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Journal of Ethnic Foods

journal homepage: <http://journalofethnicfoods.net>

Review Article

Turkish cultural heritage: a cup of coffee

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ARTICLE INFO

Article history:

Received 13 October 2017
 Received in revised form
 7 November 2017
 Accepted 8 November 2017
 Available online 15 November 2017

Keywords:

Coffee
 Nutrition
 Traditional food
 Turkish coffee
 Turkish culture

ABSTRACT

Setting out a fabulous journey from a tiny bean, coffee is the stimulant of the heart and mind and a mysterious plant that strengthens friendship and also takes your tiredness away during the day. Although information on how and where the coffee came from is not clear, Sheikh Şazeli is regarded as the “father” by coffee makers. The word coffee originates from “Kaffa”, a primary coffee production center in Abyssinia, Africa, which can be considered the homeland of coffee. According to this consideration, in Abyssinia, coffee was consumed with bread; it was then pulped and brought to Yemen, and Yemeni people started to cultivate coffee. The word “kahve” in Turkish does not mean the coffee plant like its synonym in Arabic but means the beverage made by boiling. *Turkish coffee* is a blend of high-quality Arabic-type coffee beans, originating from Brazil and Central America and moderately roasted and ground finely. The way it is prepared differentiates *Turkish coffee* from others. This coffee was called *Turkish coffee* because of a new method of preparation invented by Turkish people where it is boiled in copper coffee pots. *Turkish coffee* that has spread around the world with this name has been an indispensable part of the cultural and social history of Turks.

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1. Introduction

To date, coffee has been a part of our daily life and as a means of socialization, which keeps social life vivid and alive. Coffee plant has been represented as an essential part of special moments due to its idiosyncratic smell and taste [1]. Despite various prohibitions and beliefs against coffee throughout its history, coffee rituals are still common around the world as “coffee culture” or “coffee-drinking habits.” Although coffee is prepared and served differently in different cultures, it still represents a cultural symbol that strengthens the ties and friendship among people [2]. Apart from these, coffee consumption has been the subject of health-related research. The types, processing, brewing, and consumption frequency of coffee have an impact on health outcomes [3]. Components (>1,000) of the coffee, especially caffeine, have been related to various diseases. It has been recently shown that medium amount of coffee/caffeine intake (200 mg caffeine once or 400 mg daily) has no harmful effect on human health. Coffee, which includes yet undiscovered components, is the second most consumed

drink after water [4]. Coffee consumption has been associated generally with type 2 diabetes, Parkinson's disease, Alzheimer's disease, anxiety and depression, cognitive functions, and sleep duration and quality [5]. Many varieties of coffee and different procedures of roasting and extraction of coffee bring along noteworthy biological differences in its structure [6]. *Turkish coffee*, which is extremely fine ground unlike the filter coffees traditionally consumed in the West, is prepared by boiling the coffee slowly in the water [7]. *Turkish coffee* has been found to include biologically active components and caffeine in higher amounts when compared with other coffee types and preparation styles [8].

Studies which were published on *Turkish coffee* from 1990 to 2017 and which could establish a basis for this compilation were scanned. With this aim “Google Academic (bibliographic database),” “PubMed,” “Scopus,” “Web of Science,” “The American Journal of Clinical Nutrition,” “Elsevier,” “Turkey Citation Index (Türkiye Atıf Dizini),” and “Ulakbim” databases were used to scan scientific articles. Besides these, resources in the Gazi University Central Library were also scanned, and theses on coffee were examined. The terms such as “Turkish coffee,” “Turkish tradition,” “Turkish culture,” “coffee,” “boiled coffee,” and “Turkish press coffee” were used as keywords. At the end of this scanning, it was found that the number of articles and studies about *Turkish coffee* is very low. Besides, the studies about this issue focus only on the components of coffee without regarding the preparation and

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brewing techniques. Only one compiled article was detected about coffee and *Turkish coffee* culture [9]. Apart from that, there is a study conducted in 2015 that analyzed the effect of *Turkish coffee* on sportspeople's performance. This research was the first study to discuss the metabolic reactions and ergogenic effects of *Turkish coffee* on sportspeople [6]. Other studies generally focus on issues such as caffeine content of *Turkish coffee*, its relation with diseases, and its metabolic effects [4,5,8].

This compilation has been done by analyzing studies on *Turkish coffee* and its historical process to make an extensive research on *Turkish coffee*, an invaluable cultural heredity.

