

Assam Silk: Sericulture

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ABSTRACT

Sericulture, also known as silk farming where the silkworms are reared to produce silk. There are varieties of silk produced all over the world. Different types of silk such as mulberry silk, non-mulberry silk, anaphe, fagara, coan, mussel, spider etc. silks. One of the rarest silk producer is Assam that introduces three natural wild silks- golden muga, white pat and warm eri silk. This article throws an insight into the cultivation of silkworm and creation of the beautifully refined silk. It is not only considered as a tradition but also a living culture of Assam. Many cottage and small scale textile industries engages in such farm-based, labour intensive commercial economic activity providing employment to the rural farmers and attracts profit seeking entrepreneurs as it requires low investment with relatively higher returns.

Introduction

Silk production has now dominated the fashion as well as business world. This magnificent creation has enthralled the trend followers. Silk can be compared to as a canvas where fashion is the fine art, then the weavers and designers may become the greatest artists [1].

Silk is a natural fiber protein composed of fibroin, that can be woven into textiles. This fibroin protein component is produced by silk worm larvae to form cocoons. The best-known silk is obtained from the cocoons of the mulberry silkworm *Bombyx mori* larvae, by sericulture [2,3].

Several kinds of wild silkworms are used to produce varieties of silks in Asian, North American, European countries since ancient times. But a particular species of silkworm produces its specific silk. Mulberry silk produced by mulberry silkworm is the 90% contributor of the world's silk production. Other commercial non-mulberry silks are eri silk, tasar silk, muga silk, spider silk etc. [4].

The mulberry silkworms are termed as such because they feed only on mulberry leaves and the non-mulberry worm's lives on other plants like som, pine, juniper, oak, castor etc. or may be other sources. Non-mulberry silkworms such as *Pinna squamosa*, producing mussel silk, lives in shallow waters along the Dalmatian shores of Adriatic sea. Different other wild types are exploited in Africa and Asia [4,5].

Plantation of the mulberry, som, castor etc. trees plays another significant role in the silk manufacturing and silkworm maintenance. There are departmental nurseries, promoted by the government and few are private, maintaining trees that provides leaves for the silkworms to feed on. Cluster plantation is such kind of scheme that has been implemented to ensure the increase in the production of silk cocoons [1,3,6].

India can be ranked as the second largest producer of raw silk after China. It emerges out as the biggest consumer of raw silk and silk fabrics having the rare characteristic of producing all the four varieties of silk: mulberry, tasar, eri and muga [7].

The Assam Silk

Assam is famous for its scenic beauty, embedded with nature's gift of flora and fauna. Especially the tea gardens in Assam is one remarkable sight to behold. Similarly, muga silk is endemic to Assam which adds to its royalty and uniqueness. The golden silk or muga silk has been a tradition since the beginning of ancient times in Assam and now it surfaces as trend in the Fashion world.

There are three major primitive varieties of silks that originated from Assam. The golden muga silk, pat silk, and eri silk rules the handloom industries in Assam and now emerges as a soaring export material.

Muga and eri are non-mulberry silks and pat is mulberry silk. These silks are categorized according to the kind of silkworms from which they are derived.

Muga silk is produced by the muga silkworms, scientifically known as *Antheraea assamensis*, which are fed on som (*Machilus bombycina*) and sualu (*Litsaea polyantha*) leaves. Golden yellow silk thread is derived which is rare with its texture, luster and durability [5,8].

Pat silk is produced by the *Bombyx textor* or *Bombyx mori*, a mulberry silkworm that feeds only on mulberry (*Morus spp.*) leaves. Brilliant white or off-white coloured silk thread is derived and is mostly used for its very bright texture. Countries such as China, Japan and Korea also cultivates *Bombyx mori* silkworms for similar kind of silk production. This silk is given different names in different regions.

