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# A Mixed Research on Determining the Edible Wild Herbs (EWH) Consumption of Local People in Şırnak \*\*

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Abstract

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The aim of this study is to determine the edible wild herbs (EWH) grown in Şırnak province and to reveal the consumption habits of local people towards EWH. Within the framework of this purpose, the research was conducted using the exploratory design of the mixed method. Face-toface interviews (n:42) and questionnaire techniques (n:276) were used as data collection tools. Snowball sampling method was preferred to collect qualitative data and convenience sampling was preferred to collect quantitative data. The data were evaluated by content analysis and descriptive statistics. In the research, answers to questions such as the names by which herbs are known locally, storage conditions, which diseases they are good for, how often they are used and how they are consumed, and how they are consumed were sought. According to the findings of the research, 75 different edible herbs that local people utilize as edible wild herbs were identified. Apart from food, these herbs are also used for disease treatment, ornamental, cosmetic and chemical purposes. The reasons for consuming herbs are mostly delicious and healthy. It was determined that they are mostly used for breakfast, salads, pickles and spices. As a result of these findings, data on the consumption habits of edible herbs in Şırnak were put forward and various suggestions were presented.

Article Type

Research Article

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# INTRODUCTION

Rapidly increasing human population and ever-changing living conditions lead to a greater need for industrialization; however, rapidly developing industrialization leads to the unconscious use of natural resources and the destruction of the ecological balance. For this reason, environmental problems have become a major problem for both today's society and future generations (Saba, 2019, p. 1). However, the culture of consumption is also changing the ecological balance of the world. Today, the increasing number of concretized cities, occupied natural areas, all kinds of toxic wastes accumulated due to various factors, the "greenhouse effect" that increases atmospheric temperature and changes climatic conditions, etc. are among the causes of developments that threaten human health (Gouverneur, 1997, p. 125). Consumption culture is directly linked to the change and development of living conditions as well as being a part of material culture (Köroğlu, 2013, p. 222). According to Giddens, consumption is linked to economic development. As living standards increase, people are in a position to buy more food, clothes, personal belongings, vacations, cars, etc. On the other hand, consumption can also have negative effects (Giddens, 2012, p. 995).

The desire for people to live in better conditions and the desire to live longer encourage consumers to eat healthier and more consciously. Similarly, organic agricultural products, which are thought to be healthier for consumers, have also become among the favorite products of consumers. Organic products should be consumed to continue to protect our health and to create healthy generations. Along with this consumption, agricultural production methods that do not harm the soil, water and air and do not threaten the environment and living things should be supported. Since the EWHs grown in rural areas are likely to be organic products, people's habit of consuming these herbs may increase.

In this study; It is aimed to reveal what are the EWHs grown in Şırnak, local names, for what purposes they are used, which methods are used, how they are preserved, how they are supplied, which diseases they are good for, how long they have been used, how often they are used, how consumption habits are obtained, which parts of the herbs are consumed, how they are used in meals and how the people consume them. Within the framework of this purpose, mixed research method was applied and then the data obtained were evaluated and suggestions were made. The study is unique in that it is the first time that EWHs in Şırnak are put forward for the first time and a comprehensive research is carried out using mixed method research.

## Edible Wild Herbs in the Context of Eco-Gastronomy

Edible wild herbs (HHE) are "living things that can grow spontaneously in their natural areas without any interaction with any human element" (Karadağ & Özer, 2022; Leonti et al., 2006). Dishes made with edible wild plants are traditionally and commonly called "herb dishes" in Turkey. Most of the plants used in this field are herbaceous (Karaca et al., 2015, p. 32). Herbs are seen as cultural heritage in many places (Kocadağ et al., 2021).

Plants are not only consumed for food but also constitute raw materials for various branches of the industrial sector such as cosmetics, medicine, paint, and sugar. The quantity of plants used for medicinal purposes has continuously increased throughout history. During the Mesopotamian civilization, the amount of herbal drugs used was around 250, while during the Greek period it rose to 600, and during the Arab-Persian civilization, it reached approximately 4,000. By the early 19th century, the known number of medicinal plants had reached 13,000.

Additionally, in recent years, edible wild herbs (EWHs) have been observed to not only be present in rural areas

but also in urban areas and food and beverage establishments. Places and businesses that understand the importance of EWHs use them in the context of gastronomy tourism. They aim to attract consumers who seek healthier eating options to their establishments or destinations. Furthermore, EWHs have been evaluated in the context of eco-gastronomy in recent years. Gastronomy is defined as "the culture or art of cooking and eating, especially as an academic subject," while eco-gastronomy can be described as a factor that considers environmental concerns in the selection, preparation, and marketing of cooking and eating, reflecting the content of gastronomy that involves cooking and eating special dishes.

