



Some Important Edible Wild Plants of Türkiye and Their Use in Culinary

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ARTICLE INFO	ABSTRACT
<p><i>Research Article</i></p> <p>Received : 31-12-2022 Accepted : 24-02-2023</p> <p>Keywords: Edible wild plants Gastronomy Food Health Türkiye</p>	<p>Although concepts such as global climate crisis and global warming, which are frequently used with the industrial revolution, did not make people very nervous before, countries and scientists have begun to think more about this issue today. Recently, with this climate crisis, another crisis deepened by Covid-19, wars and economic problems has been brought to the agenda: The Global Food Crisis. The possibility that people's economic and ecological conditions cannot reach enough and always the same amount of food is becoming increasingly unsettling. With these conditions, it is foreseen that people will include edible herbs in their natural habitats in their menus, as they did in the countryside from time immemorial. There are different studies on natural edible herbs in different disciplines, but there are very few studies evaluating these herbs from a gastronomic point of view. Studies such as the dissemination of traditional knowledge about natural edible herbs and the preparation of recipes for foods and beverages made with these plants are studies that can also find response in fields such as economy, sociology, tourism, health and agriculture. Carrying out all these studies in combination can also contribute to healthy and gastronomy-themed tourism. For this reason, in our study, studies on natural edible herbs in Türkiye were compiled and evaluated in a way to cover ancient times and today and different disciplines. As a result of the evaluation, natural edible plants that came to the fore in previous studies and our study were determined and information about the food parts of these plants, their usage areas and usage patterns were given.</p>

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Türkiye'nin Bazı Önemli Yenilebilir Yabani Bitkileri ve Mutfaktaki Kullanımı

MAKALE BİLGİSİ	ÖZ
<p><i>Araştırma Makalesi</i></p> <p>Geliş : 31-12-2022 Kabul : 24-02-2023</p> <p>Anahtar Kelimeler: Yenilebilir otlar Gastronomi Gıda Sağlık Türkiye</p>	<p>Sanayi devrimi ile birlikte sıklıkla kullanılan küresel iklim krizi ve küresel ısınma gibi kavramlar daha önceleri insanları çok tedirgin etmese de günümüzde ülkeler ve bilim insanları bu konu üzerine daha çok kafa yormaya başlamışlardır. Son zamanlarda bu iklim krizi ile birlikte, Covid-19, savaşlar ve ekonomik problemlerin de derinleştiği bir başka kriz daha gündeme taşınmıştır: Küresel Gıda Krizi. İnsanların hem ekonomik hem de ekolojik koşullarının yeterince ve daima aynı oranda gıdaya ulaşamama ihtimali giderek tedirgin edici bir hal almaktadır. Bu koşullarla birlikte eskiden bu yana insanların kırsalda yaptıkları gibi kendi doğal habitatlarındaki yenilebilir otları menülerine dahil etmeleri öngörülmektedir. Doğal yenilebilir otlar hakkında farklı disiplinlerde farklı çalışmalar bulunmaktadır ancak bu otların gastronomik açıdan değerlendirildiği çalışmalar çok azdır. Doğal yenilebilir otlar ile ilgili geleneksel bilginin yaygınlaşması, bu bitkilerle yapılan yiyecek ve içecekler ile ilgili reçetelerin hazırlanması gibi çalışmalar ekonomi, sosyoloji, turizm, sağlık ve ziraat gibi alanlarda da karşılık bulabilecek çalışmalardır. Tüm bu çalışmaların kombine olarak yürütülmesi aynı zamanda sağlık ve gastronomi temalı turizme de katkısı olabilecek niteliktedir. Bu nedenle çalışmamızda Türkiye'de doğal yenilebilir otlar ile ilgili çalışmalar eski zamanı ve bugünü ve farklı disiplinleri kapsayacak şekilde irdelenmiş ve değerlendirilmiştir. Değerlendirme sonucunda önceki çalışmalarda ve çalışmamızda öne çıkan doğal yenilebilir bitkiler belirlenerek bu bitkilerin gıda açısından kullanılan kısımları, kullanım alanları ve kullanım şekilleri ile ilgili bilgiler verilmiştir.</p>



Introduction

Nutrition activity (living and non-living components that they include in their own structures from the outside), which is one of the common features that all living things need for growth and development, whether they are producers or consumers, has been the activity performed by living things primarily in their natural habitats. It is a necessity of adaptation that all living things give priority to their natural habitats due to the low cost of energy to be consumed, the less dangerous and other competitive conditions.

In the historical process, human beings have taken into account the factors of ease in accessing water and food as a basis for the selection of shelter in the primitive period. It was a safer and less costly way for them. At the same time, any environment that provided the conditions for self-sufficiency could have the characteristics of an ideal habitat for them. Although these conditions seemed to be sufficient in the periods when the main daily activity was nutrition and shelter, the hunter-gatherer lifestyle began to be insufficient after a while with the increasing family population and socializing human communities. Moreover, situations such as not being and/or not being able to find almost every food when and where it is wanted have pushed human beings not to take different measures. Because most of the foods that human beings can consume can also be consumed by wild animals. With the existence of a natural competitive environment, humankind has pursued the possibility of cultivating the soil under its control. On the other hand, this situation was both safer and more controllable. Therefore, mankind has not given up on the search to find what is more comfortable for him. This search has been valid not only for food but also for other needs.

It has been demonstrated by various studies that human beings have made significant progress in the cultivation of herbal products that are frequently consumed by human beings in historical processes. In this respect, the studies carried out in Tatarlı Höyük, which is the gateway between the Fertile Crescent and the Anatolian geography, are important in terms of revealing the plants (Lentil, Wheat, Grape, Barley, Olive) that human beings cultivate (Kavak and Çakan, 2022).

