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Natural dye plants in Kepsut (Balıkesir, Turkey)

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Abstract

Natural dyes have traditionally been used in Anatolia for several years. An ethnobotanical study was conducted between 2012 and 2015 in order to determine wild plants used in Kepsut, which is a district of Balıkesir province in the Marmara region of Turkey. The purpose of this research was to get acquainted to know plants used as dyes in Kepsut, Balıkesir. The regional name of the plants, the parts used for dye production, and obtained colors have been reported. According to the results of the identification, 21 plant species belongs to 14 families were used as dye source in Kepsut. Used parts of species were aerial part, cortex, flower, fruit, gall, leaf, and root. Also 5 mixture receipts for dyeing were reported in Kepsut.

Key words: Ethnobotany, natural dye, Kepsut, Balıkesir, Turkey.
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Kepsut (Balıkesir, Türkiye)' da doğal boya elde edilen bitkiler

Özet

Doğal boyalar geleneksel olarak Anadolu'da yıllardır kullanılmaktadır. Kepsut'ta halk arasında kullanılan bitkileri belirlemek için 2012-2015 yılları arasında etnobotanik bir çalışma yapılmıştır. Kepsut, Marmara bölgesinde bulunan Balıkesir ilinin bir ilçesidir. Bu araştırmanın amacı, Kepsut ilçesinde halk arasında kullanılan doğal boya bitkilerinin tespit edilmesidir. Bitkilerin yöresel adı, boya eldesinde kullanılan bölümleri ve bitkilerden elde edilen renkler belirlenmiştir. Tespit edilen sonuçlara göre, Kepsut'ta 14 familyaya ait 21 bitki türü boya kaynağı olarak kullanılmaktadır. Türlerin kullanılan bölümleri toprak üstü kısımlar, kabuk, çiçek, meyve, mazı, yaprak ve kök kısımlarıdır. Ayrıca Kepsut ilçesinde boyama amaçlı kullanılan 5 farklı bitki karışımı da kaydedilmiştir.

Anahtar kelimeler: Etnobotanik, doğal boya, Kepsut, Balıkesir, Türkiye.

Introduction

Turkey has a rich potential from the natural dye plants. The dyeing of wool is conducted in three different ways: direct dyeing, dyeing in cubic way, and dyeing by the help of mediator substances. Wool fibers are dyed in one of those three ways. The dyes had been used until the end of the 18th century by local people. Wool fibers of carpets were dyed mostly with natural dye plants (Ozturk and Ozcelik 1991). Turkish people used different techniques of natural dyeing in the Middle Ages, and introduced natural dyeing to the world (Eyuboglu et al. 1983). The French people learned natural dyeing from the Turkish in 1715 (Atayolu, 1933). Kepsut is a district of Balıkesir Province in the Marmara region of Turkey. It is in the eastern part of Balıkesir (Fig. 1). It has an area of 894 km². The population is 24.180. Kepsut has 63 villages, some of which belong to Yoruks. Yoruks are especially very interested in natural dye plants. Karakeçili Yoruk communities live in 17 villages, Yağcıbedir Yoruk communities live in 9 villages (Fig. 2). In Yağcıbedir villages, carpet texture is a very old tradition. The Yağcıbedir Yoruks sell Yağcıbedir carpets to other cities of Turkey and also export to other countries (Fig. 5 and 6). Local people use natural dyes for dyeing the carpet yarn. In this study, traditional uses of dye plants in Kepsut (Balıkesir) were listed.

Figure 1. Map of Kepsut, Balıkesir, and Turkey.

