A STUDY ON FRAGRANCE FINISH ON BAMBOO WEFT KNIT FABRIC

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ABSTRACT

Innovative fragrance finish on Bamboo fabric

New textile technologies have enabled the application of cosmetic ingredients on fabric to provide its functional benefit to the end-use product and therefore, cosmetic textiles are moving from research to the stage of commercialisation. Fragrance finish is one such finish that falls under this category.

A fragrance is made from a pleasant smelling aroma compound. Aromachology is a science that studies the effects of fragrances on the human body and mind. It researches how scents can be used to induce relaxation and make life more pleasant.

Finish was prepared and applied by two methods. Tests were conducted to check the performance properties of fragrance finish and the effect of finish on physical properties and mechanical properties of the fabric for unwashed samples. Comparative analysis of the two finishing application methods was done.

Keywords: Bamboo fabric, knitted, fragrance finish, citronella oil, padding mangle

1 INTODUCTION

Fabric Sourcing is on the selection of knitted fabric material of bamboo knitted single jersey fabric with 40’c. Bamboo fibre is a regenerated cellulosic fibre produced from bamboo. Starchy pulp is produced from bamboo stems and leaves through a process of alkaline hydrolysis and multi-phase bleaching. Further chemical processes produce bamboo fibre.

It is softer than cotton , with a texture similar to a blend of cashmere and silk. As the cross-section of the fibre is filled with various micro-gaps and micro-holes, it has much better moisture absorption and ventilation. Moisture absorbency is twice than that of cotton with extraordinary soil release. The natural antibacterial elements in bamboo fibre keep bacteria away from bamboo fabrics. Garment of bamboo fibre can absorb and evaporate human sweat in a split of second just like breathing. Such a garment makes people feel extremely cool, comfortable and never sticking to skin even in hot summer.

Fragrance finishing is the process of imparting aroma in any textile substrate. The human body generates sweat during various conditions of activity leading to sensory and thermal excitation. The bacterial contamination of sweat results into foul smell and stains which can generate from various parts of the body

like armpit, back and forehead. Hence, fragrance finishing on textiles is one of the processes which enhance the value of the textile products by adding various odours to it.

Citronella oil is an essential oil that's made from the distillation of the Asian grass plant in the Cymbopogon genus. This fragrant grass got its name from the French word meaning "lemon balm," due to its floral, citrus-like aroma. citronella oil is probably best known as a natural insect repellent, but its uses and benefits extend beyond keeping bugs at bay.

Citronella needs to be reapplied often to be an effective mosquito repellent. However, it may provide protection for up to three hours if it is combined with vanillin. Studies show that it is not as effective as DEET at keeping mosquitos away.

1.1 OBJECTIVES

1. Selection of fragrance finish with citronella oil.
2. The process of infusing fragrance finish with spray and padding mangle methods.
3. Testing of fragrance finished sample.

2 METHODOLOGY

Fragrance used: Fragrance oil: Citronella oil

Solvents: Silicon Softener, Propylene glycol, Acetic acid

Fabric: Plain jersey knit modal fabric was used for the study.

Finish application was done by two methods

- Spray method.
- Padding mangle method with silicon softener.

Finish application by spray method

10% fragrance was applied by dissolving the jasmine fragrance (oil soluble) in 50% propylene glycol to make it soluble in water and finally by spraying on to the finished fabric by means spray gun using a pressure of 4 kg/cm^2 with the distance of 40 cm followed by air drying.

INGREDIENTS	RATIO	RATIO USED
Propylene glycol	50%	60 ml
Water	50%	60 ml
Fragrance oil	10%	12 ml