Plants not only serve as food but also constitute the raw material for various branches of the industrial sector such as cosmetics, medicine, paint, sugar, etc. (Eminağaoğlu, 2005, p. 87). The quantity of plants used for therapeutic purposes has shown a continuous increase throughout history. The amount of herbal drugs used during the Mesopotamian civilization period was around 250, while during the Greek period it reached 600, and during the Arab-Persian civilization period, this number was around 4,000, and by the early 19th century, the known number of medicinal plants reached 13,000 (Baytop, 1999, p. 3). Furthermore, in recent years, wild plants have not only found their place in rural areas but also in urban areas and food and beverage establishments. Places and businesses that understand the importance of wild plants also use them in the context of gastronomic tourism. This aims to attract consumers who prefer healthier eating habits to the establishment/destination. Additionally, wild plants have been evaluated in the context of eco-gastronomy in recent years. Gastronomy is defined as "the culture or art of cooking and eating, where food and beverages are prepared and presented in a systematic order within the framework of hygiene and sanitation rules to appeal to the eye and palate" (Dilsiz, 2010, p. 3; Özdemir & Altiner, 2019, p. 3). Ecogastronomy, on the other hand, can be defined as a factor that takes environmental concerns into account in determining, preparing, and marketing the content of gastronomy, which reflects cooking and eating special dishes (Nilsson, 2013, p. 190). Eco-gastronomy focuses on ensuring the sustainability of agricultural practices and prioritizing natural production methods and traditional dietary habits, taking into account environmental and human health (Görkem et al., 2016, p. 601). In this context, every stage of the process from wild plants naturally growing to reaching the table is a matter of eco-gastronomy. As gastronomy evolves, people's interest in local cuisines has increased, leading businesses to preserve their unique culinary structures and local characteristics while also undergoing changes due to commercial activities. Dining habits that provide people with a pleasant time and can minimize their expenses increase the attractiveness of local cuisines (Serceoğlu, 2014, p. 37). The primary goal of eco-gastronomy is to practice sustainable gastronomy, which encompasses the process of continuing its existence within the framework of traditional methods. Therefore, it is also referred to as sustainable gastronomy (Kilichan, 2014, p. 7). Eco-gastronomy has the potential to be a pioneer of change and renewal for the world (Björklund, 2013, pp. 12-41).

In today's context, wild edible species (WES) have become increasingly important for healthy nutrition. The increasing population, inclination towards natural and healthy foods, variety in demand, and the problems arising from insufficiently balanced and regular nutrition such as obesity, dietary issues, and widespread chronic diseases, direct people towards consuming edible wild species (Karabak, 2017, p. 28). This trend is also observed in recent studies. Karadağ and Özer (2022) evaluated wild edible plants in the context of gastronomic tourism and focused on the Aegean Region. Akan and Balos (2023) evaluated the wild plants consumed in the Karaköprü district of Şanlıurfa from an ethnobotanical perspective and revealed that 57 wild plants belonging to 28 different families were used for

food purposes. Üstüner (2022) identified 103 herbs, trees, and shrubs used for food purposes in Kahramanmaraş, and the study also revealed their usage purposes. Karadağ (2015) conducted a similar study in the Datça Region, identifying 40 herbs used by the local people and elucidating the health and food uses of these herbs. Keskin ve Dönmez (2020) provided information on the identification and preparation of 14 types of edible wild plants in Nevşehir with the aim of adding these plants to the literature. Standard recipes for dishes made from these plants were derived in this study. Hamarat and Şahin (2023) determined that out of 61 types of WES used in Bingöl province for folk medicine, gastronomy, and cultural purposes, 58 were consumed as food products in the kitchen. Demirel and Samav (2021) identified 13 different WES in Gerze and determined their local names and usage methods, whether consumed fresh, as leaves, or whole. Belli and Uluer (2023) listed 26 types of WES in the Besni district of Adiyaman and provided information on the most commonly consumed herbs along with their usage in dishes. Also

Yılmaz and Akay (2023) determined the utilization areas of 50 different plants as a result of the gastronomic investigation of wild plants among various ethnic groups. Evaluations were made on traditional usage purposes of these plants, parts consumed, and methods of utilization. In the study by Şimşek and Güleç (2020), it was found that there has been an increase in the number of articles, presentations, and master's theses in recent years as a result of research conducted on wild edible plants within the scope of gastronomy tourism between 2009-2019.

#### **Research Area**

The research area, Şırnak, is located between 37°31' north latitude and 42°28' east longitude. The majority of its territory lies within the boundaries of the Eastern Anatolia Region, with a smaller portion falling within the Southeastern Anatolia Region (Gülenç, 2013, p. 6). While the winters are harsh in the Şırnak Center, Beytüşşebap, and Uludere districts located in the Eastern Anatolia Region, winters are milder in the Cizre, İdil, Güçlükonak, and Silopi districts within the Southeastern Anatolia Region, although summers are extremely hot (Republic of Turkey Ministry of Agriculture and Forestry, 2022).

In the high slopes of the mountains, there are scattered oak forests with rugged characteristics, and wild pistachios called "bittim" can be observed on the slopes of the mountains surrounding the province. In the limited areas where the Mediterranean climate is observed (Cizre, İdil, and Silopi), oleander and olive trees grow along the riversides (Ministry of Culture & Tourism, 2020).

In the western and southern parts of Şırnak province (İdil, Cizre, and Silopi), except for some plains, the majority consists of plateaus deeply incised by rivers (Şırnak 2023 Vision Workshop). When looking at the topographical features of the province, it can be seen that it has two different structures: mountainous and plateau. In the province where mountainous areas occupy the most space, the Fareşin and Nordüz Plateaus (part of it) located in the western part of the Hakkari Mountains, as well as the plains of İdil, Cizre, and Silopi districts in the other part, are also plateau areas (Top, 2010).

In terms of forest resources, Şırnak is a province rich in area but poor in quality. The total forest area in Şırnak province is 257,600.50 hectares, while the non-forest area is 428,282 hectares. The total area of the province is 685,882.5 hectares (Erdoğan & Kalay, 2016).

According to the data for the year 2023, the total population of the province, which is 570,745, consists of 299,177 males (52.4%) and 271,568 females (47.6%) (Turkish Statistical Institute, 2024).

