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Research on some medicinal plants commercially sold in the Havran and Burhaniye region (Balıkesir-Turkey)

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Abstract

Within the framework of the ethnobotanical researches conducted between 2007 and 2009 in the areas in and around Havran and Burhaniye (Balıkesir), the medicinal plants collected with commercial purposes in the region and sold in local markets were studied in addition to other uses. In this respect, the patterns of usage of these plants collected extensively by the local people on commercial purposes were examined. Studies in the villages and local markets in the region have revealed that the taxa of nine medicinal plants have been extensively collected and sold. It was also observed that some of the plant taxa defined have been used not only as medicinal plants but also as spices.

Introduction

The aim of the study is to define the extensively collected and sold medicinal plants around Burhaniye and Havran (Balıkesir). The trade of medicinal plants has substantively increased in recent years. Many plants collected randomly in the countryside are sold in local markets. The region covering Havran and Burhaniye (Balıkesir) is a rich geographical area in terms of medicinal plants.

Historical records show that a great number of herbal drugs were exported at the time of the Ottoman Empire (Bavlav 1940). It is mentioned in publications on herbal drugs at the Republican period that approximately 70 plants were exported (Baytop 1963). Today there are about 20 000 herbal plants used for medication and 600 of these are known to be grown in Turkey (Baytop 1999). Although 20 plants are extensively exported from Turkey, it is known that a total of 347 plants are used, 139 of which are exported (Özgüven & al. 2005).

The demand for medicinal plants has been on a rapid increase. According to the data released by the United Nations Conference on Trade and Development (UNCTAD), the annual market volume of the medicinal plants market in the world has reached to $ 40 billion. The leading countries in medicinal plant trade are China, India and Germany respectively (Bayramoğlu & al. 2009). The export rates of Turkey between 1993 and 2003 in medicinal and aromatic plants vary between 33 000 and 55 000 tons (Özgüven & al. 2005)

There are several researches carried out on the plants with commercial value collected for medical purposes in the region. The ethnobotanical studies conducted on the Mount Madra which is located partially within the borders of Burhaniye, shows that 12 plant taxa are collected and sold for medicinal purposes (Satıl & al. 2008). The research on thyme specimen marketed around Kazdağ which is neighboring our research area, shows that 60 tons of *Origanum* sp. and *Satureja* sp. taxa were collected as medicinal materials, tea and spices (Satıl & al. 2005, 2007).

Materials and methods

Material

The material of the study is constituted by the medicinal plants collected in the Havran and Burhaniye area and sold in local markets.

The research area is the area covering Havran and Burhaniye (Balıkesir) districts (Fig. 1A). The working area is in the B1 frame according to the records of "Flora of Turkey". The local geography is within the Mediterranean phytogeographic region, although it contains elements of the Europe-Siberia and Iran-Turan phytogeographic regions (Sütgibi 2003).

Burhaniye is a district of Balıkesir province on the Aegean coast and has a population of 48.602 over an area of 280 km^2 on a plain between Kazdağ and Madra Mountain with a rich flora. 36.393 (75.5 %) of the total population live within the town while 11.906 (24.5 %) live in the villages of the district. The district consists of 11 neighbourhoods, 25 villages and one town.

Havran is a settlement located on a fertile plain land stretching towards the Edremit Bay in the Aegean region of Turkey and bears partial territories in the Aegean and Marmara regions, administratively a district of Balıkesir province. Covering a total area of 559 km^2, the district has seven neighbourhoods, one town and 26 villages. The population of the district is 38.242 and 10.531 of the people live in the town. The district is located on 33 meters above the sea level.

Methods

In the study conducted within the scope of ethnobotany, methods of both ethnography and botany have been used. The study was conducted between 2007 and 2009 in the villages and local markets of Burhaniye and Havran (Balıkesir) region. The methods basically include participant observation, interviews with consumers, sellers and collectors; market surveys, school surveys, and field trips to collect medicinal plant specimens and observe which and how these plants are collected.

