

## MULBERRY SILK EXCELS ALL OTHER VARIETIES OF SILK

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### ABSTRACT

*Silk is the perennial queen of textile. According to the nature of silk worms silk has four varieties e.g. mulberry silk, tasar silk, eri silk and muga silk. Out of which last three types of silk belong to non-mulberry or wild silk group. However it has been observed over the centuries that mulberry rules the world of silk production. It is mainly due to the facts like lesser gestation period of silk worm, luxurious outlook of the silk thread and traditional involvement. In this paper it has been tried to portray the picture of supremacy of mulberry silk at international level, national level as well as state level with an analysis of causes of such supremacy.*

**KEY WORDS:** Silk, sericulture, mulberry, silk worm, supremacy of mulberry silk.

### INTRODUCTION

Silk is a pasty secretion from the silk glands of silk worms. The silk glands are actually modified salivary glands, which are long and sac-like. As this pasty secretion comes in to contact of air it becomes hard and forms strong and pliable silk strands<sup>2</sup>. This secretion forms two courses of fibroin:

- i). A tough elastic insoluble protein consisting of 75% of fibers weighted and cemented together with secretion from the middle region of the silk gland at the time of secretion.
- ii). A gelatinous protein, which is easily soluble in warm water.

With this idea about the silk now the term sericulture may be clarified. In the strict sense 'Sericulture' would refer to the processes involved in production of natural silk. 'Serio' is a Latin word meaning silk. Silk is a natural filament created by the silkworm. The art and process of silk production is called sericulture. It comprises of cultivation of host plants, silkworm rearing and collection of cocoons from food plants followed by reeling of silk yarns from cocoon, dyeing of silk yarn, spinning of the same, weaving of silk products, printing & stitching for product development and the terminates with marketing of silk products. Activities involved in cultivation of food plants, rearing of silk worms and gaining commercial cocoons are basically farm level activities. In our study it can be termed as agricultural stage popularly known as pre-

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cocoon stage. The remaining stages which are mainly involved in reeling, weaving and marketing of silk products are termed as manufacturing and trading stage popularly known as post-cocoon stage. Therefore, sericulture means the raising or rearing of silkworms for production of silk. The activities get commercialized and develop on a large scale along with specialized activities. They are also considered as parts of Sericulture. Therefore sericulture would refer to the activity of raising the food plants for the silkworms, production of silkworm eggs or Disease Free Laying [D.F.Ls], silk worm rearing, production of cocoon, collection of the same, reeling of silk fiber, manufacturing of silk products, marketing and overall maintenance.

According to the nature of silk worms silk has four varieties e.g. mulberry silk, tasar silk, eri silk and muga silk. Out of which last three types of silk belong to non-mulberry or wild silk group.

As per global statistics against all sorts of parameters like production, earnings, employment and export it is been observed that mulberry silk holds the supremacy in all counts of the industry. Similar picture is evident in national as well as state scenario.

### **SUPREMACY OF MULBERRY SILK**

The best-known type of silk is obtained from the cocoons of the larvae of the mulberry silkworm *Bombyxmori* reared in captivity. There are three other types of silk worm viz., -*Antheraea Mylitta*, *Phelo Samiarivoini* and *Antherea Asamensis* to produce tasar, eri and muga silk respectively.

A brief account of silkworms may be presented here:

1. **Mulberry silkworm - *Bombyxmori*:** This is a completely domesticated insect. As the natural food of this worm is mulberry leaves, so it is called mulberry silk worm and the silk produce from it is known as Mulberry Silk.
2. **Tasar Silk worm: *Antheria Myletta*.** This caterpillar feeds on ber, oak, sal and fig plants. The cocoon produced by this worm is smooth and hard. It is almost of hen's egg size. The cocoon yields reel able, brown colouredTasar silk.
3. **Muga Silk worm: *Antheraea assamensis*:** The native place of this species is Assam where it has now become a good source of cottage industry. The silk produced by this moth is known as Muga silk.
4. **Eri Silk worm: *Attacusricinii*.** The caterpillar of this worm feeds on castor leaves. The cocoons of this worm have very loose texture and the silk produced is locally called as Arandi silk . The threads are not glossy but much durable.

