

Usage of non-timber forest products by women in forest villages of Trabzon, Turkey

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Abstract: Women are responsible for procuring the food for their family in many places in the world. The usage of the non-timber forest products (NTFPs) reaches to the beginning of the humanity. NTFPs are used for food and medicine especially in the developing countries as a whole. In this research, totally 611 questionnaires were conducted with women participants by polling face to face in 68 forest villages in the research area. The main reason for studying with women is that; the gathering activities are usually done by women in that area and they also knew the used parts and how to use the NTFPs. Results showed that about 14.4% of the women in the research area are gathering the plants for food (17 species and 2-8 kg annually) and 9.2% of the women are gathering the plants for medicinal purposes (16 species and 1-4 kg annually). These plants are usually used for additional medicinal treatments. 4 species are used for livestock treatment and 2 species in the hand weaving.

Key words: NTFPs, Forest village, Forest product, Women
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Introduction

The use of non-timber forest products (NTFPs) is as old as human existence. In subsistence and rural economies, the role and contributions of NTFPs in the daily life and well fair of people all over the world are crucial because of their richness of variety as sources of food for example fruits, nuts, honey, insects, animals, fiber, medicinal extracts, etc. These products are derived from a variety of sources plants, animals and other non-living components of the ecosystems (Aiyeloja and Ajewole, 2006).

Many people who live in the rural area are using the forest resources in a wide range. Many studies showed that many people who live in the forest villages need, to live and to continue their life, the natural resources.

In sense natural resources, especially the forests provide a means of livelihood for rural communities in most of the developing countries. Any attempt done by development agencies for conserving these resources is tantamount to depriving these rural areas of their survival base (Ngwa and Fonjong, 2002). Forests play a vital role in global food security, providing food, fodder, fuel and medicine. Throughout the developing world, women make a significant contribution to Forestry (FAO, 2007). About 80% of the population of the developing world depends on NTFP for their primary health and nutritional needs (FAO, 1995).

In the wooded areas of Thailand, for example, 60% of all food comes directly from the forests. Food from trees is sometimes a staple: more frequently, however, it is needed as a supplement for dietary diversity and nutrition (FAO, 2007).

In the northeast of Zambia, forest land serves as a major source of levy wild vegetables, mushrooms and edible caterpillars.

These three items which are also collected, processed and sold by women are major sources of cash and income (Abuquah, 1996).

While commercial NTFP, harvesting of some species had been going on since before 1920, a notable increase in gathering the NTFP began to occur at the end of 1980s (Hansis, 1988). Recent years have witnessed a paradigm shift in forestry and forest management due to worldwide economic, ecological and social changes. Nowadays, forests have to fulfill several functions linked to these three dimensions of sustainability. Contemporary multidimensional forest management has led to a much broader concept of non-wood products and services include landscape amenity, clean air, water storage, biodiversity, providing a space for recreation and tranquility (Seeland *et al.*, 2007).

Because of its geographic location, Turkey has a very rich and interesting flora. It is known that about 11, 014 plant species in the Turkish flora gives and 3708 pieces of them are endemic (Guner *et al.*, 2000). Returning to the nature or increasing human demands for natural products has raised the interest to the NTFPs in the recent years. It is necessary in Turkey to bring forward the importance of versatile using and to increase the usage of the NTFPs with a good management of the forest resources. Almost all of the NTFPs except the mushrooms are being gathered by the women in the research area. The knowledge about the edible plant species and their gathering time and spaces, their usable parts and cooking arts, belongs to the women. Totally 611 women in 68 villages of Trabzon was polled face to face to find out the usage circumstance (for food, treatment and weaving) of the vegetal NTFPs.

The average GNP (gross national product) per person in the research area is 1936\$ while in the same year (2006) it is 5,477\$ in Turkey (Alkan, 2008).

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According to the data of the World Bank; absolute poverty limit is 1\$ in the under developed countries while in the Eastern European countries (including Turkey) 4\$, in the developed countries 14.4\$ (DPT, 2001). The daily average income of the villagers in the research area is 5.2\$ which is less than the developed countries.

The socio-economic situations of the women in the research area are worse than the averages in Turkey, but better than the many developing countries in the world. Changes in the habitation structures, the durable consumer goods increments in the habitations, decrement in the animal population, new agricultural techniques, variations in the fuel materials, positive developments in the health sector and increment in the health assurance etc. increase the life standards of the women in the forest villages and decrease the need to the forest resources as well.

This research aims to determine and transfer the traditional and regional knowledge about the plants (used for food, medicine and weaving), to the next generations.

Materials and Methods

Study area: The city Trabzon is located in the North East of Turkey (Fig. 1). The winters are moist while the summers are warm. At elevation ranging from 0 to 3376 m above the sea level, Trabzon receives in average 817.3 mm of annual rainfall with humidity levels of 70% (DMIGM, 2008).

