Investigation of medicinal plants used for weight loss in herbal markets of Şanlıurfa, birth place of Abraham, Turkey

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Abstract
This study was carried out in order to investigate the medicinal plants sold for weight loss in Şanlıurfa between 2018 and 2019 years. Interviews were conducted with 55 informants and their age and educational status were also determined. According to this, the average age of about 55 herbal sellers is 45 (in 21–60 years range). Of the 55 informants, 14 are between the ages of 21–38 (25.45%), 23 are between ages of 40-50 (41.82%), and 18 are between the ages of 53-60 (32.72%). Education levels, on the other hand, were found to be primary and secondary school graduates. Educational status is the most high school graduate with a rate of 43.63%, 30.90% primary, 16.36% secondary and 9.11% are university graduates. As a result of the research carried out in the herbal sellers in Şanlıurfa, 40 taxa belonging to 23 families and 39 genera were obtained for weight loss. The most taxa-bearing families are Lamiaceae 5 (12%), Apiaceae 4 (10%) and Asteraceae 3 (7%). In addition, the contents of 25 compounds sold for weight loss were determined. Local and scientific names of plants were determined. Photographs of plants and compositions of the researched herbal extracts were also taken.

Keywords: Herbal seller, phytotherapy, sanliurfa, obesity, weight loss

Introduction
This study was carried out to investigate the medicinal plants sold for weight loss at the herbal markets of Şanlıurfa, south-east Anatolia. Southeastern Anatolia Region has an area of 59,176 km² and is the second smallest region of Turkey. Şanlıurfa is known in ancient times as Edessa, is a city with a population of over 2 million residents in south-eastern Turkey. It is a multi-ethnic city with a Turkish, Kurdish, and Arab population. It is situated on a plain about eighty kilometres east of the Euphrates River. Şanlıurfa, according to Jewish and Muslims, is the birth place of Abraham. Today, the number of plant species on earth is considered to be between 250,000-500,000. According to WHO records, a large part of the world population (70-80%) uses "traditional medicine" for treatment or prevention. The medicinal plant species used for this purpose is estimated to be around 70,000. 21,000 plant species have been found suitable for drug preparation [1]. Turkey has a wide variety of plants used for medicinal purposes. It has been determined that up to 600 species of medicinal plants grow naturally. The plants played very important role in human life in Turkey. Turkey's flora, in terms of species richness, is among the few countries in the world. In Turkey, there are 167 families, 1320 genera, 9996 species, 1989 subspecies and a total of 11707 taxa. 3649 taxa of plant diversity. The plants and compositions of the researched herbal extracts were also taken.

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and eating habits.[7,8] A study conducted in the United States states that the widespread eating disorders have increased significantly in the past 20 years. In addition, more than 90% of such eating disorders are seen in women.[9]

The plants commonly used in weight loss regimens and diets are preferred as tea and are named as “herbal teas”[10]. Herbal teas (medicinal teas) are defined in the European Pharmacopoeia as: “Orally used aqueous preparations prepared by maceration, decoction and infusion of one or more drugs, they are prepared before use”[11]. It has become popular due to its much lower side effects.

Today, Anatolian people, who still have not lost their faith in herbal medicines, go to the doctor and apply the diagnosis and treatment of modern medicine, as well as using the herbs they receive from herbal sellers in some diseases as a preventative and therapeutic[12]. In almost every region of Turkey, especially information about medicinal herbs, has transferred from generation to generation[13]. Recently the Regulation on Traditional and Complementary Medicine practices has been published by the Ministry of Health in Turkey. With this latest regulation published by the Ministry of Health, it is seen that it aims to fill the gaps in the field of traditional and complementary medicine, and to prevent practices by unauthorized persons and without indications.

