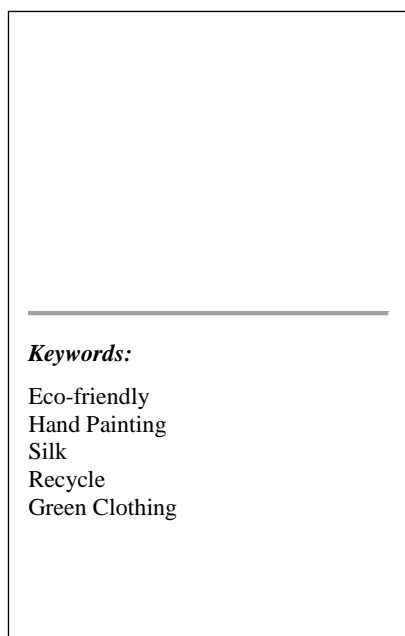


## **Green Clothing “ECO-FRIENDLY HAND PAINTED SILKS”**

**Prof. (Dr.) Sandhya Ravi  
Dr.K.Purnima**

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### **Abstract**



**Keywords:**

Eco-friendly  
Hand Painting  
Silk  
Recycle  
Green Clothing

The growing concerns about environmental issues are playing an increasingly important role in the textile industry. The use of eco-friendly dyes as one of the means to create hand painted silks to protect the environment. The study aims at bringing technology redefining health by painting silks with eco-friendly dyes with different green solvents/buffers with limitless variety of exciting designs. The techniques used here are easy, simple and can be finished at home which do not cause harm to Health, environment and ecology. While hand painting silks care was taken to convert the dyes into paints which were not carcinogenic. The objective was to study the effects of different solvents/buffer medium with eco friendly dyes, its visual effect on silk fabric. The consumer acceptance was carried out through a survey, the tool being questionnaire. 7 samples were hand painted with different techniques and were tested for colour fastness to washing, rubbing (dry and wet), sunlight and perspiration. Under privileged women were trained and it was found that the method was easy and they could earn a living to support their family. These hand painted eco-friendly green products with sustainable designs have created awareness among people to protect health and environment. Green Clothing will provide a new market for additional job opportunities, continuous net flow of money in the economy, and the reduction of raw materials and virgin resources. This led to the principle of REDUCE-REUSE-RECYCLE. Eco-friendly Green Fashion is not a FAD anymore.

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### **Author correspondence:**

**Prof. (Dr.) Sandhya Ravi<sup>1</sup>**

Principal, Nitte School of Fashion Technology & Interior Design, Bangalore  
Bangalore University, Karnataka, India

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### **1. Introduction**

It is well known and perfectly understood that the environment is the basis of life and also the economy. The threat to the environment using chemical dyes has led to stressing need for Environmental friendly dyes. It is interesting to note that India is one of the few civilizations to perfect the hand crafted art on cloth. The need for Eco-friendly green clothing have emerged due to the increasing interest manifested in protecting the environment from toxic effluents resulting from the use of synthetic dyes. Hand painting on silks is extremely popular art form in India and one can find a wide range of exciting designs. Designs are painted to add beauty in contemporary style to create green clothing and eco-awareness. The diversity of techniques gives the

freedom to experiment with different eco-friendly colours to develop Green Clothing. The present study focuses on use of ecofriendly dyes using different hand painting techniques on crepe silk, chiffon silk to create green clothing and also in empowering under privileged women by training them to develop the designs that are sustainable.

### **Objective of The Study**

- To study the effects of different solvents/buffer medium with eco-friendly dyes
- To evaluate the acceptability and economics of each method.
- To introduce adaptable appropriate method to add value to create Green products.
- To Transfer the above methods and train underprivileged women for self-employment

### **Scope of The Study**

Hand painting emphasis free expression, improved methods of reproducing ecofriendly hand painted textiles through the medium of silks and ecofriendly dyes is the demand of textile and green clothing is the need of the hour.

Hand painting on silk with ecofriendly dyes is now an extremely popular art form and one can create a wide range of beautiful and exciting designs. Silk Painting is creating art on fabric. Hand painting has been one of the most popular creative art forms from times immemorial. Eco friendly hand painted silks creates an interest, add beauty to the fabric. The dyes that are used do not cause any harm to the ecology and are biodegradable do not create any pollution problem and are considered as Green clothing.

## **2. METHODOLOGY**

The fabrics were prepared for painting by pinning the fabric to the frame and then the developed designs were transferred on the fabric to be painted through tracing technique for specific designs and free hand drawing was undertaken for water technique. Once the design was traced on the fabric the fabric was ready for painting. In Gutta technique the water based resist was used to restrict the dye from moving out of the design. In the salt and water technique the colour was painted directly on the fabric. The painted samples were tested for various colour fastness properties.

### **2.1 Gutta Technique**

This is known as serti or resists technique. It involves drawing fine lines of gutta on the silk to outline the design the lines stop the dyes from spreading into each other. The liquid dyes are then painted directly onto the silk and fixed into the fabric.