In the following table we can present comparative relevant information about different varieties of silk:

**Table No-1: TABLE SHOWING INFORMATION ABOUT DIFFERENT VARIETIES OF SILK**

varieties	Silk worm	Host plants	Nature	Colour of cocoon
Mulberry	Bombyxmori	Mulberry	Monophongous	Yellowish
Tasar	Antheraea Mylitta	Asan, Arjun, Sal, Kul, Jam, Sidhaetc	Polyphagous	Copperish
Eri	Phelosamiarivoini	castor,kesseru, apioca,champa, etc	Phelosamia	White and brick red with shades.
Muga	Antheraea asamensis	som,soalu, champa, etc	Polyphagous	Golden yellow, creamy white.

Though there are four varieties of silk, India being the only country of the world to produce all of them and West Bengal being the only state of our mother land which is successfully producing all of the varieties since long over the years, Mulberry Silk rules the industry all over the globe.

Following table shows the global, national and state level status of four varieties of silk in terms of number of producing countries, state and district respectively as well as share of production.

**Table No-2: TABLE SHOWING GLOBAL, NATIONAL AND STATE LEVEL INVOLVEMENT OF FOUR VARIETIES OF SILK (Study Year: 2015-16)**

NUMBER	MULBERRY	Tussar	Eri	Muga
Global(Countries)	60	19	3	2
National(States)	28	9	16	7
State(Districts)	16	6	3	3
SHARE(%)				
Global	89.7	9.8	2	0.5
National	71.79	9.88	17.74	0.59
State	86.79	1.88	0.31	11.02

Table no-2 shows that globally as many as 60 countries are involved in production of mulberry raw silk. This numbers for tasar, eri and muga are only 19, 3 and 2 respectively. In India 28 states out of 29 states are involved in production of mulberry raw silk. While only 9, 16 and states are producing tasar, eri and muga silk respectively. The situation repeats in the state-West Bengal. In West Bengal 16distiricts are involved in mulberry silk production and 6, 3, 3 districts are involved in production of tasar, eri and muga silk.

So far as percentage of share in silk production is concerned share of mulberry silk is as huge as 89.7%, 71.79% and 86.79% in International, national and state level respectively. On the other hand share of tasar, eri and muga silk ranges from 17.74% to 0.31% which is strikingly meager. The data contained in the table no-2 clearly shows that both in terms of number of countries involvement and share in total production mulberry silk excel all other varieties in all counts.

In the following table we would like to show the status of sericulture industry in India over last **FIVE** years.

**Table No-3: TABLE SHOWING PRODUCTION ABOUT DIFFERENT VARIETIES OF SILK**

PRODUCTION OF COCOON					
VARIETIES	2011-12	2012-13	2013-14	2014-15	2015-16
MULBERRY(MT)	139871	144434	142487	159259	161787
TASAR(LAKH KAHAN)	14.96	15.62	20.7	20.64	24.93
ERI(MT)	3899	3945	5464	6087	6623
MUGA(LAKH NOS)	6842	5776	7170	7829	8284
PRODUCTION OF RAW SILK UNIT-MT					
VARIETIES	2011-12	2012-13	2013-14	2014-15	2015-16
MULBERRY	18272	18715	19476	21390	21478
TASAR	1590	1729	2619	2434	2819
ERI	3072	3116	4237	4726	5060
MUGA	126	119	148	158	166
TOTAL	23060	23679	26480	28708	29523
EXPORT UNIT-CRORES RS					
VARIETIES	2011-12	2012-13	2013-14	2014-15	2015-16
MULBERRY	1694.39	1658.57	1786.24	2037.51	2085.11
TASAR	223.56	218.84	235.68	268.83	275.11
ERI	416.53	407.73	439.12	500.88	512.59
MUGA	18.85	18.44	19.85	22.66	23.18
TOTAL	2353.33	2303.58	2480.89	2829.88	2895.99
EMPLOYMENT UNIT-LAKH PERSONS					
VARIETIES	2011-12	2012-13	2013-14	2014-15	2015-16
MULBERRY	54.43	55.10	56.52	57.82	59.40
TASAR	7.18	7.27	7.45	7.62	7.83
ERI	13.38	13.54	13.89	14.21	14.60
MUGA	0.61	0.62	0.64	0.65	0.67
TOTAL	75.60	76.53	78.50	80.30	82.50

