# An ethnobotanical survey of medicinal plants in Karlıova (Bingöl-Turkey)

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This study aims to identify wild plants collected for medical purposes by the local people of Karliova District located in the Eastern Anatolia region of Turkey and to determine the uses and local names of these plants. A field study had been carried out for a period of approximately 4 years (2013–2016). During this period, 99 vascular plant specimens were collected. Among them, 91 species are wild and 8 species are cultivated plants. Demographic characteristics of participants, names of the local plants, their utilized parts and preparation methods were investigated and recorded. 99 plants were found to be used for medical purposes before in the literature analysis of the plants used in our study, while 9 plants were found to have no literature records. In Turkey, local plant names display differences especially due to local dialects. The plants used in Karliova are known by the same or different local names in various parts of Anatolia. In the research area, local people were found to use 99 plants from 26 families for curative purposes. The medicinal uses of *Stenotaenia macrocarpa* Freyn & Sint., *Inula helenium* L., *Scorzonera incisa* DC., *Tripleurospermum caucasicum* (Willd.) Hayek, *Astragalus chamaephaca* Freyn, *Geranium libanoticum* Schenk, *Rhinanthus serotinus* subsp. *aestivalis* (N.W.Zinger) Dostál, *Verbascum songaricum* Schrenk. and *Bunium elegans* (Fenzl) Freyn that we found were used in our study area and recorded for the first time. These plants, used for the treatment of various diseases, are abundantly found in this region. Drying of the medicinal plants enabled the local people to use them in every season of the year.

Keywords: Bingöl, Ethnobotany, Informant consensus factor, Karlıova, Medicinal plants, Use value

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Located in the temperate zone, Turkey is notable for its diversity in terms of plant diversity. The number of plant species spreading in Turkey is close to the number of plant species spreading throughout Europe. With the addition of the discoveries made in recent vears, around 3,000 plants of Turkey, including 12,000 endemic plants (at the level of species, subspecies or varieties)<sup>1-2</sup>. It is one of the richest countries of Europe in terms of endemic species diversity with an endemism rate of 34.4%<sup>3</sup>. This feature of Turkey is due to the diversity of geographical factors. Changes in climate characteristics resulting from short distances lead to a wide variety of geographical factors such as diversity due to morphological characteristics, differences in soil types, differentiation of plant formations and diversification of species<sup>4</sup>.

The plants have been used in therapy since the beginning of human history. With the progress of the technology and scientific research methods, various

studies related to the materials used in the plants, their purpose of using these materials and their qualities have been made. The substances in these plants are isolated and offered in various pharmaceutical forms, dosages and packaging in accordance with the pharmacopoeia.

Turkey has a great knowledge of a very rich flora and folkloric medicine and is thus a potential source for such studies<sup>5</sup>. The majority of Turkish people living in rural areas traditionally use plants. In general, they use plants for nutrition and medical purposes. In recent years, the traditional use of medical-oriented disease has attracted the attention of researchers in our country<sup>6-17</sup>.

The ethnobotanic term can be briefly explained as the human plant relationship. Since humanity has existed, this relationship has been going on<sup>18</sup>.Ethnobotanical researches, which have increased in number in our country in recent years, are mostly focused on plants used as medical and food<sup>19</sup>.

No previous floristic and ethnobotanic studies are reported to have been conducted in Karliova (Bingöl).

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This study identified not only the wild plants collected for medical purposes by local people of Karlıova District in the Eastern Anatolia Region (Bingöl-Turkey) but also the uses and local names of these plants. Besides, it will contribute to the protection and sustainment of our herbal resources.

#### Materials and methods

### Study area

Karlıova (Fig. 1) district is located in the Upper Euphrates section of the Eastern Anatolia Region, on the North-east of Bingöl Province, between the Bingöl and Satan Mountains. Şerafettin and Karaboğa Mountains in the South, Erzurum-Tekman in the North, Erzurum-Tekman in the North, Bingöl-Solhan in the South, Muş-Varto in the South, Bingöl-Cilic in the West and Bingöl in the South. Karlıova district is located at the intersection of 41°02' East longitude and 39°21'North latitude. Karliova has a surface area of 1392 km and covers 16.6% of Bingöl province. The altitude at sea level is 1940 m. Mountains and rugged terrain cover a large area. Flat areas are only around 7.5%. According to the data obtained from the website of Karliova District Administration (http://www.karliova.gov.tr/), Karliova has 47 villages and 26 sub-village. Of the districts, 83% are covered with mountains. Located in the Upper Euphrates part of the Eastern Anatolia Region, Bingöl is located between 41° 20' and 39° 54' North latitudes with 38°27' and 40° 27' Eastern longitude. Bingöl is in the East Mus in the North Erzincan and Erzurum in the West Tunceli and Elazığ in the South Diyarbakır is the neighbor with the province. 22.82% of Bingöl's surface area belongs to the central district.

According to the address-based population census results conducted in 2013, (http://tuikapp.tuik.gov.tr/ adnksdagitapp/adnks.zul) total population of Karliova is 32.212. Some people live a nomadic life. In the study, information was gathered about the people of Kurdish and Zaza origin. The vast majority of people

living in the region were found to be Kurds. The main language of Zazas speaks of Zazaki, a member of the Iranian Indo-European language family. Most of the Zazas live in Eastern Anatolia<sup>20</sup>.

Before starting to work, a study permit was issued from the Karliova District Administration and Gendarmerie College for the survey to be conducted in the study.

#### Plant materials

We carried out the field study for approximately over a period of 4 yrs (2013–2016). During this period, we collected 91 wild plants taxa and 8 cultivated plants. We pressed the plants in the field and prepared them for identification. Standard tests were used to identify the plants. These tests were carried out in the "Flora of Turkey and the East Aegean Islands"<sup>1,21</sup> and the other floras; Flora of USSR<sup>22</sup>, Flora Europaea<sup>23</sup>, Flora Iranica<sup>24</sup>, Flora of Iraq (Towsend and Guest, 1966-1985)<sup>25</sup>, and wecompared them with the specimens in the Herbarium of Bingöl University Bingöl, Turkey (BIN).

The plants collected in the study were examined and described by the authors mentioned above. These plants are rendered herbarium materials; and the plants are kept in the BIN.

Taxonomic ordering of plants was made by alphabetical order. After the taxonomic classification of plants, categories were made according to endemic and toxic conditions<sup>26,27</sup>. It has been researched whether or not literature studies have been done before about these plants. In the study, domestic literature studies and then foreign publications were analyzed.

# Interviews with local people

Questionnaires applied to local people were conducted face to face in the study (Appendix A). Interviews were carried out on the busy hours of the public areas (gardens, markets, parks, coffee houses, etc.) which are visited by the residents of



Fig. 1 — Geographical location of the study area

Karliova. Talks were held with the people who were observed to have knowledge about plants of every class in city center, town and village. Before the questionnaire was applied, these people were informed about the research and the questionnaires were made after their approval. They were visited at least twice to get more information from the people who had knowledge of plants; and one of these visits was made especially at home. During the interviews, information about the demographic information, the local names of the plants, how they used it and how they kept it was obtained. They were asked to show the wild plants they used.

#### Category of ailments

According to the information obtained from interviewees; diseases included in the study are categorized into 10 categories (Cardiovascular, Diabetes, Dermatological, Gastrointestinal disorders, Hemorrhoids, Oral health, Female problems. Respiratory tract diseases, Rheumatic pain, Urogenital and kidney problems).

#### Calculations

(1) Informant consensus factor<sup>28</sup>: it was calculated according to the following formula: FIC=Nur–Nt/Nur–1, where Nur refers to the number of use citations in each category and Nt to the number of the species used.

In this method, which is used to control the homogeneity of the information obtained, if the informants do not have enough information about the use of the plant and the plants are randomly selected, the FIC value will be low (close to 0) as a result of the analysis. If the expressions given by plants and informants are correct, then the FIC value will be higher (close to 1)<sup>29-31</sup>.

(2) Utilization value<sup>28</sup>, which is a quantitative method that indicates the relative importance of locally and locally known species, is also calculated according to the following formula: UV = U / N, Number of citations per U type; and N is informative.

### **Results and discussion**

# Demographic characteristics of study participants

The demographic data of the individuals participating in the study were obtained as face-toface interviews. A total of 60 people over 30 yrs of age were included in the study. Zaza and Kurdish ethnic descendants of the individuals included in the study were identified. The demographic characteristics of the individuals according to the results obtained in the research are shown in Table 1.

#### Interviews with locals and literature review

The experiences of the local people were recorded during the interviews. We compared some of the information we obtained with the information from previous studies. In this way, we tried to verify the comments.

*Thymus kotschyanus* Boiss.& Hohen.are being traditionally and very commonly used for tonsillitis, colds and flu in Karlıova. The preparations including thyme extract alleviate cough following common cold<sup>32</sup> and decrease the severity and duration of bronchitis symptoms<sup>33</sup>.

Endemic *Stenotaenia macrocarpa* Freyn & Sint.plant is traditionally used in Karliova for the treatment of gastrointestinal disorders. Endemic *Malabaila lasiocarpa* Boiss. plant is traditionally used in Karliova for the treatment of headache. *Malabailasecacul* (Mill.) Boiss. has major components of  $\alpha$ -phellandrene and p-cymene with insecticide activity<sup>34-35</sup>.

Afitap Borak (65) who lives in Cilligöl village (Karlıova), told that he uses *Eryngium billardieri* Delile against tooth decay. *E. billardieri* was reported to have antioxidant and anti-inflammatory activities<sup>36-37</sup>.

Sabrinaz Nadiroğlu (55) who lives in Karlıova told that he uses *Inula helenium* L. for gastric cancer. In the literature review we conducted, we found that *Inulahelenium* L. subsp. *pseudoheleniu* has anthelmintic, antitussive, diuretic and tonic effect being helpful against backache<sup>38</sup>.

49 yr old Fethi Korkmaz, who lives in Göynük village, told that he uses *Urtica dioica* L. for anti-inflammatory. *U. dioica* was reported to have **antifungal and** antidermatophytic activities<sup>39-40</sup>.

| Table 1 — Demographic characteristics of the individuals' (n=60) |        |      |  |  |  |  |  |
|--|--------|------|--|--|--|--|--|
| Demographical characteristics                                    | Number | %    |  |  |  |  |  |
| Age  |        |      |  |  |  |  |  |
| 31-49  | 34     | 56.7 |  |  |  |  |  |
| 50 and above   | 26     | 43.3 |  |  |  |  |  |
| Sex  |        |      |  |  |  |  |  |
| Male   | 33     | 55.0 |  |  |  |  |  |
| Female   | 27     | 45.0 |  |  |  |  |  |
| Educational level  |        |      |  |  |  |  |  |
| Literate   | 31     | 51.7 |  |  |  |  |  |
| Primary and Secondary school                                     | 26     | 43.3 |  |  |  |  |  |
| High school  | 1      | 1.7  |  |  |  |  |  |
| University   | 1      | 1.7  |  |  |  |  |  |

38 yrs-old Murat Yeşilova, who lives in Karlıova/ Boncukgöze village, told that he used *Arum elongatum* Steven plant for the treatment of cancer and diabetes. This plant is reported for the second time as being used within the scope of traditional therapies. The first report was notified as a result of a research that was conducted in a field near this region in 2013<sup>41</sup>. *Arum* species are abundant amounts of poisonous plants containing calcium oxalate crystals, oxalic acid, soluble oxalates and volatile substances with strong local activity<sup>42</sup>.

In terms of toxicity, the nutritional and medical uses of plants are very important. In particular, high nitrate and nitrite contents of wild plants are of importance in the assessment of toxicity. Various plants that grow naturally in Samsun and Elazığ and are widely consumed are examined in terms of nitrate content. It has been found that nitrate content of these plants varies with some correlations<sup>43,44</sup>. When nitrate uptake is over 8-15 g, stomach pain, intestinal hemorrhage and diseases such as urinary system and syncope are developed while low doses cause dyspepsia, depression and dizziness<sup>45</sup>.

When examining previous laboratory studies in Karliova and other regions, it stated that some medical plants were active and that these drugs were also reported in the current study: *Achillea* sp. (antioxidant and antispasmodic activity)<sup>46,47</sup>, *Hypericum scabrum* L. (antibacterial activity)<sup>48</sup>. *Rosa canina* L. (anti-inflammatory and antinociceptive activity)<sup>49</sup>, *Rumex acetosella* L. (antioxidantactivity)<sup>50</sup>, *Thymus kotschyanus* Boiss. & Hohen. (antimicrobial activities)<sup>51</sup>, *Urtica dioica* L. (antioxidant, antimicrobial, antiulcer and analgesic activities)<sup>52</sup>.