In Turkey, the herbal sellers known as “Aktar (herb seller)”, used for the group of traders who provide the materials required in drug production comes from the word “akarit”, which means drugs in Arabic[14]. Also known as “Aktar” or “Attar” during the Seljuks and Ottomans, they sell animal and mineral drugs as well as herbal drugs[14]. Aktar, which is one of the most important milestones of folk medicine as a result of many years of experience, has lost its effective value and turned into establishments that sell only medical herbs and spices[15]. The number of real herbal sellers that have turned into spice shop nowadays has decreased significantly[16]. However, despite all these developments, the so-called “Spice Shop” or “Aktar Shop” is an indication that a part of the public continues to prepare their medicines in their own kitchen with the pieces of plants they bought for treatment purposes[16]. People use the medicinal plants they receive from herbal sellers individually, as a mixture or in ready mixes, without questioning the thought that they are completely natural and harmless[17]. However, contrary to what is known, treatment with medicinal plants is an important issue that cannot be entrusted to spice makers since it can have harmful side effects in medicinal plants[18]. Since the various organs of the plant, which are defined as herbal drugs, contain different active substances that do not resemble each other, people who are interested in medicinal plants should at least have some basic information about the structure, organs and functions of these organs. It should be well known which method, which plants, and in what proportions to use. Otherwise, it should be remembered that negativities that may result in death may be encountered[18]. The aim of this study to determine the plants sold for weight loss purposes in herbal markets, to determine their local and scientific names, to investigate of whether there are any side effects of plants used for weight loss, to inform the public correctly, to compile the scientific studies related to herbal treatment on weight loss and to look at the latest state of legal regulations on phyotherapy in Turkey.

This study is important in terms of determining treatment methods in the field of traditional and complementary medicine against constipation, obesity and overweight in the region. Regarding weight loss, very fatal cases have been happening lately and our people are misguided through the media, there is a need to inform the public correctly for natural treatment.

We believe that this study will fill a gap in the field of phyotherapy for weight loss.

Some of the researches related to medicinal plants and weight loss in the literature searches are[8, 12, 15, 18, 19-42].

**Methodology**

**Study area**

In this study, wild and cultivated plants sold in herbal sellers in Şanlıurfa, were investigated between 2018 and 2019 years. Şanlıurfa is located in the Middle Euphrates department of the Southeastern Anatolia region. Şanlıurfa province is located at Turkey with the gps coordinates of 37° 9’ 29.9988” N and 38° 47’ 30.0048” E. Provincual population as of the end of 2020: 2,073,614. The area of the province is 19,242 km² and at an average of altitude of 500 m above sea level[43]. Herbal sellers were visited periodically for the determination of medicinal plants sold for weight loss in districts of Birecik, Bozova, Ceylanpinar, Eyyübiye, Halliylie, Hilvan, Karaköprü, Siverek, Suruç and Viranşehir, Şanlıurfa, Turkey (Figure 1). It is a city where different ethnic people, especially Turkish, Kurdish, Arab and Zaza, live together in brotherhood.

The economic activities of the city are mainly agriculture, animal husbandry and tourism. The city has great importance and potential as a tourism destination in Turkey especially for faith tourism. A total of 850,000 tourists visited the city, known for its colorful bazaars, historic mosques and Göbeklitepe, which has been dubbed the world’s oldest temple complex and was built around 9500 B.C. [43]. The World’s First Temple, Göbeklitepe, a pre-historic site, about 15 km away from the city of Şanlıurfa, has been discovered recently. Göbeklitepe was inscribed on the UNESCO World Heritage Sites List in 2018. Göbeklitepe is located in Upper Mesopotamia, a region which saw the emergence of the most ancient farming communities in the world. Research shows that the ancestor of wheat, an important cultural herb, was grown in this region. The biggest indicator of this are the einkorn grains, a wild wheat species, which were found in the soil of the Göbeklitepe. Other plant residues identified in the area are wild species of almonds and groundnuts[43].

It is a very old and one of the most beautiful cities of the eastern Turkey. It was initially named Edessa. With a history of 12,000 years, Şanlıurfa, thought by some to be the ancient city of Ur, birth place of prophet Abraham, proudly exhibits the legacy of all the civilisations that have prospered in the region. The city was originally called Urfa but later awarded the title “Şanlı”, or “glorious”, for the role it played during the Turkish War of Independence in the 1920s.

**Climate and Vegetation**

**Climate:** Şanlıurfa generally has a terrestrial climate, summers are very dry and hot, winters are rainy and relatively warm. The province of Şanlıurfa enters the “semi arid” climate region of the Mediterranean climate region[64]. According to the latest data, the average annual temperature in the province of Şanlıurfa is 18.7 °C, the average temperature is 39.4 °C in July and the average low temperature is 3.2 °C in January. The average annual rainfall is 457.8 mm.

