ORIGINAL RESEARCH

Wild Edible Plants of Pertek (Tunceli-Turkey)

Ahmet DOGAN, Ertan TUZLACI

ABSTRACT

An ethnobotanical study was carried out in Pertek (Tunceli, Turkey) between April 2009-June 2012. For this purpose, the center of Pertek and all of the 45 villages were visited. During the field works, 627 plant specimens were collected and various ethnobotanical information regarding these plants was classified. In this paper which is a part of ethnobotanical study, wild edible plants of Pertek are presented.

This investigation revealed that 109 taxa belonging to 30

families are being used by local people for nutrition. The plants were mostly used as food (73 taxa), beverage (30 taxa) and spice (12 taxa). This study is the first comprehensive survey of ethnobotanical aspects of Pertek region and all taxa presented in this paper are recorded as food for the first time in Pertek. All of the 73 plants utilized as food in Tunceli and 3 taxa of them in Turkey are recorded for the first time.

Key Words: Ethnobotany, Wild Edible Plants, Pertek, Tunceli, Turkey

INTRODUCTION

Anatolia is a very important region in terms of both floristic diversity and human history. Because of its' geographical position, which is the meeting place of three phytogeographical regions (Euro-Siberian, Mediterranean and Irano-Turanian), Anatolia has a very rich flora. The flora of Turkey is estimated to contain more than 10.000 species of vascular plants. Approximately one third of its flora (33%) is endemic (1).

Our research area, Pertek, is a district of Tunceli that is located on the north west of Eastern Anatolia. Pertek is surrounded by city of Tunceli from the north, Keban dam lake from the south, Çemişgezek and Hozat from the west, and Mazgirt from the east. (2). Eastern Anatolia Region is differentiated from other regions of Turkey with has the highest average altitude, largest geographical area and lowest population density.

Since the dawn of history, human beings have benefited from plants grown around them for various purposes especially as a food source. Depending on needs and

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Phone: +90 216 414 29 62 E-mail: adogan@marmara.edu.tr observations, the importance of plants in human life has increased in course of time (3, 4). For example, Shanidar Cave, excavated between 1952-1957 by Ralph Solecki and his colleagues; is located in the Zagros Mountains of northwestern Iraq and is very close the Anatolia and Mesopotamia. They reported crucial evidence about the interaction between plants and Neanderthals. They had used various plants which were available in their local environment as food sources. Some of the plants were typical of recent modern human diets; including date palms, legumes, and grass seeds, whereas others are known to be edible but are not heavily used nowadays (5).

The intake of edible wild plants as a way to pursue healthy lifestyles, has recently attracted the attention of many potential consumers, who try to find higher levels of bioactive compounds in such species rather than in farmed produces (6). The strong connection between nutrition and health is increasingly recognized that subject is frequently referred in popular magazines as well as in prestigious scientific journals (7).

The goal of this study is to reveal the wild food plants of Pertek (Tunceli), which is situated in historical and floristically rich part of eastern Anatolia, and to examine ethnobotanical culture related to these plants. Such endeavor will provide scientific record of local usage of wild food plants.

MATERIAL AND METHODS

The materials of this study are the plant specimens which were collected during the field works that had been done between April 2009-June 2012 in the research area. The plant specimens of this study are being kept in the Herbarium of the Faculty of Pharmacy, Marmara University (MARE). Information on the plants was provided from the local people in Pertek and in its villages.

For the identification of the plants, "Flora of Turkey and the East Aegean Islands" (8, 9, 10) and our herbarium (MARE) were mainly used.

Table 1.

