

Sericulture in Turkey

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Article History

Received: 03.08.2017

Accepted: 16.08.2017

Published: 30.09.2017

DOI:

10.36347/sjavs.2017.v04i09.008



Abstract: The aim of this paper is to review sericulture in Turkey. Sericulture which gave the name The Silk Road to the old world's trade routes between east and west has an important role at financial activities for centuries. Sericulture production was begun in Anatolia which is Asian part of Turkey in A.D. 552 during Byzantium Emperor of Justinianus. The city of Bursa became a textile city which was famous for silk and silk trade centre. In middle of 16th century silk textile industry was developed. Apart from city of Bursa, cities of Istanbul, Edirne, Amasya, Denizli, Izmir and Konya were important sericulture centers. Bursa was the important city where silkworm egg and cocoon were produced; silk and velvet were woven by hand and exported to the Europe in the period of Ottoman Empire. Sericulture has begun at the same period in Amasya that is one of the Ottoman cities. Sericulture and cocoon cultivating were made in Mugla the city has eligible climate condition to cultivate mulberry. In Turkey the silk was woven by using simple bench as a family work.

Keywords: *Bombyx mori*, silkworm, The Silk Road, cocoon, genetic resource

INTRODUCTION

Some animal species and breeds had important place in history of some countries such as Merino sheep in Spain, Angora Goat in Turkey and sericulture in China [1].

Sericulture in the World is generally made in Asian countries. In the World production percentages of China and India are 80% and 15% respectively [2]. The production of fresh cocoon is about 134 in 2012 (Table 1). Silk has some unique characteristics in kinds of fabric. It is shiny, soft, strong, and has a fabric can be dyed. It is so sensitive; therefore it is affected by noise, smell, wind, temperature change, even carer's hygiene [3]. Generally four kinds of silkworm which are

Mulberry, Eri, Tasar and Muga are reared in the World. Mulberry silkworm (*Bombyx mori*) (Table 2) has the majority in them which percentage is about 95% [4]. In Turkish society silkworm seem cute. A survey study was realized in primary school students. According to study between 9 and 40% of students in different levels rear insects. Students rear silkworm, ant, ladybug and grasshopper which showed that silkworm was one the loveable insect in insect groups [5].

Table-1: Production of apiculture and sericulture [6, 7]

Year	Number of Villages Engaged in Sericulture	Number of Families Engaged in Sericulture	Number of Egg Boxes Produced	Production of Fresh Cocoons (tones)
1936	2.201	49.338	56.278	2.135
1940	2.422	63.498	73.045	3.014
1950	3.013	69.354	62.927	2.501
1960	2.530	60.370	50.865	2.444
1970	1.559	43.589	64.340	1.461
1980	1.601	43.025	66.042	1.707
1990	1.916	44.541	80.544	2.171
2000	230	2.210	3.147	60
2012	342	2.572	5.576	134

Table-2: Scientific classification of the silkworm [4]

Phylum	Arthropoda
Class	Insecta/Hexapoda
Ordo	Lepidoptera
Subordo	Macro Lepidoptera-Heterocera
Super Family	Bomycoiden
Family	Bomycidae
Genus	Bombyx
Species	B. mori

The Silk Road

The Silk Road was first named by a German geographer, von Richtofen and generally used by western people as this name. The first known person who journeyed on the Silk Road was a Macedonian merchant of Maies Titianus [8]. The Silk Road was opened for service of humanity in early period of history [9]. The silk was the most important strategic tool in Chinese economy starting from B.C. 200. The silk was kept like gold and used like money in Chinese life. In East Turkestan (Xinjiang in China) there lived Hun Turks (there live Uygur Turks at the present time). Chinese sent some silk fabric to Hun Turks to trade, so then the Silk Road started to be created [1]. Silk, perfumery, jewellery, pelage, spices and slaves were used as trade material. There were lots of wars because of getting to control the Silk Road in history. Main nations who contended each others for the Silk Road were Chinese, Turk, Indian, Persian, Roman and Arab people [10]. The Silk Road was about 7.500 km as the crow flies and about 10.000 km on the earth surface. When first Seljuks, later than Ottomans came to Anatolia (Asian part of Turkey) they built lots of caravanserais on the Silk Road. Caravanserais were far away about 30-40 km from each others which made 7-8 hours of camel walking. For example there were 24 caravanserais just only between Sivas and Kayseri which is 200 km the distance between two cities [8]. In the second part of 14th century Ottomans intended to conquer some cities which were on the Silk Road such as Ankara in 1353-1362, Osmancik in 1392, Amasya in 1392, and Erzincan in 1401 [11]. The Ottoman King of Murat II and Turkish-Mongol Empire King of Timur the Lame had a war near Ankara in 1402. The reason of the war was Silk Road of the struggle for [12]. In this century floss silk was brought from Iran to seashore cities of Efes and Milet via the Silk Road of Tabriz-Konya-Denizli. Rudolf von Suchen reported that floss silk was exported from Efes together with cotton and wheat [10].

