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# CONSUMPTION TYPES OF WILD PLANTS CONSUMED AS FOOD AROUND ESKİŞEHİR (TURKEY)

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## ABSTRACT

In this study, Eskişehir city and its environment were defined as a study area and wild plants consumed as food in this region were selected as research material. According to the study, 28 wild plants consumed as food around Eskişehir were determined. These plants were identified as *Amaranthus retroflexus* (Kızılbacak), *Beta corolliflora* (Kır Pancarı), *Capsella bursa-pastoris* (Çoban Çantası), *Carduus nutans* (Devedikeni), *Centaurea urvillei* (Çoban Çökerten), *Chenopodium album* (Sirken), *Cichorium intybus* (Karakavuk), *Erodium cicutarium* (Çoban İğnesi), *Galega officinalis* (Keçisakalı), *Glaucium corniculatum* (Boynuz Gelincik), *Lactuca serriola* (Acı Marul), *Malva neglecta* (Ebegümeci), *Nasturtium officinale* (Su Teresi), *Papaver rhoeas* (Gelincik), *Papaver somniferum* (Haşhaş), *Polygonum lagathifolium* (Madımak), *Portulaca oleracea* (Semizotu), *Ranunculus ficaria* (Arpacıksalebi), *Raphanus raphanistrum* (Turpotu), *Rumex acetosa* (Kuzukulağı), *Rumex crispus* (Labada), *Silene alba* (Toklubaşı), *Stellaria media* (Bulgurcuk), *Taraxacum officinale* (Acıgüneyik), *Tragopogon dubius* (Yemlik), *Tragopogon pratensis* (Teke Sakalı), *Urtica dioica* (Büyük Isırgan) and *Urtica urens* (Küçük Isırgan). The findings of this study have revealed that the wild plants are an important alternative to well known agricultural products and have important potential for the realization of sustainable rural development.

**Keywords:** Edible plants, Nutrition, Sustainable development, Eskişehir, Turkey

## 1. INTRODUCTION

The limited formation of agricultural areas and cultivated plants has led to the continuation of the nutritional problem despite technological advances. As a consequence of all of these, new quests have begun to solve the problem of nutrition. The first comprehensive study on wild plants eaten around Eskişehir was made by Yücel and Unay [1]; In this study consumption patterns of weeds consumed as food around Çifteler (Eskişehir) and some food contents were investigated. Yücel et al. [2] investigated wild plants that were not cultured in Mihalıççık province but consumed as food and their consumption patterns. The vast majority of these studies are related to the names of the plants consumed and some of their consumption patterns. The number of studies on food content, nutritional value and prevention of weeds is relatively small.

In recent years, marketing and promotion in the tourism industry has been done locally, locally or spontaneously and has been rapidly removed from classical tourism concept. In this context, the number of cultural destinations is increasing and national or regional cuisines, as part of this cultur, increase the priority order in tourist preferences. Halıcı's [3] Mevlevi cuisine, Berk [4, 5] and Şenol's [6] Aegean cuisine reviews can be given to regional and regional culinary culture studies Examples. Inaltong's [7, 8] work on the use of weeds sold in the market in kitchens and the various herbs used in the kitchens in

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Anatolia are some of them. Kaya et al. [9] have identified the use of asparagus, wild chicory, fennel, weasel, and shepherd goat species in the Black Sea as a vegetable, in the form of raw materials, grains, seeds, hibiscus, and inland Anatolian-Black Sea crossing.

Studies show that renewable wild plants contain similar values to other vegetables in terms of vitamins and minerals and are even richer in some food items [1]. In addition, these plants can be obtained easily from nature in season when the vegetables are less, and also cheaply from the public markets.

