

Application of Acid: For Designing on Cotton Khadi and Khadi Blend Kurties

¹Mamta Kandpal, ²Deepika Sah, ³Dr. Vinay Kumar Gunwant, ⁴Dr. Akhilesh Upadhyay

^{1,2}Department of Home Science, Banasthali Vidhyapith, Newai, Rajasthan, India

³Department of Commerce, MBPG College, Haldwani, Kumaun University, Nainital, Uttarakhand, India

⁴Department of Commerce, Shri Ji Baba Saraswati (V.P.) Mahavidhyalay, Mathura Uttar Pradesh, India

Abstract –

In this study investigator has tried a new designing on Khadi kurties by creating acid designing so as to promote Khadi in youth. The suitability of acid % for designing on Cotton khadi, Cotton-Silk khadi and Cotton-Polyester Khadi fabric was also studied. The objective behind this work was to explore new avenues of designing on Khadi fabric for providing variety to the consumers. To fulfil this objective, Acid designing method was used to create acid design effect. The present work has gone through various steps, firstly the Khadi and Khadi blend fabric was treated with different concentration of Sulphuric acid (H_2SO_4) at different time intervals. After application of acid, three types of designing effect were seen onto the different fabrics. Transparent effect on cotton- polyester khadi, cut work effect on cotton khadi and floating effect on cotton silk khadi was obtained.

Keywords- Khadi, acid designing, blend fabric,

I. INTRODUCTION

Concept of KHADI was developed by Mahatma Gandhi during independence. Khadi is also known as *khaddar*. It is made by spinning thread on *charkha*. Various kinds of dress material, home furnishing and other product are manufactured by khadi cottage industry. Due to industrialization and modernization, the fashion is changing rapidly; it brings innovative changes and creation of new designs. Khadi industry is also under continuous pressure to meet growing consumers' aspiration and demand through constant product innovation, improved quality and competition.

In the present study khadi fabrics will be designed with a different designing technique called as acid design to promote the use of khadi as it is our national heritage. It starts with a chemical paste commonly containing sulphuric acid which is applied to the fabric to create the desired pattern on predetermined area. The acid eats away the fibers, leaving the fabric sheer behind. The fabric is rinsed to remove the acid, which does not comprise the integrity of the garment. Careful planning of the fiber content and arrangement is essential for satisfactory results.

Acid treatment on cellulosic fabric causes it to become transparent or sheer where it is applied. This technique uses such chemicals that dissolve cellulosic fibers from textile that is woven from mixtures of fibers. Fabric may be of cotton or composed of two different yarns or fibers. It is also known as *devore* or *burnout*. *Devore* is the process that has been used in the fashion industry. Originally *devore* was known as "poor man's lace" and was called "Broderie Chimique". Acid design (*burnout*) is done basically on blend fabrics composed of cellulosic/synthetic blends and cellulose/protein blends. Acid finishes produce transparent or parchment like fabric with permanent stiffness when treated with sulphuric acid. Fabric is immersed in acid under controlled condition for very short period of time and then quickly neutralized to avoid any damage to the fabric for example *organdy fabric*.

II. OBJECTIVES

The main objective of the study is to create designs with the help of acid application:

- To determine a suitable percentage of acid for designing on Khadi and Khadi blends.
- To design and develop kurtis of Khadi and Khadi blend with suitable percentage of acid.
- To evaluate the acceptability and marketability for designed kurtis.

To fulfil the objectives, a sample of 100 respondents was selected from Pantnagar University for the evaluation of sheets and 100 respondents were selected from Banasthali Vidyapith for the evaluation of prototypes. Random sampling technique was used for the selection of respondents.

III. MATERIAL AND METHODOLOGY

The study was conducted in Banasthali Vidyapith. In order to get better understanding about suitability of acid applications is techniques which develop a new range of fashion garments. The study was conducted in Pantnagar University for the evaluation of sheets and Banasthali Vidyapith for the evaluation of prototypes. A sample size of 100 respondents was selected with the help of Random sampling technique was used for the selection of respondents. Commercially available fabrics i.e., Cotton Khadi fabric, Khadi polyester fabric of 68:32 and Khadi silk fabric of ratio 50:50 were used in the study. Sulphuric acid was used in different concentration :

- For Khadi fabric - 60%, 70%, 80%
- For khadi polyester fabric- 60%, 70%, 80%
- For khadi silk -50%, 60%, 70%

Sodium hydroxide was used for neutralization.