Interviews with resource people

Field research was conducted by collecting ethnobotanical information during structured and semi-structured interviews with knowledgeable people native in each site territory. Men and women above the middle age, shepherds, people named as "Lokman hekim" who is believed to cure people using certain plants, agriculture government officers of the region, woodsmen, teachers and people collecting herbs and plants, namely a total of 60

people were interviewed as resources. 36 of the interviewees were women while the remaining 24 were men. The majority of the interviewees were over the middle age.

For each plant recorded one questionnaire was filled. Even though a structured questionnaire had to be filled direct questions were avoided. The basic information needed was taken during the conversation. Whenever possible the conversation was recorded on cassettes.

Market Research

Local weekly markets in the region are set in Burhaniye and Havran as well as Edremit, Kadıköy, Akçay and Ayvalık in the neighboring areas and all of them were visited (Fig. 1B, C). The villages and their products have been defined in each of these weekly markets. The herbalists in the markets were also visited and interviews contucted.

Surveys at schools

80 students in local schools of the region were surveyed on "remedy herbs" used in the region (Ertuğ 2003). (Fig. 1D). First, a talk with slides on local useful plants, and then questionnaires on medicinal plants were given to the students. A total of 80 forms were returned by students, with information on medicinals. After the forms were evaluated, some of the families were visited and detailed information was obtained.

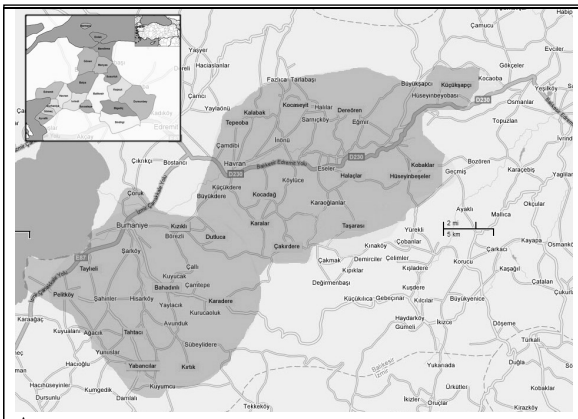
Collection, display and storage of the specimens

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 (Fig. 1E). 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. The identified specimens have been placed in the Herbarium of the Arts and Science Faculty, Balıkesir University.

Results

It was observed that nine medicinal plant taxa were extensively used for commercial purposes as a result of the research conducted at the villages of Havran and Burhaniye. Part of these medicinal taxa serves solely medicinal purposes such as pain killer, antibacterial and wound healing, while a number of them are used as spices and herbal tea (Table 1). Kantaron (*Hypericum perforatum*), Karabaş otu (*Lavandula stoechas*), Adaçayı (*Salvia tomentosa*), Taş kekik (*Origanum onites*), Güve kekiği (*Origanum vulgare*), Kısa mahmut (*Teucrium polium*), Dağ çayı (*Sideritis athoa*), Oğul otu (*Melissa officinalis*) and Mor kekik (*Thymbra spicata*) are among the herbs extensively collected and traded in the area.

Another form of usage for the medicinal plants growing in the region is herbal juice. The research in the region have revealed that a number of villages still extract the herbal juices and sell them for medicinal purposes in local markets despite the decrease in the activity when compared with the past. In villages of Bahadınlı and Karadere in Burhaniye district and Köylüce village in Havran district, a number of herbs including certain species of thyme are processed through a simple device called "imbik" (alembic, distillery) to extract herbal juice (Fig. 1F). The common thyme species used for extracting juice are



A


B


C


D


E


F

Fig. 1. A: Area of research, B, C: Local markets; D: School surveys; E: *Lavandula stoechas* collected for commercial purposes; F: Distillery “imbik” used in thyme juice extraction.

Table 1. Medicinal plants intensively collected and traded in the region.