Man sometimes used the objects he obtained from nature as they are, and sometimes processed them with simple methods and adapted them to his own life. However, with the Neolithic Age, there have been changes in many aspects of human life. In the Neolithic Age, man makes a certain progress in his difficult struggle with nature and succeeds in being active against nature. With the beginning of productivity based on human needs, a new page is opened in his life (Aytan, 2021). On the other hand, the socialization process of human has continued. Because the effective use of labor against nature has increased with the understanding of the productive value of the land. Moreover, over time, human beings have become aware of the wealth not only above but also under the soil, and they have started to process and operate them. After this stage, with the discovery of more raw materials, very dense human communities began to occupy certain areas (urbanization).

Today, many countries that have made great strides in industrialization have started to create more large cities. Moreover, even though there was an agricultural society in the past, the mechanization that manifests itself in such processes from production to harvest in agriculture has gradually become less use of the workforce. Societies that completed agricultural activities, which were previously completed with the labor force of thousands of people, in a shorter time with less physical strength, started to flock to the cities.

Conceptually, the city is stated as a settlement where new production and consumption connections are shaped and a sociological structure different from the old known social structure emerges (Begel, 1996; Kayan, 2015). The change that emerged on urban areas with the Industrial Revolution gained a different momentum with the effect of globalization trends. With the beginning of the 1980s, cities gained more importance in the new era, which was heavily influenced (Çelebi-Zengin, 2018).

Of course, the need for labor is not the only factor in urbanization today. In addition to the need for labor, people flock to the cities in order to meet their other needs such as education, health and security, which they cannot find as much as they should in the countryside. This situation also makes cities a center of attraction. However, this situation separates people from the soil-plant-animal agricultural bond that they are used to, produce and are satisfied with in terms of nutrition, and makes them direct consumers in terms of reaching food. Under normal conditions, if human beings were in or on the coast of the natural habitat in which they first existed in the world, they would not have lost their advantage in terms of nutrition in the city, but it is clear that the agricultural situation in metropolises today is not like the habitat that started in terms of area and quality.

Materials and Methods

As the international and national studies on natural edible herbs and gastronomy-related studies were investigated, the method of the study was determined as content analysis. The information evaluated within the scope of the research was obtained from primary sources and secondary sources. Primary sources refer to primary sources on a subject. Sources such as statistics compiled by official institutions and organizations, all kinds of archives, interviews, letters and news are examples of primary sources. Secondary sources refer to all other studies based on primary sources. Articles, books, projects, papers, reports and especially master's or doctoral theses are examples of secondary sources (Dinler, 2016, p. 78). The obtained data were analyzed by document analysis technique. It has been determined that the document analysis technique, which is used extensively in qualitative research, is suitable for analyzing the data collected within the scope of this study and obtaining results in line with the purpose (Gürbüz & Şahin, 2017, p. 187).

Results and Discussion

In the study, all the researched sources were examined under certain topics and it was tried to provide a better understanding of the subject. For this purpose, the data obtained were primarily examined through the relationship between human and plant, and some basic information was mentioned. Then, edible wild plants, edible herbs in Turkish cuisine, Edible herbs prominent in gastronomic use, Studies on edible herbs and their importance in terms of health and tourism are detailed by sub-headings.

Human and Plants

The floral richness of the world since ancient times can meet the needs of both ecological systems and environmental and public health. It is seen that plants are the most consumed natural resources to meet the main needs such as food and health (Uyanık et al., 2013).

Plant groups, which are thought to be the life insurance of future generations, are also very important for people to continue their lives in a quality way. Today, it is known that the existing human being uses about 15 different main plant species to sustain their lives (Uysal, 2014). However, due to the climatic conditions emerging for humans at this point, there is an obligation to find other plant sources besides these plants. Because today, nutrition and health appear as concepts that are considered together. In other words, the concepts of health for nutrition and nutrition for health are cyclical concepts that are affected by each other in two ways.

There are some differences in plant consumption habits in the world. Developed and developing countries are taking important initiatives to have a say in the world market on plant consumption. However, at the point reached today, it is stated that the most current and valid concept in plant use is human consumption, that is, edibility. It is noteworthy that Türkiye is also advantageous in terms of edible plants with its regional and geographical characteristics (Alp et al., 2013). It should be kept in mind that the transformation of this ecological and floristic advantage into economic advantages is possible with some very basic approaches.

It is seen that the collection and consumption of plants for nutrition in Türkiye dates back to ancient times. It is stated that especially the people living in rural areas meet their nutritional needs from the mountainous and forested areas around them, and this habit still continues today (Baytop, 1999; Faydaoğlu and Sürücüoğlu, 2011).

When we look at the world plant trade, it is known that Türkiye is among the advantageous countries in the plant market consumed as food with its geographical location, plant diversity and different climatic areas. In addition, it is stated that Türkiye influence in the herbal market is due to its contribution to various medicinal-aromatic and foodstuffs, the raw material of which is plants in developed countries (Faydaoğlu and Sürücüoğlu, 2011).

Edible Wild Plants

It is stated that the ratio of plant species consumed for food purposes in the world today is 20% of the total plant species. Therefore, the numerical equivalent of this percentage is recorded as approximately 10,000 different plant species (Yücel et al., 2011).

Türkiye is a country rich in natural resources and has geopolitical importance. However, towards the end of the 1990s, Türkiye started to show signs of self-sufficiency due to the regressions in agriculture and the rapidly increasing human presence. In this process, the share of the increasing population in general employment has gradually decreased. As an element of production, our land has been cultivated unconsciously and irresponsibly. The unplanned urbanization that emerged with the migration from rural areas to urban areas caused the destruction of nature and the concretization of agricultural areas. On the other hand, energy resources are the most important resources required for industrialization to be sustainable. However, Türkiye is foreign-dependent in terms of oil and its derivatives, except for some mines. Türkiye dependence on energy should not be considered only as inter-country dependency (Sağlam, 2018).

