

## Practical No. - 3

# To identify various types of fibres

### Aim

To identify various types of fibers (cotton, wool, silk and polyester), by doing

- i) Visual test
- ii) Burning test

### Introduction

You have already read about classification of fibers, and about their identification in Book 4 of Home Science. In this practical you will actually carry out these tests which will give you the knowledge of the fiber content of the fabric, which is necessary to know its suitability, use and care. Also it will protect you as a consumer in not being cheated by an imitation fiber.

The visual test, that is inspection of fiber for its appearance and hand, is always the first step in fiber identification. The following should be considered while inspecting a fabric-

- i) **Body lustre:** See whether the fabric is bright, dull, shining etc., (cotton is dull, polyester is shiny).
  - ii) **Body texture:** See if the fabric is soft, hard, rough, smooth, warm, slippery, cool, stiff, flexible, resilient etc., like cotton is rough, silk is soft and slippery, polyester is slippery etc.
  - iii) Also see the fabric weight, whether it is light, medium or heavy weight, while nylon is light weight and cotton is a medium weight fabric.
  - iv) Next thing, which you should see in the fabric, is the length of the fiber. As you have studied in the classification of fibers, natural fibers have small length and man made fibers have long length. From the fabric swatch pull out a yarn, untwist it and see the length. Natural fibers like cotton, wool are small and man made fibers are long.
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After visual test, burning test is a test which gives valuable information related to care. It helps in identification of the groups to which fiber belongs such as proteins, cellulose or man-made (regenerated and synthetics). While doing the burning test we observe following characteristics-

- Fabric approaching the flame
- In the flame
- Away from the flame – odour and residue

**Material required**

- Small swatches of fabric (3cmx3cm) of cotton, wool, silk, polyester and acrylic
- Forceps
- Candle
- Match sticks

**NOTE:** Take only pure fabrics (it should not be a blend). Also instead of fabrics you can take their yarns, silk thread etc. You will get the fabrics as well as yarns easily in the market or you can go to the tailors shop and collect the cut pieces of various fabric types. You can even use some left over fabric pieces or yarns at your home.

**Procedure**

**VISUAL TEST:** Take the cut fabric swatches and look for the properties mentioned above and note down the observations in the table given below.

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TABLE FOR VISUAL TEST

Fabric Sample	Length of fiber	Lustre	Texture	Fabric weight
Cotton				
Wool				
Silk				
Polyester				
Acrylic				

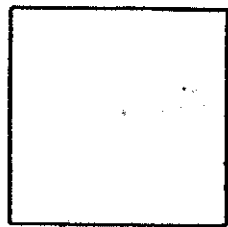
### Burning Test

For doing burning test follow the given below procedure

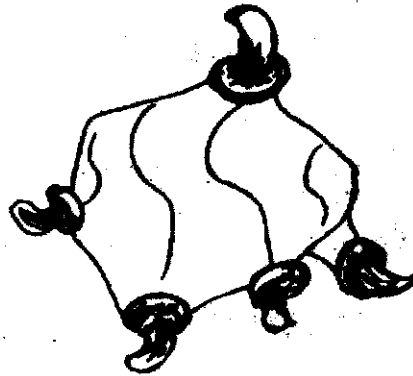
- i) Take the fabric swatch 3cmx3cm/yarn 3 to 4 cm in length.
- ii) Light the candle.
- iii) Fold the fabric/ yarn tip in a forcep, feed them slowly into the edge of the flame.
- iv) Observe the behavior as they approach the flame.
- v) Move into the flame and observe its characteristics; do the same while pulling it away from the flame.
- vi) Notice the odour given off and the ash or residue formed.

**NOTE:** Note down all the observations in the observation table.

**3. Knotting**

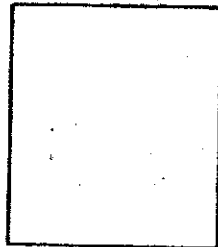


fabric

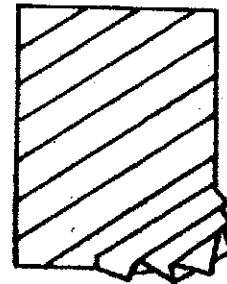
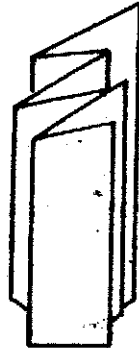


Put knots on the fabric wherever wanted and dye it.

**4. Folding**

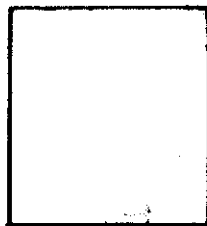


fabric

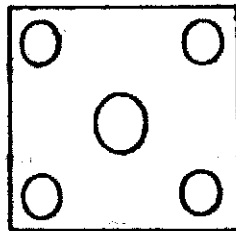


Fold the fabric in any way you like and tie it for dyeing.

