

ORIGINAL RESEARCH

Ethnobotanical studies in the Maldan Village (Province Manisa, Turkey)

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ABSTRACT: Village of Maldan (400 m) lies in the north of Manisa on the Yunt Mountain (1075 m). According to Davis' Grid system the area is in the B1 square. In this study plants were collected from Maldan (Manisa) village between 2002–2003 years. At the end of flora studies 468 taxa belonging 70 families and 276 genera were identified. Ethnobotanical surveys were made in the same village. The researchers interviewed people in village. A total of 77 different usages of wild plants were recorded in the study area. Out of 468 plant taxa commonly present, 68 plant taxa (14,5%) are used for medicinal, foodstuff, fodder, dye and miscellaneous purposes. Most used families were Asteraceae, Lamiaceae, Rosaceae, Brassicaceae and Apiaceae. These plants are mainly used against for the stomach and digestive disorders (24,6 %), as food (10,4 %), for preventing cancer (10,4 %), against the skin diseases and injurie (7,8 %).

KEY WORDS: Ethnobotany, Maldan, Manisa, Turkey.

INTRODUCTION

Turkey is one of the richest countries in the world in terms of plant diversity. Up to date approximately 10,500 plant species have been identified within its borders and 30 % of these are endemic (1, 2, 3). Previous research has identified about 423 plant taxa, of which 3,78 % are endemic, in Manisa province at Yunt Mountain, (4). Yunt Mountains surrounded north of Manisa. The province of Manisa is located in the western part of Aegean region in Anatolia and phyto-geographically located on the Mediterranean region and falls within the B2 grid square according to the grid classification system developed by Davis. Maldan village is situated on Yunt Mountain which is between İzmir and Manisa province (38° 50' 43.14" N, 26° 16' 48.52" E). The elevation of its land varies from 325 to 617 m (Figure 1). Although the annual mean temperature is 16,8 °C, temperatures may vary from 10,7 °C to 34,7 °C. It represents "cool temperate, sub-humid", Mediterranean climate types, with annual drought summer periods, between

May-September. Its total population was 1100 in the year 2002. The main occupations of the villagers are farming and animal husbandry. Traditional ethnobotanical knowledge, pharmacopoeia and prevalence of medicinal plants has been investigated in different areas of Turkey (5, 6, 7,8, 9). Some ethnobotanical studies were carried out in regions close to the research area (10, 11, 12,13, 14,15). Uğurlu and Seçmen (10) studied medicinal plants of Yunt mountain villages. But Maldan village wasn't explored.

The aim of this ethnobotanical study is to collect systematic information about the still existing ethnobotanical usages in Manisa province, Maldan village before they are completely lost.

MATERIALS AND METHODS

Collecting plant materials

The study was carried out during 2002-2003 years. Field study was carried out over a period of approximately two years. During this period, a total of 468 vascular plant specimens were col-

