the study area

| Part of plant | Number | % |
|---------------|--------|------|
| Leaf | 40 | 32 |
| Aerial part | 34 | 27.2 |
| Flower | 23 | 18.4 |
| Fruit | 13 | 10.4 |
| Seed | 5 | 4 |
| Tuber | 3 | 2.4 |
| Corm | 3 | 2.4 |
| Root | 2 | 1.6 |
| Whole | 2 | 1.6 |

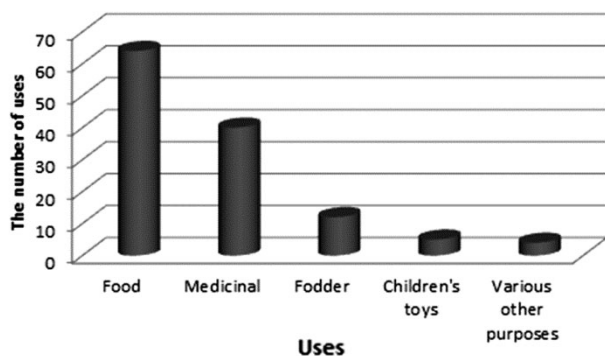


Fig. 5 — Ethnobotanical uses of plants

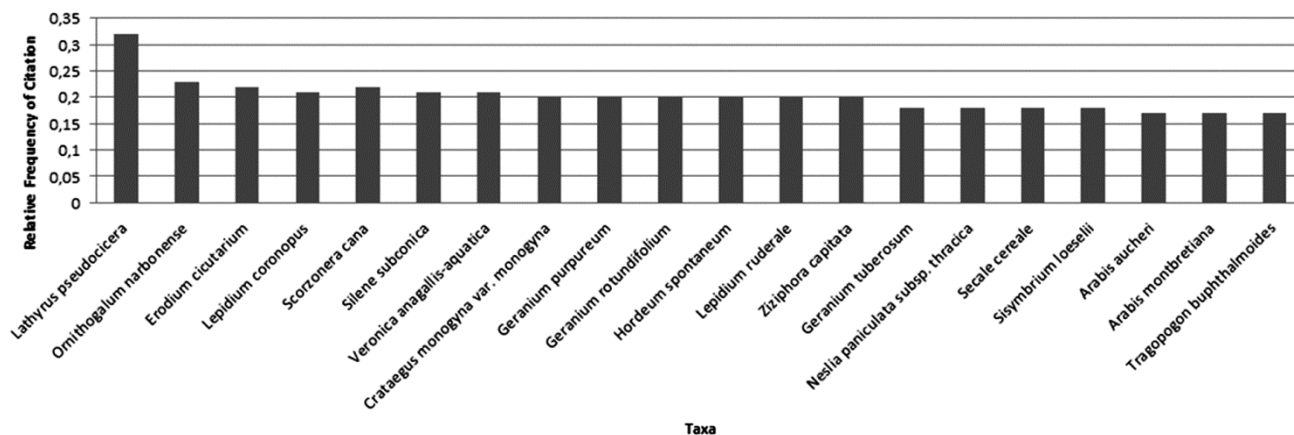


Fig. 6 — Relative Frequency of Citation of the 20 most relevant taxa

RFC and the cultural importance index (CI) are closely related to indices. Therefore, we compared these two indices of our study. *E. cicutarium* (RFC 0.22) is traditionally used as a food. *E. cicutarium* is reportedly used as food in Batman with CI 0.24¹⁴. These species are being used as food in the Middle Aegean Region⁸; Yeşilli¹⁵ and as medicinal plants in Bolivian Andes³². The same taxon is also used for stomach ailments in Yozgat with a similarly high CI 0.15³³. *S. cana* has RFC 0.22 and is used as a food in Artuklu. Several studies reported the use of *Scorzonera* spp. as food⁴⁵ and as medicine¹³. *V. anagallis-aquatica* with RFC 0.21 is used as a salad in Artuklu. This species are being used as salad in Central Kurdistan³⁴ and like food and fodder in Central Anatolia³⁵. Fruits of *C. monogyna* var. *monogyna* are consumed as food. It is used as food in Şanlıurfa¹⁶, Batman¹⁴, the fruits of the plant are used as diabetic illnesses in Adana³⁶ and the flowers of the plant are used for cardiac disorder in Malatya²⁴. *L. ruderales* is consumed as salad in Artuklu. In Balıkesir province, the leaves of this plant are used as salad³⁷.