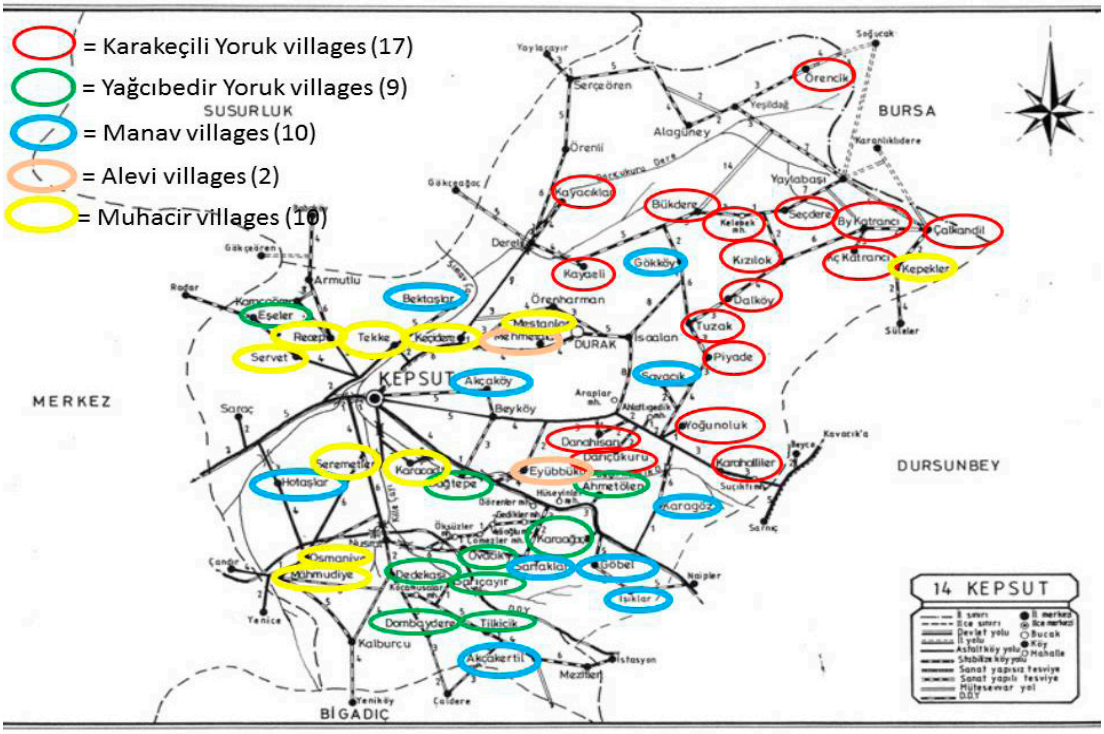

Figure 2. Ethnic characters of Kepsut villages.

Materials and methods

This research was performed between 2012 and 2015. The research area was in the Eastern part of Balıkesir. The 63 villages in Kepsut were visited during the research (Özdemir Nath 2016). Interviews were made with the local people (Fig. 3 and 4). A total of 305 individuals were interviewed in the area. Questions were asked about the natural dye plants. The local name of the plants, the parts used for dye production, and obtained colors have been reported. The uses of natural dyes in textile products such as cloth and carpet were reported. The dye plants were collected from nature with the help of the villagers. The collected plants were identified by using "Flora of Turkey and the East Aegean Islands" (Davis, 1965–1985; Davis et al.1988; Güner et al. 2000) and were cross-checked with the specimens kept at ISTE. The collected plant species were kept as herbarium reference at ISTE. Some plant species were deposited as a personal collection with the code of E.Ö.

Figure 3. Interview with the local people in Dedekaşı village, Kepsut (Balıkesir)

Figure 4. Interview with the local people in Karahaliller village, Kepsut (Balıkesir).

Figure 5. Yağcıbedir carpet of Kepsut (Balıkesir)

Figure 6. Yağcıbedir carpet small size, Kepsut

Results

This research allowed us to get information about dye plants in Kepsut, Balıkesir for the first time. There are 21 natural dye plants belonging to 14 families in Kepsut, Balıkesir. The local name of the plants, the parts used for dye production, and obtained colors have been listed (Table 1). The most commonly used parts of the dye plants were the cortex, aerial part, flower, fruit, gall, leaf and root. Also 5 mixture receipts for dyeing were reported in Kepsut (Table 2). Plant parts and water were put in boiler and were waited until desired colors were obtained. Some natural or chemical mediators are used for dyeing such as ash and salt.