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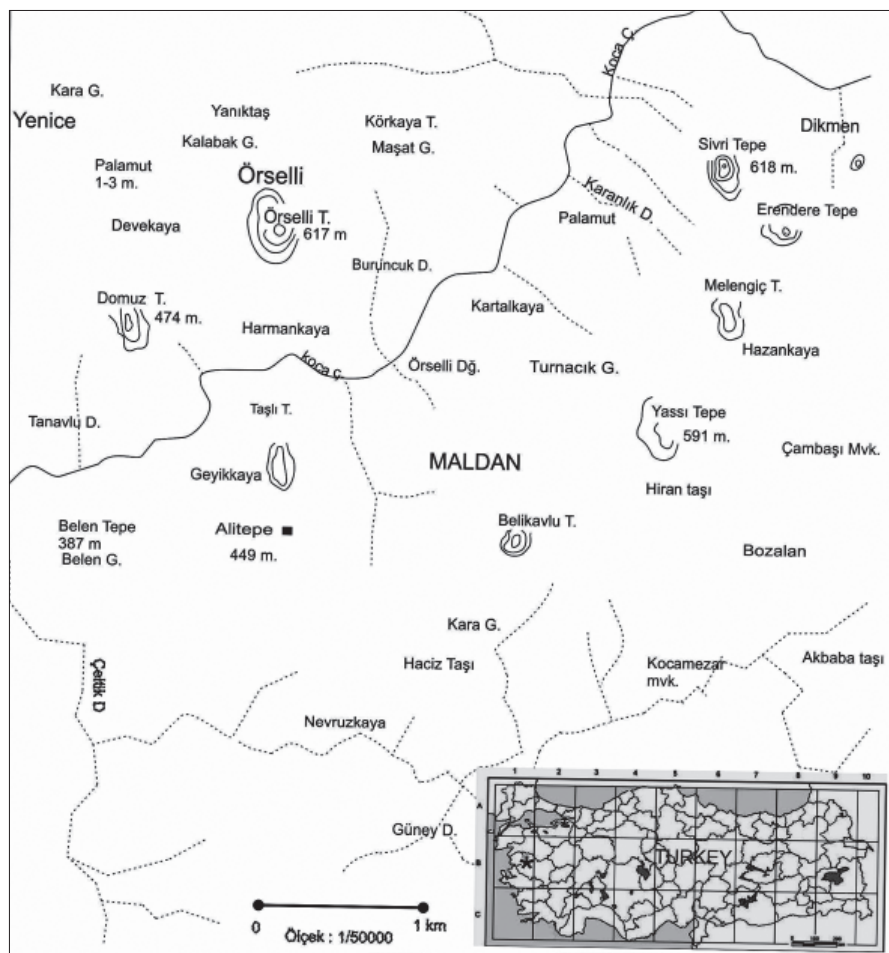


FIGURE 1.* The map of the study area

lected in Maldan village. The plants were pressed in the field and prepared for identification. Plants were identified by using the standard text, "Flora of Turkey and the East Aegean Islands" (1,2) and were compared with the specimens in Ege University Herbarium (EGE). Identified plants were retained in EGE. Then interviewing were done with local people.

Interviewing with local people

A questionnaire was administered to the local people, through face to face interview. It was asked for the person's name, surname and age. It also asked for them "What is the local name of the plant used? For which diseases do you use the plant? Which parts of the plant do you use? How do you prepare the plant for use?" Information was collected from both the elderly and the young and from both men and women. Furthermore, the participants were asked to show the researchers these wild plants in the field.

RESULTS AND DISCUSSION

As a result of the study, 468 vascular plants were collected in Maldan village. According to the interview with local people, 68 plant taxa (14,5%) used to for various purpose were identified. These plants are presented in Table 1 arranged in botanical names, with the relevant information such as family, local name, parts used, use application and uses.

According to table plants belonging to Asteraceae family have got the highest use (8 species). Lamiaceae is represented by

seven species. These are followed by Rosaceae, Brassicaceae and Apiaceae. At studies in close regions have reached similar conclusions. In previous studies Asteraceae, Lamiaceae, Liliaceae (10), Asteraceae, Liliaceae, Lamiaceae, Rosaceae in Alaşehir (14), Lamiaceae, Asteraceae, Fabaceae, Rosaceae, Apiaceae at İzmir province (13) were more.

Maldan village has a wide range of local food culture. Some plants are used as food, that are sold in Manisa markets. These plants: *Lepidium sativum* L. subsp. *spinescens* (DC.) Thell, *Portulaca oleracea* L., *Rumex tuberosus* L. subsp. *tuberosus*, *Malva sylvestris* L., *Scolymus hispanicus* L, *Urtica urens* L. *Tamus communis* L. subsp. *communis*.

Some plants are sold as a dried. These plants can be consumed as tea. Some of these are *Anthemis cotula* L., *Stachys cretica* L. subsp. *smyrnaea* Rech., *Origanum onites* L., *Thymus zygioides* Griseb. var. *lycaonicus* (Celak.) Ronniger, *Mentha suaveolens* Ehrh., *Salvia tomentosa* Miller.

At six different areas close to our study area local plant names and uses are compared with our study in Table 2. According to table there are similarity at local plant names and uses.