Finish application by padding method with silicon softener

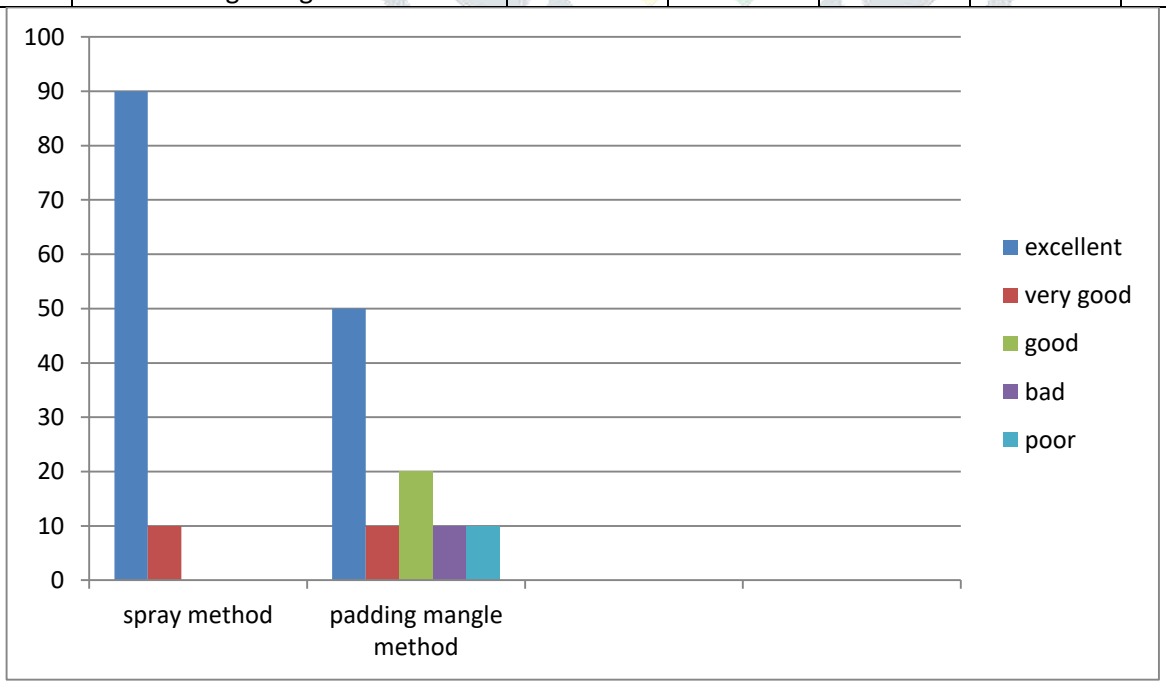
Silicon softener and the fragrance solution prepared earlier for spray method were mixed to a mixture. This solution needs to be mixed very well. Water was added and mixing was done to ensure a good dispersion. pH was adjusted to 5.5 with acetic acid. After this the fabric was dipped into the solution and was passed through padding mangle for one dip and one nip. Sample was dried and cured.

Silicon softeners are finish applied onto fabrics to give it a softer feel. In a study it was revealed that silicon softener causes higher encapsulation of fragrance than cationic and non-ionic softeners and improves the wrinkle recovery of the fabric.

INGREDIENTS	RATIO	RATIO USED
Fragrance solution	9 times	1180 ml
MLR	1:10	1180 ml
Temperature	<40° c	<40° c
pH value	5 – 5.5	5 – 5.5
Time	1 dip/ 1 nip	1 dip/ 1 nip

1. Rate the smell of the fabric on spray method and padding mangle method.

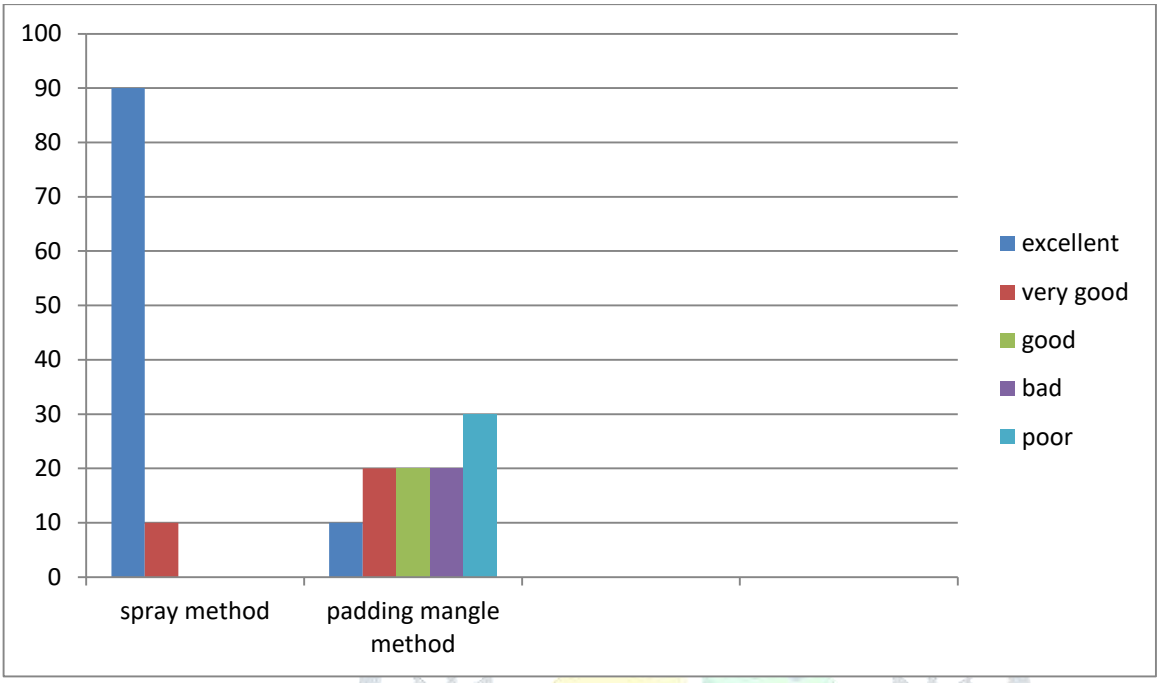
S.No	QUESTIONS	EXCELLENT	VERY GOOD	GOOD	BAD	POOR
1	Rate the smell of the fabric on Spray method	90	10	-	-	-
2	Rate the smell of the fabric on Padding mangle method	50	10	20	10	10



Thus, the values of the smell of the fabric on spray method is higher than that of the smell of the fabric on padding mangle method.