**Vegetation:** 60% of the soil consists of cultural areas and 38% consists of meadows and pastures. The forest and shrub rate is very insufficient and it is 0.6%. There are also mountain slopes, stream edges, high places, forests and bushes. Forest
residues such as Quercus L. (oak), menengic plant (Pistacia terebinthus L.), Populus L (poplar), Pistacia khinjuk Stocks (wild pistachio tree), Salix L. (willow) and Crataegus L. (hawthorn) are found on a provincial basis. In general, there are steppe-looking natural areas in herbaceous form. In spring, chamomile (Anthemis spp.), Crocus (Crocus spp.), Violet (Viola spp.), Poppy (Papaver spp.), Buttercups (Ranunculus spp.), Kandamla (Adonis spp.), Ballues (Lamium spp.), Plants such as mullein berries (Verbascum spp.), thistles (Cirsium spp., Carduus spp.), lovers (Astragalus spp.), shepherd's pads (Acantholimon spp.), cornflowers (Centaurea spp.) and Hazeran (Delphinium spp.). Plant associations formed especially with the abundance of Poaceae (Poaceae) and Fabaceae (Legumes) are characteristic [45].

Plant materials and data
This study was carried out for the determination of medicinal plants sold in Şanlıurfa towns for the purpose of weight loss. Herbal sellers in Şanlıurfa were visited periodically, and notes about the names and usage areas of plants and compositions were obtained during the studies. Fifty-five herbal sellers were randomly chosen taking into account the easiness of contact and asked about losing weight plants by interview. All herbal sellers were informed about the aim of the study. All herbal sellers were purchased and identified. Photographs of plants sold for weight loss were taken in herbal markets. Latin names, local names and compositions of the plants have also been revealed through this research. In addition, in this study, the ingredients, manufacturers and usage purposes of medicinal plants have been determined.

The points to be considered during the herbal sellers visits were:
1. Is the sale of plants open or packaged
2. Storage conditions of plant
3. Whether there are any products sold other than medicinal plant
4. Whether the herbal sellers have experience
5. Whether the plants sold are labeled

Botanical identification
Plant samples sold in herbal sellers were used as material and their scientific identification was made. Support was received from expert academicians for plant samples that were difficult to identify. The number of the collector were given to plant samples. They were determined at family, genus and species level. The ethno-botanical literature were cited as originally as possible, to express and describe the folk use. All reported medicinal species were identified with the help of the available literature and Flora books, such as Flora Turkey [2–3]. The plant specimens were prepared and processed according to the plant taxonomic method [46]. The plant samples obtained in the research are stored in herbarium of Harran University Faculty of Arts and Sciences (HARRAN). In this study, scientific names of plant species were checked for accuracy according to The Plant List database (www.theplantlist.org).

Demographic characteristics of participants
Our research was conducted in 40 herbal sellers shops selected from different districts. These districts are Birecik,
Bozova, Ceylanpınar, Eyyübiye, Haliliye, Hilvan, Karaköprü, Siverek, Suruç and Viranşehir, Şanlıurfa, Turkey. The name, age and educational status of the informants are determined. Details of the informants were recorded via face-to-face interviews. The average age of about 55 herbal sellers is 45 (in 21–60 years range). Of the 55 informants, 14 are between the ages of 21-38 (25.45%), 23 are between ages of 40-50 (41.82%), and 18 are between the ages of 53-60 (32.72%). Education levels, on the other hand, were found to be primary and secondary school graduates. Educational status is the most high school graduate with a rate of 43.63%, 30.90% primary, 16.36% secondary and 9.11% are university graduates. Questions included in the ethnobotaical Information forms are:

a) Which plants that are used for weight loss
b) Local names given to the plant
c) Use of the plant
d) Which parts of the plant are used

Herb sellers were randomly chosen taking into account the easiness of contact and asked about loosing weight plants by interview. General images of the herbal sellers determined in the research area in Figure 2, Figure 3 and Figure 4.

