

Ethnoveterinary Uses of Medicinal Plants in Mediterranean District, Turkey

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*Ethnoveterinary Medicine (EVM) research is defined as the reevaluation of the animal disease prevention and treatment folklore dating back to 14,000 years using modern and scientific methods. The knowledge acquired in centuries by trial and error has been used in medicine and has reached today by being transferred from generation to generation. As the science of chemistry has developed after the 18th century, synthetic or semi-synthetic materials have replaced the plants as raw materials for drugs. However, the emerging problems caused by the side effects of modern drugs in the recent years have popularized the use of natural drugs again. This study is conducted in the Mediterranean Region which is ranked at the top of medical aromatic plant diversity list in Turkey. 60 participants living in the region, chosen by random sampling have been interviewed face-to-face and we have tried to measure their knowledge about the plants they use for EVM. The obtained information has enabled us to make 168 citations to 67 different plants used in animal diseases. *L. nobilis* L., (%7.14), *Mentha* spp. and *Urtica urens* L. (%4.17) were the most prominent among these plants and it was reported that the medicinal plants were mostly used for gastrointestinal disorders (%26). Although EVM practices reached today and are still being widely applied, the recorded information about this subject in Turkey and many other countries is inadequate. This study presents information about the plants used in Turkey's Mediterranean region for EVM and how they are used to treat which diseases.*

Keywords: Ethnoveterinary medicine, medical plants, survey, Mediterranean, Turkey.

Mythologies treat plants as the most precious gift given to humanity. Archaeological findings from the first ages show that plants were the primary source of food and health care that humans have used [1]. According to World Health Organization's data, 80% of the world's population, and 95% of Africa's population make use of plant-based treatment methods. Moreover, more than 70% of the drugs developed in the last 35 years are based on natural resources and about 25% of the prescribed medicines in developed worlds are based on plant-derived substances [2,3].

Turkey has a very rich flora with a taxon of more than 12,000 species and subspecies belonging to 1251 genera and 174 families. The total endemic taxon count for all of Europe is 2750, while in Turkey which possesses the richest flora in the Middle East in terms of species ratio and diversity, this count is 2891. If we include 497 endemic sub-species and 390 endemic varieties, total endemic taxon count is over 3750. Inspecting the endemic plant species numbers based on regions in Turkey, it is found that the widest diversity exists in the Mediterranean (Southern) region [1,4].

Ethnoveterinary Medicine (EVM) research is defined as the reevaluation of the animal disease prevention and treatment folklore using modern and scientific methods. This knowledge dates back 14000 years and has recently become a focal point for scientific attention [5-7]. Most medicine used in EVM is based on the local pharmacopoeia, as it is in Ethnomedicine (EM). The reason why EVM practices are recently gaining attention is that natural medical sources create less adverse side effects compared to modern drugs. In addition, revealing new effect mechanisms and biological components allows new alternatives in the fight against infectious diseases with multiple drug-resistance [8-10]. Although EVM practices

containing traditional knowledge have been used widely and successfully until today, records are inadequate in many countries. As these practices were mostly transferred orally between generations, they are facing extinction due to lack of use today, and could not find a place to fit in basic veterinary medicine practices [8,11,12].

This study aims to present the plants used in Turkey's Mediterranean region for EVM, and how they are used to treat which diseases. Moreover, this study will contribute to determining the herbal medicines used by the local people, support them with scientific facts and record them to enable their dissemination through generations.

Experimental part

Study area and ethnographic background

The region is (figure 1) 120-180 km wide, with an area of about 120,000 km². This study has been conducted between 2014-2015 in 8 cities located in the Mediterranean region, which is one of 7 regions in Turkey.