#### Taxonomic identification

Family name, scientific name, sample of plug (MN: Muharrem Nadiroğlu), endemism (END.), local name, preparation and usage methods, usage categories of medical plants used in Karlıova are showen in Table 2.

As a result of interviews with the local people living in the Karliova district and in the villages, 99 plants were used for treatment purposes in the study area.

The most common families are: Asteraceae (12 plants), Rosaceae (10 plants), Lamiaceae (9 plants). Asteraceae (13 plants), Lamiaceae (9 plants), and Rosaceae (8 plants). In a study carried out in Çatak-Van, it was seen that plants belonging to the families of Asteraceae, Apiaceae, Lamiaceae<sup>53</sup>; Asteraceae,

Apiaceae, Lamiaceae, in Geçitli-Hakkari<sup>54</sup>; Asteraceae, Lamiaceae, and Brassicaceae in Maden-Elazığ<sup>55</sup>; Lamiaceae, Rosaceae, and Asteraceae, in Ulukışla<sup>56</sup>are used commonly by the people of the regions.

*Malabailalasiocarpa* Boiss. and. *Stenotaenia macrocarpa* Freyn & Sint.were found to be the endemic plants used for medical purposes in Karliova (Bingöl-Turkey). *M. lasiocarpa* Boiss. is grouped under "least concern" category, *S.macrocarpa* Freyn & Sint. is categorized as "near threatened"<sup>26</sup>.

In the literature analysis of the plants used in our study, 99 plants were found already being used for medical purposes, where as 9 plants presented no literature records. The medicinal uses of *Stenotaenia* macrocarpa Freyn & Sint., *Inula helenium* L., *Scorzonera incisa* DC., *Tripleurospermum caucasicum* (Willd.) Hayek, *Astragalus chamaephaca* Freyn, *Geranium libanoticum* Schenk, *Rhinanthus serotinus* subsp. *aestivalis* (N.W.Zinger) Dostál, *Verbascum songaricum* Schrenk.and *Bunium elegans* (Fenzl) Freyn which were found being used in our study area were recorded for the first time.

Urtica dioica L.was used anti-inflammatory, cancer, rheumatism, and embolism; Rosa canina L. appetizing, colds and flu, cough, digestive, highfever, kidney pain, tonsillitis, and stress; Malva neglecta Wallr. was used antihypertensive, cough. gastrointestinal disorders rheumatism, infertility, urinary inflammations, cancer, diabetes disease, high cholesterol, anti-inflammatory, urinary inflammations, infertility, abdominal pain, and wound healing; Mentha longifolia(L.) L. was used shortness of breath, abdominal ache, anti-inflammatory, cold and flu, headache, tonsillitis; Reheum ribes L. was used diabetes disease, rheumatism, anti-inflammatory, cardiac disorder, diabetes disease, and intestinal pain.

# Mode of preparation-utilization method

The most common medicinal plant families in the Karliova region are Asteraceae, Rosaceae, Lamiaceae, Fabaceae, Liliaceae and Polygonaceae. The most commonly prepared preparations are obtained by liquid and boiling. People living in the region have used wild plants to determine their medical preparations for treatment in primitive and simple forms. Preparation methods include infusion, boiling, drying, crushing of parts, fruiting, crushing of flowers, gallus crushing; the latex is removed and crushed.

Local people used medical plants most frequently for the treatment of antihypertensive, cardiac disorder,

| Family, plant species, voucher specimen, endemism                        | Vernacular name<br>of Karlıova | Plant part(s)<br>used <sup>a</sup> | Preparations <sup>b</sup> | Utilization method <sup>c</sup> | Use  | UV           |
|--|--------------------------------|------------------------------------|---------------------------|---------------------------------|--|--------------|
| Acanthaceae  |                                |                                    |                           |                                 |  |              |
| Acanthus dioscoridis L. MN-77  | Gerik                          | Aer                                | Dec                       | Doa                             | Diarrhea   | 0.02         |
| Amaryllidaceae   |                                |                                    |                           |                                 |  |              |
| Allium cepa L. MN-119  | Pivaz                          | Bul                                | Dec                       | Doa                             | Menstruation pain  | 0.32         |
| Allium sativum L.MN-122  | Sir                            | Bul                                | -                         | Raw<br>Raw                      | Colds and flu, headache<br>Antihypertensive  | 0.27         |
| <i>Allium vineale</i> L. MN-3  | Sirim, Sirmok, Sira<br>Çole    | Who                                | -<br>Boi                  | Eat                             | Anti-inflammatory  | 0.27         |
| Apiaceae   | 2                              |                                    |                           |                                 |  |              |
| Bunium elegans (Fenzl) Freyn MN-   | Gilok                          | Rhi                                | -                         | Raw                             | Headache   | 0.05         |
| Eryngium billardieri Delile MN-88  | Kereng nebi,<br>Kerenge kera   | Bra                                | -                         | Raw<br>Com                      | Antihypertensive,<br>Against tooth decay   | 0.03         |
| Ferula orientalis L. MN-105  | Kinkor                         | Roo                                | Ms+Tail oil               | Ext                             | Antiseptic   | 0.09         |
| -  | Pariye miye, Nane<br>miye      | Lea                                | Dec                       | Doa                             | Headache   | 0.03         |
| Petroselinum crispum (Mill.) Fuss  | Maydanoz                       | Lea                                | In                        | Doa                             | Abdominal ache   | 0.13         |
| MN-118<br>Prangos pabularia Lindl. MN-18                                 | Zıvrık, Cağ                    | Lea<br>Lea                         | -<br>In                   | Raw<br>Doa                      | Shortness of breath<br>Antihypertensive, diabetes  | 0.10         |
| Stenotaenia macrocarpa Freyn &<br>Sint. MN-116 END.                      | Piltan                         | Lea                                | In                        | Doa                             | disease<br>Gastrointestinal disorders  | 0.06         |
| Araceae  |                                |                                    |                           |                                 |  |              |
| <i>Arum rupicola</i> Boiss.<br>MN-33                                     | Kardi                          | Aer                                | In                        | Doa                             | Cardiac disorder   | 0.03         |
| Arum elongatum Steven MN-32  | Kardi, Karı                    | Aer                                | Boi                       | Eat                             | Diabetes disease, cancer   | 0.14         |
| 0  |                                | Lea                                | In                        | Doa                             | Rheumatism, cancer, guatr, cardiac disorder  |              |
| Asteraceae   |                                |                                    |                           |                                 |  |              |
| Achillea arabica KotschyMN-41  | Gihaye Zer                     | Cap                                | In                        | Doa                             | Antitussive, chest pain  | 0.05         |
| Achillea millefolium L. MN-70  | Gihaye Zer                     | Lea, Flo                           | Dec                       | Doa                             | Antitussive, chest pain  | 0.08         |
| Achillea vermicularis Trin. MN-42  | Çiçeka çekel                   | Bra, Lea, Flo                      | In                        | Doa                             | Abdominal pain   | 0.10         |
| Chondrilla juncea L. MN-106  | <i>Benişt</i>                  | Lat                                | Lr                        | Lex                             | Mounth wounds  | 0.03         |
| Cichorium intybus L. MN-90<br>Gundelia tournefortii L. MN-11             | Tahlık<br>Kinger, kereng       | Roo<br>Lat                         | In<br>Lr                  | Doa<br>Lex                      | Bowel cancer<br>Antiseptic   | 0.02<br>0.32 |
| Gundella lournejoriti E. MIN-11  | Kinger, kereng                 | Roo                                | In                        | Doc,                            | Gastrointestinal   | 0.52         |
|  |                                | Roo                                | III                       | Raw                             | disorders  |              |
| Inula helenium L. MN-87  | Tıtuna beci                    | Ste                                | -                         | Raw                             | Gastric cancer   | 0.02         |
| Inula montbretiana DC. MN-84   | Gihaye basure                  | Aer                                | Boi                       | Doc                             | Hemorrhoids  | 0.04         |
| Matricaria chamomilla L. MN-26   | Papatya, Beybun                | Aer, Cap                           | Dec                       | Dpt                             | Diuretic, kidney pain  | 0.18         |
| Scorzonera incisa DC. MN-67  | Nane miyê                      | Lea                                | -                         | Raw                             | Diabetes disease, headache   | 0.03         |
| Scorzonera latifolia (Fisch. &<br>C.A.Mey.) DC. MN-68                    | Qanıke benişt                  | Lat, Tub                           | Lr                        | Lex                             | Mounth wounds  | 0.16         |
| Senecio leucanthemifolius subsp. ver nalis (Waldst. & Kit.) GreuterMN-48 |                                | Cap                                | Dec                       | Doa                             | Colds  | 0.07         |
|  | Marşıng, Sıpıng                | Who<br>Aer                         | Ms<br>-                   | Com<br>Raw                      | Eczema<br>Cancer, constipation,<br>gastrointestinal disorders,<br>bacdcaba intestinal warm | 0.22         |
| Tripleurospermum disciforme<br>(C.A.Mey.) Sch.Bip. MN-73                 | Papatya, Beybun                | Cap, Lea                           | In                        | Doa                             | headache, intestinal worm<br>Wound healing   | 0.02         |
| Tripleurospermum transcaucasicum   | Beybun                         | Cap, Lea                           | In                        | Ext                             | Acne   | 0.07         |
| (Manden.) Pobed. MN-60   |                                |                                    |                           | Doa                             | Diabetes disease, headache   |              |

