Bartın Orman Fakültesi Dergisi | Journal of Bartin Faculty of Forestry
2024, 26(1): 137 – 147 | DOI: 10.24011/barofd.1378888

Some Edible Wild Herbs in Isparta Region

Ebru Hatice TIĞLI KAYTANLIOĞLU[1, *], Ahmet KOCA[2], Hüseyin FAKİR[3]

[1, *, 3] Isparta University of Aplied Sciences, Forestry Faculty, Department of Forest Engineering, Isparta, Türkiye
[2] Isparta University of Applied Sciences, Sutculer Prof. Dr. Hasan Gürbüz Locational High School, Isparta, Türkiye

Article History
Received: 20.10.2023
Accepted: 23.02.2024
Published: 29.02.2024

Research Article

Abstract − The using of edible weeds in the diet of the people living in rural areas of Anatolia is quite common. Due to the awareness of natural and organic nutrition, the using of wild herbs has tended to increase in cities in recent years. In this study, it was aimed to determine the wild herbs consumed as edible food by the people in Isparta region, which has an important place in terms of plant diversity, and the consumption patterns of these herbs. This study, which was carried out in 2022 and 2023, was conducted face-to-face interviews with 100 local people in order to determine the plants consumed as traditional food by the people of Isparta. Wild plants consumed by the people of Isparta were collected and identified. In accordance with the data obtained, 23 wild edible plant taxa belonging to 15 families were determined. Questionnaire forms were analyzed using the SPSS 25.0 program. As a result of the analysis, it was determined that individuals and women between the ages of 45-65 were mainly interested in and knowledge about wild herbs and that the majority of the local people knew naturally growing plants. It has been also determined that they have knowledge about edible and non-edible wild herbs, in which period and which parts of wild herbs should be collected (flowers, leaves, roots, stems, etc.) and they had esperience how to consume it (boiling, roasting, drying, tea, etc.).

Keywords − *Edible weed, nutrient, traditional consumption, Isparta*

Isparta Yöresinin Yenilebilir Yabani Otları

[1, *, 3] Isparta Uygulamalı Bilimler Üniversitesi, Orman Fakültesi, Orman Mühendisliği Bölümü, Isparta, Türkiye
[2] Isparta Uygulamalı Bilimler Üniversitesi, Sütçüler Prof. Dr. Hasan Gürbüz Yüksekokulu, Isparta, Türkiye

Makale Tarihçesi
Gönderim: 20.10.2023
Kabul: 23.02.2024
Yayım: 29.02.2024

Araştırma Makalesi

Özet − Anadolu'nun kırsal bölgelerinde yaşayan halkın beslenmesinde yenilebilir yabani otların kullanımı oldukça yaygındır. Doğal ve organik beslenme konusunda bilinçlenme nedeni ile son yıllarda yabani otların kullanımı kentlerde de artma eğilimine girmiştir. Bu çalışmada, bitki çeşitliliği bakımından önemli bir yere sahip olan Isparta yöresindeki halk tarafından gıda olarak tüketilen yabani otlar ve bu otların tüketim şekillerinin belirlenmesi amaçlanmıştır. 2022-2023 yılları arasında yürütülen bu çalışma, Isparta halkının geleneksel gıda olarak tüketilen bitkileri tespit etmek amacıyla yerel halktan oluşan 100 kişi ile yüz yüze görüşmeler gerçekleştirilmiştir. Isparta halkı tarafından tüketilen yabani bitkiler toplanmış ve teşhisleri yapılmıştır. Elde edilen veriler doğrultusunda 15 familyaya ait 23 yabani yenilebilir bitki türü tespit edilmiştir. Anket formları SPSS 25.0 programı kullanılarak analiz edilmiştir. Analiz sonucunda 45-65 yaş arası bireyler ve kadın bireylerin yabani otlarla ilgileri ve bilgilerinin olduğu ve yöre halkının çoğunluğunun doğal yetişen bitkileri tanıdığı belirlenmiştir. Yenilebilir-yenilemez yabani otları, yabani otların hangi dönemde ve hangi kısımlarının toplanması gerektiğini (çiçek, yaprak, kök, gövde vb.) ve nasıl tüketileceği konularında (haşlama, kavurma, kurutma, çay vb.) bilgi sahibi oldukları tespit edilmiştir.