There are many ecological, floristic, pharmacological and agricultural studies on plants that spread naturally in Türkiye. However, studies on the use of these plants among the public have generally been evaluated in terms of ethnobotany, but the culinary part has not been adequately addressed. In fact, this is due to the fact that the field of Gastronomy and Culinary Arts did not exist as a different science in our country before the 2000s. The closest witnesses to the edibility of any plant and its adventure in the culinary are the rural people of Anatolia, who still benefit from those plants and protect this traditional culinary knowledge. Although the plain and mountain villagers differ in terms of the herbal materials they use, they still consume these natural raw materials within the scope of their gastronomic experience, which they find around almost every season.

Due to its geographical and climatic conditions, Türkiye is at the forefront of plant trade with very different types of medicinal and aromatic plants that it offers natural distribution. The use of herbal medicines, which are very common in developed countries today, the phytochemicals in the structure of medicines, the structure of additives used in food, and the fact that the plants that are the source of all these substances are included in Türkiye natural plant diversity make it a leader country candidate in this regard (Faydaoğlu and Sürücüoğlu, 2011).

The diversity of plants that naturally spread in different regions in Türkiye, according to the environmental characteristics of that region, draws attention. These plants and the way they are used reflect the gastronomic traditions and cultures of the regions. The traditions and customs applied for the use of plants in the cuisine and outside have survived to the present day by being transferred from generation to generation over the years. However, it is seen that the plants, which were known to be consumed intensively in the past, are consumed less today due to the habits of the age. Conditions such as urbanization, technological innovations, modernization trends, fast food eating habits and developments in the field of health are among the reasons that reduce plant consumption. Despite this, ethnobotanical studies recently seen in both national and international literature are in an important position to increase the trend towards edible plants (Uysal, 2014).

Edible Wild Plants of Turkish Cuisine

In Türkiye, natural edible plants are evaluated within a broad framework. Natural plant species consumed as food are defined as “grass”. It is known that the place of these plants in Aegean cuisine dates back to ancient times. In studies on natural herbs consumed as food, it has been revealed that these herbs contain many vitamins, protein and mineral substances as well as some bioactive substances (Yücel et al., 2012).

Edible herbs and herb dishes made with these herbs are widely used all over the world due to their nutritional properties. Today, edible herbs grown in different species according to the regional climate and geographical characteristics are used in various fields with different shapes and methods depending on the culture of the region. As a result of this difference, various flavors emerge and create the potential to contribute to the creation of the gastronomic image of the region (Karadağ, 2015; Koç-Apuhan and Beyazkaya, 2019). Moreover, intercity distances, which were much more troublesome in the past, have become less troublesome in terms of today's transportation opportunities. This opportunity is another factor that increases rural and urban contact. In addition to these transportation opportunities, many different written and visual communication facilities can spread local information in a very short time.

Today, the demand for nature, which occurs as a result of people aspire to the natural in every sense, makes social activities related to edible herbs more attractive. So much so that today, the increasing number of herb festivals has attracted the attention of more people (Özgen, 2020). As a result of the inability to orally transfer the usage areas of edible herbs, which have important contributions in terms of gastronomic tourism, to the next generations, problems such as loss of information and incomplete transmission are encountered. On the other hand, the decrease in the number of people who know the purposes and ways of using edible herbs reveals the importance of recording these herbs (Ceylan and Akar-Şahingöz, 2019).

Another issue that increases the awareness of edible herbs is tourism. For tourists coming to any region, the thought that they will not find the gastronomic experience they will get in the region anywhere else makes the tastes of the places visited important (Çetinkaya and Yıldız, 2018). On the other hand, with these local and foreign tourists sharing their gastronomic experience on social media networks, the spread of the herbs used and the dishes made gains momentum, and at the same time, this information is archived in the technological field.

The fact that edible herbs and their use are treated as historical artifacts in terms of tourism are the factors that prioritize the location of those regions in destinations. Therefore, these natural edible plants have a serious potential to be used and marketed as live touristic products. Here, information such as the collection of these herbs from nature, the recipe of the food and production techniques are interesting for tourists (Dinçer et al., 2014). On the other hand, these activities will positively affect other nature-based tourism areas such as rural tourism, as well as contributing to gastronomic tourism (Karaca et al., 2015). In addition to the contribution of edible weeds to rural tourism, its contribution to contemporary concepts such as Ecotourism, Sustainable gastronomy, Green cuisine and eco chefs is inevitable.

Studies on Edible Herbs in Türkiye

In Türkiye, there are more studies on ethnobotany rather than the keyword “edible herbs” directly. One of the most comprehensive studies on this subject is a doctoral study Koyu (2020) conducted at Ege University, Institute of Health Sciences. In this study, the researcher focused on ethnobotanical studies in Türkiye between the years 1928-2014 and analyzed a total of 1758 studies (113 books, 1166 articles or book chapters, 249 papers and 230 thesis studies) as a result of the study. Afterwards, from these studies, only those that were identified as plants but did not register their use were excluded. As a result of this sorting, only 930 of the 1758 studies were recorded and a database was created with these records. In this way, 2884 different taxa with ethnobotanical usage records were identified in Türkiye. Most of these identified taxa (1902 taxa) were used for Human Health purposes. In the researcher's study, the consumption of edible wild plants as food, which is our study subject, comes second (1404 taxa). In terms of other purposes, he reported that he identified taxa as fodder (663), dye plant (279), ornamental-ornamental plant (233), and animal feed (192). The fact that the total number is more than 2884 is due to the common use of some taxa in two or more areas.