As a result of the species usages, 19 species (24,6 %) are used against the stomach and digestive disorders, 8 species (10,4 %) as food, 8 species (10,4 %) as prevent cancer, 6 species (7,8 %) against the skin diseases and injuries, 4 species (5,1 %) against the short-

TABLE 1. Useful Plants in Maldan Village

Family and Scientific names	Local name	Parts used	Preparation	Uses
<i>Alcea pallida</i> Waldst. & Kit. (Malvaceae)		Flowers	Infusion	To cure cough
<i>Alyssum murale</i> Waldst. & Kit. var. <i>murale</i> (Brassicaceae)	Nizamettin otu	Whole plant	Decoction	Against poisoning
<i>Amygdalus communis</i> L. (Rosaceae)	Badem	Fruits	The oil obtained by crushing and filtering	Shortness of breath
<i>Amygdalus webbi</i> Spach (Rosaceae)	Çalı	Stem	Decoction	Diarrhea
<i>Anthemis cotula</i> L. (Asteraceae)	Papatya	Flowers	Infusion	Getter and emenagog
<i>Aristolochia hirta</i> L. (Aristolochiaceae)	Mayasıl otu	Root	Crushed (+honey)	Expectorant and lung cancer
<i>Asphodelus aestivus</i> Brot. (Liliaceae)	Çırçıkamak	Whole plant	Fresh	Alum in animals
<i>Aurinia saxatilis</i> (L.) Desv subsp. <i>orientalis</i> (Ard.) T.R. Dudley (Brassicaceae)	Örselli çayı	Whole plant	Decoction	Stomach aches and gastric ulcers
<i>Ballota acetobulosa</i> (L.) Benth (Lamiaceae)	Köpek siği	Leaves	Crushed	To remove the umbilical cord for woman who gave birth
<i>Campanula lyrata</i> Lam. subsp. <i>lyrata</i> (Campanulaceae)	Tavuk ayağı	Fresh plant's root	Cook by peeling the root	Food
<i>Capsella bursa-pastoris</i> (L.) Medik. (Brassicaceae)	Horoz gübüvi	Fruit	Infusion	Romatoid artrit
<i>Centaurea solstitialis</i> L. subsp. <i>solstitialis</i> (Asteraceae)	Zerdali diken	Root	Decoction	Stomach aches
<i>Cistus creticus</i> L. (Cistaceae)	Pamukluk	Flowers	Infusion	Mouth sores in animals
<i>Crepis sancta</i> (L.) Bomm. (Asteraceae)	Düğmelik	Stem	Cooked	Digestive
<i>Dianthus pubescens</i> Sibth. & Sm. (Caryophyllaceae)	Gelincik	Flowers	Crushed and mixed	As an ointment for the newborn babies on the head.
<i>Dracunculus vulgaris</i> Schott. (Araceae)	El gabardan	Aerial parts	Decoction with olive oil	Hemorrhoids
<i>Ecballium elaterium</i> (L.) A. Rich. (Cucurbitaceae)	Eşek hiyarı	Fruits	Fruit juice	Sinusitis
		Root	Grated and boiled water	Cancer
<i>Eryngium campestre</i> L. var. <i>campestre</i> (L.) Hudson (Apiaceae)	Diken	Whole plant	Decoction	Stomach aches
<i>Euphorbia exigua</i> L. var. <i>retusa</i> L. (Euphorbiaceae)	Altın otu	Whole plant	Decoction	Stomach diseases
<i>Ferulago humulis</i> Boiss. (Apiaceae)		Root	Decoction	Cancer
<i>Ficus carica</i> L. subsp. <i>carica</i> (All.) Schinz et Thell (Moraceae)	İncir	Fresh fruits	Squeezed	Scorpion bites
<i>Geranium rotundifolium</i> L. (Geraniaceae)	İğnelik, Leylek türmi	Whole plant	Eaten by boiling	Digestive, constipation and worm reducer