The forest villages are placed in mountainous and highly sloped areas where agricultural activities have many limitations. This fact increases the usage of the forest resources and makes the life difficult in the forest villages. Total population of the city Trabzon is about 975,137 where 50.9% of them (about 496183) live in the villages. The city has totally 476 villages and 211 (44.3%) of them are forest villages. About 103,432 people live in these villages.

The original data about the NTFPs was obtained from questionnaires applied to 611 women in 68 villages using face to face polling method in the research area. The questionnaire comprised both close-ended and open-ended questions about food, treatment, usage reason, used plants, income, education, etc.

The data was evaluated using the SPSS statistical software (SPSS inc., 2003). The frequency and transverse tables were constituted by using the frequency method with SPSS software. Chi-square independence test was used to determine relation between the categorical variables. Gathered NTFPs from villagers were collected and identified in the laboratories.

Results and Discussions

The plants collected from the villages in the research area (especially from the mountain pastures, forests and open lands in the forests) are used for many purposes. Essentially, there are more plants, mentioned by the women who participate to the research than given in this paper. The untraditional and non prevalent plants were eliminated and the rest was divided into 4 groups. Especially the usages related with treatment are the participants' opinion which was not tested scientifically.

Plants used for food: The plants constitute the life resources for the human and alimentation for livestock. The herbaceous plants are used in many ways, such as food spices beverages for easiness of digestion, as appetite opener and in other ways of remedy, for many illnesses etc.

Natural plants used for food in the research area are: *Urtica dioica*, *Fungus* spp., *Trachystemon orientalis*, *Smilax excelsa*, *Rubus* spp., *Vaccinium arctostaphylos*, *V. myrtillus*, *Rosa canina*, *Fragaria vesca*, *Thymus* spp., *Caltha polypetala*, *Heracleum* spp., *Allium* spp., *Cornus mas*, *Stellaria media*, *Chaerophyllum aureum*, *Castanea sativa*, *Amaranthus retroflexus* and *Chenopodium album*. Plants and their parts (leaf, fruit, stem etc.) are used for nutrition by different people in different ways (uncooked, cooked, boiled etc.).

Only 14.4% of the participants are gathering the plants for food from their natural habitat. Annually, about 2-8 kg wild fruits are gathered and used for their own needs. In the research villages, there is no marketing action of these plants.

Forest foods are often important for poorer groups of the rural areas. They provide an available and accessible source of a diverse range of foods. These forest foods have comparable nutritional quality with domesticated varieties. However, generally these forest foods are not dietary. But, they do significantly supplement the overall diversity and nutritional quality of rural people's diets (Falconer and Arnold, 1991).

The usage of these plants for food is not a necessity for the people who lives in the research villages; it's only a traditional fact. The participants reported that they need to experience the traditional flavors again. No differences were found between the GNP per person and the participants (Chi-square=431.9; D.F.=4; p=0.336>0.05).

Plants used as patent medicine: For many illnesses some people in the villages use plants as patent medicine. These plants are given in Table 1 with their names, usage art, used part etc.

Research in rural area of the Philippines, it is reported that; in order to cure their illness, 37% of the respondents depended almost on medicinal plants from the forest. The local arbularyo dispensed these plants to 29% of the respondents; others gathered the plants on their own. With a 32% of the respondents preferred a doctor inspection and used medicaments. If they could not afford to visit a licensed medical practitioner, 14% of the respondents preferred the arbularyo or the local health centre, which sometimes prescribed medicinal plants (Richman, 2002).

It is not a widespread behavior to use only the medicinal plants for treatment, in the research area. Most of the people, with a 90%, lack of social health security and no big health problems were reported to the health centers or hospitals. The medicinal plant in the research area is often used as a safeguard and an assistant a supplementary treatment.

The ratio of using plants for illnesses is 9.2 between 1 to 4 kg of forest plants were annually gathered for these purposes. Any