Table 1. The natural dye plant species in Kepsut, Balıkesir.

Plant species, family and specimen number	Local names	Used part	Application	Color obtained
Achillea nobilis L. subsp. *neilreichii* (A.Kern.) Velen. (Compositae, ISTE 109654, 109624, 109655, 109656)	Ayvadana, Kurtotu	Areal part	Boiled with wool yarns of handmade carpet	Yellow
Alkanna tubulosa Boiss. Boraginaceae, ISTE 109578)	Kökboya	Root	Boiled with textile	Yellow, brown
Allium cepa L. (Amaryllidaceae, E.Ö. 4)	Soğan	Dried onion shells	Boiled with textile	Orange

Alnus glutinosa (L.) Gaertn. (Betulaceae, E.Ö.20)	Karaağaç, Kızılçınar	Cortex	Mixed with *Fraxinus ornus* and boiled with textile	Red
		Leaf	Used as a hand henna	Orange
Cistus laurifolius L. (Cistaceae, ISTE 109625, 109587)	Murt, Murtotu, Tavşanak, Tavşanaki, Tavşan pıynarı	Areal part	Boiled with onion shells and wool yarns of handmade carpet	Camel color
		Leaf	Boiled with wool yarns of handmade carpet	Blue, black, green
		Leaf	Boiled with wool yarns of handmade carpet	Keeps the color permanent on wool yarns
Fraxinus ornus L. (Oleaceae, E.Ö. 40)	Dişbudak	Cortex	Mixed with *Alnus glutinosa* and boiled with textile	Red
Helleborus orientalis Lam. (Ranunculaceae, E.Ö. 50)	Karacakökü, Karacaot, Kökboyası	Root	Boiled with wool yarns of handmade carpet	Red
Juglans regia L. (Juglandaceae, ISTE 109728)	Ceviz	Leaf	Boiled with cloth (Local name: Ferace,traditional village women cloth)	Black
		Bark of fruit, leaf	Boiled with wool yarns of handmade carpet	Black
		Bark of fruit, leaf	Mixed with henna for permanent color	Brown
Lavandula stoechas L. (Labiatae, ISTE 109852, 109826)	Karabaş otu, Kocabaşotu, Lavanta	Areal part	Boiled with wool yarns of handmade carpet	Bright pink
Malus sylvestris (L.) Mill. (Rosaceae, ISTE 109922)	Bayır elması	Bark of fruit	Boiled with textile	Pink
Primula vulgaris Huds. subsp. *rubra* (Sm.) Arcang. (Primulaceae, ISTE 109887)	Dağ marulu, Dere çiçeği, Karga basması, Karga yaşmağı, Marul	Root	Boiled with textile	Yellow
Prunus divaricata Ledeb. subsp. *divaricata* (Ledeb.) Schneider (Rosaceae, E.Ö.54)	Dağ eriği, Erik	Fruit	Fruit jam boiled with wool yarns of handmade carpet	Bright red