Data collection and Analysis

A series of interviews has been conducted with Veterinaries, Herbalists, Pharmacists, Housewives, Doctors and local people who were born in the region or who have lived there for a long time. The surveys have been conducted

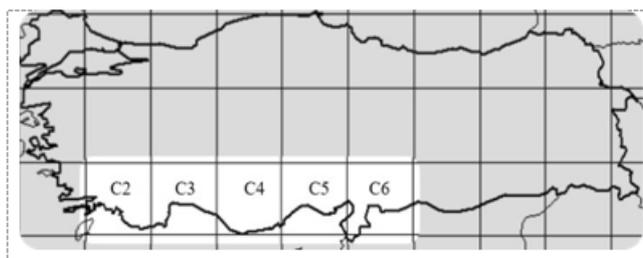


Fig. 1. Research area

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with the 60 participants randomly sampled from the region as a semi-structured, face-to-face interview. These interviews have been conducted in the local language, in three different field trips and focusing on the knowledge of the participants on the traditional uses of plants in animal health care. The plant samples collected on the basis of the field studies conducted with the participants by Ass. Prof. Dr. Yelda Güzel have been numbered and stored in the Mustafa Kemal University Herbarium. The study presents data as percentages (%).

Results and discussions

60 participants have participated in the study. The professional distribution was 20.6% veterinarians, 12.2% herbalists, 5.6% housewives, 4.4% government officials, 3.9% pharmacists, 3.9% agricultural engineers, 3.9% forestry engineers, 1.1% medical doctors and 44.4% others. The age distribution was 43.3% (45-55), 30% (55-65), 15% (65 and above), 6.7% (35-45) and 5% (25-35). 168 citations have been made to 67 different plant species with ethnopharmacologic significance during the study period by the participants. The majority of informants (7.14%) mentioned *Laurus nobilis* L. as medicinal for the treatment of various animal ailments. *L. nobilis* L. was thus the most popular remedy in the study area, followed by *Mentha* spp. (4.17%), *Urtica urens* L. (4.17%). Medicinal plant use ratios for animal health care in the selected region are gastrointestinal diseases (26%), skin diseases or wound treatment (18.7%), respiratory diseases (17.9%), reproductive system diseases (16.3%), parasitic diseases (12.2%), nervous diseases (4.9%) and oral diseases (4.1%). The adverse effects caused by these medicinal plants has been reported as gastro-intestinal (34.2%), allergy (19.4%), gynecological (10.3%), cardiovascular (7.7%), pain (5.8%), urinary (5.2%), respiratory (3.9%), behavioral (2.9%), addiction (2.9%), lethargy (2.6%), metabolic (2.6%) problems and (1.6%) drug interactions.

The most used parts of medicinal plants in the treatment of animal diseases are their leaves (22.9%), fruits (19%), flowers (17.1%), roots (13.3%), seeds (10.5%), stem (9.5%) and aerial parts (7.6%). It is found that the plants are applied orally (68%), topically (29%) and inhalation (3%) to the animals.

Medicinal plants show their curative effects through the bioactive chemical compounds they synthesize. Today, pure active principles obtained from plants are widely used and they are frequently a part of modern drug formulations used by the pharmaceutical industry. Thus, working with plants used by the local population for centuries may help in achieving results. This approach will support existing data scientifically, and will prevent researchers with limited time and material resources from wasting these resources [1]. Recently, the popularity of substances obtained from herbal sources has increased due to a chemical pause in the pharmaceutical industry (decrease in substance synthesis-development and increase in the importance attributed to pharmacovigilance) and the fact that these substances have less side effects and are relatively less costly compared to modern drugs. As the research on plants used in EVM increases, the chemical and toxicologic effects, along with the clinical effects of these natural resources will be better understood, and will achieve a safer usage, being supported by scientific data. Moreover, these data will be recorded and their transfer through generations will continue.

Although EVM practices are still being widely and successfully applied, the recorded information about this subject in Turkey and many other countries is inadequate.

The literature review that we have conducted has revealed minimal information about EVM in Turkey, and that no methodological studies have been conducted in our region or anywhere else. This is why, when compared to the existing EM studies for Turkey's Mediterranean region; it is found that the data from previous studies [3,13,14] is consistent with data from our study to a large extent. For example, *Malva sylvestris* is reported to be used for gastrointestinal, respiratory and dermatological problems in humans [3,13]. Table 1 shows that, this plant has been reported in our study to be used in gastro-intestinal and respiratory problems in animals. The study by Everest et al. reports that *Hypericum perforatum* L. is used in humans to treat stomach pain [14]. The study by Guzel Y. et al. finds that *Hypericum perforatum* L. is used for gastro-intestinal and dermatological problems, and as an appetizer [3]. Similarly, in our study we have found that this plant is used to treat stomach, dermatological, respiratory and nervous system problems in animals in the region. The fact that similar results have been found with EM studies in the same region suggests that people have tried to use the plants that they have been using to treat their own problems to treat their animals' similar problems.

