International Journal of Textile and
Fashion Technology (IJTFT)
ISSN (P): 2250–2378; ISSN (E): 2319–4510
Vol. 10, Issue 2, Apr 2020, 1–6

TRANS STELLAR
•Journal Publications •Research Consultancy

FUNCTIONAL ASPECT OF SPECIALITY FIBER AND ITS APPLICATION: CAMEL WOOL (CAMEL DROMEDARIUS)

DIKSHA GUPTA[1] & Dr. SHARMILA GURJAR[2]

[1]*Research Scholar, Department of Design, Banasthali Vidyapith, Banasthali, Tonk, Rajasthan, India*

[2]*Associate Professor, Department of Design, Banasthali Vidyapith, Banasthali, Tonk, Rajasthan, India*

ABSTRACT

The present study was undertaken to find out the functional aspect of speciality fiber and its application. The study was based on secondary data collection. Data is collected from journals, books, websites, newspapers, published and unpublished thesis, etc. The properties of yarn, functional aspect of yarn and application of camel wool fiber were studied. It was found that camel kid wool is finer and smoother compared to the adult camel wool and it is suitable for apparel purposes. Camel wool has a unique property which makes it a special fiber. It has a supernatural thermoplastic property for the reason that it can be used for winter garments. Felts, carpet backing, and other products are entirely warm and water-resistant which can protect humans from cold conditions.

KEYWORDS: Speciality Fiber, Dromedary Camel Wool & Functional Properties of Fiber

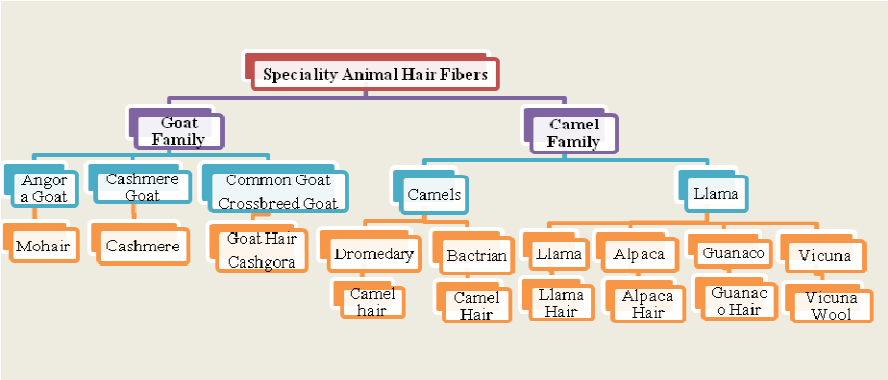
Received: Feb 08, 2020; **Accepted:** Feb 28, 2020; **Published:** Mar 18, 2020; **Paper Id.:** IJTFTAPR20201

Original Article

INTRODUCTION

The wool fiber from sheep's different breeds is by far the most widely used animal fiber. The largest group of fibers is derived from related species such as goats and camelids, categorized as hair specialty fibers and graded as "wool" under the American Wool Act. Flow chart 1 shows the animals yielding fibers. These specialties or luxury fibers are most commonly used for apparel products. These fibers are classified as hair fibers in the textile processing trade as they require special processing conditions and equipment. Cashmere, mohair, and Camelidae fibers are generally acknowledged having special properties of softness, smoothness, and luster. They also have other characteristics that influence consumer understanding of the market such as rareness, exotic manufacturing locations, and are associated with luxurious, comfortable and exclusive clothing and other items. Thus camel, goat, and other animal fibers are known as a speciality or luxury fiber.(I) Camel hair fibers are part of speciality hair fibers. These are the rare animal fibers that have unique characteristics such as luster, softness, warmth and natural color. (II) There are two types of Camels: Dromedary and Bactrian camel. The camels belong to the family of Camelidae with two subfamilies: Camel and Lama. The Camelus group consists of two species: the one-humped camel (Camelus dromedaries) also known as the dromedary and the two-humped camel (Camelus bactrianus) also known as the Bactrian camel. But in India only Dromedary camels are available. Nowadays, the upcoming trend is application and usage of Specialty hair, which is growing slowly but exponentially in India. Specialty fibers are generally expensive because of their shortage and luxurious texture. (III) Dromedary Camels, which live in hot climatic conditions mostly, do not produce long coats. Camel wool has traditionally been used into rough cloth, blankets, bags, ropes, etc. It is also used in mats, carpets, blankets, animal covers and carriage bags. (IV) Due to a lack of knowledge and conventional production processed of fiber, quality products of a commercial-grade are not

usable. There are some Non-Governmental Organizations like ***Lokhit Pashu Palak Sansthan*** in Rajasthan that are conducting income-generating activities, training on better ways to process, spinning and weaving of camel wool. Also on the other varieties of camel wool research, various scholarly works have been done and found to have enhanced the textile performance. Camel wool production is very limited and determinate efforts are needed to help this wonderful fiber emerge from the wilderness and take its rightful place in the textile universe.