The importance of weeding wild weeds is crucial for the realization of rural development in agriculture. It is very important that increasing the level of income in the rural area will prevent migration to the cities, and will also reduce human oppression on the forests. On the other hand, doubts about the negative effects of various production techniques and genetically modified crops on food quality have accelerated the return to flow of nature and have caused people to dispense with natural herbal products. At this point, it has become very important to determine the conventional consumption and consumption patterns of weed consumption, which has been widely consumed in the past but is now forgotten.

There is a strong link between food and medicine. For this reason, the drug effects of plants and the food effects and uses are not different and different from each other. Many plants consumed as food contain many therapeutically active substances at the same time. In this context, the consumption of weeds as food constitutes an important field of study of health tourism.

In order for the national economy to be able to contribute to plant resources, it must first be identified with all the available resource potential elements. Then, a planned and regular utilization of such wealth should be put forth to provide optimum benefit. With this study, it has been tried to add a value to Eskişehir as a means of using it for touristic purposes and as a tourist promoting tool in addition to determining the weeds that are potential as food and domestic use as well as domestic use.

## 2. MATERIALS AND METHODS

In this study, Eskişehir province and its surroundings were determined as research area and wild weeds consumed as food in this region were chosen as research material.
The study is mainly dealt with in four stages. In the first step, the weeds that were eaten were identified, and then the plant specimens were collected. These samples collected in the second step were pressed and dried in accordance with the herbarium techniques and diagnosed using various flora books. After defining the samples, Anadolu University Science Faculty Biology Department Herbarium (ANES) was established. In the third stage, consumption patterns of grass consumed as food were determined.
The survey utilized methods such as interviews with local residents and periodic monitoring of the public markets in order to make the necessary determinations about the weed weeds.

## 3. RESULTS

In the field studies conducted in Eskişehir and surrounding districts and neighborhoods, data were collected about which plants were consumed as food in the interviews with local people. On the other hand, wild weeds were sold and sold in the city and district markets. In these preliminary studies, it has been determined that about 34 different herbs are consumed and traded under different names. At this time, it was determined that the same weed varieties were used under another name or sold.

In the preliminary studies, the herbs that were determined to be consumed as food were collected, diagnosed and converted into herbarium samples and given the ANES numbers (15768-15803) and the Anatolian University Science Faculty Biology Department Herbarium (ANES) (Table 1).

**Table 1.** Locations of herbarium specimens of edible weeds in Eskişehir

| No | District | Village | Locality | Altitude (m) | GPS |
|---|---|---|---|---|---|
| 1 | Mahmudiye | Merkez | Çamlık | 907 | 39°29′58′′N<br>30°58′41′′E |
| 2 | Mihalıççık | Üçbaşlı | İğdeli | 946 | 39°48′08′′N<br>31°39′30′′E |
| 3 | Mihalıççık | Üçbaşlı | Harmanyeri | 959 | 39°47′54′′N<br>31°39′57′′E |
| 4 | Mihalıççık | Üçbaşlı | Palamutözü | 1127 | 39°48′39′′N<br>31°40′19′′E |
| 5 | Mihalıççık | - | Eğriova | 1529 | 39°52′03′′N<br>31°36′10′′E |
| 6 | Hamidiye | - | Kazanpınarı | 1538 | 39°52′22′′N<br>31°35′44′′E |
| 7 | Mihalıççık | - | Nalburnu | 1381 | 39°53′08′′N<br>31°30′14′′E |
| 8 | Mihalıççık | - | Diközü Road | 1031 | 39° 49′26′′N<br>31°30′04′′E |
| 9 | Sarıcakaya | - | İnhisar Road | 218 | 40°01′49′′N<br>30°34′12′′E |
| 10 | Sakarılıca | - | İnhisar Road | 168 | 40°02′34′′N<br>30°26′06′′E |
| 11 | İnhisar | - | Koyunlu Road | 221 | 40°04′46′′N<br>30°22′59′′E |
| 12 | İnhisar | - | Koyunlu Road | 116 | 40°02′38′′N<br>30°26′36′′E |
| 13 | Sarıcakaya | - | Eskişehir Road | 1166 | 39°55′53′′N<br>30°39′36′′E |
| 14 | Han | - | Başara Road | 1230 | 39°9′34′′N<br>30°51′41′′E |
| 15 | Seyitgazi | - | Aslanbeyli Road | 980 | 39° 26' 44.23′′N<br>30° 41' 38.09′′E |
| 16 | Tepebaşı | Taşköprü | Taşköprü Road | 1164 | 39°55′06′′N<br>30°34′24′′E |
| 17 | Çifteler | - | Başkurt Road | 879 | 39°22′58′′N<br>31°2′22′′E |