## Method

#### Aims

Parallel to the global issue of food crisis becoming increasingly significant, there is a noticeable trend both in Turkey and worldwide for people to move away from ready-made and hormone-laden foods towards natural nutrition (Ceylan, 2019, p. 31). The aim of this research is to determine the consumption habits of the local population regarding edible wild plants grown in Şırnak province and evaluate them within the context of eco-gastronomy. Benefiting from similar previous studies (Ceylan, 2019; Aygün, 2019; Nacakcı, 2015), the following questions were addressed. The research questions were deemed ethically appropriate by the Şırnak University Ethics Committee in its meeting on 09.04.2021 and decision numbered 2021/39.

- What are the edible wild plants in Şırnak?
- What are the local denominations in the culture?
- What are the usage methods of the plants?
- For what purposes are the plants used?
- How are the plants preserved?
- Since when have the plants been consumed?
- What diseases do the plants help with?
- Where are the plants sourced from?
- How is the habit of consuming plants acquired?
- What parts of the plants are consumed and how?
- How often are the plants consumed?
- How are the plants used in dishes?

This research aims to uncover the edible plants existing throughout the province, raise awareness, prevent their oblivion, transfer them to future generations, and contribute to rural development by utilizing them in the context of eco-gastronomy.

In this study, an exploratory sequential mixed methods research design was used. Initially, qualitative research was conducted, followed by quantitative research. The reasons for using mixed methods are to ensure that the results obtained with qualitative and quantitative methods confirm, verify and match each other. In this study, the mixed method was used to reveal whether the findings obtained with qualitative methods were confirmed by the majority of the local people.

## **Qualitative Research Phase**

In this research, the case study design commonly used in qualitative research was employed. The case study design is defined as "an in-depth examination of a phenomenon in its real-life context using various data collection tools" (Yin, 2009, p. 18). In this research, snowball and criterion sampling methods were chosen due to the guidance of different individuals during the interviews conducted with knowledgeable individuals about the subject. When determining these individuals, it was ensured that they were people who collect or consume edible herbs and reside in Şırnak Province. With these methods, the study group consisted of 42 voluntary individuals who agreed to participate in the research. The research was conducted between 01.04.2021 and 30.11.2021.

During the interviews, notes were taken with the consent of the participants, and the interviews were recorded. The audio recordings were transcribed using the MAXQDA 2022 analysis program. The data obtained from a total of 42 participants were added to the MAXQDA 2022 analysis program as documents. The findings were classified using the inductive approach and the code-category-theme generation method proposed by Straus and Corbin (1990), and the number of repetitions was indicated A coding based on the literature was not done beforehand; instead, a deductive approach was used, and themes and categories were named based on the data.



Figure 1. Images from fieldwork (authors).

Structured interview technique was used to collect data in the research. Individuals who would be part of the research group were first researched locally, and then contacted by phone for interviews. During the phone calls, the subject was explained, and appointments were made for face-to-face interviews. The interviews took place at locations preferred by the participants. Visits were made to the places where the participants resided, and also to the areas where edible herbs grew.

In qualitative research, reliability is related to the repetition of research results. Reliability is divided into internal reliability and external reliability. Internal reliability concerns whether other researchers can reach the same results using the same data, while external reliability concerns whether the research results can be obtained similarly in similar environments (Karataş, 2015, p. 76).

In this research, to ensure reliability and validity; a) interviews were conducted in a location deemed suitable by the participant, b) interviews were conducted with experienced individuals, c) face-to-face interviews and fieldwork were conducted, d) audio recordings were made, e) participant statements were transcribed, f) expert opinion was sought, g) participant confirmation was obtained, h) participants were not intervened with, i) the herbs mentioned by the participants were photographed on site.

### **Quantitative Research Phase**

In this research, primary data sources were utilized. Data were obtained through the survey technique. The survey questions were created considering the responses given to the interview questions in qualitative research. Nine of the

questions are demographic variables, and nine of them are questions investigating edible herb consumption behaviors.

The population of the research is individuals consuming edible wild plants in Şırnak province. The sample was formed by individuals over the age of 18 residing in the city center and districts (including hamlets and villages) using convenience sampling method. The number of participants in the survey is 276. The research was conducted as an online survey between 23.06.2022 and 24.10.2022.

Descriptive statistics (frequency, percentage, mean, etc.) and analyses were performed using the SPSS program for evaluating the obtained data.

#### **Research Findings**

This section presents the findings related to the data obtained through qualitative and quantitative research methods. First, qualitative findings are provided followed by quantitative research findings.

#### **Qualitative Research Findings**

When examining the demographic characteristics of the participants (Appendix-Table 1)., it is observed that there are 21 (50%) female participants and 21 (50%) male participants. The number of participants who are married is 39 (92.86%), while the number of single participants is 3 (7.14%). Regarding the participants' occupations, there are 19 (45.24%) housewives, 10 (23.81%) self-employed individuals, 6 (14.29%) retirees, 3 (7.14%) workers, and 2 (9.52%) security guards and laborers each. The highest proportion in terms of education level is represented by the number of individuals who cannot read or write, with 23 (54.76%) participants. The age group with the highest average age consists of 18 (42.86%) individuals aged between 61-70 years. It is observed that interviews were conducted with participants from 20 different settlements; the majority of interviews, with 21 (50%) participants, took place in other settlements (town, township, hamlet). Findings on Participants' Consumption Habits

All participants stated that they consume edible wild plants (Appendix-Figure 1), primarily for health reasons (Appendix-Figure 2). In addition to health reasons, cultural factors, naturalness, and accessibility were also cited as reasons for consuming wild plants. The majority of participants mentioned that they have been consuming wild plants since childhood, while some have been consuming them for a long time (Appendix-Figure 3).