Results

The information given in this study is the compilation information obtained as a result of interviews with Aktars (herb seller) in Şanlıurfa. Do not use it in all your diseases without consulting a doctor.

The findings of our study, plants and compounds (mixtures) sold for weight loss at herbal sellers in Şanlıurfa is summarized in Table 2 and Table 3.

| Botanical name and voucher specimen | Family | Vernacular name (Turkish) | Utilization Method | Parts used | Use |
|-------------------------------------|--------|---------------------------|-------------------|------------|-----|
| *Petroselinum crispum* (Mill.) AW. Hill AA 1075 | Apiaceae | Maydanoz | Infusion | Above ground parts | Fat burning, Belly melting property, weight loss |
| *Coriandrum sativum* L. AA 1014 | Apiaceae | Ayotu, Kazbere, Kezbera | Infusion seeds are brewed crushed | Seed | Weight loss, Secretions of the stomach |
| *Foeniculum vulgare* Mill AA 1011 | Apiaceae | Rezene | Infusion Seeds added to the compositions | Fruits, Seeds | Increasing breast milk, Weight loss |
| *Pimpinella anisum* L. AA 1025 | Apiaceae | Anason | Decoction | Fruits, seeds | Burn belly fat, Weight loss |
| *Ilex paraguariensis* St. Hill. AA 1009 | Aquifoliaceae | Mate | Infusion | leaves | Weight loss |
| *Achillea oligocephala* DC. AA 1028 | Asteraceae | Civanperçemi | Decoction flower, above ground part, aromatic oil | Healing the pain of hemorrhoid, Weight loss |
| *Helichrysum orientale* (L.) DC. AA 1023 | Asteraceae | Altun Otu, Ölmez Çiçek, Sarısolma | Infusion Above-ground parts, flowering parts | Diuretic and Kidney diseases, weight loss |
| *Matricaria chamomilla* L. *chamomilla* AA 1001 | Asteraceae | Papatyı, mayys papatyı | Infusion flowers | Common cold, cough, Antipyretic, weight loss |
| *Chenopodium quinoa* Willd. AA 1074 | Chenopodiaceae | Kinoa | Infusion | Seed | Weight loss, speed up fat burning |
| *Juniperus communis* L. *communis* AA 1066 | Cupressaceae | Ardaç | Infusion fruit, aromatic oil, tincture, | Weight loss diuretic, strengthening the stomach |
| *Erica vulgaris* L. AA 102 | Ericaceae | Funda | Infusion | Leaves | Lower kidney Stones, weight loss |
| Plant Name                      | Family               | Part Used                          | Preparation              | Benefits                                                                 |
|--------------------------------|----------------------|------------------------------------|--------------------------|--------------------------------------------------------------------------|
| Cassia angustifolia L.          | Fabaceae             | Leaf, fruit                        | Infusion                 | Weight loss, accelerate metabolism, laxative                             |
| Cassia marnierlandica L.        | Fabaceae             | Leaf, fruit                        | Infusion                 | Weight loss, diuretic properties, lowering blood sugar                   |
| Mentha piperita L.              | Lamiaceae            | Leaf, fruit                        | Infusion                 | Common cold and flu, weight loss                                          |
| Cinnamomum verum               | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Weight loss, stimulating blood sugar                                    |
| Syzygium aromaticum             | Myrtaceae            | Leaf, fruit                        | Infusion                 | Rheumatic pain, skin nourishing Weight loss                              |
| Salvia hispanica L.             | Lamiaceae            | Leaf, fruit                        | Infusion                 | Weight loss, stimulating blood sugar                                    |
| Thymus fallax                   | Lamiaceae            | Leaf, fruit                        | Infusion                 | Common cold and flu, weight loss                                          |
| Rosmarinus officinalis L.       | Lamiaceae            | Leaf, fruit                        | Infusion                 | Common cough, weight loss, diuretic properties                           |
| Thymbra spicata                 | Lamiaceae            | Leaf, fruit                        | Infusion                 | Bronchitis and sinusitis diseases, weight loss                           |
| Cassia angustifolia             | Fabaceae             | Leaf, fruit                        | Infusion                 | Weight loss, stimulating blood sugar                                    |
| Rosmarinus officinalis          | Lamiaceae            | Leaf, fruit                        | Infusion                 | Prevent regional lubrication, weight loss                               |
