



On the Bayat (Turkey) rugs, motif stories, used dyeing plants and their ethnobotanical properties

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Abstract

Bayat rugs weaved with different madders can be used without fading their colors almost 100 years. The study aimed to record how to get madder by traditional methods from local plants, give stories of rug motives and present an overview of the medicinal uses of dyes plants collected in Afyonkarahisar, Inner-West Anatolia, Turkey. The study was conducted in both 11 villages and downtown of Bayat borough of Afyonkarahisar in 2013-2014. A total 150 women, aged between 17-25, were interviewed and observations were photographed. The rugs are completely 100% sheep wool and strings for weaving prepared traditionally by special spinning methods. The used plants to obtain the madders were determined. It was understood that in early August and September, plants give better colors and tones. These plants have also been used for medicinal purposes by the locals. Bayat people get non-fading colors from 11 plants (*Allium cepa* L., *Berberis crataegina* L., *Papaver rhoeas*, *Papaver somniferum* L., *Malva silvestris* L., *Morus nigra* L., *Cistus laurifolius* L., *Quercus ithaburensis* Decne. subsp. *macrolepis* (Kotschy) Hedge et Yalt, *Rubia tinctorum* L., *Juglans regia* L., *Indigofera tinctoria* L.) belonged to ten families. The plant organs used are root, shell, cupula, leaf, young shoot, and aerial parts of the plants. A natural mud is also used as alum in this region that provides to create dark colors, and prevents mixing the colors. It also inhibits fading the colors in the rugs' texture. It was also recorded that different motives in Bayat Rugs have also interesting historical stories.

Key words: Madder, Wool Carpet, Design, Anecdote, Staining plants, MAPs

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Introduction

Turkey has a significant flora in the world having around 10.000 plant species with 30% endemic (Güner *et al.*, 2000). Many plant species are used for medicinal purposes, tea, food, dye and crafts (Ari *et al.*, 2014). The richness in Turkish flora made the people tend to develop getting natural dyes and almost 150

species have been used in obtaining natural dyes (Akan, 2007). It is assumed that their dyeing properties were discovered by chance and have been exploited since antiquity (Guarrera *et al.*, 2005). Getting dyes from plants have been known since ancient times, approximately fifth century B.C. (Mert *et al.*, 1992).

Dyeing has been mentioned in the Chinese

literature as cited by Eyüboğlu *et al.* (1983). In the 10th century, there was a source defining the various Byzantine arts; Byzantine painting of monks is "Schedula Diversarium Artium". Other sources are the "Divers Secrets Curieux", "Secretum Philosophorum", and "On the Properties Things" written in English. Between 1500 and 1856, there were more than five thousand books printed on dyeing (Wilson, 1982).

Synthetic coloring agents were discovered in the mid-19th century as historical turning point for dyeing. The use of plants in dyeing was very common in the 19th century, then slowly began to lose their importance due to development of synthetic dyes.

Making style and the motives (figures) both in Turkish rugs and carpets are as old as Turkish civilization, and these features have transferred up to day. Since, caravan routes and trade remained in the hands of the Turks, they brought large quantities of dyeing plants and exported them to Europe until 1460s (Harmancıoğlu, 1955).

The province of Afyonkarahisar is located in the inner-western part of the Aegean region of Anatolia and phytogeographically located on the transition zone between Irano-Turanian and Mediterranean regions. The area also has a high number of Euro-Siberian (Euxine) phytogeographic elements. Afyonkarahisar (Lat. 38°45' N, Long. 30°32' E; alt. 1034 m) is adjacent to the provinces of Eskişehir, Kütahya, Konya, Isparta, and Uşak (Fig. 1). Although it is located in the Aegean region, it is similar to the climatic aspects of the region of Central Anatolia. It has semi-arid Mediterranean bioclimate with annual precipitation of 410-478 mm. As vegetation, a variety of plant species as well as cedar and larch

can be seen with a combination of relict species (Ari, 2014). The damage in the surrounding areas has transformed the study area into anthropogenic steppe areas (Acar *et al.*, 2012).