Anahtar Kelimeler − *Yenilebilir yabani ot, gıda, geleneksel tüketim, Isparta*

[1] ebrukaytanlioglu@isparta.edu.tr
[2] ahmetkoca@isparta.edu.tr
[3] huseyinfakir@isparta.edu.tr
*Corresponding Author / Sorumlu Yazar: Ebru Hatice TIĞLI KAYTANLIOĞLU

1. Introduction

People living in rural areas mostly make their living from agriculture and animal products, but they also use natural resources such as plants and forests (Sundriyal and Sundriyal, 2004; Khan et al., 2011). In addition to their traditional using as food, plants are also used in different areas such as medicine, traditional handicrafts, household items, fuel, ornaments, animal feed, toys, amulets, income, etc. (Nedelcheva et al., 2007; Satıl et al., 2008; Doğan et al., 2008; Ugulu and Baslar, 2010; Uğulu, 2011; Sargın et al., 2013; Korkmaz et al., 2016; Ulcay and Şenel 2020; Ulcay and Şenel 2024). Wild resources still maintain their importance for people in poor financial situations (Shackleton et al., 1998, Hussain et al., 2009).

Wild plants complement main foods and also support in terms of balanced nutrition, vitamins, and minerals (Tardio et al., 2006, Hazrat et al., 2011, Hunter et al., 2016; Toledo and Burlingame, 2006). Wild foods help improve dietary diversity and overcome hunger (Stadlmayr et al., 2011).

Wild edible plants are also seen as food, dye, medicine, ornaments and also an important source of income for local people (Özbucak et al., 2006; Altundağ and Özhatay, 2009; Özhatay et al., 2009; Yücel et al., 2010; Doğan et al., 2013; Polat et al., 2013; Ulcay and Şenel 2024). In addition to these using, wild edible plants have an important place in human nutrition (Wehmeyer and Rose, 1983; Luczaj and Szymanski, 2007; Hussain et al., 2009). These wild edible plants are collected by local people for consumption raw or cooked in different ways and for sale in the local public market (Yıldırım et al., 2001; Şekeroğlu et al., 2006; Tan et al., 2011). They are also important food sources for wild life and sustainable biodiversity.

The climate of the Isparta region is variable due to different surface shapes, and it is under the influence of the Mediterranean and the steppe climate. Hence, the diversity of wild edible herbs is also high. This study aims to help introduce local species and nutritional diversity, value the ecosystem, generate income, and ensure the sustainability of edible wild herbs, which are important in biodiversity and as a food source.

2. Materials and Methods

This study was carried out in 2022 and 2023 to determine the wild herbs consumed as food by the people in the Isparta Region and the consumption patterns of these herbs. Face-to-face interviews were held with 100 local people in order to identify the plants consumed as traditional food by the people of Isparta.

Information for the study was obtained by survey-interview method. To identify edible herbs, local people and forest villagers were interviewed and asked to show the plants they used. The identified plants were collected from the field by herbarium techniques and identified from the Türkiye Flora (Davis 1965-1985; Davis et al.. 1988; Güner et al., 2000). The sample size to be applied for the survey study was calculated using the formula $n=[N\times t2\times p\times q]/[d2\times(N-1)+t2\times p\times q]$ (Baş, 2005).Where; n: is the number of samples, N: is the population size (N: 676), t: is the confidence coefficient (t: 1.96 for 95% confidence level), p: is the probability of the feature to be measured in the population (p= 0.5), q: is the probability that the feature to be measured is not found in the population (q= 0.5) and d: is the accepted sampling error (d=10%). By entering the relevant data, the number of surveys to be conducted using this formula was calculated as 96. The surveys were administered to a total of 100 people, including local people and forest villagers from the Isparta region, between March and August 2023. In addition to questions regarding socio-demographic characteristics, the survey forms asked optional questions about knowing, collecting, and consuming wild herbs. 15 questions were asked to the participants. The questions asked to the participants are given in Table 1. The survey forms were analyzed using the SPSS 25.0 (Statistical Package for Social Science) package. In the analysis, first of all, the percentages of the questions and answers digitized according to rank statistics were used.

Table 1
Questions asked to participants

Number	Questions
1	What is your gender?
2	What is your marital status?
3	How old are you?
4	What is your educational background?
5	How much is your monthly Income?
6	What is your job?
7	Do you know the plants that grow naturally in the region?
8	Do you know edible weeds?
9	Do you know the times to pick edible weeds?
10	Do you know the methods of collecting edible weeds?
11	Do you know which parts of edible weeds to collect?
12	Do you know how to consume edible weeds?
13	Where do you get the plants you use?
14	Which part of these herbs do you use most?
15	Which edible wild plants do you know?

