A Review of the Traditional Plant use Culture in Elazı̇ğ (Turkey)

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Abstract
The number of plants is quite high as different types of climate and rich geographical and geological features are seen in Turkey. Wild plant use culture has been enriched as Anatolia is the host of many civilizations. From past to present, people have used the plants grown around them for various purposes. The branch of science that examines this use is ethnomotany. Wild plants are used by people in fields such as medical, food, veterinary, equipment, musical instruments, handicrafts, dyes, fuel, ornaments and toys. In this study, ethnomotanical studies in Elazığ, which is located in the Eastern Anatolia Region, were examined. In the examination made within the scope of the study, it was determined that a total of 21 studies were made, including 17 articles with ethnomotanical content and 4 undergraduate and graduate theses. In the ethnomotanical studies conducted in Elazığ, the use for the treatment of various diseases was observed to be more common, however the use of plants for food purposes, use for the treatment of animal diseases and the use of plants for dye was recorded.

Key words: Wild plants, Ethnobotany, Elazığ, Turkey, Traditional use

1. Introduction
Plant diversity is quite high due to geomorphological structure, geographic location and different types of climate seen in Turkey. The number of plants in Turkey is around 12,000. Approximately 30% of these plants are endemic (Davis, 1965–1985; Davis et al., 1988; Güner et al., 2000; Özhatay et al., 2009; 2011). In terms of the number of endemic plant species, the Eastern Anatolia region takes the second rank after the Mediterranean region (Erik and Tarkahya, 2004).
Ethnobotany, which is the combination of the words "ethnos" (means folk) and "botane" (means plant) in Greek, is a science that traditionally examines the relationship between humans and plants (Balick and Cox, 1999; Ertuğ, 2004).

Botanical studies have considerably increased in recent years (Polat et al., 2016; Vitek et al., 2017; Çakılcıoğlu et al., 2018; Selvi et al., 2019; Uruç Parlak and Çakılcıoğlu, 2019; Erecevit Sönmez and Çakılcıoğlu, 2020; Erecevit Sönmez et al., 2020; Zengin et al., 2021). People use plants mainly for medical and food purposes, as well as in fields such as musical instruments, household appliances, handicrafts, dyes, fuel, ornaments, toys and veterinary.

Most ethnobotanical studies in the Eastern Anatolia Region were conducted in Elazığ (Polat et al., 2012). Therefore, studies with ethnobotanical content conducted in Elazığ have been reviewed. In this study, the traditional plant uses in ethnobotanical studies conducted in Elazığ were tried to be evaluated numerically and the uses of some important plants were compiled.

2. Material and Methods

The study area was located on the east of Anatolian diagonal, in the skirts of South-Eastern Taurus Mountains (Çakılcıoğlu et al., 2008), in the upper Euphrates Region of the Eastern Anatolia Region (Şengün, 2007). Elazığ (Fig. 1) belongs to the Iran-Turan Plant Geography Region and falls within the B7 grid square according to the Grid classification system developed by Davis (Davis, 1965–1985). Elazığ’s population is 591,098 as of the date of 2019 (http://www.tuik.gov.tr/UstMenu.do?metod=temelist).

This review was conducted by browsing the ethnobotanical studies conducted in Elazığ via various journal archives and the internet. In this context, various books, theses and articles were addressed. The presentations which were performed at the congresses but were not published in the form of a full text were not included in the study. The plant diversity in these studies was analyzed numerically and those with intensive use were investigated. Tables have been prepared in line with this data. Pictures of some plants are provided.

![Figure 1. Research area.](image-url)
3. Results and Discussion

Interest in ethnobotanical studies has increased in recent years. 21 ethnobotanical studies conducted in Elazığ were identified (Table 1, 2).