2. Which smells better, spray method or padding mangle method?

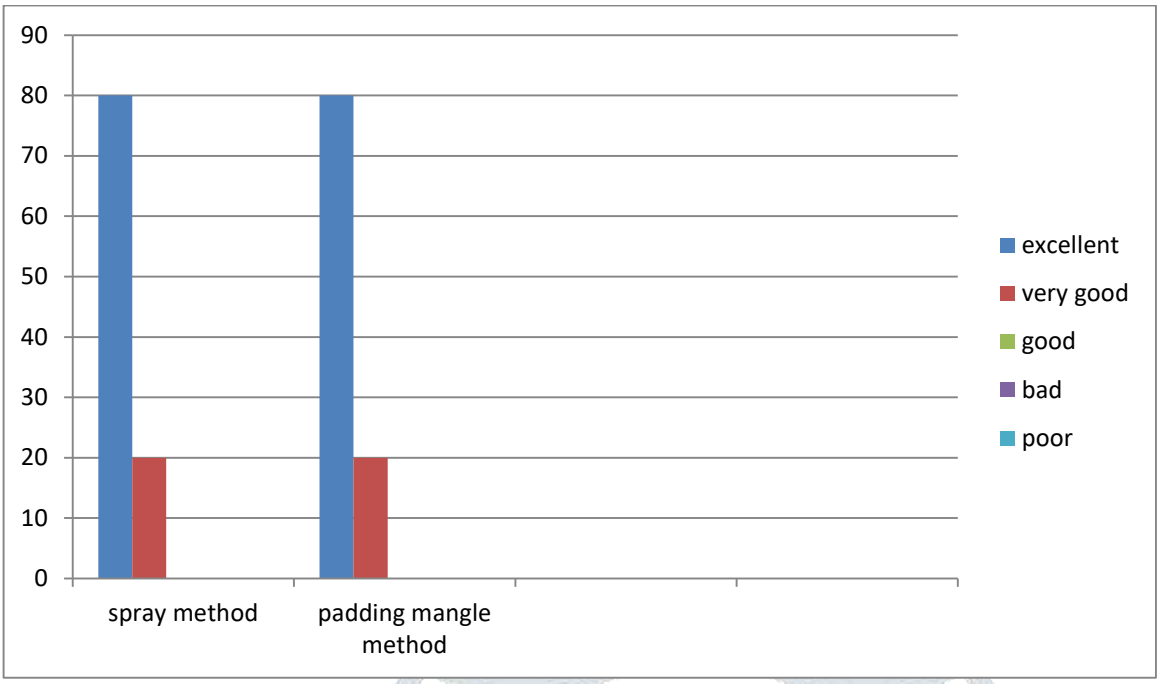
S.No	QUESTIONS	EXCELLENT	VERY GOOD	GOOD	BAD	POOR
1	Spray method fabric smells better than padding mangle fabric	90	10	-	-	-
2	Padding mangle fabric smells better than spray method fabric	10	20	20	20	30



Thus, the smell of spray method is the best when compared to padding mangle.