After the determination of the weeds weighed in interviews with local people, data on their consumption patterns were collected. Face-to-face interviews were taken of voice recordings of consumption patterns and written into texts. The data obtained are summarized in Table 2 collectively.

**Table 2.** Edible herbs and consumption ways in Eskişehir

| Scientific name | Common name | Consumption way |
|---|---|---|
| *Amaranthus retroflexus* | Kızılbacak | Raw: Salad and wrap / Cooked: Roasted |
| *Beta corolliflora* | Kır Pancarı | Raw: Salad / Cooked: Roasted |
| *Capsella bursa-pastoris* | Çoban Çantası | Raw: Salad / Cooked: Roasted |
| *Carduus nutans* | Devedikeni | Cooked: Roasted |
| *Centaurea urvillei* | Çoban Çökerten | Cooked: Roasted |
| *Chenopodium album* | Sirken | Raw: Salad and wrap / Cooked: Roasted |
| *Cichorium intybus* | Karakavuk | Raw; Salad and wrap |
| *Erodium cicutarium* | Çoban İğnesi | Cooked: Roasted |
| *Galega officinalis* | Keçisakalı | Raw: Salad/Cooked: Roasted |
| *Glaucium cornuculatum* | Boynuz Gelincik | Raw: Salad |
| *Lactuca serriola* | Acı marul | Raw: Salad |
| *Malva neglecta* | Ebegümeci | Cooked: Roasted |
| *Nasturtium officinale* | Su Teresi | Cooked: Roasted |
| *Papaver rhoeas* | Gelincik | Raw: Salad |
| *Papaver somniferum* | Haşhaş | Raw: Salad |
| *Polygonum lagathifolium* | Madımak | Raw: Salad/Cooked: Roasted |
| *Portulaca oleracea* | Semizotu | Raw: Salad / Cooked: Roasted |
| *Ranunculus ficaria* | Arpacıksalebi | Raw: Salad/Cooked: Roasted |
| *Raphanus raphanistrum* | Turpotu | Raw: Salad/Cooked: Roasted |
| *Rumex acetosa* | Kuzukulağı | Raw: Salad |
| *Rumex crispus* | Labada | Raw: Salad/ Cooked: Stuffed |
| *Silene alba* | Toklubaşı | Raw: Salad/Cooked: Roasted |
| *Stellaria media* | Bulgurcuk | Raw: Salad/Cooked: Roasted |
| *Taraxacum officinale* | Acıgüneyik | Raw: Salad/Cooked: Roasted |
| *Trogapogon dubius* | Yemlik | Raw: Salad/Cooked: Roasted |
| *Trogapogon pratensis* | Teke Sakalı | Raw: Salad and wrap |
| *Urtica dioica* | Büyük Isırgan | Raw: Sap / Cooked: Roasted |
| *Urtica urens* | Küçük Isırgan | Raw: Sap / Cooked: Roasted |

## 4. DISCUSSION

In Eskişehir, it is seen that there are significant problems related to consumption of weeds and their consumption. To summarize these briefly;

a. The same plant is identified and used with different local names. Studies should be carried out for the establishment of Turkish plant name union.
b. Plant samples should be introduced correctly to producers and consumers. Certain herbs that are eaten with an incense are sold under the name of eaten grass, and this situation should be avoided.
c. The purposes and forms of plants are diverse. These should be made more or less specific with more detailed work to be done.