Table 1. Ethnobotanical studies in the region.

| No | Researcher | Field of study | Type of study | Results |
|----|------------|----------------|---------------|---------|
| 1  | Civelek and Türkoglu, 2000 | Elazığ | Medicinal plant | 65 medicinal plants have been recorded. |
| 2  | Çakıcıoğlu and Türkoglu, 2010 | Sıvrice (Elazığ) | Medicinal plant | A total of 81 medical plants belonging to 32 families. |
| 3  | Çakıcıoğlu et al., 2010 | Yurtbaşı-Yazikonas (Elazığ) | Medicinal plant | A total of 41 medical plants belonging to 17 families were identified |
| 4  | Çakıcıoğlu et al., 2011 | Maden (Elazığ) | Medicinal plant | A total of 88 medical plants belonging to 41 families were identified |
| 5  | Çakıcıoğlu and Türkoglu, 2009 | Çitli Lowland (Elazığ) | General Ethnobotanical | 19 medicinal plants, 17 plants for food purposes, 1 plant for other uses have been recorded. |
| 6  | Çakıcıoğlu and Türkoglu, 2007 | Elazığ | Medicinal plant | 34 medicinal plants used to reduce high levels of cholesterol in the blood have been recorded. |
| 7  | Çakıcıoğlu and Türkoglu, 2008 | Elazığ | Medicinal plant | 26 medicinal plants belonging to 16 families used for passing a kidney stone have been recorded. |
| 8  | Çakıcıoğlu et al., 2007 | Harput (Elazığ) | Medicinal plant | 98 medicinal plants have been recorded. |
| 10 | Tönbül and Altan, 1991 | Elazığ | General Ethnobotanical | 17 plants used for ethnobotanical purposes have been recorded. |
| 11 | Polat et al., 2015 | Elazığ | Food plans | 62 plants for food purposes have been recorded. |
| 12 | Hayta et al., 2014 | Elazığ | Medicinal plant | 74 medicinal plants have been recorded. |
| 14 | Doğan and Bağcı, 2011 | Elazığ | General Ethnobotanical | 51 uses for medicinal products, 22 for nutrients, 27 for animal feeds, 2 dyes and 7 for various purposes have been recorded. |
| 15 | Civelek et al., 2000 | Elazığ | General Ethnobotanical | 36 plants used for ethnobotanical purposes have been recorded. |
Various plants used in animal diseases have been recorded.

59 plants used in animal diseases have been recorded.

Most of the medicinal plant studies in the Eastern Anatolia Region were carried out in Elazığ (Polat et al., 2012). A total of 187 medicinal plants were recorded in ethnobotanical studies conducted around Maden and Sivrice districts, Harput, Yurtaşlı and Yazikonak towns and Çitili Lowland (Çakılcıoğlu et al., 2007; Civelek et al., 2000; Civelek and Türküoğlu, 2000; 2001; Çakılcıoğlu and Türküoğlu, 2009; Çakılcıoğlu and Türküoğlu, 2010; Çakılcıoğlu et al., 2010; 2011; Türküoğlu, İ., Civelek, Ş. 2001).

There are records of traditional plants used for some diseases in Elazığ. There are 36 plants for lowering high levels of cholesterol, 18 plants for hemorrhoids, 26 plants for kidney diseases, 39 plants for diabetes mellitus (Çakılcıoğlu and Türküoğlu, 2007; Çakılcıoğlu and Türküoğlu, 2007a; Çakılcıoğlu and Türküoğlu, 2007b; Çakılcıoğlu and Türküoğlu and Türküoğlu, 2008).

Endemic plants called Scorzonera semicana DC., Thymus haussknechtii Velen.; Anthemis wiedemanniana Fisch. and Mey., Bunium paucifolium DC. var. brevipes (Freyn & Sint.) Hedge & Lam., Tchihatchewia isatidea Boiss., are used for medicinal purposes in the studies carried out in Sivrice and Maden (Elazığ) (Çakılcıoğlu and Türküoğlu, 2010; Çakılcıoğlu et al., 2011).

The most used plants are Urtica dioica L., Thymus haussknechtii Velen, Mentha spicata L. subsp. spicata, Malva neglecta Wallr., Rosa canina L., Hypericum perforatum L., Rheum ribes L., Rubus discolor Weihe & Nees, Portulaca oleracea L. in the study conducted in Sivrice (Çakılcıoğlu et al., 2010) and Mentha spicata L. subsp. spicata, Rosa canina L., Urtica dioica L., Bellis perennis L., Fragaria vesca L., Malva neglecta Wallr., Rheum ribes L. and Thymus haussknechtii Velen. in the study conducted in Maden (Çakılcıoğlu et al., 2011).