2. Etymology of the word “coffee”

Etymology of coffee is not certainly known; however, there are various arguments about it. According to one view, it is an African word [10]; Sir James Murray, in his New English Dictionary, argues that the word “coffee” is originally derived from the African language [11]. Coffee is named after “Kaffa”, a city in the Soha region of Ethiopia, an upland region in Africa, which is considered to be the motherland of the coffee plant and the primary production center of coffee [12]. Another argument is that the word coffee originally comes from Arabic. In the 15th century, the Arabic word “bunn” (bun) was used for both the coffee tree and its fruit. Coffee fruit is called “kahva” in Arabic [2,13]. It has been claimed that the word “kahva” in Arabic is an altered version of “Kaffa”. The word coffee (kahve) in Turkish is used for the drink that is brewed by boiling this plant's beans [12,14]. *Turkish coffee* can be expressed in different forms in different countries. In a research study conducted in 2013, the word “Turkish coffee” was scanned on the Web via the Google search engine. The results obtained are shown in Table 1 [15].

3. Emergence and spread of coffee and Turks' first meeting with coffee

Old resources' arguments on coffee's origin are close to each other [2]. There is no written proof of who was the first to drink coffee; however, the most common argument is about a shepherd called Khaldi who lived in Yemen. Rumor has it that while herding the goats, the shepherd Khaldi noted a difference in his goats and found out that this difference emerged after the goats had eaten a yellow–green fruit. Afterward, Khaldi made a drink by plucking out some leaves from this plant. This drink drew attention of the merchants in the region and, therefore, started spreading [16].

According to Kâtip Çelebi's story, Sheikh Şazeli boiled the coffee seeds that had been given to him during a long conversation with his disciple Sheikh Ahmet while he was going on a pilgrimage in 1258 and then drank it. Thus, Sheikh Şazeli is called “pir” (father, master) by coffee sellers [17].

Table 1
Turkish coffee in different countries*

Countries	Local terms	English equivalent
Albania	afe turke	Turkish coffee
Arab world	qahoua 'arabiyah	Arabic coffee
Armenia	surç	Coffee
Bosnia and Herzegovina	bosanska kahva	Bosnian coffee
Bulgaria	Турско Кафе	Turkish coffee
Croatia	turska kava	Turkish coffee
Cyprus	κypριακός καφές	Cypriot coffee
Greece	ελληνικός καφές	Greek coffee
Hungary	török kávé	Turkish coffee

* The data in this table were taken from the study by Abraham-Barna [15].

We also have information stating that in Abyssinia, coffee was used in the making of breads by mixing it with the dough, and it was first used as a drink in 1500s. Evidence that we have indicates that coffee originally came from Africa, and seeds coming from Ethiopia spread to Yemen from Southern Ethiopia and then to Mecca and Medina toward the end of the Middle Ages. Coffee spread through the Muslims who visited these cities during the Hajj and took coffee to their homelands on their way back. In the light of these data, the story of coffee, which began in Yemen in the 14th century, reached Mecca and Medina in the 15th century, and then reached Cairo, Damascus, Halep, and Istanbul [18].

There are various data regarding the introduction of coffee to the Ottoman culture. Different dates are put forward by different scholars. Whereas Fernard Braudel argues that coffee was first used by Ottomans in 1511, Ulla Haise argues that the first use of coffee corresponded with the year 1516, when Yavuz Sultan Selim conquered Egypt [19]. According to Burçak Evren, coffee reached Egypt via Yemen in 1519 and then it was brought to Istanbul [20]. Coffee became widespread in Ottoman during the era of Suleiman the Magnificent (1520–1566). Eventually, Istanbul turned out to be one of the important centers of coffee culture, and drinking coffee, which once was a habit in the palace became a habit for common people also [1].

The first coffeehouse in the Ottoman Empire was opened in 1555 during the era of Suleiman the Magnificent, as stated in the history of Pecevi. Two Syrians brought the coffee, which is well known and used at that time in the Arab world, to Istanbul. In 1555, they opened the first coffeehouse in Tahtakale, Istanbul. Because of the coffeehouse, social activities have increased in daily life [21].

Coffeehouses have become a social domain decorated with a large number of lamps with brilliant architectural structures. In addition to the presentation of Turkish coffee in the coffeehouses, a traditional shadow play “Karagöz and Hacivat” was also performed in this place. In this regard, coffeehouses have become a social area where people from every walk of life come and talk and contribute to art and oral tradition. There was no special theater building in Istanbul to exhibit plays until the 19th century. In this period, the theater plays were performed in the coffeehouses [22].