The present study shows that the widest application of medicinal plants for animal health care in the selected region are for gastrointestinal diseases (26%), skin diseases or wound treatment (18.7%), respiratory diseases (17.9%), reproductive system diseases (16.3%) and parasitic diseases (12.2%). The study by Bartha SG et al. in 2015 conducted in Romania indicates that the widest application of medicinal plants are for diarrhea, antihelmintic, rumination, stomach problems and wound treatment [15]. When similar EVM studies in other countries are reviewed, Gonzalez JA et al. have found that 19 percent of gastrointestinal problems in animals are treated with EVM in western Spain, in their 2011 study. In our study, conducted with a comparable method has found the same parameter to be 26%. In addition, the same study finds the widest application of EVM drugs to be dermatological, gastro-intestinal, parasitic and infectious problems [6]. Abbasi AM et al. have reported in their 2013 study in Pakistan that the widest application of EVM drugs were for gastrointestinal > dermatological > parasitic, fever and respiratory > reproductive system > lactation > musculoskeletal system problems. Moreover, they have reported that *Foeniculum vulgare* was used to treat indigestion and diarrhea [16]. In our study we have found that *Foeniculum vulgare* was used to treat digestive problems such as diarrhea as a rumen mobilizer, and also to treat behavioral problems, aggressiveness, and parasitic diseases. Lulekal E et al. in their 2014 study in Ethiopia have similarly found that the widest application of EVM drugs were for the treatment of gastrointestinal, dermatological, respiratory and parasitic problems [17]. Table 1 shows that we have reached consistent data with the studies mentioned above. The difference in our study was that we have found that *Anthemis chia*, *Conium maculatum*, *Foeniculum vulgare*, *Hypericum perforatum*, *Matricaria chamomilla*, *Papaver somniferum*, *Silybum marianum*, *Tilia argentea* and *Viscum album* were used to treat behavioral problems and aggressiveness in animals (4.9%). It is thought that this is due to the EM use of these plants as sedatives in the region being reflected in EVM practices. Di Sanzo P et al. in their 2013 study in southern Italy have reported that *Sambucus ebulus* was used in cows as a purgative, and as a treatment for snake bites [18]. Table 1 shows that this plant is used to treat various gastro-intestinal, dermal and respiratory system problems, however no use for snake bite treatment has been found in the Mediterranean region of Turkey. When

the studies in this area are examined, Guzel Y et al. have reported that *L. nobilis* was used in the treatment of dermatological conditions in animals in their 2015 study [3]. In our study, we have found that *L. nobilis* is the most

widely used plant to treat dermatological conditions in animals (7.14%). We believe that the reason for *L. nobilis* to be the most preferred medicinal plants in animal health problems is the fact that it grows ubiquitously in the Mediterranean region, especially in Hatay, and that the