3. How the fabric feels on spray method and padding mangle method?

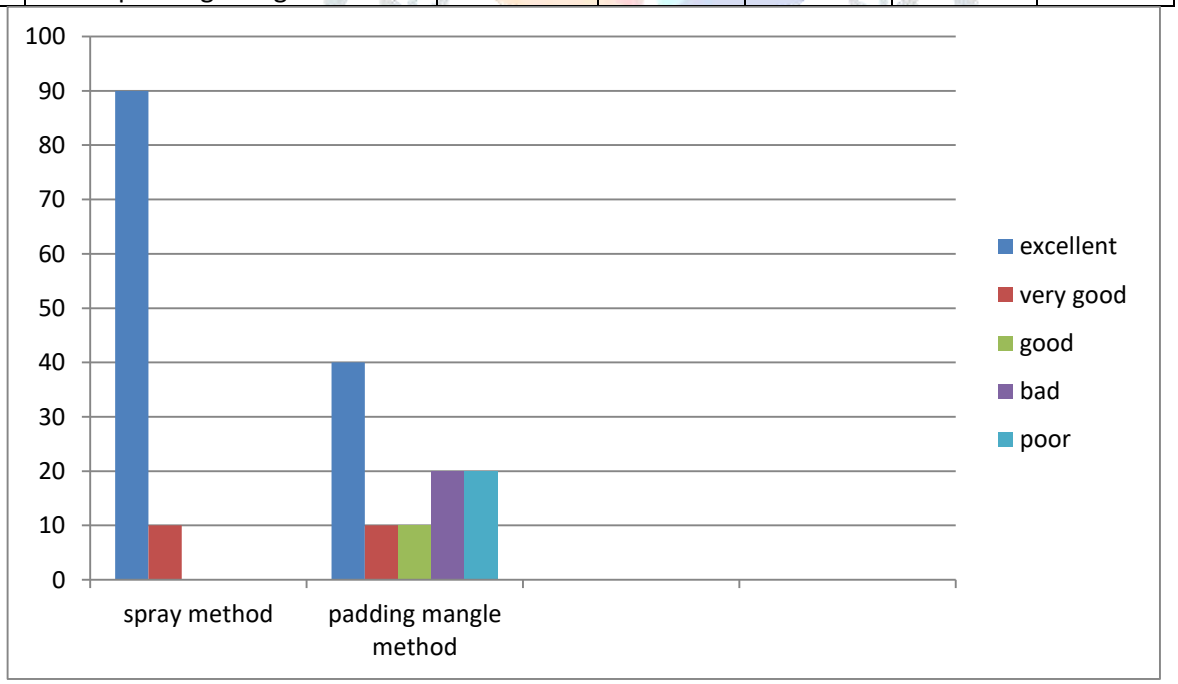
S.No	QUESTIONS	EXCELLENT	VERY GOOD	GOOD	BAD	POOR
1	Acceptance of fragrance finish With spray method	80	20	-	-	-
2	Acceptance of fragrance finish With padding mangle method	80	20	-	-	-



Both seems to have the same texture when tested for its feel.

4. Acceptance of fragrance finish idea by the respondents

S.No	QUESTIONS	EXCELLENT	VERY GOOD	GOOD	BAD	POOR
1	Acceptance of fragrance finish With spray method	90	10	-	-	-
2	Acceptance of fragrance finish With padding mangle method	40	10	10	20	20



Thus, spray method seems to be more fragrant than padding mangle method.

3 SUMMARY AND CONCLUSION

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New textile technologies have enabled the application of cosmetic ingredients on fabric to provide its functional benefit to the end-use product and therefore, cosmetic textiles are moving from research to the stage of commercialisation. Fragrance finish is one such finish that falls under this category.

A fragrance is made from a pleasant smelling aroma compound. Aromachology is a science that studies the effects of fragrances on the human body and mind. It researches how scents can be used to induce relaxation and make life more pleasant.

Finish was prepared and applied by two methods. Tests were conducted to check the performance properties of fragrance finish and the effect of finish on physical properties and mechanical properties of the fabric for unwashed samples. Comparative analysis of the two finishing application methods was done.

On comparing the two techniques put to test, we can conclude that padding mangle is the best method of fragrance application on fabrics. With this method, the fragrance sustained for number of days and more number of washes. Even after the finishing is applied on the knitted bamboo fabric, the physical properties of it remains the same without any changes which makes it more suitable and likable to use.

The spray method showed good results in all the physical tests than the spraying method. Padding mangle method is not a reliable method of finishing when compared to spray technique. This is because it gives a low fragrance deposition and an average performance on physical tests done.

The citronella finished bamboo fabrics serves as a remedy for bad odours, protection against mosquitoes, a mild fragrance provider and is eco-friendly too. Many studies conducted on bamboo fibres have proven that bamboo is an eco-friendly, anti-microbial fibre and possess all suitable properties for apparel and home textiles. In the study, the finish was applied on bamboo fabric which is a revolutionary new fabric with all unique characteristics, thus we conclude that this combination of unique fabric with innovative finish like fragrance can be of great consumer worth.

Bamboo knitted single jersey fabric with 40’s count was selected for giving fragrance finish with citronella oil. The bamboo knitted fabric was tested for before finish with physical and mechanical tests followed by yarn count, loop length, coarse per inch, wales per inch, thickness, GSM for physical test and abrasion test, busting test, drape test for mechanical test was carried out.

Citronella oil was selected for giving fragrance finish on bamboo knit single with 40’s count which gives pleasant fragrant smell and as well it’s a mosquito replant and insect replant.The process of infusing fragrance finish with spray and padding mangle methods was carried out for giving fragrance finish on bamboo knit fabric. Where spray method was done by spray bottle and padding method with padding mangle machine.

After finish test was done with testing of fragrance finished sample of rub test, manual test, wash test and questioner method and analysis as done.

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