An historic Ottoman coffeehouse is shown in Fig. 1. The place indicated by number 1 is the “Yasmakli coffee oven”. Here, we see a gentleman preparing coffee. *Turkish coffee* was prepared on the cinder fire of the Yasmakli oven. The place indicated by number 2 is a classic Istanbul coffeehouse where coffee is served. Coffeehouses are designed so that people can have a talk with each other [1].

Ottoman Empire introduced coffee to the Western countries in the 16th century. The entrance door for coffee to the Western countries was Italy [1]. Coffee became well known in most of the

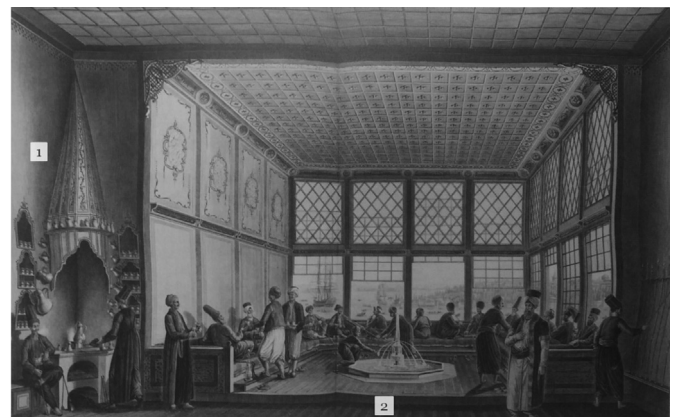


Fig. 1. An Ottoman coffeehouse in Istanbul [1].

Europe toward the end of the 17th century. By the 18th century, coffee was already known worldwide, and in the mid-19th century, it was a commercially significant product [23].

Fast spread of coffee brought along some prohibitions from time to time. It was regarded heretical to Islam because of its pleasure-giving nature and, hence, it was even prohibited. These prohibitions were abolished with the comment “Coffee seeds are not heretical anymore once roasted”, and the coffee culture continued its fast spread [24].

4. Properties of coffee and Turkish coffee

Coffee has the second biggest trade volume around the world after petrol, and it is known to have approximately 70 types. Commercially, the most widely used types are *Coffea arabica* and *Coffea robusta* [10].

Coffee is the general name of the *Coffea* tree belonging to Rubiaceae family, and the drink is obtained from the fruits of this tree [25]. The origin of the *Coffea* tree traces back to the Arabian Peninsula. This tree usually grows in tropical regions that have high amount of precipitation and do not have any frost. This tree is not deciduous. Fruits of *Coffea* tree are similar to cherry, and its leaves are similar to those of jasmine. While the properties of the product differ among countries, even products growing in the same field may also differ in taste, smell, and the fatty acid ratio [1,2]. A coffee tree may grow up to 8–10 meters; however, for production, it is allowed to grow only up to 2–3 meters. Lifespan of coffee trees is between 30 and 40 years; they start yielding fruits 3–4 years after the plantation, and it takes 8–10 months for the fruits to ripen [26].

Arabica and Robusta are two types of coffee beans. Arabica is the first discovered one and is difficult to grow. Eight thousand beans are needed to obtain one kilogram of roasted coffee. Arabica comprises 75% of the coffee production around the world. Brazil and Columbia are the leading manufacturers of Arabica coffee that offers the most intense taste and aroma. Robusta, on the other hand, is used for the production of standard-quality coffees. It is more

resistant to various heights and climates. It is frequently used for instant coffee because of its cheapness and high efficiency. It is a newer type than Arabica, and it contains approximately two times more caffeine than Arabica [26,27].

Generally, Arabica coffee beans are used for coffee production. Different beans may also be used provided that they are of very high quality. The origin of the coffee and the natural aromatic additives, if any, must be written on the package for an easy choice [28]. Coffee, which generally grows in tropical regions, yields fruits within 3–4 years. It is the harvest time when the color of coffee beans turns red [9].

Some ecological conditions are required for the production of coffee. These conditions can be summarized as follows:

Temperature: Temperature has an important role in coffee production. Although the ideal temperature varies according to the region the coffee is grown, coffee grows well under temperatures of 14–26°C. Arabica coffee can tolerate temperatures up to 30°C.

Although coffee plants can tolerate temperatures well outside this range, extreme temperature variation generally affects the crop and the coffee bush.

Higher summer temperatures are necessary for appropriate coffee cherry growth and coffee cherry ripening because low temperatures retard growth.