3. Results and Discussion

The gender distribution of consumers participating in the surveys conducted in the Isparta Region was 20% men and 80% women (Figure 1). The age distribution of the participants in the survey included the 18-25 ages (10%), the 26-45 ages (20%), the 46-65 ages (50%), and the 66 and over ages (20%). The majority of survey participants are in the middle ages. 70% of the participants were single. The occupational distribution of the participants was 40 farmers, 10 self-employed people, and 50 housewives. The majority of the participants were secondary school graduates. The majority of participants were from the middle-income level (Table 2).

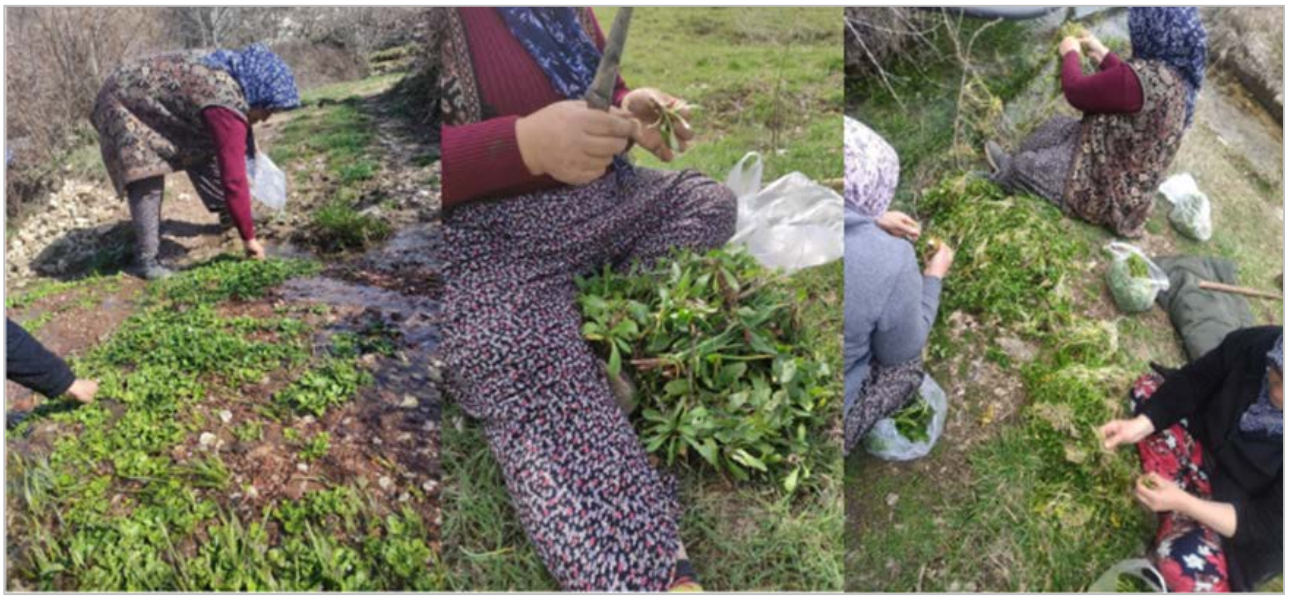

Figure 1. Local people collecting edible wild herbs from nature

Table 2
Socio-demographic characteristics of the participants

Gender	%
Female	80
Male	20
Marital status	%
Single	30
Married	70
Age	%
18-25	10
26-45	20
46-65	50
66 and over	20
Education	%
Illiterate	20
Primary school	20
Middle school	50
High school	10
University	-
Monthly Income (TL)	%
0-3000	10
3001-6000	10
6001-8000	50
8001-11000	30
11000 and over	-

It was determined that 70% of the participants had knowledge the plants that grow naturally in the region. It was also determined that the participants had experience the collection times of edible wild herbs (60%), the collection methods (65%), which parts to collect (63%), and how to consume them (68%;Table 3).

Table 3
Participants' information on edible weeds

Propositions	Totally ag-	Ag-	Undeci-	Disag-	Totally disagree
Know the plants that grow naturally in	70	10	10	10	0
Know edible weeds	70	10	10	10	0
Know when to pick edible weeds	60	30	10	0	0
Know the methods of collecting edible	65	25	10	0	0
Know which parts of edible weeds to	63	27	10	0	0
Know how to consume edible weeds	68	22	10	0	0

It was determined that 20% of the participants bought the plants from the village market, 60% collected them from nature, and 20% both bought them from the village market and collected them from nature. Based on the data obtained, 23 wild edible plant species belonging to 15 families were identified. Local names of these 23 wild plant species and their used parts were given in Table 4 and some of them showed Figures 2-4.