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| Tripleurospermum caucascum       Beybun       Cap       In       Doa       Dibates       Disates       Disates <thdisates< th="">       Disates       Disates<th>Tripleuropermum caucasicum       Beybun       Cap       In       Doa       Diabetes disease, headache 0         (Wild.) Hayek MN-21       Melle       Lea       Boi       Eat+Yogh       Mile enhancer       0         Turamecio orioxpermus (DC.)       Melle       Lea       Boi       Eat+Yogh       Mile enhancer       0         Brassicacea       actionem grandflorom Boiss. &amp;       Gihaye burina       Flo       Fc       Ext       Acne       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Abdominal ache, gastrio       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypetensive, cancer, 0       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       Dec       Dpt       Colds       0         Cardanine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       Dec       Dpt       Colds       0         Colchicureas scottist Fisch &amp;       Piok       Aer       -       Raw       Tonice       0         Cardamine uszonisti Fisch &amp;       Piok       Aer       -       Raw       Tonice       0         Cardachicureace       Cuurbita maxima Duchesne       Kundr       Fru</th><th>Family, plant species, voucher specimen, endemism</th><th>Vernacular name of Karlıova</th><th>Plant part(s)<br/>used<sup>a</sup></th><th>Preparations<sup>b</sup></th><th>Utilization method<sup>c</sup></th><th>Use</th><th>UV</th></thdisates<> | Tripleuropermum caucasicum       Beybun       Cap       In       Doa       Diabetes disease, headache 0         (Wild.) Hayek MN-21       Melle       Lea       Boi       Eat+Yogh       Mile enhancer       0         Turamecio orioxpermus (DC.)       Melle       Lea       Boi       Eat+Yogh       Mile enhancer       0         Brassicacea       actionem grandflorom Boiss. &       Gihaye burina       Flo       Fc       Ext       Acne       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Abdominal ache, gastrio       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypetensive, cancer, 0       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       Dec       Dpt       Colds       0         Cardanine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       Dec       Dpt       Colds       0         Colchicureas scottist Fisch &       Piok       Aer       -       Raw       Tonice       0         Cardamine uszonisti Fisch &       Piok       Aer       -       Raw       Tonice       0         Cardachicureace       Cuurbita maxima Duchesne       Kundr       Fru  | Family, plant species, voucher specimen, endemism | Vernacular name of Karlıova | Plant part(s)<br>used <sup>a</sup> | Preparations <sup>b</sup> | Utilization method <sup>c</sup> | Use                         | UV   |
|--|--|---|-----------------------------|------------------------------------|---------------------------|---------------------------------|-----------------------------|------|
| ComCallusBrancelo errospermus (DC.)MelleLeaBoiEat+YoghMilk enhancer0.03Brassicaceaethionena grandflorum Boiss. &Gihaye birinaFloFeExtAcne0.02Hohen. MN-78Bunias orientalis L. MN-55Durika beciSte-RawAbdominal ache, gastrie0.02Bunias orientalis L. MN-55Durika beciSte-RawAbdominal ache, gastrie0.02Cardamine uliginosa M. Bieb. MN-2Kiji, KiçiAer-RawAntihypertensive, cancer, odiabetes disease, migraine0.05CampanulaceaEgossia peningonia L. MN-62AmgAerDecDptColds0.02Colchicure servitsi Fisch &PivokAer-RawTonic0.04CA. Mey. MN-1Cachelicure servitsi Fisch &PivokAer-RawTonic0.04ChaltecaeCachelicure servitsi Fisch &KindirFruFrCom-11eadache0.06ChaltecaeCardinar maxima DuchesneKindirFruFrCom-11eadache0.02CurbitaceaeCardinar procers Fisch, &ZiwanAerMsComFor bleeding, wound0.02CiphaceaeCardinar procers Fisch, &ZiwanAerMsComFor bleeding, wound0.02Avé-Lall, NN-100Guniye şirikRooInDoaCardiae disorder0.04Podl.MN-85Sarcantha longifolia (Lam.)Guniye şirikRooIn   | Com       Callus         Tiranacio respermita (DC.)       Melle       Lea       Boi       Eat+Yogh       Mile enhancer       0         Brassicaceae       Achionem gradiflorum Boiss. & Gihaye burina       Flo       Fc       Ext       Acne       0         Brassicaceae       Achionem gradiflorum Boiss. & Gihaye burina       Flo       Fc       Ext       Acne       0         Runds orientalis L. MN-55       Divrika beci       Ste       -       Raw       Abdominal ache, gastric       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypertensive, cancer, 0         Campanulaceae       Interview       Interview       -       Raw       Tonic       0         Colchicume scoutisti Fisch & Pivok       Aer       -       Raw       Tonic       0         Columbitaceae       Cauchita maxima Duchesne       Kundir       Fru       Fru       Fr       Com       -Headache       0         Dipsacceae       Caphalaria procere Fisch, & Ziwan       Aer       Ms       Com       For bleeding, wound       0         Poll MN-85       Sinvan       Aer       Ms       Com       For bleeding, wound       0         Sinscacathe longrigita (Lam.)   | Tripleurospermum caucasicum                       |                             |                                    | In<br>-                   | Doa                             | -                           | 0.05 |
| Hamzaoğlı NN-80 urt<br>Brassicaceae<br>dethionem grandiflorum Boiss. & Gihaye burina Flo Fc Ext Acne 0.02<br>Hohen. NN-78<br>Bunias orientalis I., NN-55 Diverka beci Ste - Raw Abdominal ache, gastric 0.02<br>cardamine uliginosa M.Bieb. MN-2 Kiji, Kiçi Aer - Raw Antihypertensive, cancer, 0.05<br>Campanulaceae<br>Legousia pentagonia L. MN-62 Ang Aer Dec Dpt Colds 0.02<br>Colchicareae<br>Colchicareae sovitsii Fisch & Pivok Aer - Raw Tonic 0.04<br>CA.Mey. MN-1<br>Cucurbitaceae<br>Concurbita maxima Duchesne Kundur Fru Fr Com -Headache 0.06<br>MN-120<br>Curpessaceae<br>Integers avordsii Fisch & Ziwan Aer Ms Com For bleeding, wound 0.02<br>phasing Duchesne Kundur Aer Ms Com For bleeding, wound 0.02<br>Mo-64-all, NN-100<br>Exposing a francing for a france for a soviet for a sovie   | Hamzogik NN-30 urt<br>Brassicaceae<br>Brassicaceae<br>Achinoema grandiflorum Boiss. & Gihaye birina Flo Fc Ext Acne 0<br>Hohen. NN-78<br>Binas orientalis L. NN-55 Divrika beel Ste - Raw Abdominal ache, gastrie 0<br>cardamine uliginosa M.Bieb. MN-2 Kiji, Kiçi Aer - Raw Antihypertensive, caracer, 0<br>Cardamine uliginosa M.Bieb. MN-2 Kiji, Kiçi Aer - Raw Antihypertensive, caracer, 0<br>Cardamine uliginosa M.Bieb. MN-2 Kiji, Kiçi Aer - Raw Antihypertensive, caracer, 0<br>Cardamine sovitsin Fisch & Pivok Aer - Raw Tonic 0<br>Colchicaceae<br>Coccubite miszovitsin Fisch & Pivok Aer - Raw Tonic 0<br>Cardamine Duchesne Kundır Fru Fr Com -Headache 0<br>MN-120<br>Cucrubita miszovitsin Fisch & Ziwan Aer Ms Com For bleeding, wound bleating<br>Dipsacaceae<br>Caphalaria procera Fisch & Ziwan Aer Ms Com For bleeding, wound bleating<br>Fabaceae<br>Caphalaria procera Fisch & Ziwan Aer Ms Com For bleeding, wound bleating<br>Fabaceae<br>Cardia angfolia (Lam.) Guniye şirik Roo In Doa Cardiae discase, shortness of the<br>Astracantha Inngfolia (Lam.) Guniye şirik Roo In Doa Cardiae discase (Souther O<br>Boiss.) Podlech MN-86<br>Astracantha unschiana (Kotschy & Gunni Roo In Doa Cancer 0<br>Boiss.) Podlech MN-86<br>Astracantha mischiana (Kotschy & Gunni Roo In Doa Anti-inflammatory 0<br>Astragalus chamacephacea Freyn MN- Gunèye çene Roo In Grg Mouth wounds 0<br>4<br>Astracantha mischiana (Kotschy & Gunni Roo In Doa Anti-inflammatory 0<br>Dirigitim repeat. L.MN-10 Gospherğik Lea In Doa Anti-inflammatory 0<br>Dirigitim respinature L.MN-35 Nefer Aer In Doa Menstruation pain 0<br>Trifolium respinature L.MN-35 Nefer Aer In Doa Kidney stones, liver 0<br>Koh MN-71<br>Friguear (Fabaceae) Aer In Doa Kidney stones, liver 0<br>Koh MN-74<br>Geraniace<br>Geraniant Misoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericaurs cabrum L.MN-122 Batov Aer In Com Scabies 0 | (() mai) mayor ini ( 21                           |                             |                                    |                           |                                 |                             |      |
| 4ethionema grandiflorum Boiss. & Gihaye burina       Flo       Fc       Ext       Acne       0.02         10hen. NN-78       Divrika beei       Ste       -       Raw       Abdominal ache, gastrie       0.02         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Abdominal ache, gastrie       0.02         Campanulaceae       -       Raw       Antihypertensive, cancer, 0.05       diabetes disease, migraine       0.02         Colchicaceae       -       Raw       Tonic       0.04         Colchicaceae       -       Raw       Tonic       0.04         Cauchba maxima Duchesne       Kundir       Fru       Fr       Com       -Headache       0.06         Courbascae       Courpessaceae       -       Raw       Tonic       0.04         Dipsacceae       -       -       Raw       Tonic       0.02         Astracantha iongfolia (Lam.)       Guniye şirik       Roo       In       Doa       Cardiac disorder       0.02         Stargaalus chamaephaca Freyn MN-       Guniye şirik       Roo       In       Doa       Cardiac disorder       0.02         Astracantha muschiana (Kotschy & Gunni       Roo       In       Doa       Carceer  | 4ethionema grandiflorum Boiss. & Gihaye burina       Flo       Fc       Ext       Aene       0         1chnen. NN-78       Divrrka beci       Ste       -       Raw       Abdominal ache, gastric       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypertensive, cancer, 0         Campanulaceae       Egousia pentagonia L. MN-62       Amğ       Aer       Dec       Dpt       Colds       0         Cachediaceae       Cachediaceae       Cachediaceae       Fuok       Aer       -       Raw       Tonic       0         Cachediaceae       Cacuebita maxima Duchesne       Kundur       Fru       Fr       Com       -Headache       0         Cucurbitaceae       Cucurbitaceae       Compressaceae       Huniperus axycedrus L. MN-107       Çekem       Roo, Con       In       Doa       Antihypertensive, diabetes 0         Captaceae       Egolatica procera Fisch. &       Ziwan       Aer       Ms       Com       For bleeding, wound       Net-Lall. MN-100         Fabaceae       Staracantha muschiana (Kotschy & Guuni       Roo       In       Doa       Cardiae disorder       0         Gold LMN-85       Staracantha muschiana (Kotschy & Guuni       Roo       In       Doa <td>Hamzaoğlu MN-80</td> <td>Melle</td> <td>Lea</td> <td>Boi</td> <td>-</td> <td>Milk enhancer</td> <td>0.03</td>   | Hamzaoğlu MN-80                                   | Melle                       | Lea                                | Boi                       | -                               | Milk enhancer               | 0.03 |
| Junias orientalis L. MN-55         Divrika beci         Ste         -         Raw         Abdominal ache, gastric         0.02 cancer           Cardamine uliginosa M.Bieb. MN-2         Kiji, Kiçi         Aer         -         Raw         Antilitypertensive, cancer,         0.05 cancer           Campanulaceae         Legousia pentagonia L. MN-62         Amg         Aer         Dec         Dpt         Colds         0.02 Coldicureae           Colchicureae sovitsii Fisch &         Pivok         Aer         -         Raw         Tonic         0.04           Cucurbitaceae         Cucurbita maxima Duchesne         Kundir         Fru         Fr         Com         -Headache         0.06           NN-120         Cuperssaceae         Cucurbita maxima Duchesne         Kundir         Fru         Fr         Com         -Headache         0.06           Dipsacaceae         Cucurbita procera Fisch. &         Ziwan         Aer         Ms         Com         For bleeding, wound         0.02           Dipsacaceae         Com         For bleeding, wound         Act         Anti-Inflammatory         0.02           Gaisa Podiche MN-86         Gunni         Roo         In         Doa         Cardiac disorder         0.04           Rolizanda in schiana (Kotschy &  | Junias orientalis I., MN-55       Divrika beci       Ste       -       Raw       Abdominal ache, gastric       0         Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypertensive, cancer, 0         Campanulaceae       Idabetes disease, migraine       Idabetes disease, migraine       Idabetes disease, migraine       0         Cachinearea       Colchicum szovitsii Fisch &       Pivok       Aer       -       Raw       Tonic       0         Cacurbitaceae       Cocurbitaceae       Cocurbitaceae       Come -Headache       0         Cucurbita maxima Duchesne       Kundır       Fru       Fr       Com       -Headache       0         Dipseanceae       Ininperus azvicedrus L. MN-107       Çekem       Roo, Con       In       Doa       Antihypertensive, diabetes       0         Dipseanceae       Ziwan       Aer       Ms       Com       For bleeding, wound       0         Avet-tail. MN-100       Eabaceae       Astracantha Inogifolia (Lam.)       Guniye şiruk       Roo       In       Doa       Cancer       0         Boiss) Podlech MN-86       Gunni       Roo       In       Doa       Cancer       0         Boiss) Podlech MN-86       Gunni       Roo       <  | Aethionema grandiflorum Boiss. &                  | Gihaye bırina               | Flo                                | Fc                        | Ext                             | Acne                        | 0.02 |
| Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypertensive, cancer, 0.05         Campanulaceae       Legosia pentagonia L. MN-62       Amĝ       Aer       Dec       Dpt       Colds       0.02         Colchicaerae       Dot       Colds       0.02       Colchicam szovitsii Fisch & Pivok       Aer       -       Raw       Tonic       0.04         Calchicam szovitsii Fisch & Pivok       Aer       -       Raw       Tonic       0.04         Calchicam szovitsii Fisch & Pivok       Aer       -       Raw       Tonic       0.04         Caucubtia maxima Duchesne       Kundur       Fru       Fr       Com       -Headache       0.06         Churperssaceae       Dipsacaceae       Companita szycedrus L. MN-107       Çekem       Roo, Con       In       Doa       Antihypertensive, diabetes       0.02         Dipsacaceae       Ziwan       Aer       Ms       Com       For bleeding, wound       0.02         Avet-Lall, MN-100       Fabaceae       Astracantha muschiana (Kotschy & Gunni       Roo       In       Doa       Cardiac disorder       0.04         Podl.MN-85       Astracantha muschiana (Kotschy & Gunni       Roo       In       Doa       Cancer       0.02   | Cardamine uliginosa M.Bieb. MN-2       Kiji, Kiçi       Aer       -       Raw       Antihypertensive, cancer, 0         Campanulaceae       Legosia pentagonia L. MN-62       Aniğ       Aer       Dec       Dpt       Colds       0         Colchicame szvitsti Fisch &       Pivok       Aer       -       Raw       Tonic       0         Calchicame szvitsti Fisch &       Pivok       Aer       -       Raw       Tonic       0         Calchicame szvitsti Fisch &       Pivok       Aer       -       Raw       Tonic       0         Cauchbia maxima Duchesne       Kundir       Fru       Fr       Com       -Headache       0         Outpressaccae       Initiperus oxycedrus L. MN-107       Çekem       Roo, Con       In       Doa       Antihypertensive, diabetes       0         Dipsacaceae       Ziwan       Aer       Ms       Com       For bleeding, wound       0         Avé-Lall. MN-100       Fabaceae       Sizana       Aer       Ms       Com       For bleeding, wound       0         Podl.MN-85       Gunni       Roo       In       Doa       Cardiac disorder       0         Boiss ) Podlech MN-86       Gunni       Roo       In       Doa       Cancer  |   | Dıvrıka beci                | Ste                                | -                         | Raw                             | Abdominal ache, gastric     | 0.02 |
| Campanulaceae<br>Legosis pentagonia L. MN-62 Aniğ Aer Dec Dpt Colds 0.02<br>Colchiceaen<br>Colchiceaen<br>Colchiceane Sovitsii Fisch & Pivok Aer - Raw Tonic 0.04<br>C.A. Mey, MN-1<br>Cucurbit anxina Duchesne Kundır Fru Fr Com -Headache 0.06<br>MN-120<br>Cupressaceae<br>Inthiperus oxycedrus L. MN-107 Cekem Roo, Con In Doa Antihypertensive, diabetes 0.03<br>disease, shortness of breath<br>Dipsacaceae<br>Cephalaria procera Fisch. & Ziwan Aer Ms Com For bleeding, wound 0.02<br>Avé-Lall, MN-100<br>Fabaceae<br>Starcacntha muschiana (Kotschy & Gunni Roo In Doa Cardiac disorder 0.04<br>Podl.MN-85<br>Astracantha muschiana (Kotschy & Gunni Roo In Doa Cardeer 0.02<br>Boiss, Jodlech MN-86<br>Astragalus chamaephaca Freyn MN Gunéye çene Roo In Grg Mouth wounds 0.02<br>Autoris spinosa L. MN-101 Goigherğik Lea In Doa Anti-inflammatory 0.05<br>Trifolium preatens L. MN-35 Nefera sori Aer De Doa Menstruation pain 0.02<br>Trifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drindis prosens L. MN-36 Nefera sori Aer De Doa Menstruation pain 0.02<br>Trifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum M. Bieb. Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>Drifolium resupinatum I. MN  | Campanulaceae<br>Legonsia pentagonia L. MN-62AngAerDecDptColds0Colchicaceae<br>Colchicaum szovitsti Fisch &PivokAer-RawTonic0CA.Mey, MN-1Cucurbita maxima Duchesne<br>KundirFruFrCom-Headache0Churptessaceae<br>Unitgerus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0Dipsacaceae<br>Cephalaria procera Fisch. &ZiwanAerMsComFor bleeding, wound<br>healing0Fabaceae<br>PodLMN-85Guniye şirikRooInDoaCardiac disorder0PodLMN-85Starcacntha muschiana (Kotschy & GunniRooInDoaCardiac disorder0Astracantha muschiana (Kotschy & GunniRooInDoaCancer0Stargadus chamaephaca Freyn MN-Guniye şirikRooInDoaCancer0Astracantha muschiana (Kotschy & GunniRooInDoaCancer0Podl.MN-85Astracantha muschiana (Kotschy & GunniRooInDoaCancer0Authyrus rotundifolius Wild, MN-7FigSeeBoiEatDiarthea0Onoris spinosa L. MN-101GoytergikLeaInDoaAnti-inflammatory0Cifolium recupinatum L. MN-135NeferAerInDoaKidney stones, liver0Cifolium recupinatum L. MN-45NeferAerInDoaKidney stones, liver0  | Cardamine uliginosa M.Bieb. MN-2                  | Kıji, Kıçi                  | Aer                                | -                         | Raw                             | Antihypertensive, cancer,   | 0.05 |
| Legousia pentagonia L. MN-62 Anığ Aer Dec Dpt Colds 0.02<br>Colchicareae<br>Colchicareae<br>C.C.Mey. MN-1<br>C.A.Mey. MN-1<br>Cuurbita maxima Duchesne Kundur Fru Fr Com -Headache 0.06<br>MN-120<br>Cupressaccae<br>Inniperus oxycedrus L. MN-107 Çekem Roo, Con In Doa Antihypertensive, diabetes 0.03<br>disease, shortness of breath<br>Dipsaccae<br>Cophalari procera Fisch. & Ziwan Aer Ms Com For bleeding, wound 0.02<br>Avê-Lall. MN-100<br>Fabaceae<br>Astracantha longifolia (Lam.) Guniye şirık Roo In Doa Cardiac disorder 0.04<br>Astracantha muschiana (Kotschy & Gunni Roo In Doa Cardiac disorder 0.04<br>Astracantha muschiana (Kotschy & Gunni Roo In Doa Cardiac disorder 0.02<br>Astracantha muschiana (Kotschy & Gunni Roo In Grg Mouth wounds 0.02<br>Astracantha muschiana (Kotschy & Gunni Roo In Grg Mouth wounds 0.02<br>Astracantha fungifolia (Lam.) Guniye şirık Roo In Doa Cancer 0.02<br>Astracantha muschiana (Kotschy & Gunni Roo In Grg Mouth wounds 0.02<br>Astracantha muschiana (Kotschy & Gunni Roo In Grg Mouth wounds 0.02<br>Astracantha fungifolia Lam.) Guniye şirık Roo In Doa Cancer 0.02<br>Astragalus chamaephaca Freyn MN- Gunêye çene Roo In Grg Mouth wounds 0.02<br>Astragalus chamaephaca Freyn Si See Boi Eat Diarrhea 0.03<br>Droinsi spinoas L. MN-10 Gosyterğik Lea In Doa Menstruation pain 0.02<br>Trifolium preaters L. MN-35 Nefera sori Aer De Doa Menstruation pain 0.02<br>Trifolium preaters L. MN-36 Nefer sori Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum I. MN-45 Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum I. MN-74 Her Aer In Doa Icterus 0.03<br>MN-71<br>Frifolium resupinatum I. MN-75 Nefer Aer In Doa Icterus 0.03<br>MN-71   | Legonsia pentagonia L. MN-62AngğAerDecDptColds0Colchicareae<br>C.A.Mey, MN-1PivokAer-RawTonic0Cucurbitaceae<br>C.a.Mey, MN-1PivokAer-RawTonic0Cucurbita maxima Duchesne<br>Mn-120KundirFruFrCom-Headache0Cucurbita maxima Duchesne<br>Mniperus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0Opsacceae<br>Caphalaria procera Fisch, &<br>Avé-Lall, MN-100ZiwanAerMsComFor bleeding, wound0Pacaceae<br>Caphalaria procera Fisch, &<br>Avé-Lall, MN-100Guniye şirik<br>sirikRooInDoaCardiac disorder0PodlcMN-85Astracantha muschiana (Kotschy &<br>Gunniye şirik<br>Astracantha muschiana (Kotschy &<br>Gunniye şirik<br>Astracantha muschiana (Kotschy &<br>Guniye şirik<br>Consis şinoas, L. MN-10Gunéye çene<br>Gogiberğik<br>LeaInDoaCancer0Astragaluk chamaephaca Freyn MN-<br>Gunéye çene<br>Trifolium pratense L. MN-36Nefer sorAerDe<br>DoaDoa<br>Anti-inflammatory0Authrus ronundifolius Wild. MN-7<br>FiğSee<br>See<br>BoiEatDiarthea0Comonis şinoas, L. MN-36<br>Astragalus chamaephaca Freyn MN-<br>Goriberğik<br>LeaInDoa<br>CancerCancer0Consist sinoas, L. MN-36<br>Astragense L. MN-35<br>Mefer a sor<br>AerAerDe<br>DoaCancer0Consist sinoas, L. MN-36<br>Mefer<br>Moth MN-74Mefer<br>Aer <t< td=""><td>Camnanulaceae</td><td></td><td></td><td></td><td></td><td>diabetes disease, migraine</td><td></td></t<>   | Camnanulaceae                                     |                             |                                    |                           |                                 | diabetes disease, migraine  |      |
| Colchicum szovitsii Fisch &PivokAer-RawTonic0.04C.A. Mey, MN-1Cucurbita maxima DuchesneKundırFruFrCom-Headache0.06Curbita maxima DuchesneKundırFruFrCom-Headache0.06Curbita maxima DuchesneKundırFruFrCom-Headache0.06Curbitsa maxima DuchesneKundırFruFrCom-Headache0.06Curbitsa axima DuchesneKundırForCedenia0.02Carbitsa axima DuchesneZiwanAerMsComFor bleeding, wound0.02DipsacaceaeZiwanAerMsComFor bleeding, wound0.02FabaceaeAstracantha Inogifolia (Lam.)Guniye şirıkRooInDoaCarciac disorder0.04Podl.MN-85GunniRooInDoaCancer0.02Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Astracantha muschiana (Kotschy & GunnieGunièye çeneRooInGraGra0.02Astracantha muschiana (Kotschy & GunnieGunièye ceneRooInDoaAnti-inflammatory0.02Astracantha muschiana (Kotschy & GunnieGunièye ceneRooInDoaAnti-inflammatory0.02Trifolium prenese L. MN-36Nefera sorAerDoaAnti-inflammatory </td <td>Colchicum szovitsił Fisch &amp;PivokAer-RawTonic0C.A. Mey, MN-1Cucurbita maxima DuchesneKundırFruFrCom-Headache0MN-120CupressaccaeJuniperus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0disease, shortness of breathDipsacaceaeCephalaria procera Fisch, &amp;ZiwanAerMsComFor bleeding, wound0Avé-Lall, MN-100FabaceaeFabaceaeAstracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0Boiss.) Podlech MN-86Astracantha longifolia (Lam.)Guniye şirıkRooInDoaCancer0Boiss.) Podlech MN-86Astracantha function with solution with solution</td> <td>Legousia pentagonia L. MN-62</td> <td>Anığ</td> <td>Aer</td> <td>Dec</td> <td>Dpt</td> <td>Colds</td> <td>0.02</td>  | Colchicum szovitsił Fisch &PivokAer-RawTonic0C.A. Mey, MN-1Cucurbita maxima DuchesneKundırFruFrCom-Headache0MN-120CupressaccaeJuniperus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0disease, shortness of breathDipsacaceaeCephalaria procera Fisch, &ZiwanAerMsComFor bleeding, wound0Avé-Lall, MN-100FabaceaeFabaceaeAstracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0Boiss.) Podlech MN-86Astracantha longifolia (Lam.)Guniye şirıkRooInDoaCancer0Boiss.) Podlech MN-86Astracantha function with solution  | Legousia pentagonia L. MN-62                      | Anığ                        | Aer                                | Dec                       | Dpt                             | Colds                       | 0.02 |
| Cucurbita maxima DuchesneKundırFruFrCom-Headache0.06MN-120CupressaceaeCupressaceaeAntihypertensive, diabetes0.03DipsacaceaeEEComFor bleeding, wound0.02DipsacaceaeComFor bleeding, wound0.020.02Ave-Lall. MN-100EArerMsComFor bleeding, wound0.02FabaceaeAstracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0.04Poll.MN-85Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaMouth wounds0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaMouth wounds0.02Trifolium repens L. MN-35Nefer asorAerDeDoaMenstruation pain0.02Trifolium repens L. MN-35Nefer asorAerInDoaIterus0.03Trifolium repens L. MN-45NeferAerInDoaIterus0.03Trifolium repens L. MN-45NeferAerInDoaIterus0.03Trifolium repe  | Cucurbita maxima DuchesneKundırFruFrCom-Headache0MN-120CupressaceaeJuniperus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0DipsacaceaeCephalaria procera Fisch. &<br>ZivanZiwanAerMsComFor bleeding, wound<br>healing0FabaceaeStracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0Stracantha muschiana (Kotschy &<br>Gunis S). Podlech MN-86GunniRooInDoaCancer0Astragantha muschiana (Kotschy &<br>Gunis spinosa L. MN-101Guniye çeneRooInDoaCancer0Astragalus chamaephaca Freyn MN-<br>Gunéye çeneRooInDoaCancer0Astragalus chamaephaca Freyn S.Nefera sorAerDeDoaAnti-Inflammatory 0Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0MN-71FeaceaeGuarookFlo, LeaInDoaIcterus0MN-74EagaceaeGuerous petraea (Matt.) Liebl.MaziGalGilComAnti-Inflammatory0Subsey pinnailoba (K.Koch)<br>Menitsky MN-19GilokLeaInDoaKidney stones, liver<br>diseases0Ger   | Colchicum szovitsii Fisch &                       | Pivok                       | Aer                                | -                         | Raw                             | Tonic                       | 0.04 |
| Cucurbita maxima DuchesneKundırFruFrCom-Headache0.06MN-120CupressaceaeCupressaceaeAntihypertensive, diabetes0.03DipsacaceaeEEComFor bleeding, wound0.02DipsacaceaeComFor bleeding, wound0.020.02Ave-Lall. MN-100EArerMsComFor bleeding, wound0.02FabaceaeAstracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0.04Poll.MN-85Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaMouth wounds0.02Astragalus chamaephaca Freyn MN-Gunèye çeneRooInDoaMouth wounds0.02Trifolium repens L. MN-35Nefer asorAerDeDoaMenstruation pain0.02Trifolium repens L. MN-35Nefer asorAerInDoaIterus0.03Trifolium repens L. MN-45NeferAerInDoaIterus0.03Trifolium repens L. MN-45NeferAerInDoaIterus0.03Trifolium repe  | Cucurbita maxima DuchesneKundırFruFrCom-Headache0MN-120CupressaceaeJuniperus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0DipsacaceaeEEEEEEECephalaria procera Fisch. &ZiwanAerMsComFor bleeding, wound0FabaceaeAvet-all. MN-100Guniye şirıkRooInDoaCardiac disorder0FabaceaeAstracantha nuschiana (Kotschy &GunniRooInDoaCancer0Boiss.) Podlech MN-85Sistragalus chamaephaca Freyn MN-Gunéye çeneRooInDoaCancer0Astragalus chamaephaca Freyn MN-Gunéye çeneRooInDoaCancer0Astragalus chamaephaca Freyn MN-GogbergikLeaInDoaAnti-Inflammatory0Astragalus chamaephaca Freyn MN-GogbergikLeaInDoaAnti-Inflammatory0Astragalus chamaephaca Freyn MN-Siefer a sorAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-35Nefer a sorAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0MN-71Uricia craca L. subsp. tenuifoliaĞiyarokFlo, LeaInDoaKidney stones, liver0GranaceaeGuerous perraea (Matt) Liebl.MaziGal <td< td=""><td>Cucurbitaceae</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>   | Cucurbitaceae                                     |                             |                                    |                           |                                 |                             |      |
