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Research article/Araştırma makalesi

Investigations of ethnobotanical aspect of wild plants sold in Espiye (Giresun/Turkey) local markets

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Abstract

This study, conducted between 2012-2013, gathered information on the ethnobotanical wild plants sold with commercial purposes in the local markets. Field work was concentrated in the zones where the plants in question are most intensively gathered, as well as in the local markets where the plants are offered for sale. As result of researchs at the local markets ethnobotanical uses of 32 plants were recorded. These included folk medicine, herbal tea, spices and food. The most common ethnobotanical plant families were Lamiaceae (5 taxa), Rosaceae (4 taxa), Polygonaceae (3 taxa), Apiaceae (2 taxa) and Asteraceae (2 taxa). The use of taxa in the region were; spices and food (24), folk medicine (19 taxa), herbal tea (5 taxa). Also, the scientific names of the plants, local names, families, usable parts and forms of utilization were listed alphabetically in the tables.

Key words: ethnobotany, local markets, food plants, Espiye, Giresun-Turkey

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Espiye (Giresun) yerel pazarlarında satılan yabani bitkilerin etnobotanik açıdan incelenmesi

Özet

Bu çalışma 2012-2013 dönemleri arasında Espiye yerel pazarlarında ticari amaçla satışı yapılan yabani bitkiler üzerine yapılmıştır. Alan çalışmaları bitkilerin yoğun olarak toplanıldığı ve satışlarının yapıldığı alanlarda yoğunlaşmıştır. Araştırmalar sonucunda yerel pazarlarda satışı yapılan etnobotanik kullanımı olan 32 bitki taksonu tespit edilmiştir. Etnobotanik veriler halk tıbbı, bitki çayı, baharat ve gıda olarak olarak kullanılan bitkilerle ilgili verileri içermektedir. Yörede yoğun olarak kullanımı olan bitki familyaları Lamiaceae (5 takson), Rosaceae (4 takson), Polygonaceae (3 takson), Apiaceae (2 takson) and Asteraceae (2 takson) olarak kayıt edilmiştir. Yöredeki satışı yapılan etnobotanik bitkilerden baharat ve gıda (24 takson), halk tıbbı (19 takson) bitki çayı (5 takson) vb. amaçlarla kullanıldığı görülmüştür. Ayrıca bu çalışma kapsamında bitkilerin yerel ve bilimsel adları, bitki familyaları, bitkilerin kullanılan kısımları ve kullanım şekilleri alfabetik sırasıyla tablo olarak sunulmuşur.

Anahtar kelimeler: : etnobotanik, yerel pazarlar, gıda bitkileri, Espiye, Giresun-Türkiye.

1. Introduction

Plants play several important roles in human life supplying its basic needs such as food, clothing, medicine and housing. People from each region use a variety of useful plants in their surroundings. Information about the art of using herbs is a legacy passed from one generation to another (Nasab and Khosravi, 2014). Human-being has benefitted from plants as nutrition, decoration plant, to obtain paint, to heal since the ancient times. It is reported that the number of plants which are used as a spice is around 20.000 by World Health Organization (Kalaycıoğlu and Öner, 1994). The livelihood of the rural people does not depend only on the agricultural and animal products, but also on other natural resources, such as plants and the forests (Khan et al., 2011; Doğan et al., 2013; Sundriyal and Sundriyal, 2004). The human population has been increased day by day and as a result of this people has faced with poverty problem. Williams (1993) emphasized the need to preserve new plant resources to broaden the biological diversity in human

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nutrition. Wild plant species provide minerals, fibre, vitamins and essential fatty acids and enhance taste and colour in diets.

Studies dealing with the relationships between human and plants are placed in the field of science called Ethnobotany. Ethnobotany was probably first coined as a term in 1985 by one of Florida's early botanists, John Harshberger, and describes the study of the interaction between people, plants, and culture (Balick, 1999).

Medicinal and food plant studies have increased in recent years (Polat et al., 2011; Polat et al., 2012; Bhat, 2014). Ethnobotany surveys include interviews local people, use of the available data in the literature and the folklore of each region. Ethnobotany goal is to protect and to pass the valuable and useful plants traditional knowledge to future generations. There are many components to ethnobotany, including food, fibre, medicine, shelter, fishing and hunting, religion, mythology, magic, and others.