Scientific name Family Specimen number	Local names	Used parts	Uses
Acanthus dioscoridis L. var. dioscoridis Acanthaceae MARE 12447, MARE 13893	Ayıkulağı	Corolla	As tea
Achillea wilhelmsii C. Koch Compositae MARE12692.	Civanperçemi	Capitulum	As tea
Allium cardiostemon Fisch. et Mey. Liliaceae MARE12439, MARE 13887.	Dağ sarmısağı, Sirik	Young aerial part Young aerial part	Eaten fresh Cooked with vegetables
Allium macrochaetum Boiss. et Hausskn. subsp. tuncelianum Kollmann Liliaceae MARE13851.	Dağ sarımsağı, Sirik, Sirmok	Young aerial part Young aerial part Young aerial part Young aerial part	Appetizer Used in Börek (a special pastry) As spice Eaten fresh.
Amaranthus albus L. Amaranthaceae MARE 13424	Süpürge otu	Young shoot	Cooked as meal
Amaranthus retroflexus L. Amaranthaceae MARE 12522, MARE 13389	Kırmızı pancar, Sılmık	Young shoot Young shoot Young shoot	Cooked with vegetables Cooked as meal with egg Used in Börek (a special pastry).
Anacamptis pyramidalis (L) L. C. M. Richard Orchidaceae MARE13940	Sahlep, Salep çiçeği	Tuber (Powder)	As salep (Mixed with milk)
Anchusa azurea Miller var. azurea Boraginaceae MARE 12641, MARE 12699	Gurız, Güriz, Gürz	Young aerial part Nectar	Cooked as meal Sucked

Scientific name Family Specimen number	Local names	Used parts	Uses
Anthemis tinctoria L. var. tinctoria Compositae MARE 12561, MARE 13874.	Papatya, Sarı papatya	Capitulum	As tea
Bellevalia gracilis Feinbrun Liliaceae MARE12600.	Öküz soğanı	Leaf	Cooked as soup
Berberis crataegina DC. Berberidaceae MARE 12456, MARE 12645	Karamuk, Karamık	Fruit Fruit Fruit	As molasses As jam. Eaten fresh
Campanula glomerata L. subsp. hispida (Witasek) Hayek Campanulaceae MARE13885	Çan çiçeği	Young aerial part	Cooked as meal
Campanula involucrata Aucher ex A.DC. Campanulaceae MARE12647, MARE 12654.	Çan çiçeği	Root	Eaten fresh after peeling
Carduus nutans L. subsp. leiophyllus (Petr.) Stoj. et Stef. Compositae MARE 12490, MARE 13888.	Eşek dikeni, Kangal	Young stem	Eaten fresh after peeling
Carduus pycnocephalus L. subsp. albidus (Bieb.) Kazmi Compositae MARE12638.	Eşek dikeni, Kangal	Young stem	Eaten fresh after peeling
Celtis tournefortii Lam. Ulmaceae MARE13540.	Derdoğan	Fruit	Eaten fresh
Centaurea depressa Bieb. Compositae MARE 12553, MARE 12649, MARE 13865.	Peygamber çiçeği	Capitulum	As tea
Cerasus microcarpa (C. A. Meyer) Boiss. subsp. tortuosa Rosaceae MARE 12459, MARE 12643, MARE 13932.	Zerdali	Fruit	Eaten fresh
Cerinthe minor L. subsp. auriculata (Ten.) Domac Boraginaceae MARE 13414	Akrepkuyruğu	Young leaf	Cooked as meal
Chaerophyllum bulbosum L. Umbelliferae MARE12440.	Homik	Young stem	Eaten fresh after peeling
Chenopodium album L. subsp. album var. album Chenopodiaceae MARE13370.	Sılmık	Young aerial part	Used in Börek (a special pastry). (local name: Patila)
Chondrilla juncea L. var. acantholepis (Boiss.) Boiss. Compositae MARE13449.	Sakız otu	Young aerial part	Used in Börek (a special pastry). (local name: Patila)
Cicer bijugum Rech. fil. Leguminosae MARE 12453, MARE 12591.	Yabani nohut	Seed	Eaten fresh
Cichorium intybus L. Compositae MARE13448.	Acı ot, Keklik otu, Talışk.	Young leaf	Cooked as meal with egg