<i>Herniaria hirsuta</i> L. (Illecebraceae)	Sabunotu	Whole plant	Lathered with water	To injuries on the hands
<i>Hordeum murinum</i> L. subsp. <i>glaucum</i> (Steudel) (Poaceae)	Tilki kuyruğu	Whole plant	Infusion	Urinary tract infections for children
		Seed	Vapors are inhaled	Typhoid
<i>Hypecoum imberbe</i> Sm. (Papaveraceae)	Kokola	Whole plant	Boiled in water	Digestive
<i>Hypericum perforatum</i> L. (Hypericaceae)	Goğaç	Aerial parts	Boiled in water	Stomach aches
<i>Juniperus oxycedrus</i> L. subsp. <i>oxycedrus</i> (Cupressaceae)	Ardıç	Root's bark	Root's bark are boiled and drunk	Cancer
<i>Lamium amplexicaule</i> L. (Lamiaceae)	Ballık otu	Whole plant	Decoction	Gastric ulcers and diabetes
<i>Lathyrus digitatus</i> (Bieb.) Fiori (Leguminosae)	Efenk otu	Aerial parts	Drunk by boiling	Diuretic
<i>Lepidium sativum</i> L. subsp. <i>spinescens</i> (DC.) Thell (Brassicaceae)	Tere	Leaves	Salad are made	For food
<i>Malva sylvestris</i> L. (Malvaceae)	Develik	Fresh stem and leaves	Boiled in water	Digestive
<i>Medicago orbicularis</i> (L.) Bart. (Leguminosae)	Düğmelik	Seeds	Infusion	Hearth diseases and shortness of breath
<i>Mentha suaveolens</i> Ehrh. (Lamiaceae)	Nane	Flowers	Decoction	Wool yarn dyeing pink color
<i>Mercurialis annua</i> L. (Euphorbiaceae)	Erkek sirkent	Whole plant	Cooked	For food
<i>Nerium oleander</i> L. (Apocynaceae)	Zakkum	Leaves and flowers	Decoction	Against scabies
<i>Olea europea</i> L. var. <i>europea</i> (Oleaceae)	Zeytin	Leaves	32 pcs olive leaves are boiled in water	Hearth diseases and shortness of breath
<i>Onopordum illyricum</i> L. (Asteraceae)	Kavaklı kenger	Seeds	Decoction	Stomach aches
<i>Origanum onites</i> L. (Lamiaceae)	Ak kekik	Aerial parts	Decoction	Digestive regulatory
		Leaves	Dried	As a spices
<i>Paliurus spina-christi</i> Miller (Rhamnaceae)	Çaltı diken	Matured fruits	Infusion	Kidney stones are used as reducing
<i>Pistacia terebinthus</i> L. subsp. <i>palaestina</i> (Boiss.) Engler. (Anacardiaceae)	Çitlenbik	Seed	Seed oil is obtain by crushing	Wounds
			10-15 pcs seeds are boiled	Shortness of breath
<i>Picnoman acarna</i> (L.) Cass. (Asteraceae)	Sarı diken	Leaves	Cooked	Digestive
<i>Plantago major</i> L. subsp. <i>intermedia</i> (Gilib.) Lange, Handb. (Plantaginaceae)	Kırkdamar otu	Leaves	Cooked	Cancer
			Grated, crushed and placed on affected area	Hemorrhoids
<i>Platanus orientalis</i> L. (Platanaceae)	Çınar	Seeds	Decoction	Cancer
<i>Portulaca oleracea</i> L. (Portulacaceae)	Semizlik	Whole plant	Roasted in oil	Constipation
<i>Prunus spinosa</i> L. subsp. <i>dasyphylla</i> (Schur) Domin (Rosaceae)	Yaban Eriği	Fruits	Crushed and placed on top of the abdomen	For the relief of pain due to diarrhea
<i>Quercus infectoria</i> Olivier subsp. <i>infectoria</i> (Fagaceae)	Çalı gubayı, Mazı çalısı	Nutgall	Crushed	Wounds
			Boiled in a cauldron	Wool yarn dyeing red color