The study area (Bayat environ, a borough of Afyonkarahisar) is surrounded by Çal Mountains and Hendi Baba Mountains in north, Asar and Bey Mountains in west, Kazankaya Mountains in south, and Mececik and Çal Mountains in southeast. In the past, the surrounding hills and high mountains were covered with rich forests but along with time was destroyed and today the newly planted "Mececik woods" forest is available.

Income of the population relies on agriculture, livestock and rug weaving in Bayat region. The income from agricultural products; barley, wheat and poppy take first place. Only 1/3 of the total area in Bayat is arable case. There is extensive pasture for livestock. Livestock carried out in mountainous areas and sheep, angora goats, *Brown swiss* and *Bos taurus* are grown in these areas. The average monthly income of the person who is weaving rugs is \$200-250. For getting the dyes from the plants and weaving activities, 12 residential areas *viz.*, Akpınar, Aşağı Çaybelen, Derbent, Eskigözü, Sağırhımrallı, İnpınar, Mallica, Kuzuören, Muratkoru, Çukurkuyu, Yukançaybelen, and town of Bayat were scheduled.

Bayat rugs have special motifs and each rug motif weaved has a different story. Their stories reach out to Phrygians; these stories were transferred by generations as an element of the culture of the locals (Urfalı, 2012). This study was aimed to record of obtaining madders from plants by using traditional methods, the stories of the motives (figures) used in the rugs, and medicinal uses of these dye plants by locals.

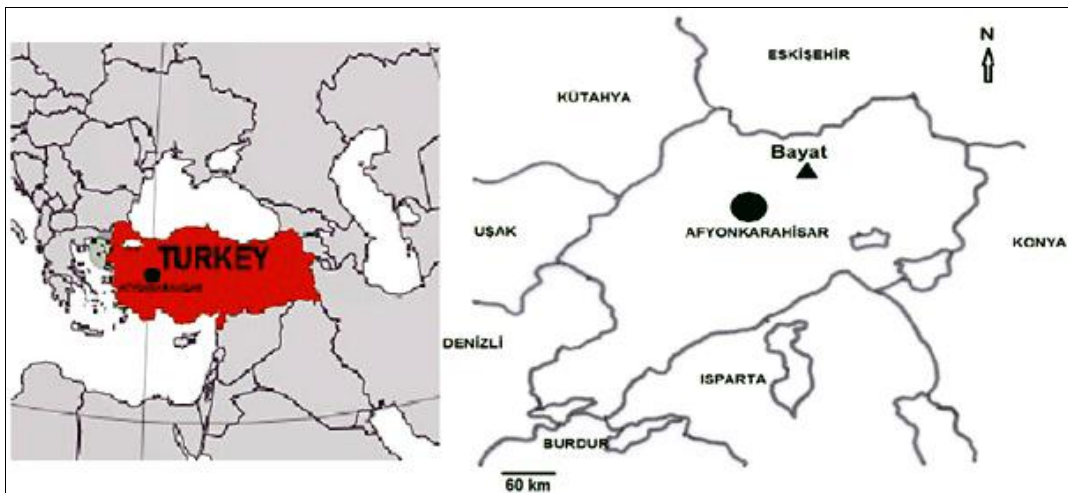


Figure 1. The map of study area.

Materials and methods

Data collection

The informants engaged to get madder and weaving, aged between 17-25, exactly 150 people (35 primary schools and 115 high school graduates), were interviewed and observations were photographed in 2013-2014. Interesting stories of plant motifs from past to present and medicinal uses of the dyeing plants were compiled from informants.

The plants were collected in the study area in early August and September to obtain better color and shades. Dye plants were identified by using "Flora of Turkey and the East Aegean Islands" (Güner *et al.*, 2000). The plant samples were added to and kept in Afyon Kocatepe University Herbarium (AKUH).