Apart from this, as of 15.11 2022, when searching the online Thesis Search page (Yöktez) of the Council of Higher Education with the keyword “ethnobotany” and thesis name codes, it is seen that there are a total of 71 studies. 9 of these studies are PhD and 62 of them are Master's thesis. 70 of the studies were conducted in the fields of Science and Health sciences (Biology, Forestry, Pharmacy, Health Bioengineering) and 1 was in the fields of Social Sciences (Anthropology). Again on the same page, between the years 2014-2022, there are 137 studies, 28 of which are doctorate and 109 are master's, in the search with the keyword “Edible”. 122 of these studies were conducted in the fields of Science and Health (Biology, Chemistry, Health, Engineering, Forestry, Agriculture and Pharmacy), and 15 of them were studied in the fields of social (Gastronomy and Culinary Arts and Tourism Management). However, in a detailed examination, it was seen that only 25 of the 137 studies that came up in the search with this keyword were directly or indirectly related to edible weeds, while the others were largely related to the production of “edible” mushrooms or “edible films”.

When the academic studies conducted in Türkiye are evaluated in general, the studies on the use and consumption of edible weeds in the social sense are very insufficient. “It is due to its presence in the area. Since interdisciplinary studies in our country are generally in the horizontal (Social-Social or Science-Science) plane, studies in the vertical (Social-Science) plane are challenging in related postgraduate studies. In order to overcome this situation, it is important to increase vertical multidisciplinary studies.

Favorites of Turkish Cuisine in Terms of Edible Herbs

The global climate crisis and the biodiversity crisis, which are being felt more and more in the world, have pushed people to be more concerned about food. Today, there are many studies on the fact that people include some

gastronomic elements arising from traditional knowledge in their cuisine, as well as their desire to reach natural food. The reasons such as the fact that they are collected from natural areas, they are inexpensive, the idea that they are natural, and the gastronomic memory have made the use of these plants more attractive. For this reason, it is important to carry out studies on edible herbs in terms of transferring this information from generation to generation. With this study we have done and similar studies conducted by other researchers, both regional floral differences and usage differences in the use of edible herbs can be revealed more clearly (Özhan and Pehlivan, 2022).

As Koyu stated in her study, which provides extensive data on its use in Turkish cuisine, 1404 different taxa, which emerged from the evaluation of approximately 86 years of data, show that they are consumed as food in Turkish cuisine. In our country, which is home to approximately 12,000 different natural plant species, the ratio of plants consumed as food in natural plants is around 12%. This rate is for consumption as food only. However, the number of plants used by the people of our country for food and non-food activities is 2884 (24%). On the other hand, the most common taxa used as food in the research conducted by the researcher are given in Table 1.

Table 1. Taxa with prominent food consumption identified by Koyu (2020) in her study

Latin names for plant	Turkish Name	NLE	Parts used	Usage types
<i>Urtica dioica</i> L.	Isırgan	71	Flower, stem, fresh shoots, aerial part, leaf	Boiling, roasting, vegetables, salad, wrap spices, pastry, raw, tea, soup, bread
<i>Portulaca oleracea</i> L.	Semizotu	60	Stem, fresh shoots, aerial part, leaf	Spices, pastry, cacik, raw, soup, boiled, roasted, dried, salad, vegetable
<i>Rosa canina</i> L.	Kuşburnu	58	Flower, root, fruit, petal, seed, leaf	Raw, tea, beverage, marmalade, molasses, jam, cooked (food) and spice,
<i>Chenopodium album</i> L.	Aksirken-	53	Stem, root, fresh shoots, aerial part, leaves	Pastry, raw, wrap, bread, boiled, roasted, salad, soup, vegetables, pickles
<i>Malva</i> spp. (<i>neglecta</i> ve <i>sylvestris</i> türleri)	Ebegümeçi, Ebegömeçi, Gömeç, Kömeç	49-45	Flowers, stems, fruits, fresh shoots, seeds, aerial parts, leaves	Spices, roasting, raw, tea, soup, boiled, salad, stuffed vegetables, pastry, roasting, wrapping
<i>Capsella bursa-pastoris</i> (L.) Medik.	Çobançantası, Aş otu	44	Stem, root, fruit, fresh shoots, aerial part, leaves	Spices, pastries, cacik, raw, boiled soup, roasted, salad
<i>Polygonum cognatum</i> Meissn.	Madımak	44	Whole plant, stem, fresh shoot, aerial part, leaves	Spices, pastry, cacik, raw, soup, bread, boiled, roasted, dry, salad, vegetable
<i>Rhus coriaria</i> L.	Sumak	41	fruit, rind, seed, leaf	Spices, Coffee, Dry, Salad
<i>Rumex acetosella</i> L.	Kuzukulağı, Ekşimek	41	Whole plant, stem, fresh shoots, aerial part, leaf	Pastry, raw, soup, stuffed, roasted, salad, vegetable
<i>Papaver rhoeas</i> L.	Gelincik	41	Flower, stem, root, fruit, petal, fresh shoot, aerial part, leaf	Pastry, raw, beverage, roasting, salad, vegetable, syrup-sorbet

NLE: Number of literature encountered between 1928-2014

On the other hand, in our study, a total of 96 postgraduate studies that were conducted between 2014-2022 and related to “edible herbs” were evaluated. As a result, the prominent taxa that Koyu (2020) mentioned in her study were found, but it was also determined that some other taxa were collected in their seasons and used frequently in local cuisines.

The species whose frequency of use was determined in the studies conducted from 2014 to 2022 are given in Table 2. Although the Latin names of some species are clearly written here, some are given at the genus level (*Orchys*, *Taraxacum*, *Arum*, *Tragopogon*, *Ophrys* and *Allium*). The main reason for this situation is that some plants that are consumed in the local cuisine have a large number of species of the genera they belong to and many species of these genera can be used.