Firstly samples were prepared on different concentration of acid at varying time intervals. Three types of effects were achieved as transparent effect, floating effect and cut work. Samples were evaluated on the basis of transparent effect and sharpness of outlines. 14 sheets were prepared on the basis of samples evaluated using bold floral and geometric pattern. Out of these sheets, 5 sheets were selected on the basis of preference of design and preference for arrangement with the help of 100 respondents. Five point rating scale was used to collect the data. Then selected sheets were developed in prototypes through hand brush technique. Finally 100 respondents did the evaluation of designed prototypes

IV. RESULT AND DISCUSSION

A. Determination Of Suitable % Of Acid For Designing

Determination of Suitable % of Acid for designing

Table I. Cotton-polyester Khadi blend fabric, treated with 70% Sulphuric acid at the time interval of 5 min showed best result

% of acid	60%			70%			80%		
	5 min	10 min	15 min	5 min	10 min	15 min	5 min	10 min	15 min
Transparency	1	3	2	3	1	2	1	1	1
Sharpness of outline	1	2	3	3	1	1	1	2	1

Table II. Cotton Khadi fabric, treated with 80 % Sulphuric acid at the time interval of 5 min showed best result

% of acid	60%			70%			80%		
	5 min	10 min	15 min	5 min	10 min	15 min	5 min	10 min	15 min
Sharpness of outline	1	1	1	2	1	1	3	1	1

Table III. Cotton-silk Khadi blend fabric, treated with 50 % Sulphuric acid at the time interval of 5 min showed best result

% of acid	50%			60%			70%		
	5 min	10 min	15 min	5 min	10 min	15 min	5 min	10 min	15 min
Transparency	3	2	1	1	1	1	1	1	1
Sharpness of outline	3	3	1	1	1	1	1	1	1

B. Evaluation of the motif and its Placement

It was seen that sheet no.13 was given highest preference as it got maximum scores and ranked 1st. Next preferred sheet was sheet no.9 which was ranked 2nd, sheet no.3 got 3rd and sheet no.7 and 8 got 4th and 5th rank respectively.

Preference for the motif for designing Kurties

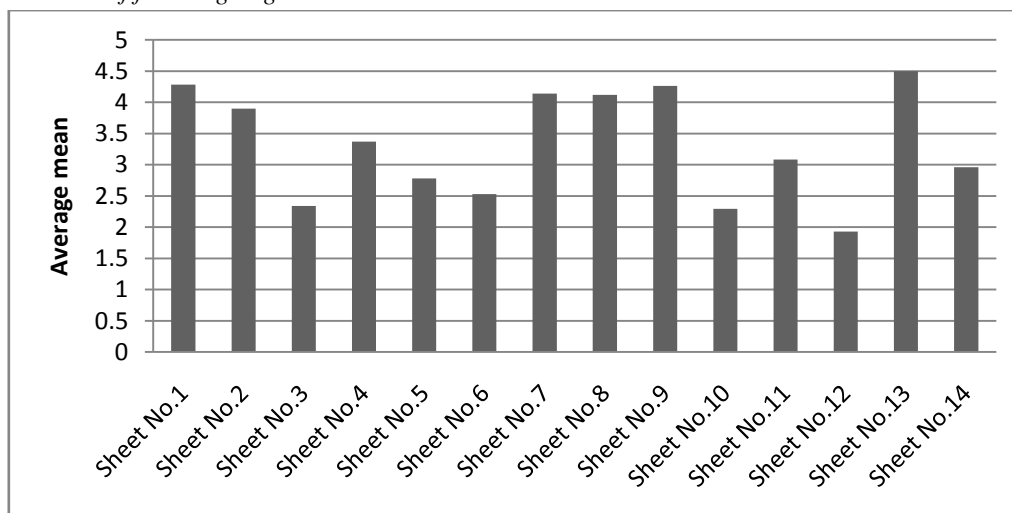


Fig 1: Evaluation of Sheets

The data in the above graph reveals that sheet no.13 was given highest preference as it got maximum score and ranked 1st. Next preferred sheet was sheet no.9 which was ranked 2nd, sheet no.3 got 3rd and sheet no.7 and 8 got 4th and 5th rank respectively. These five design sheet were taken for the development of prototypes of Kurties.