Flow Chart 1: Classification of Speciality Animal Hair Fibers.

Figure 1: Dromedary Camel.

Figure 2: Wool (Camelus Dromedaries).

HISTORY OF CAMEL WOOL

Before 10,000 BC, Camel wool was a vital fiber to cloth primitive human tribes. In Mesopotamia and northern European tribes, wool was being spun and woven. The tools for spinning and weaving were very basic. (V) In the Bible, camel hair clothing is mentioned and tents, carpets and other products were developed. In the 17th century, pure camel wool and mix wool was utilized for western garments since the 19th-century. Jeager was the first fashion brand through which camel wool was popularized in clothing. A British manufacturer was specialized in woolen fabrics for coats and suits. He was famous in the U. S. in the 1920s to 1930s for the sports polo and casual coat which was worn by players in between matches. (VI) "Northwest Persian Village" is used to define the provenance of camel hair rugs, the derivation of camel hair rug can mark out in the north of Bijar (Bidjar) and south of Heriz. Camel hair rugs found were woven circa between 1910 and 1930, and are of significantly lower quality and less artistically inspired than the highly collectible antique camel hair carpets, which are generally found between 1850 and 1900. (VII)

PROPERTIES OF CAMEL WOOL

In spite of all its excellent properties, camel hair is surprisingly ideal for textile production. It has luster and softness. The yarn count of camel hair is very low, therefore, it gives very thick cloth woven as well as shorter, medium and long in

length. Camel wool is brittle in nature and it irritates human skin. Camel's hair does not have modulity and flexibility like wool. (VIII) Camel wool has a wonderful luxury quality which makes it special fiber for textile material. It has supernatural thermoplastic properties which are used for both winters and summers products and protects the humans from a cold environment. The main function of the thermoplastic property is to guard and insulate the camel from the cold conditions as well as keeping cool in the hot desert.(IX) The capacity of moisture regain content is 65 (1~relative humidity and 70°F is 15%). (IV) Property of thermal conductivity and durability has low in camel hair. (X) Undercoat's fibers are very soft and have natural shined too. The natural color of the camel is from light tan to dark brown which gives the natural color attribute to the fabric. (XI) The strength of camel hair is 1.79 grams/denier, water repellency, warmth fineness (9.55 denier), as well as lightweight. (XII)

Structure of Camel Wool

The fiber has two basic qualities: inner down fiber and courser outer hair. The diameter of inner down fiber ranges from 19 to 24 microns whereas the diameter of courser fiber varies from 20 to 120 microns. The cross-sectional view of camel hair had an oval in a circular shape (figure: 3). Scales of camel hair had an irregular mosaic pattern (figure: 4). Camel's hair had a smooth surface and a regular diameter. The cuticle of camel fiber is less dense than the length of the fiber. (XII)

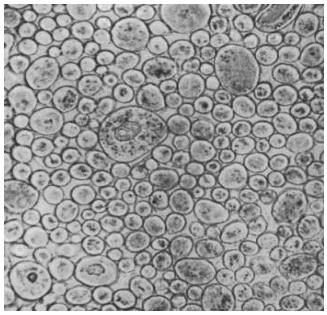


Figure 3: Cross Sectional view of Camel Hair Magnification 200x (XII).

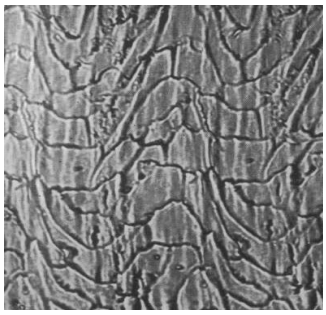


Figure 4: Scale Patterning of Camel Hair Magnification 400x (XII).

Objective

The objective of this paper is to identify the functional properties of camel wool and its application in textiles.

RESEARCH METHODOLOGY

The research methodology of this paper is based on secondary data. Data is obtained from secondary sources. Data is collected through various journals, websites, books, newspaper editorials, published and unpublished research thesis, etc.