| Juniperus oxycedrus L. MN-107ÇekemRoo, ConInDoaAntihypertensive, diabetes0.03DipsacaceaeCephalaria procera Fisch. &ZiwanAerMsComFor bleeding, wound0.02Avé-Lall. MN-100EabaceaeAerMsComFor bleeding, wound0.02FabaceaeAstracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0.04Astracantha muschiana (Kotschy &GunniRooInDoaCancer0.02Astragalus chamaephaca Freyn MN-Gunêye çeneRooInGragGunt wounds0.02Attragalus chamaephaca Freyn MN-Gunêye çeneRooInGragGunt wounds0.02Attragalus chamaephaca Freyn MN-Gunêye çeneRooInGragGunt wounds0.02Attragalus chamaephaca Freyn MN-Gunêye çeneRooInGragMouth wounds0.02Attragalus chamaephaca Freyn MN-Gunêye çeneRooInGragGunere0.03Ononis spinosa L. MN-101GospiberĝikLeaInDoaAnti-inflammatory0.05Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0.02Trifolium pratense L. MN-36NeferAerInDoaIctrus0.03Trifolium pratense L. MN-36NeferAerInDoaIctrus0.03Trifolium resupinatum L. MN-45NeferAerInDoaIctrus0.   | Juniperus oxycedrus L. MN-107 Çekem Roo, Con In Doa Antihypertensive, diabetes 0<br>disease, shortness of breath<br>Cephalaria procera Fisch. & Ziwan Aer Ms Com For bleeding, wound healing<br>Fabacea<br>Astracantha longifolia (Lam.) Guniye şirık Roo In Doa Cardiac disorder 0<br>Podl.MN-85<br>Astracantha muschiana (Kotschy & Gunni Roo In Doa Cancer 0<br>Boiss.) Podlech MN-86<br>Astragalus chamaephaca Freyn MN- Gunêye çene Roo In Grg Mouth wounds 0<br>4<br>tathyrus rotundifolius Willd. MN-7 Fiğ See Boi Eat Diarrhea 0<br>Ononis spinosa L. MN-101 Goştberğik Lea In Doa Menstruation pain 0<br>Trifolium repens L. MN-35 Nefera sori Aer De Doa Menstruation pain 0<br>Trifolium repens L. MN-36 Nefera supi Aer De Doa Menstruation pain 0<br>Trifolium repens L. MN-36 Nefera supi Aer De Doa Menstruation pain 0<br>Trifolium retoring atom M. Sefer Aer In Doa Icterus 0<br>MN-71<br>Vicia cracca L. subsp. tenuifolia<br>Gyarok Flo, Lea In Doa Kidney stones, liver 0<br>Koth MN-74<br>Fagacea<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericacea<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericacea<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericacea<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericacea  | Cucurbita maxima Duchesne                         | Kundır                      | Fru                                | Fr                        | Com                             | -Headache                   | 0.06 |
| Dipsacaceae         Cephalaria procera Fisch. &       Ziwan       Aer       Ms       Com       For bleeding, wound healing       0.02 healing         Fabaceae       Astracantha longifolia (Lam.)       Guniye şirık       Roo       In       Doa       Cardiac disorder       0.04 healing         Astracantha longifolia (Lam.)       Gunni       Roo       In       Doa       Cardiac disorder       0.04 healing         Soliss, Podlech MN-85       Gunni       Roo       In       Doa       Cancer       0.02 hoad beachead b   | DipsacaceaeCephalaria procera Fisch. &ZiwanAerMsComFor bleeding, wound<br>healing0FabaceaeAstracantha longifolia (Lam.)Guniye şirıkRooInDoaCardiac disorder0Podl.MN-85Astracantha muschiana (Kotschy &GunniRooInDoaCancer0Boiss.) Podlech MN-86Astragalus chamaephaca Freyn MN-Gunêye çeneRooInGrgMouth wounds04Lathyrus rotundifolius Willd. MN-7FigSeeBoiEatDiarthea00.0nois spinosa L. MN-101GostberğikLeaInDoaAnti-inflammatory0Trifolium retense L. MN-35Nefera sorAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-36Nefera sipiAerDeDoaMenstruation pain0Trifolium retorse L. MN-36NeferAerInDoaIcterus0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0MN-71Vicia cracea L. subsp. tenuifoliaĞiyarokFlo, LeaInDoaKidney stones, liver<br>diseases0RegaceaeSubsp. institoba (K. Koch)MaziGalGilComAntifungal (foot)0Subsp. primatiobaK. KochMaziGalGilComAntifungal (foot)0Wushyn-19Geraniam libanoticum SchenkGilokLeaInDoa, RawIntestinal pain <td></td> <td>Çekem</td> <td>Roo, Con</td> <td>In</td> <td>Doa</td> <td></td> <td></td>  |   | Çekem                       | Roo, Con                           | In                        | Doa                             |                             |      |
| Avé-Lall. MN-100       healing         Fabaceae       Astracantha longifolia (Lam.)       Guniye şirık       Roo       In       Doa       Cardiac disorder       0.04         Podl.MN-85       Astracantha muschiana (Kotschy & Gunni       Roo       In       Doa       Cancer       0.02         Boiss.) Podlech MN-86       Astragalus chamaephaca Freyn MN-       Gunêye çene       Roo       In       Grg       Mouth wounds       0.02         4       Astragalus chamaephaca Freyn MN-       Gunêye çene       Roo       In       Grg       Mouth wounds       0.02         4       Athyrus rotundifolius Willd. MN-7       Fiğ       See       Boi       Eat       Diarrhea       0.03         2       Authyrus rotundifolius Willd. MN-7       Fiğ       See       Boi       Eat       Diarrhea       0.03         2       Authyrus rotundifolius Willd. MN-7       Fiğ       See       Doa       Menstruation pain       0.02         4       Lathyrus rotundifolium pratense L. MN-35       Nefera stri       Aer       Doa       Menstruation pain       0.02         Trifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Icterus       0.03         MN-71       Vicia cracea L. subsp. tenuifolia <t< td=""><td>Avé-Lall. MN-100       healing         Fabaceae       Astracantha longifolia (Lam.)       Guniye şirık       Roo       In       Doa       Cardiac disorder       0         Podl.MN-85       Astracantha muschiana (Kotschy &amp; Gunni       Roo       In       Doa       Cancer       0         Boiss.) Podlech MN-86       Astrazantha muschiana (Kotschy &amp; Gunni       Roo       In       Doa       Cancer       0         Astragalus chamaephaca Freyn MN-       Gunèye çene       Roo       In       Grg       Mouth wounds       0         Attracantha muschiana (Kotschy &amp; Gunni       Roo       In       Grg       Mouth wounds       0         Astragalus chamaephaca Freyn MN-       Gunèye çene       Roo       In       Grg       Mouth wounds       0         Attry curve tortundifolius Willd. MN-7       Fig       See       Boi       Eat       Diarrhea       0         Ononis spinosa L. MN-30       Nefera sor       Aer       De       Doa       Menstruation pain       0         Trifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Icterus       0         MN-71       Nefer       Aer       In       Doa       Icterus       0         Roth MN-74       Eagaceae<td>Dipsacaceae</td><td></td><td></td><td></td><td></td><td>disease, shortness of breat</td><td>L</td></td></t<>   | Avé-Lall. MN-100       healing         Fabaceae       Astracantha longifolia (Lam.)       Guniye şirık       Roo       In       Doa       Cardiac disorder       0         Podl.MN-85       Astracantha muschiana (Kotschy & Gunni       Roo       In       Doa       Cancer       0         Boiss.) Podlech MN-86       Astrazantha muschiana (Kotschy & Gunni       Roo       In       Doa       Cancer       0         Astragalus chamaephaca Freyn MN-       Gunèye çene       Roo       In       Grg       Mouth wounds       0         Attracantha muschiana (Kotschy & Gunni       Roo       In       Grg       Mouth wounds       0         Astragalus chamaephaca Freyn MN-       Gunèye çene       Roo       In       Grg       Mouth wounds       0         Attry curve tortundifolius Willd. MN-7       Fig       See       Boi       Eat       Diarrhea       0         Ononis spinosa L. MN-30       Nefera sor       Aer       De       Doa       Menstruation pain       0         Trifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Icterus       0         MN-71       Nefer       Aer       In       Doa       Icterus       0         Roth MN-74       Eagaceae <td>Dipsacaceae</td> <td></td> <td></td> <td></td> <td></td> <td>disease, shortness of breat</td> <td>L</td>   | Dipsacaceae                                       |                             |                                    |                           |                                 | disease, shortness of breat | L    |
| Astracantha longifolia (Lam.) Guniye şirık Roo In Doa Cardiac disorder 0.04<br>Podl.MN-85<br>Astracantha muschiana (Kotschy & Gunni Roo In Doa Cancer 0.02<br>Boiss.) Podlech MN-86<br>Astragalus chamaephaca Freyn MN- Gunêye çene Roo In Grg Mouth wounds 0.02<br>A<br>Lathyrus rotundifolius Willd. MN-7 Fiğ See Boi Eat Diarrhea 0.03<br>Ononis spinosa L. MN-101 Goştberğik Lea In Doa Anti-inflammatory 0.05<br>Trifolium pratense L. MN-35 Nefera sor Aer De Doa Menstruation pain 0.02<br>Trifolium resupinatum L. MN-45 Nefer Aer De Doa Menstruation pain 0.02<br>Trifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Trifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Trifolium trichocephalum M.Bieb. Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Vicia cracca L. subsp. tenuifolia Ğiyarok Flo, Lea In Doa Kidney stones, liver 0.04<br>diseases<br>Fagaceae<br>Guercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0.03<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0.03<br>Hypericaceae   | Astracantha longifolia (Lam.) Guniye şirık Roo In Doa Cardiac disorder 0<br>Podl.MN-85<br>Astracantha muschiana (Kotschy & Gunni Roo In Doa Cancer 0<br>Boiss.) Podlech MN-86<br>Astragalus chamaephaca Freyn MN- Gunêye çene Roo In Grg Mouth wounds 0<br>4<br>Lathyrus rotundifolius Willd. MN-7 Fiğ See Boi Eat Diarrhea 0<br>Ononis spinosa L. MN-101 Goştberğik Lea In Doa Anti-inflammatory 0<br>Trifolium pratense L. MN-35 Nefera sor Aer De Doa Menstruation pain 0<br>Trifolium repens L. MN-36 Nefera supi Aer De Doa Menstruation pain 0<br>Trifolium repens L. MN-36 Nefer Aer In Doa Icterus 0<br>Trifolium reindum M.Bieb. Nefer Aer In Doa Icterus 0<br>MN-71<br>Vicia cracca L. subsp. tenuifolia Ğıyarok Flo, Lea In Doa Kidney stones, liver 0<br>Roth MN-74<br>Fagaceae<br>Guercus petraea (Matt.) Liebl. Mazi Gal Gil Com Antifungal (foot) 0<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericaceae<br>Hypericum scabrum L. MN-122 Batov Aer In Com Scabies 0  |   | Ziwan                       | Aer                                | Ms                        | Com                             |                             | 0.02 |
| Podl.MN-85Astracantha muschiana (Kotschy & GunniRooInDoaCancer0.02Boiss.) Podlech MN-86Astragalus chamaephaca Freyn MN-Gunêye çeneRooInGrgMouth wounds0.024Lathyrus rotundifolius Willd. MN-7FiğSeeBoiEatDiarrhea0.03Ononis spinosa L. MN-101GoştberğikLeaInDoaAnti-inflammatory0.05Trifolium ratense L. MN-35Nefera sorAerDeDoaMenstruation pain0.02Trifolium resupinatum L. MN-45NeferAerDeDoaMenstruation pain0.02Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0.03Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0.03MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0.04Wich arcaca L. subsp. tenuifoliaGiyarokFlo, LeaInDoaKidney stones, liver0.04Roth MN-74BaceaeQuercus petraea (Matt.) Liebl.MaziGalGllComAntifungal (foot)0.03Subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19Geranium libanoticum SchenkGilokLeaInDoa, Raw Intestinal pain0.03HypericaceaeGilokLeaInDoa, Raw Intestinal pain0.03Matifupation0.03  | Podl.MN-85Astracantha muschiana (Kotschy & GunniRooInDoaCancer0Boiss.) Podlech MN-86Astragalus chamaephaca Freyn MN-Gunêye çeneRooInGrgMouth wounds04Lathyrus rotundifolius Willd. MN-7FiğSeeBoiEatDiarrhea0Ononis spinosa L. MN-101GoştberğikLeaInDoaAnti-inflammatory0Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0Trifolium repens L. MN-36Nefera supiAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0Roth MN-74FagaceaeGalGllComAntifungal (foot)0Subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19GalGilokLeaInDoa, RawIntestinal pain0HypericaceaeHypericaceaeHypericaceaeHypericaceaeInDoa, RawIntestinal pain0HypericaceaeHypericaceaeInDoa, RawIntestinal pain0   |   |                             |                                    |                           |                                 |                             |      |
| Boiss.) Podlech MN-86<br>Astragalus chamaephaca Freyn MN- Gunêye çene Roo In Grg Mouth wounds 0.02<br>4<br>Lathyrus rotundifolius Willd. MN-7 Fiğ See Boi Eat Diarrhea 0.03<br>Ononis spinosa L. MN-101 Goştberğik Lea In Doa Anti-inflammatory 0.05<br>Trifolium pratense L. MN-35 Nefera sor Aer De Doa Menstruation pain 0.02<br>Trifolium repens L. MN-36 Nefera supi Aer De Doa Menstruation pain 0.02<br>Trifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0.03<br>Trifolium trichocephalum M.Bieb. Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Vicia cracca L. subsp. tenuifolia Ğiyarok Flo, Lea In Doa Kidney stones, liver 0.04<br>diseases<br>Fagaceae<br>Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0.03<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0.03<br>Hypericaceae  | Boiss.) Podlech MN-86<br>Astragalus chamaephaca Freyn MN- Gunêye çene Roo In Grg Mouth wounds 0<br>4<br>Lathyrus rotundifolius Willd. MN-7 Fiğ See Boi Eat Diarrhea 0<br>Ononis spinosa L. MN-101 Goştberğik Lea In Doa Anti-inflammatory 0<br>Trifolium pratense L. MN-35 Nefera sor Aer De Doa Menstruation pain 0<br>Trifolium resupinatum L. MN-36 Nefera supi Aer De Doa Menstruation pain 0<br>Trifolium resupinatum L. MN-45 Nefer Aer In Doa Icterus 0<br>Trifolium richocephalum M.Bieb. Nefer Aer In Doa Icterus 0<br>MN-71<br>Vicia cracca L. subsp. tenuifolia Ğıyarok Flo, Lea In Doa Kidney stones, liver 0<br>Roth MN-74<br>Fagaceae<br>Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericaceae<br>Hypericaceae<br>Hypericum scabrum L. MN-122 Batov Aer In Com Scabies 0   |   | Guniye şirık                | Roo                                | In                        | Doa                             | Cardiac disorder            | 0.04 |
