NATURAL AND SYNTHETIC FIBRES

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ABSTRACT
This article presents and analyzes information on natural and man-made fibers. A brief overview of the development of fibers from their history to the present is given. Today, as technology advances, the types of fibers are increasing and improving. Human needs require fibers to be of good quality and durable.

INTRODUCTION.

Fibers are a group of materials that come as discrete, long, elongated segments or as continuous filaments, much like thread. The biology of both plants and animals depends heavily on fibers to hold tissues together. In terms of their value to humans and contribution to the advancement of civilization, plants that produce fiber have ranked second only to those that produce food.

MATERIALS AND METHODS

Natural fibers: Natural fibers are fibers made by either plants or animals. Cotton and linen are the two top examples of plant fibers. Wool and silk are a few examples of animal fibers. They are colored naturally. If coloring is necessary, dying is a pretty simple process. Natural fabrics are typically comfortable to wear. It respects the environment. It burns and becomes ash. Compared to synthetic fibers, these fibers are hardly sometimes used.

Examples of Natural Fibers

1. Animal fibers: These are fibers made from animals. For examples wool, silk, etc.

Wool was likely the first raw material that humans converted into textiles, which is thought to have occurred during the Old Stone Age, some 2 million years ago. Wool may have been used to make fabric by the process of felting, which involves applying heat, moisture, and mechanical action to various animal fibers to create a nonwoven mat. Wool trade existed as far back as 4200 B.C., as evidenced by records and seals discovered at Tall Al-Asmar (Iraq)

Wool is a naturally occurring textile fiber that is derived from sheep, goats, and camels. Much air is trapped by it. Heat doesn't conduct well via air. This makes wool clothing practical during the cold.

Silk: A "natural" protein fiber derived from some insects, silk may be woven into textiles in various forms. The Chinese empress Hsi-ling Shih is credited with discovering how to remove the silk filament from a cocoon in 2640 B.C., which led to the development of the Bombyx

mori larva, also known as the mulberry silkworm, which produces silk. According to other reports, Japan was the first nation where silkworms were cultivated, sometime around 3,000 B.C. For over 3,000 years, the Chinese kept the art of creating silk, or sericulture, a secret; yet, it was finally spread to Japan, Persia, and India.

Made from silkworms, silk is another natural textile fiber. Sericulture is the practice of raising silkworms for silk production. The majority of the time, silk is utilized to make clothing. Tires for bicycles and parachutes are made from woven silk fibers.

2. Plant fibers: These are the ones that are obtained from plants. To create fabrics, these fibers are taken from the plants.

Cotton: one of the plant fibers used to produce clothing is cotton. It is a soft primary fiber that grows in balls around cotton plant seeds. Cotton is utilized to create soft and flexible, permeable in nature and durable textiles.

Jute: This is soft, lustrous, and spun into strong, coarse threads. Jute is a type of vegetable fiber. Numerous agricultural and industrial products needing bags, sacks, packs, and wrappings are packaged using jute fiber.

Synthetic fibers: Synthetic fibers are man-made fibers developed in laboratories. The synthetic fibers nylon, acrylic, and polyester are a few examples. Whenever required, colors can be added. Coloring is challenging. Comparing these materials to natural fibers, they are not as comfortable to wear. Due to the potentially harmful properties of some fibers, like polypropylene, it is not environmentally friendly. It dissolves when burned and releases a chemical smell. They are more durable than natural fibers.

Below there are some examples of synthetic fibers:

1.Rayon: Wood pulp is used to make it. Due of its similarities to silk, it is also referred to as artificial silk. The principal applications for rayon are in clothing, carpets, medical dressings, and insulation.

2.Nylon: The first synthetic fiber was nylon. Ropes, sleeping bags, parachutes, many kinds of clothing, etc. are all made from it. It is considered the strongest fibers that we are aware of.

RESULT AND DISCUSSION

To make you understand how natural and synthetic fibres are different from each other, here are some of the major differences between natural and synthetic fibres:

Difference between Natural and Synthetic fibres:

NATURAL FIBRES	**SYNTHETIC FIBRES**
Comes from nature	Man-made fibres
Natural colour	Colour as per requirement is added in colour bath
Chances of containing dust or impurities	No chance of any dust or impurities
Less durable than synthetic	More durable than natural

These were a few of the significant distinctions between artificial and natural fibers.

CONCLUSION

While there are arguments in favour of synthetic fibre being more sustainable in some ways, such as using less land area to produce the same amount of fabric, it is important to consider the impact on people’s health and well-being. Synthetic fabrics often contain chemicals that can be harmful to wearers and those involved in their production. On the other hand, natural fibres are generally grown without the use of pesticides or chemicals, making them more eco-

friendly. However, both types of fabric have advantages and disadvantages, and it is important to consider where and how they are sourced. Ultimately, sustainability depends on a range of factors, and each individual must weigh their options carefully.

References:

1. Hummel, E. (2005). From Natural Fibers to Man-Made Plastics. In Understanding Materials Science Part III, 326-365, DOI: 10.1007/0-387-26691-7_1
2. Hearle, J.W.S. (2008). Textile Fibers: A Comparative Overview. Encyclopedia of Materials: Science and Technology 9100-9116
3.] Grieve, M.C. (1996). New man-made fibers under the microscope – Lyocell fibers and Nylon 6 block co-polymers. Science & Justice, 36(2): 71-80.
4.] Verikios, G. (2009). Modelling the world wool market: A hybrid approach. Economic Modelling, 26)2): 418-431.
5. Biswas, W.K., Graham, J., Kelly, K., & John, M.B. (2010). Global warming contributions from wheat, sheep meat and wool production in Victoria, Australia – a life cycle assessment. Journal of Cleaner Production, 18(14): 1386-1392
6. Toms, J.S. (2002). The rise of modern accounting and the fall of the public company: the Lancashire cotton mills 1870–1914. Accounting, Organizations and Society, 27(1- 2): 61-84.
7. Toms, S. (2005). Financial control, managerial control and accountability: evidence from the British Cotton Industry, 1700–2000. Accounting, Organizations and Society, 30(7-8): 627-653.
8. https://byjus.com/chemistry/synthetic-natural-fibres/#Natural_fibres