Table 1
LIST OF ETHNOVETERINARY MEDICINAL PLANTS USED IN MEDITERRANEAN DISTRICT-TURKEY

No	Family	Species	English name	Local name	Location	Part(s) Used	Application	Ailments	Freq. (%)	Voucher no
1	Asteraceae	<i>Achillea tomentosa</i> MILLER	Woolly burdock	Dulavrat otu, Kelotu	C6	Ro, Le, Fl	Int/Ext	Dr	1,79	EVMF1
2	Rosaceae	<i>Agrimonia eupatoria</i> L.	Common agrimony, Agrimony	Finkotu, Kızıl otu, kızıl yaprak	C5, C6	Ae	Int/Ext	Gis, Dr	0,6	EVMF2
3	Asteraceae	<i>Anthemis chita</i> L.	Chian chamomile, Greek chamomile	Beyaz papaty, Eşek papatyası	C2, C3, C4	Fl	Int/Ext	Ns, Dr, Gis	0,6	EVMF3
4	Asteraceae	<i>Artemisia absinthium</i> L.	Wormwood	Yavsan Otu, Pelin Otu, Acı pelin, Ak pelin, Mide otu	C4, C5, C6	Le, Fl	Int	Gis, Ps	0,6	EVMF4
5	Solanaceae	<i>Atropa belladonna</i> L.	Belladonna, deadly nightshade	Güzel avrat otu	C5, C6	Ro, Le	Int	Gis, Rs	1,79	EVMF5
6	Berberidaceae	<i>Berberis crataegina</i> DC.	-	Karamuk, Karamuk dikenini, Diken ürünü	C2, C3	Fr, Le	Int	Rs, Rp	1,19	EVMF6
7	Capparidaceae	<i>Capparis spinosa</i> L.	The caper bush, Capers	Kapari, Kebere	C3, C5	Fl, Fr	Int	Rp	0,6	EVMF7
8	Fabaceae	<i>Ceratonia siliqua</i> L.	Crob tree, Crob bean, Locust bean, St. John's bread	Keçiboynuzu, Ballıbaba, Ballboynuz, Harıup, Kaluş, Melük	C2, C3, C4, C6	Fr, Se	Int	Gis	1,19	EVMF8
9	Apiaceae	<i>Coriandrum sativum</i> L.	Coriander	Kıyış, Aş otu, Kuzbere, Yumurcak, Karakimyon	C3	Fr	Int	Gis, Rs	1,79	EVMF9
10	Asteraceae	<i>Cnicus benedictus</i> L.	Blessed thistle, St. Benedict's thistle	Mübarek ot, Mübarek Dikeni, Bostan otu, Şevketotu	C2, C3, C4, C5, C6	Fl	Int	Gis, Rp	0,6	EVMF10
11	Apiaceae	<i>Conium maculatum</i> L.	Poison hemlock, hemlock	Ağnotu, Balduran, Körek, Şemsiye otu, Topdiken, Yılan otu	C5, C6	Fl, Fr	Int	Ns	1,79	EVMF11
12	Rosaceae	<i>Crataegus monogyna</i> JACQ	Common hawthorn	Alıç	C2, C3, C4, C5, C6	Fr, Fl, Le	Int/Ext	Gis, Rp	2,98	EVMF12
13	Rosaceae	<i>Cydonia oblonga</i> MILLER	Quince seed	Ayva, Ayva ağacı	C3, C5	Fr, Se	Int/Ext	Gis, Rs	1,19	EVMF13
14	Solanaceae	<i>Datura stramonium</i> L.	Jimson weed	Boruçeği, Abuzambak, Şeytan elması, Tatula	C2, C3, C5, C6	Fl, Le, Se	Int	Gis, Rs	1,19	EVMF14
15	Apiaceae	<i>Daucus carota</i> L.	Wild carrot	Yabani havuç	C2, C3, C6	Fr	Int	Ps, Rp	0,6	EVMF15
16	Cucurbitaceae	<i>Ecballium elaeagnifolium</i> L.	Squirting cucumber	Eşek hıyarı, Acı düllek, Acı kavun	C2, C4, C5, C6	Fr, Ro	Int/Ext	Ps, Dr	0,6	EVMF16
17	Apiaceae	<i>Foeniculum vulgare</i> MILLER	Fennel	Rezene	C6	Fr, Le, Se, Ro	Int	Gis, Ns, Ps	2,38	EVMF17
18	Apiaceae	<i>Fenula elaeochloa</i> L.	Giant fennel	Çakır	C5, C6	Ro	Int	Ps, Rp	1,19	EVMF18
19	Papaveraceae	<i>Fumaria capvesolata</i> L.	White ramping fumitory	Şahdere	C2, C5, C6	Fl	Int	Gis	0,6	EVMF19
20	Rubiaceae	<i>Galium verum</i> L.	Yellow bedstraw	Boyalık, Yoğurtotu, İpçik	C3, C4, C5, C6	Ae	Int/Ext	Rp, Rs, Dr	0,6	EVMF20
21	Fabaceae	<i>Glycyrrhiza glabra</i> L.	Licorice	Meyan	C2, C3, C4, C5, C6	Ro	Int	Gis, Rs	2,98	EVMF21