In Türkiye, there are many types that are consumed by making “salep” from the tuber. The genera used in the production of salep are *Ophrys*, *Orchis*, *Dactylorhiza*, *Anacamptis*, *Himantoglossum*, *Barlia*, *Serapias*, *Comperia*, *Aceras*, *Neotinea* and *Platanthera*. (Sezik, 2012). For this reason, when the plants with the Turkish name “salep” are written in Table 2, the expression spp has been added next to the genus name in the sense of “species belonging to the genus.....”. Likewise, plants with the expression spp next to the genus name are plants represented by different species in different regions, and instead of writing the species name one by one, the suffix spp is given in the sense of the species belonging to that genus.

Considering both Koyu (2020) and this study, when the plants with a high frequency of use in Turkish cuisine are examined, it is seen that they are generally widely distributed species (*Mentha*, *Urtica*, *Taraxacum*,

Tragopogon, *Malva*, *Sinapis*, *Arum* etc). It can be said that the basis of the wide usage area of any edible herb is that it is found in almost every geography. On the other hand, humans are more willing to consume plants that have been experienced as food and not harmed by animals and/or humans since time immemorial. Because, as information such as the way of use of a plant, the part used, the period used and the amount used, a safer usage adventure occurs. However, while some plants may be harmful under normal conditions, the widespread use of a safe consumption method due to their special use (Snake pillow, Nettle) makes it more common. In addition to the consumption of some plants as food, with the sense or knowledge that they can be a cause of healing (Sumac, Snake Pillow, Nettle, Chicory, Mallow, Işgın, Zahter etc.) consumption is increasing. On the other hand, people living in rural areas have not been able to consume edible grasses with today's current information, they have acquired the habit of using these plants since ancient times.

In the past, edible herbs have been one of the important nutrients used by the people of that region for food purposes during periods of reduced purchasing power, mass hunger, famine and war. Today, edible herbs are used not only for nutrient consumption, but also as therapeutics, with the increase in people's sensitivity to healthy nutrition (Yücel et al., 2012; Alpinar, 2010).

Especially with the Covid-19 epidemic that has emerged in recent years, people have increased their tendency to edible herbs for both food and healing purposes. For this reason, it has been started to be used against Covid-19 with the thought that some foods consumed against the SARS virus in the world may have similar potential. In addition, many herbs and compounds have now been suggested to be protective against Covid-19 (Li et al., 2021). People prefer to use edible herbs and spices for many diseases because they equate nutrition with health and health with nutrition.

Table 2. Some other edible herbs that were found to be used more frequently according to thesis studies conducted between 2014-2022.

Latin names of plants	Turkish names	Using Parts	Using Types
<i>Dactylorhiza</i> <i>Orchis spp</i> <i>Ophrys spp.</i> <i>Anacamptis spp</i> <i>Himantoglossum spp.</i> <i>Barlia spp.</i> <i>Serapia spp</i> <i>Comperia spp</i> <i>Acera spp</i> <i>Neotine spp.</i> <i>Platanthera spp.</i>	Salep	underground tubers	Underground tubers are cleaned, boiled and dried, then they are made into powder and used for making salep.
<i>Allium spp</i>	Körmen	Underground and above ground parts in fresh leaf period	Pastry, Salad, Roasted, Rice, Raw, Tizzeria
<i>Tragopogon spp.</i>	Yemlik	fresh leaves in early spring	Raw, In Meals, In Rice, Roasted, In Salads
<i>Thymbra spicata</i>	Zahter	The delicate leaves of its young shoots	By making a salad with brine or fresh in season
<i>Capparis ovata ve spinosa</i>	Kapari, Kebere, Şebellah	flower buds	In brine making, Pickled directly or in salads
<i>Gundelia tourneforti</i>	Kenger	Root and Trunk	The thorny stem and flower of the plant are cleaned with a knife and consumed raw. The root is drawn and the milk is taken into a bowl and consumed by making chewing gum.
<i>Arum spp.</i>	Yılan yastığı, Gavur pancarı	above ground parts	The above-ground parts are finely chopped, covered with flour the night before, fermented and consumed by boiling for a long time a day later.
<i>Nasturtium officinale</i>	Su teresi	above ground parts	In Salads, Raw
<i>Sinapis arvensis L.</i>	Hardal, Eşek turpu	fresh leaves in spring	Young leaves can be consumed. Its leaves are added to salads. The germinated seeds are edible. As a condiment by grinding the seeds
<i>Glycyrrhiza glabra L.</i>	Meyan	underground parts	Dried and chopped roots are traditionally used in making licorice sherbet.
<i>Mentha pulegium</i>	Yarpuz, Yabani nane	Fresh or dried leaves	It is used fresh in salads and meatballs, and dried in cacik.
<i>Rheum ribes L.</i>	Işkın, Işgın	Fleshy body	The outer shell of the stem is peeled and consumed.
<i>Scolymus hispanicus L.</i>	Şevketi Bostan	Root bark, young leaves and midrib	It is made with olive oil, cooked with lamb meat or used in salads after being boiled for a short time.
<i>Taraxacum spp.</i>	Karahindiba	Sub-thoracic and upper parts	The underground parts are dried and used as tea or coffee, and the fresh leaves are used in salads, roasted or in meals.
<i>Rubus spp.</i>	Böğürtlen	Ripe Fruits	Consumption as fruit directly, in pastry, in jam making

Although traditional practices on edible herbs are decreasing day by day, the increase in people's awareness of living a healthy life and the changes in lifestyle, the increase in studies on the effects of edible herbs on human health have revived the use of edible herbs, especially among people living in urban environments. Naturally, it increased the values of these herbs (Henrich et al., 2006; Baccheatta et al., 2016). As a result, people who live in cities today but have lived in rural areas until recently, know what they collect in those environments, and when they reach information about any edible weed, they are in search of finding it. At least, they may be more willing to consume plants that they are not familiar with in their gastronomic memory. Moreover, consuming edible herbs in general may not be the only motivation for their healing properties.