Preference for Arrangement

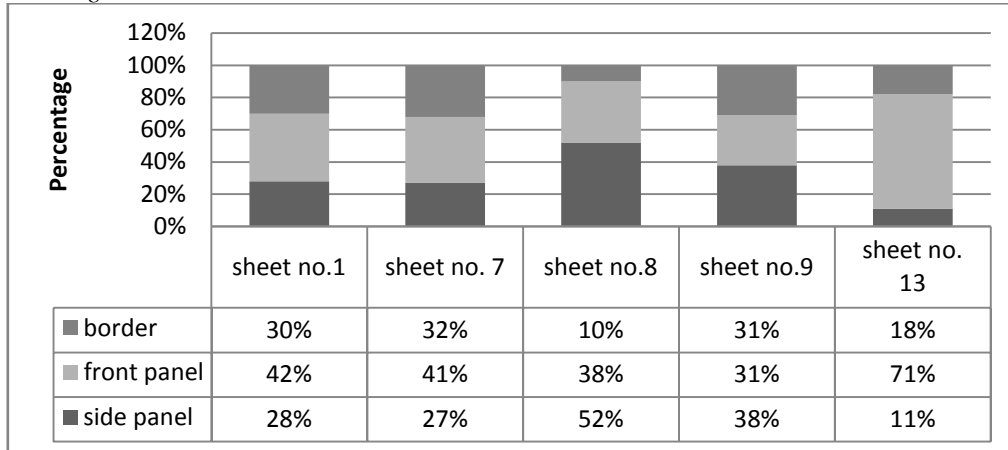


Fig 2: Preference for Arrangement

The above graph shows that for Sheet no.13 front panel got highest preference, for Sheet no.9 side panel got highest preference and for Sheet no. 1, Sheet no. 7 and Sheet no. 8 got front panel, side panel and side panel highest preference respectively

C. Evaluation of the prototypes

Prototypes were evaluated on the following criteria i.e., acceptability to wear, cost preference, color combination, aesthetic appeal and suitability of embellishment. It was found that all the prototypes were liked by the respondents. It was also found that the responses from respondents for all prototypes were found to be very good to excellent. Analysis of consumer acceptance for designed Cotton Khadi kurties with cut work indicates to be the best preferred.

Rating Of Kurties On The Basis Of Colour Combination

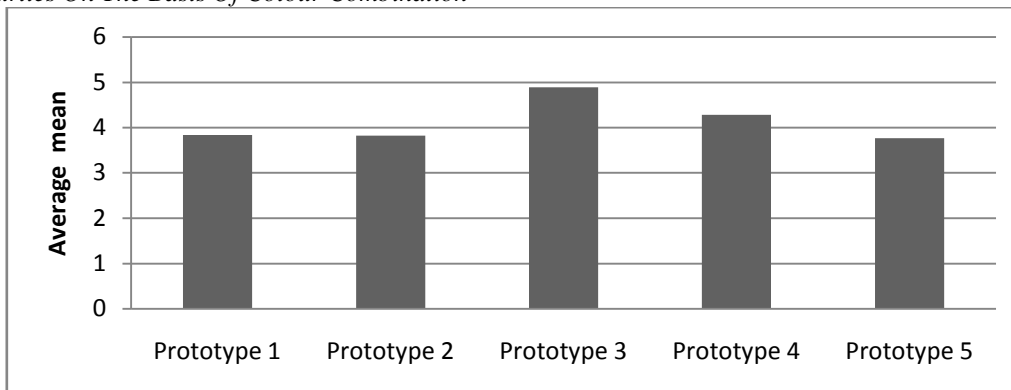


Fig 3: Color Combination

Figure shows that the prototype no. 3 and 4 got very good to excellent result for color combination. Color combination of prototype 1, 2 and 5 was also liked by the respondents. Prototype 3 was found to be most appealing on the basis of colour combination