In the current study, *H. lysimachioides* is used for stomach diseases in Artuklu. Some similar usages of the plant are reported for stomach ulcer³⁸. *P. armeniaca* is used in Artuklu as a herbal tea for the common cold. *P. armeniaca* is also used as fodder in the Middle Aegean Region⁸ and as milk enhancer in the east of Turkey¹⁴.

Above, we discussed the ethnobotanical uses of plants with high RFC values in Artuklu. Here, plants that are not widely used but with considerable uses are mentioned. In our study, corms of *I. persica* are used as food. This species is being used as food in Batman¹⁴ and Yeşilli¹⁵, as ornamental in Kalecik Mountain²⁸ and Erzincan⁴⁴. *E. creticum* is used in Artuklu as food for diabetes. In addition, it is used as a food and as medicine¹⁵ and the stems of the plant are also used as a food¹⁶ in southeast regions of Turkey. *S. stellata* is consumed as a food in Artuklu. In Şanlıurfa province, all plant parts of this plant are used as food¹⁶, as fodder in Kalecik Mountain²⁸ and like a food in Midyat¹² and it is used for stomach tonic in Iran³⁹. Residents of Artuklu use *S. libanotica* subsp. *kurdica* is used for diabetes treatment. *S. libanotica* used the broom and herbal tea in Midyat¹². *H. niger* seed is burned and used for earache disease. Moreover, the flowers are used as a toothache in Yozgat³³ and seeds are used as a toothache in Bingöl¹³.

In the region, utilizing plants as brooms was common ethnobotanical usage. *S. rotata* is used as broom and the same usage was reported previously in Bozova⁴⁰. Additionally, *S. rotata* is used as fodder in Şanlıurfa¹⁶ and against skin diseases in Adıyaman⁴¹. *C. orientalis* is used as a buckle in children's toys. The same usage was reported previously in Muş⁴². *C. orientalis* is used as a medicinal plant in Adıyaman⁴¹, Azerbaijan and Iran⁴³.

The local people in Artuklu both consume and sell local plants by collecting them and make a profit from it and promote their region. As an example, leaves of *Brassica napus* are eaten fresh and then sold by local people.

Flowers of *B. humilis* and leaves of *V. laetum* and *V. speciosum* are used as children's toys in Artuklu, and the people of Artuklu consume the flowers of *V. cracca* subsp. *stenophylla*, *V. sativa* subsp. *nigra* and *C. siliquastrum*.

Endemic plants for which there was no previous information on ethnobotanical use are shown in Table 2, 3. In addition, the ethnobotanical uses of these endemic plants are also detailed. Seven endemic plants were reported (Table 2) namely, *A. lamarckii*, *A. mardinensis*, *S. megalodonta* subsp. *mardinensis*, *S. menthoides*, *T. paederotoides*, *S. brevicaulis* and *P. clavatum*. These plants have little use; for example, *A. lamarckii* root is used as glue. Such use of this endemic plant only in Mardin, constitutes a problem in the protection of this species. Another species, *A. mardinensis*, is only traditionally used as food and therefore not considered as endangered as compared to the previous species. *S. megalodonta* subsp. *mardinensis* and *S. menthoides*, whose leaves are used to cure diabetes is not common plants usage and found in limited locations. The location of *S. megalodonta* subsp. *mardinensis* and *S. menthoides* make them challenging to collect because they grow in the mountains and in shrubs. *T. paederotoides* is used for stomach ache in Artuklu. This endemic plant with potential medicinal use, is just spread in two places in Turkey. This plant needs to be protected, but excessive and uncontrolled collection can destroy populations. *S. brevicaulis* is locally used by children, who consume the flower latex and *P. clavatum* is used as food; they are, however, not extensively used and therefore not in danger.

Conclusion

Artuklu is a district that has hosted different civilizations, multilingual, cultures and has different

religions. Artuklu people have lived peacefully for thousands of years due to their respect and tolerance towards other religions and cultures. Although the people of the region have hosted different civilizations, their coexistence from the past has also resulted in their ethnobotanical knowledge.