Scientific name Family Specimen number	Local names	Used parts	Uses
Cirsium arvense (L.) Scop. subsp. vestitum (Wimmer et Grab.) Petrak Compositae MARE13527, MARE 13910.	Kelendor	Young stem	Eaten fresh after peeling
Crataegus meyeri Pojark. Rosaceae MARE12642.	Alıç, Aluç, Rıhok	Fruit	Eaten fresh
Crataegus monogyna Jacq. subsp. monogyna Rosaceae MARE12426.	Alıç, Aluç, Güjok	Fruit	Eaten fresh
Crataegus pseudoheterophylla Pojark. Rosaceae MARE13503, MARE 13539.	Alıç, Aluç	Fruit	Eaten fresh
Crocus biflorus Miller subsp. tauri (Maw) Mathew Iridaceae MARE13536.	Çiğdem, Pivık	Corm	Eaten fresh after peeling
Cruciata taurica (Pallas ex Willd.) Ehrend. Rubiaceae MARE12713.	Peynirmayası	Fruit	As rennet.
Dactylorhiza iberica (Bieb. Ex Willd.) Soo Orchidaceae MARE 13886, MARE 13957, MARE 13963.	Sahlep, Salep çiçeği	Tuber (powder)	As salep (Mixed with milk)
Dactylorhiza osmanica (Kl.) Soo var. osmanica Orchidaceae MARE13877.	Sahlep, Salep çiçeği	Tuber (powder)	As salep (Mixed with milk).
Echinops orientalis Trautv. Compositae MARE13455.	Eşek kengeri	Receptacle	Eaten fresh.
Echinops pungens Trautv. var. pungens Compositae MARE12554.	Eşek kengeri	Receptacle Young stem	Eaten fresh Eaten fresh after peeling
Echinops viscosus DC. subsp. bithynicus (Boiss.) Rech. fil. Compositae MARE13492.	Eşek kengeri	Receptacle	Eaten fresh
Echium italicum L. Boraginaceae MARE 12512, MARE 13378	Sorık, Yakar ot	Nectar	Sucked
Eremurus spectabilis Bieb. Liliaceae MARE13842.	Gullık, Gulik	Young leaf Young leaf	Cooked as meal Cooked with vegetables.
Eryngium campestre L. var. virens Link Umbelliferae MARE13450.	Eşek kengeri	Young stem	Eaten fresh after peeling
Falcaria vulgaris Bernh. Umbelliferae MARE12463, MARE 12534, MARE 13387.	Tizik	Young aerial part	Cooked as meal
Ficus carica L. subsp. rupestris (Hausskn.) Browicz. Moraceae MARE12721.	Yabani incir	Fruit	Eaten fresh
Geranium stepporum Davis Geraniaceae MARE12655, MARE 13827.	Hillok, Hilok	Tuber	Eaten fresh after peeling

Scientific name Family Specimen number	Local names	Used parts	Uses
Gladiolus illyricus W. Koch Iridaceae MARE13941.	Yalancı lale	Tuber	Eaten fresh after peeling
Gundelia tournefortii L. var. armata Freyn et Sint. Compositae MARE12474, MARE 12667.	Acı kenger	Latex (From root)	As gum
Gundelia tournefortii L. var. tenuisecta Boiss. Compositae MARE12492.	Kenger, Kereng	Young shoot	Eaten fresh after peeling
Gundelia tournefortii L. var. tournefortii Compositae MARE12636.	Kenger, Kereng	Young shoot	Cooked as meal Eaten as fresh
Helichrysum arenarium (L.) Moench subsp. aucheri (Boiss.) Davis et Kupicha Compositae MARE12693, MARE 13883.	Altın otu, Güneş otu, Sarı çiçek	Capitulum	As tea
Helichrysum plicatum DC. subsp. polyphyllum (Ledeb.) Davis et Kupicha Compositae MARE12464, MARE 12650, MARE 12691, MARE 13872.	Altın otu, Güneş otu, Sarı çiçek	Capitulum	As tea
Juglans regia L. Juglandaceae MARE13452.	Ceviz, Güz	Seed	Eaten fresh
Juniperus oxycedrus L. subsp. oxycedrus Cupressaceae MARE 12700, MARE 13491.	-	Cone	Eaten fresh
Lathyrus cicera L. Leguminosae MARE12682.	Çolık, Yalancı fasulye	Seed	Eaten as fresh
Leontodon crispus Vill. subsp. asper (Waldst. et Kit.) Rohl. var. setulosus (Hal.) Kupicha Compositae MARE12706.	İt yemliği	Young shoot	Cooked as meal
Malus sylvestris Miller subsp. orientalis (A. Uglitzkich) Browicz var. orientalis Rosaceae MARE12657.	Sev, Yabani elma	Fruit (dried)	As tea
Malva neglecta Wallr. Malvaceae MARE12538, MARE 12571, MARE 13403.	Ebe gümeci, Ebem gümeci, Tolık	Young leaf	Cooked as meal
Marrubium astracanicum Jacq. subsp. astracanicum Labiatae MARE12594.	Dağ çayı	Aerial part	As tea
Mentha longifolia (L.) Hudson subsp. typhoides (Briq.) Harley Labiatae MARE 12428, MARE 13376, MARE 13475, MARE 13529.	Punk	Aerial part Leaf	As tea As spice
Morus alba L. Moraceae MARE13405, MARE 13494.	Dut, Tu	Fruit Fruit Fruit (dried)	Eaten fresh As molasses Cooked as meal with egg

