Ethnobotanical Investigation of Central and Rural Villages (Neighborhoods) in the Ergani District of Diyarbakır, Turkey

Mustafa ASLAN

mustafaaslan@harran.edu.tr

Research Article

Keywords: Ethnobotany, traditional knowledge, Ergani, Upper Mesopotamia, medicinal plants, biocultural heritage, cultural erosion

Posted Date: September 3rd, 2025

DOI: https://doi.org/10.21203/rs.3.rs-7292403/v1

Additional Declarations: No competing interests reported.

Version of Record: A version of this preprint was published at Journal of Ethnobiology and Ethnomedicine on November 7th, 2025. See the published version at https://doi.org/10.1186/s13002-025-00824-x.

Ethnobotanical Investigation of Central and Rural Villages (Neighborhoods) in the Ergani District of Diyarbakır, Turkey

Mustafa ASLAN[1*]

1 Harran Üniversity Faculty of Education Department of Science Education Osmanbey Campus. Şanlıurfa, 63300 Turkey

*Correspondonce; e-mail : mustafaaslan@harran.edu.tr

Abstract

Background: Ethnobotanical knowledge constitutes a vital component of cultural heritage and biodiversity conservation, particularly in regions undergoing rapid socio-cultural transitions. Southeastern Anatolia, despite its high floristic richness and biocultural diversity, remains underexplored in terms of non-medicinal plant uses.

Methods: This study documents the traditional ethnobotanical knowledge of wild plant species used for non-medicinal and medicinal purposes in the Ergani district of Diyarbakır, Turkey. Data were collected between 2023 and 2024 through structured and semi-structured interviews (n = 112), guided fieldwalks, and participant observation across Ergani and 12 surrounding villages. Demographic variables and plant use data were analyzed using descriptive statistics and the Cultural Importance Index (CI) to assess the relative significance of each taxon.

Results: A total of 56 plant species belonging to 26 families were identified, used across five categories: medicinal (67.8%), nutritional (53.6%), fuel, decorative, and symbolic (e.g., protection against the evil eye). Multifunctionality was a recurring theme, with several species (e.g., *Vitis vinifera*, *Vitex agnus-castus*) employed in more than two categories. The most represented families were Lamiaceae, Asteraceae, Fabaceae, and Brassicaceae. Wild plants played a central role in local subsistence and cultural practices, with vernacular names and preparation methods varying across gender and age groups. Ritual use, particularly of *Peganum harmala*, remained prevalent among older participants.

Conclusion: The study reveals a complex, integrative system of plant use in Ergani that reflects a holistic ethnoecological worldview. Findings underscore the urgent need for the documentation and preservation of local ecological knowledge amid ongoing socio-economic transformations. Sustaining this intangible heritage is critical for biodiversity conservation, local food security, and cultural resilience.

Keyword: Ethnobotany, traditional knowledge, Ergani, Upper Mesopotamia, medicinal plants, biocultural heritage, cultural erosion

Background

Ethnobotany investigates the complex and reciprocal relationships between human societies and plants within their cultural and ecological contexts [14]. This interdisciplinary field explores the diverse ways plants are integrated into daily life, including uses for food, medicine, shelter, clothing, rituals, and material culture [3]. Contributions from botany, anthropology, archaeology, and pharmacology have expanded understanding of these interactions and underscored the importance of traditional botanical knowledge for both cultural heritage and biodiversity conservation [13,25]. In Turkey, ethnobotanical research has traditionally emphasized medicinal plants, reflecting a global focus on plant-based remedies [1,25].However, wild plants in Anatolia serve multiple roles beyond medicine, such as nutrition, animal fodder, handicrafts, dyes, and symbolic or ritual purposes [9].These practices are deeply rooted in local cultures, especially in rural Anatolia, where communities harvest fresh shoots, fruits, seeds, and tubers for immediate consumption or preservation, and utilize plants in livestock care and traditional crafts. Plant use often exhibits significant variation even at small geographic scales, as reflected in differences in vernacular names, usage patterns, and preparation methods [18,25]. Despite Anatolia's exceptional botanical diversityhome to approximately 12,000 species, nearly one-third endemic comprehensive ethnobotanical documentation remains limited, particularly regarding non-medicinal uses [4,12]. Documenting vernacular names and traditional uses provides critical insights into the cultural identity of local communities and their sustainable resource management strategies [25].Southeastern Anatolia, characterized by its unique phytogeographical composition

combining Iran-Turanian and Eastern Mediterranean elements, supports a rich diversity of wild edible and utilitarian plants. However, scientific studies documenting ethnobotanical knowledge in this region are scarce [17,21].

The need for systematic documentation of traditional plant knowledge is increasingly urgent due to rapid socio-economic changes such as urbanization, migration, and modernization, which threaten the transmission of this intangible cultural heritage [15,16]. Moreover, growing concerns about the adverse effects of synthetic drugs and food additives have renewed public and scientific interest in natural, plant-based products, highlighting the contemporary relevance of ethnobotanical knowledge in health and sustainable development. The Ergani district of Diyarbakır Province, situated within the historically and ecologically significant Upper Mesopotamia region, is home to culturally diverse Kurdish and Turkish populations [8,21]. The area constitutes a vital gene pool for wild relatives of key crops such as wheat, barley, chickpeas, lentils, and peas, emphasizing its agricultural and conservation importance [12,17]. Despite its rich biocultural heritage, ethnobotanical knowledge on the use of wild plants for non-medicinal purposes in Ergani remains underexplored. This study aims to undertake a systematic and comparative ethnobotanical investigation of wild plant knowledge and use among local communities in the Ergani district of Diyarbakır Province, situated in the ecologically and culturally significant region of Upper Mesopotamia. The primary objectives of the research are to: [1] identify and document wild and semi-wild plant taxa used for a wide range of non-medicinal purposes including food, fuel, fodder, dyes, handicrafts, ornamentation, and symbolic functions such as protection from the evil eye as well as their medicinal uses; [3] record vernacular names, local classification systems, plant parts used, preparation techniques, seasonal availability, and associated cultural practices; [4] assess the frequency and diversity of uses through the Cultural Importance Index (CI), thereby quantifying the cultural salience and multifunctionality of each species; and [5] conduct cross-regional and intercultural comparisons

with findings from nearby districts such as Çermik [5] (Şanlıurfa) Suruç [20] Elazığ (Maden) as well as broader biocultural landscapes in Anatolia, the Eastern Mediterranean, and Irano-Turanian phytogeographical zones [7, 5, 21] In adopting this approach, the study responds to an ongoing scholarly need to expand the scope of ethnobotanical research beyond pharmacological applications and toward a more holistic understanding of plant knowledge systems. While medicinal plant uses have been the primary focus of ethnobotanical literature in Turkey [21, 2, 24] less attention has been given to the everyday, symbolic, and subsistence-oriented plant uses that shape rural lifeways and ecological relationships. In this regard, the study not only documents fading cultural knowledge under the threat of modernization, urban migration, and agricultural intensification [25, 4, 22, 19], but also highlights local adaptations and knowledge continuity within a changing socio-environmental context. Furthermore, this research engages with current debates in ethnobiology concerning the distribution of knowledge across social categories such as age, gender, and occupation [10,20,4] by evaluating how traditional ecological knowledge is transmitted and differentiated within Ergani's multilingual and multiethnic communities. The comparative aspect of this study aims to clarify whether patterns of plant use in Ergani reflect localized cultural specificities or broader regional continuities. By doing so, it contributes to transdisciplinary discussions on biocultural diversity, resilience, and the sustainable management of local plant resources [4,11] Ultimately, this research provides an empirical foundation for cultural heritage preservation and community-based biodiversity strategies in the region. The name of the place visited in the research area, GPS, Altitude, habitat (Ecological area), Ethnicity, Language, Religion, Population, number of participants, gender, age range and occupations of the participants are given on the map. A geographical representation of the study area is provided in Fig. 1.