Table 4
Edible wild herbs and their used parts naturally distributed in the region

No	Family	Taxa	Local names	Used part/s	Usage method
1	Amaranthaceae	*Chenopodium album* L. subsp. *album* var. *album*	Sirken	Leaves	Green leaves can be used fresh, roasted, or as filling in pastries.
2	Apiaceae	*Apium nodiflorum* (L.) Lag.	Kazayağı	Leaves	Green leaves are consumed fresh.
3	Araceae	*Arum elongatum* Steven	Dağ mancarı	Leaves	Green leaves are consumed fresh and roasted.
4	Asparagaceae	*Ornithogalum umbellatum L.*	Çiğdem soğanı, sunbala	Leaves and roots	Green leaves and roots are consumed raw or roasted.
5	Asteraceae	*Chondrilla juncea* L.	Karakavruk	Leaves	Green leaves are consumed fresh.
6	Asteraceae	*Cichorium intybus* L.	Güneyik	Leaves	Green leaves are consumed fresh.
7	Asteraceae	*Lactuca serriola* L.	Eşek marulu	Leaves	Green leaves are consumed fresh.
8	Asteraceae	*Scorzonera laciniata* L. subsp. *calcitrapifolia* (Vahl) Marie	Yemlik, dedesakalı, tulu	Leaves	Green leaves can be consumed fresh or roasted.
9	Asteraceae	*Taraxacum officinale* F.H.Wigg.	Hindiba	Leaves	Green leaves are consumed fresh.
10	Boraginaceae	*Cynoglossum creticum* Mill.	Toklubaşı, pisiktetiği	Leaves	Green leaves are consumed fresh and roasted.
11	Brassicaceae	*Capsella bursa-pastoris* (L.) Medik.	Kuşgözü	Leaves	Green leaves can be used fresh, roasted, or as filling in pastries.
12	Brassicaceae	*Nasturtium officinale* R.Br.	Gerdime, su teresi	Leaves	Green leaves are consumed fresh.
13	Brassicaceae	*Raphanus raphanistrum* L. subsp. *raphanistrum*	Turp otu	Leaves	Green leaves can be used fresh, roasted, or as filling in pastries.
14	Caryophyllaceae	*Stellaria media* (L.) Vill.	Kuş otu, ici bici	Leaves	Green leaves are consumed fresh and roasted.
15	Geraniaceae	*Erodium cicutarium* (L.) L' Hér. subsp. cicutarium	İğnelik	Leaves	Green leaves can be used fresh, roasted, or as filling in pastries.
16	Lamiaceae	*Mentha longifolia* L. Hudson subsp. *typhoides* (Briq.) Harley	Su nanesi	Leaves	Green leaves are consumed fresh, in soups, and as tea.
17	Malvaceae	*Malva neglecta* Wallr.	Ebegümeci	Leaves	Green leaves are used fresh, in salads and wrapping.
18	Papaveraceae	*Glaucium grandiflorum* Boiss. & A.Huet subsp. *grandiflorum* var. *grandiflorum*	Gelincik	Leaves	Green leaves are consumed fresh.
19	Polygonaceae	*Polygonum cognatum* Meissn.	Madımak	Leaves	Leaves are roasted and consumed.
20	Polygonaceae	*Rumex angustifolius* subsp. *angustifolius* Campd.	İlabada	Leaves	Green leaves can be used fresh, roasted, or as filling in pastries.
21	Polygonaceae	*Rumex tuberosus L. subsp. tuberosus*	Eşikulağı, kuzukıkırdağı	Leaves	Green leaves are consumed fresh.
22	Portulacaceae	*Portulaca oleracea* L.	Semizotu	Leaves	Green leaves are consumed fresh and made into pilaf with bulgur.
23	Urticaceae	*Urtica dioica* L. subsp. dioica	Isırgan	Leaves	Fresh leaves are dried and used as tea, roasted, and in making pastries.

Figure 2. **a)** Madımak (*Polygonum cognatum*) **b)** Kuşgözü (*Capsella bursa-pastoris*) **c)** Ebegümeci (*Malva neglecta*) **d)** Turpotu (*Raphanus raphanistrum*) **e)** Dağ mancarı (*Arum elongatum*) **f)** Karakavruk (*Chondrilla juncea*) **g)** Eşikulağı (*Rumex tuberosus*) **h)** Eşek marulu (*Lactuca serriola*)

Figure 3**. ı)** Dedesakalı/yemlik (*Scorzonera laciniata*) **i)** Su teresi, gerdime (*Nasturtium officinale*) **j)** Isırgan (*Urtica dioica*) **k)** Toklu başı, pisiktetiği (*Cynoglossum creticum*) **l)** Güneyik (*Cichorium intybus*) **m)** Hindiba (*Taraxacum officinale*) **n)** Su nanesi (*Mentha longifolia* subsp. *typhoides*) **o)** Kazayağı (*Apium nodiflorum*) **ö)** Kuş otu, ici bici (*Stellaria media*)