Application of Camel Wool

Camel's hair is the meandering income of source for breeders. Some weavers are engaged in the developing of carpets and blankets in the towns of Rajsamand and Jawara in the breeding tract of Mewari. Camel hair is used for the development of mats, clothing, carpets, and other items of daily use by camel keepers and weavers. (XIII) In Rajasthan, some NGOs and other people have used camel wool ropes, saddles, carriage bags, shawls, carpets and blankets aimed at tourist, livelihood and export market. Camel hair is spun by herder's families both men and women by using Drop Spindle and Traditional Wooden Charkha. The coarser yarn is used for carpet and the fine yarn is used for blankets. Younger camel hairs are finer and shorter than the adult camel wool hair. It is more appropriate for apparel purposes, due to the rarity and special requirement of the processing as it is not used adequately. Camel wool products are not very profitable for breeders; they

put in worth by use of traditional techniques and investing their free time and preparing from its clothes, tapes and other products. (XIV) Local shepherds are used in making skirts, head drapes, blankets, shawls, and woolen lengths and also sold in city stores. It is also used for heavy products like making felt, cords, carpet backing, and rugs, blankets, winter coats which are warm and entirely water-resistant. Bedding is also a product which is made by the outer hair of camel wool and it is helpful in relieving the pain related to rheumatism and arthritis. The springy hair is generally used for the interlining and finer camel hair made into the worsted yarn for the knitwear and light weaved fabrics or products. (XV)

CONCLUSIONS

This paper concludes that camel wool has a unique property which makes it a special fiber. Due to its supernatural thermoplastic property, many warm garments, felts, carpet backing, rugs, and other products are entirely warm and water-resistant which can help humans during cold environment. Younger camel wool is more suitable for apparel purposes compared to the adult camel wool. Their undercoat's fiber has unique properties of softness and natural. Camel wool products generate income for herders and other people. Camel wool is very short and of course, it is a key source of income for herders.

SUGGESTIONS AND FINDINGS

Research can be done towards the current status of camel wool fiber and how the quality can be improved using other fibers. Traditionally, camel wool is utilized for traditional products such as blankets, carpets, rugs, ropes and others. A lot of work and research needs to be done towards the development of this specialty fiber. Due to brittleness nature of this fiber, many quality improvisations can be done.

REFERENCES

1. *DiSalvo, M. (2018, November 22). Luxury Wool and Eco-Friendly ECO WOOL Alternatives. Retrieved from https://shopvirtueandvice.com/blogs/news/luxury-wool (Accessed on 3-03-2019)*
2. *Sharma, A., & Pant, S. (2013). Studies on Camel Hair-Merino Wool Blended Knitted Fabrics. Indian Journal of Fiber & Textile Research, 38, 317-319. Retrieved from http://hdl.handle.net/123456789/21431*
3. *Harizi, T., Msahli, S., Sakli, F., & Khorchani, T. (2007). Evaluation of physical and mechanical properties of Tunisian camel hair. Journal of the Textile Institute, 98(1), 15–21. doi: 10.1533/joti.2005.0165*
4. *Khanna, N. D., & Rai, A. K. (1991). Camel Rearing in the Indian Arid Zone. Annals of Arid Zone, 30(1), 1-10. Retrieved from cazri.res.in/annals/1991/1991M-1.pdf*
5. *History of wool. (2019, Aug 04). Retrieved from https://www.iwto.org/history-wool (Accessed on 5-04-2019)*
6. *Camel hair. (2019, January 23). Retrieved from https://en.wikipedia.org/wiki/Camel_hair Accessed on (29-03-2019)*
7. *Guide to Antique Oriental Camelhair Rugs. (n.d.). Retrieved from https://www.claremontrug.com/antique-rugs-information/antique-persian-rug-guide/antique-camelhair-rugs/ (Accessed on 28-02-2020)*
8. *Ghosh, G. K. (2011). Non conventional textiles. New Delhi: A. P. H. Pub. Corp.*
9. *Introducing Wool Types (7): Camel Hair. (2019, September 2). Retrieved from https://www.woolme.co.uk/blog/introducing-wool-types-7-camel-hair/ (Accessed on 28-02-2020)*
10. *Dromedary. (2020, February 23). Retrieved from https://en.wikipedia.org/wiki/Dromedary (Accessed on 26-02-2020)*

11. *Materials & Fabrics | URBANARA UK. (n.d.). Retrieved from http://journal.urbanara.co.uk/journal/buying-guide/materials-and-fabrics/ (Accessed on 18-01-2020)*
12. *Greer, J. S. (2003). Evaluation of non-textile animal fibers for use in textile products (Unpublished master's thesis.) North Carolina state university. Retrieved from https://repository.lib.ncsu.edu/bitstream/handle/1840.16/1991/etd.pdf?sequence=1*
13. *Mehta, S. C., Bhardwaj, B., & Sahani, M. S. (2007). Status and conservation of Mewari and Jaisalmer camels in India. Animal Genetic Resources Information, 40, 87-101. doi: 10.1017/s1014233900002236*
14. *Khem, C., Jangid, BL., & Rohilla, PP. (2011). Traditional knowledge of processing and value addition to Dromedary Camel Wool. Indian Journal of Traditional Knowledge, 10(2), 316-318. Retrieved from*
15. *Jaitly, J. (2012). Crafts atlas of India. New Delhi: Niyogi Books.*