Based on the information provided by the participants, it is observed that they pronounce the names of plants using local names. A total of 61 different plant names were identified by the participants. Turkish and Latin names were added with reference to the literature. Thirteen of these names could not be matched with Turkish and Latin equivalents.

Tabl	le 1.	Local,	Turkish,	and	Latin	Names	of	Edible	Wild	Herbs
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Sıra No	Local name	Turkish Name	Latin Name
1	Belbeni	Baldırgan	Heracleum mantegazzianum
2	Lüşık	Başlı soğan	Allium giganteum
3	Rozmarin	Biberiye	Rosmarinus officinalis
4	Biyı	Kuşkonmaz	Asparagas officinale
5	Hegedan	Çakşırotu	Ferula orientalis
6	Stırk	Çiriş	Eremurus spectabilis

#### **Table 1.** Local, Turkish, and Latin Names of Edible Wild Herbs (cont.)

7	Pikelaç	Çobançantası	Capsella bursa-pastoris
8	Kafur	Defne	Laurus camphora
9	Heliz	Çakşırotu	Prangos pabularia Lindley.
10	Reşal	Dereotu	Anethum graveolens
11	Kivar	Deve dikeni	Onopordum acanthium
12	Tolatırş	Düğün çiçeği	Ranunculus
13	Tolık	Ebegümeci	Malva sylvestris
14	Kerbeş	Eşek dikeni	Eryngium billardieri Delar.
15	Rıhan	Fesleğen	Ocimum basilicum
16	Xeşxecuk	Gelincik	Papaver rhoeas
17	Xerdel	Hardal	Erysimum repandum L.
18	Gezgez	Isırganotu	Urtica dioica L.
19	Rêvaz	Işkın	Rheum ribes
20	Mend	İri Handokotu	Chaerophyllum macrospermum
21	Kefçık	Kaşıkotu	Cochleria
22	Catır	Kekik	Ziziphora clinopodioides
23	Giyatale	Kekre	Acroptilon repens
24	Kereng	Kenger	Gundelia tournefortii
25	Selmı	Kırmızı Köklü Horozibiği	Amaranthus retroflexus
26	Kerefs	Kök kerevizi	Apium graveolens
27	Siyabo	Köseotu	Diplotaenia cachrydifolia Boiss
28	Tırşuk	Kuzu kulağı	Rumex acetosa
29	Ürge Alo	Mesire otu	Pimpinella anthriscoides
30	Punk	Nane	Mentha longifolia
31	Çev1	Oluklu Çakşır	Ferulago angulata
32	Xitık	Orman Maydanozu	Anthriscus sylvestris
33	Giyabend	Pelinotu	Artemisia absinthium
34	Kuncıruk	Pıtrak	Xanthium strumarium L.
35	Roka	Roka	Eruca vesicaria
36	Parpar	Semizotu	Portulaca oleraceae
37	Goris	Sığır dili	Anchusa azurea
38	Küzı	Su Torosi	Nasturtium officiale
39	Tuzık	Su Telesi	Nasturium omemale
40	Kelendor	Yabani Kereviz	Smyrnium olusatrum
41	Kiva	Yabani Mantar	Pleurotuseryngiivar. Ferulae
42	Soryaz	Yabani Pırasa/Doğu Soğanı	Allium ampeloprasum
43	Sirik	Yabani sarımsak	Allium
44	Reşad	Yabani tere	Lepidium sativum
45	Pivuk	Yayla Kestanesi	Crocus cansellatus
46	Kari	Yılanyastığı	Arum elongatum
47	Giyagelmuk	Kar Çiçeği	Eranthis hyemalis
48	Xivar	Kayışkıran	Ononis spinosa
Resides the	dible wild plants mor	tioned above other plants such as ac	lidu belktah beza dirdiri dundeli giyabo viyuk
kijsmes nêri	sivono sovmo tôhos	and tituk were also included as re-	sponse options
KUSIIIdS, IICII	, 5174110, 5481110, 1011112	iv, and muk were also included as re	

Participants mentioned that edible wild herbs are beneficial for various diseases such as diabetes, inflammation, cancer, kidney stones, shortness of breath, rheumatism, hemorrhoids, gout, heart conditions, stomach issues, blood purifying, deworming, hypertension, toothache, Covid-19, brain health, insomnia, urinary issues, eye health, ovarian muscle and vein relaxation, cough, abdominal, and headache (see Appendix-Figure 4).

It was observed that the storage of herbs is categorized into two groups: modern and traditional methods (see Appendix-Figure 5). Most of the consumed wild plants are stored using modern methods like refrigeration and freezing, but some participants mentioned utilizing traditional methods like storing underground or in dry places.

Participants mostly gather plants from mountains, but they also obtain them from markets and their own gardens (see Appendix-Figure 6). Moreover, it was found that participants acquire their habit of consuming wild plants mostly from their parents and then from traditions (see Appendix-Figure 7).

Participants indicated the parts of plants they consume, including roots, leaves, and the whole plant (see Appendix-Figure 8), with leaves being the most commonly consumed part.

Furthermore, the consumption method varies depending on the type of plant. It was found that plants are mostly consumed by cooking, but they are also consumed by frying, adding to cheese and soup, and eating raw (see Appendix-Figure 9).

