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Original Article

Natural dye plants in Savaştepe (Balıkesir, Turkey)

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Abstract: Natural dyes are recently becoming object of consumer interests because of the harmful effects of the synthetic dyes. The dyeing with natural colourants was one of the oldest techniques practiced by the ancient civilization people. An ethnobotanical study was conducted between 2012 and 2015 in order to determine wild plants used in Savaştepe. Savaştepe is a town and district of Balıkesir Province in the Marmara region of Turkey. With this study, we aimed to document traditional uses of dye plants in Savaştepe (Balıkesir). According to the results of the identification, 15 species belonging to 12 families were used as dye source. Used parts of plants were flowers, fruits, leaves, roots, seeds and galls.

Key words: Ethnobotany, natural dye, Savaştepe, Balıkesir, Turkey.

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Introduction

Turkey has a rich potential from the natural dye plants. The Turks successfully used the techniques of natural dying, which was about to fade because of migrations in the Middle Ages and introduced them to the world (Eyuboglu et al., 1983). The French learned to dye cotton with natural root dyes from the Turks in 1715 (Atayolu, 1933). Plant-originated dyes are still used success fully in several areas of arts and industry like carpets, rugs, textile, leather manufacturing, ceramics earthenware vessels, and fine arts (Dogan, 1994). Savaştepe is a town of Balıkesir Province in the Marmara region of Turkey (Figure 1). It has an area of 430 km. Its plant diversity is very rich because of its localization meeting point of 2 phytogeographic regions (Mediterranean, Euro-Siberian). The population is 20.201. Savaştepe has 44 villages. Specially Yoruks are very interested in natural

dye plants. Karakeçili Yoruk communities are living in 20 villages, Hardal yoruk communities are living in 6 villages, Kubaş yoruk communities are living in 10 villages, Kılaz yoruk communities are living in 2 villages, Yüncü yoruk communities are living in 1 village. In this study, traditional uses of dye plants in Savaştepe (Balıkesir) were listed (Table 1).

Figure 1. Map of Savaştepe, Balıkesir and Turkey

Materials and methods

This study was conducted between 2012 and 2015. The research area was in the part of Balıkesir. The settlements in Savaştepe (44 villages) were visited during the field work (Özdemir Nath, 2016). Interviews were made with the local people. A total of 205 individuals (107 men, 98 women) interviewed in the area. After explaining the purpose of our study, questions were asked about the natural dye plants. The dye plants collected by the help of the local people (Figures 2, 3 and 4). The collected specimens 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 compared with the specimens deposited at ISTE (Herbarium of Istanbul University, Faculty of Pharmacy). The collected plant materials were deposited as herbarium samples at ISTE. Some plant species deposited as a personel collection with the code of E.Ö.

Figure 2. Savaştepe, Minnetler village-Dübekalan, Handmade bags painted with natural dyes.

Figure 3. Savaştepe, Koğukyurt village, A carpet part that dyied with *Cornus mas.*

Figure 4. Savaştepe-Türdüler village, A carpet part that dyied with *Pyrus elaeagnifolia.*

Results and discussion

This study allowed us to collect information about dye plants in Savaştepe, Balıkesir for the first time. The most commonly used parts of the plants were the flowers, fruits, leaves, roots, seeds, galls. 15 dye plant species belonging to 12 families are listed in Savaştepe, Balıkesir (Table 1). Plant parts and water were put in boiler with textile products such as wool yarns of handmade carpet or bag, clothes and were waited for desired colours. Some natural or chemical mediators are used for dying such as ash, salt, ferrous sulfate (Local name is saçı kıbrıs).

Table 1. Natural dye plant species in Savaştepe, Balıkesir.

Plant species, family and specimen number	**Local names**	**Used part**	**Application**	**Colour obtained**
Cornus mas L. (Cornaceae, ISTE 109594, 109595)	Kızılcık, Küren	Seed	Boiled with textile	Red
Helleborus orientalis Lam. (Ranunculaceae, E.Ö. 50)	Karacakökü, Karacaot, Kökboyası	Root	Boiled with textile	Red
Hypericum perforatum L. (Hypericaceae, ISTE 109710, 109717, 109724, 109711, 109712, 109714)	Boyalık otu, Çayotu, Kantarot, Kantaron, Kantar otu, Katırcı otu, Sarı kantaron	Root	Boiled with textile	Yellow, green, brown
Jasminum fruticans L. (Oleaceae; ISTE 109861, 109857	Çeltek, Çingirlik	Seed	Boiled with textile	Black
Juglans regia L. (Juglandaceae, ISTE 109728)	Ceviz	Root Bark of fruit Leaf Leaf	Boiled with textile Boiled with textile Hair dye Boiled with textile (Local name: Ferace or Terlik, traditional village women clothes)	Black Brown Brown Brown, black
Paliurus spina-christi Mill. (Rhamnaceae, ISTE 109893, 109894, 109895)	Çaltı, Çaltı güllüğü, Çaltı pulu, Karaçaltı	Root	Boiled with textile	Red
Prunus divaricata Ledeb. subsp. *divaricata* (Ledeb.) Schneider (Rosaceae, E.Ö.54)	Dağ eriği, Erik	Fruit	Fruit jam boiled with textile	Bright red

Pyrus elaeagnifolia Pall. (Rosaceae, ISTE 109923, 109933)	Ahlat, Aflat, Alfat, Çakal armudu, Geyik elması, Üvez, Yabani armut	Fruit	Boiled with textile	Green
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	As a shoe polish Boiled with textile (Local name: Ferace or Terlik, traditional village women clothes)	Brown, black
Quercus infectoria G. Olivier (Fagaceae, ISTE 109688, 109693, 109694, 109692)	Akgobak, Akmeşe, Akpınar, Çalı kobağı, Gobak, Kasnak, Meşe, Pelit, Palamut, Sartal	Oak gall	Boiled with textile (Local name: Ferace or Terlik, traditional village women clothes)	Black
Rhus coriaria L. (Anacardiaceae, ISTE 109538, 109540, 109539)	Somak, Somak otu, Sumak	Fruit	Boiled with textile	Red
Rubus sanctus Schreb. (Rosaceae, ISTE 109899, 109900, 109928, 109929, 109939)	Böğürtlen, Kırıntı	Root	Boiled with textile	Yellow
Rumex crispus L. (Polygonaceae, ISTE 109883, 109884)	Alabardağı, Ebe kuzulağı, Eşek alabadası, Labada	Root, flower	Boiled with textile	Claret red
Ruscus aculeatus L. (Asparagaceae, ISTE 109562)	Değirmen boncuğu, Deve çökürten, Deve tomurcuğu, Kalp otu, Köpek üzümü, Mercan, Sidikkesen otu, Tavşan bubusu, Tavşan memesi, Tavşan otu, Tavşan topu, Tavşan üzümü, Tilki üzümü	Root	Boiled with textile	Yellow
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

Many of the plants used for dye extraction are classified as medicinal, and some of these have recently been shown to possess antimicrobial activity, antibacterial, antifungal activity (Husseinet al., 1997; Gerson, 1975; Wagner et al., 1989). Due to their beneficial effects, non-toxic properties, low pollution and less side effects, natural dyes should be used more in different areas such as textile industry, food industry, toy industry, medicine industry. More detailed studies and scientific investigations are needed to assess the real potential and availability of natural dye-yielding resources.

This study identified not only the wild dye plants, but also the local names of these plants. This paper helps to preserve valuable information about dye plants in the region that may otherwise be lost to future generations.

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