Rainfall: The plant is sensitive to water shortage and, therefore, a sufficient well-distributed rainfall of about 1,500 mm per annum is required. Because rainfall affects the flowers of the coffee plant, it should be cultivated in fields with enough spring rains.

Soils: Coffee has been successfully cultivated in many different parts of the world on different soils, but the suitable soil type is volcanic soils. Although coffee plant can grow on neutral ground, the optimum pH is between 5.3 and 6.0.

Altitude: The height of the areas where the coffee plants are grown ranges from 610 m to 1,830 m. However, there are regions where coffee plants are grown at lower altitudes.

The coffee production process can be summarized as follows. (Fig. 2)



Fig. 2. The coffee production process.

According to the guidelines prepared by the Department of Agriculture, Forestry and Fisheries of the Republic of South Africa, the production schedules of coffee is shown in Table 2 [29].

Coffee is produced in more than 60 countries among which three countries account for more than half of the world’s production. The countries are Brazil (5,210 million bags), Vietnam (2,860 million bags), and Colombia (1,460 million bags). According to the International Coffee Organization data, total coffee production by all exporting countries (in thousand 60 kg bags) is shown in graphic (Fig. 3). The production of Arabica coffee is higher than Robusta coffee. In 2016–2017, the worldwide production of coffee amounted to about 15,162 million 60-kilogram bags. In the same year, the production of Arabica coffee and Robusta coffee is 97,269 (thousand 60-kilogram bags) and 56,600 (thousand 60-Kilogram bags) respectively. In recent years, the production difference between Arabica and Robusta has increased according to Fig. 3.

In addition to coffee production, when consumption quantities are examined, the total coffee consumption in the world is 155,713 (thousand 60-kilogram bags) according to the data of 2015–2016. Europe is placed on the top in terms of coffee consumption. After Europe, the coffee consumption is high in Asia and Oceania, North America, South America, Africa, Central America, and Mexico.[30].

The number of coffee types is increasing day by day. Some of the prominent coffee types and countries where they are produced are listed below [27]:

Arabica: Columbia, Brazil, Cameroon, Costa Rica, Equator, Ethiopia, El Salvador, Kenya, Mexico, Tanzania, Guatemala, and Hawaii.

Blue Mountain: Jamaica.

Bourbon Santos: Brazil.

Celebes: Indonesia.

Mocha: Yemen.



Fig. 4. Traditional coffee pot.

Robusta: Cameroon, Cava, Southeastern Asia, India, and East Africa coast line.

Maracaibo: Venezuela.

Different types vary depending on the way the coffee is ground. The size of the ground beans determines the way of preparation. Turkish coffee is extremely fine; espresso is very fine; filter coffee is fine, and French press is coarse.

5. Preparation and serving of Turkish coffee

From being plucked from their branches to being served in our cups, coffee beans get through three stages: roasting, grinding, and

Table 2 Production schedules of coffee*

Actions	January	February	March	April	May	June	July	August	September	October	November	December
Soil sampling										<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Soil preparation								<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Planting	<input checked="" type="checkbox"/>									<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Fertilization	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Irrigation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Pest control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Weed control	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Harvesting						<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		

* The table is taken from the mentioned reference [29].

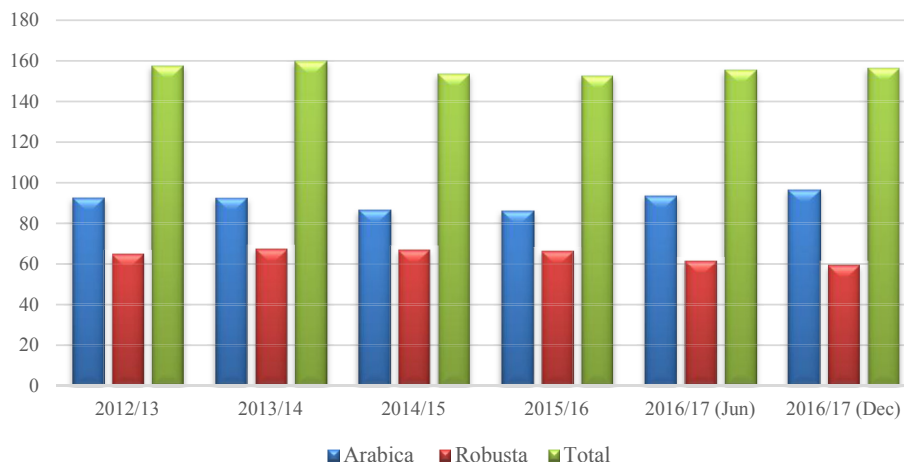


Fig. 3. Total coffee production by all exporting countries (in thousand 60 kg bags).