| Astragalus chamaephaca Freyn MN-       Gunêye çene       Roo       In       Grg       Mouth wounds       0.02         4       Lathyrus rotundifolius Willd. MN-7       Fiğ       See       Boi       Eat       Diarrhea       0.03         Ononis spinosa L. MN-101       Goştberğik       Lea       In       Doa       Anti-inflammatory       0.05         Trifolium pratense L. MN-35       Nefera sor       Aer       De       Doa       Menstruation pain       0.02         Trifolium resupinatum L. MN-35       Nefera sıpi       Aer       De       Doa       Menstruation pain       0.02         Trifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Icterus       0.03         MN-71       Vicia cracca L. subsp. tenuifolia       Ğıyarok       Flo, Lea       In       Doa       Kidney stones, liver       0.04         Roth MN-74       Bagaceae       Gal       Gll       Com       Antifungal (foot)       0.03         Subsp. pinnatiloba (K.Koch)       Mazi       Gal       Gll       Com       Antifungal (foot)       0.03         Subsp. pinnatiloba (K.Koch)       Mazi       Gal       Gll       Com       Antifungal (foot)       0.03         Geraniaceae       Geranium libano   | Astragalus chamaephaca Freyn MN-       Gunêye çene       Roo       In       Grg       Mouth wounds       0         4       Lathyrus rotundifolius Willd. MN-7       Fiğ       See       Boi       Eat       Diarrhea       0         0 nonis spinosa L. MN-101       Goştberğuk       Lea       In       Doa       Anti-inflammatory       0         1rifolium pratense L. MN-35       Nefera sor       Aer       De       Doa       Menstruation pain       0         1rifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Menstruation pain       0         1rifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Menstruation pain       0         1rifolium trichocephalum M.Bieb.       Nefer       Aer       In       Doa       Icterus       0         MN-71       Vicia cracca L. subsp. tenuifolia       Ğıyarok       Flo, Lea       In       Doa       Kidney stones, liver       0         Roth MN-74       Bagaceae       Gal       Gil       Com       Antifungal (foot)       0         Subsp. pinnatiloba (K.Koch)       Mazi       Gal       Gil       Com       Antifungal (foot)       0         Geraniaceae       Geranium libanoticum Schenk       Gi  |   | Gunni                       | Roo                                | In                        | Doa                             | Cancer                      | 0.02 |
| Lathyrus rotundifolius Willd. MN-7FiğSeeBoiEatDiarrhea0.03Ononis spinosa L. MN-101GoştberğikLeaInDoaAnti-inflammatory0.05Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0.02Trifolium repens L. MN-36Nefera sıpiAerDeDoaMenstruation pain0.02Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0.03Trifolium richocephalum M.Bieb.NeferAerInDoaIcterus0.03MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0.04Roth MN-74GalGalGllComAntifungal (foot)0.03Subsp. pinnatiloba (K.Koch)MaziGalGllComAntifungal (foot)0.03Wenitsky MN-19GeraniaceaeGeraniaceaeInDoa, RawIntestinal pain0.03HypericaceaeInDoa, RawIntestinal pain0.03Intestinal pain0.03   | Lathyrus rotundifolius Willd. MN-7FiğSeeBoiEatDiarrhea0Ononis spinosa L. MN-101GostberğikLeaInDoaAnti-inflammatory0Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0Trifolium repens L. MN-36Nefera supiAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0Trifolium richocephalum M.Bieb.NeferAerInDoaIcterus0MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver<br>diseases0Roth MN-74BagaceaeQuercus petraea (Matt.) Liebl.MaziGalGllComAntifungal (foot)0Subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19GeraniaceaeGilokLeaInDoa, RawIntestinal pain0HypericaceaeHypericaceaeHypericaceaeHypericaceae0Scabies0   | Astragalus chamaephaca Freyn MN-                  | Gunêye çene                 | Roo                                | In                        | Grg                             | Mouth wounds                | 0.02 |
| Ononis spinosa L. MN-101GoştberğikLeaInDoaAnti-inflammatory0.05Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0.02Trifolium repens L. MN-36Nefera supiAerDeDoaMenstruation pain0.02Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0.03Trifolium trichocephalum M.Bieb.NeferAerInDoaIcterus0.03MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0.04Roth MN-74GalGalGllComAntifungal (foot)0.03Subsp. pinnatiloba (K.Koch)MaziGalGllComAntifungal (foot)0.03GeraniaceaeGeranium libanoticum SchenkGilokLeaInDoa, RawIntestinal pain0.03HypericaceaeInDoa, RawIntestinal pain0.03   | Ononis spinosa L. MN-101GoştberğikLeaInDoaAnti-inflammatory0Trifolium pratense L. MN-35Nefera sorAerDeDoaMenstruation pain0Trifolium repens L. MN-36Nefera supiAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-36NeferAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0Trifolium trichocephalum M.Bieb.NeferAerInDoaIcterus0MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0MN-74BagaceaeGalGalGllComAntifungal (foot)0Subsp. pinnatiloba (K.Koch)MaziGalGllComAntifungal (foot)0BeraniaceaeGilokLeaInDoa, RawIntestinal pain0Hypericum scabrum L. MN-122BatovAerInComScabies0  | -   | Fiğ                         | See                                | Boi                       | Eat                             | Diarrhea                    | 0.03 |
| Trifolium repens L. MN-36Nefera supiAerDeDoaMenstruation pain0.02Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0.03Trifolium trichocephalum M.Bieb.NeferAerInDoaIcterus0.03MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0.04Roth MN-74GalGalGllComAntifungal (foot)0.03Subsp. tenuifoliaMaziGalGllComAntifungal (foot)0.03Subsp. pinnatiloba (K.Koch)MaziGalGllComAntifungal (foot)0.03GeraniaceaeGeranium libanoticum SchenkGilokLeaInDoa, RawIntestinal pain0.03HypericaceaeInDoa, RawIntestinal pain0.03   | Trifolium repens L. MN-36Nefera supiAerDeDoaMenstruation pain0Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0Trifolium trichocephalum M.Bieb.NeferAerInDoaIcterus0MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0MN-74Gata cracca L. subsp. tenuifoliaMaziGatGllComAntifungal (foot)0Roth MN-74MaziGatGatGllComAntifungal (foot)0Bubsp. pinnatiloba (K.Koch)<br>Menitsky MN-19MaziGatInDoa, RawIntestinal pain0HypericaceaeHypericum scabrum L. MN-122BatovAerInComScabies0  |   |                             | Lea                                | In                        | Doa                             | Anti-inflammatory           | 0.05 |
| Trifolium resupinatum L. MN-45       Nefer       Aer       In       Doa       Icterus       0.03         Trifolium trichocephalum M.Bieb.       Nefer       Aer       In       Doa       Icterus       0.03         MN-71       Vicia cracca L. subsp. tenuifolia       Ğıyarok       Flo, Lea       In       Doa       Kidney stones, liver       0.04         Koth MN-74       Gal       Gal       Gll       Com       Antifungal (foot)       0.03         Fagaceae       Guercus petraea (Matt.) Liebl.       Mazi       Gal       Gll       Com       Antifungal (foot)       0.03         Subsp. pinnatiloba (K.Koch)       Meritsky MN-19       Geraniaceae       Geranium libanoticum Schenk       Gilok       Lea       In       Doa, Raw       Intestinal pain       0.03         Hypericaceae       In       Doa, Raw       Intestinal pain       0.03  | Trifolium resupinatum L. MN-45NeferAerInDoaIcterus0Trifolium trichocephalum M.Bieb.NeferAerInDoaIcterus0MN-71Vicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0Wicia cracca L. subsp. tenuifoliaĞıyarokFlo, LeaInDoaKidney stones, liver0Roth MN-74GalGalGllComAntifungal (foot)0Subsp. pinnatiloba (K.Koch)MaziGalGllComAntifungal (foot)0GeraniaceaeGeranium libanoticum SchenkGilokLeaInDoa, RawIntestinal pain0HypericaceaeHypericum scabrum L. MN-122BatovAerInComScabies0  |   | 0                           |                                    |                           |                                 |                             | 0.02 |
| Trifolium trichocephalum M.Bieb. Nefer Aer In Doa Icterus 0.03<br>MN-71<br>Vicia cracca L. subsp. tenuifolia Ğıyarok Flo, Lea In Doa Kidney stones, liver 0.04<br>Roth MN-74<br>Fagaceae<br>Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0.03<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0.03<br>Hypericaceae   | Trifolium trichocephalum M.Bieb. Nefer Aer In Doa Icterus 0<br>MN-71<br>Vicia cracca L. subsp. tenuifolia Ğıyarok Flo, Lea In Doa Kidney stones, liver 0<br>Roth MN-74<br>Fagaceae<br>Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericaceae<br>Hypericum scabrum L. MN-122 Batov Aer In Com Scabies 0   |   |                             |                                    |                           |                                 |                             |      |
| MN-71<br>Vicia cracca L. subsp. tenuifolia Ğıyarok Flo, Lea In Doa Kidney stones, liver 0.04<br>Roth MN-74<br>Fagaceae<br>Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0.03<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0.03<br>Hypericaceae   | MN-71<br>Vicia cracca L. subsp. tenuifolia Ğıyarok Flo, Lea In Doa Kidney stones, liver 0<br>Roth MN-74<br>Fagaceae<br>Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0<br>subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericaceae<br>Hypericum scabrum L. MN-122 Batov Aer In Com Scabies 0  |   | 0                           |                                    |                           |                                 |                             |      |
| Roth MN-74 diseases Fagaceae Quercus petraea (Matt.) Liebl. Mazi Gal Gll Com Antifungal (foot) 0.03 subsp. pinnatiloba (K.Koch) Menitsky MN-19 Geraniaceae Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0.03 Hypericaceae   | Roth MN-74     diseases       Fagaceae     Quercus petraea (Matt.) Liebl.     Mazi     Gal     Gll     Com     Antifungal (foot)     0       Subsp. pinnatiloba (K.Koch)     Mazi     Gal     Gll     Com     Antifungal (foot)     0       Menitsky MN-19     Geraniaceae     Geranium libanoticum Schenk     Gilok     Lea     In     Doa, Raw     Intestinal pain     0       Hypericaceae     Hypericum scabrum L. MN-122     Batov     Aer     In     Com     Scabies     0   |   | Nefer                       | Aer                                | In                        | Doa                             | Icterus                     | 0.03 |
| Quercus petraea (Matt.) Liebl.       Mazi       Gal       Gll       Com       Antifungal (foot)       0.03         subsp. pinnatiloba (K.Koch)       Menitsky MN-19       Geraniaceae       Geraniaceae       Geranium libanoticum Schenk       Gilok       Lea       In       Doa, Raw Intestinal pain       0.03         Hypericaceae       Geranium libanoticum Schenk       Gilok       Lea       In       Doa, Raw Intestinal pain       0.03   | Quercus petraea (Matt.) Liebl.MaziGalGllComAntifungal (foot)0subsp. pinnatiloba (K.Koch)Menitsky MN-19GeraniaceaeGeranium libanoticum SchenkGilokLeaInDoa, Raw Intestinal pain0HypericaceaeHypericum scabrum L. MN-122BatovAerInComScabies0  | 1 0   | Ğıyarok                     | Flo, Lea                           | In                        | Doa                             |                             | 0.04 |
| subsp. <i>pinnatiloba</i> (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0.03<br>Hypericaceae  | subsp. pinnatiloba (K.Koch)<br>Menitsky MN-19<br>Geraniaceae<br>Geranium libanoticum Schenk Gilok Lea In Doa, Raw Intestinal pain 0<br>Hypericaceae<br>Hypericum scabrum L. MN-122 Batov Aer In Com Scabies 0  | Fagaceae  |                             |                                    |                           |                                 |                             |      |
| Geranium libanoticum SchenkGilokLeaInDoa, Raw Intestinal pain0.03Hypericaceae  | Geranium libanoticum SchenkGilokLeaInDoa, RawIntestinal pain0HypericaceaeHypericum scabrum L. MN-122BatovAerInComScabies0  | subsp. pinnatiloba (K.Koch)                       | Mazi                        | Gal                                | Gll                       | Com                             | Antifungal (foot)           | 0.03 |
| Hypericaceae   | HypericaceaeHypericum scabrum L. MN-122BatovAerInComScabies0   | Geraniaceae                                       |                             |                                    |                           |                                 |                             |      |
|  | Hypericum scabrum L. MN-122 Batov Aer In Com Scabies 0   | Geranium libanoticum Schenk                       | Gilok                       | Lea                                | In                        | Doa, Raw                        | Intestinal pain             | 0.03 |
| Typercum scatture L. MIN-122 Datov Act III Colli Scattes 0.02  |  |   | Ratov                       | ٨er                                | In                        | Com                             | Scabies                     | 0.02 |
|  |  | Hypericum scabrum L. MIN-122                      | σαιον                       | ACI                                | 111                       | Com                             | Scaules                     | 0.02 |