Hundred percents sheep wool rugs were being used in the region. Locals obtained wool thread with the help of spindle (Fig. 2). The resulting yarn was boiled with plant(s) for 2-3 hours and cooled down (Fig. 3); the ropes were then hanged under sunlight for a day. This process increased the quality of coloring process of the strings (Figs. 4, 5) and then fine rugs were weaved (Fig. 6).

Results

Motif stories

Bayat rugs have different and special motives (Fig. 7). Each motif weaved has a different story behind it. The origin of the stories goes back to Phrygians time, and they were transferred as cultural elements from generation to generation. They have specific names such as Hayatağacı, Otağ, Avşargüzeli, Bıtıraklı, Ejder, Asarcık, Bindallı, Seleser, Saçbağlı, Muskalı, Körçiçek and Başaklı. The figures embroidered in Bindallı rugs symbolizes the wish that the newlyweds would have a tree which has thousands of roots and branches. Bindal in Turkish means thousand of branches or roots. These rugs are given as wedding present by bride's or groom's mother. Plane tree is special to Turks and has a mythological symbol. It reflects the splendor and/or life tree (Hayatağacı in Turkish), and this represents the Sultan's tent which is called *Otağ*. It also shows the emphasis of women in Turkish society. In traditional Turkish customs, teenage girls cannot easily tell their parents when they want to get married. However, they imply their desire by weaving a motif called *Cıga* which brides put on. The rug represents this motif is



Figures 2. Sheep wool and obtained string by using wooden spindle 3. Plant parts boiled with the ropes to dye 4. Yarns are cooled down and left under the sunlight for one day 5. Different colored of wool yarns 6. The rug weaving process by teenage girls 7. Bayat rug weaved by madder obtained from local plants.

called *Saçbağlı* (tied hair). A Turkish lady who sent her husband to army pictures her longing, yearning and fears on the rug she weaves. This rug is called *Seleser* (seleser means soldier in Turkish). If she receives terrible news about her husband, it is supposing that she loses her eyesight and the rug remains unfinished. The rug is called *Körçiçek* (blind flower) to express the love and yearning of that lady. When ladies weave the motif to show the importance of agriculture and earth on the rug, this is called as *Başaklı* (spiked). Spike or ear of grain symbolizes the abundance, fertility, increase, blessing, and rain in Turkish custom. *Bitraklı* (with cocklebur) motif indicates the feeling of a young bride's unpleasant feelings for her mother-in-law. Dragon, a mythological creature, was the master of air and water. It was believed that dragon brought rich spring rains. The rug having dragon motif is named as *Ejder* (dragon) by the locals. Amulet is written by Hodjas and worn by the people and it is believed in protecting its owner from dangers with magical and religious powers. The rug that has the figure of amulet is called *Muskalı* (with Amulet). In the time of Seljuk state, a beautiful lady came to Bayat and she had a legendary beauty. Since that time everyone has been talking about her beauty and this lady was embroidered on the rug. This rug is named as *Avşar güzeli* (Avşar beauty, Avşar is one of the biggest Turkish tribes).

Dyeing plants for Bayat Rugs

The Latin and local names, used parts and colors obtained from 11 plants belonging to 10 families

are listed according to the families' alphabetical order (Table 1). The represented families are: Amaryllidaceae (1 sp), Berberidaceae (1 sp), Cistaceae (1 sp), Fabaceae (1 sp), Fagaceae (1 sp), Juglandaceae (1 sp), Malvaceae (1 sp), Moraceae (1 sp), Rubiaceae (1 sp) and Papaveraceae (2 sp). The plant parts used to get madder are root, shell, cupula, leaf, young shoot and aerial organs. Their colors are not easily fading and lasting very long time (~100 years) since a natural mud is used as alum. This natural mud provides dark colors, and prevents the mixing the colors during both weaving and usage. It also inhibits fading the colors in the rugs' texture.