Because of its distinctive climatic, geographic and topographic characteristics, Eastern Black Sea region has a great plant genetic diversity. The aim of the study is to define the extensively collected and sold commercial plants around Espiye (Giresun). The trade of commercial plants has substantively increased in recent years. Many plants collected randomly in the countryside are sold in local markets. The region covering Espiye (Giresun) is a rich geographical area in terms of plants. A literature survey revealed no previous research on this region, however some other papers concerning the ethnobotanical potential of nearby regions gives important insights (Ezer and Arısan, 2006; Özbucak et al., 2006; Toksoy et al., 2010**;** Sağıroğlu et al., 2012)

2. Materials and methods

The material of the study is constituted by the medicinal plants collected in the Espiye (Giresun) area and sold in local markets. It is observed that the commercial plants are sold within the local markets in their habitat as villages on the research area were visited. Furthermore, these plant taxa were photographed in their habitat as well as the local markets they were sold at.

2.1 Study area

The territories of Espiye (Giresun) town are wholly situated in the Eastern Black Sea Region (costal and inner parts); surrounded by the Tirebolu and Güce in the east. Alucra town in the South, Keşap and Yağlıdere in the west and by Black Sea in the North (Figure 1). It is surface are 160 km^2, and the population is 31.810 according to the of 2012 general census**.** The district consists of 30 villages.

Figure 1. Resarch area

2.2 Interviews with resource people

We interview about 62 individuals through employing questionnaires and interviews showing in Table 1. Interviewees were selected among the local inhabitants who had knowledge about the plants or were almost depend on the local resources for survival. We collected information on different aspects of ethno-botanical usage, e.g. common name; parts used and use categories of individual species.

Table 1. Interviews of local inhabitants of Espiye (Giresun), Turkey

Age groups (year)	Numbers of interviewees
40-57	12
58-63	26
64-74	16
75-80	8
Total	62

Local weekly markets in the region are set in Espiye and around in the neighboring areas were visited (Figure 2). The villages and their products have been defined in these markets. The herbalists in the markets were also visited.

Figure 2. Local markets

2.3 Collection, display and storage of the herbs

Special attention was paid to conduct the field trips together with the villagers also by joining the village trips on most of the field visits (Figure 3). It was seen that such a planning of trips yielded more efficient results. Herbs shown by the resource people interviewed were collected both from markets and their natural habitats. Plants were collected from Avluca, Bahçecik and Güneyköy villages. Plants species in the flowering, fruiting stages or both were collected for identification. Collection started from late March till late November 2013. The identified specimens have been placed in the Herbarium of the Arts and Science Faculty, Giresun University.

Figure 3. Field visits

3. Results

The traditional use of ethnobotanical plants plays a significant role in human life in Turkey. It is shown that local people in Espiye (Giresun) use plants especially for food and medicine. Women are more knowledgeable than men about utilization of plants for food and medicine. Ethnobotanic information received from 62 person, 42 of which are female. In this study a total of, twenty families, 32 plant taxa with ethnobotanical properties were collected from

Espiye region. Information about the local names of the plants, their uses and parts of the plants used for their medicinal effects are listed in table 2 in alphabetical order.

Table 2. Folk plants of Espiye (Giresun)