Production

Silkworm production is made in April in west and south of Turkey. In the other regions it is reared in May. If mulberry garden is near to rearing place, it reduces workmanship. Another important point is that

mulberry garden must be far away from agricultural spraying areas, because silkworms are badly affected by pesticides [13, 14]. Silkworm rearing is performed in three ways including 'tepsi' (tray) feeding, 'kerevet' (bunk) feeding and 'yer' (ground) feeding systems. The bunk feeding is the best for producers [4]. A box of eggs called as 'kutu' is about between 10 and 18 gr which contains about 18.000-20.000 eggs in [15].

When silkworms hatch from eggs which are called as 'inficar', they are in 3-4 mm length. In this age mulberry leaves must be given by cutting in small pieces, otherwise tiny larvas cannot eat the leaves. Hence mulberry leaves are cut by using special knives called as 'tagra'. In second age larvas are taken to special trays called as 'kerevet'. Under kerevet there is put special cloth called as 'kune' to collect skin and feces of larvas. Kune must be changed between ages. In this age mulberry leaves can be given uncut. In third age mulberry leaves can be given on mulberry branches. In fifth age they have maximum length and they are called as 'halat' or 'aladi' in this age. The most mulberry consuming is in this age. The silkworm producers is described this situation as like 'In this age silkworms eat like water buffalos' [16]. After 5th age, silkworms look for a place to make cocoon which is called as 'aski arama'. They are put branchy places, which is called in Turkish as 'aski' to begin making cocoon. Farmers use different kinds of aski including plastic or vegetable. Vegetable aski can be wooden scaffolding or branches of different trees or plants [4, 13]. Plants of mustard or broom and leafy branches of common oak, or pinal (holm oak) are used as aski [14]. Cocoon making process can last about 8-9 days [4, 13]. After cocoons are got they are put in 'kufe' (basket) or 'harhar' (large gunny sack). Cocoons are sold in Koza Han (Cocoon Market) in June [17, 18].

Mulberry Tree

In Turkish culture trees generally seem as cult and holy such as beech, pine, aspen, juniper, oak, cypress, cedar, oak, willow, and apple trees. Rather than forest or a group of tree, they like a single tree and seem it as holy. Mulberry tree also seem as cult and holy. Mulberry tree is called as 'spirit of home' by Turks. Mulberry tree seem as peace, future and fertility of the

home [19]. In Sapalli Hill excavations a women corpse dated B.C. 2nd century was found. There was a piece of mulberry tree branch on her chest. Askarov the Archeologist believed that this mulberry branch pointed that Turks were involved in sericulture in Middle Asia. It is showed that Turks planted mulberry trees for thousands years. Turks also like planting mulberry trees in graveyards. When a corpse is burried, a mulberry tree seedling is planted near to top of corpse's head. They are hoped that when mulberry tree seedlings grow up, the corpse rest in peace under shadow of the mulberry tree [3, 19]. 'Saz' or 'Baglama' is one of the authentic Turkish music play. It is believed in Turks that the best saz is made from mulberry trees. Also Turks who live in Middle Asia use 'kopuz' made from mulberry tree. Kopuz also looks like saz instrument [19]. Mulberry tree is the only and essential food of silkworm [20]. Sometimes silkworm producers give lettuce to silkworms in case of scarcity of providing mulberry leaves, but lettuce reduces the quality of cocoons thus silk [14]. In Turkey there are about 2.210.000 mulberry trees and 55.000 tones of mulberry are yielded from those trees these data were 4.150.000 mulberry trees and 95.000 tones of mulberry in 1980 [20]. It is showed that mulberry trees reduce parallel with sericulture in Turkey. At the present time a native mulberry breed of 'Sari Asi' is cultivated in Bursa region. Sari Asi mulberry tree has very tiny leaves which is fondly eaten by silkworms. It has not too much branch but has plenty of leaves. Sari Asi mulberry tree leaves makes high quality of silk [21].

Conclusions

Silk used to be an important trade material which was struggled for domination of main trade routes for centuries. During Ottoman Empire the city of Bursa was not only a textile centre for silk but it was also main silk trade centre. Raw silk was provided from Bursa to Europe because of being Bursa was a city where the best quality silk was produced there. Besides that raw silk which was imported from Iran helped to increase income both people of Bursa and people who lived near to the Silk Road. The silk textile industry was developed in middle of 16th century. Besides city of Bursa, cities of Istanbul, Edirne, Amasya, Denizli, Izmir and Konya were important sericulture centers. All these traditional believes and values show that silkworm and silk woven have important affects and meaning on social life of community. Modern life and new technological products weaken the role of silk and silk woven in economy. However its effects on folk culture maintain. Even though sericulture is made in small quantity at present, sericulture is still a traditional, historical and economical statute in Turkey.

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