Today, population growth, diseases caused by unbalanced and malnutrition, obesity and chronic diseases, and the diversity in people's nutritional demands have led them to be fed with different foods (Karabak, 2017). As the diseases that people encounter differ, the variety of edible herbs they prefer against them also differs.

In times when it was difficult to reach food, wild edible herbs for people had an extremely important place in meeting their food needs due to the rich nutritional elements they contain. It is emphasized that wild edible plants have been a part of human diet since ancient times, and ancient societies over-consumed wild edible plants to combat famine (Leonti et al., 2006). In this sense, edible herbs have played an important role in complementing basic foods in terms of being sources of nutrients, vitamins and minerals from past to present (Çetinkaya and Yıldız, 2018; Doğan et al., 2013).

The Importance of Edible Herbs for Healthy Nutrition

In recent years, warnings about reducing the consumption of animal food in the diet and increasing the consumption of plant products instead have been effective in directing them to edible herbs that can be an alternative to existing foods (Aberoumand and Deokule, 2009). As a result, people today have begun to better understand the importance of edible natural grasses as an alternative instead of focusing on a limited amount of plant species for their own nutrition. It has been stated that edible natural grasses, which are a valuable source of energy and micronutrients for humans, have an important role in diversifying their diets (Sansanelli et al., 2017; Shin et al., 2018). People take care to keep the food portfolio in their cuisine wide by consuming wild plants that they themselves, their ancestors or those living in their immediate surroundings have experienced. Today, the number of fresh vegetable varieties that people consume as food raw materials in the cuisine and that they can supply in season, especially in big cities, does not exceed 10 different varieties in the same period. In summer, autumn and winter months, herbal-supported menus are prepared with a maximum of 10 different varieties. In general, fresh vegetable varieties increase in the spring months, and this increase may continue in the summer at higher elevations. However, even in this process, the number of vegetables (tomatoes, eggplants, broad beans, peas, zucchini, peppers, cucumbers, lettuce, green onions and garlic, carrots) that

are routine in almost every market counter is about 10. Moreover, some of them are not consumed as a meal alone, but instead are used in cooking with different combinations or in making salads. However, the edible wild herbs given in Table 1 and Table 2 can be added to the menus with small touches in cases such as roasting, boiling, salad, cacik and pastry making. This provides important advantages as a facilitating factor in menu preparation.

Pei (1995) defined ethnobotany in his study as the study of interactions and contacts between humans and plants. The term ethnobotany is descriptively summarized by four different words. These can be summarized as people, plants, interaction and use. This term, which is based on botanical science in terms of its field of occupation, has strong and close connections with medicine and botanical sciences in every period.

Edible weeds are also valued as a valuable food item in Southeast Asia. Ogle et al. (2003) determined that more than 90 edible weed species are used for food in Vietnam. Many of these plants are also used for medicinal purposes.

Studies conducted today suggest some foods in terms of both the digestive system and the immune system in people's daily diets. On the other hand, the importance of plant-based foods is emphasized in the prevention and treatment of obesity, which is an important health problem today. On the other hand, the pandemic process we are experiencing today has pushed people to use conscious and unconscious herbal products in this period. However, following the studies on the consumption of natural edible herbs and establishing the awareness of the use of these plants can prevent these plants from causing undesirable results in terms of health.

Edible Wild Plants and Tourism

The food raw materials and materials that people in a certain society use in their own cuisine and the food and drinks they make bear the traces of the geography they live in. While making food and drink, people consume the natural nutrients in that geography and the products they produce from them, within their own cultural background. In this context, plants, vegetables, fruits and herbs grown in the region or grown naturally are important in the nutrition of the local people (Diker et al., 2017). As a result, lately, every society has been trying to evaluate the food and beverages they produce with the products of their own geography within the scope of gastronomic tourism by highlighting them with promotions (Çetinkaya and Yıldız, 2018).

It is considered important in the name of gastronomy tourism in touristic activities to taste local flavors in their natural environment. In this context, edible natural herbs also have a serious potential to be used and marketed as a product used in touristic activities. Both the collection of these herbs from nature and the recipe and production methods of the food are remarkable for tourists (Dinçer et al., 2014). Especially in recent years, with the attention of the written and visual media, the activities such as local flavor festivals, festivals and feasts, in which edible natural plants come to the fore, attract great attention. Moreover, as these festivals become remarkable for domestic and foreign tourists, they create a serious combined touristic effect and make a significant economic contribution to the areas where these festivals are held.

Alaçatı Herb Festival, Foça Herb Festival, Urla March 9 Herb Festival, Herb Flavors Feast in the Black Sea, Bodrum Bitter Herb Festival, Tırşik Festival held in Osmaniye and Adıran, and Samsun Local Herb Foods festival are among the herb festivals held in our country (Karaca et al., 2015). Festivals that refer to the local cuisine organized in this style should be considered as an attraction in gastronomy tourism as well as their contribution to the rural area. In this sense, inclusion of authentic dishes made from edible natural plants consumed as food in that region in the menus of food and beverage destinations in any region can also provide important opportunities (Denizer, 2008). In addition to its contribution to gastronomic tourism, these activities can also positively affect other nature-based tourism areas such as rural tourism (Karaca et al., 2015). Today, especially when local administrators highlight the touristic opportunities in their jurisdiction, they not only count the gastronomic features of the region that have passed through the filter of history, but also emphasize the edible wild herbs of that region. The basis of this emphasis is that domestic and foreign tourists pay attention to labels such as “unexperienced”, “interesting” and “local” in terms of gastronomy while determining the destination.

Today, with the sensitivity of people to healthy, natural and organic nutrition, the use of edible natural herbs in gastronomy tourism is increasing. Accordingly, such activities also contribute to the sustainable use of natural resources by increasing the interest shown in issues such as the protection of gastronomic heritage, the sustainability of eco-gastronomic activities and environmental awareness. Today, it is more important to evaluate ethnobotanical information without harming ecology within the scope of eco-gastronomy and sustainability principles that emerged with the effort to reduce the damage of food products processed and produced by adding technology to human health and to reach natural and healthy foods (Sansaneli et al., 2017; Diker et al., 2017; Romojaro et al., 2013).