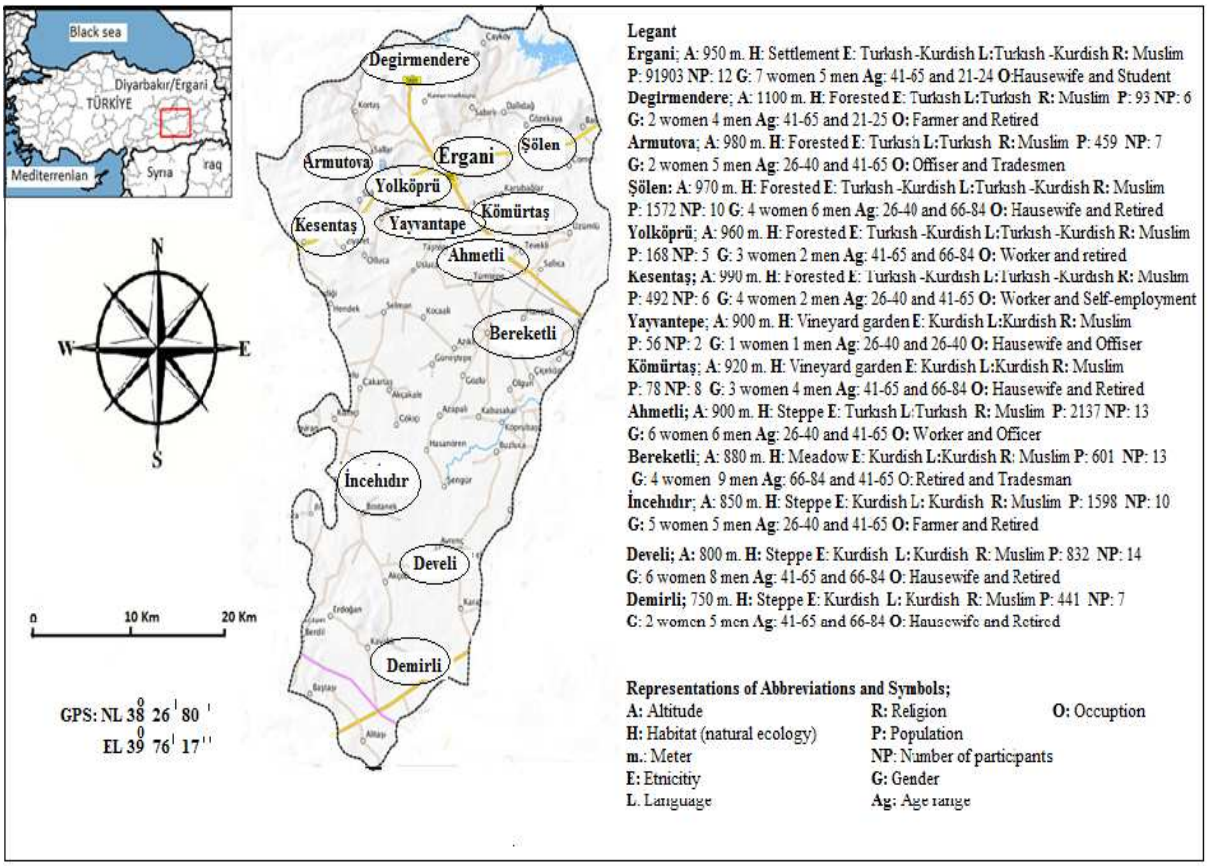

Fig.1 Map of the research area

Methods

Study Design and Setting

This ethnobotanical study was conducted from 2023 to 2024 in the Ergani district and 12 surrounding villages in Diyarbakır Province, southeastern Turkey. The rural settlements where the research was conducted are, in order, Şölen, Yolköprü, Demirli, Develi, İncehıdır, Bereketli, Ahmetli, Yayvantepe, Kesentaş, Yolköprü, Armutova, and Degirmendere. The region lies at the intersection of the Mediterranean and Irano-Turanian phytogeographic zones, characterized by semi-arid continental climate and high floristic diversity. The study aimed to document local knowledge on wild and cultivated plant species used for medicinal, nutritional, cultural, and practical purposes.

Data Collection

Data were gathered through structured and semi-structured interviews, participant observation, and guided field walks. Information collected included local plant names, parts used, preparation methods, application modes, and associated cultural beliefs. Socio-demographic data (age, gender, education, occupation) were also recorded. Plant specimens cited by informants were collected, photographed, dried, and identified following standard botanical protocols [6,12]. Voucher specimens were deposited in the Harran University Herbarium (HARRAN).

Participants and Sampling

A total of 112 local informants (62 men and 50 women), aged 21–84 years, were selected using snowball sampling. Participants were native to the area and identified as knowledgeable about traditional plant use. Prior informed consent was obtained from all participants. Interviews were conducted in Turkish or Kurdish, depending on the respondent's native language. The research area encompasses a total of 13 settlements, including Ergani as the central locality. The geographical boundaries are defined by GPS coordinates ranging between NL 38°09′18″ and NL 38°99′11″ and EL 39°77′17″ and EL 39°91′11″, with altitudes varying from 750 to 1100 meters above sea level. The population structure of the region reflects a balanced distribution of Turkish and Kurdish ethnic groups, with both Turkish and Kurdish widely spoken in nearly equal proportions. The habitats represented in the study area include forested lands, vineyards and gardens, meadows, and steppe ecosystems, indicating ecological diversity. The entire population adheres to Müslim. According to demographic data, the total population of the research area is 100,432 inhabitants[33]. From this population, 112 participants were selected for the ethnobotanical survey, consisting of 50 women and 62 men, with ages ranging from 21 to 84 years. During the interview, the name of the place visited in the research area, GPS, Altitude, Habitat (Ecological area), Ethnicity, Language, Religion, Population, Number of Participants, Gender, Age Range and Occupations of Participants were given. in Table 1.

Table 1. Participants' Location, GPS, Altitude, Habitat (Ecology), Ethnicity, Language, Religion, Number of Participants, Gender, Age Range and Occupation

Location name visited	GPS	Altitude	Ecology	Ethnicity	Language	Religion	Population	Number of participants	Gender	Age range	Occupation
Ergani Center	NL 38^{0}26' 80'' EL 39^{0}76' 17''	950 m.	Settlement	Tukısh-Kurdish mixture	Tukısh-Kurdish mixture	Müslim	91903	12	7 Woman 5 Man	41-65 21-25	Hausewife Student
Degirmendere	NL38^0 97' 21'' EL 39^{0}77'10''	1100 m.	Forested	Tukısh	Tukısh	Muslim	95	6	2 Woman 4 Man	41-65 66-84	Farmers Retired
Armutova	NL38^0 97' 21'' EL 39^{0}82' 21''	980 m.	Forested	Tukısh	Tukısh	Muslim	459	7	2 Women 5 Man	26-40 41-65	Offiser Tradesmen
Şölen	NL38^0 99' 11'' EL 39^{0}89' 13''	970 m.	Forested	Tukısh-Kurdish mixture	Tukısh-Kurdish mixture	Muslim	1572	10	4 Women 6 Man	26-40 66-84	Hausewife Retired
Yolköprü	NL38^0 20'12'' EL 39^{0}89'13''	960 m.	Forested	Tukısh-Kurdish mixture	Tukısh-Kurdish mixture	Muslim	168	5	3 Woman 2 Man	41-65 66-84	Worker Retired
Kesentaş	NL 38^0 27'70' EL 39^{0}89' 13''	990 m.	Forested	Tukısh-Kurdish mixture	Tukısh-Kurdish mixture	Muslim	492	6	4 Women 2 Man	26-40 41-65	Worker Self-employment
Yayvantepe	NL 38^0 21'88'' EL 39^0 91'11''	900m.	Vineyard Garden	Kurdish	Kurdish	Muslim	56	2	1 Women 1 Man	26-40 26-40	Hausewife Officer
Kömürtaş	NL 38^0 27'10'' EL 39^{0}90' 12''	920m.	Vineyard Garden	Kurdish	Kurdish	Muslim	78	8	3 Woman 5 Man	41-65 66-84	Hausewife Retired
Ahmetli	NL 38^{0}27'10'' EL 39^{0}80'11'	900 m.	Steppe	Tukısh-Kurdish mixture	Tukısh-Kurdish mixture	Muslim	2137	12	6 Woman 6 Man	26-40 41-65	Worker Offcer
Bereketli	NL 38^{0}26'11'' EL 39^{0}79'16'	880 m.	Meadow	Kurdish	Kurdish	Muslim	601	13	4 Women 9 Man	66-84 41-65	Retired Tradesmen
İncehıdır	NL38^0 18'13'' EL 39^{0}89'16'	850 m.	Steppe	Kurdish	Kurdish	Muslim	1598	10	5 Women 5 Man	41-65 66-84	Farmers Retired
Develi	NL 38^{0}26'11'' EL 39^{0}79'15''	800m.	Steppe	Kurdish	Kurdish	Muslim	832	14	6 Women 8 Man	41-65 66-84	Hausewife Retired
Demirli	NL 38^{0}09'18' EL 39^{0}89'12''	750 m.	Steppe	Kurdish	Kurdish	Muslim	441	7	2 women 5 Man	41-65 66-84	Hausewife Retired