Within the scope of this study, in the Artuklu district in Southeastern Anatolia, between February 2018 and July 2019, a total of 183 people were interviewed in 23 neighbourhoods connected to the district centre and 68 neighborhoods in rural areas. In the study zone, locality humans were determined to use 125 plants from 35 families used ethnobotanical. We also document not only the medicinal uses of wild plants, but also their uses for food, animal food, children's toys and for a variety of purposes. The local people who make use of these plants collect these plants from nature in the spring. By drying these plants they collect from nature and use them by applying infusions and decoctions methods in almost every period of the year. It has been seen in the study that the use of plants as medicinal and food has become a tradition for the local people. We determined the highest RFCs for *L. pseudocicera* (0.32) and *O. narbonense* (0.23); further biochemical and biological activity study needs to be done for these species. This valuable information comes from generation to generation, it is very important for its protection and transmission to future generations.

The literature review has shown that the wild plants found in Artuklu are used for ethnobotany with the same or similar uses in different parts of the world. Some of the plants used in treatments in the region had adverse effects and should be used carefully, as recorded during our field and survey studies. *Hyoscyamus albus*, *H. aureus*, *H. niger*, *H. reticulatis* plants cause deafness if used too much in treatments. *Hypericum lysimachioides* species will damage the eyes as a result of excessive use.

Attention should be paid to the local and scientific names of the plants used in almost every region of Anatolia as ethnobotanical, and we shouldn't use plants which we do not know without consulting experts.

In the following studies, taxonomic, biochemical and biological activity studies of the plants whose ethnobotanical uses are determined should be made. Thus, a further step is taken for the plant to be used in the treatment of diseases and the use of the plant as food would be more meaningful. It should be ensured

that local foods made with plants are recorded and promoted in order to be promoted, and they should be promoted in markets and markets.

It should be ensured that the protection measures of the taxa, whose medical data are recorded for the first time and which are endemic and threatened, should be taken as soon as possible and that their generation will continue.

As a result of this study, by specifying the ethnobotanical data of different cultures living in Artuklu district center and its villages, it can encourage the increase of intercultural ethnobotanical studies, contribute to the development of the current knowledge of plants used as medicinal and food, and also lead to the can constitute of an action plan for the protection of rare and endemic plant species.

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Conflict of interest

The authors declare that they have no conflict of interest.

Authors' contributions

K Y designed the study. M K conducted the field work. M K, K Y and F M K analyzed the data and provided comments on the study. M K drafted the article and provided final version to publish. All authors read and approved the final manuscript.

References

- 1 Arshad M, Ahmad M, Ahmed E, Saboor A, Abbas A & Sadiq S, An ethnobiological study in Kala Chitta hills of Pothwar region, Pakistan: Multinomial logit specification, *J Ethnobiol Ethnomed*, 10 (2014) 13. doi: 10.1186/1746-4269-10-13.
- 2 Mahmood A, Mahmood A & Tabassum A, Ethnomedicinal survey of plants from District Sialkot, Pakistan, *J Appl Pharm*, 2 (2011) 212-220.
- 3 Yuan H, Ma Q, Ye L & Piao G, The traditional medicine and modern medicine from natural products, *Molecules* 21 (5) (2006) 559. doi: 10.3390/molecules201050559.
- 4 Özgen U, Kaya Y & Coşkun M, Ethnobotanical studies in the villages of the District of Ilica (Province Erzurum) Turkey, *Econ Bot*, 58 (2004) 691-696.
- 5 Teklehaymanot T, Giday M, Medhin G & Mekonnen Y, Knowledge and use of medicinal plants by people around Debre Libanos Monastery in Ethiopia, *J Ethnopharmacol*, 111 (2) (2006) 271-283.