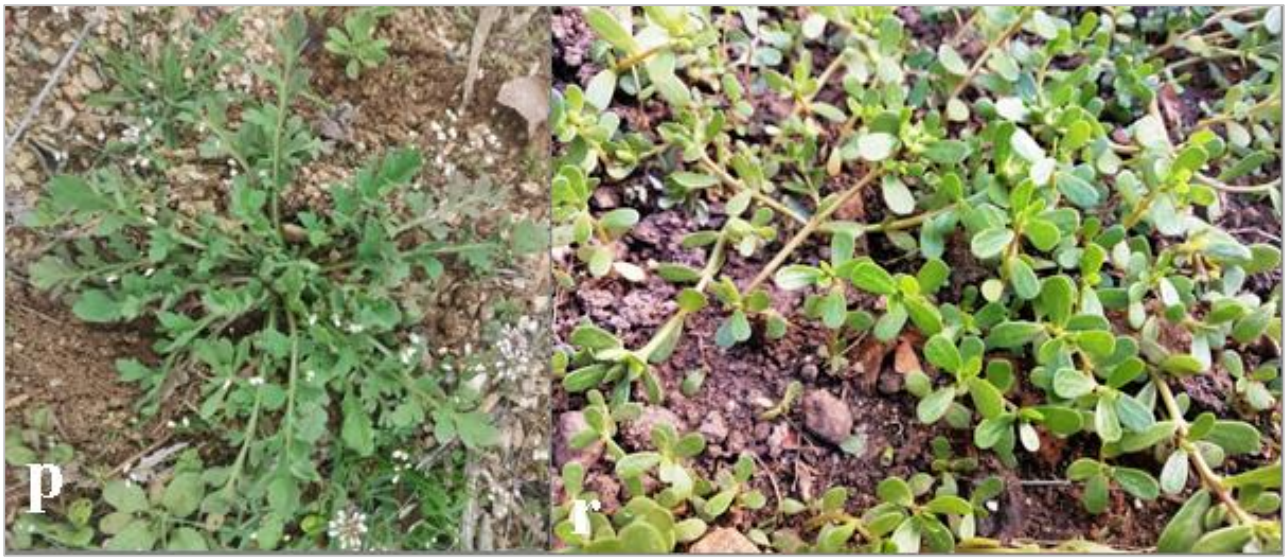

Figure 4. p) Gelincik (*Glaucium grandiflorum* var. *grandiflorum*), r) Semizotu (*Portulaca oleraceae*)

In this study, data on edible wild herb taxa in the Isparta Region were included. In line with the information obtained as a result of the survey, information about the ways of obtaining the plants, their usage patterns, and the parts used were determined. As a result of the survey, it was determined that the majority of individuals participating in the survey were married, female individuals, and farmers. It was determined that most of the participants knew the edible wild herbs that grow naturally in the region, their collection times, collection methods, which parts to collect and how to consume them.

In their study Dogan et. al. (2004), determined that *Raphanus raphanistrum* is consumed by roasting and making salads, stews, stuffed vegetables, casseroles, and soups; *Tragopogon porrifolius* as salad, yogurt casserole; *Capsella bursa pastoris* as food, roasted, soup, salad; *Erodium cicutarium*, roasted, as food; *Malva sylvestris* as flatbread, food, roasted; *Cichorium intybus* as salad and food; *Nasturtium officinale* roasted, as salad; *Lactuca serriola* as salad; *Mentha aquatica* as cake, soup, roasted, salad; *Rumex crispus* can be used as stuffed, pastry, soup, stew, salad, roasted; *Urtica urens* can be eaten, roasted, in salads, soups; *Taraxacum officinale* as salad, raw, stew, pancake, stew, cold drink (flower); *Portulaca oleraceae* as salad, soup, stew, stew; *Polygonum cognatum* as food; *Arum maculatum* stuffed, eaten, roasted, as dessert. Their findings are similar to this study.

Özdemir and Alpinar, (2010), examined *Chondrilla juncea* var. *juncea* leaves are used in cooking and making salads; *Taraxacum crepidiforme* subsp. *crepidiforme* is consumed by cooking; They stated that *Mentha longifolia* subsp. *longifolia* is consumed as a spice: *Rumex scutatus* is cooked as food and consumed as salad, and these findings coincide with this study.