Data Classification and Analysis

Plants were classified into four use categories: medicinal, food/nutritional, fuel, handicraft, symbolic (e.g., protection from the evil eye). The Cultural Importance Index (CI) was calculated for each species to assess its relative cultural significance:

$$CI = \sum_{i=1}^{i=NU} \frac{UR_i}{N}$$

The index was derived by dividing the usage report (UR) for each designated usage category of a taxon (i), spanning from individual usage instances to the total usage number (NU), by the total number of respondents (N) in the survey. This quantitative metric provides an indication of the cultural importance of locally recognized species. The theoretical maximum value of this index corresponds to the total number of distinct usage categories [18,16]. Descriptive statistics were used to analyze demographic data and use-category frequencies. Comparative analysis with regional studies was conducted to contextualize findings. The total number of survey participants was 90. $CI_{\text{All plants species}}$ = 10/90+32/90+23/90 = 0.11+0.36+0.26 = 0.722

The contribution index incorporates both the frequency of use, as indicated by the number of informants, and the versatility of each plant taxon, defined by the range of ethnobotanical applications, including medicinal use, nutritional supplementation, charcoal production, ornamental purposes, and protective functions against the evil eye. The theoretical maximum value of the index corresponds to the total number of distinct use categories considered. Plant types are evaluated and ranked based on their prevalence and multifunctionality across these ethnobotanical domains.

The age range of the local respondents surveyed in the study area extended from 21 to 84 years. The majority (45%) of participants were within the 41–65 age cohort, followed by 34% in the

66–84 age group, 16% in the 26–40 bracket, and only 5% in the 21–25 range. As illustrated in Figure 2, a significant proportion of the sample population (79%) consisted of individuals aged 40 years and above, suggesting that older age groups were more prominently represented in the ethnobotanical knowledge base. The age distribution of local participants in the survey area is shown in Fig. 2. With respect to occupational background, the informants predominantly comprised retirees, agricultural workers, housewives, tradespeople, laborers, civil servants, and self-employed individuals, including those engaged in animal husbandry. This occupational profile is consistent with the region's socio-economic structure and reflects the interplay between the area's geographic context, educational attainment, subsistence strategies, and culturally embedded livelihood practices. [20-23].

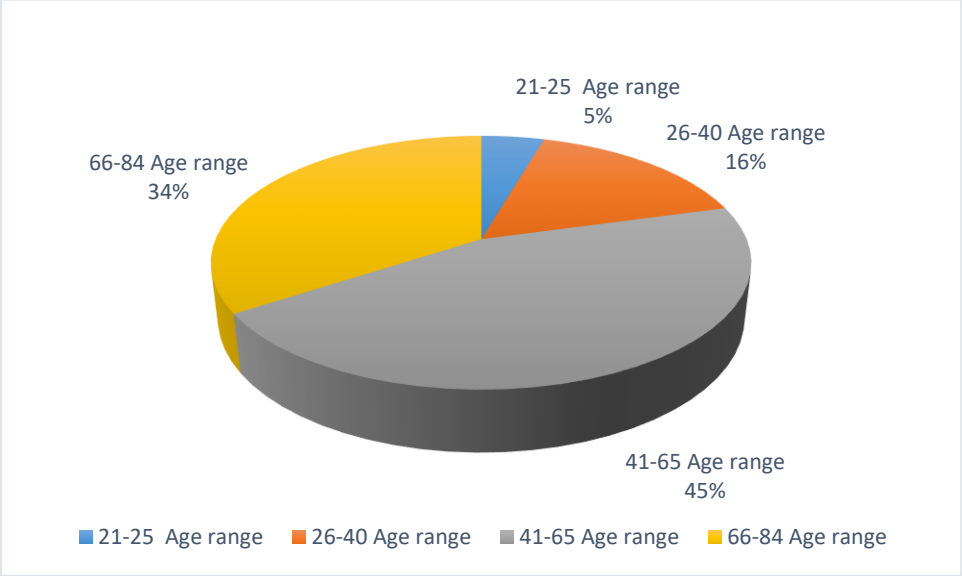

Fig. 2 Age distribution of participants who participated in the survey in the research area of Ergani District, Diyarbakır - Türkiye

The ethnobotanical data were categorized into four primary use groups: medicinal, food and nutritional, Firewood, decorative item and protection from evil eye. The frequency of citation for each plant species was recorded, and plants were organized by family and use category to allow for comparative evaluation with other regional studies. Family, scientific name, local

name, part used, ethnobotanical uses and plant number information regarding plant species in Ergani District are included in Table 2.

Table 2. Ethnobotanical uses of the plant species of Ergani District (Symbolic abbreviations *; Herb used in medicine +; Plants used in food and cooking x, Firewood y; Plant parts are used for decoration and protection against the evil eye.)

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Apiaceae	**Ferula elaeochytris* L	Çakşır, çakşur Çarpışan	Whole Plant	The whole plant is harvested, mainly for pickling. Local people believe that İts pickled form enhances sexual function in men. Harvesting usually occurs in spring, and it is fermented in vinegar or salty water without drying	HÜH-8064
Apiaceae	**Eryngium campestre* L	Kerbeş, Şekıran Eşek dikeni	Above ground	The plant's above-ground parts are used to relax muscles and ease fatigue. People usually make a decoction from fresh or lightly dried parts and massage it onto their muscles.	HÜH-8065
Apiaceae	**Ammi visnaga* (L.) Lam.	Dıdana giya Kürdan	Seeds, flowers	Used to relax muscles and reduce tiredness. People usually make a tea infusion from the seeds and flowers, which can be drunk or rubbed onto muscles.	HÜH-8066
Asteraceae	**Anthemis arvensis* L	Papatya,Derman	Flower	The plant is commonly used to relax muscles or ease mild aches. People usually make a tea or infusion from the flowers and leaves, or apply it by rubbing onto the skin.	HÜH-8067
Asteraceae	**Achillea oligocephala* DC	Civanperçemi Kurpotu,sporiş	Above ground	Used to ease muscle aches and provide relaxation. People can make a tea from the flowers and leaves or apply it by massaging onto the muscles.	HÜH-8068
Asteraceae	**Bellis perennis* L.	Koyungözü Çavemi	Flowers and leaves	Commonly used to soothe the stomach and help heal wounds. People make a tea from the flowers or crush them and apply directly onto the skin.	HÜH-8069
Asteraceae	**,+Carthamus tinctorius* L.	Haspir, Aspire Zerdeotu	Flowers	The flowers are often used as a natural dye and to add color and flavor to food People also drink them as a tea to improve blood circulation and ease pain.	HÜH-8070
Asteraceae	*+Gundelia tournefortii* L.	Kenger, Kereng	Young shoots leaves, and and root gum	The young shoots are eaten as a vegetable, either cooked or raw. The root produces a special gum called "kenger gum," which people chew and believe is good for dental health. It is also thought to stimulate appetite and aid digestion.	HÜH-8072