No	Family	Plant species	Vernacular name of plant	Plant part (s) used	Utilization	Use
.	Amaranthaceae	*Amaranthus retroflexus* L.	Hoşguran, Hoşkıran	Aerial parts	Food	Aerial parts are cooked with or without race
.	Anacardiaceae	*Rhus coriaria* L.	Sumak	Fruits	Food	Spice
.	Apiaceae	*Chaerophyllum byzantinum* Boiss.	Mendek	Aerial parts	Food	Aerial parts roasted with onion and egg.
.		*Foeniculum vulgare* Mill.	Rezene	Aerial parts	Food	Aerial parts roasted with onion and egg.
.	Asteraceae	*Helichrysum arenarium* Moench.	Dudaya çiçeği, Dudiye çiçeği	Aerial parts	Medicine	Infusion; Flu Oil; Anti-rheumatism
.		*Petasites hybridus* (L.) Gaertn., Mey. & Scherb.	Gabalak, Kabalak	Aerial parts	Food Medicine	Aerial parts are roasted with onion and egg. Digestive Carminative
.	Brassicaceae	*Raphanus raphanistrum* L.	Turp otu	Leaves, stems	Food	Leaves and stems are boiled than cooked with onion also prepared salad
.	Boraginaceae	*Trachystemon orientalis* D. Don	Galdirek, Kaldirek	Aerial parts	Food	Aerial parts are roasted with onion and egg.
.	Chenopodiaceae	*Beta vulgaris* var. *cicla*	Pezik, Pezük	Leaves	Food	Leaves are cooked like a vegetal meal.
0.	Ericaceae	*Vaccinium myrtillus* L.	Çalı çileği, Dal çileği	Leaves Fruits	Food Medicine	Infusion; Diabetes Fruits eaten fresh.
1.		*Arbutus unedo* L.	Dağ çileği	Fruits	Food	Fruits eaten fresh.
2.	Fabaceae	*Trifolium* sp.	Üçgül	Flowers	Medicine	Infusion; Colds and Flu
3.	Hyacinthaceae	*Ornithogalum umbellatum* L.	Sakarca	Aerial parts	Leaves, stems	Leaves and stems are roasted with onion and egg.
4.	Hypericaceae	*Hypericum perforatum* L.	Kantaron otu	Flowering braches	Medicine	Infusion; Stomach and Kidney ache
5.	Lamiaceae	*Melissa officinalis* L. subsp. *officinalis*	Oğul otu	Flowering braches	Medicine	Infusion; Insomnia Herbal Tea
6.		*Mentha pulegium* L.	Nane	Aerial parts	Medicine Food Spices	Decoction; Colds and Flu Spice
7.		*Origanum vulgare* L. subsp. *viridulum* (Martrin-Donos) Nyman	Kekik , Çay kekiği	Aerial parts	Medicine Food	Decoction; Colds and Flu Spice Herbal Tea
8.		*Sideritis* sp.	Dağ Çayı	Aerial parts	Medicine	Infusion; Colds and Flu Herbal Tea
9.		*Thymus* sp.	Yayla kekik	Aerial parts	Medicine Food	Infusion; Colds and Flu Spice
0.	Malvaceae	*Malva neglecta* Wallr.	Ebegümeci	Aerial parts	Medicine Food	Maceration; Asthma Bronchitis Aerial parts roasted with onion and egg.
1.	Pinaceae	*Pinus brutia* Ten.	Çam sakızı	Resine	Medicine	Wounds and cuts Stomach ache
2.	Polygonaceae	*Polygonum amphibium* L.	Gücükdene, Gücüdene	Leaves	Food	Aerial parts roasted with onion and egg. Food (Soup)

Table 2. continued

3.		*Polygonum cognatum* Meisn.	Madımak	Leaves Branches	Food	Aerial parts roasted with onion and egg. Food (Soup)
4.		*Rumex acetosella* L.	Kuzukulağı	Leaves	Medicine Food	Asthma Diabetes Hypertension Food (Salad)
5.	Portulacaceae	*Portulaca oleracea* L.	Semiz otu	Aerial parts	Food	Food (Salad)
6.	Rosaceae	*Alchemilla* sp.	Dokuztepe otu	Flowering branches	Medicine	Infusion; Asthma Bronchitis Cough
7.		*Laurocerasus officinalis* Roamer	Taflan, Karayemiş	Leaves Fruits	Food Medicine	The dried leaves are compressed on the ached area for the headache. Fruits eaten.
8.		*Rosa canina* L.	Kuşburnu	Fruits	Food Medicine	Infusion; Colds and Flu Herbal Tea
9.		*Rubus canescens* DC.	Böğürtlen	Fruits	Food Medicine	Infusion; Colds and Flu Fruits eaten fresh.
0.	Smilacaceae	*Smilax excelsa* L.	Melocan, Merolcan, Diken ucu	Terminals	Food	The terminal parts of shoots are boiled than roasted
1.	Tiliaceae	*Tilia rubra* DC.	Ihlamur	Flowering Branches	Medicine Herbal Tea	Infusion; Colds and Flu Herbal Tea
2.	Urticaceae	*Urtica dioica* L.	Isırgan	Aerial parts	Medicine Food	Decoction; Cancer Psoriasis Food (Soup, Salad)

Lamiaceae with 5 species and Rosaceae with 4 species are the largest ethnobotanical plants family in the traditional bazaars (Figure 4). 12 of these utilized taxa were used for food, 6 taxa for medical and 14 taxa for both purposes.