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| Table 2 — Lis<br>Family, plant species,                                     | st of wild medicinal j<br>Vernacular name | plants investigate<br>Plant part(s) | d with their relat<br>Preparations <sup>b</sup> |                     |  | UV      |
|---|---|-------------------------------------|---|---------------------|--|---------|
| voucher specimen, endemism  | of Karlıova                               | used <sup>a</sup>                   | rieparations                                    | method <sup>c</sup> |  | 01      |
| Iridaceae   |   |                                     |   |                     |  |         |
| <i>Gladiolus atroviolaceus</i> Boiss. MN-<br>47                             | Gılsosık                                  | Aer                                 | -   | Raw                 | Immunostimulant  | 0.02    |
| Iris reticulata M.Bieb. MN-6  | Gulsosın                                  | Aer                                 | In  | Doa                 | Asthma, shortness of breath  | 0.06    |
| Juglandaceae  |   |                                     |   |                     |  |         |
| Juglans regia L. MN-99  | Guz                                       | Lea                                 | Boi   | Com                 | Burn   | 0.08    |
| Sugiuns regiu E. MIX-99   | 0/12                                      | Lea                                 | In  | Ext                 | Anti-dandruff  | 0.08    |
| Lamiaceae   |   |                                     |   |                     |  |         |
| Lamium amplexicaule L. MN-14  | Pung                                      | Aer, Lea                            | In  | Doa                 | Colds  | 0.14    |
| Mentha longifolia (L.) L. subsp.  | Pung, Pinge                               | Lea                                 | In  | Raw                 | Shortness of breath  | 0.39    |
| <i>typhoides</i> (Briq.) Harley MN-28                                       | T ung, T inge                             | Lea                                 | -   | Doa                 | Abdominal ache, anti-<br>inflammatory, cold and flu,<br>headache, tonsillitis  |         |
| Ocimum basilicum L. MN-110  | Ruhan                                     | Aer                                 | In  | Doa                 | Abdominal pain   | 0.11    |
| Phlomis armeniaca Willd. MN-57  | Pazağ                                     | Flo, Lea                            | In,   | Doa                 | Milk enhancer  | 0.06    |
|   | C   | -                                   | Boi   | -                   |  |         |
|   |   |                                     |   | Eat+yoghu           |  |         |
|   |   | T                                   | Ŧ   | rt                  | D'1 / 1  | 0.02    |
| Phlomisherba-ventiL. MN-82  | Gihareşık                                 | Lea                                 | In<br>In  | Doa                 | Diabetes disease   | 0.03    |
| Prunella vulgaris L. MN-79  | Sosin                                     | Aer                                 | In<br>-   | Doa<br>Raw          | Gastric pain, menstruation pain  | 0.07    |
| Salvia multicaulis Vahl MN-22   | Punga reş                                 | Aer                                 | In  | Doa                 | Gastric pain, migraine   | 0.06    |
| Salvia virgata Jacg. MN-102   | Pengi                                     | Flo, Lea                            | In  | Doa                 | Muscle pain  | 0.00    |
| Stachys iberica M. Bieb. MN-91  | Gihaye zerike                             | Aer                                 | In  | Doa                 | Icterus  | 0.02    |
| Stachys lavandulifolia VahlMN-63  | Çaya beci, Çaya                           | Aer                                 | In  | Doa                 | Cancer, colds and flu,   | 0.13    |
| Tourouisure of any and mus subor  | çiye<br>Cava awanan                       | Aor                                 | In  | Dut                 | diabetes disease, digestive  | 0.05    |
| <i>Teucrium chamaedrys</i> subsp.<br><i>sinuatum</i> (Celak.) Rech.f. MN-66 | Çaya şıvanan                              | Aer                                 | In  | Dpt                 | Cough, gastric pain  | 0.05    |
| <i>Thymus kotschyanus</i> Boiss. &<br>Hohen. MN-65                          | Anığ                                      | Aer, lea                            | In  | Doa                 | Colds and flu, tonsilitis  | 0.15    |
| Liliaceae   |   |                                     |   |                     |  |         |
| <i>Tulipa armena</i> Boiss. MN-16   | Gul, Lale                                 | Bul                                 | _   | Che                 | Halitosis  | 0.02    |
| *   | Gui, Luie                                 | Dui                                 | -   | Che                 | Trantosis  | 0.02    |
| Malvaceae   |   |                                     | Ŧ   | D (                 | <b>A F F F</b>   | 0.1.4   |
| Alcea apterocarpa Boiss. MN-94  | Hiro                                      | Aer                                 | In<br>In  | Dpt                 | Menstruation pain  | 0.14    |
|   |   | See, Lea<br>Flo                     | In<br>Fc  | Doa<br>Ext          | Uterine cyst<br>Anti-inflammatory, wound   |         |
|   |   | 110                                 | 10  | LAt                 | healing  |         |
| Malva neglecta Wallr. MN-50   | Tolık                                     | Who                                 | In  | Ext                 | Wound healing  | 0.41    |
| -   |   | Aer, Who                            |   | Doa                 | Antihypertensive, cough,<br>gastrointestinal disorders<br>rheumatism, infertility,<br>urinary inflammations,<br>cancer, diabetes disease,<br>high cholesterol, anti-<br>inflammatory, urinary<br>inflammations, infertility,<br>abdominal pain |         |
| Orchidaceae<br>Anacamptis laxiflora (Lam.)                                  | Şapır, Sahlep                             | Bul                                 | In+honey  | Doa                 | Colds, cough   | 0.02    |
| R.M.Bateman, Pridgeon &<br>M.W.Chase MN-72                                  | <i>ş</i> ара, затер                       | Dui                                 | III + HOHCy                                     | Dua                 | Colus, cougn   | 0.02    |
|   |   |                                     |   |                     | ,  | Contd.) |