Contınation of Table 2

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Asteraceae	+*Tragopogon longirostris* L	Şıng, Pısç Yemlik	Young shoots leaves	The young shoots and leaves are collected in spring and eaten fresh or cooked in meals. Local people especially value it in spring as a nourishing and strengthening food.	HÜH-8073
Amaranthaceae	+*Amaranthus retroflexus* L.	Levendur, Somaz	Shoots and leaves	The leaves and shoots are cooked or sautéed as a vegetable. People consider it a nourishing food, especially popular in summer meals.	HÜH-8063
Anacardiaceae	*,+*Rhus coriaria* L	Sumak,Sımok Tetir	Fruits (drupes)	The ripe fruits are dried and used as a spice in cooking. In some areas they are also used to make vinegar or sauces, adding a tangy flavor to dishes.	HÜH-8074
Anacardiaceae	*,+*Pistacia terebinthus* L.	Menengiç, Çitlenbik	Fruits and resin	The fruits are usually roasted and eaten as snacks or used to make coffee The resin is applied to heal wounds or used for massage.	HÜH-8075
Brassicaceae	+*Eruca sativa* L	Roka, Acice Şelmok	Leaves and young shoots	The leaves and shoots are used in salads or cooked dishes. Locally it is known to aid digestion and stimulate appetite.	HÜH-8076
Brassicaceae	+*Lepidium sativum* L.	Dejnık,Tere,	Leaves and seeds	The leaves and seeds are eaten raw or in salads. It is also known to aid digestion and support the immune system.	HÜH-8077
Brassicaceae	+*Nasturtium officinale* L	Tuzık, Suteresi	Leaves and Shoots	The leaves and shoots are eaten raw in salads or cooked dishes. Locally, it is known to be refreshing, aid digestion, and stimulate appetite.	HÜH-8078
Brassicaceae	**Capsella bursa-pastoris*	Çobançantası Nançuçık	Leaves and shoots	The leaves and shoots are eaten raw or cooked in salads and dishes. Locally, it is known to help stop bleeding and aid digestion.	HÜH-8085 .
Brassicaceae	+*Sinapis arvensis* L.	Ğerdel, Hardal	Leaves and Seeds	The leaves are eaten in salads or cooked dishes, and the seeds are used as a spice. Locally, it is known to aid digestion and stimulate appetite.	HÜH-8079
Cyperaceae	**Cyperus rotundus* L	Topalak, Hasırotu	Roots and Rhizomes	The roots and rhizomes are made into a tea or decoction to help with digestive issues and provide a soothing effect. it is known to relieve gas and promote relaxation.	HÜH-8080
Equısetaceae	**Equisetum arvense* L	Atkuyruğu Kırkkilitliot	Aerial stems	The stems are made into a tea or infusion to strengthen bones and support urinary health	HÜH-8081

Contınation of Table 2

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Fabaeceae	+*Cicer echinospermum* L.	Nok, Nohut Leblebi	Seeds	The seeds are usually cooked or ground and added to dishes. Locally, they are known to be nutritious and energizing	HÜH-8082
Fabaeceae	**Glycyrrhiza glabra* L	Ava suse Meyan, Biyam	Roots	The roots are chewed for their sweet flavor or prepared as a tea. Locally they are used to soothe coughs and sore throats, aid digestion, and provide a refreshing effect.	HÜH-8033
Fabaeceae	+*Lathrus sativus* L.	Şollık, Çolban Mürdümük	Seeds	The seeds are usually cooked in meals, added to soups or mixed with bulgur Locally, it is known as a filling and nutritious legume.	HÜH-8084
Fabaeceae	+*Pisum sativum* L.	Bekle, Bezelye	Seeds (peas)	The seeds are used as a vegetable in meals, added to soups or dishes. Locally, they are known to be nutritious and energizing.	HÜH-8085
Fabaeceae	+*Lens culinaris* L.	Nisk, Mercimek	seeds (lentils)	The seeds are used in meals, especially in soups and dishes. Locally they are known to be nutritious and energizing.	HÜH-8086
Fabaeceae	+*Trigonella foenum-graecum* L	Tamğeş, Çemen	Seeds	The seeds are used as a spice in cooking or prepared as a tea. Locally, they are known to stimulate appetite, aid digestion, and help regulate blood sugar.	HÜH-8087
Boragınaceae	+*Anchuza azurea* L	Guruz, Galizvan	Leaves and flowers	The leaves and flowers are usually brewed as a tea or used in cooking. Locally, they are known to aid digestion and provide a calming effect.	HÜH-8088
Fagaceae	*,x *Quercus brantii* L.	Çılo, Mazi Palamut	Fruits (acorns) bark	The acorns are roasted or ground and used in meals or mixed with flour. sometimes brewed as a tea or decoction to help with diarrhea and digestive issues. It used as firewood.	HÜH-8089
Hyperıcaceae	**Hypericum perforatum* L	Kantaron, Kantül	Flowers and leaves	The flowers and leaves are usually brewed as a tea or made into an oil for topical use. Locally, it is known to improve mood, provide relaxation, and help heal wounds.	HÜH-8034

Contınation of Table 2

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Lamıaceae	**Lavandula stoechas* L	Serreş, Lavanta	Flowers	The flowers are dried and used as tea or in sachets for their fragrance. Locally, they are known to reduce stress and help improve sleep.	HÜH-8090
Lamıaceae	*,+*Mentha longifolia* L.	Nane, Rıho	Leaves	The leaves are brewed as tea or used to flavor dishes. Locally they are known to aid digestion and provide a refreshing effect.	HÜH-8091
Lamıaceae	*,+*Mentha piperita* L.	Rıhan, Reyhan	Leaves	The leaves are brewed as tea or used to flavor dishes. Locally, they are known known to aid digestion, refresh, and freshen the breath.	HÜH-8092
Lamıaceae	*,+*Mentha pulegium* L	Pıng, Pung, Yarpuz	Leaves	The leaves are brewed as tea or used to flavor dishes. Locally, they are known to aid digestion, refresh, and provide a calming effect.	HÜH-8093
Lamıaceae	+,y *Ocimum basilicum* L.	Rıyhan, Rıho Feslegen	Leaves and stems	The leaves are used as a spice in cooking or brewed as tea. Locally, it is known to aid digestion, refresh, and stimulate appetite. It is also valued for its pleasant fragrance and decorative appearance in homes and ornamental plant.	HÜH-8094
Lamıaceae	*,+*Rosmarinus officinalis* L.	Biberiye, Kuşdili .	Leaves and stems	The leaves are used as a spice in cooking or brewed as tea. Locally, it is known to aid digestion and improve memory and mental alertness It is also valued for its pleasant fragrance and decorative appearance in homes	HÜH-8095
Lamıaceae	*,+*Thymbra spicata L*	Zahter, Kekik	Leaves and flowers	The leaves and flowers are brewed as tea or added to dishes as a spice. Locally, it is known to aid digestion, refresh, and freshen the breath.	HÜH-8096
Lınaceae	**Linum usitatissimum* L.	Keten, Beziryağı	Seeds	The seeds are used in cooking or brewed as tea, and flaxseed oil is also extracted Locally, it is known to aid digestion and provide nutrition.	HÜH-8097
Liliaceae	*,+*Asphodelus aestivus* Brot.	Gullık, Çiriş Kişkişotu	Roots and tubers	The roots and tubers are usually cooked or boiled and eaten. Locally, they are known to be nutritious and energizing. .	HÜH-8098
Liliaceae	*,+*Ornithogalium narbonense* L.	Ğazring, Akbaldır	Roots and tuber	The roots and tubers are usually boiled or cooked in meals. Locally they are known to be nutritious and energizing	HÜH-8099

Contınation of Table 2

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Liliaceae	*,+*Allium nigrum* L.	Sırım, Kara soğan Sarımsak	Roots and tubers	The bulbs and leaves are used as a spice or vegetable in cooking. Locally it is also as a natural remedy to boost immunity and help relieve colds, , coughs, and other minor ailments	HÜH-8016
Malvaceae	*,x*Alcea hohenackeri* Boiss.	Kuşburnu, Hiro,	Flowers, roots leaves, steems brances	The flowers are boiled to prepare syrup or tea, traditionally used against cough, and sore throat, especially for children's night cough. Leaves are applied as a poultice on wounds and swellings, while in some villages the plant is also cultivated ornamentally. its stem is used as firewood	HÜH-8017
Malvaceae	**Malva sylvestris* L.	Ebegümeci, Kömeç, gomeç	Leaves, Flowers and roots	In spring, fresh leaves are collected and used as a filling in pastries and flatbreads. It is also prepared as a soup. The dried flowers are brewed into tea, consumed as a throat soother and expectorant. A poultice made from the roots is applied on boils and skin wounds.	HÜH-8018
Nıtrarıaceae	y*Peganum harmala* L.	Nazarlık, özerlik Şeytankaçıran	Seeds	Harmala seeds are burned as incense, especially around newborns, to ward off evil and negative energies. Boiled ones are used for fertility and women's health, while heated ones are beneficial for rheumatism and joint pain. The seeds are pierced through the center, threaded and strung together to create decorative ornaments. They are hung in homes to ward off the evil eye.	HÜH-8019
Plantagınaceae	**Plantago lanceolata* L.	Sinir otu, Damarlıot, Lağvazan	Leaves roots	Leaves, fresh or dried, are prepared as tea for cough, bronchitis, sore throat and as an expectorant. Poultices are applied externally to the chest or wounds. Roots are boiled and consumed as a diuretic and for digestive issues. Traditionally, the tea is also used for stress and insomnia	HÜH-8019
Polygonaceae	+*Rumex acetosella* L	Kuzu kulağı Tırşo	Leaves	Fresh leaves are eaten as a vegetable in salads or cooked dishes. Leaves are also boiled as tea for digestive support and stomach relief. Traditionally, it is used as an appetite stimulant	HÜH-8020
Polygonaceae	**Rheum ribes* L.	Işgın, Uçkun	Young stem	Young shoots are collected in spring, peeled, and eaten raw or cooked in dishes or salads. Traditionally used to aid digestion and regulate bowel movements	HÜH-8021