The number of studies on plants used for food purposes in Elazığ is less than the number of studies on medicinal plants. Some studies are only those in which wild plants for food purposes have been recorded.

Some plant species traditionally used by the people during the spring and summer seasons are sold in the district bazaars in Elazığ. The most sold plants were Pirpirim (Portulaca oleracea L.), Işkın (Rheum ribes L.), Kenger (Gundelia sp.), Gullik (Eremurus spectabilis Bieb.), Aliç (Crataegus sp.), Nane (Mentha sp.), Kekik (Thymus kotschyanus Boiss. & Hohen. and Thymus haussknechtii Velen.), Badem (Prunus dulcis Mill.), Madımak (Polygonum cognatum Meissn.). These plants may be bought from the bazaars but may be collected from nature by the people.

Pirpirim (Portulaca oleracea L.) is collected from the sides of the field during summer. It is consumed as a soup, a meal with rice or a meal with yoghurt.

Işkın (Rheum ribes L.), is collected from the slopes of the mountains during the spring and sold in the bazaars (Figure 2). The stem of the plant is peeled and eaten fresh and is consumed as a meal with eggs. R. ribes is used to lower the cholesterol (Çakılcıoğlu et al., 2011; Güneş and Özhatay, 2011).
The plant *Gundelia* L. is called Kenger (Figure 3). The Kenger is collected in that region during the spring and consumed fresh, the above-ground parts are cooked and eaten, and its latex is chewed like chewing gum. Kenger has been used extensively for food and medicinal purposes around the World and in Turkey (Polat et al., 2017; Nadiroğlu et al., 2019; Cádiz-Gurrea et al., 2020; Kawarty et al., 2020; Çakılcıoğlu, 2020).

Gullik (*Eremurus spectabilis* Bieb.), is a plant sold in local bazaars during the spring. The plant is cooked and consumed as a meal (Figure 4).

Aliç (*Crataegus* sp.) is collected during autumn and consumed as a fruit (Figure 5). There is also a food company that makes yellow hawthorn vinegar in Elazığ (Çakılcıoğlu and Taşkan, 2020). Undergraduate and graduate studies with ethnobotanical content have been carried out in Elazığ (Table 2).

![Figure 2. Rheum ribes L. (İşgin) (Polat et al., 2012).](image1)

![Figure 3. Gundelia tournefortii L. (Kenger) (Polat et al., 2012).](image2)
Table 2. Thesis made in the region which contains ethnobotany.

| Researchers | Research area | Type of thesis | Results |
|-------------|---------------|----------------|---------|
| Karlıdağ, 2009 | Elazığ - Tunceli | Undergraduate | Information on local names of 53 plants and their uses were provided. |
| Türkoğlu, 2000 | Elazığ | Master thesis | 251 plants of ethnobotanical value were identified. |
| Olgun, 2019 | Arıcak | Master thesis | Information on local names of 138 plants and their uses are provided. |
| Özkan, 1983 | Elazığ | Undergraduate | Folk remedies in and around Elazığ have been researched. |

When the ethnobotanical studies conducted in Elazığ were examined, a questionnaire generally was applied to the interviewees (Cakilioglu and Turkoglu, 2010; Cakilioglu et al., 2010). In this questionnaire, the local names of the plants, the parts of the plants, the methods of preparing the same and their medical uses were recorded.
In recent studies, it is seen that the information is statistically calculated using FIC (informant consensus factor) and UV (use value) calculations (Cakilcioglu and Turkoglu, 2010; Cakilcioglu et al., 2011). Publications containing the statistical calculations were performed for the first time in Turkey.

4. Conclusion

In this study, Elazığ, where the most ethnobotanical studies were conducted in the Eastern Anatolia Region, was examined. When the ethnobotanical studies conducted in Elazığ were examined, it was determined that 21 article and thesis studies were carried out. Studies on medicinal plants are intense. Other studies include traditional uses for food purposes, wild plants used in veterinary, plants used to obtain dyes and uses for various purposes.

We think that there is a decrease in plant use culture due to the easy accessibility of health services throughout Anatolia, migration from rural areas to large settlements, and the decrease in natural areas. We have the opinion that the field studies should be done and recorded in places where ethnobotanical field studies are not conducted.

Conflicts of Interests

Authors declare that there is no conflict of interests

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