Scientific name Family Specimen number	Local names	Used parts	Uses
Nepeta italica L. Labiatae MARE12626.	Nezle otu	Leaf Leaf	As spice As tea
Nepeta nuda L. subsp. albiflora (Boiss.) Gams Labiatae MARE13922.	Arı kekiği	Leaf	As tea
Nepeta trachonitica Post Labiatae MARE12476.	Dağ çayı	Aerial part	As tea
Onosma argentatum HubMor. Boraginaceae MARE13845	Emzik	Nectar	Sucked
Onosma giganteum Lam. Boraginaceae MARE12541, MARE 12478	Havaciva	Nectar	Sucked
Orchis coriophora L. Orchidaceae MARE12565, MARE 12584.	Sahlep, Salep çiçeği	Tuber (powder)	As salep (Mixed with milk)
Orchis palustris Jacq. Orchidaceae MARE12599.	Sahlep, Salep çiçeği	Tuber (powder)	As salep (Mixed with milk)
Orchis punctulata Steven Ex Lindley Orchidaceae MARE13867.	Sahlep, Salep çiçeği, Sümbül	Tuber (powder)	As salep (Mixed with milk)
Origanum acutidens (HandMazz.) Ietswart Labiatae MARE12423, MARE 13486, MARE 13864.	Dağ kekiği, Zemul	Young aerial part	As spice
Origanum vulgare L. subsp. gracile (C. Koch) Ietswaart Labiatae MARE12611, MARE 13441, MARE 13897.	Kekik, Kuş zemulu	Young aerial part Flower	As spice As tea
Ornithogalum oligophyllum E. D. Clarke Liliaceae MARE13836.	İt otu	Young leaf	Cooked as meal
Paeonia mascula (L.) Miller subsp. arietina (Anders.) Cullen et Heywood Paeoniaceae MARE12500, MARE 13914.	Ayı gülü, Gulorç, Gül horç	Young leaf	Cooked as meal with egg
Papaver pseudo-orientale (Fedde) Medw. Papaveraceae MARE13944.	Gelincik, Yabani haşhaş	Young fruit	Eaten fresh
Pistacia eurycarpa Yalt. Anacardiaceae MARE 12429, MARE 12625	Buttum, Çedene, Menengeç, Kizvan	Fruit (dried) Fruit	As tea Eaten fresh
Polygonum cognatum Meissn. Polygonaceae MARE12504, MARE 12580, MARE 13493.	Gaye bederan, Harman otu, Madımak	Young aerial part	Cooked as meal
Portulaca oleracea L. Portulacaceae MARE12521, MARE 13393.	Pirpirim, Semiz otu	Young aerial part	Cooked as meal

