



A Monthly e Magazine
ISSN:2583-2212

March 2024 Vol.4(3),1175-1178

Popular Article

An Overview of Speciality fiber in India

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<https://doi.org/10.5281/zenodo.10891668>

Introduction

Animal fibers are fibers obtained from the hair or fur of animals, and are used in textile production to create a wide range of products such as clothing, carpets, and upholstery. Animal fibers are protein based, the complex material which most of animal body is made of. The most common animal fibers used in textile production are wool, alpaca, mohair, cashmere, camel hair, llama, angora, yak, qiviut, and vicuna. The term 'specialty fiber' denotes animal fibers used in textiles other than the wool grown by sheep. These fibers include cashmere, mohair, qiviut (musk ox), alpaca, llama, vicuna, guanaco, Bactrian camel, yak, bison, and angora (rabbit), which are generally acknowledged to have special properties of softness, smoothness, and lustre, when compared with sheep wool.

Types Of Specialty Fiber in India

There are several types specialty fibers:

All these fibers have unique properties that make them suitable for different types of clothing, accessories, and home decor. They can be spun into yarns and used to knit or weave fabrics, which can be dyed, printed, or embroidered.

1. Specialty fiber

A. Hair fiber

i. Goat family

a. Angora goat

b. Cashmere goat



- c. Cashgora
- d. shahtoosh
- ii. Camel family
 - a. Bactrian camel
 - b. Dromadarian camel

B. Fur fiber

- i. Rabbit family
 - a. Angora rabbit
- ii. Bovine family and others
 - a. Yak

Angora goat

The name “Angora” came from Ankara, Turkey. Angora goats produce “mohair” which is derived from the Arabic word “mukhaya” which means to choose or prefer. Mohair has various properties which increase their demand in market. Out of them important properties are namely; lusterness, non-flammability, durability, elasticity, moisture relation power, resistance to soiling, dyeability, tensile strength, and fineness. Mohair fiber is used in folding roofs of convertible cars. There are many other applications – in scarves, winter hats, suits, sweaters, coats, socks and home furnishings. It is also found in carpets, wall fabrics, craft yarns and may be used as an economical substitute for furs. Having resemblance to human hair, it is used as wig for high-grade dolls and customized dolls.

Cashmere

A cashmere goat is a type of goat that produces cashmere wool, the goat's fine, soft, downy, winter undercoat, in commercial quality and quantity. Cashmere hair is Chemically identical to fine wool and mohair fiber. It has higher micro fibril-packing density and low crimp. The average diameter of the fiber of such wool product does not exceed 19 microns. It has a bilateral structure, and the percentage of ortho and para cortex is 50.4 and 49.6 %, respectively.

Application of cashmere fiber

A significant amount of cashmere hair is used to make accessories, e.g., shawls, stoles, scarves, throws, and wraps. The low-grade hair is used in carpets and under felts and interlining for men’s suits and jackets (McGregor and Postle 2004; Meech 1997). It has been used as wide range of fashion products such as hand-knit scarves, mini shawls, baby hats and shoes, and neck scarves in natural colours.

Cashgora Hair

Cashgora goat is a cross-breed of the angora goat with the cashmere goat and Cashgora fleece is obtained from these goats. New Zealand is the main producer of Cashgora hair. After dehairing of the fleece, it behaves like fine wool. Their morphological features are closer to those of mohair than those of cashmere. The fiber diameter ranges from 18 to 23 μm ; and the length varies from 30 to 90 mm. They are mainly used for making lightweight suits, jackets, coats, scarves, and stoles. It is considered more suitable for weaving than for knitting (Scheurmann et al. 1990; Koztowski 2012).

Shahtoosh hair

“Shahtoosh” refers to shawls made from the hair of the endangered Tibetan chiru antelope (Pantholopshodgsoni), which yields toosh (known as Shahtoosh). Shawls from Shahtoosh hair are woven by only master artisans because its fiber fineness ranges from 7 to 10 µm. Dehaired fibers from five Tibetan antelopes or Chiru are required to make a shawl that is 2 m long.

CAMELIDAE FAMILY

Camel hair

Camel hair specifically refers to the fur from the body of a camel, but more generally refers to the fiber (and cloth) that may be made from either pure camel hair or a blend of camel hair and another fiber. Camel hair has two components: guard hair and undercoat.