Ethnobotanical uses of the dyeing plants

The plants used as dyeing source in the study area are also used for their medicinal and other benefits. *Allium cepa* is used for getting rid of the mild epidemical infections in Bayat district. The leaves of *Berberis crataegina* are effective for preventing kidney stones when they are consumed 15-20 days as salad. Their fruit is consumed directly. *Papaver rhoeas* and *P. somniferum* are taken for cold and as sedative. *Malva sylvestris* is consumed in the form of food after roasting in oil. *Morus nigra* is eaten directly or as marmalade made from fruit and used for infection and aphthae. *Cistus laurifolius* is not only used for dyeing but also used for both digestive and heart failure problems. Its roots, leaves and shoots are boiled in water to drink. *Quercus ithaburensis* subsp. *macrolepis* is used in handicrafts. *Juglans regia* is used for skin disorders and in handicrafts.

Table 1. The plants used to get madder in Bayat (Afyonkarahisar) (* Imported from India)

Taxa / Voucher numbers	Local name	Family	Part uses	Colours
<i>Allium cepa</i> L./AKUH-1023	Soğan	Amaryllidaceae	Shell	Bright yellow
<i>Berberis crataegina</i> DC./AKUH-1112	Karamık	Berberidaceae	Root	Olive-green
<i>Papaver rhoeas</i> L./AKUH-1045	Gelincik	Papaveraceae	Flower	Leaden
<i>Papaver somniferum</i> L./AKUH-1073	Haşhaş	Papaveraceae	Leaf	Plato
<i>Malva sylvestris</i> L./AKUH-1034	Ebegümece	Malvaceae	Leaf	Green
<i>Morus nigra</i> L./AKUH-1021	Dut	Moraceae	Fruit	Yellow
<i>Cistus laurifolius</i> L./AKUH-1105	Pınar	Cistaceae	Leaf and young shoot	Yellow and green shades
<i>Quercus ithaburensis</i> Decne. subsp. <i>macrolepis</i> (Kotschy) Hedge et Yalt./AKUH-1087	Palamut kupulaları	Fagaceae	Acorn caps	Black, yellow peas and shades
<i>Rubia tinctorum</i> L./AKUH-905	Köpek üzümü (BoyalıkOtu)	Rubiaceae	Root	Red and shades
<i>Juglans regia</i> L./AKUH-1057	Cevizkaabuğu	Juglandaceae	Shell	Brown and shades
* <i>Indigofera tinctoria</i> L./AKUH-1043	Çivitotu	Fabaceae	Above ground organs	Blue and shades

Discussion

Bayat rugs keep their color for hundred years due to both plants and process employed. The plants (11 taxa) belong to ten families give special colors to the Bayat Rugs. The stories of motives are special for this region and encourage sustaining traditional rug weaving. It also provides an income for the local people. Some of dye plants mentioned in this study have been used for dyeing and other purposes in Turkey and other countries. Özgökçe and Yılmaz (2003) listed 50 taxa for East Anatolia, while Doğan *et al.* (2004) named 123 taxa for the whole Turkey, and some of them are endemic species. Several genera of dye plants *Euphorbia*, *Rhamnus* etc., are common in both Italy and Turkey (Guarrera, 2006). In the past, dye plants were important in Abruzzo and Calabria (Italy). Before the importation of *Indigofera tinctoria*, "pastel", furnished the blue shades given its ready availability alongside roads, in meadows and uncultivated fields and built-up areas (Tammaro, 1984). In Scanno village, warm solutions of ashes from the fireplace were used to fix the color of madder from *Rubia tinctorum* (Savo *et al.*, 2013). Dyeing of fish nets obtained by a decoction of *Pinus* spp. bark was indicated as "zappino" or "zappinu", and the same name occurred in Sardinia, Campania and Sicily (Guarrera, 2006; Savo and Caneva, 2009). *Juglans regia*, *Morus nigra* and *Quercus ithaburensis* subsp. *macrolepis* in Bayat gives brown, yellow, black and shade colors. Hayta *et al.* (2014) used as a dyeing agent for black wool from *Juglans regia*, opaque olive yellow to dye wool from *Morus nigra*, very dark color from *Quercus cerris*.