Scientific name Family Specimen number	Local names	Used parts	Uses
Prangos ferulacea (L.) Lindl. Umbelliferae MARE12473, MARE 13935.	Çağşır, Çahşir	Young stem	Eaten fresh after peeling
Prangos pabularia Lindl. Umbelliferae MARE12546.	Çağşır, Çahşir	Young aerial part	Cooked as meal
Prunus divaricata Ledeb. subsp. divaricata Rosaceae MARE12437.	Erik, Yabani erik	Fruit Fruit	Eaten fresh compote
Prunus divaricata Ledeb. subsp. ursina (Kotschy) Browicz Rosaceae MARE13931.	Erik	Fruit Fruit	Eaten fresh compote
Pyrus syriaca Boiss. var. syriaca Boiss. Rosaceae MARE13947.	Adi armut, Şekok	Fruit	Eaten fresh
<i>Quercus brantii</i> Lindley Fagaceae MARE13466.	Meşe, Palamut	Fruit	Roasted
Quercus infectoria Oliver subsp. boissieri (Reuter) O. Schwarz Fagaceae MARE 12698, 13379, MARE 13482, 13509, 13535.	Meşe	Fruit	Roasted
Quercus libani Oliver Fagaceae MARE13415, MARE 13481.	Meşe	Fruit	Roasted
Rheum ribes L. Polygonaceae MARE13419	Işkın, Rives	Fruit	Eaten fresh after peeling
Rosa canina L. Rosaceae MARE12520, MARE 13406, MARE 13541.	Kuşburnu, Şilan	Fruit	As tea As molasses
Rubus sanctus Schreber Rosaceae MARE13438.	Böğürtlen, Tırık, Tırrık	Fruit Fruit	Eaten fresh As jam
Rumex acetosella L. Polygonaceae MARE12633.	Kuzukulağı, Tırşok	Young stem and leaf	Eaten fresh
Rumex patientia L. Polygonaceae MARE12514, MARE 12515, MARE 13923.	Kuzukulağı	Fruit	As tea
Rumex scutatus L. Polygonaceae MARE12711, MARE 13906.	Kuzukulağı, Tırşok	Young aerial part	Eaten fresh
Salvia bracteata Banks et Sol. Labiatae MARE12486.	Ada çayı	Young aerial part	As tea
Salvia multicaulis Vahl Labiatae MARE12493, MARE 12568, 12607, MARE 12672.	Dağ çayı, Süt otu	Young aerial part	As tea

Scientific name Family Specimen number	Local names	Used parts	Uses
Salvia sclarea L. Labiatae MARE12430.	Dağ çayı	Leaf	As tea
Salvia suffruticosa Montbret et Aucher ex Bentham Labiatae MARE 12602, MARE 12610.	Çay otu	Aerial part	As tea
Salvia tomentosa Miller Labiatae MARE13538, MARE 13847.	Ateş otu	Aerial part	As tea
Salvia verticillata L. subsp. amasiaca (Freyn et Bornm.) Bornm. Labiatae MARE13435, MARE 13892.	Karabaş	Aerial part	As tea
Satureja hortensis L. Labiatae MARE12455, MARE 13397, MARE 13514.	Anıh, Anık, Dağ kekiği	Leaf and flower	As spice
Scorzonera mollis Bieb. subsp. mollis Compositae MARE12681.	Spling, Yemlik	Young plant	Eaten fresh (with salt)
Sedum sempervivoides Bieb. Crassulaceae MARE12659, MARE 13844.	Ömür çiçeği	Leaf	Eaten fresh
Silene compacta Fischer Campanulaceae MARE12707, MARE 13956.	Gıvışk	Young leaf	Cooked as meal
Silene vulgaris (Moench) Garcke var. vulgaris Campanulaceae MARE12425, MARE 12518.	Cırvınık	Young leaf	Cooked as meal
Stachys lavandulifolia Vahl var. lavandulifolia Labiatae MARE12465, MARE 12596.	Ada çayı, Dağ çayı	Aerial part	As tea
Stachys spectabilis Choist ex DC. Labiatae MARE13525.	Dağ çayı	Aerial part	As tea.
Teucrium chamaedrys L. subsp. sinuatum (Čelak.) Rech. fil. Labiatae MARE12433, MARE 13412.	Dağ kekiği	Leaf	As spice
Teucrium parviflorum Schreber Labiatae MARE12606.	Dağ kekiği	Leaf	As spice
Thymus kotschyanus Boiss. et Hohen. var. kotschyanus Labiatae MARE12557, MARE 13920.	Kekik	Leaf	As spice
Tragopogon buphthalmoides (DC.) Boiss. var. buphthalmoides Compositae MARE12466.	Sipling, Sipling, Yemlik	Young plant	Eaten fresh (with salt)

