

FIBRE TO FABRIC

INTRODUCTION

Any fabric (cloth) is made up of yarns arranged together which are further made up of still thinner strands called fibres. Thread like part in animal and vegetable tissues is called fibres. They are the raw materials that are long, strong and pliable enough to be spun into yarns and woven into fabrics.

CLASSIFICATION OF FIBRES

Natural, semi-synthetic and artificial (synthetic) fibres:

(a) Natural Fibres:

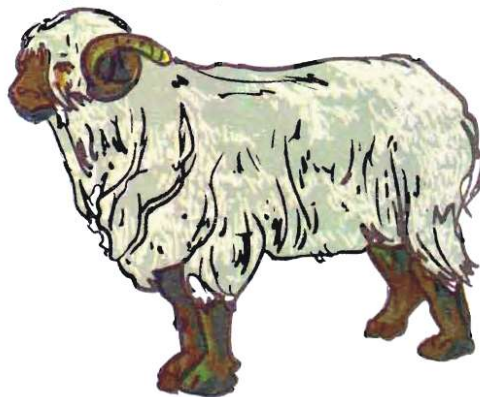
Fibres obtained from plants are called plant fibres and fibres obtained from animals are called animal fibres. Plant and animal fibres together are called natural fibres. For example cotton, jute and silk.

- Cotton is used in the manufacture of fish nets, coffee filters, tents and in book binding.
- The cottonseed, which remains after the cotton is separated from its seeds or ginned, is used to produce cotton seed oil, which after refining can be consumed like any other vegetable oil.
- The cotton seed meal (khal) that is left is generally fed to livestock.

(i) Jute: It is a long, soft, shiny plant and is one of the cheapest natural fibres. Jute fibres are composed of cellulose and lignin.

- Jute is used to make cloth for wrapping bales of raw cotton, and to make sacks and coarse cloth. Jute fibres are also woven into curtains, chair coverings, bags, carpets, hessian cloth, etc.

(ii) Wool: It is a fibre obtained from animals like sheep, lambs and goats. It is a form of hair, with a wavy structure characteristic of the breed of sheep.



Sheep with thick growth of hair

Wool comes from sheep, llama, alpaca, guanaco and vicuna.

In India, mostly sheep are reared (to bring up) for getting wool.

Sheep hair is sheared off from the body, scoured, sorted, dried, dyed, and woven to yield wool.

- **Scouring:** The fleece of the sheep along with a thin layer of skin is removed from its body. This is called shearing.
- **Sorting:** Separation of hair of different textures is called sorting.
- Fibres can be dyed in various colours, as the natural fleece (hair) of sheep and goats is black brown or white.
- The longer fibres are made into wool for sweaters and shorter fibres are spun and woven into woolen clothes.
- Wool, spun from the fleece of sheep, is versatile, durable and elastic.

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- ❑ Angora wools is obtained from angora goats, which are found in hilly areas like Jammu and Kashmir.
- ❑ Yak wool is commonly found in areas like Laddakh and Tibet.
- ❑ Wool obtained from Kashmir goat is soft and is used to weave fine quality shawls called Pashmina shawls.
- ❑ Wool is also obtained from fur (hair) on the body of camels. It is used making carpet etc.
- ❑ Llama and Alpaca, found in South America, also yield wool.
- ❑ Wool is used for making coats, suits, shawls, scarves, gloves and carpets. It traps air and so it has insulating properties.

(iii) Silk: It is a natural fibre consisting mainly of two proteins, fibroin and sericin.

- ❑ The female silk moth lays eggs, from which hatch larvae which are called caterpillars or silkworms. They grow in size and when the caterpillar is ready to enter the next stage of its life history called pupa, it first weaves a net to hold itself. During these movements of the head, the caterpillar secretes fibre made of a protein which hardens on exposure to air and becomes silk fibre. Soon the caterpillar completely covers itself by silk fibres and turns into pupa. This covering is known as cocoon. The further development of the pupa into moth continues inside the cocoon.
- ❑ The science related to silk production is called sericulture.
- ❑ Silk is considered the queen of fibres. It is used for making dress materials, sarees, scarves, jackets, gloves and carpets.
- ❑ The silk yarn (thread) is obtained from the cocoon of the silk moth. The most common silk moth is the mulberry silk moth. The silk fibre from the cocoon of this moth is soft, lustrous and elastic.
- ❑ The damaged or waste cocoons are used to produce an inferior quality of silk called spun silk.



(a) Female silkworm moth with eggs



(c) Larva (Caterpillar/Silkworm) feeding on mulberry leaves



(b) Mulberry tree



Leaf of Mulberry



(d) Cocoons

Rearing silkworms