	Name of the plant	Local names of the plant	Purpose of usage	Ways of Usage
1.	*Hypericum perforatum* L.	Kantaron, Sarı kantaron	Medical	- Stomach ache - Gastric ulcer - Wounds - Burns - Local pain killer - İnflammations - Nervous attacks - Antibacterial - Mastitis (for animal)
2.	*Lavandula stoechas* L. subsp. *stoechas*	Karabaş otu	Medical	- Stomach ache - Headache - Cholesterol - Menstrual pains - Hypertension
3.	*Melissa officinalis* subsp. *altissima* (Sm.) Arcangeli	Oğul otu	Medical	- Artherosclerosis - Stomach aches - Heart arthcries
4.	*Origanum onites* L.	Taş kekik Dağ kekiği, Toklu baş kekiği	Medical Spice	- Stomach aches - Headaches - Tootaches - Diabetes - Protection for lice
5.	*Origanum vulgare* subsp. *hirtum* (Link) Letswaart	Düğümlü kekik Güve kekiği	Medical Spice	- Tootache - Cold
6.	*Salvia tomentosa* Mill.	Adaçayı, Dağ Çayı	Medical Tea	- Cold
7.	*Sideritis athoa* Papanikolaou & Kokkini	Dağ çayı, Düğümlü çay	Medical Tea	- Cold
8.	*Teucrium polium* L.		Medical	- Diabetes - Kidney stones
9.	*Thymbra spicata* L. var. *spicata*	Limon kekik	Medical Tea	- Cold - Diabetes

Origanum onites and *Origanum vulgare* subsp. *hirtum* taxa. Addinionally the oil drops formed when the imbik device is used for juice extraction for thyme (*Origanum* sp.) are collected and sold as thymus oil. Besides *Origanum* sp., *Mellisa officinalis* subsp. *altissima, Lavandula stoechas* ssp. *stoechas* and *Achillea millefolium* are also observed to be sold as juice in the region.

In the visits made to local markets in the region, herbal taxa of the *Achillea millefolium* L., *Centaurium erythraea* Rafn., *Ceterach officinarum* DC., *Cistus laurifolius* L., *Cistus salviifolius* L., *Momordica charantia* L., *Inula heterolepis* Boiss., *Polypodium vulgare* L., *Rosmarinus officinalis* L., *Rosa canina* L., *Viscum album* L. subsp. *album*, *Urtica dioica* L. used as medicinal herbs were seen to be sold on commercial purposes with less intensity.

Conclusions

As a consequence of the research conducted in Havran and Burhaniye (Balıkesir) region, nine medicinal plant taxa were observed to be intensively collected and sold within the region. Eight of these nine taxa belong to the Lamiaceae family, whereas one taxa is within the *Clusiaceae* family.

Thyme species intensively collected in the region is one of the main herbs exported from Turkey. Despite annually changing figures, Turkey ranks top among other countries producing thyme with an average export rate of 7-8 tons. While previously a great majority of the thyme was previously collected from the nature, today half of this amount is cultivated in fields (Satıl et al., 2004; Özgüven et al., 20005). Among the thyme specimen collected, *Origanum onites* and *Origanum vulgare* subsp. *hirtum* are intensively collected to be used as medicinal product and spice in the research area.

Collecting and trading these species that grow in vast localities in the region have become the source of income for hundreds of local people. These species are gathered directly by the local people, especially, unemployed people with financial difficulties. However, the gathering of plants was exlusively women's work. They gather in groups and women are accompanied by their children, sometimes all the members of the family join this work.

The observations conducted have shown that traders purchase bunches of medicinal herbs such as kantaron (*Hypericum perforatum*), karabaş otu (*Lavandula stoechas*), adaçayı (*Salvia tomentosa*), oğul otu (*Melissa officinalis*) for very small sums to sell in larger city markets and herbalists for 10-20 times higher prices. Collection of tons of medicinal herbs was observed every year in Havran and Burhaniye villages by traders from larger cities like İstanbul and İzmir. In a research conducted in the neighboring Kazdağ region, it was observed that 50 tons of *Origanum vulgare* subsp. *hirtum*, *Origanum onites* were collected per year (Satıl et al. 2006). Other examples of research conducted within the region have revealed the intensive collection of *Salvia tomentosa* and *Hypericum perforatum* taxa (Satıl & al. 2007, 2008).

The gradual increase of the commercial share of medicinal herbs causes careless plant collection activities. In the short term, this leads to pressure on taxa with common localities in the region. None of the plants defined during this research is listed on the list of endangered commercial plant species (CITES). However, the broad localities of taxa rapidly shrinking in size due to activities such as intensive collection, land clearing and grazing. 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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