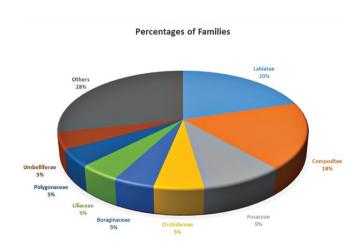
Scientific name Family Specimen number	Local names	Used parts	Uses
Tragopogon longirostis Bisch. ex Schultz Bip. var. longirostis Compositae MARE12690, MARE 12697, MARE 12712, MARE 13859.	Sipling, Sipling, Yemlik	Young plant	Eaten fresh (with salt)
Urtica dioica L. Urticaceae MARE13402, MARE 13853.	Gezik, Isırgan, Isırgan otu	Young aerial part	Cooked as meal.
Vitis sylvestiris Gmelin Vitaceae MARE13443, MARE 13505.	Koruk, Tiri, Yabani asma	Fruit Leaf	Eaten fresh Cooked as meal
Ziziphora capitata L. Labiatae MARE12578, MARE 12612, MARE 12627.	Kekik	Aerial part	As spice
Ziziphora clinopodioides Lam. Labiatae MARE13407, MARE 12431.	Anıh, Kekik	Aerial part Aerial part	Appetizer As spice
Ziziphora tenuior L. Labiatae MARE12577.	Kekik	Aerial part Aerial part	Appetizer As spice

RESULTS AND DISCUSSION

This investigation revealed that 109 taxa belonging to 30 families are being used by local people for nutritional purposes. The plants are mostly used as food (73 taxa), beverage (30 taxa) and spice (12 taxa). This study is the first comprehensive survey of ethnobotanical aspects of Pertek region and the aims of use for all taxa are recorded in Pertek for the first time. All of the 73 plants utilized as food in Tunceli and 3 (*Bellevalia gracilis*, *Leontodon crispus* subsp. *asper* var. *setulosus*, *Onosma giganteum*) of them in Turkey are recorded for the first time (11).

The most frequently used families are Labiatae (20%), Compositae (18%) and Rosaceae (9%) (Figure 1). The genera which is represented with the highest number of taxa among edible plants are: Salvia, Rumex, Crataegus, Echinops, Gundelia, Nepeta, Orchis, Quercus and Ziziphora

Local people in Pertek region harvest the wild plants by themselves and use them as food sources. However, some of the plants (*Eremurus spectabilis, Rheum ribes*, etc.)



collected are also sold in the region. It was also detected in our interviews that tubers of Salep (*Orchis, Anacamptis, Dactylorhiza*) were collected and sold for extra income in previous years. Due to this over-harvesting, these plants have a risk of extinction in the region.

Pertek (Tunceli-Türkiye) Yöresinin Yabani Besin Bitkileri

ÖZET

Nisan 2009-Haziran 2012 tarihleri arasında Pertek (Tunceli) ilçesinde yapılmış etnobotanik bir çalışmadır. Bu amaçla Pertek ilçe merkezi ve 45 köyünün hepsi ziyaret edilmiştir. Arazi çalışması süresince 627 bitki örneği toplanmış ve bu bitkilerle ilgili çeşitli etnobotanik bilgiler derlenmiştir. Etnobotanik araştırmanın bir kısmı olan bu makalede Pertek yöresinin yabani besin bitkileri sunulmuştur.

Bu araştırma yörede 30 familyaya ait 109 taksonun besin

amacıyla kullanıldığını ortaya çıkarmıştır. Bitkilerden çoğunlukla yiyecek olarak (73 takson), içeçek olarak (30 takson) ve baharat olarak (12 takson) yararlandığı tespit edilmiştir. Bu çalışma Pertek yöresinde yapılmış olan ilk geniş kapsamlı etnobotanik araştırmadır ve bitkilerin besin olarak kullanılışı bu yöreden ilk kez kaydedilmiştir. Makalede yer alan 73 bitkinin tümü Tunceli ilinde, 3'ü (Bellevalia gracilis, Leontodon crispus subsp. asper var. setulosus, Onosma giganteum) ise Türkiye'de ilk kez besin olarak kaydedilmiştir.

Anahtar kelimeler: Etnobotanik, Yabani Besin Bitkileri, Pertek, Tunceli, Türkiye

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