Rating Of Kurties On The Basis Of Aesthetic Appeal

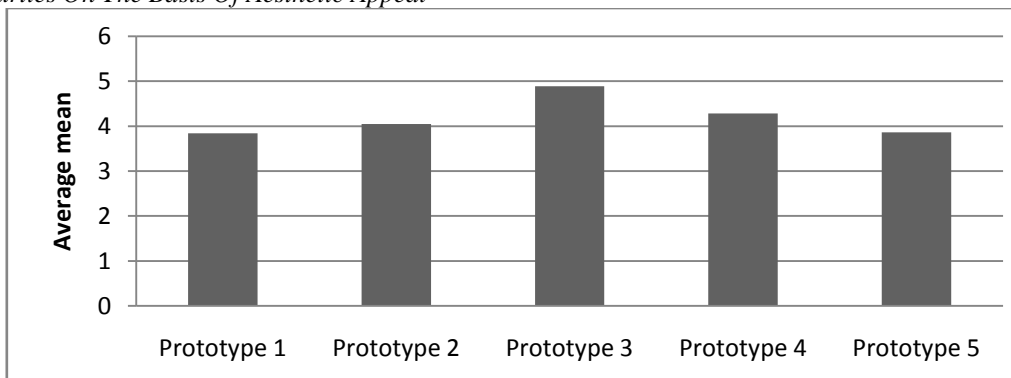


Fig 4: Aesthetic Appeal

Figure shows that all the prototypes were found appealing to the respondents. Prototype 3 got highest response on the basis of aesthetic appeal

Rating Of Kurties On The Basis Of Suitability of Embellishment

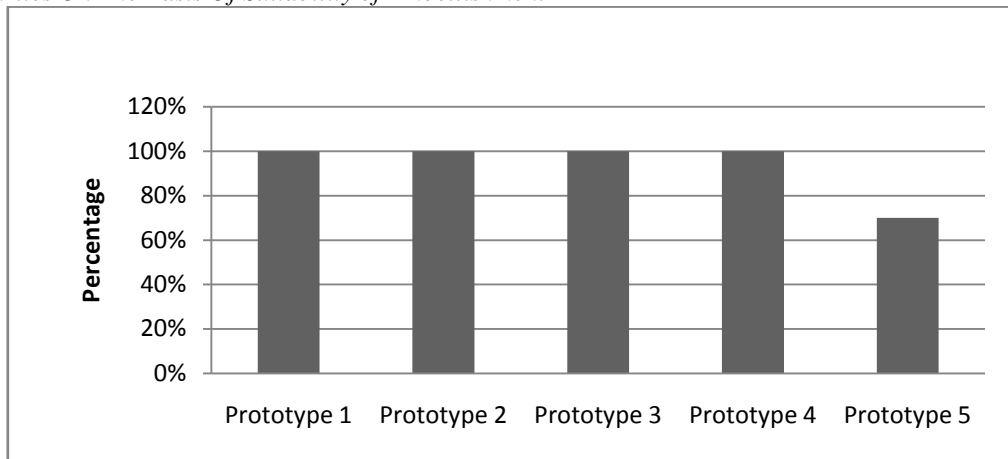


Fig 5: Suitability of Embellishment

Figure shows that the respondents accepted the embellishment techniques of all prototypes. But prototype no.5 got lowest acceptance for the embellishment.