The fine down fibers range in diameter from 19 to 24 microns and have a length of about 2.5 to 12.5 cm. The coarse fibers have a diameter of 20 to 120 microns and a length of up to 37.5 cm. Camel hair may be blended to create fabrics suitable for coats, outer sweaters and underwear. The long coarser hair may be used as a backing for carpets. Although most camel hair is left as its natural tone of golden tan, the hair can be dyed and accepts dye in the same way as wool fibers.

RABBIT FAMILY

Angora rabbit

Angora is a keratinous textile material, produced by the long-haired Angora rabbit. Angora fibers have medullated and hollow structure, which gives them loft and a characteristic “floating” feel. They are exceptionally soft and possess the high heat retention and best moisture-wicking properties of any natural fiber. The Angora rabbit produces three kinds of hair such as guide hair, guard hair and down hair.

Application of angora fiber

Angora rabbit hair is used both knitted and woven outerwear, ladies underwear, hosiery, gloves and knitted millinery and felt hats, although fiber shedding can sometimes present problems. Angora rabbit fiber is used for items such as sweaters, mittens, baby clothes, and millinery etc. Soldiers on duty at high altitudes require light, warm, breathable and waterproof clothing to get excellent protection from cold, wind and rain.

BOVINE FAMILY

Yak

The yak (*Poephagusgrunniens*), the lifeline of highlanders, is one of the larger members of the bovine family living in the high altitudes of the Himalayas. The yak down fiber is the fine fiber shed by the animal during late spring or early summer. This precious wool can be sourced only by hand-combing each yak individually, once a year. The hair colour in yak varies from black, brown, grey, white or a mixture of these. Yak hair is used in the industry and fibers from yak calves have been used in textile



industry for manufacturing of high-quality thick fabrics (Ghosal et al., 1993). The Chinese use the white tips of yak tails as ornamental tassels and a major use of the coarse yak tail hair is for fake beards used in Chinese opera. Other fiber like cow fiber is also available but their use is very less in amount.

Prospects of specialty fiber in India

The availability of animal fibers except sheep wool is very meagre and therefore, their marketing is not at all organized. These fibers are sold locally and used locally. However, with the efforts of some developmental agencies, the production of rabbit hair has increased in the states of Himachal Pradesh and Uttarakhand. The price of rabbit hair is also not constant and fluctuates with the price of rabbit hair in international market.

Further, with the globalization and open market approach the survival of this species and its products have to face a stiff competition in the times to come. Presently, India produces about 100 tons specialty hair fibers per year (50 tonnes Angora rabbit hair, 10 tonnes yak fiber and 40 tonnes Pashmina wool). The value of these fibers is approximate Rs. 10 crores which fetch a value of 200 crores after processing and value addition. Among animal hair fibers, the share of specialty hair is very small. Specialty hair fibers provided for less versatile and economic for most industrial applications although it is still valued for its insulating and flame retardancy properties. It finds use in several high temperature and protective clothing applications. It can be concluded that success of specialty fibers depends on the quality and productivity. Cost of production should be competitive with other countries with infrastructure for utilizing such fibers so that producer get remunerative price for their produce of specialty hair. Utilization of animal hair blends can be efficiently and profitably used in the decentralized sectors with the help of Charkha and other Khadi spinning units for enhancing small scale employment potential.

Conclusion

The market outlook for specialty hair fiber is good and can provide greater financial security. There are indications that fashion favours specialty animal hair fibers. Product and market development are priorities in various segments of the market, with developments in the furnishing textile sector holding exciting prospects for future demand. There is evidence of an increase in the use of specialty hair fibers in the production of hand knitting yarns. The introduction of new spinning technology could open new avenues for the use of specialty hair in weaving. The future prospects of these fibers, therefore, lies in exclusive, luxury niche markets, and quality conscious consumers at the very high-income level. This market segment in term of specialty hair fiber is regarded as a growing market. The specialty hair fibers have tremendous potential for encouraging the farmers revolutionizing the cottage industry and providing great scope for producing high value products by the industrial houses. It also helps conserving the endangered species of various animals, which are proved to hunting sprees. The production and harvesting of luxury fibers is difficult and labour intensive as these come from remote areas having limited availability and requires special climate. So the prices are very high.