TABLE 1. (Continued)

Family and Scientific names	Local name	Parts used	Preparation	Uses
<i>Quercus ithaburensis</i> Decne subsp. <i>macrolepis</i> (Kotschy) Hedge et Yalt. (Fagaceae)	Palamut Meşesi	Fruits	Boiled in a cauldron	Wool yarn dyeing brown color
<i>Rhus coriaria</i> L. (Anacardiaceae)	Sumak	Fruits	Dried and crumbled	As a spices
<i>Rosa canina</i> L. (Rosaceae)	Delice gül	Fruits	Infusion	Diabetes
<i>Rubus sanctus</i> Schreber (Rosaceae)	Kör üzüm	Fruits	Dried	As a spices
<i>Rumex tuberosus</i> L. subsp. <i>tuberosus</i> (Polygonaceae)	Eksiçik	Leaves	Salad are made	Antipyretic
<i>Ruscus aculeatus</i> L. var. <i>angustifolius</i> Boiss. (Liliaceae)	Tilki üzümü	Fruits	Crushed and turned into a ointment	Pains
<i>Ruta montana</i> (L.) L. (Rutaceae)	Sitma otu	Stem	Decoction	Malaria
<i>Salvia tomentosa</i> Miller (Lamiaceae)	Adaçayı	Aerial parts	Decoction	Stomach ache and diabetes
<i>Scandix pecten-veneris</i> L. (Apiaceae)	Pancar otu	Aerial parts	Tea is made	Getter
<i>Scolymus hispanicus</i> L. (Asteraceae)	Şevketi bostan	Root	freshly peeled	Lung cancer
		Aerial parts	Cooked	As food
<i>Sonchus oleraceus</i> L. (Asteraceae)	Eşek helvası	Stem	Cooked	As food
<i>Sinapis alba</i> L. (Brassicaceae)	Hardal	Whole plant	Boiled in water	Stomach aches
<i>Stachys cretica</i> L. subsp. <i>smyrnaea</i> Rech. Fil. (Lamiaceae)	Çay gayfası	Aerial parts	Decoction	Stomach aches
	Kuşotu	Shoot and leaves	Crushed and are placed on wounds	Treatment of injuries
			Boiled and filtered	Gastric ulcers and constipation
<i>Stellaria media</i> (L.) Vill. subsp. <i>media</i> (Caryophyllaceae)		Whole plant	Decoction	Emenagog and gonore
<i>Tamarix hampeana</i> Boiss. & Heldr. (Tamaricaceae)		Young shoots	Cooked	As food
<i>Tamus communis</i> L. subsp. <i>communis</i> (Dioscoraceae)	Sarmaşık	Leaves and flowers	Tea	Stomach aches
<i>Thymus zygoides</i> Griseb. var. <i>lycaonicus</i> (Celak.) Ronniger (Lamiaceae)	Pembe kekik			
<i>Turgenia latifolia</i> (L.) Hoffm. (Apiaceae)	Arpacık	Fresh stem and leaves	Cooked	Digestive
<i>Tragopogon longirostris</i> Bisch. ex Schultz var. <i>longirostris</i> (Asteraceae)	Keçi sakalı	Aerial parts	Cooked	As food
<i>Urtica urens</i> L. (Urticaceae)	Isırgan	Leaves	Patty "Bazlama" is done	As food
		Aerial parts	Cooked	Cancer
<i>Verbascum sinuatum</i> L. var. <i>sinuatum</i> (Scrophulariaceae)	Balık otu	Whole plant	Thrown in the river	Makes it easy to hunt fish
<i>Vitex agnus – castus</i> L. (Verbenaceae)	Hayıt	Seed	Decoction or gulped	To cough

TABLE 2. Comparison of the local plant names and their uses in close areas.