Supremacy of mulberry silk in India in terms of production of cocoon, production of raw silk, export earnings and employment is clearly evident from the table no 3.

## CAUSES OF SUPREMACY

### Nature of silk worm

The silk worm *Bombyx mori* (L) is a fully domesticated worm. Unlike the silkworms producing non-mulberry silk it is not wild in nature. Even for reproduction it depends upon human. As a consequence rearing of this type of silk worm is more convenient. It in turn results better productivity.

### Lesser gestation period

A silkworm passes through four distinct stages in its life. They are the egg, larva, pupa and moth. The moth lays eggs. From the eggs, tiny ant like worms hatched out and placed on leaves for feeding. The second stage of life cycle is called larva or caterpillar. The larva when fully grown spins silk into a cocoon around itself. Inside the cocoon, the worm transforms into pupa which is the third stage. After some days, the pupa develops into a moth which is the final stage. This moth comes out of the cocoon. After copulation the female moth lays eggs. The life cycle is thus repeated. The length of the life cycle differs from region to region and from species to species. For Mulberry silk worm it is 28 to 35 days, while the same is 35 to 50 days, 40 to 65 days and 32 to 48 days for Tasar, Eri and Muga silk worms. As a result of it mulberry silk becomes capable to make return on capital employed faster than any other variety.

### Tradition

According to Chinese records, the discovery of silk production from *B. mori* occurred about 2,700 (two thousand seven thousand) B.C. On the other hand *Antheria Myletta* the tasar silk worm was found in the history at about 1500 B.C. While reference of *Attacus ricinii* the silk worm for Eri silk and *Antheraea assamensis* the silk worm for Muga silk were not found even up to 1<sup>st</sup> A.D. As a consequence Mulberry silk have been started to be produced over the globe well in advance employing a considerable number of persons since long.

### Properties

In spite of several similarities in respect of properties of these four varieties of silk, mulberry silk excels its counterpart in terms of different aspects of silk. Longitudinal sections of silk filaments show transparent appearance for mulberry. It results in more luxurious finishing of mulberry silk products than non-mulberry silk products. Higher density of mulberry silk gains better tenacity. Luster responsible for making silk products attractive is better for mulberry silk.

### Features

Some unique features of mulberry silk have made it supreme in the world of silk industry, some of them are highlighted here:

- Mulberry silk is the highest quality silk available for purchase. Because the silkworms of the Bombyx mori moth are fed only mulberry leaves, the resulting silk is some of the finest available in the world.
- Pure white in colour and made up of individual long fibres,
- Mulberry silk is more refined than other types of silk. Other types of silks such as wild silk are less uniform in colour and texture, with shorter strands.
- Products made from 100% Mulberry silk are among the most durable and most luxurious silk goods.
- Mulberry Silk is 100% Natural, Odorless and Hypoallergenic. One of the unique benefits of Mulberry Silk is that it is 100% natural, odorless and hypoallergenic. Mulberry silk contains a natural protein called sericine that reduces the possibility of an allergic reaction.

## CONCLUSION

Mulberry silk has gained its supremacy since the first day of sericulture. It has maintained the same for about 6000 years without any competition from other varieties due to its inherent features, qualities, advantages and universal acceptability. The product has huge potential and profitability. Therefore it may be concluded that proper nurturing of mulberry silk production is required for rural development,

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