Fig. 5. Some types of Turkish coffee according to the regions where they are consumed.

brewing [1]. Turkish coffee, a blend of high-quality and medium-roasted Arabica coffee beans, differs from other coffees primarily in the way of brewing. Coffee is brewed in copper coffee pots, which is a method discovered by Turks, and therefore, it is called Turkish Coffee.

The traditional type of coffee pot has not changed majorly over time. It has a long handle that makes it easier to hold it on fire. It has a large base to get the best out of the heat of the fire, besides a beak mouth that is used to drain into the cup without spilling the coffee

(Fig. 4). In the past, copper coffee pots were used. But nowadays, the porcelain and steel coffee pots are more preferred [1].

In Turkey, coffee can be named differently depending on the way of brewing and the ingredients used for brewing. Some varieties of Turkish coffee were shown on the map according to the regions where they are consumed (Fig. 5). Traditional Turkish coffee is consumed in all regions of Turkey. In addition, some types of coffee are indigenous in Turkey. Dibek, Mirra, and Kervansaray coffee are

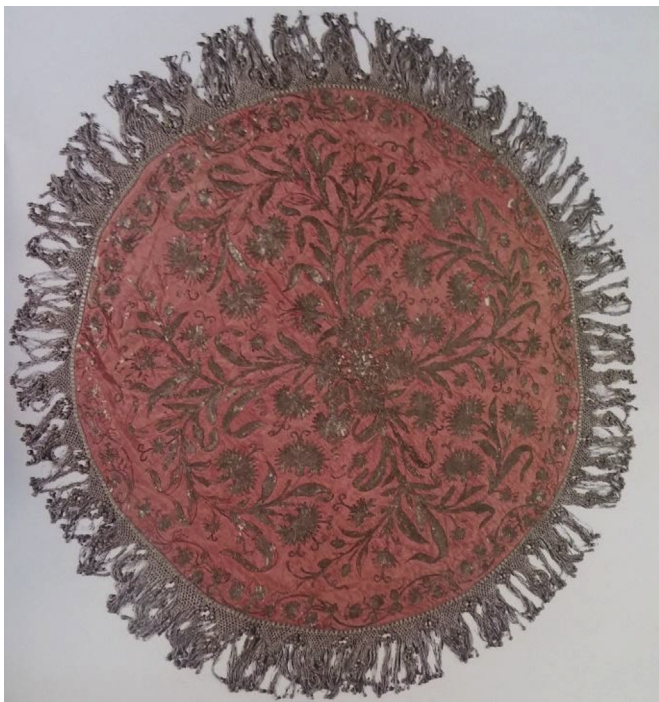


Fig. 6. Studded clothes (sitiL puşidesi in Turkish) in an Ottoman coffeehouse in Istanbul [1].



Fig. 7. Zarf (coffee cup holder) [1].

consumed more than other types of *Turkish coffee* in the south-eastern and eastern regions of Turkey. In the south, there are coffee varieties such as Adana Gar coffee and Süvari coffee which are prepared and presented differently from other regions.

Roasting: Our ancestors named the roasting process, one of the most important factors for the taste, as “tahmis” [27]. While the color of coffee beans change during the roasting process (from green to brown), caffeine, acid, and protein amounts remain the same, and the volatile matters that give the coffee its smell are revealed [1]. *Turkish coffee* should stay humid after the roasting process. Thus, its special taste is preserved and extreme grinding will be possible [27,28].

Although the temperature and duration required for the roasting process depend on the coffee type, generally accepted temperature is 188–282°C, and the roasting duration is between 8–15 minutes. *Turkish coffee* is medium roasted, and it is recommended that roasted *Turkish coffee* should be left to cool immediately [1,28].

Grinding: For many years, garlic press (dibek) and mortar (hava) have been used for grinding. Then, hand mills came into use. First hand mills used in Europe are similar to those in Turkey. Today, electronic grinders are more practical than hand mills [31].

Size of the 70–75% of the ground particles in *Turkish coffee* should be between 75 and 125 microns [32].

As the temperature and humidity affect the quality of the coffee, ground coffee should be kept in cool and dry environment and in tightly closed containers.

Brewing: Although the basic principle is the same for brewing, the different equipment used for the preparation of coffee results in different types of coffee.