**5. Clump tying**



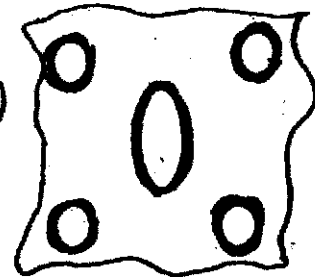
fabric



Mark the positions



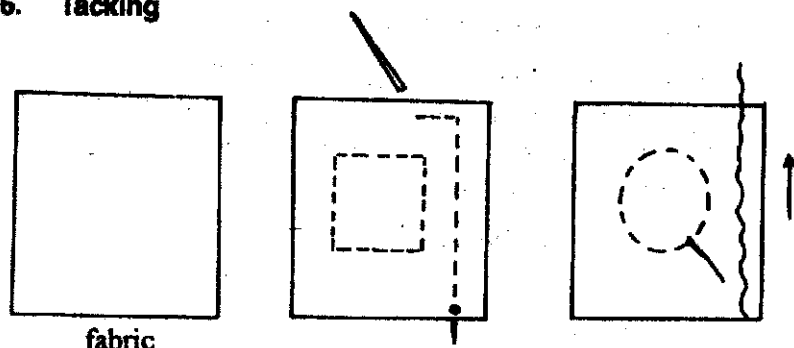
Pebbles or beads



Take these pebbles and beads + put them in fabric + then tie them

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## 6. Tacking



Make design with a running stitch

Pull the thread and tie it tight

### Material Required

- i) Thin cotton fabric (old or new, white or creamish in colour). Use any left over fabric at home or table cover. See that fabric is free of starch.
- ii) Neel, haldi
- iii) Water
- iv) Bucket (small)
- v) Thick cotton thread
- vi) Needle
- vii) Swing thread
- viii) Pencil
- xi) Scissors

### Procedure

- i) Cut a sufficiently big piece of cotton fabric at least 20cmx20cm (it can be bigger also). Cut at least 6 pieces of fabric.
- ii) Tie each fabric sample into the techniques explained above. Use thick cotton thread for tying and tie very tightly so that no colour can pass through it.
- iii) For dyeing – In this assignment you are expected to dye the samples with either neel or haldi water which is not going to give permanent effect. You will be doing such dyeing only for seeing the effect of each technique. If you want to dye with cotton fast dyes then see the procedure given at the end of the assignment.

- Dye 3 samples in one colour and 3 in the other. (3 in neel and 3 in haldi)
- Take a small bucket and fill it with water and add two table spoons of neel (indigo) and mix thoroughly. Similarly in another add two table spoons of haldi and mix thoroughly. Take care that in both the buckets water is warm and not absolutely cold.
- Put the tied samples in the buckets. Keep on stirring them and let the samples be in the bucket for 10 minutes.
- Take out the sample, let it dry in shade and then cut the threads with scissors.
- See the effects produced with various techniques.
- You can also use a combination of techniques in one sample and create various interesting effects. Similarly you can create such designs on bigger fabrics, chunni, or suit materials, table cloth etc.

For getting permanent colour effect for rayon, you can follow the following procedure.

### **Material Required**

1. Dye powder (direct dyes)
2. Washing soda
3. Salt (common salt used at home)
4. Gas burner or a good flame stove

**NOTE :** You can get the dye powder from dyer's shop or those shops selling material only for dyeing.

### **Procedure**

1. Wash the fabrics to be tied with hot soapy water and soak it overnight. Rinse, dry and iron the fabric. Then tie it in the required pattern.
  2. Take a big steel container and put water into it. The level of the water in the container should be such that the fabric tied is immersed completely (no part of the fabric should be visible above the water). Remove the tied fabric from the container—it was only put to get an estimation of the amount of water.
  3. Put one table spoon of washing soda in the water in the container and heat till it is luke warm.
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When the water in the container is luke warm, add required amount of dye paste and the presoaked tied fabric.

Raise the temperature slowly to boil. Boil for 20-25 minutes, with constant stirring otherwise it might result in patchy dyeing.

After 20-25 minutes of boiling add  $\frac{1}{2}$  table spoon of salt. While adding salt lift the fabric up, put the salt, stir well and then put the fabric back and stir. Boil for another 5-10 minutes and add another  $\frac{1}{2}$  table spoon of salt in the similar manner as before and again boil for 5-10 minutes. (Salt is added for the exhaustion of the dye on to the fabric).

**NOTE:** For checking whether the dye is completely exhausted put a tea spoon of dye water from the dyeing container on a plain white tile—and if the dye particles are visible that shows that exhaustion has not taken place. When water is of very light colour with little or no granules, shows that exhaustion of dye on to the fabric has taken place. This is the time when you can take out the fabric from the container.

4. Take the dye powder (direct dyes) in a ceramic bowl, to this add  $\frac{1}{2}$  tea spoon of salt (common eating salt) and two tea spoon of water, and make a homogenous paste.
5. The amount of dye powder varies with the shade required. For one meter fabric 5 grams. (1 tsp) of dye is required which gives us a medium shade. If a lighter shade is required add less of dye powder.

For a darker shade add more. So, if you have  $\frac{1}{2}$  meter of fabric to be dyed, you will add 2.5 g of dye for medium shade, for lighter 1.5 g and for darker 4 g.

6. Wash the tied and dyed fabric in cold tap water; by doing so any excess of dye which is superfluously attached on to the fabric is washed away.
7. Dry the fabric in tied state in the shade.
8. Once dried cut the threads and your beautiful tied and dyed article is ready. If you want to dye the fabric in two colour do not cut the threads and tie at the left over portion in the required pattern and repeat the procedure of dyeing as above.

### Precautions

- Always use used fabric which is without starch or any other kind of impurity otherwise it results into a patchy dyeing.
- Use pure fabric for above experiment otherwise colour will not come.

- Tie the thread very tightly.
  - Use warm water for better results.
  - Let the tied fabric first dry then only cut open the threads otherwise the colour will come in the area tied with thread.
  - When dyeing two or more fabric samples in the same colour put them together in one dye bath. Do not dye them separately and waste your efforts.
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