the roots and leaves are the most used parts of plants and oral application consists most of the application with a ratio of 65% [19]. Mishra D et al. in their EVM study in 2011 indicate that the leaves (33.3%) are the most widely used

parts of plants and that this is followed by oil, root and stem [20]. Ghasemi PA et al. in their 2013 study, report the most used parts of plants for medicine as leaves (30%) > flowers (24%) > fruits (13%) > roots (10%) [21]. In our

continued tabel 1

22	Asteraceae	<i>Gundelia tournefortii</i> L.	Tournefort's gundelia	Kenger, Kengerotu	C2, C3, C4, C5, C6	Ro, St	Int	Rp, Or	1,19	EVMF22
23	Caryophyllaceae	<i>Gypsophila pilosa</i> HUDSON	Yelda hoccada yok	Çövenotu, Yağhot	C2, C3, C4, C5, C6	Ro	Int	Rp, Rs	0,6	EVMF23
24	Guttiferae	<i>Hypericum perforatum</i> L.	St. John's wort	Birbirdelik otu, Kantaron	C2, C3, C4, C5, C6	Fl, Le	Int	Gis, Dr, Rs, Ns	2,98	EVMF24
25	Cupressaceae	<i>Juniperus chinensis</i> LAB.	Mediterranean Juniper	Andız, Andız ardıcı	C3, C4, C5, C6	Fr, St	Int	Dr, Ps	0,6	EVMF25
26	Lamiaceae	<i>Lavandula stoechas</i> L.	French lavender	Karabaş otu	C2, C5, C6	Ae	Int/Ext	Dr, Rs	2,38	EVMF26
27	Linaceae	<i>Linum catharticum</i> L.	Node flowering flax	Yaban Keteni	C2, C3, C4, C5, C6	Se	Int/Ext	Gis, Dr	2,98	EVMF27
28	Lauraceae	<i>Laurus nobilis</i> L.	Laurel, Bay laurel, Sweet bay	Defne, Tefrin, Tehmel	C2, C3, C4, C5, C6	Fr, Le	Int/Ext	Dr	7,14	EVMF28
29	Malvaceae	<i>Malva sylvestris</i> L.	High mallow	Büyük ebe güneci, Ebe güneci	C2, C3, C4, C5, C6	Fl, Le	Int	Gis, Rs,	3,57	EVMF29
30	Malvaceae	<i>Malva neglecta</i> WALLR.	Common mallow	Küçük ebe güneci, Çoban çöreği	C3, C4, C5, C6	Ae	Int/Ext	Rp, Dr	1,19	EVMF30
31	Asteraceae	<i>Matricaria chamomilla</i> L.	Chamomile	Papatya	C2, C3, C5	Ae	Int	Rp, Ns	2,98	EVMF31
32	Solanaceae	<i>Mandragora autumnalis</i> BERTOL.	Mandrake	Adem otu, At elması, Köpek elması, Yer elması	C2, C3, C5	Le	Int	Gis	0,6	EVMF32
33	Lamiaceae	<i>Melissa officinalis</i> L.	Lemon balm	Oğul otu, Turunca, Turnucubileği	C2, C3, C4, C5, C6	Fl, Le	Int	Gis, Or, Rp	2,98	EVMF33
34	Fabaceae	<i>Medicago sativa</i> L.	Alfalfa	Kaba yonca, Çevrince	C3, C4, C5, C6	Ae	Int/Ext	Gis, Dr	0,6	EVMF34
35	Lamiaceae	<i>Mentha</i> spp.	Pennyroyal	Filişkin, Yarpuz	C2, C3, C6	Ae	Int/Ext	Ps, Rp, Rs	4,17	EVMF35
36	Myrtaceae	<i>Myrtus communis</i> L.	Myrtle	Hambes, Mersin, Murt, Bahar	C2, C3, C4, C5, C6	Fr, Le	Int	Rs, Rp	0,6	EVMF36
37	Moraceae	<i>Morus nigra</i> L.	Black mulberry	Kara dut	C2, C3, C6	Fr	Int	Rs, Or, Ps	1,19	EVMF37
38	Apocynaceae	<i>Nerium oleander</i> L.	Oleander	Zakkum, Ağu Ağacı, Kan Ağacı	C2, C3, C4, C5, C6	Le	Int	Rp	0,6	EVMF38
39	Ranunculaceae	<i>Nigella arvensis</i> L.	Black Seed	Çörek otu, Kara çörek	C5	Se	Int	Rp	1,19	EVMF39
40	Oleaceae	<i>Olea europaea</i> L.	Olive	Zeytin Ağacı	C2, C3, C4, C5, C6	Le	Int	Gis, Rp	0,6	EVMF40
41	Lamiaceae	<i>Ocimum basilicum</i> L.	Sweet basil	Fesleğen, İrhan, Peşan, Reyhan	C2, C6	Le, Se	Int	Ps, Rs	1,19	EVMF41
42	Orchidaceae	<i>Orcis italica</i> POIRET	naked man orchid, Italian orchid	Tavşan topuğu, Topbaş, dağ salebi	C2, C3, C5, C6	Ro	Int	Gis	1,19	EVMF42
43	Lamiaceae	<i>Origanum majorana</i> L.	Majoran, Sweet majoran	Guy otu, Mercanköşk, Akkekik	C3, C4	Fl	Int/Ext	Dr	0,6	EVMF43
44	Liliaceae	<i>Ornithogalum umbellatum</i> L.	Star of Bethlehem	Akyıldız, Sumbala, Köpek soğanı, Tükrükotu	C2, C4, C5, C6	Ro	Ext	Dr	0,6	EVMF44
45	Plantaginaceae	<i>Plantago lanceolata</i> L.	Ribwortplantain	Damarlica, Yılan dili, Simirliot, Çıbanotu	C2, C3, C4, C5, C6	Le	Int/Ext	Dr, Ps, Rs	0,6	EVMF45