Participants indicated that the most commonly consumed wild plants in the kitchen are mainly asparagus, wild garlic, and wild onion (see Appendix-Figure 10). The majority of participants stated that they would consume wild plants as long as they are accessible (as long as they exist and on a daily basis), and additionally, they consume them seasonally, monthly, or weekly (see Appendix-Figure 11).

Edible wild plants can be used in the kitchen in various categories such as egg dishes, soups, pilafs, salads and pickles, spices, and beverages (see Appendix-Figure 12). Moreover, one plant can be used in multiple ways. For example, mint can be used both as a spice and in beverages.

#### **Quantitative Research Findings**

In this section, the demographic characteristics of the participants and the responses to the survey questions regarding the consumption habits of edible plants are discussed.

#### **Demographic Findings**

The demographic information and frequency values of the 276 participants who participated in the survey are presented in the table below. The majority of the participants, 73.6%, have resided in Şırnak for over 21 years. Most of them (80.1%) reside in urban areas, with a monthly income of 5,500 TL or less (49.6%), and 76.9% are between the ages of 19 and 40. Additionally, 64.5% are single, and 75.5% are male (see Appendix-Table 3).

Findings on participants' consumption habits towards EWHs

<b>Table 2.</b> Descriptive Statistics for Responses			
Acquisition of Regional Plant Consumption Hab	its		
Category	Ν	Response Percentage	Percentage of Participants
		(%)	
From the Region's Traditions	121	43,8	43,8
From Parents	127	46,0	46,0
From Grandparents	20	7,2	7,2
From Personal Experience	8	2,9	2,9
Total	276	100,0	100,0
Most Important Factor Leading to Herb Consur	nption		
Economic Aspect	4	1,4	1,4
Taste	90	32,6	32,6
Cultural Aspect	24	8,7	8,7
Accessibility	5	1,8	1,8
Healthiness	73	26,4	26,4
Naturalness	80	29,0	29,0
Total	276	100,0	100,0
Methods of Preserving Herbs			
Modern	236	85,5	85,8
Traditional	39	14,1	14,2
Total	275	99,6	100,0

Table 2. Descriptive Statistics for Responses (cont.)			
Methods of Procuring Herbs			
Gathering from Mountains, Plains, and Plateaus	132	47,8	47,8
From Own Garden	16	5,8	5,8
From Market, Bazaar	76	27,5	27,5
From Close Relations (Relatives, Neighbors)	52	18,8	18,8
Total	276	100,0	100,0
Other Usage Methods Besides Food (Multiple			
Choice)			
Therapeutic Purposes	152	46,8%	60,1%
Ornamental	23	7,1%	9,1%
Fragrance	45	13,8%	17,8%
Cosmetic	14	4,3%	5,5%
Chemical	12	3,7%	4,7%
Do Not Use for Purposes Other Than Food	79	24,3%	31,2%
Total	325	100,0%	128,5%
Usage in the Kitchen (Multiple Choice)			
Spice	136	14,2%	49,3%
Beverage	47	4,9%	17,0%
Salad and Pickle	139	14,5%	50,4%
Pastry	66	6,9%	23,9%
Meatball	40	4,2%	14,5%
Egg Dish	123	12,9%	44,6%
Soup	120	12,6%	43,5%
Appetizer	86	9,0%	31,2%
Pilaf	37	3,9%	13,4%
Breakfast	162	16,9%	58,7%
Total	956	100,0%	346,4%

It has been determined that the consumption habit of EWHs is mostly acquired from parents (%46) and regional traditions (%43.8). The most important reason for consuming EWHs is their taste (%32.6). 85.5% of the participants preserve herbs in a modern way (refrigerator, freezer, etc.). Additionally, participants (%47.8) expressed that they collect EWHs from mountains, plains, and plateaus themselves. Apart from food, participants consume EWHs for treating illnesses (%60.1), and it has been found that EWHs are mostly consumed for breakfast in the kitchen (%58.7).

Table 3. Consumed Herbs for Eating and Drinking/ Most Consumed (Top 10)									
Consumed Herbs	for Eating	and Drinking		Most Co	Most Consumed Edible Herb (Top 10)				
Herbs	N	Response Percentage %	Participant Percentage %	Herbs	N	Response Percentage %	Participant Percentage %		
Gundelia tournefortii	157	14,2%	61,1%	Allium neapolitanum	116	16,5%	43,6%		
Allium ampeloprasum	162	14,7%	63,0%	Gundelia tournefortii	118	16,8%	44,4%		
Allium neapolitanum	126	11,4%	49,0%	Asparagas officinale	36	5,1%	13,5%		
Asparagas officinale	57	5,2%	22,2%	Allium ampeloprasum	139	19,7%	52,3%		
Chaerophyllum macrospermum	39	3,5%	15,2%	Portulaca oleraceae	41	5,8%	15,4%		
Rheum ribes	59	5,3%	23,0%	Mentha longifolia	16	2,3%	6,0%		
Mentha longifolia	55	5,0%	21,4%	Eruca vesicaria	23	3,3%	8,6%		
Diplotaenia cachrydifolia	43	3,9%	16,7%	Anethum graveolens	12	1,7%	4,5%		
Arum elongatum	34	3,1%	13,2%	Ziziphora clinopodioides	12	1,7%	4,5%		
Portulaca oleraceae	59	5,3%	23,0%	Rheum ribes	25	3,6%	9,4%		

It has been observed that participants in the survey provided names for 53 different edible herbs, pronounced with their local names. Among these 53 herbs, the most commonly pronounced ones are ranked as follows: firstly, Soryaz (Allium ampeloprasum) with 63% (162 times), secondly, Kereng (Gundelia tournefortiil) with 61.1% (157 times), and thirdly, Sirik (Allium neapolitanum) with 49% (126 times).