Scientific name	Research areas and reference numbers						
	Villages of Yunt Mountain (10)	West Anatolia (11)	Balıkesir (Gönen) (12)	İzmir (13)	Alaşehir (14)	Balıkesir, Edremit Gulf (15)	Maldan Village
	Local name – Uses						
<i>Cistus creticus</i>	-	Pamukotu-Hemostatic	Pamuklar otu- Snakebites Burns, Wounds	-	-	Pamukluk, Pamuklu, Pamukla, Tavşanak Abdominal pain getter, Diabetes, Hemostatic	Pamukluk- Mouth sores in animals
	Local name – Uses						
<i>Ecballium elatarium</i>	Cirtatan, Acidüvelek, Eşek hiyari, Sinusitis	Cirtatan, Şeytan keleşi, Cirtağu-Sinusitis, Jaundice	Şeytan keli, Şeytan keleşi, Eşek hiyari- Hepatitis	Eşek hiyari- Sinusitis, Hepatitis, Earache	Eşek hiyari, Şeytan keleşi, Acı dülek- Earache	Acidüvelek, Deli kavun, Cirtatan-Sinusitis, Rheumatism, Hemorrhoids, Eczama	Eşek hiyari-Sinusitis
	Local name – Uses						
<i>Ficus carica</i>	İncir- Wart	Babaincir- Scorpion bite	İncir Ağacı-Eczema, Hemorrhoids	İncir- Warts	İncir- Warts	İncir, Yemiş- Warts, bee and insect bites	İncir-Scorpion bites
	Local name – Uses						
<i>Malva sp.</i>	(<i>M. sylvestris</i>) Develik, ebegümeci- Stomachache	(<i>M. neglecta</i> Wallr) Ebegümeci, Adaygütü- Abdominal pain, bruises	(<i>M. nicaensis</i> All.) Ebegümeci, Digestive, Analgesic	(<i>M. sylvestris</i>) ebegümeci- Astringent, Expectorant, Diuretic, Sedative, Wounds, Furuncle	(<i>M. sylvestris</i>) ebegümeci- Wounds, Furuncle	(<i>M. sylvestris</i>) Ebegümeci, Develik, Kedigözü-Aphthae, Abdominal pain	(<i>M. sylvestris</i>) Develik-Digestive
	Local name – Uses						
<i>Paliurus spina-christi</i>	Çaltı pulu, kara çalı- Stomachache	-	Çaltı diken- Cystitis	Karaçalı-Diarrhea, Gastritis, Diuretic, Wounds, Furuncle	Karaçalı, öküzgözü- Wounds, Furuncle	Çaltı, Karaçalı, Çaltı kozalağı- Stomach ache, blood depurative, acne, cold, flu, asthma, carmanative	Çaltı diken- Diminishing kidney stones
	Local name – Uses						
<i>Urtica sp.</i>	(<i>U. dioica</i> L.) Isırgan- Rheumatism, Urinary system diseases	(<i>U. dioica</i> L.) Isırgan- t o stop bleeding	(<i>U. dioica</i> L.) Isırgan- Hemostatic, Prophylactic, Hemorrhoids, Ulcers, Rheumatism Kidney stones, Epistaxis.	(<i>U. dioica</i> L.) Isırgan- Stomachache, Hemorrhoids, Diarrhea, Appetizer, Hemostatic	(<i>U. dioica</i> L.) Isırgan, Gidişken-, Rheumatism, Skin diseases	(<i>U. dioica</i> L.) Isırgan, Gidişken, Yandırgan- Cancer, Hemorrhoids, Baldness	(<i>U. urens</i>) As food, cancer
	Local name – Uses						
<i>Scolymus hispanicus</i>	Şevketibostan- Diuretic, ulcer, goiter	-	-	Şevketibostan- Nephritis, Diuretic, Digestive, Choleric,	Şevketibostan- Hemostatic	Akkız, Ak diken, Tellî gömlek- Kidney and gall stones	Şevketi bostan-For lung cancer, as food
	Local name – Uses						
<i>Dracunculus vulgaris</i>	El gabardan, gabardan, yılan biçacağı- Hemorrhoids	Yılan biçacağı- against rheumatic pain.	Yılan biçacağı, Yılan cücüğü- Hemorrhoids	-	-	Yılan birçağı, Köpeksiyen- Hemorrhoids, Carminative (for animal)	El gabardan- Hemorrhoids

ness of breath, 3 species (3,9 %) as spices, 3 species (3,9 %) against the urological disorders, 3 species (3,9 %) for dyeing wool yarn, 3 species (3,9 %) against the obstetric and gynaecological disorders, 2 species (2,6 %) against the cough, 2 species (2,6 %) against the diarrhea, 2 species (2,6 %) against the diabetes, 2 species (2,6 %) for hemorrhoids and other 12 species (15,5 %).

Because of distance from the city center and the socio-economic conditions of the villagers still use plants as a medicinal product. It is important to document the valuable information. Because of the transmission of knowledge from the old to the new generation is declining.