Contınation of Table 2

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Portulacaceae	*,+*Portulaca oleraceae* L.	Pirpirim, Semzotu Pırpar	Parts of the plant	Leaves and young shoots are collected and consumed fresh in salads or cooked dishes. They are valued for their slightly sour taste and nutritional properties. Traditionally, they are also used to support digestion and as a mild laxative.	HÜH-8022
Pinaceae	*,x*Pinus pinea* L.	Çam fıstığı Fıstığa çem	Seed, trunk branches	The seeds (pine nuts) are collected and consumed raw or roasted. They are used in cooking and traditional recipes for their flavor and nutritional value. The branches and trunk are used as firewood	HÜH-8023
Ranunculaceae	**Nigella sativa* L.	Çörek otu tohuma reş Siyah kimyon	Seeds	Seeds are used as a spice in bread, pastries, and desserts, and given to children and breastfeeding mothers to increase milk. Regular consumption may reliev menstrual pain, act as a diuretic, strengthen immunity menstrual	HÜH-8024
Rosaceae	**Alchemilla vulgaris* L	Aslanpençesi Hanım pelerini	Flowers and Laeves	Leaves are collected and prepared as tea to relieve menstrual pain, regulate men menstruation, and support women's reproductive health. Traditionally, it is also used to aid digestion and as a mild diuretic	HÜH-8025
Rosaceae	*,+*Cerasus mahaleb* L.	Mahlep Enderiz, Keniro	Fruit and seed	Fruits are dried and used to flavor pastries and desserts. Seeds are added to dough for texture and taste. Traditionally, consumed as tea or paste to regulate blood sugar and support digestion.	HÜH-8026
Rosaceae	*,+,x*Crataegus aronia* L.	Guviç, Alıç Sızar	Fruit and leaves	Fruits and dried leaves are prepared as tea or syrup to reduce cholesterol and blood pressure. Branches and trunk are used as firewood. Traditionally, fruits and tea are also consumed to support heart health.	HÜH-8027
Rosaceae	**Rosa canina* L.	Kuşburnu, Gul Şilan	Flowers, fruits	Fruits and flowers are dried and brewed as tea for flu, colds, and immunity support. are also made into marmalade and jam; flowers are used decoratively	HÜH-8028
Ulmaceae	*,y*Celtis tournefortii* L.	Dardağan Dığdıgo, Çıtlenbik	Fruits	Ripe fruits are eaten fresh or dried and stored for winter; used as tea or eaten to regulate blood sugar and blood pressure. Branches, storage accessories, and craft pieces are used as firewood or tied and hung around children and homes to ward off the evil eye.	.HÜH-8029

Contınation of Table 2

Family	Scientific Name	Local Name	Part used	Ethnobotanical uses	Voucher code
Urtıcaceae	**Urtica dioica* L	Gezgezog Isırganotu Isırganotu	Flowers Leaves, fruits	Leaves and fruits are used to treat various ailments, including digestive issues, urinary problems, and as a general tonic. Traditionally, it is also consumed to support blood purification and overall health.	HÜH-8030
Verbenaceae	**,x Vitex agnus-castus* L.	Hayıt, İffetağacı Namusağacı	Fruit, leaves	The stems of Vitex agnus-castus are primarily used as firewood. In addition the plant holds traditional medicinal value; various parts, including fruits and leaves, have been used to support women's reproductive health, regulate menstrual cycles, and relieve premenstrual symptoms	HÜH-8031
Vıtaceae	**,+,x Vitis vinifera* L.	Tıri, asma Üzüm	Soots, leaf Fruit, seed, branch and Trunk	The shoots are consumed as vegetables, and leaves are used especially for wrapping (sarma). The fruits are eaten fresh, dried for winter, or processed into fruit leather, molasses, and syrup. The seeds are ground and consumed as tea or flour, traditionally believed to regulate blood sugar and aid digestion. The trunk and branches are used as firewood. Grape molasses is consumed as an immunity booster and to relieve colds	HÜH8032

Results

A total of 56 plant species were documented as being used ethnobotanically by local communities in the Ergani district. These species were categorized based on their reported uses, which included medicinal, nutritional/culinary, fuel (firewood), decorative, and symbolic purposes such as protection against the evil eye. Medicinal use was the most commonly reported category, with 38 plant species (67.8%) cited for treating various ailments. Among these, 20 species were used exclusively for medicinal purposes, while were reported to have both medicinal and nutritional/culinary applications. Additionally, 4 species served both medicinal and firewood purposes, and 2 species were used across three functions: medicinal, nutritional/culinary, and as firewood. Another 2 species were cited for combined medicinal, firewood, and dietary use, reflecting the multifunctional value attributed to certain taxa.

Nutritional and culinary uses were associated with 30 species (53.6%), with 14 species used solely for food and dietary supplements. This category also included species with overlapping functions: 12 species with medicinal uses, and several others also employed for firewood or decorative purposes, illustrating a complex overlap between food and health practices. The most significant plant species documented in the study area, including those harvested from the wild

and sold in local markets, are presented with photographs in Fig.3 .

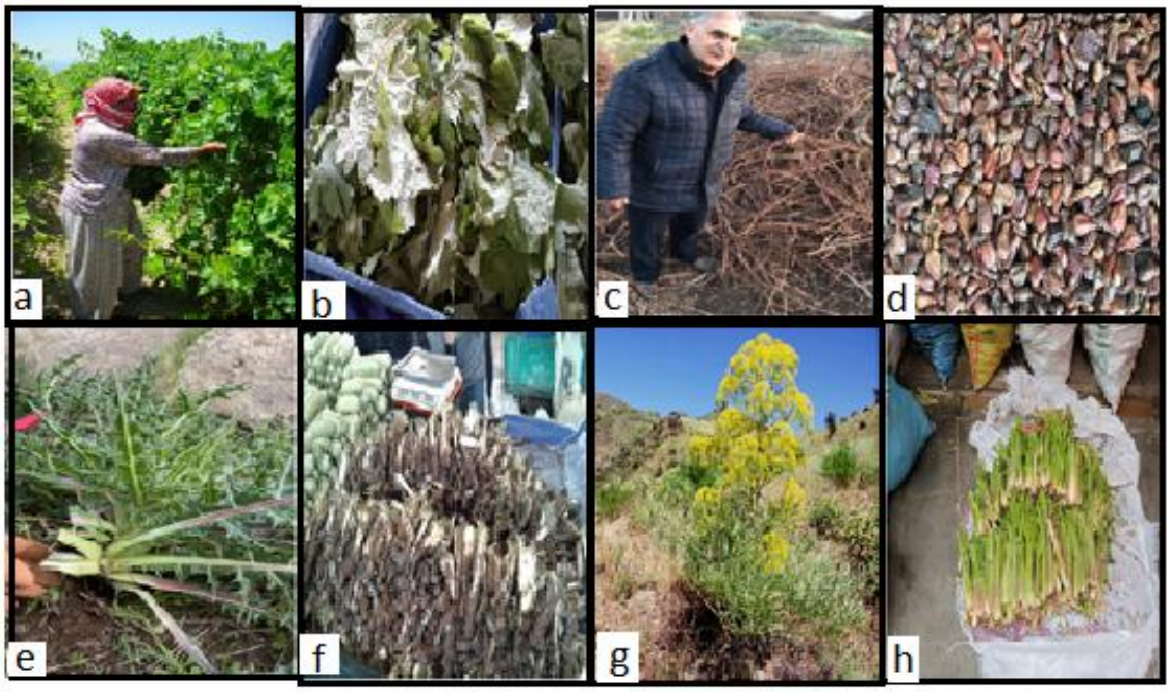

Fig. 3. a; Forager harvesting asma leaves (*Vitis vinifera*) in a vineyard. **b;** A leaves being sold at a market. **c**; Asma stems and branches stored as firewood by the researcher. **d;** Asma seeds available for purchase at an herbalist's shop. **e**; The Kenger plant (*Gundelia tournefortii*) being gathered in the wild. **f**; Fresh Kenger shoots offered for sale in the market. **g**; The Çakşır plant (*Ferula elaeochytris*) collected from its natural habitat. **h**; young Çakşır shoots sold fresh at the market.