The top three most consumed herbs, as indicated in the responses, are as follows: firstly, Soryaz (Allium ampeloprasum) at 19.7% (139 times); secondly, Kereng (Gundelia tournefortiil) at 16.8% (118 times); and thirdly, Sirik (Allium neapolitanum) at 16.5% (116 times).

Table 4. Effects of herbs on diseases\*

Weed Name	Benefits	F	Weed Name	Benefits	F
	Wolf drops	1		Good for	2
	Good against poisoning	1		Relieves	1
	Good for lung diseases			Has	1
Malva sylvestris (Ebegümeci)	Good for intestinal diseases	1	Allium	Good for	1
	Good for stomach disorders	1	ampeloprasum	Good for the	3
	Strengthens immunity	1	(Doğu soğanı)	Relieves	1
	Good for diabetes	1		Regulates	1
	Stabilizes blood pressure	3		Prevents flu	1
	Prevents cancer	2	Eruca	Stabilizes	1
	Good for stomach discomfort	5	vesicaria	Good for the	1
Cruzdelie Assumefentii	Strengthens the immune system	1	Plantaginaceae	Dehydrates	1
(Kongon)	Good for sore throat	1	(Sinirotu)	Relieves	1
(Keliger)	Stabilizes sugar	5		Keeps	1
	Prevents laryngeal cancer	1		Good for	1
	Cell regenerates	1		Prevents	1
	Good for headache	1	Dipiotaenia	Good for	3
	Dries inflammation	1	cachrydholla	Prevents	1
	Beautifies the skin	1	Bolss	Good for	1
	Relieves toothache	1	(Koseotu)	Good for	1
	Good for colds	1		Relieves	1
Mentha longifolia (Nane)	Prevents flu		Hypericum perforatum' (Kantaron)	Relieves joint pain	1
	Has a refreshing effect 1			Good for	1
	Prevents cancer	1		Relieves	3
	Works the intestines	1		Relieves	1
Arum elongatum (Yılanyastığı)	Expectorant	1		Prevents	1
	Eliminates poison	1	Portulaca	Good for	1
	Relieves stomach digestion	2	oleraceae	Strengthens	3
	It is a cure for everything.	1	(Semizotu)	Prevents	1
	Good for stomach ailments	2		Has anti-	1
	Good for toothache	3		Good for	1
	Cleanses the bloodGood for menstrual crampsReduces headache			Relieves	2
				Good for	2
Ziziphora clinopodioides (Kekik)			Raphanus	Good for	1
	Removes inflammation	2	sativus (Turp)	kidney	Ļ
	Has a pain-relieving effect	3	Anchusa	А	1
	Regulates digestion	1	3711re9	Regulates	1
	Good for colds	2	(Sığırdili out)	Facilitate	1
	Good for abdominal pain	2		Keeps you	1

# Table 4. Effects of herbs on diseases\* (cont.)

	D . 11 1 .	10		NT 1.	4
	Prevents diabetes	12	{	No weight	1
	Prevents cancer	10	4	Prevents	1
	Good for rheumatism	1		Good for	2
	Good for stomach disorders	3		Dries	1
	Regulates digestion	1	Foeniculum vulgare (Rezene)	Dries inflammatio n	1
	Prevents vomiting	1		Good for	1
Rheum ribes	Good for diabetes	1	Centaurea solstitialis (Çakırdikeni)	Intestinal work	1
(Içkın, Yayla Muzu)	Good for kidney diseases	1	Beta vulgaris (Pancar)	Prevents inflammatio	1
	Regulates the bowel	1	Curcuma longa (Zerdeçal)	Pancreatic cancer	1
	Stabilizes blood pressure	1	Teucrium chamaedrys (Qesel Mahmut)	Good for diabetes	1
	Good for loss of appetite	1	Petasite Officinalis (Veba out)	Reduces fever	1
	Relieves vitamin B12	1		Good for	1
Cassia angustifolia (Açlık out)	Prevents constipation		Urtica dioica	Regulates digestion	1
	Relieves insomnia	1	L.	Prevents	1
Melissa officinalis L. Sinonimi (Melisa out)	Gives serenity	1	(Isirgan out)	Prevents respiratory	1
Salvia Officinalis (Adaçayı)	Prevents nausea	1		Good for skin	1
Asparagas officinale (Kuşkonmaz)	Good for the intestines	2	Prangos pabularia Lindley. (Çakşır out)	Strengthens muscles	1
Monstera Deliciosa	The vine is good	1	Tilia cordata (Ihlamur)	Good for colds	1
(Deve tabanı out)	Prevents inflammation	1	Allium	Good for stomach	3
	Prevents cancer	2	m (Vahani	Has	2
	Prevents laryngeal cancer	2	(1 avain sormeole)	Stabilizes	2
Chaerophyllum macrospermum (İri	Good for celiac disease	1	sai misakj	Facilitates	1
Handok out)	Prevents bowel cancer	2	Answer		59
	Prevents stomach diseases	1	No idea		34
		1	Total		27

\*These findings are based on the beliefs of local people and should not be taken into account for treatment as there is no scientific data.

When the participants were asked the question 'Which diseases the herbs you consume are good for', it was determined that 59 of the participants did not answer this question and 34 people did not have any information about this question. In terms of respondents, local people claim that herbs are good for many diseases. The most emphasized here is the effect of liquor on diabetes and cancer prevention.