- 6 Pieroni A & Quave C L, Eating and healing: Traditional food as medicine, In: Eating and healing: Traditional food as medicine, edit by Pieroni A & Price L L, (The Haworth Press, Binghamton), 2006, 101–129.
- 7 Pieroni A, Nebel S, Santoro R F & Heinrich M, Food for two seasons: Culinary uses of non-cultivated local vegetables and mushrooms in a south Italian village, *Int J Food Sci Nutr*, 56 (4) (2005) 245-272.
- 8 Kargioğlu M, Cenkci S, Serteser A, Konuk M & Vural G, Traditional Uses of Wild Plants in the Middle Aegean Region of Turkey, *Hum Ecol*, 38 (2010) 429-450. doi:10.1007/s10745-010-9318-2.
- 9 Güner A, Aslan S, Ekim T, Vural M & Babaç M T, The checklist of Flora of Turkey (Vascular Plants), Flora Araştırmaları Derneği ve Nezahat Gökyiğit Botanik Bahçesi Yayını (in Turkish), İstanbul, Turkey, 2012.
- 10 Ugulu I, Aydın H, Yorek N & Dogan Y, The impact of endemism concept on environmental attitudes of secondary school students, *Natura Montenegrina*, 7 (2008) 165-173.
- 11 Polat R, Cakilcioglu U & Satıl F, Traditional uses of medicinal plants of Solhan (Bingöl-Turkey), *J Ethnopharmacol*, 48 (2013) 951-963.
- 12 Akgul A, Akgul A, Senol S G, Yildirim H & Dogan Y, An ethnobotanical study in Midyat (Turkey), a city on the silk road where cultures meet, *J Ethnobiol Ethnomed*, 14 (2018) 12. doi:10.1186/s13002-017-0201-8.
- 13 Nadiroğlu M, Behçet L & Çakılcioglu U, An ethnobotanical survey of medicinal plants in Karlıova (Bingöl-Turkey), *Indian J Tradit Know*, 18 (1) (2019) 76-87.
- 14 Yeşil Y & İnal İ, Traditional knowledge of wild edible plants in Hasankeyf (Batman Province, Turkey), *Acta Soc Bot Pol*, 88 (3) (2019) 36-33. <https://doi.org/10.5586/asbp.3633>.
- 15 Yeşil Y, Çelik M & Yılmaz B, Wild edible plants in Yeşilli (Mardin-Turkey), a multicultural area, *J Ethnobiol Ethnomed*, 15 (52) (2019) 1-19. <https://doi.org/10.1186/s13002-019-0327-y>.
- 16 Kaya Ö F, Dağlı M & Çelik H T, An ethnobotanical research in Şanlıurfa central district and attached Villages (Turkey), *Indian J Tradit Know*, 19 (1) (2020) 7-23.
- 17 Demir MM, *Mardin City*, (MSc Agric Thesis, İstanbul University, İstanbul, Turkey), 2010.
- 18 Davis P H, Flora of Turkey and East Aegean Islands, vol. 1–9. Edinburg University Press, Edinburg 1965-1985.
- 19 Ekim T, Koyuncu M, Vural M, Duman H, Aytaç Z & Adıgüzel N, Red Data Book of Turkish Plants (Pteridophyta and Spermatophyta), Turkish Association For The Conservation Of Nature, Van Centennial University, Barışcan Ofset. Ankara, Turkey, 2000.
- 20 Sansanelli S, Ferri M, Salinitro M & Tassoni A, Ethnobotanical survey of wild food plants traditionally collected and consumed in the Middle Agri Valley (Basilicata region, southern Italy), *J Ethnobiol Ethnomed*, 13 (2017) 50.
- 21 Tardio J & Parto-de-Santaya M, Cultural importance indices: a comparative analysis based on the useful wild plants of southern Cantabria (northern Spain), *Econ Bot*, 62 (1) (2008) 24-39. <https://doi.org/10.1007/s12231-007-9004-5>.
- 22 Akan H, Korkut M M & Balos M M, An Ethnobotanical Study Around Arat Mountain and its surroundings (Birecik, Şanlıurfa), *Science and Eng J Fırat Univ*, 20 (1) (2008) 67-81.
- 23 Ugulu I, Baslar S, Yorek N & Dogan Y, The investigation and quantitative Ethnobotanical evaluation of medicinal plants used around Izmir province, Turkey, *J Med Plants Res*, 3 (5) (2009) 345-367. <http://www.academicjournals.org/JMPR>.
- 24 Tetik F, Civelek S & Cakilcioglu U, Traditional uses of some medicinal plants in Malatya (Turkey), *J Ethnopharmacol*, 146 (1) (2013) 331-346. doi: 10.1016/j.jep.2012.12.054.
- 25 Vaz Patto M C & Rubiales D, *Lathyrus* diversity: available resources with relevance to crop improvement – *L. sativus* and *L. cicera* as case Studies, *Ann Bot*, 113 (2014) 895-908. doi:10.1093/aob/mcu024.
- 26 Al-Qura'n S A, Ethnobotanical and Ecological Studies of Wild Edible Plants in Jordan, *Libyan Agric Res Cen J Int*, 1 (4) (2010) 231-243.
- 27 Neupane R K, Status of *Lathyrus* research and production in Nepal, In: *Lathyrus* Genetic Resources in Asia, edited by Arora R K, Mathur P N, Riley K W & Adham Y, (Indira Gandhi Agricultural University, Raipur, India), 1996, 29-35.
- 28 Akan H, Aydoğdu M, Korkut M M & Balos M M, An ethnobotanical research of the Kalecik mountain area (Şanlıurfa, South-East Anatolia), *Bio Di Con*, 6 (2) (2013) 84-90.
- 29 Doğan Y, Baslar S, Ay G & Mert H H, The use of the wild plants in western and central Anatolia (Turkey), *Econ Bot*, 58 (4) (2004) 684-690.
- 30 Özer Z, Tursun N & Önen H, *Yabancı Otlarla Sağlıklı Yaşam (Gıda ve Tedavi)* (In Turkish), (4 Renk Yayınları, Ankara, Turkey) 2001.
- 31 Darias V, Martín-Herrera D, Abdala S & de la Fuente D, Plants Used in Urinary Pathologies in the Canary Islands, *Pharm Biol*, 39 (3) (2001) 170-180. doi: 10.1076/phbi.39.3.170.5937.
- 32 Thomas E, Vandebroek I, Goetghebeur P, Sanca S, Arrázola S, *et al.*, The relationship between plant use and plant diversity in the Bolivian Andes, with special reference to medicinal plant use, *Hum Ecol*, 36 (2008) 861-879. doi:10.1007/s10745-008-9208-z.
- 33 Han M İ & Bulut G, The folk-medicinal plants of Kadişehri (Yozgat-Turkey), *Acta Soc Bot Pol*, 84 (2) (2015) 237-248. doi: 10.5586/asbp.2015.021.
- 34 Pieroni A, Sökand R, Amin H I M, Zahir H & Kukuk T, Celebrating Multi-Religious Co-Existence in Central Kurdistan: the Bio-Culturally Diverse Traditional Gathering of Wild Vegetables among Yazidis, Assyrians, and Muslim Kurds, *Hum Ecol*, 46 (2018) 217-227. <https://doi.org/10.1007/s10745-018-9978-x>.
- 35 Ertuğ F, An Ethnobotanical Study In Central Anatolia (Turkey), *Econ Bot*, 54 (2) (2000) 155-182.
- 36 Güneş S, Savran A, Paksoy M Y & Çakılcioglu U, Survey of wild food plants for human consumption in Karaisalı (Adana-Turkey), *Indian J Tradit Know*, 17 (2) (2018) 290-298.
- 37 Polat R, *Agricultural Biodiversity and Ethnobotanical Research in the Havran and Burhaniye Regions of Balıkesir*, PhD Thesis, (Balıkesir University, Balıkesir, Turkey), 2010.
- 38 Oguz F & Tepe I, Plants Used in Traditional Medicines and Their Application Fields in Yuksekova (Hakkâri) Region, *Turk J Weed Sci*, 20 (2) (2017) 28-37.
- 39 Shariffar F, Moharam-Khani M, Moattar F, Babakhanloo P & Khodami M, Ethnobotanical study of medicinal plants of