Uluçay and Fakir, (2017), reported that the leaves and stems of *Raphanus raphanistrum*, *Chenopodium album* subsp. *album* var. *album*, *Glaucium grandiflorum* var. *grandiflorum*, *Portulaca oleraceae* are consumed as food; *Urtica dioica* is used as food and medicinally because it is good for cancer diseases; *Tragopogon dubius*, *Capsella bursa- pastoris*, *Lactuca serriola*, *Taraxacum officinale*, *Polygonum cognatum* are consumed arbitrarily; *Malva neglecta* leaves and stems are consumed as food; *Mentha longifolia* subsp. *typhoides* var. *typhoides* as spice; *Rumex angustifolius* subsp. *angustifolius* fresh leaves are consumed as stuffing; *Cichorium intybus* was consumed for food and pleasure. The results were similar to results of this study.

Yeşil and İnal (2019), found that *Arum rupicola* is boiled and baked with sumac, dried and eaten as a wrapping material in winter; They also found that *Capsella bursa-pastoris* is made into pickles while; *Chondrilla juncea* is consumed raw as a salad and *Erodium cicutarium* as a snack and fried with onions of raw; *Malva neglecta*

as salad, boiled and fried; *Mentha longifolia* subsp. *typhoides* as a spice and *Urtica dioica* boiled and fried and spice are used. Consuming the green leaves of the *Arum* sp. plant fresh or roasted; using the green leaves of the *Capsella* sp. plant fresh, roasted, or as a filling in pastries; using the green leaves of the *Erodium* sp. plant as filling material in pastries; using the leaves of the *Malva* sp. plant in making stuffing; consuming the green leaves of the *Mentha* sp. plant fresh, in soup and as tea; the use of dried fresh leaves of the *Urtica sp.* plant as tea and in making pastries. Some of these rusults were different from results of our study.

Wild edible plants are common in most European countries and have an important place in the human diet such as Italy (Guarrera, 2003). The introduction of wild herbs will create an alternative food source to vegetables in healthy nutrition and use as food in the future. However, knowing the preparation methods and consumption methods will further increase the importance of these herbs. Nowadays, when unconscious and unhealthy consumption is increasing, it is very important to transfering of information from the old to the young generations and to record the information regarding the consumption of edible wild herbs. It is known that the use of edible herbs as food will be beneficial for people who have nutritional problems.

Ertuğ (2004) reported that *Chondrilla juncea* plant was used as gum; the green leaves of *Taraxacum officinale*, *Capsella bursa-pastoris*, *Rumex angustifolius*, *Portulaca oleracea*, and *Urtica dioica* plants were used for therapeutic purposes as well as nutrition. Çetinkaya and Yıldız (2018), found that the mallow plant was fried in oil and made with eggs, boiled and consumed by adding yoghurt, and made into a dish by adding herbs such as knotweed and evelik; Soup is made from fresh nettle leaves; Madimak plant is consumed both raw and cooked; Purslane plant is eaten both raw and cooked; They stated that both the core and the leaves of the radish plant are eaten. The above-ground parts of *Chenopodium album*, *Stellaria media*, *Polygonum cognatum*, and *Urtica dioica* plants; They stated that the leaves of *Arum elongatum*, *Chondrilla juncea*, *Cichorium intybus*, *Capsella bursa-pastoris*, *Raphanus raphanistrum*, *Erodium cicutarium*, *Malva neglecta* and *Portulaca oleracea* plants are consumed fresh or cooked (Aladı et al., 2022) . Although there were some differences in the parts of the plants used in this study, generally similar results were obtained.

Ulcay and Şenel (2024) stated the parts of the plants used, how they are used, and their medicinal purposes for Tokat province of Türkiye. By chopping and boiling the leaves of the *Urtica dioica* and chopping or roasting the leaves and stem of the *Capsella bursa-pastoris*. They also indicated that *Malva neglecta* plant is cooked and eaten; by roasting or boiling the *Chenopodium album* and; the leaves and stem of the *Portulaca oleracea* are brewed, crushed or roasted. Besides by frying *the Polygonum cognatum* and *Rumex angustifolius* in oil and brewing are used. The parts of the plants used are similar to the findings that we obtained in this study.

3. Conclusion

In this study, 23 taxa were identified as edible wild herbs and it was determined that the fresh green leaves of these herbs were consumed raw, roasted and using various cooking techniques.

