

Silk

Silk industry in India is supported by different types of silk worms. The qualities of the silk produced by these worms vary. Though there are different types of silk worms, the commercial silk are of 4 types.

Silk varieties

The different silk worms and their food plant are given in the following table.

<i>Type of silk</i>	<i>Texture/ quality of silk</i>	<i>Sp. of silk worm</i>	<i>Food Plant</i>
Mulberry	Top quality, fibres shining and creamy white	Bombyx mori	Mora alba (Mulberry)
Eri	Moderate quality creamy white fibres but less shining	Attacus ricini	Ricinius communis (castor)
Munga	Light yellowish slightly tough fibre, moderate quality.	Anthraea assama	Tetraanthera monopetala or soma plant Listea citrata or Moyankuri plant.
Tasar	Copper brown colour, among the 4 the lowest quality	Anthraea mytilla A. paphia A. royeli A. perenyini	Terminalia sps., Zizyphus jujuba (plum tree)

Physical and Chemical Properties of Silk

The silk fiber quality and quantity depends on the size and robustness of the cocoon. It is estimated that on an average a cocoon gives silk filament of 600-1200 m. To produce 1 lb. of raw silk about 2300-2600 cocoons are required. In terms of weight about 11 kg., of cocoon' may yield 1 kg., of raw commercial silk

and 1.5 kg of waste silk for spinning. The thickness of the silk filament produced by *Bombyx mori* varies from 0.018 mm.

The filaments have great tensile strength (tensile strength of silk 64,000 lb/ssq. Inch and that of iron 90,000 lb/sq. inch) and good elasticity (the silk fibre can stretch one fifth of its original length). These two properties of silk owe much of its excellence as a textile material. Silk filaments are formed of an inner core of material called fibroin covered by another substance called sericin. Fibroin constitutes about 70-80% of the filament. It is an amphoteric colloidal protein of formula $C_{15}H_{22}N_5O_6$. Fibroin when heated burns and gives the smell of burned feather. This property is used to distinguish genuine silk from artificial silk. Sericin is also a protein of albuminous nature.

Silk Production in India

Many states in India are now seriously engaged in silk production viz., in descending order of production. Status Karnataka, West Bengal, Jammu and Kashmir, Assam, Bihar, Orissa, Madhya Pradesh, Uttar Pradesh, Tamil Nadu, Punjab and Maharashtra. Karnataka state alone contributes 78% of the total silk production. India is exporting about 1/6th of her silk products to foreign countries earning valuable foreign exchange.

Uses of Silk

Silk is used mainly in the textile industry for manufacturing garments, especially in the making of women's hosiery. Due to the high investment required in the collection and production of silk, use of silk textiles has become rather a status symbol. Silk is also used in the manufacture of cartridge bags, telephone cable insulations, for dyeing, screen printing etc.