#### **Conclusion and Suggestion**

In this research, the identification of edible wild herbs grown in the Şırnak province and their consumption patterns by the local community have been examined within the context of eco-gastronomy. Data was collected through a mixed method approach involving interviews and surveys, and findings were analyzed through content and frequency analyses.

Upon examining the common findings from both field studies in the mixed research, it was determined that the most consumed wild plants were cattail, wild onion, asparagus, and wild garlic. The majority of participants acquired their wild plant consumption habits from their parents, and the plants were typically gathered by themselves from mountains, plateaus, and highlands. It was also found that these plants were stored using modern methods such as refrigerators and freezers. Through interviews and surveys, a total of 75 EWHs names were identified. Additionally, it was revealed that EWHs were also used by the community for their medicinal properties. While the primary reason for consuming EWHs was cited as health during interviews, taste was prioritized according to the survey results. Some participants mentioned consuming EWHs due to cultural reasons, their naturalness, and accessibility.

In quantitative research, it was found that wild plants were predominantly consumed not only for food but also for medicinal purposes, albeit partially used for decorative, cosmetic, aromatic, and chemical purposes. Additionally, it was determined that wild plants were most commonly used in the kitchen for breakfast, followed by their use as spices. Furthermore, they were utilized in beverages, salads/pickles, egg dishes, soups, and rice preparations.

Upon examining the research findings, it is evident that similar results have emerged in different studies. For instance, the participants' practice of gathering wild plants from mountains, plateaus, and highlands, as observed in the Ayaz (2020) study conducted in Mardin, demonstrates similarities with our findings. The rural similarities between Mardin and Şırnak contribute to this resemblance. Similarly, Ceylan (2019), in their research conducted in Düziçi, found similarities in the method of procuring wild plants. The emphasis on health as a motivating factor for wild plant consumption, as highlighted in Aygün's (2019) study, aligns with the qualitative research findings of our study. Likewise, in Karayiğit's (2021) study on edible wild plants and their culinary uses, it was found that the most common source of learning about wild plants is from parents, which corresponds with both the qualitative and quantitative findings of our study. Furthermore, the predominance of consuming the leafy parts of wild plants, as observed in our qualitative findings, coincides with participants' preferences for leaf consumption.

The results obtained from the research demonstrate that Şırnak's wild plants possess significant potential within the framework of eco-gastronomy. In order to effectively utilize this potential:

- Application should be made to the relevant ministry for the geographical indication of locally specific (EWHs).
- Environmental and nature awareness training should be provided to people to prevent the extinction of plant species growing in the region.
- Cooking traditional dishes with local wild plants in food and beverage establishments in the province can meet people's desire and need for such dishes, thereby contributing to the development of local cuisine.
- EWHs consumed by the local community should be highlighted for their cultural and health significance, fostering awareness on the subject.

- Consumption of EWHs, especially during childhood, should be encouraged.
- Scientific research should be conducted to determine the health benefits of EWHs against increasing illnesses.
- Including EWHs grown in the region in gastronomy tourism can increase the province's share in the tourism market.
- Events such as herb festivals, including activities like collecting edible herbs and cooking herb-based dishes during seasonal periods in rural tourism areas, should be organized. However, herb collection should not be conducted in large groups during these festivals.
- Attention should be paid to the passage of tractors, machinery, and herds in areas where EWHs are abundant, ensuring that these passages do not harm the plants.

These recommendations are proposals that can be implemented through collaboration between various institutions, primarily the Governorship, Provincial Directorate of Culture and Tourism, Provincial Directorate of Agriculture, and the University. Given its geographical location, Şırnak embodies characteristics of Southeastern cuisine. However, utilizing EWHs as a gastronomic element will distinguish Şırnak from other regions. Tourist groups visiting Şırnak are often connected with cities such as Diyarbakır, Mardin, Van, and Siirt. None of these cities have prominently featured EWHs yet. Consequently, consuming meat-heavy dishes during 3-7 day tours could be detrimental to tourists' health. Therefore, by promoting the use of EWHs, Şırnak can position itself uniquely through eco-gastronomy.

In this context, sustainability and environmental preservation, which are among the goals of eco-gastronomy, should always prevail. The recognition of EWHs can contribute to rural development through eco-gastronomy, leading to economic gains for local communities in rural areas. Thus, eco-gastronomy can play a role in Şırnak's development.

While the conducted research is believed to contribute to the field, it has certain limitations. Firstly, the research only covers the Şırnak province. Due to the COVID-19 pandemic, the research process coincided with challenging circumstances, leading to the inability to gather survey data to the desired extent. In future studies, it would be beneficial to investigate EWHs in terms of species, types, and their health benefits and risks. Additionally, conducting studies to determine the usage of EWHs in cooking and their nutritional values would provide significant contributions to the field.

# Declaration

All authors of the article contributed equally to the article process. The authors have no conflicts of interest to declare. The research questions were deemed ethically appropriate by the Şırnak University Ethics Committee in its meeting on 09.04.2021 and decision numbered 2021/39.