Decorative and symbolic uses were less frequent but culturally significant. One species was reported to be used exclusively as an amulet and decorative item, while another was used for nutrition, decoration, and protection against the evil eye. One species was used for decoration and spiritual protection, and another for firewood and symbolic protection. These findings highlight the integration of symbolic beliefs into daily plant use, particularly in protective and ritual contexts. The multifunctionality of plant species is a notable aspect of ethnobotanical knowledge in Ergani. Several species were employed in more than two use categories, indicating that local ethnobotanical practices are not strictly compartmentalized but rather reflect a holistic understanding of plants as therapeutic, nutritional, utilitarian, and symbolic resources. It was determined that the leaves, fresh shoots, and/or stems of numerous wild plant

species are consumed as food in the Ergani region, species such as *Gundelia tournefortii*, *Eruca sativa*, *Lepidium sativum*, *Nasturtium officinale*, *Rumex acetosella*, *Ornithogalium narbonense, Allium nigra, Sinapis arvensis*, *Cicer echinospermum*, *Lathyrus sativus*, *Pisum sativum*, *Anchusa azurea*, *Mentha longifolia*, *Tragopogon longirostris, Portulaca oleracea*, *Vitis vinifera*, *Rumex acetosella*, *Asphodelus aestivus Amaranthus retroflexus* and *Malva sylvestris* are traditionally consumed in a variety of local dishes. These plants play a significant role in the region's culinary heritage, reflecting both their nutritional value and the local population's deep-rooted knowledge of wild edible flora. Figure3 illustrates the collection and commercialization of wild edible and medicinal plants by local inhabitants, who gather these resources from their natural habitats and sell them in regional markets. Medicinal plants represent the most extensively utilized category of plants among the local population. Their widespread use reflects the deep-rooted traditional knowledge and cultural reliance on natural remedies for the treatment and prevention of various ailments. Notable examples of medicinal plant species recorded in the study include *Ferula orientalis*, *Eryngium campestre*, *Ammi visnaga*, *Anthemis arvensis*, *Achillea oligocephala*, *Bellis perennis*, *Helianthus annuus*, *Capsella bursa-pastoris*, *Cyperus rotundus*, *Equisetum arvense*, *Glycyrrhiza glabra*, *Quercus brantii*, *Hypericum perforatum*, *Lavandula stoechas*, *Rosmarinus officinalis*, *Linum usitatissimum*, *Plantago lanceolata*, *Pinus pinea*, *Alchemilla vulgaris*, *Cerasus mahaleb*, *Crataegus aronia*, *Rosa canina*, *Celtis tournefortii*, *Urtica dioica*, *Vitex agnus-castus*, *Vitis vinifera*, *Mentha pulegium*, and *Mentha piperita*. Several plant species have been traditionally utilized as firewood by local communities in the study area. Notable among these are *Quercus brantii*, *Vitex agnus-castus, Althea hohenackeri, Vitis vinifera, Crataegus aronia*, and *Pinus pinea*. The selection of these species is primarily based on their availability, wood density, and burning efficiency, underscoring their significance in fulfilling domestic energy requirements, particularly in rural and semi-rural settings. An important finding of the study is the use of plant

parts from *Peganum harmala*, *Ocimum basilicum*, and *Celtis tournefortii* in the production of decorative items, which are traditionally believed to provide protection against evil spirits and the evil eye. Furthermore, the burning of *Peganum harmala* as incense is commonly regarded as a ritual practice to ward off the evil eye. Commonly cited species included *Foeniculum vulgare*, *Gundelia tournefortii*, *Peganum harmala*, and *Achillea oligocephala*. Local knowledge exhibited significant intergenerational and gender-based variation. Several plants were reported to have multipurpose uses, and many were gathered from the wild rather than cultivated. Ritual and protective plant use (e.g., against the evil eye) remains prevalent in rural areas. These plants hold symbolic and cultural significance, reflecting the intertwining of aesthetic use and folkloric beliefs in local ethnobotanical practices. The distribution of plant species by family within the study area is illustrated in Fig. 4.

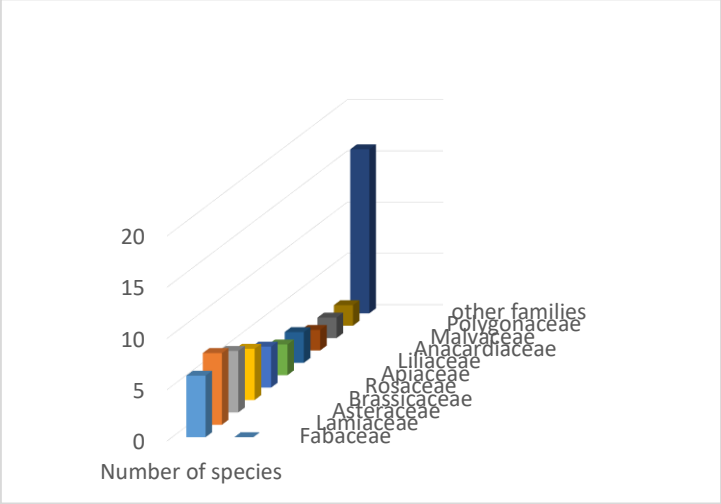

Fig. 4 Distribution of plant species defined as ethnobotanical in the research area according to their families

A total of 56 plant species, classified under 26 distinct botanical families, were documented in the ethnobotanical study conducted in the research area. The most commonly represented families include Lamiaceae (7 species, 12.5 %), Asteraceae and Fabaceae (6 species, 10.7 % each), Brassicaceae (5 species, 8.9 %), Rosaceae (4 species, 7.1%), Liliaceae

and Apiaceae (3 species, 5.1 % each), and Anacardiaceae, Malvaceae, and Polygonaceae (2 species, 3.5 % each). The remaining families are represented by a single species each. This distribution indicates that these dominant plant families hold a significant place in the local community's traditional ethnobotanical knowledge and practices. The ethnobotanical distribution of plant taxa by family in the study area aligns closely with findings from nearby regions. For instance, comparable results were reported in the neighboring district of Çermik. The ethnobotanical use of plants in the Ergani and Çermik districts shows a similar percentage distribution. In the Çermik district, the most commonly used plant families include Lamiaceae (8 species, 13.1%), Asteraceae (6 species, 11.4%), Fabaceae (7 species, 12.1%), Brassicaceae (5 species, 10.1%), Rosaceae (4 species, 8.7%), and Liliaceae (3 species, 6.5%). Additionally, Anacardiaceae, Malvaceae, and Polygonaceae are each represented by 2 species (5.1%) [5]. The ethnobotanical survey in the Ergani district demonstrates a diverse knowledge system in which plants are employed for functional and symbolic purposes. Medicinal uses were dominant, with nearly two-thirds of species cited for therapeutic purposes, reflecting wider Anatolian and Eastern Mediterranean reliance on natural remedies where cultural continuity and limited healthcare access persist. A notable feature is the multifunctionality of plants, many serving simultaneously medicinal, nutritional, and utilitarian roles. Species such as Vitis vinifera and *Vitex agnus-castus* exemplify this overlap, indicating ecological pragmatism and adaptive knowledge responsive to resource availability and seasonal cycles. Nutritional use was also prominent, with 30 wild species incorporated into local diets. Preferences for leaves, shoots, and stems reflect culinary traditions and nutritional considerations. Decorative and symbolic applications, though less common, underscore cultural values: *Peganum harmala*, *Ocimum basilicum*, and *Celtis tournefortii* are employed for spiritual protection, linking botanical knowledge to ritual and metaphysical domains. Firewood use of taxa such as *Quercus brantii* and *Pinus pinea* demonstrates deliberate species selection based on fuel quality and

availability, highlighting the role of plants in subsistence practices.Variation in knowledge across generations and genders indicates uneven distribution shaped by social roles and experience. The predominance of wild plant gathering further underlines the interdependence of cultural knowledge and natural landscapes, reinforcing the importance of conserving both biodiversity and traditional practices.