Herb festivals have started to be organized in Türkiye in recent years as a socio-cultural and scirntific activity in different parts of Türkiye. Especially in the Aegean Region, herb festivals are held regularly in Izmir (Alaçatı, Urla, Seferihisar), Muğla (Bodrum) and Balıkesir. Outside the Aegean Region, local herb and herb food festivals are held in Düzce, Yozgat (Sorgun), and Samsun. Herb festivals can benefit the tourism sector, gastronomy tourism stakeholders, and those interested in herb and herb dishes from other disciplines. In addition, herb festivals contribute to introducing, recording, and transferring herbs, cooking, and preparation practices to future generations. In this context, it is thought that holding regular herb festivals in the province of Isparta, which is rich in wild edible herbs and herb dishes, will contribute to gastronomy tourism and the local people.

Acknowledgements

This study was also presented firstly as oral presentation at the 5th International Symposium on Non-Wood Forest Products, 2023.

Author Contributions

E. Hatice TIGLI KAYTANLIOGLU: Designed and planned the study, collected plant samples and held face-to-face meetings with local people.

Ahmet KOCA: Held face-to-face meetings with local people.

Huseyin FAKIR: Plants were diagnosed and designed the analysis.

Conflict of Interest

The authors have no conflicts of interest to declare that are relevant to the content of this article.

References

Aladı, H. İ., Satıl, F., & Selvi, S. (2022). Respect of Ethnobotany and Gastronomy of Edible Wild Plants: Edremit Gulf (Balıkesir) Example. Journal of the Institute of Science and Technology, 12(3), 1375-1385.

Altundağ, E., and Özhatay, N. (2009). Local Names of Some Useful Plants From Igdir Province (East Anatolia). Istanbul J. Pharm. 40: 101-115.

Baş, T., (2005). How to Prepare a Survey, Apply and Evaluate., Ankara: Seçkin Publishing.

Çetinkaya, N., & Yıldız, S. (2018). A Research on the Wild Edible Plants in Erzurum and Their Usage in Local Meals. Journal of Current Tourism Research, 2(Supplement 1), 482-503.

Doğan, Y., Nedelcheva, A. M., Dragica, O. P., & Padure, I. M. (2008). Plants used in traditional handicrafts in several Balkan countries, Indian Tradit Knowlw, (7), 157-161.

Doğan, Y., R. Ugulu, and Durkan, N. (2013). Wild Edible Plants Sold in The Local Markets of Izmir, Turkey. Pakistan J. Bot. 45: 177-184.

Doğan, Y., Baslar, S., Ay, G., & Mert, H. H. (2004). The use of wild edible plants in western and central Anatolia (Turkey). Economic botany, 58(4), 684-690.

Ertuğ, F. (2004). Wild Edible Plants of Bodrum Area (Muğla, Turkey), Turk J. Bot, 28: 161-174.

Hazrat, A., Nisar, M., Shah, J., & Ahmad, S. (2011). Ethnobotanical study of some elite plants belonging to Dir, Kohistan valley, Khyber Pukhtunkhwa, Pakistan. Pak J Bot, 43(2), 787-795.

Hunter, D., I. Ozkan, M. O. D. Beltrame, W. L. G. Samarasinghe, Vv. W. Wasike, U. R. Charrondière, T. Borelli, and Sokolow, J. (2016). Enabled or disabled: is the environment right for using biodiversity to improve nutrition? Front. Nutr. 3: 14.

Hussain, J., A.L. Khan, N. Rehman, M. Hamayun, T. Shah, M. Nisar, T. Bano, Z.K. Shinwari and Lee, I. (2009). Proximate and nutrient analysis of selected vegetable species: A case study of Karak region, Pakistan. Afr. J. Biotechnol., 8(12): 2725-2729.

Guarrera, P. M. (2003). Food medicine and minor nourishment in the folk traditions of Central Italy (Marche, Abruzzo and Latium). *Fitoterapia*, *74*(6), 515-544.

Khan, W., Hiltz, D., Critchley, A., T., Prithiviraj, B. (2011). Bioassay to detect Ascophyllum nodosum extract-induced cytokinin-like activity in Arabidopsis thaliana. J Appl Phycol 23:409–414.

Korkmaz, M., Karakuş, S., & Selvi, S. (2016). An ethnobotanical study on medicinal plants in Erzincan, Turkey. Indian Journal of Traditional Knowledge, 15(2):192-202.

Luczaj, L. and Szymanski, W.M. (2007). Wild vascular plants gathered for consumption in the Polish countryside: a review. J. Ethnobiol. Ethnomed., 3: 17.

Nedelcheva, A. M., Dogan, Y., & Guarrera, P. M. (2007). Plants traditionally used to make brooms in several European countries. Journal of Ethnobiology and Ethnomedicine, 3(1), 1-11.

Özbucak, T. B., H. Kutbay, and Akcin, O. E. (2006). The contribution of wild edible plants to human in the Black Sea region of Turkey. Ethnobotanical Leaflets 10: 98-103.