continued tabel 1

46	Papaveraceae	<i>Papaver rhoeas</i> L.	Poppy, Red Poppy	Gelinçik, Şkayyek	C2, C3, C4, C5, C6	Fr, Se	Int/Ext	Dr, Gis	0,6	EVM/P46
47	Papaveraceae	<i>Papaver somniferum</i> L.	Opium poppy	Haşhaş	C5	Fr, Se	Int	Ns, Rs, Gis	2,38	EVM/P47
48	Portulacaceae	<i>Portulaca oleracea</i> L.	Common purslane	Semiz otu	C2, C5	Le	Int	Gis	0,6	EVM/P48
49	Punicaceae	<i>Punica granatum</i> L.	Pomegranate	Nar ağacı, nar	C3	St, Fr, Fl	Int/Ext	Ps	0,6	EVM/P49
50	Rosaceae	<i>Potentilla recta</i> L.	Sulphur cinquefoil	Su parmakotu, Besparmakotu	C2, C3, C5, C6	Ro	Int	Or	1,19	EVM/P50
51	Anacardiaceae	<i>Pistacia terebinthus</i> L.	Terebint, Turpentine tree	Menegic, Çetemenik, Yabani fışık, Çitruk, Çoğra, Sakızlık	C2, C3, C4, C5, C6	St, Fr	Int	Gis, Rs	1,19	EVM/P51
52	Rosaceae	<i>Rosa canina</i> L.	Dog rose	Gül Burnu, Gül Elməsi, It Burnu, Kuşburnu, It gülü	C2, C3, C4, C5, C6	Fr	Int	Gis	2,98	EVM/P52
53	Lamiaceae	<i>Rosmarinus officinalis</i> L.	Rosmary	Biberiye, Beyaz püren, Kuşdili	C5, C6	Fl, Le	Int	Gis, Rp, Dr	2,98	EVM/P53
54	Rubiaceae	<i>Rubia tinctorum</i> L.	Common madder	Kök boya, Kızıl boya, Kızıl kök, Yumurta boyası	C2, C4, C5, C6	Ro	Int	Gis	0,6	EVM/P54
55	Polygonaceae	<i>Rumex acetosella</i> L.	Sheep sorrel	Kuzukulağı, Ebenekşisi	C5, C6	Le, Fr	Int	Gis, Ps	0,6	EVM/P55
56	Liliaceae	<i>Ruscus aculeatus</i> L.	Butcher's broom	Tavşan memesi	C2, C3, C4, C5, C6	Ro	Int/Ext	Ps, Rs, Dr	0,6	EVM/P56
57	Lamiaceae	<i>Salvia virgata</i> JACQ.	Wand sage	Fatmana otu, Yılancık	C2, C3, C4, C5, C6	Le	Int/Ext	Gis, Dr, Or	0,6	EVM/P57
58	Caprifoliaceae	<i>Sambucus ebulus</i> L.	Danewort	Mürver otu, Mürver ağacı, Sultanotu, Telligelin	C3, C4, C5, C6	Fr, Fl, St	Int/Ext	Rs, Gis, Dr	0,6	EVM/P58
59	Asteraceae	<i>Silybum marianum</i> (L.) GAE.	Marian Thistle	Akkrz, Ala kenger, Deve dikeni, Kibbun	C2, C5, C6	St, Se	Int/Ext	Rp, Nr	1,19	EVM/P59
60	Lamiaceae	<i>Teucrium polium</i> L.	Felty germander	Acı yavşan, Ak sedef otu, Siraca otu, Yavşan otu	C2, C3, C4, C5, C6	Fl	Int	Gis	1,19	EVM/P60
61	Tiliaceae	<i>Tilia argentea</i> DESF. EX DC.	Linden	Günüşü ihlanur, İhlannur	C6	Le, Fl	Int	Nr, Gis, Rs, Rp	1,19	EVM/P61
62	Lamiaceae	<i>Thymus spicatus</i> L.	Zaatar	Zahter, Kara kekik	C2, C3, C4, C5, C6	St, Le	Int/Ext	Gis, Dr	1,79	EVM/P62