| Prunus armeniaca               | Rosaceae             | Leaf, fruit                        | Infusion                 | Weight loss, is also said to keep sugar in balance                       |
| Ziziphus jujuba Mill.           | Rhamnaceae           | Leaf, fruit                        | Infusion                 | Prevent cholesterol and blood sugar, weight loss                         |
| Avena sativa L.                 | Poaceae              | Leaf, fruit                        | Infusion                 | Weight loss, helps in digesting                                          |
| Portulaca oleracea L.           | Portulacaceae        | Leaf, fruit                        | Infusion                 | Prevent cholesterol and balancing blood pressure, weight loss            |
| Nigella sativa L.               | Ranunculaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Vicia faba                     | Leguminosae          | Leaf, fruit                        | Infusion                 | Weight loss, is also said to keep sugar in balance                       |
| Aloe vera (L.) Burm.f.          | Xanthorrhoeaceae     | Leaf, fruit                        | Infusion                 | Weight loss, blood sugar regulating, cholesterol balancing               |
| Curcuma longa L.                | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Hormone balancer, urine enhancer, balancing blood pressure, cancer, diuretic properties, weight loss |
| Zingiber officinale L.          | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Common cough, stimulate stomach, remove toxins, weight loss              |
| Avena sativa L.                 | Poaceae              | Leaf, fruit                        | Infusion                 | Weight loss, is also said to keep sugar in balance                       |
| Laurus nobilis L.               | Lamiaceae            | Leaf, fruit                        | Infusion                 | Weight loss, stimulating blood sugar                                    |
| Persea americana Mill.          | Myrtaceae            | Leaf, fruit                        | Infusion                 | Weight loss, stimulating blood sugar                                    |
| Linum usitatissimum L.          | Lamiaceae            | Leaf, fruit                        | Infusion                 | Prevent regional lubrication, weight loss                               |
| Hibiscus sabdariffa L.          | Malvaceae            | Leaf, fruit                        | Infusion                 | Prevent regional lubrication, weight loss                               |
| Moringa oleifera Lam            | Moringaceae          | Leaf, fruit                        | Infusion                 | Prevent regional lubrication, weight loss                               |
| Zeygym aromaticum (L.) Merr. & Per AA 1026 | Myrtaceae       | Leaf, fruit                        | Infusion                 | Prevent cholesterol and balancing blood pressure, weight loss            |
| Eragrostis tet [Zucc. ] Trotter) AA 1063 | Poaceae              | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Zea mays L.                     | Poaceae              | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Portulaca oleracea L.           | Portulacaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| nigellina sativa L.             | Ranunculaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Frangula alnus Mill.            | Rhamnaceae           | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Zeiziphus jujaba Mill.          | Rhamnaceae           | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Prunus armeniaca L.             | Rosaceae             | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Rosa canina L.                  | Rosaceae             | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Camellia sinensis (L.) Kuntze AA 1002 | Theaceae          | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Tilia platyphyllos Scop. AA 1070 | Tiliaceae           | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Urtica dioica L.                | Urticaceae           | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Aloe vera (L.) Burm.f.          | Xanthorrhoeaceae     | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Curcuma longa L.                | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Zingiber officinale L.          | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Aloe vera (L.) Burm.f.          | Xanthorrhoeaceae     | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Curcuma longa L.                | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |
| Zingiber officinale L.          | Zingiberaceae        | Leaf, fruit                        | Infusion                 | Prevention of hypercholesterolemia, weight loss                          |