Özhatay, N, E., Akalın, E., Özhatay, E. and Ünlü, S. (2009). Rare and endemic taxa of Apiaceae in Turkey and their conservation significance. Istanbul J. Pharm. 40: 1-9.

Özdemir, E., & Alpınar, K. (2010). The wild edible plants of western Nigde Aladaglar mountains (Central Turkey). Journal of Faculty of Pharmacy of Istanbul University, 41, 66-74.

Polat, R., U. Çalıcıoğlu, and Satil, F. (2013). Traditional uses of medicinal plants in Solhan (Bingöl-Turkey). J. Ethnopharmacol. 148: 951-963.

Satıl, F., Akçiçek, E., & Selvi, S. (2008). An Ethnobotanicaly Study in Madra Mountain (Balıkesir/İzmir) and Vicinity., Research Journal of Biology, 1(1), 31-36.

Sargın, S. A., Akçicek, E., & Selvi, S. (2013). An ethnobotanical study of medicinal plants used by the local people of Alaşehir (Manisa) in Turkey. Journal of ethnopharmacology, 150(3), 860-874.

Shackleton, S. E., Dzerefos, C. M., Shackleton, C. M., & Mathabela, F. R. (1998). Use and trading of wild edible herbs in the central lowveld savanna region, South Africa. *Economic Botany*, *52*, 251-259.

Stadlmayr, B., E. Nilsso, B. Mouille, E. Medhammar, B.Burlingame, and Charrondiere, R. (2011). Nutrition indicator for biodiversity on food composition. A report on the progress of data availability. J. Food Compos. Anal. 24: 692-698.

Sundriyal, M., & Sundriyal, R. C. (2004). Wild edible plants of the Sikkim Himalaya: Nutritive values of selected species. *Economic Botany*, *58*(2), 286-299.

Şekeroğlu, N., F. Ozkutlu, M. Deveci, O. Dede, Yilmaz, N. (2006). Evaluation of some wild plants in terms of their nutritional values used as vegetable in Eastern Black Sea Region of Turkey. Asian J. Plant Sci. 5: 185–189.

Tan, A., and Taşkın, T. (2011). Some edible wild plants of Turkey and their use. Transaction of the International Scientific Conference "Actual Problems In the Use of Useful Plants", Bakü, Azerbaijan. 26-28 October, 2011.

Tardio, J., Pardo-de-Santayana, M., & Morales, R. (2006). Ethnobotanical review of wild edible plants in Spain. Botanical journal of the Linnean society, 152(1), 27-71.

Toledo, A., and Burlingame, B. (2006). Biodiversity and nutrition: a common path toward global food security and sustainable development. J. Food Compos. Anal. 19: 477-483.

Ulcay, S., and Şenel, G. (2020). An Ethnobotanical Study on Some Medicinal and Edible Plants Distributed Around Tokat in Turkey. Academic Platform-Journal of Enginee-ring and Science, 8(1), 62-69.

Ulcay, S., & Şenel, G. (2024). Plants Used in Traditional Therapy in Pazar (Tokat-Türkiye) and Their Ethnobotanical Properties. Pak. J. Bot, 56(1):1-11.

Uluçay, F. (2017). Ethnobotanical characteristics of some plant taxa naturally distributed in Şarkikaraağaç (Isparta) region. Süleyman Demirel University / Institute of Natural and Applied Sciences / Department of Forest Engineering. Master's Thesis 167pp.

Ugulu, I. (2011). Traditional ethnobotanical knowledge about medicinal plants used for external therapies in Alasehir, Turkey. *Int. J. Med. Arom. Plants*, *1*(2), 101-106.

Ugulu, I., & Baslar, S. (2010). The determination and fidelity level of medicinal plants used to make traditional Turkish salves. The Journal of Alternative and Complementary Medicine, 16(3), 313-322.

Wehmeyer, A.S. and Rose, E. F. (1983). Importance indigenous plants used in the Transkei as food supplements. Bothalia, 14: 613-615.

Yeşil, Y., & İnal, İ. (2019). Traditional knowledge of wild edible plants in Hasankeyf (Batman Province, Turkey). Acta Soc Bot Pol, 88(3), 3633.

Yıldırım, E., A. Dursun, and Turan, M. (2001). Determination of the nutrition contents of tıe wild plants used as vegetables in upper Coruh Valley. Turkish Journal of Botany 25: 367-371.

Yücel, E., F. Güney and Şengün, I.Y. (2010). The wild plants consumed as a food in Mihalıccık district (Eskişehir/Turkey) and consumption forms of these plants. Biological Diversity and Conservation. 3 (3): 158-175.