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Effects of Aromal Finish by Herbal and Conventional Methods on Woven Fabrics

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Abstract

Fragrance finishing of textile materials has been greatly expanded and used in recent years. The textiles are worn, body temperature is ideal for the growth of bacteria. The prevention of microbial attack on textile material has become increasingly important which susceptible to microbial infestation. Fragrance finishing of textiles is one of the processes which enhance the value of the product by adding various odours to it. This paper examines the effects of fragrance finished fabrics by comparing the herbal and conventional methods, the best result are tested by the performance of the fragrance and laundering properties of the treated fabrics were investigated.

Keywords: Fragrance finishes; Textile material; Herbal method; Conventional methodc

Introduction

Cotton grown without the use of any synthetic chemicals i.e., plant growth regulators, defoliants and fertilizers is considered 'organic' cotton. Cotton is the king of fibers, is one of the important commercial fiber crops, which is infested by wide range of insect pests at various stages of crop growth compared to any other crop. To remove the impurities from grey cotton textiles, some basic pre-treatments are prescribed. For instance, scouring (boiling) and bleaching are the most important chemical treatments prior to all the main treatments like coloration and finishing. Dyeing is the process that contributes substantially to textile wastes. A woven cloth consists of two sets of yarn, namely, warp and weft. An herb is a plant or plant part valued for its medicinal, aromatic or savory qualities. Fragrance finishing of textiles is one such immaculate magnanimous entry into any textile culture [1].

Aromatic not only can improve the environmental smell, be comfortable but also has sterilization, refreshing and many kinds of psychological and physical health care functions. Fragrance finishing of textiles is the process of enhancing the value of the product by adding some in lenses [2,3].

Materials and Methods

In this study, 50 combed organic cotton and cotton yarn was used for the study. The wet processing techniques used here were scouring with Spectra JET M, bleaching is done by Hydrogen peroxide and dyeing was done by package from using reactive dye. The dyed yarn was woven using Dobby loom along with plain weave structure. Then Aroma finish is applied on the fabric by conventional and herbal process [4,5].

Evaluation of the Aromatic finish by conventional method on the fabric

Application of pad and exhaust method: The fragrance smell was finished separately with some additives on the cotton/organic cotton fabric using padding mangle. Exhaust the fabric for 20minutes. After Exhausting, fabrics were dried and cured [6].

Recipe:

Appearance: Emulsion condition

Colour: light yellow

Ionic nature: Non ionic

pH: 6-7

Solubility: Easily Soluble in water

Padding method:

Dosage: 5-10 gms/liter

pH: 6.0

Dry the sample in shadow.

Procedure

The fabric was padded with Rose flavor at the room temp for 20 minutes and evaluated for the Aromatic finish [7-9].

Selection of the Medicinal Valuable Herbs: The herbal plants were identified and collected from the natural resources in a pure form. The following plant was chosen for the study flowers of Rosa damascene. The procedure begins with the selection of natural herb, which was screened and identified. The extract was tested for its Aromal activity which was done by Organoleptic Method.

Assessment of the Highest Aroma Effect of Herbal Extracts: Extraction from the Herb

Fresh flowers

↓

Boil the water

↓

Add the flowers (still it separates the Essence)

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The selected sources were cleanly and safely collected from both living area and the forest area that were grown under optimal environmental condition that is free from disease and contamination.

Filtration: Required amount of Essence is mixed with methanol; the container was closed and kept overnight. After overnight incubation, the extract was filtered through filter paper.

Evaporation/condensation: After filtering the herb extract, methanolic solvents were evaporated and the herb extract were condensed.

Application of selected herbal extracts on the fabric by herbal methods: The extract was finished on the cotton/organic cotton fabric using padding mangle. Herbs were padded on the fabric with the three roll padding machine for five minutes. After padding, fabrics were dried and cured.

Evaluation of the aromatic finish by Organoleptic method on herbal and conventional method: The male panelists were each given a control and treated sock daily during the test period. Each sock was to be worn on a specific foot. At the end of the workday, panelists reported to the lab to remove the socks, seal them in plastic bags, and receive socks for the next day. Four odour judges made odour evaluations 14 hours after removal of the socks on each test day. The judges used individual scoring sheets and new sheets were used every day of the evaluation. The odour grading scale was 0 to 10.