Comparative analysis with previously published ethnobotanical studies across Turkey reveals both thematic continuities and significant regional particularities. Like prior research conducted in Çermik [5], Van [26], Suruç [24] Maden [2] , Balkans (Eastern Europe) [27] and Central Anatolia [9], the Ergani study confirms that wild plant species are primarily used for medicinal and nutritional purposes. Widely cited species such as *Urtica dioica*, *Mentha longifolia*, *Malva sylvestris*, *Rhus coriaria*, *Glycyrrhiza glabra, Alcea hohenackeri*, *Alchemilla vulgaris*, *Vitis vinifera*, *Portulaca oleraceae*, *Rheum ribes* and *Gundelia tournefortii* appear consistently across these regions, suggesting the existence of a core ethnobotanical repertoire that transcends provincial boundaries. However, the current findings also highlight local specificity. The ritualistic and symbolic use of species like *Peganum harmala*, burned as incense for spiritual protection, and *Celtis tournefortii*, used in the preparation of amulets, reflect a more pronounced integration of plant use into cosmological and apotropaic traditions in Ergani than typically reported in adjacent regions. Furthermore, multifunctional taxa such as *Vitex agnus-castus*, employed for medicinal, fuel, and symbolic purposes, underscore a distinctly utilitarian ethnoecological logic that aligns closely with similar findings from Kurdish-inhabited areas in Iraq [28]. While medicinal uses have historically dominated ethnobotanical literature in Turkey [29], recent studies especially those aligned with biocultural and eco-cultural heritage frameworks have emphasized the importance of recognizing multifunctionality in plant usage [30]. In this context, the present study contributes novel insights by documenting the commercial role of wild edibles in rural markets, the persistence of plant-based spiritual

practices, and the continued reliance on plant biomass for domestic energy elements often underrepresented in classical ethnopharmacological studies. Ergani's diverse applications of plant taxa thus reflect both ecological pragmatism and cultural embeddedness. Compared with Mediterranean Turkey, where culinary traditions often center on cultivated herbs and semi-wild greens [31], Ergani's stronger reliance on uncultivated flora reflects an adaptive subsistence strategy conditioned by historical marginalization, arid geography, and limited access to formal healthcare and infrastructure. From a cultural standpoint, the findings reinforce the argument that ethnobotanical knowledge in Southeastern Anatolia is not merely utilitarian, but deeply woven into the social fabric, symbolic systems, and intergenerational knowledge transmission practices. The prominence of spiritual and protective plant uses particularly among older women parallels similar patterns observed in the Balkans [27]. Such uses illustrate how plants act as mediators between the material and metaphysical realms, carrying meanings that go beyond pharmacology or nutrition. Additionally, the gendered and age-based stratification of knowledge, where elder community members act as custodians of ecological memory, echoes cross-cultural patterns reported in indigenous and rural societies globally [30]. As such, this study highlights not only the ecological role of plants but also their embeddedness in cultural resilience, local identity, and symbolic continuity under conditions of socio-economic transition and globalization.

Discussion

The ethnobotanical data gathered in this study carry critical implications for both environmental sustainability and public health policy in the Ergani district and comparable ecocultural regions of southeastern Anatolia. The documented reliance on wild taxa for nutritional, medicinal, and symbolic uses indicates not only a biologically rich ecosystem but also a knowledge system

finely attuned to local landscapes. This deep-rooted ecological literacy, however, faces increasing threats from anthropogenic pressures, including overgrazing, land conversion for monoculture agriculture, quarrying, climate change, and the erosion of traditional livelihoods. Many of the multifunctional species identified such as *Gundelia tournefortii*, *Vitex agnus-castus*, *Glycyrrhiza glabra,* *Hypericum perforatum* and *Peganum harmala* are highly sensitive to habitat fragmentation, indicating that the degradation of local vegetation not only impacts biodiversity but also disrupts health and food security pathways in rural communities. From an environmental management perspective, integrating local plant knowledge into conservation planning (e.g., through participatory mapping, community-based resource management, or ethnobotanical buffer zones) would significantly enhance the resilience of local ecosystems and cultural traditions [1]. In terms of public health, the heavy dependence on wild medicinal plants particularly among elderly and lower-income individuals reveals that traditional plant-based remedies still serve as a primary or supplementary healthcare strategy in Ergani. This is especially relevant in contexts where formal medical infrastructure remains underdeveloped or financially inaccessible. The use of plants such as *Ferula orientalis*, *Alcea hohenackeri* *Hypericum perforatum*, *Rosmarinus officinalis*, *Alchemilla vulgaris, Rosa canina* and *Urtica dioica* for treating common ailments highlights the importance of integrating validated traditional remedies into local primary care programs. As synthetic pharmaceuticals become increasingly scrutinized for their side effects and environmental persistence, the role of culturally accepted, ecologically sustainable remedies becomes more urgent [32]. Moreover, the market sale of wild edibles and herbal remedies (as observed in Fig. 3) points to a grassroots health economy that if properly supported could bolster both community health outcomes and rural livelihoods. However, the sustainability of this bio-cultural system is contingent upon knowledge transmission. The observed generational gap, where younger populations demonstrate diminished familiarity with wild plants, poses a significant risk. If traditional

ecological knowledge (TEK) continues to decline, communities may become increasingly dependent on externally sourced food and medicine, thereby losing resilience against future shocks such as pandemics, supply chain disruptions, or climatic extremes. To mitigate this, ethnobotanical education should be integrated into regional development and rural health programs, while policies promoting sustainable wild plant harvesting and local pharmacopoeia validation could strengthen adaptive capacities. Ultimately, the preservation of ethnobotanical heritage in Ergani is not merely a cultural priority it is a socio-ecological necessity.

Conclusion

This study highlights the rich ethnobotanical knowledge held by local communities in the Ergani district, where plant species are used in diverse and overlapping ways for medicinal, nutritional, utilitarian, and symbolic purposes. Medicinal use emerged as the most dominant category, reflecting a deep-rooted reliance on traditional healthcare practices. However, the multifunctionality of many species serving as food, fuel, medicine, and cultural symbols underscores the integrated nature of local ecological knowledge. The findings also reveal that wild plants continue to play a vital role in food security, cultural identity, and domestic economies, particularly through foraging and market-based trade. Symbolic uses, such as protection against the evil eye, remain culturally significant, demonstrating that spiritual beliefs continue to shape plant use practices alongside subsistence needs. This ethnobotanical versatility reflects a holistic worldview, wherein health, sustenance, ritual, and environment are interconnected. Preserving such knowledge is essential not only for biodiversity conservation but also for sustaining the cultural heritage and resilience of rural communities. Continued documentation and recognition of local plant knowledge will contribute to its transmission across

Declarations

Human Ethics and Consent Statements
Human Ethics and Consent Statements: Not applicable

Ethical approval and consent to participate
Before starting the data collection process, authorization documents were obtained from the Harran University Ethics Committee Administration Office. Informants gave verbal consent before participating in interviews and group discussions. Human Ethics and Consent to Participate declarations: not applicable.

Consent for publication
Not applicable.

Funding
No funding.