Eri silk, also known as Errandi or Endi, is derived from the silkworm *Philosamia ricini* and *Samia ricini*. *P. ricini* feeds on castor oil plant (*Ricinus communis*) leaves and hence known as castor silk. It is believed that the name "Eri" derived from the word "Era", which means castor plant in Assamese. It is known as 'peace silk' or 'non-violent silk' as the moths are not destroyed in the cocoon but are allowed to emerge and the pierced cocoons are spun rather than reeled to produce the eri silk yarn. Fine white soft silk thread is produced that have wool or cotton like appearance, popular as shawls and quilts. It is commonly cultivated in other parts of India, Japan and China also. Assam is also now trading in Tassar or Tassah silk and many other silk types too [5].

Production of Silk from Silkworm

The silkworm larvae are cultured and then fed with leaves (mulberry/som/castor plant). After the moulting process, the worm builds its silken cocoon by secreting and surrounding itself with a dense salivary fluid from the structural glands which forms long continuous fibre. These large glands, located in the head of these worms, produces gum like dense substances called sericin and the fluid emerges from the tube-like exit, near the mouth, called spinneret. This fluid hardens on exposure to air, forming thread like structures composed of fibroin, a type of protein. These are the silken strands that form the silken cocoon [3,9].

Process of Silk Production

1. Thousands of eggs are laid by the silk moth and larvae or silkworms form after hatching of these eggs.
2. The larvae are fed on mulberry, som leaves etc.
3. Further growth occurs and after several moultings, these worms start forming the cocoon.
4. Firstly, it weaves a net to hold itself and then spreads the salivary fluid that solidifies with contact to air forming the silken cocoon.

5. The silkworm spins a filament of about 900 m or one mile to the maximum and it encases itself within two to three days.
6. The worm intact cocoons are then boiled.
7. The outside end of the filament of silk is retrieved by brushing the undamaged cocoon.
8. Silk threads are the wound to a reel and the silk at this stage is called raw silk.
9. Later degumming process is done by boiling the silk in soap and water, resulting in soft and lustrous silken threads.

As the quantity of good silk obtained from each cocoon is very less, so to produce one pound (0.453 kg) of raw silk, around 2500 silkworms are needed. Each cocoon may contain approximately 1000 yards (914 m) of silk filament. Each thread may be comprised of 48 silk filaments [9,10].

Unlike all the other silk production, the eri silk is produced without killing the larvae. The filaments of the cocoons produced by these particular worms are neither continuous nor thick and hence cannot be reeled. Thus, the pierced cocoons are spun into eri silk after the moth emerges out of it. This process is also known as ericulture [4,11].

Sualkuchi

The main centre of silk handloom and textile industry is Sualkuchi, a town in Kamrup district of Assam. Anciently, it was famous as a craft village, practicing pottery, weaving, goldsmith, oil processing etc. but with time the artisans have taken up silk production and weaving as main profession. Sualkuchi is often known as the Manchester of East or Assam [12,13].

Women play a significant role in these kinds of textile industries as such silk producing activities are mostly home-based. These practices originated from rural families where weaving and silk production was a tradition [1]. More than 53% of Women are involved in various activities of sericulture [8]. They along with men have been actively participating in all the sectors of sericulture from on-farm activities to fabric creation, marketing and consumption. Many schemes like Self Help Group, NIFT participation, Cluster Plantation, etc. has been implemented the North-Eastern Council and several government bodies [6,12].

Conclusion

In Assam, sericulture is an agro-based industrial as well as commercial activity which plays a significant part in the cultural heritage of the Assamese people. Silkworm rearing and production of silk not only enact as a tradition but it also uplifts the rural economy and employment [14-21].

Sericulture and ericulture are two rare techniques followed in Assam since ancient times and carried further by the weaving practices in the handlooms producing rich Assam silk fabric [22-29]. Later these fabrics are dyed, embellished with beautiful floral artistic motifs resulting in unique workpiece [11].

The golden muga silk is one of the pride of Assam but due to its high demand and shortage of silk yarn production, local tasar silk, Chinese tasar silk or tasar like polyester silk is being mixed while weaving. Hence degrading the quality for the authentic silk for commercial purpose. Such practices are being checked by Central Silk Board under Ministry of textiles [6,12].

Hence, with further support and cooperation of the government and non-governmental organizations, the textile industries in Assam can achieve the desired results. Taking proper measures for the difficulties confronted by the farmers, rearers and weavers, will enhance the production of silk in future [30-35].

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