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Table 3: Plant compositions (mixtures), manufacturer Companies and contents, sold for weight loss in herb sellers in Şanlıurfa

| Name of Product | Manufacturer Companies | Content |
|-----------------|------------------------|---------|
| Mixed herbal tea of Alder Buckthorn (*Frangula alnus*) | Lokman Sena Sultan | Frangula alnus (seeds)  
Camellia sinensis (leaf)  
Ilex paraguaiensis (leaf)  
Rosmarinus officinalis (leaf)  
Thymus fallax (above ground)  
Erica vulgaris (leaf) |
| Mixed herbal tea of Tinnevelly senna (*Cassia angustifolia*) | Biorganix life | Salvia hispanica (seeds)  
Cassia angustifolia (leaf)  
Rosmarinus officinalis (leaf)  
Erica vulgaris (leaf)  
Thymus fallax (above ground)  
Lycium barbarum (fruit)  
Matricaria chamomilla (flowers)  
Foeniculum vulgare (seeds)  
Myrtus communis (leaf)  
Laurus nobilis (leaf) |
| Mixed herbal tea of Anise (*Pimpinella anisum*) | Ress Dermolife | Pimpinella anisum (seeds) |
| Mixed herbal tea of alligator pear (*Persea americana*) | Nursima | Persea americana (leaf)  
Achillea oligocephala (flower)  
Matricaria chamomilla (flower)  
Thymus fallax (leaf)  
Rosa canina (fruit)  
Fumaria officinalis (leaf) |
| Mixed herbal tea of White tea (*Camellia sinensis*) | Fito vision | Camellia sinensis (leaf)  
Citrus bergamia (leaf)  
Cinnamomum verum (shell)  
Syzygium aromaticum (fruits)  
Ilex paraguaiensis (leaf)  
Citrus x limon (shell) |
| Mixed herbal tea of rosemary (*Rosmarinus officinalis*) | Nursima | Rosmarinus officinalis (leaf)  
Erica vulgaris (leaf)  
Cassia marilandica (leaf)  
Thymus fallax (leaf)  
Salvia officinalis (leaf)  
Lavandula stoechas (flower)  
Melissa officinalis (leaf)  
Foeniculum vulgare (seeds)  
Rosa canina (fruit)  
Persea americana (leaf)  
Fumaria officinalis (leaf)  
Matricaria chamomilla (flowers)  
Achillea oliocepha (Flowers) |
| Mixed herbal tea of Yarrow (*Achillea oligocephala*) | Lokman Sena Sultan  
Nursima  
Fito vision | Achillea oliocepha (flowers)  
Urtica dioica (leaf)  
Cichorium endivia (above ground)  
Olea europaea (leaf) |
| Fantastic 4-mixed herbal tea | Esila | Hibiscus sabdariffa (flowers)  
Prunus domestica subsp. insititia (fruit)  
Prunus avium (fruit stalk)  
Camellia sinensis (leaf)  
Rhamnus saxatilis (fruit)  
Rhamnus frangula (shell)  
Erica vulgaris (leaf) |
| Mixed herbal tea of Phyto- L | Fitovision | Cassia marilandica (leaf)  
Erica vulgaris (leaf)  
Achillea oliocepha (flowers)  
Foeniculum vulgare (seeds)  
Rosa canina (fruit)  
Urtica dioica (leaf)  
Juniperus commnus subsp. communis (fruit)  
Betula pendula (leaf)  
Rhamnus frangula (shell)  
Prunus armeniaca (fruit) |
| Mixed herbal tea of Phytoform | Şiflahome | Ilex paraguaiensis (leaf)  
Camellia sinensis (leaf) |
| Mixed herbal tea of Goji berry (*Lycium barbarum*) | Mecitefendi | |
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|------------------------------------|------------------------------------|
| *Betula pendula* (leaf)            | *Rosmarinus officinalis* (leaf)    |
| *Lycium barbarum* (fruit)          | *Urtica dioica* (leaf)             |
| *Erica vulgaris* (leaf)            | *Beta vulgaris* (juice)            |
| *Glycyrrhiza glabra* (root)        | *Foeniculum vulgare* (seeds)       |
| *Panax ginseng* (roots)            |                                   |
| *Mentha piperita* (above ground)   |                                   |
| *Rosmarinus officinalis* (leaf)    |                                 |
| *Thymus fallax* (leaf)             |                                 |
| *Foeniculum vulgare* (seeds)       |                                 |
| *Zea mays* (crest)                 |                                 |
| *Cassia marilandica* (leaf)        |                                 |
| *Camellia sinensis* (leaf)         |                                 |
| *Cirrus × limon* (shelter)         |                                 |