Referances

1. Baytop T. Türkiye'de Bitkilerle Tedavi [Treatment with Plants in Turkey]. İstanbul: Nobel Tıp Kitabevleri. 1999; 1. 480
2. Cakilcioglu U. Khatun S. Turkoglu I. Hayta S..Ethnopharmacological survey of medicinal plants in Maden (Elazig-Turkey). J Ethnopharmacol. 2011; 137 (1), 469-486. https://doi.org/10.1016/j.jep.2011.05.046
3. Choudhary K. Singh M. Pillai U. Ethnobotanical survey of Rajasthan - An Update. American-Eurasian Journal of Botany. 2008; 1 (2): 38-45. https://www.semanticscholar.org/paper/Ethnobotanical-Survey-of-Rajasthan-An-Update-Choudhary-Singh/580c74c29c44bc45d5b5ecd2e929c080f654df48
4. Çubukçu B. Sarıyar G. Meriçli AH. Sütlüpınar N. Mat A. Meriçli F. Fitoterapi yardımcı ders kitabı. İstanbul Üniversitesi Farmakognozi Anabilim Dalı, İstanbul Üniversitesi Basım ve Yayınevi. 2002; 25-29
5. Çiçek İ. Çermik İlçesi ve Köylerinin (Diyarbakır) Etnobotanik Özellikleri. Bingöl Üniversitesi Fen Bilimleri Enstitüsü, Yüksek Lisans Tezi. Fen Bilimleri Enstitüsü yayınları.2019; 3;1-271 https://acikerisim.bingol.edu.tr/bitstream/handle/20.500.12898/5350/iSA%20%C3%87%C4%B0%C3%87EK%20TEZ.pdf?sequence=1&isAllowed=y
6. Davis PH. Flora of Turkey and the East Aegean Islands. Edinburgh University Press. 1965-1985;Vol.1-9.
7. Ertekin G. Floristic composition and phytogeographical features of Southeastern Anatolia. Turkish Journal of Botany. 2000; 24(3):201–211.

https://dergipark.org.tr/tr/download/article-file/116425

8. Ertekin AS. Karacadağ Bitki Çeşitliligi. Sürdürülebilir Kalkınma Başkanlığı Yayınları SURKAL. 2020; 21: 120-122
9. Erşen BH. Çifci G. Ethnobotanical knowledge and practices in Anatolia. Journal of Ethnobiology and Ethnomedicine. 2020;16:45.https://ethnobiomed.biomedcentral.com/
10. Erucar FM. Tan N. Miski M. Ethnobotanical Records of Medicinal Plants of Turkey Effective on Stress Management Complied with the Literature Survey in Their Chemical Content and Activities. Rec. Nat. Prod. 2023; 17:1 1-92

http://www.acgpubs.org/journal/records-of-natural-products

11. Gómez-Baggethun E. Corbera, E. Reyes-García, V. Traditional ecological knowledge and global environmental change: research findings and policy implications. Ecology and Society 2013; 1; 18 (4):72-81

http://dx.doi.org/10.5751/ES-06288-180472

12. Güner A. Aslan S. Ekim T. Vural M. Babaç MT. A checklist of the Flora of Turkey (vascular plants). Nezahat Gökyiğit Botanical Garden and Flora Research. Association Publication. Istanbul-Turkey. 2012; 1:2
13. Heinrich M. Ethnobotany and its role in drug development. Phytotherapy Research. 2000; 14, 479–488. https://doi.org/10.1002/1099-1573(200011)14:7<479::AID-PTR958>3.0.CO;2-2
14. Heinrich M. Barnes J. Gibbons S. Willianson EM. .Fundementals of Pharmacognosy and Phytotherapy. Churchill Livingstone, Edinburgh. 2004; 2: 12-15

https://www.researchgate.net/publication/262588894_Fundamentals_of_pharmacognosy_and_phytotherapy

15. Himanshu S. Ashwani K. Ethnobotanical studies on medicinal plants of Rajasthan (India): A review. Journal of Medicinal Plants Research.2011; 5(7): 1107-1112

https://academicjournals.org/journal/JMPR/article-full-text-pdf/9B89AF015775/h

16. Muca YB, Sefa G. Ethnobotanıcal Study of Medıcınal Plants ın Ağrı Provınce, Türkiye: Explorıng Tradıtıonal Knowledge and Therapeutıc PotentıaL Journal of Faculty of Pharmacy of Ankara University. 2024; 48 (2): 486-97. https://doi.org/10.33483/jfpau.1402467.
17. Oktay S. Study on Gastronomic Cultures of post-Neolithic Civilizations in Anatolia Journal of Culinary Science and Technology. 2019;17(5);1-16 https://doi.org/10.1080/15428052.2018.1489322
18. Şarışen Ö, Çalışkan D. Fitoterapi: bitkilerle tedaviye dikkat (!). Sted 2005;14(8):182-187.

19. Selvi S. Polat R. Çakılcıoğlu U. Celep F. Dirmenci T. Ertuğ Z.F. An ethnobotanical review on medicinal plants of the Lamiaceae family in Turkey," Turkish Journal of Botany 2022; 46 (4) 283-332. https://doi.org/10.55730/1300-008X.2712

20. Parto-de-Santaya M. Tardío J. Blanco E. Carvalho AM. Lastra JJ. Miguel ES et al. Traditional knowledge of wild edible plants used in the northwest of the Iberian Peninsula. 2007; 3:27 https://ethnobiomed.biomedcentral.com/articles/10.1186/1746-4269-3-27

21. Polat R. Çakılcıoğlu U. Ertuğ F. Satıl F. An Evaluation of Ethnobotanical Studies in Eastern Anatolia. Biological Diversity and Conservation..2012; 5:23-40. https://search.trdizin.gov.tr/en/yayin/detay/134248/

22. Rivera D. Verde A. Fajardo J. Obón, C. Consuegra V. García-Botía, J. Ríos S..Alcaraz F. Valdés A. Moral A. Laguna E. 2019; Ethnopharmacology in the Upper Guadiana River area (Castile-La Mancha, Spain), Journal of Ethnopharmacology https://doi.org/10.1016/j.jep.2019.111968.

23. Tardío J, Parto-de-Santaya M. Cultural importance indices: a comparative analysis based on the useful wild plants of southern Cantabria (northern Spain). Econ Bot. 2008;62(1):24–39. https://doi.org/10.1007/s12231-007-9004-5

24. Yalçın S. Akan H. Çakılcıoğlu U. Traditional Uses of Some Food Plants in Suruç (Şanlıurfa, Turkey) 2022; 11 (1) 59-65. https://doi.org/10.46810/tdfd.956778

25. Yıldırım MH. Sarıhan Khawar KM. Ethnobotanical uses of Roots of various Plant Species in Turkey. Plants Roots İntechopen 2021; Chapter 6 112-135. https://dx.doi.org/10.5772/intechopen.87520

26. Atasoy N. Van Bölgesinde Yetişen ve Yiyecek Olarak Tüketilen Yabani Bitkilerde Vitamin E Tayini. Yüzüncü Yıl Üniversitesi Fen Bilimleri Enstitüsü Dergisi. 2010;15(2), 143-147.

27. Aziz MA. Pieroni A. Abidullah S. Nedelcheva A. A rich fading biocultural diversity? A review of traditional herbal teas used by minorities in the Balkans. Turk J Bot 2021 45: 713-722 https://journals.tubitak.gov.tr/botany

28. Kawarty AMA. Behçet L. Çakılcıoğlu U. Traditional Knowledge on Wild Food Plants in Ballakayati (Erbil - North Iraq) Afyon Kocatepe University Journal of Science and Engineering. 2021; (21) 031002 520-531 https://doi.org/10.35414/akufemubid.890018

29. Sezik E. Yesilada E. Honda G. Yoshihisa T. Yoshio T. Toshihiro T. Traditional medicine in Turkey X. Folk medicine in Central Anatolia. Journal of

Ethnopharmacology 2001; 75 (2001) 95–115 https://doi.org/10.1016/S0378-8741(00)00399-8

30. Pieroni A. Quave C. Ethnobotany in the Balkans: Quo Vadis?. Ethnobotany and Biocultural Diversity Balkan Springer. 2014;ISBN 978-1-4939-1492-0 (eBook) 1-9

31. Tugrul Ay S. Cınar A. Ayas F. Yukse K. Cınar O. Karabak S. Mediterranean Region Studies of Mainstreaming Biodiversity Conservation and Sustainable Use for Improved Human Nutrition and Wellbeing Project , Journal of Aegean Agricultural Research Institute 2017; 27 (2) 9-16

.32. World Health Organization. (WHO) traditional medicine strategy: 2013; 2014-2023. Geneva: World Health Organization. Available at. https://iris.who.int/handle/10665/92455 (Accessed January 3, 2024).

33. Nüfus Müdürlüğü **http://www.nufusune.com/ergani-ilce-nufusu-diyarbakir**