- Joopar Mountains of Kerman Province, Iran *J Kerman Uni Med Sci*, 21 (2014) 37-51.
- 40 Oymak E, *Ethnobotanic Features of Natural Plants Used by Inhabitants in Bozova (Şanlıurfa)*, (MSc Agric Thesis, Harran University, Şanlıurfa, Turkey), 2018.
- 41 Furkan M K, *The Ethnobotanical Properties of Some Plants Growing in Adıyaman*, (MSc Agric Thesis, Adıyaman University, Adıyaman, Turkey), 2016.
- 42 Arık M, *The Useful Plants in Korkut and its Villages (Muş Provinces)*, (MSc Agric Thesis, Van Yüzüncüyıl University, Van, Turkey), 2003.
- 43 Malek Mohammadi L & Mirzavash Azar S, Gathering, identification, medicinal utilization and domestication of some wild edible plants in Ghasemloo Valley, West Azerbaijan, Iran, *J Range Sci*, 2 (2) (2012) 521-539.
- 44 Korkmaz M, Karakuş S, Selvi S & Çakılcıoğlu U, Traditional knowledge on wild plants in Üzümlü (Erzincan-Turkey). *Indian J Tradit Know*, 15 (4) (2016) 538-45.
- 45 Kaval İ, Behçet L & Çakılcıoğlu U, Survey of wild food plants for human consumption in Geçitli (Hakkâri, Turkey), *Indian J Tradit Know*, 14 (2) (2015) 183-90.