Rating Of Kurties On The Basis Of Acceptability To Wear

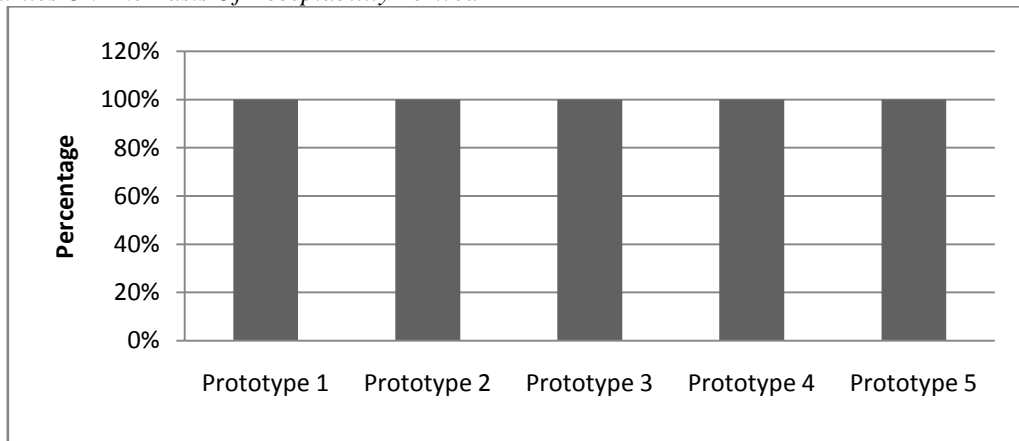


Fig 6: Acceptability

Figure shows that the all prototypes were accepted by the respondents. They were ready to purchase and wear those kurties, designed with acid.

Cost Preference For Developed Kurties

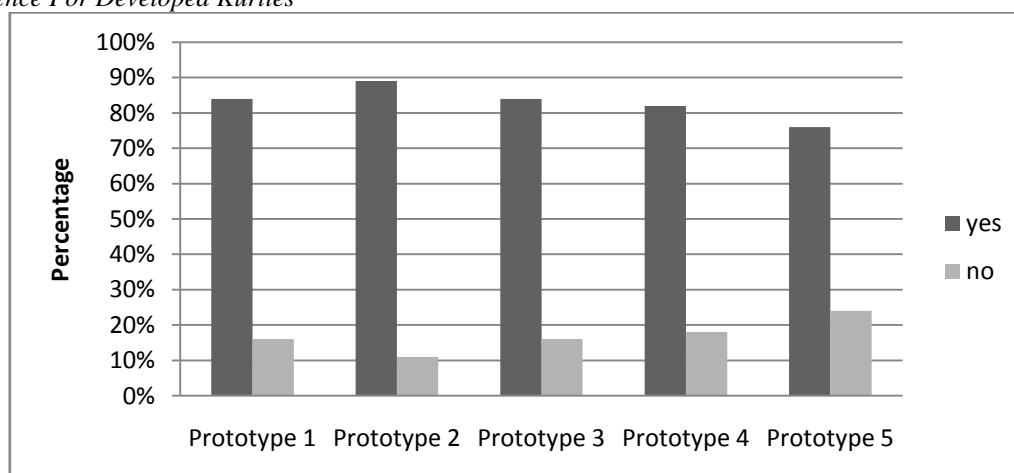


Fig 7: Cost Preference

Figure shows that 89% respondents were agree to purchase such kurties with their respective price. Prototype 2 got highest percentage of marketability. Costing of kurti was done by following method: Raw material cost+ labour cost+overhead charges and 20%profit.

V. CONCLUSION

On the basis of the findings of the study, it can be concluded that acid designing was proved to be an innovative step for creating designing on khadi and khadi blends. All the prototypes designed with acid, were liked by the respondents. They appreciated that creative designing for the promotion of Khadi.

ACKNOWLEDGEMENT

The authors are thankful to Miss Prasansha Sharma, Department of Clothing and Textile, Banasthali Vidhyapith, Newai, Rajasthan –India for her keen interest, guidance and support.

REFERENCES

- [1] S. Sekhri; Textbook of Fabric Science: Fundamentals to Finishing, PHI Learning Private Limited; page 215.
- [2] M Singer (2007), Textile Surface Decoration, A and C Black Publishers Limited, London, Page: 35.
- [3] I Lee, Fabric etching; Small printed limited, page no.96.
- [4] L Operah , Illustrated Dictionary of Textiles, published by Lotus Press New Delhi(2006), Printed at Saras Graphics Delhi, page no. 27-28.
- [5] Karla J. Nielson, Interior Textiles: Fabrics, Application, and Historic Style, Wiley publication, Page no.103.
- [6] <http://www.khadigramodyogbassi.org/khadi.php>
- [7] http://en.wikipedia.org/wiki/Finishing_%28textiles%29