Conclusion

Today, there are various studies with different purposes in different disciplines on natural edible herbs from the past to the present and still continuing. Some of these studies are travel notes, social media posts, festivals, and an important part is academic studies. However, studies on the adventures of consuming these edible herbs in the cuisine, increasing their awareness, experiencing and photographing different consumption patterns, and giving their prescriptions in the academic field are almost non-existent. It is unthinkable that a sector such as the food sector, which is an area likely to experience a crisis today, does not attach importance to these precious resources offered by nature under these conditions. It is a major shortcoming that edible natural herbs, which have their counterparts and important studies in many different disciplines such as health, food technology, sociology, economy, ecology, biology, chemistry, pharmacy and agriculture, are not adequately evaluated in the field of gastronomy. Moreover, it has been demonstrated by the studies that the evaluation of these plants in the field of gastronomy can provide great benefits in the ecological, health and economic fields, as well as significant

advantages in the touristic field. It is clear that the inclusion of any regional floral facility in the touristic area will be a driving force in the development of that region. With these possibilities, the real “value and benefit” of traditional knowledge about natural edible herbs can be determined thanks to today's technological possibilities. This awareness can also satisfy people who are reluctant to consume natural edible herbs, and they can be provided to consume these flavors by including them in their own cuisine. With the anonymization of the widespread information, the gastronomic information of the wild edible plant in the locality will be included in the gastronomic memory of the general, and it will provide important advantages in terms of maintaining its sustainability with the demand to be created.

Compliance with the Ethical Standard

Conflict of interest: The author declared that there are no actual, potential, or perceived conflicts of interest for this article.

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References

- Aberoumand A, Deokule SS. 2009. Determination of Elements Profile of Some Wild Edible Plants. *Food Analytical Methods*, 2, 116–119.
- Alp Ş, Ammerlaan A, Ellialtıođlu Ş. 2013. Ss Bitkileri Islahında Yeni bir Yaklaşım: Yenilebilirlik. *V. Ss Bitkileri Kongresi*, 6-9 Mayıs (2013), Yalova, 935-940.
- Alpınar K. 2010. Halk Arasında Kullanılan Tıbbi Bitkilerin Derlenmesi, Bitkilerle Tedavi Sempozyumu, 5-6 Haziran 2010 Zeytinburnu, İstanbul.
- Aytan OA. 2021. Comparasion of Human-Place Relationship Between Lifestyle of Mobile Hunter-Gatherer Groups and Lifestyle of Sedentary of Farmers Community. *Kahramanmaraş Stc İmam niversitesi Sosyal Bilimler Dergisi*. Cilt: 18 (2): 979-1012.
- Bacchetta L, Visioli F, Cappelli G, Caruso E, Martin G, Nemeth E, Bacchetta G, Bedini G, Wezel E, Asseldonk T, Raamsdonk LM, Consortium E. 2016. A Manifesto for The Valorization of Wild Edible Plants. *Journal of Ethnopharmacology*. 191, 180–187.
- Baytop T. 1999. Trkiye’de Bitkiler ile Tedavi, Gemişte ve Bugn. *Nobel Tıp Kitabevleri*, II. Baskı, İstanbul, Trkiye, 300.
- Begel EE. 1996. “Kentlerin Dođuşu” (ev.: zden Arıkan) Cogito, Kent ve Kltr, *Yapı Kredi Yayınları*, İstanbul 1996.
- Ceylan F, Akar-Şahingz S. 2019. “Yenilebilir Otlar Tketim Alışkanlıđı: Dzii rneđi”, Edible Herbs Habitual. *Journal of Tourism and Gastronomy Studies*, 2204: 2225.
- elebi-Zengin E. 2018. Turkey within The Spiral of Urban and Being Urbanized. *Kastamonu niversitesi İktisadi ve İdari Bilimler Fakltesi Dergisi* 20/1:84-103. DOI: 10.21180/kuiibf.2018136759.
- etinkaya N, Yıldız S. 2018. “Erzurum’un Yenilebilir Otları ve Yemeklerde Kullanım Şekillerine Ynelik Bir Araştırma”. *Gncel Turizm Araştırmaları Dergisi*, 2(1): 482-503.
- Denizer D. 2008. Trk Turizminin Gelişmesinde Trk Mutfađının nemi ve Bugn İin Yapılması Gerekenler. III. Balıkesir Ulusal Turizm Kongresi, Balıkesir.
- Diker O, Trker N, Kaya FB. 2017. Eskişehir’in Etnobotanik eşitliliđinin Eko- Gastronomi Faaliyetleri erevesinde İncelenmesi. *Karabk niversitesi Sosyal Bilimler Enstits Dergisi*, zel Sayı 3, 51-58.