# NADIROĞLU et al.: AN ETHNOBOTANICAL SURVEY OF MEDICINAL PLANTS IN KARLIOVA (BINGÖL-TURKEY)

| Family, plant species,   | Vernacular name        | Plant part(s)     | Preparations <sup>b</sup> | Utilization         | Use   | UV           |
|--|------------------------|-------------------|---------------------------|---------------------|---|--------------|
| voucher specimen, endemism   | of Karliova            | used <sup>a</sup> | Preparations              | method <sup>c</sup> | Use   | υv           |
| Plantaginaceae   |                        |                   |                           |                     |   |              |
| Plantago lanceolata L. MN-39   | Pelhewes               | Lea               | Ms<br>Dec                 | Com<br>Doa          | Wound healing<br>Gastric ulcer  | 0.18         |
| Plantago major L. MN-38  | Pelhawes               | Lea               | In                        |                     | Anti-inflammatory,<br>abscess, wound healing  | 0.23         |
| Poaceae  |                        |                   |                           |                     |   |              |
| Hordeum bulbosum L. MN-13<br>Zea mays L. MN-117  | Şirome<br>Lazut, Mısır | Rhi<br>Sty        | -<br>In                   | Raw<br>Doa          | Cancer<br>High cholesterol  | 0.04<br>0.05 |
| Polygonaceae   |                        | 5                 |                           |                     | C   |              |
| Polygonum cognatum Meisn. MN-96  | Levlevık               | Who               | In                        | Doa                 | Kidney stones   | 0.07         |
| Rheum ribes L. MN-20   | Rıbez, Içkın           | Roo               | In                        | Dct                 | Diabetes disease,   | 0.34         |
|  |                        | Stem              |                           | Raw                 | rheumatism<br>Anti-inflammatory, cardiac<br>disorder, diabetes disease,<br>intestinal pain            |              |
| Rumex acetosella L. MN-37  | Tırşo, Tırşık          | Lea<br>Aer        | Dec                       | Doa<br>Raw          | Antiemetic<br>Antihypertensive  | 0.10         |
| Rumex scutatus L. MN-23  | Tırşık, Tirşo          | Aer, Lea          | -                         | Raw                 | Antihypertensive,<br>antiemetic, headache   | 0.08         |
| Rumex tuberosus L. MN-27   | Tırşoye ga, Pelle ga   | Lea               | -                         | Raw                 | Expectorant   | 0.05         |
| Portulaceae  |                        |                   |                           |                     |   |              |
| Portulaca oleracea L. MN-111   | Pımpar, Semizotu       | Aer               | In                        | Doa                 | Migraine  | 0.18         |
| Rosaceae   |                        |                   |                           |                     |   |              |
| Alchemilla pseudocartalinica Juz.<br>MN30  | Goye boci              | Aer               | In                        | Doa                 | Bronchitis, asthma  | 0.04         |
| Prunusmahaleb L. MN-113  | Kener                  | Fru               | Dec                       | Doa                 | Respiratory tract problem   | 0.03         |
| Cotoneaster nummulariusFisch &C.Mey. MN-49   | Dara çuke              | Fru               | Dec                       | Doa                 | Analgesic   | 0.02         |
| <i>Crataegus orientalis</i> Pall. ex M.<br>Bieb.MN-46  | Guvij, Sez             | Flo               | Dec                       | Dpt                 | Cardiac disorder, high cholesterol  | 0.12         |
| Cydonia oblonga Mill. MN-95  | Ayva                   | Flo, Lea          | Dec                       | Doa                 | Bronchitis, asthma  | 0.10         |
|  | Kurfil                 | Roo               | Dec                       | Dct                 | Abdominal pain, headache  |              |
| Malus slyvestris (L.)Mill. MN-58   | Sev                    | Fru               | -                         | Raw                 | Diabetes disease  | 0.04         |
| Prunus cerasifera Ehrh.MN-17   | Mamoğ, Hurtışık        | Fru               | In<br>-                   | Doa<br>Raw          | Colds and flu, antipyretic  | 0.07         |
| <i>Pyrus elaeagnifolia</i> Pall. subsp.<br><i>kotschyana</i> (Boiss. Ex Decne.)<br>Browicz MN-25 | Hırmi                  | Fru               | -                         | Raw                 | Diarrhea  | 0.03         |
| Rosa canina L. MN-34   | Şilan                  | Roo<br>Fru        | In                        | Ext<br>Dpt          | Sedative<br>Appetizing, colds and flu,<br>cough, digestive,<br>highfever, kidney pain,<br>tonsillitis | 0.38         |
| Rosa heckeliana Tratt. MN-120  | Şilan                  | Fru               | In                        | Dpt                 | Bronchitis, colds and flu,<br>cough   | 0.19         |
| Rubus caesius L. MN-112  | Dırık, Böğürtlen       | Fru               | -                         | Raw                 | Tonic   | 0.06         |
| Sanguisorba minor Scop. MN-56  | Çêra basur             | Aer               | In                        | Doa                 | Hemorrhoids   | 0.00         |
|  | Kırmut                 | Fru               | -                         | Raw                 | Gastric pain, for fatigue,<br>immunostimulant   | 0.08         |

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(Contd.)

| Table 2 — Lis   | t of wild medicinal p       | lants investigate                  | d with their rela         | ted informa                        | tion (Contd.)                                       |      |
|---|-----------------------------|------------------------------------|---------------------------|------------------------------------|---|------|
| Family, plant species, voucher specimen, endemism                   | Vernacular name of Karlıova | Plant part(s)<br>used <sup>a</sup> | Preparations <sup>b</sup> | Utilization<br>method <sup>e</sup> | Use   | UV   |
| Scrophulariaceae  |                             |                                    |                           |                                    |   |      |
| Rhinanthus serotinus subsp. aestivali<br>s (N.W.Zinger) DostálMN-64 | Tahlık                      | Lea                                | Dec                       | Doa                                | Gastric pain  | 0.02 |
| Verbascum songaricum Schrenk<br>MN-53                               | Mazijanık                   | Flo                                | Dec                       | Doa                                | Emmenagogue, infertility                            | 0.03 |
| Hyoscyamus niger L. MN-129  | Beng                        | See                                | -                         | Ext                                | Toothache   | 0.02 |
| Urticaceae  |                             |                                    |                           |                                    |   |      |
| Urtica dioica L. MN-15  | Gezgezok                    | Lea<br>Lea<br>Fru                  | Dec<br>In<br>In           | Doa<br>Ext                         | Anti-inflammatory, cancer<br>Rheumatism<br>Embolism | 0.42 |
| Xanthorrhoeaceae  |                             |                                    |                           |                                    |   |      |
| Eremurus spectabilis M.Bieb. MN-5                                   | Gullık, Yeling              | Roo                                | In                        | Dte<br>Doa                         | Diabetes disease<br>Intestinal pain                 | 0.09 |

<sup>a</sup>Plant part(s) used: Aer, aerial parts; Bra, branches; Bul, bulb; Cap, capitulum; Con, cones; Flo, flowers; Fru, fruits; Gal, gallus; Lat, latex; Lea, leaves; Rhi, rhizomes; Roo, roots; See, seeds; Ste, Stems; Sty, stylus, Tub, tuber, Who, whole plant.

<sup>b</sup>Preparations: Boi; aerial parts boiled, Dec, decoction; Fc, the flowers are crushed; Fr, the fruits are crushed; Gll, the gallus is crushed; In, infusion; Lr, latex is removed; Ms, mash.

<sup>c</sup> Utilization method: Com, compress; Che, Chew, Doa, drink one cup after meals; Doc, drink one glass of the plant on an empty stomach in the morning; Dpt, drink one cup of the plant two times a day; Dct, drink one cup of the plant three times a day; Dte, drink one glass of the plant two times a day on an empty stomach; Eat; Eaten as meal; Ext, externally; Grg, gargle; Lex, latex is used externally; Raw, the plant is eaten raw.

diabetes disease, digestive, colds and flu, hemorrhoids, rheumatism, respiratory tract problem, wound healing etc. (Table 2).

It was found that local people living in Karliova and in its villages used 25% of these wild plants after drying. Drying enabled regional people to use medicinal treatment plants during all seasons of the year.

#### Data analysis

According to the calculation made on the basis of the use-value UV<sup>28</sup>; Urtica dioica L. (0.42), Malva neglecta Wallr. (0.41), Mentha longifolia (L.) L. (0.39),Rosa canina L. (0.38), Rheum ribes L. (0.34), Gundelia tournefortii L. (0.32), Allium cepa L. (0.32), Allium sativum L. (0.27), Plantago major L.(0.23), Tragopogondubius Scop. (0.22),was found to be the highest use value (Table 2). Knowledge of the use value in such studies may be useful in determining the safety and pharmacological properties of the treated plant<sup>57</sup>. It may be more useful to conduct an activity study with these plants which are used by the people of the region and whose usage value is very high.

The reported ailments were grouped into 10 categories based on the information gathered from the interviewees. Diabetes had the highest FIC score

(0.51), respiratory tract diseaseswas recorded to have the second highest FIC value (0.48), urogenital and kidney problemsrecorded by its all images like the third group (FIC was 0.42), while the fourth level of FIC values (0.36) was recorded Cardiovascular category. Gastrointestinal disorders were ranked as the fifth ailment with FIC value of 0.35. An FIC value of 0.33 was recorded female problems. At the end of this sequence, dermatological, rheumatic pain, hemorrhoids, and oral health treatments with the values of 0.31, 0.26, 0.22 and 0.20 FIC were reported. Karliova has not done any research that previously calculated FIC value.

#### Conclusion

Geographical structure of our study area, insufficient facilities of health and transportation in the past, stockbreeding and nomad lifestyle of the local community have all necessitated them to use wild plants. Information about plant use culture has rapidly started to be forgotten due to the increasing migration from rural to urban areas in recent years. It has been determined that the rate of plant use is lower in villages on Bingöl-Erzurum highway within our study area and higher in villages far from the highway, which might support our claim on the plant use culture. Thus, it is very important to record this culture which has been merely shaped within centuries.

The average age of the participating individuals was 53 years and they were Turkish citizens with Kurdish, Zaza and Turkish ethnic backgrounds. This shows that the young generation does not have sufficient interest and information about the plant use culture.

It was determined that 26 families residing as local residents used a total of 99 plants for medical treatment purposes in this research conducted in the Karliova district. As a kind of treatment for many health problems it is used. The locals use the water of these plants to dry their leaves and dry them all the year round when needed.

Most commonly used plants are *Allium cepa* L., *Mentha longifolia* (L.) L., *Malva neglecta* Wallr., *Rosa canina* L., *Rheum ribes* L. and *Urtica dioica* L. Most of these plants used for treatment, aerial parts (33 of use-reports), leaves (24), flowers (11) roots (11) and fruits (10). A lot of plants are used for the treatment of diabetes disease, pulmonary and respiratory diseases, urogenital and kidney problems, cardiovascular disorders, gastrointestinal disorders, female problems, dermatological, and rheumatic pain, etc.

The medicinal uses of *Stenotaenia macrocarpa* Freyn & Sint., *Inula helenium* L., *Scorzonera incisa* DC., *Tripleurospermum caucasicum* (Willd.) Hayek, *Astragalus chamaephaca* Freyn, *Geranium libanoticum* Schenk, *Rhinanthus serotinus* subsp. *Aestivalis* (N.W.Zinger) Dostál, *Verbascum songaricum* Schrenk. and *Bunium elegans* (Fenzl) Freyn that we found were used in our study area and recorded for the first time.

Comparison of the data obtained from the plants growing in Karliova within the scope of this study with experimental data obtained in previous laboratory studies confirmed most of the ethnobotanical usages. Literature review indicated that curative plants found in Karliova are used in different parts of the Turkey for the treatment of the same or similar diseases.

The plant flora of Karliova is threatened by such factors as grazing, expansion of new agricultural lands, and unsustainable picking of plants for the purpose of generating income. Immediate steps should be taken to ensure the inclusion of relevant flora within conservation designations.

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# Appendix A

1. Name and surname of the participant.

- 2. Age and sex of the participant.
- 3. Telephone and address of the participant.
- 4. Educational level of the participant.
- 5. Date of interview.
- 6. Place of residence of the participant.
- 7. Duration of residence of the participant.
- 8. What is the local name of the plant used?.
- 9. For which diseases do you use the plant?.
- 10. Which parts of the plant do you use? (Root, stem, flower, leaves, fruit, etc.).
- 11. How do you prepare the plant for use?.
- 12. How and when do you use the plant?.
- 13. Approximately what dose do you use?.
- 14. How long does the convalescence period take?.
- 15. Did any complication occur from the plants you used?

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