Figure 1. Gutta Technique

### 2.2 Water Technique

Water colour is an exciting medium to use on silk as it allows a very free approach. This technique involves painting directly on the stretched silk using ordinary tap water and dyes. Water colour reacts very differently on various silk; the dyes spread across the fibers very quickly and merge into each other. The dye will still retain a soft outline, but will not spread as far, so that greater definition can be achieved in the technique.



Figure 2. Water Technique

### 2.3 Salt Technique

In this technique the dye colour is painted and when the surface is wet the salt crystals is sprinkled which will absorb the dye and create an effect which is beautiful. The salt will be removed after the paint is dry.



Figure 3. Salt Technique

### 2.4 Sugar Technique

In this technique the dye colour is painted and when the surface is wet the sugar crystals is added which will absorb the dye and create an effect which is beautiful. The sugar will be brushed out from the surface of the fabric after the paint is dry.



Figure 4. Sugar Technique

### 2.5 Urea Technique

In this technique the dye colour is painted on the fabric when the surface is wet the urea crystals is sprinkled which will absorb the dye and create a 3D effect which is beautiful. The urea crystals act on fabric by absorbing the moisture and helps in fixing of the colour on the fabric. Later the crystals are removed from the surface of the fabric after the fabric is dry.



Figure 5. Urea Technique

### 2.6 Alcohol Technique

In this technique the samples were painted with dyes converted into paints and when the painted sample was dry ethyl alcohol was added in the form of droplets at regular intervals. The effect of ethyl alcohol gives a 3-D effect to the design which gives an embossed effect due to merging of colours painted.



Figure 6. Alcohol Technique

### 2.7 Innovative Techniques – Batik with Painting

In this technique the fabric is first painted with wax which is a mixture of (Paraffin wax and Bee Wax) and then the fabric is cracked after which the fabric is immersed in dye solution and the wax is removed through hot water technique. The fabric is ironed to remove the was completely. The fabric is dried and then the designs are painted which add beauty and uniqueness to the fabric and improves its aesthetic appeal.



Figure 7. **Innovative Batik Technique**

### 2.8 Fixing of Colour to the Fabric

The hand painted green clothing fabric produced from the above techniques was subjected to steaming in order to fix the painted colours to the fabrics. The hand painted fabrics with colour can be fixed in a pressure cooker or in a digitized conditioning oven.



Figure 8. Women trainees being trained in creating colour shading

Table 01 : Ratings by Women Trainees

Women Trained	Alcohol Technique	Gutta Technique	Salt Technique	Sugar Technique	Urea Technique	Water Technique	Batik Technique
1	5	5	5	4	4	5	3
2	4	5	4	5	4	4	2
3	5	5	4	5	5	5	2
4	5	4	5	5	5	5	1
5	5	5	5	4	5	5	2

Table 02: Color Fastness to Sunlight and Rubbing Fastness

PAINTING TECHNIQUES	GRADING	GRADING		VALUE SCALE MAX
		WET	DRY	
Alcohol	4/5	4	5	5
Gutta	4	4	4	5
Salt	4	4	4	5
Sugar	3/4	4	5	5
Urea	4	5	5	5
Water	4	4	5	5
Batik	4	4/5	5	5

### 3. RESULTS AND DISCUSSION

The samples were tested using an exposure rack under bright sunlight for 6 hrs. per day for seven days. There was no significance change in color due to sunlight expect for sugar technique. All the samples had very good rating with value of 4 on a value scale of 5. The samples were test for colorfastness to rubbing in dry and wet conditions on a crock meter. The samples showed very good rating with a value of 4 on a rating scale of 5. The women trainees were split in 5 batches with 5 women trainees in each batch for convenience in training them. They were taught the Hand painting techniques and they were of the opinion that the innovative technique with Batik was the most difficulty to understand and they could not easily adapt to that technique, whereas all other techniques were easy to understand and learn and implement. They felt that the Gutta, salt, sugar, urea and water technique were the easiest and they could create samples all by themselves without any problem.

### 4. CONCLUSIONS

This study was undertaken to find out the effects of techniques of painting silks with Eco- Friendly dyes with different buffer solutions to create green clothing. Samples were painted with different techniques and colours were tested for colour fastness to washing, rubbing (Dry & Wet), perspiration and sunlight. The rating of Very Good (4) was obtained for all the samples tested. 75% of the respondents were glad to know that importance was given to protect the environment by using eco- friendly dyes which produced beautiful green products through different techniques of hand painting.

Also due to the fact that they were painted with eco - friendly dyes which were harmless to the environment and ecology which made them feel one among a few thousands who care for Mother Nature and want to save nature and the beautiful world for future generation. They were also of the opinion that this would redefine clothing using technology to develop green clothing with ecofriendly dyes. The training provided to the rural women was well accepted and appreciated by the trainees. Since women are very creative, they could understand the techniques easily and found that all the techniques were very interesting with the Gutta technique being the best. At the end of the day they felt they can manage by themselves and this could be a good prospect for self –employment. This can be a prospective green clothing small scale industry with good export potential for. Further it gives employment with minimum training to develop green products which is the need of the hour.

**REDUCE-REUSE- RECYCLE** is the buzz word to protect and sustain the environment.

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