Evaluation of aromatic finish to compare conventionally and herbally finished fabrics by Organoleptic method: Treated fabrics were tested for the presence of Aroma smell. The rating required was a '10', '9', '8', '7', '6', '5' etc (Table 1).

Results and Discussion

The Aromal test for Qualitative method was applied on both conventional and herbal based method. Tests and analysis are done to check the efficiency of the process that has been carried out. The testing process is done by carried out for 20 washes in both fabrics to enable accurate evaluation of the study. The following tests were carried out to find out the effectiveness of the Aromal finish and compared by the fastness properties of the fabric.

Interpretation

0-Repulsive, 1-Very Poor, 2-Poor, 3-Poorly Fair, 4-Fair, 5-Acceptable, 6-Fairly Good, 7-Good, 8-Very Good, 9-Excellent, 10-Ideal (Figure 1)

S.no	Samples	Aromatic effect (Out of 10%)
1.	Rose flavours	7.3
2.	*Rosa Damascena*	8

Table 1: Organoleptic evaluation of odor control-After 48 hrs (In house Method).

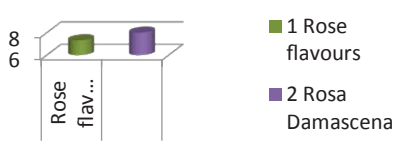

Figure 1: Aromatic effect comparison.

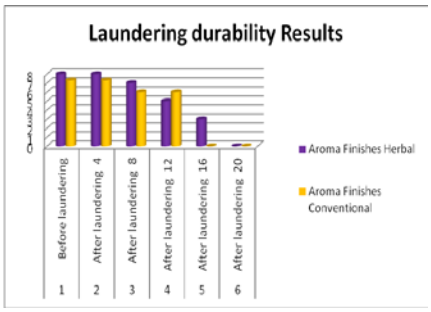

Figure 2: Laundering Durability test.

S.no	Samples	Aroma Finishes(10%)	
		Herbal	Conventional
1.	Before laundering	8	7.3
2.	After launderings 4	8	7.3
3.	After launderings 8	7	6
4.	After launderings 12	5	6
5.	After launderings 16	3	0
6.	After launderings 20	0	0

Table 2: Laundering durability was tested according detergent solution for 25 minutes at 30°C.

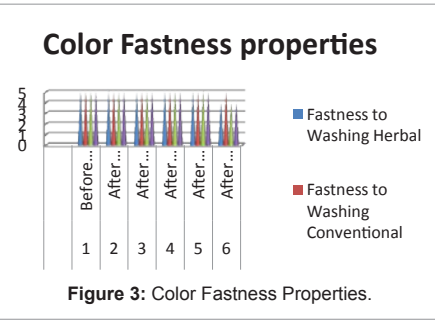

Figure 3: Color Fastness Properties.

s. no	Samples	Fastness to Washing		Fastness to pressing	
		Conventional	Herbal	Herbal	Conventional
1	Before laundering	5	5	5	5
2	After launderings 4	5	5	5	5
3	After launderings 8	5	5	5	5
4	After launderings 12	5	5	5	5
5	After launderings 16	5	5	5	5
6	After launderings 20	4	5	4	4

Table 3: The color fastness test was carried out by Washing and pressing.

Laundering durability test

Laundering durability was tested according detergent solution for 25 minutes at 30°C. Samples were rinsed with abundant water and air dried (Figure 2, Table 2).

Color fastness properties

The color fastness test was carried out by Washing and pressing. A specimen of textile material was rating by using grey scale. The change in color of the specimen and the staining of the adjacent fabrics are assessed with the standard grey scale (Figure 3, Table 3).

1-Very Poor; 2-Poor; 3-Moderate; 3/4-Fair; 4-Good; 4/5 Very good; 5-Excellent

Conclusions

This research work has given a new idea in finishing of cotton and organic cotton with herbs for Aroma activity (Rosa Damascena). The treated fabrics were found to be very hygienic with less fungi and Bacteria. This can be also proved by Testing of Color fastness and Laundering durability test when compared to conventionally Aroma finished fabrics. The fragrance finished textiles are very new in the current market and they have gained the much more importance in day to day life.

Finally based on the overall performance it is concluded that the fragrance finished Rosa Damascena herbal finished fabric is better than that of conventionally finished fabric. These types of finished were mainly used during summer seasons.

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