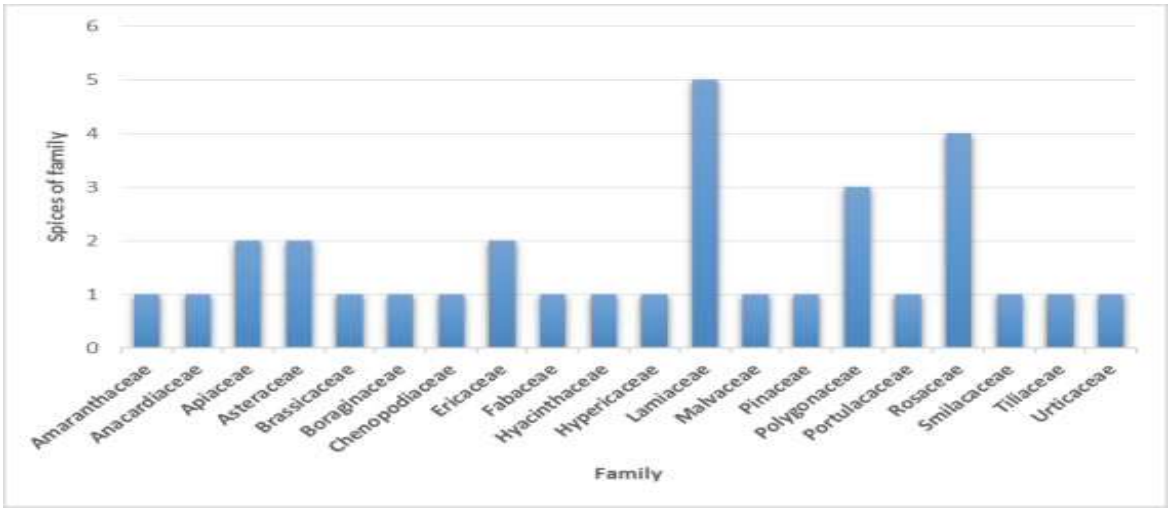

Figure 4. The number of ethnobotanical species in each family

4. Conclusions

Results showed that local people were recorded to use the aerial parts (43 %), leaves (18 %), flowering branches, (14 %) and fruits (14 %) s of the plants.

Some part of these medicinal taxa serves solely medicinal purposes while a number of them are used as spices and tea (Table 1). *Helichrysum arenarium*, *Hypericum perforatum* , *Sideritis* sp., *Origanum vulgare* subsp. *viridulum*, *Trachystemon orientalis*, *Ornithogalum umbellatum*, *Smilax excelsa*, *Polygonum amphibium* are among the herbs extensively collected and sold in the area.

Plants species from the local markets mostly are used in the treatment of asthma, bronchitis, cold and cough. *Hypericum perforatum*, *Helichrysum arenarium*, *Origanum vulgare* subsp. *viridulum*, *Sideritis* sp. are used for

medicinal purposes in the study area. Infusion and decoction are the methods mostly used for the preparation of the remedies.

In areas where job opportunities are limited, collecting this ethnobotanical plants from nature are often carried out by womens. Collecting and trading these taxa that grow in vast localities in the region have become the source of income for hundreds of people (mostly peasant women). The observations conducted have shown that traders purchase bunches of medicinal herbs such *Hypericum perforatum*, *Helichrysum arenarium*, *Origanum vulgare* subsp. *viridulum*, *Sideritis* sp. for very small sums to sell in larger city markets and herbalists for 5-10 times higher prices.

The increase of interest towards alternative medicine and wild food plants in the world and in Turkey brings along a similar increase in the interest for ethnobotanical plants. Excessive interest of the media and the press on the issue as well as submission of raw knowledge mostly lacking scientific basis as completely scientific information bring along grave concerns. Many people possessing books on medicinal herbs, which are increasing in numbers recently, choose to collect medicinal plants for commercial gains only by looking at the pictures in such books. Consumers face serious challenges due to the insufficient amount of inspection mechanisms on the sector, collection of such plants by incompetent people lacking a proper awareness on the issue and storage in inappropriate conditions.

Uncontrolled harvest of medicinal plants by local people has increased the risk of extinction of many species and subsequently the loss of local knowledge as how to use them.

In the short term, this leads to pressure on taxa with common localities in the region. The risk of disappearing taxa will be on the increase unless measures are taken through necessary legal regulations on plant collection activities and education on local level.

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