| *Erica vulgaris* (flower)          |                                 |
| *Prunus avium* (stalk)             |                                 |
|                                   | *Prunus armeniaca* (fruit)        |
|                                   | *Rosmarinus officinalis* (leaf)    |
|                                   | *Camellia sinensis* (leaf)        |
|                                   | *Cassia angustifolia* (leaf)      |
|                                   | *Erica vulgaris* (leaf)           |
|                                   | *Urtica dioica* (leaf)            |
|                                   | *Juniperus communis* (fruit)      |
|                                   | *Tetraclinis articulata* (gum)    |
| *Fumaria officinalis* (leaf)       |                                 |
| *Myrtus communis* (leaf)           |                                 |
| *Laurus nobilis* (leaf)            |                                 |
| *Pimpinella anisum* (seeds)        |                                 |
| *Thymus fallax* (leaf)             |                                 |
| *Matricaria chamomilla* subsp. chamomilla* (flowers) |                                   |
| *Praunus avium* (stall)            |                                 |
| *Zea mays* (crest)                 |                                 |
| *Frangula alnus* (seeds)           |                                 |
| *Hlex paragquatensis* (leaf)       |                                 |
| *Tribulus terestris* (above ground)|                                 |
| *Camellia sinensis* (leaf)         |                                 |
| *Myrtus communis* (leaf)           |                                 |
| *Chenopodium quinoa* Willd. (seeds)|                                   |
| *Prunus avium* (stall)             |                                 |
| *Zea mays* (crest)                 |                                 |
| *Persea americana* (leaf)          |                                 |
| *Melissa officinalis* (leaf)       |                                 |
| *Erica vulgaris* (leaf)            |                                 |
| *Foeniculum vulgare* (seeds)       |                                 |
| *Cassia marilandica* (leaf)        |                                 |
| *Camellia sinensis* (leaf)         |                                 |
| *Rosmarinus officinalis* (leaf)    |                                 |
| *Hlex paragquatensis* (leaf)       |                                 |
|                                   | *Lycium barbarum* (fruit)        |
|                                   | *Salvia hispanica* (seeds)        |
|                                   | *Prunus armeniaca* (fruits)      |
|                                   | *Cassia marilandica* (leaf)      |
| *Moringa oleifera* (leaf)          | *Taraxacum officinale* (root)     |
| *Cinnamomum verum* (Shell)         | *Zingiber officinale* (underground part) |
|                                   | *Persea americana* (leaf)        |
|                                   | *Frangula alnus* (seeds)          |
|                                   | *Hlex paragquatensis* (leaf)      |
|                                   | *Prunus avium* (stall)            |
|                                   | *Arthrospira platensis* (powder)  |
|                                   | *Carnitin*                        |
|                                   | *Eragrostis tef* (seed)           |
|                                   | *Abelmoschus esculentus* (flowers) |
| Mixed herbal tea of Green tea (*Camellia sinensis*) | Fitovision | Camellia sinensis (leaf) |
| Mixed herbal tea of Zumba form | Patina | Rosmarinus officinalis (leaf) |
| Cassia marilandica (leaf) | Erica vulgaris (leaf) | Laurus nobilis (leaf) |
| Salvia hispanica (seeds) | Frangula alnus (seeds) | Lycium barbarum (fruit) |
| Prunus avium (stalk) | Melissa officinalis (leaf) | Prunus armeniaca (fruit) |

