Commercial Silks of the World

Bhupen Kumar Sahu

Article ID: 35

Department of Sericulture, Assam Agricultural University, Jorhat, 785013
Corresponding Author: bhupenkumarsahu1995@gmail.com

Introduction

Silk is the most elegant textile in the world prominently known as the "Queen of Textiles". The prime manufacturers behind the production of silk are many; out of them silkworms are the most important silk producers. They produce silk to form their cocoons which is used as a tool of protection for the pupal stage. The art and science of rearing of silkworm with an aim to produce commercial silk is called sericulture. Silk produced by the mulberry silkworm is called mulberry silk while the silks produced by other four types of silkworm are called non-mulberry or vanya silk. Among them, mulberry silkworm contributes around 90 percent of world's silk production. Rest of the silk is produced by the vanya silkworms. Apart from these commercial silks, there are many other non-mulberry silks exploited in wild habitats of Africa and Asia like Anaphe silk, Coan silk, Fagara silk, Spider silk and Mussel silk.

Types of silks

There are many silks produced in the world. As mentioned earlier, silks are classified as mulberry and non-mulberry or vanya silks.

1. Mulberry Silk

Mulberry silk is commercially produced by mulberry silkworm, *Bombyx mori* L., belongs to family Bombycidae of Lepidoptera order. The insect solely feeds on the leaves of mulberry plant (monophagous in nature). Depending on the number of generations per year, it may be univoltine, bivoltine or multivoltine. Generally, univoltine breeds are grown in the cooler regions of world like Japan, Russia, China etc. whereas bivoltine and multivoltine breeds are reared in the tropical regions like India, Italy, Thailand etc. Mulberry silkworm produces almost 90 per cent of the total commercial insect silk of the world. It is fully domesticated and reared indoor throughout its whole life stages. It is famous for its lustrous look, light weight, unique colour and better dying character. The silks produced by mulberry silkworm is white or yellow in colour depending on the race of silkworm.

(Mulberry Silk)

2. Vanya or Non-Mulberry Silk

2.1 Muga Silk

Muga silk is produced only in India which enjoys monopoly in its production in the world. Muga silk is produced by muga silkworm, *Antheraea assamensis.* Muga silkworm is semi-domesticated which is partly grown in wild form and partly as indoor. It is confined to the Brahmaputra valley of north-eastern states of India, particularly regions of Assam. It is multivoltine and polyphagous in nature. The primary host plants are som (*Persea bombycina*) and soalu (*Litsea monopetala*). Silk produced by muga silkworm is golden yellow in colour.

(Muga Silk)

2.2 Tasar Silk

Tasar silk is produced as of broad diversity in the world. There are different types of tasar silkworms like Indian tasar silkworm, *Antheraea mylitta*, temperate tasar silkworm, *Antheraea proylei,* Chinese tasar silkworm, *Antheraea pernyi* and Japanese tasar silkworm, *Antheraea yamammai*. Chinese silkworm, *Antheraea pernyi* produces the largest quantity of non-mulberry silk of the world. The next most important tasar silkworm is Indian tasar silkworm, *Antheraea mylitta* which produces silk of grey colour. Japanese tasar silkworm, *Antheraea yamammai* produces green coloured silk thread. The Chinese and Japanese tasar silkworms feed primarily on oak leaves. The Indian tasar silkworms feed on leaves of Asan, *Terminalia tomentosa*, Arjuna, *Terminalia arjuna* and several other minor host plants. The silkworms are either uni- or bivoltine and their cocoons like the mulberry silkworm cocoons can be reeled into raw silk.

(Tasar Silk)

2.3 Eri Silk

Eri silk is white or brick-red coloured produced by Eri silkworm, *Philosamia ricini* or *Samia ricini*. The insect is multivoltine and polyphagous in nature. The primary host plant of eri silkworm is castor (*Ricinus communis*). It is a domesticated silkworm producing open ended cocoons. Hence the silk thread produced is discontinuous in nature. Apart from silk production, the pupae are used as a source of food in the tribal communities. The cocoons are non-reelable and used as spun to produce the silks out of it.

(Eri Silk)

2.4 Anaphe Silk

Anaphe silk is produced by the silkworm that belongs to the genus *Anaphe* of family Notodontidae of Order Lepidoptera. It is an origin of southern and central Africa. It is mainly produced by silkworms of different species of genus *Anaphe* like *A. moloneyi*, *A. panda*, *A. reticulate*, *A. ambrizia*, *A. carteri*, *A. venata* and *A. infracta*. The silkworm is a polyphagous insect that chiefly feed on host plant, *Triplochiton scleroxylon.* They spin cocoons in communes, all enclosed by a thin layer of silk. The silk produced from *A. infracta* is known locally as "book" and those from *A. moleneyi* as "koko" and "Trisnian-tsamia" (Tt). The fabric obtained from Anaphe silk is elastic and stronger than that of mulberry silk. Anaphe silk is used in velvet and plush making.

(Anaphe Silk)

2.5 Coan Silk

The silkworm which produce coan silk is called as Syrian silkworm, belongs to the genus *Pachypasa*. It is commercially produced from the Mediterranean bio-geographic region (southern Italy, Greece, Romania, Turkey, etc.). The species used for commercial production of coan silk are *Pachypasa atus* and *Pachypasa lineosa.* They feed primarily on trees such as pine, ash cypress, juniper and oak. They spin white cocoons which have dimension of 8.9 cm x 7.6 cm. In ancient times, this silk was used to make the crimson-dyed apparel worn by the dignitaries of Rome.

(Coan Silk)

2.6 Fagara Silk

Fagara silk is produced from the giant silk moth, *Attacus atlas* and a few other related species or races. It is inhabiting in the Indo-Australian bio-geographic region, particularly in China and Sudan. They spin light-brown cocoons nearly 6 cm long with peduncles of varying lengths (2-10 cm). Total of 13 species of *Attacus* are known to produce fagara silk.

(Fagara Silk)

2.7 Spider Silk

One of the widely known non-insect silk "Spider silk", is obtained from three species of spiders namely, *Nephila madagascarensis, Miranda aurentia* and *Epeira. Spider silk is known for its* soft and fine, but also strong and elastic nature. Because of the high cost of production, spider silk is not used in the textile industry; however, durability and resistance to extreme temperature and humidity make it indispensable for cross hairs in optical instruments. This silk is used in the manufacture of cross-bars in optical instruments.

(Spider Silk)

2.8 Mussel Silk

It is also a non-insect silk originated from a bivalve, *Pinna squamosa,* found in the shallow waters along the Italina and Dalmatian shores of the Adriatic. The strong brown filament or byssus, is secreted by the mussel to adhere it to a rock or other ground surfaces. The byssus is combed and then spun into a silk popularly known as "fish wool" in Italy.

(Mussel Silk)

Conclusion

Silk acts as the major source of textile industry around the globe after cotton. Silk industry acts as the bread and butter for active population in India. Globally, it shows various way of getting good foreign exchanges for silk entrepreneurs. However, the potential of unexploited silks of the world need to be realized so that silk production brings noticeable upliftment for the poor.

References

- Ganga, G. & Chetty, J. S. (2019). Introduction. In: *An introduction to sericulture.* CBS publishers and distributors Pvt. Ltd. pp. 1-5.

- Wani, M. Y., Ganie, N. A., Rather, R. A., Rani, S. & Bhat, Z. A. (2018). Seri biodiversity: An important approach for improving quality of life. *Journal of Entomology and Zoology Studies*. **6(1)**: 1053-1056.