- Dinçer Fİ, Uğurlu K, Çakmak TF. 2014. Ekoturizm ve Gastronomi Turizminin Destinasyon Pazarlamasına Etkisi: Çorum Örneği. *Eko-Gastronomi Dergisi*, 1(1), 19-35.
- Doğan Y, Uğulu İ, Durkan N. 2013. Wild edible plants sold in the local markets of Izmir, Turkey. *Pakistan Journal of Botany*. 45/S1: 177-184.
- Faydaoğlu E, Sürücüoğlu MS, 2011. Geçmişten Günümüze Tıbbi ve Aromatik Bitkilerin Kullanılması ve Ekonomik Önemi, Kastamonu Üniv., *Orman Fakültesi Dergisi*, 2011, 11 (1): 52-67.
- Heinrich M, Kufer J, Leonti M, Pardo-de-Santayana M. 2006. Ethnobotany and Ethnopharmacology-Interdisciplinary Links With The Historical Sciences. *Journal of Ethnopharmacology*. 107, 157-160.
- Karabak S. 2017. Economic and Socio-Cultural Importance of Edible Wild Species. *ANADOLU, Journal of Aegean Agricultural Research Institute*. 27 (2), 26-38.
- Karaca OB, Yıldırım O, Çakıcı C. 2015. "Gastronomi Turizminde Otlar, Ot Yemekleri ve Sağlıkla İlişkisi Üzerine Değerlendirme". *Journal of Tourism and Gastronomy Studies*, 3(3): 27-42.
- Karadağ Ü. 2015. "Datça Bölgesine Ait Yenilebilir Otların ve Çiçeklerin Tespiti, Sağlığa Faydaları ve Yemeklerde Kullanım Şekilleri". Yüksek Lisans Tezi, Okan Üniversitesi, Sosyal Bilimler Enstitüsü, İstanbul.
- Kavak S, Çakan H. 2022. "Archaeobotanical evidence of agricultural products in the southern Mediterranean part of Turkey during the Bronze Ages from Tatarlı Höyük," *Turkish Journal of Botany*: Vol. 46: No. 4 s: 379-395. <https://doi.org/10.55730/1300-008X.2716>
- Kayan A. 2015. "Küreselleşmenin Kentler Üzerindeki Etkileri ve Küresel Kentlerin Özellikleri İlgili Bir Değerlendirme", *Girişimcilik ve Kalkınma Dergisi*, Cilt 10, Sayı 1, ss. 271-295
- Koç-Apuhan A, Beyazkaya T. 2019. "Bingöl'ün Yenilebilir Yabani Otların Gastronomi Turizmi Etkisi Üzerine Bir Araştırma". *Tourism and Recreation*, 1(1): 31-37.
- Koyu EB. 2020. Türkiye'nin Etnobotanik Veritabanı. Ege Üniversitesi, Sağlık Bilimleri Enstitüsü, Farmasötik Botanik Anabilim Dalı. Doktora Tezi. İzmir. 345 sayfa.
- Leonti M, Nebel S, Rivera D, Heinrich M. 2006. Wild Gathered Food Plants in The European Mediterranean: A Comparative Analysis. *Economic Botany*, 60, 130-42.
- Li S, Cheng C-S, Zhang C, Tang G-Y, Tan H-Y, Chen H-Y, Wang N, Lai AY-K, Feng Y. 2021. Edible and Herbal Plants for the Prevention and Management of COVID-19. *Frontiers in Pharmacology*. 12:656103. doi: 10.3389/fphar.2021.656103
- Özgen NN. 2020. "Gastronomi Turizmi Festivalleri ve İzmir İli Örneğinde Festivallerin Değerlendirilmesi", Yüksek Lisans Tezi, Dokuz Eylül Üniversitesi, Sosyal Bilimler Enstitüsü, İzmir.
- Ogde BM, Tuyet HT, Duyet HN, Dung NNX. 2003. Food, Feed or Medicine: The Multiple Functions of Edible Wild Plants in Vietnam. *Economic Botany* 57(1), 103-117.
- Özhan V, Pehlivan T. 2022. Wild Edible Plants of Mersin (Turkey) and Their Gastronomic Usage Types. *Journal of Tourism and Gastronomy Studies*, 2022, 10 (4), 3484-3498. DOI: 10.21325/jotags.2022.1151
- Pei S. 1995. Ethnobotany and Sustainable Use of Plant Resource in the HKH Mountain Region. Planning Workshop on Ethnobotany and its Application to Conservation and Community Development in the Hindu Khush Himalayan (HKH), Nepal.
- Romojaro A, Botella MA, Obon C, Pretel MT. 2013. Nutritional and Antioxidant Properties of Wild Edible Plants and Their Use as Potential Ingredients in The Modern Diet. *International Journal of Food Sciences and Nutrition*, 64(8), 944-52.
- Sağlam Y. 2018. Toplumsal Bütünün Uzun Dönemli Yapılanışı ve Türkiye Ekonomisi. *ECONDER. International Academic Journal*. Cilt / Vol: 2, Sayı/Issue: 1: 73-81.
- Sansanelli S, Ferri M, Salinitro M, Tassoni A. 2017. Ethnobotanical Survey Of Wild Food Plants Traditionally Collected and Consumed in the Middle Agri Valley (Basilicata Region, Southern Italy). *Journal of Ethnobiology and Ethnomedicine*, 13(50), 2-10.
- Sezik E. 2012. Salep mi? Orkideler mi?. 2. *Orkide ve Salep çalıştay Bildirileri Kitabı* s:37-44.
- Shin T, Fujikawa K, Moe AZ, Uchiyama H. 2018. Traditional Knowledge of Wild Edible Plants with Special Emphasis on Medicinal Uses in southern Shan State, Myanmar. *Journal of Ethnobiology and Ethnomedicine*. 14, 48.
- Uyanık M, Kara ŞM, Gürbüz B, Özgen Y. 2013. Türkiye'de Bitki Çeşitliliği Ve Endemizm, *Ekoloji Sempozyumu*, Tekirdağ, 1-6.
- Uysal İ. 2004. Canlı Doğal Kaynaklarımız: Türkiye'de Biyoçeşitlilik, *Türk Tarım Dergisi*, 155.
- Yücel E, Tapırdamaz A, Şengün İY, Yılmaz G, Ak A. 2011. Determining the Usage Ways and Nutrient Contents of Some Wild Plants Around Kisecik Town (Karaman/Turkey), *Biological Diversity and Conservation*, 4, 71-82.
- Yücel E, Şengün Yİ, Çoban Z. 2012. The Wild Plants Consumed as a Food in Afyonkarahisar/Turkey and Consumption Forms of These Plants, *Biological Diversity and Conservation*, 5, 95-105.