Fig. 1: The research area of Trabzon, Turkey

Table - 1: Plants used as patent medicine in Trabzon, Turkey

Botanical taxon	Botanical family	Vernacular name	Part used	Preparation	Medicinal use
<i>Anthemis</i> spp.	Asteraceae (compositae)	Papatya	F	Infusion	Gastrointestinal diseases/Diuretic/ Orexigenic
<i>Achillea schischkinii</i>	"	Demirotu	F	Infusion	Gynecological diseases
<i>Calystegia silvatica</i>	Convolvulaceae	Buruk	F,L	Infusion	Gynecological diseases
<i>Vaccinium arctostaphylos</i>	Ericaceae	Ligarba/ligaba	L	Infusion	Antidiabetic / Tension /Cholesterol
<i>Vaccinium myrtillus</i>	"	"	L	Infusion	"
<i>Origanum</i> spp.	Lamiaceae	Yayla cayi/dag cayi	F	Infusion	Gullet infection/Antidiabetic/Renal
<i>Thymus</i> spp.	"	Kekik	F	Infusion	Urinary tract infection/Common cold/ Dyspnea
<i>Plantago lanceolata</i>	Plantaginaceae	Yilan dili	L	Infusion	Gastrointestinal diseases/Styptic
<i>Plantago major</i>	"	Damar otu	L	Infusion	Cardiovascular diseases/Hemorrhoid/ Anti-rheumatism/Antidiabetic/ Pain killer
<i>Primula veris</i>	Primulaceae	Kusluk cicegi	F	Infusion	Gallbladder
<i>Rosa canina</i> **	Rosaceae	Kusburnu	Fr	Infusion	Hemorrhoid/Common cold
<i>Laurocerasus officinalis</i>	"	Karayemis/Taftan	Fr	Infusion	Antidiabetic
<i>Mespilus germanica</i>	"	Musmula	Fr	Chewing	Hemorrhoid
<i>Tilia rubra</i>	Tiliaceae	İhlamur	F	Infusion	Sweaty/Calmative/Hypnotic
<i>Tilia platyphyllos</i>	"	"	F	Infusion	"
<i>Urtica dioica</i> **	Urticaceae	Isirgan	L, Rt	Infusion/ Decoction	Anti-rheumatism/Orexigenic/Blood purification/Cancer

** = Exported taxa, F = Flower, Fr = Fruit, Rt = Root, L = Leaf

Table - 2: Plants used for livestock treatment in Trabzon, Turkey

Botanical taxon	Botanical family	Vernacular name	Part used	Preparation	Medicinal use
<i>Sambucus ebulus</i>	Caprifoliaceae	Livor	F	Infusion	intoxication
<i>Cerasus avium</i>	Rosaceae	Yabani kiraz	Br	Infusion	intoxication
<i>Cydonia oblonga</i>	Rosaceae	Ayva	L, Rt	Decoction	antidiabetic
<i>Equisetum arvense</i>	Equisetaceae	Atkuyruğu	F, L	Infusion	babesiosis

F = Flower, Br = Branch, L = Leaf, Rt = Root

commercial activities are reported concerning these plants. According to Chi-square test there was no significant relations between the plant usage, education level (Chi-square=13.3; D.F. =16; $p=0.435>0.05$) and average annual income (Chi-square=11.1; D.F.=16; $p=0.801>0.05$) of the participants.

Plants used for livestock treatment: The medicines for livestock were given by the veterinarians. In addition to this, there are also some plants used for livestock treatments. Table 2 illustrates some of these plants, their names, used parts, usage art etc.

Gathering plants for livestock treatment and medicine making is not usual and this work belongs to the men in the research area. Reduction in the number of the livestock and the area easiness reach the veterinarians reduced the importance of the traditional medicinal plant usage.

Plants used in the weaving: Hand weaving was very popular and done by the women in these villages, in the past. The color "black" was made from the plants gathered from the nature and the other colors were bought from the sellers. The traditional hand weaving activities in the research area are almost ended. As a result of this, currently, only 2 plant species, *Alnus glutinosa* and *Laurocerasus officinalis* are being used for this purpose.

It is generally known that women in developing countries play a vital role in forestry. Women are major users of forest resources mainly as a source of income and also as a mean of sustaining the family by providing food, medicine and fuel for the family and fodder for livestock. Women's primary role in meeting the basic needs of their family make them actors in environmental management.

Campbell (1986) found that, in Botswana, the use of wild plants was declining due to the decline in availability, changes in attitude (wild foods are viewed as poor man's food), and changes in lifestyle (spending more time in large settlements and less time in the bush lands).

Forest villages and the villagers are impacted from the economic, social and cultural changes in the world and in Turkey. These effects are seen as infrastructural improvement in the villages and there by improvement of the socio-economic and cultural location of the rural women. As a result of these changes a big reduction in the usage of the NTFPs was determined in the research area. Similarly, an important reduction in the usage of the firewood was determined, as well (Alkan, 2007).

17 species (almost 2-8 kg annually) was determined to use for food in the research villages. Only 14.4% of the participants are gathering NTFPs for food and 9.2% for treatment (totally 17 species, 1-4 kg annually). 4 species were being used for the livestock treatment and 2 species for hand weaving. It is obvious that the usage and the gathering activities in the research area

were more popular in the past. The main reasons for this decrease could be explained as;

- Reduction of the population with migration from the forest villages,
- Average GNP per person increase about 400 to 1900 \$ in the recent history,
- Most villagers are obtained health guaranty because of right political acts,
- Reduction of the livestock activities and accessibility to the veterinarians,
- Developments in the textile industry and decreased the weaving activities in the villages.

The NTFP collection rate in the forest villages have been decreased, but in opposite to this the NTFP usage in the nearest city Trabzon and in the other cities in Black sea region has increased relatively. Bayramoglu and Toksoy (2008) are determined in their research 284 species used in the region for medicine (with 25 herb shops in the region) and that the demand for the medicinal plants increases rapidly.

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