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# Appendix 1. Figures and Tables









Figure 11. Frequency of consumption of EWH



Figure 12. How to use EWHs in meals

Appendix Table 1. Information on Partici	pants and Interviews
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Sıra No	Participation*	Gender	Age	Education	Job	Maritual Status	Interview Location	Interview Date
1	K1	Female	66	Illiterate	Housewife	Married	Beyazsu	19.06.2021
2	K2	Male	68	Illiterate	Freelance	Married	Uludere	19.06.2021
3	K3	Male	70	Illiterate	Security	Married	Uzungeçit	19.06.2021
4	K4	Female	65	Illiterate	Housewife	Married	Damlarca	18.06.2021
5	K5	Female	65	Illiterate	Housewife	Married	Beytüşşebap	02.10.2021
6	K6	Female	53	Illiterate	Housewife	Married	Fındık	18.06.2021
7	K7	Female	65	Illiterate	Housewife	Married	Kızılsu	25.09.2021
8	K8	Female	70	Illiterate	Housewife	Married	Kumçatı	25.09.2021
9	K9	Male	51	Primary School	Farmer	Married	Kumçatı	25.09.2021
10	K10	Female	50	Illiterate	Housewife	Married	Kızılsu	25.09.2021
11	K11	Male	74	High school	Retired	Married	Kösreli	11.06 2021
12	K12	Male	39	High school	Laborer	Married	Merkez	26.09.2021
13	K13	Female	55	Illiterate	Housewife	Married	Merkez	28.04.2121
14	K14	Female	54	Illiterate	Housewife	Married	Kumçatı	25.09.2021
15	K15	Male	66	Primary School	Freelance	Married	Sare Köyü	10.06.2021
16	K16	Male	68	University	Retired	Married	Merkez	31.10.2021
17	K17	Female	57	Illiterate	Housewife	Married	Beytüşşebap	02.10.2021
18	K18	Female	58	Illiterate	Housewife	Married	Merkez	10.09.2021
19	K19	Male	60	Illiterate	Freelance	Married	Birlik Köyü	11.06.2021
20	K20	Male	45	Primary School	Laborer	Single	İdil	10.06.2021
21	K21	Male	65	Primary School	Retired	Married	Güçlükonak	18.06.2021
22	K22	Female	35	Primary School	Housewife	Married	Kumçatı	25.09.2021
23	K23	Male	50	Primary School	Illiterate	Married	Uzungeçit	19.06.2021
24	K24	Female	56	Primary School	Housewife	Married	İdil	10.06.2021
25	K25	Female	54	Illiterate	Housewife	Married	İdil	10.06.2121
26	K26	Male	62	Primary School	Freelance	Married	Silopi	11.06.2021
27	K27	Male	65	Primary School	Farmer	Married	Cevizağaç	02.10.2021
28	K28	Female	24	Primary School	Illiterate	Single	Kumçatı	25.09.2021
29	K29	Male	65	University	Retired	Married	Cizre	10.06.2021
30	K30	Male	64	High school	Retired	Married	Beytüşşebap	02.10.2021

FF-				I I I I I I I I				
31	K31	Male	35	Primary School	Laborer	Married	Idil	10.06.2021
32	K32	Male	51	Primary School	Security	Married	Kumçatı	23.09.2021
33	K33	Female	44	Primary School	Housewife	Married	Uzungeçit	19.06.2021
34	K34	Male	67	Primary School	Freelance	Married	Fındık	18.06.2021
35	K35	Male	75	High school	Retired	Married	Ayvalık	02.10.2021
36	K36	Male	70	Primary School	Freelance	Married	Yeşilyuva	19.06.2021
37	K37	Female	53	Primary School	Housewife	Married	Kumçatı	25.09.2021
38	K38	Female	40	Primary School	Housewife	Married	Kızılsu	25.09.2021
39	K39	Female	35	High school	Illiterate	Single	Ayvalık	02.10.2021
40	K40	Female	70	Illiterate	Housewife	Married	Fındık	18.06.2021
41	K41	Female	50	Primary School	Housewife	Married	Kızılsu	25.09.2021
42	K42	Male	43	High school	Freelance	Married	Görümlü	11.06.2021

**Appendix Table 1.** Information on Participants and Interviews (cont.)

\* Participants were coded as P1, P2, ... and P42 for the convenience of analysis and to protect personal data.

# Appendix Table 2. Demographic Variables

Variables		Ν	%
	Merkez	176	63,8
Location	Cizre	10	3,6
	Uludere	22	8,0
	Beytüşşebap	9	3,3
	İdil	20	7,2
	Silopi	39	14,1
	Male	209	75,7
Gender	Female	67	24,3
Maritual Status	Married	98	35,5
	Single	178	64,5
Age	Between 0-18	9	3,3
	Between 19-30	94	34,1
	Between 31-40	118	42,8
	Between 41-50	45	16,3
	51 year and up	10	3,6
Job	Public official	108	39,1
	Freelance	67	24,3
	Farmer	4	1,4
	Laborer	22	8,0
	Retired	5	1,8
	Housewife	24	8,7
	Student	46	16,7
Education	Primary School	14	5,1
	Secondary School	85	30,8
	Univeristy	177	64,1
Income (Monthly)	5.500 <sup>®</sup> ve altı	137	49,6
	5.501₺ ve 10.000 ₺ arası	78	28,3
	10.001 <sup>#</sup> ve 15.000 <sup>#</sup> arası	38	13,8
	15.001 <sup>1</sup> / <sub>2</sub> ve 20.000 <sup>1</sup> / <sub>2</sub> arası	11	4,0
	20.001₺ ve üstü	12	4,3
Residence Area	Kırsal	55	19,9
	Kent	221	80,1
Length of Residence in	0-5 years	12	4,3
Şırnak	6-10 years	19	6,9
	11-15 years	15	5,4
	16-20 years	27	9,8
	21 years and up	203	73,6