Methods of coffee preparation are generally listed in three categories: *Turkish coffee* that is prepared with ground dibek coffee, coffee that is prepared by straining the coarse coffee after boiling in water, and coffee that is obtained by removing the steam of the coarse and over-roasted coffee [10].



Fig. 8. Some old photographs about *Turkish coffee* heritage [1]. (A) Ottoman pattern hand mill *Turkish coffee* grinder. (B) Table-type coffee grinder. (C) Coffee oven. (D) Coffee pot (gilded). (E) Coffee cups with zarf. (F) Coffee cup. (G) Zarfs (coffee cup holder). (H) Studded clothes (Sitel puşidesi). (I) Traditional *Turkish coffee* presentation (at the present time).

There are some important points that should be considered while brewing *Turkish coffee*. After adding cold water, *Turkish coffee blend*, and, lastly, sugar to the coffee pot, these should be stirred before brewing until a homogeneous mixture is obtained. At least 7 grams of coffee should be used per person, and the brewing duration should be a maximum of 3 minutes. Coffee is boiled two times to obtain foam. Furthermore, cups in which the coffee would be served should be able to retain the heat.

Serving of the coffee: Apart from the special key points in its journey from beans to the cup, serving of the coffee plays a significant role. Coffee played an important role in daily life in Ottoman; furthermore, coffee tradition constitutes the major part in serving the guests. In 1800s, in Ottoman, coffee was served on gold and silver-studded clothes (*sitil puşidesi* in Turkish), on special trays and cup covers (*sitil takımı* in Turkish), coffee cups and coffee sleeves. The essential component of this “*sitil takımı*”, which was made of silver, copper, or brass, was *sitil* bowl.

Essential materials used in “*sitil takımı*” depended on the financial status of the family [33].

In Ottoman, studded clothes suitable for the cup covers were also used in the coffee presentations. Fig. 6 shows the studded clothes used in the Ottoman. They are generally one meter in diameter, round, with an embroidered center and a shiny edge. The style of the studded clothes used varies according to the importance of the guest and the day. The shapes of studded clothes used in the coffee presentations at the palace were different from each other in the harem section and *selamlık* section [1,34].

Another important item in coffee presentation is coffee cups. To give an additional elegance to the presentation, porcelain cups with *zarf* have been used since the 17th century to prevent the burning of the hand of the drinker. A *zarf* from the National Palaces Collection made of 14 carat gold is shown in Fig. 7. The *zarfs* were not used in Europe, and it remained an Ottoman–Turkish tradition. At the present time, coffee presentation is made with cups that have *zarf* as a Turkish heritage in many regions of our country. Moreover, coffee presentation is being made in the tourism sector to reflect this heritage [1,35] (Fig. 8).

In Ottoman, coffee ceremonies conducted in the palace were of great importance. The most magnificent cup covers, cups, *zarfs*, and studded clothes were used in coffee ceremonies held in the palace. Jars with some intense-aromatic and traditional desserts were served before the coffee. Rosewaters, *sherbets*, or *shishas* were also served along with coffee to enrich the serving [1,36]. Coffee serving plays a major role also in Turkish culture like Ottoman culture, and it is an indicator of the importance given to the guests. Even though it has gone through some changes in its preparation and serving, coffee continues to contribute to cultural and spiritual wealth.

6. Coffee consumption in Turkey and the world

Available data indicate that the amount of coffee consumed per year per person is 0.1 kg [37]. It is stated in some sources that the annual consumption is 250 g/person. It is stated that annual coffee consumption in Europe is 5–6 kg/person, whereas it is 11–12 kg/person in Scandinavian countries. Annual instant coffee consumption per person is 10–12 cups in Turkey and 175–200 cups in Europe, whereas annual filter coffee consumption per person is approximately 1 cup in Turkey and 560–600 cups in Europe [38]. According to the International Coffee Council 2012 data, while annual coffee consumption per person in Turkey was 0.2 kg, this rate reached to 0.5 kg in 2011. Average coffee consumption (between 1997 and 2011) is measured as 0.4 kg per person. Countries where coffee consumption (annually per person) is highest around the world are

as follows: Finland: 11.7 kg, Norway: 9.4 kg, Denmark: 8.9 kg, Sweden: 8.1 kg, Switzerland: 7.4 kg, Germany: 6.8 kg, Austria: 6.8 kg, Belgium: 6.4 kg, and the Netherlands: 6.3 kg [39].

7. Conclusion

Turkish coffee, one of our traditional drinks, is consumed more and more. Apart from research on its taste and cultural features, further research on its consumption frequency and its effects on health is required especially in our country.

Conflicts of interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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