The plants used as dyeing source in the study area are also used for their medicinal benefit as well. It is used for cicatrizing, rheumatism, asthma, cancer, diuretic, hypertension, fungal infection, headache, analgesic, bronchitis (Allabi *et al.*, 2011), cough treatment, furuncles, influenza (Camejo-Rodrigues *et al.*, 2003; Allabi *et al.*, 2011), the leaves of *Berberis crataegina* are effective for preventing kidney stones when they are consumed 15-20 days as salad and its fruits is consumed directly in study area. It is used for kidney stones and the treatment of liver disease (Ari *et al.*, 2014), also consumed to treat diarrhea, infused in boiling water and 2-3 cups are drunk daily as an antidiabetic tea (Kargioğlu *et al.*, 2010). In Bayat district, *Papaver rhoeas* and *P. somniferum* are taken for cold and as sedative. In other studies, it

is consumed as tranquilizer (Allabi *et al.*, 2011), antitussive, sedative (Cakilcioglu *et al.*, 2011), anti-cough (Pollio *et al.*, 2008), red spots on body (Polat and Satıl, 2012). While *Malva sylvestris* is consumed in the form of food after roasting in oil for digestive problems in our survey, it is also used for abscess, hematomas, inflammations, joint pains (Koyuncu *et al.*, 2010), anti-inflammatory, for infertility, urinary inflammations (Polat *et al.*, 2013), as antitussive, colds and flu, hemorrhoids (Özcan, 2003). *Morus nigra* is eaten directly or as marmalade made from fruit and used for infection and aphthae by local people. It is also used for anemia (Özcan, 2003; Orhan *et al.*, 2009); the ripe fruit is rub on the lips of children to treat herpes (Camejo-Rodrigues *et al.*, 2003); used for eczema, hepatitis (Hayta *et al.*, 2014), diabetes disease, oral wounds (Koca and Yıldırım, 2010) and cholesterol (Polat and Satıl, 2012). The leaves and shoots of *Cistus laurifolius* are boiled in water to drink and used for digestive problems. It is reported that it is used for diabetes (Polat and Satıl, 2012). While *Quercus ithaburensis* subsp. *macrolepis* is used in handicrafts in Afyonkarahisar, it is used to cure wound (Hayta *et al.*, 2014). *Quercus cerris* is used for diabetes mellitus (Hayta *et al.*, 2014), inflammation (Polat *et al.*, 2013), astringent, dermatitis, hemorrhoid, and stomach ulcer (Öztürk and Ölçücü, 2011). *Juglans regia* in our study area benefits in skin disorders and in handicrafts, in the other studies, this is used for cardiac disorder, high cholesterol, antifungal, anti-lubrication, cholesterol, diabetes, hemorrhoids, psoriasis, respiratory tract problem antibacterial, anti-inflammatory, antiseptic, astringent, depurative, purgative, rheumatism, uterine disorders, skin disorders (Öztürk and Ölçücü, 2011; Hayta *et al.*, 2014) and antifungal (Polat and Satıl, 2012).

In the study area there is a natural mud which provides dark color, and prevents the mixing of the colors obtained from plants. This mud also prevents the fading of colors, but in our knowledge there is no information about natural mud.

As conclusion, the information obtained from this study is expected to help in protecting and sustaining the knowledge to get madder, rug weaving, mythological motives and medicinal uses of these plants. The verbal knowledge transferred from generation to generation is aimed to be recorded for next generations.

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