d. It has been shown that the same plant from different regions can have quite different phytochemical contents. This situation is an important handicap for the establishment of food use standards for plants.
e. To certain analyzes (C-vitamin, etc.) have been performed in laboratories known to be accredited, and conflicting results have been obtained. Therefore, such analyzes need to be repeated.
f. The important nutrient values of the processes of serving food are losses. There is also a need to carry out analyzes at these stages.
g. In Eskisehir, it was determined that 28 wild grass varieties were consumed for food purposes.

When each of the plant samples was compared within itself, it was observed that there were differences in nutrient values according to the place where the materials were collected. Examples of some herbivorous varieties. For example;

When the nutrient values of the specimens collected from the Sarıkakaya, Karacaşehir and Seyitgazi regions were examined, it was determined that the collected samples from Seyitgazi had higher contents in terms of wet weight, dry weight, water content and ash content than the samples collected from other regions. Among the three regions, it was determined that the area containing the lowest contents in the tuff material was in Sarıcak in terms of nutrients.

Bitter lettuce samples were collected from Alpu and Çifteler regions. When the nutrient values of the samples collected from these regions are examined, it has been determined that Alpu has higher content in terms of, for example, wet weight, dry weight, water content and ash content compared to the example collected from Çifteler.

The feed samples were collected from Sarıcakaya (2 different locations), Karacaşehir and Çifteler regions. When the nutrient values of the samples collected from these regions are examined, it is determined that the collected contents from Karacasehir have higher content than the samples collected from other regions in terms of wet weight, dry weight, water content and ash content. Among these regions, in terms of nutrient content, it was determined that the area containing the lowest contents in the feed material is in Sarıcak, as in the case of Toklubaşı.

Hibiscus specimens were collected from Mihalgazi center, Mihalgazi Demirciler Village, Sarıcakaya and Muttalip regions. When the nutrient values of the samples collected from these regions were examined, it was determined that the collected contents from the village of Mihalgazi Demirciler had a higher content than the samples collected from other regions in terms of wet weight, dry weight, water content and ash content. In terms of nutrient content among these regions, it was determined that the region containing the lowest contents in the hibiscus material is Muttalip.

Poppy samples were collected from Eskişehir Merkez, Sarıcakaya (2 different places) and Çifteler regions. When the nutrient values of the samples collected from these regions were examined, it was determined that the collected samples from Çifteler had higher content than the samples collected from other regions in terms of wet weight, dry weight, water content and ash content. Among these regions, in terms of nutrient content, it was determined that the region containing the lowest contents in the Poppy material was Eskisehir (center).

Nettle samples were collected from Sarıcakaya (3 different sites) and Mihalgazi Demirciler Village. When the nutrient values of the samples collected from these regions were examined, it was determined that one of the samples collected from Sarıcakaya had a higher content in terms of wet weight, dry weight, water content and ash content than samples collected from other regions. Among these regions, in terms of nutrients, it was determined that the region containing the lowest contents in Nettle material is the other regions of Sarıcakaya.

Examples of herbivores were collected from the regions of Çukurhisar and Muttalip. When the nutrient values of the samples collected from these regions were examined, it was determined that the collected samples from Çukurhisar had higher contents in terms of wet weight, dry weight, water content and ash content compared to the sample collected from Muttalip.

Kuzukulağı samples are collected in two different regions in Sarıcakaya. When the nutrient values of the samples collected from these regions were examined, it was determined that the materials collected from different regions of Sarıcakaya had different wet weight, dry weight, water content and ash content. Turmeric samples were collected from Sarıcakaya and Taşköprü regions. When the nutrient values of the samples collected from these regions are examined, it has been determined that Sarichakaya has higher contents in terms of wet weight, dry weight, water content and ash content collected from Taşköprü.

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