Quercus cerris L. (Fagaceae, ISTE 109685, 109687, 109690)	Ak gobak, Çalı gobağı, Gobak, Karakubak, Kara kombalak, Kızılmeşe, Kobak, Kobar çalısı, Kombalak, Kubak, Kubar, Meşe	Oak gall	Boiled with cloth (Local name: Ferace, traditional village women cloth)	Black
Quercus infectoria G. Olivier (Fagaceae, ISTE 109688, 109693, 109694, 109692)	Akgobak, Akmeşe, Akpıynar, Çalı kobağı, Gobak, Kasnak, Meşe, Pelit, Palamut, Sartal	Oak gall	Boiled with textile	Black
Quercus ithaburensis Decne. subsp. *macrolepis* (Kotschy) Hedge & Yalt. (Fagaceae, ISTE 109686, 109691)	Meşe, Kırmızı pelit	Cortex	Kept in water with textile and salt (traditional name Saçı kıbrıs) for 40 days, then washed with cold water	Claret red
		Cortex	Kept in water with goat leather used to put traditional cheese called tulum peyniri and salt (traditional name Saçı kıbrıs) for 40 days, then washed with cold water	Claret red
Rubia tinctorum L. (Rubiaceae, ISTE 109945, 109944)	Boyalık otu, Kökboya, Yapışkan ot	Root	Boiled with wool yarns of handmade carpet	Red
Rubus idaeus L. (Rosaceae, ISTE 109898, 109897, 109903,109925)	Karantı	Root	Boiled with wool yarns of handmade carpet	Green
Rumex crispus L. (Polygonaceae, ISTE 109883, 109884)	Alabardağı, Ebe kuzulağı, Eşek alabadası, Labada	Root, flower	Boiled with textile	Claret red
Salvia fruticosa Mill. (Labiatae, ISTE 109807, ISTE 109805, ISTE 109792)	Adaçayı, Boş, Boşotu, Boşapla, Muşapla, Moşapla, Puşapla, Şapla, Yakıotu	Aerial part	Boiled with textile	Red
Verbascum lasianthum Boiss. ex Benth. (Scrophulariaceae, ISTE 109954)	Eşek kulağı, Mayasıl otu, Sığır kuyruğu, Sığır sidiği	Flower	Boiled with textile	Green, orange, yellow

Table 2. The natural dye plant mixtures in Kepsut (Balıkesir).

Mixtures	Plant species	Application	Color obtained
Mixture 1	*Prunus domestica* fruits, *Juglans regia* leaves, *Rubia tinctorum* roots, *Malva sylvestris* roots	Boiled with wool yarns of handmade carpet	Bright red
Mixture 2	*Rubia tinctorum* roots, *Populus* sp. cortex, *Punica granatum* young stems, *Spartium junceum* stems, *Viscum album* leaves mixed.	Boiled with wool yarns of handmade carpet	Brown Note: *Viscum album* makes the color more permanent.
Mixture 3	*Rhus coriaria* fruits, *Lavandula stoechas flowers*, *Cistus salviifolius* flowers, *Cistus laurifolius* leaves	Boiled with wool yarns of handmade carpet	Blue, black, green
Mixture 4	*Jugans regia* root, *Salvia fruticosa* leaves, *Quercus* sp. galls, *Rubia tinctorum* root, *Rhus coriaria* fruits	Boiled with wool yarns of handmade carpet	Brown, black
Mixture 5	*Salvia fruticosa* leaves, *Quercus* sp. galls powder, *Punica granatum* young stems and cortex	Boiled with wool yarns of handmade carpet	Red

Discussion

Recently, the importance of natural dyes has been increasing in a fast manner because of toxic and allergic reactions associated with chemical dyes (Grover and Patni 2011). Carpet factories cannot export the carpets dyed in synthetic dyes belonging to Azo group. The woollen yarns of the carpets are required to be dyed with natural dyes, otherwise the companies and the countries will miss an important export bazaar. On the other hand many of dye plants have antimicrobial activity, antibacterial and antifungal activity (Gerson 1975; Wagner et al. 1989; Hussein et al. 1997). Natural dyes have minimum side effects, non-toxic features, less pollution, and beneficial effects. Because of that, natural dyes should be used more in different areas such as textile, food, toy and medicine industries. Turkey has rich natural plant diversity as a natural dye source. Therefore, more detailed researches are needed to detect the real potency and availability of natural dye plants.

This study helps to preserve valuable information about dye plants in Kepsut (Balıkesir) which may be lost in the future.

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