Maldan Köyü (Manisa, Türkiye)'nde etnobotanik çalışmaları

ÖZET: Maldan köyü (400 m) Manisa'nın kuzeyinde bulunan Yunt Dağları (1075 m)' nda yer almaktadır. Alan Davis'in kareleme sistemine göre B1 karesinde bulunmaktadır. Çalışma alanından bitkiler 2002-2003 yılları arasında toplandı. Floristik çalışmalar sonucunda 70 familya, 276 cinse ait 468 bitki taksonu tanımlandı. Etnobotanik çalışmalar da aynı köyde gerçekleştirildi. Araştırmacılar halkla görüşerek bu köyde doğal yayılış gösteren bitkilerden 77 farklı kullanım tespit etmişlerdir. Flora çalışmalarında tespit edilen 468 bitki taksonununun 68 (%14,5)'i tıbbi, yiyecek, yem, boya ve çeşitli amaçlar için kullanılmaktadır. En çok kullanımı olan bitki familyaları Asteraceae, Rosaceae, Lamiaceae, Brassicaceae ve Apiaceae'dir. Bu bitkiler başlıca mide ve sindirim bozukluklarına karşı (% 24,6), yiyecek olarak (% 10,4), kanser önleyici (% 10,4), deri hastalıklarına ve yaralanmalara karşı (% 7,8) kullanılmaktadır.

ANAHTAR SÖZCÜKLER: Etnobotanik, Maldan, Manisa, Türkiye.

REFERENCES

1. Davis PH. Flora of Turkey and the East Aegean Islands. Vol 1-9, Edinburgh Univ Press, Edinburgh. 1965-1985.
2. Davis PH, Mill RR, Tan K. Flora of Turkey and East Aegean Islands. Vol. 10. Edinburgh Univ Press, Edinburgh. 1988.
3. Davis PH, Güner A, Özhatay N, Ekim T, Başer KHC. Flora of Turkey and the East Aegean Islands. Vol. 11, Edinburgh Univ Press, Edinburgh. 2001.
4. Şık L. Yunt Dağı (Manisa) Flora ve Vejetasyonu Yüksek Lisans Tezi. Ege Üniversitesi Fen Bilimleri Enstitüsü 1992.
5. Baytop T. Türkiye'de Bitkiler ile Tedavi. Nobel Tıp Kitabevi, İstanbul. 1999.
6. Tuzlacı E, Erol MK. Turkish folk medicinal plants. Part II: Eğirdir (Isparta). *Fitoterapia* 1999; 70: 593-610.
7. Sezik E, Yeşilada E, Honda G, Takaishi Y, Takeda Y, Tanaka TJ. Traditional medicine in Turkey IX. Folk medicine in North-West Anatolia *J Ethnopharmacol* 2001;75: 95-115.
8. Koyuncu O. Geyve (Sakarya) ve Çevresinin Floristik ve Etnobotanik Açısından İncelenmesi, Doktora Tezi Eskişehir Osman Gazi Üniversitesi Fen Bilimleri İtüsü, Eskişehir. 2005.
9. Gençler Özkan M, Koyuncu M. Traditional Medicinal Plants Used in Pınarbaşı Area (Kayseri-Turkey). *Turk Pharm Sci J* 2005; 2: 63-82.
10. Ugurlu E, Secmen O. Medicinal plants popularly used in the villages of Yunt Mountain (Manisa-Turkey). *Fitoterapia* 2008; 79:126-31.
11. Honda G, Yesilada E, Tabata M, Sezik E, Fujita T, Takeda Y, Takaishi Y, Tanaka T. Traditional medicine in Turkey VI. Folk medicine in West Anatolia: Afyon, Kütahya, Denizli, Muğla, Aydın provinces. *J Ethnopharmacol* 1996; 53:75-87.
12. Tuzlacı E, Aymaz PE. Turkish folk medicinal plants, Part IV: Gönen (Balıkesir). *Fitoterapia*. 2001; 72: 323-43.
13. Ugulu İ, Baslar S, Yorek N and Dogan Y. The investigation and quantitative ethnobotanical evaluation of medicinal plants used around Izmir province, Turkey. *J Med Plants Res* 2009; 3:345-67.
14. Ugulu İ. Traditional ethnobotanical knowledge about medicinal plants used for external therapies in Alasehir, Turkey. *Int J Med Arom Plants* 2011; 1829:101-6.
15. Polat R, Satıl F. An ethnobotanical survey of medicinal plants in Edremit Gulf (Balıkesir - Turkey). *J Ethnopharmacol* 2012; 139: 626-41.