63	Lamiaceae	<i>Thymus cilicicus</i> BOISS ET BAL.	Cilician Thyme	Kekik, Yer Kekliği, Kulçuk kekliği	C2, C3, C4, C5, C6	Ae	Ext	Dr, Ps	2,38	EVM/P63
64	Urticaceae	<i>Urtica urens</i> L.	Annual nettle	Isrgan otu, Küçük isrgan otu, Tadı isrgan	C5	St, Ro, Se	Int/Ext	Rp, Dr	4,17	EVM/P64
65	Loranthaceae	<i>Vicium album</i> L.	Mistletoe	Armut otu, Çam otu, Okse Otu, Çeken	C2, C3, C4, C5, C6	St, Le, Fr	Int	Nr, Rs	1,79	EVM/P65
66	Fabaceae	<i>Vicia faba</i> L.	Broad bean	Bakla	C5	Se, Fl	Int/Ext	Gis, Dr, Ps	0,6	EVM/P66
67	Verbenaceae	<i>Vitex agnus-castus</i> L.	Chaste tree	Hayt, Acı ayt, Besparmak otu	C2, C3, C4, C5, C6	St, Fr	Int	Rp	1,19	EVM/P67

Part(s) Used: (Leaf) Le, (Fruit) Fr, (Flower) Fl, (Root) Ro, (Seed) Se, (Aerial) Ae, (Entire plant) Ep, (Stem) St

Application: Int (Internal) / Ext (External)

Ailments: (Gastrointestinal diseases) Gis, (Respiratory diseases) Rs, (Dermal diseases and wounds) Dr, (Reproductive diseases) Rp, (Parasiter diseases) Ps, (Oral diseases) Or

study we have found similar results with 71% oral application and leaves (22.9) > fruits (19%) > flowers (17.1%) > roots (10%) > seeds (10.5%) for used parts. However, differing from our study, Lulekal E et al. in their 2014 study, have found that the roots of the plant are the

most widely used part of a plant for EVM drugs [17]. We believe that the reason for the high rate of oral application of plants, is the ease of use; and the reason for the leaves to be the most used part for drug preparation is that it is the most easily reached part of the plant.

Conclusions

In conclusion, this study has measured the EVM knowledge of the people living in the Mediterranean region of Turkey, which offers a very fertile research environment with its cultural and floral richness.

The obtained data has been found to be consistent with other studies in Mediterranean countries. This study is the first EVM study in the region. The local people's knowledge on medicinal plant used for animal health care, their ratios and their methods have been contributed to the literature.

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