### Discussion

This study was conducted between 2018 and 2019 years. It is aimed to determine the herbal products sold for weight loss in the herbal seller in Şanlıurfa, Turkey. A total of 20 sources were interviewed for this study. It was determined that 40 plants and 25 mixtures belong to 24 families were sold for weight loss purposes. In addition, the content of the 25 plant compositions sold for weight loss, local companies and the scientific names of medicinal plants were determined.

The herbal sellers we interviewed include the herb sellers in the central districts of Haliliye, Eyyübiye and Karaköprü. The herbal sellers are concentrated in the Attar market in the Haşimiye region of Eyyübiye central district of Şanlıurfa, or in the Tenekeciler bazaar. When we think in the context of folk medicine, the first name that comes to our mind in Şanlıurfa is Attar Isa. He was the most famous among the herb sellers in the Haşimiye market. However, when he died later, his children and grandchildren took over this profession.

Demirkol Ticaret, Lokman Hekim Attar, the son of İsa, Güneş Attar, Dedeoğlu Gida, Aktar Halepli Ahmet, Harran Baharatcilik, Demirkol Akta, Saracı Attar, Aktar Abudrrahmanoğlu and Hacı Yusuf Attar are among the most well known herb sellers in the attar market bazaar in Haşimiye. In the central district of Haliliye; Bahçelevler Attar, Yenişehir attar Market, Yenişehir attar market, Plant Market, Reyhan Herbal, Karacabey Urfa bazaar. There is only one herb seller in Karaköprü district, it is the grandson of Attar Isa, the first attar of Urfa, and is the workplace named Attar Isa, named after his grandfather. Some of the medicinal plants are collected from the provinces throughout the city, while other common medicinal plants come from metropolitan cities such as Istanbul or from abroad.

According to our research, it has been determined that the medicinal plants sold in some herbal markets are usually packaged and prepared by specifying the dates of consumption as well as their production dates. In addition, it was observed that the plant content was also indicated on the packages. However, it has been observed that most plants sold for phytotherapy are in unpackaged and unhealthy conditions throughout the research shops. Different plants can be sold with the same name due to the name similarity in herbal markets. Lack of scientific names causes confusion.

Employees are not informed about the storage conditions of plants, where and how they are collected. For this reason, the herbal sellers and employees who are selling must be trained.

Turkey is in a very long history of professional herbal sellers, has an important place in our folk culture. Medicinal plants sold for weight loss in herbal markets in Şanlıurfa are sold legally under the name of food supplements or spices. However, the herbal drugs sold here were found to be out of control. Information such as scientific names, source, storage conditions, used parts, shelf life, and intended use of medicinal plants sold in herb sellers should be checked by the Ministry of Health.

In our study, the large families with the most taxa are; Lamiaceae 5, Apiaceae 4, Asteraceae 3, Lauraceae 3 and Poaceae 3 (Figure 5).
The average age of about 55 herbal sellers is 45 (in 21–60 years range). Of the 55 informants, 14 are between the ages of 21-38 (25.45%), 23 are between ages of 40-50 (41.82%), and 18 are between the ages of 53-60 (32.72%) (Figure 6).

Education levels, on the other hand, were found to be primary and secondary school graduates. Educational status is the most high school graduate with a rate of 43.63%, 30.90% primary, 16.36% secondary and 9.11% are university graduates (Figure 7).

Among other researches that are similar to our study [35, 48, 42, 49, 50].

Table 4: Comparison of our research with other related studies

| Results of the studies | Present study | Plants sold in Gaziantep herbal sellers [47] | Plants sold in Kahramanmaraş Herbal sellers [25] | Plants for Phytotherapy in Pharmacies in Şanlıurfa [42] |
|------------------------|--------------|---------------------------------------------|-----------------------------------------------|--------------------------------------------------|
| Family number          | 24           | -                                           | -                                             | 70                                               |
| Taxon number           | 40           | 122                                         | 178                                           | 144                                              |
| Number of preparations | 25           | -                                           | -                                             | 84                                               |
| Number of informant    | 20           | 30                                          | 17                                             | 61                                               |

As a result, although medicinal plant treatment, which is frequently used in the world, in European countries and in Turkey, has increased, it is developing day by day. As a solution to the problems in this regard, health teams should be emphasized and necessary information should be given to the public. Plants should not be used unconsciously and
uncontrolled both in diagnosis and treatment, especially in severe disease situations. Doctors who are competent and equipped in this field should be given more space in Turkey. In fact, many physicians can be given phyotherapy lessons to be more experienced in this field. Likewise, the plants should be produced under suitable conditions and the essential parts of the plants should be collected and processed. Storage should also be provided in hygienic environments. The products collected should be analyzed in the laboratory and those that are deemed inappropriate should not be placed on the market. Serious inspections should be made by the Ministry of Health on this issue. In any way, it should not be allowed for untrained people to sell in this regard, whether it is a pharmacist or a herbal sellers. Controls should be increased especially in these issues.

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