



Mud Dyeing and Printing Technique on Sustainable Fabrics

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Abstract: The main purpose of this project is to develop a mud dyed garment for summer which will give a cool feel and protect the skin. This study's objective is to compare different fabrics (Hemp, Linen & Organic cotton) color absorbing capacity after dyeing process and to utilize natural ingredients like Soya milk and Amla powder as mordants. The process is completely sustainable and make an eco-friendly product to the market. The mud used here is kind of rare type of mud available in some part of Kerala. The product developed is aesthetically functional as well as interesting. And this also gives consumers knowledge about a healthy dyeing process.

The materials required in the project were easily available. The Clay Mud, Soya milk, and Amla powder. The first process was to pre-wash the fabric used in the process. Then make the dye solution by adding soya milk and amla powder with the clay mud. To get the best result leave the dye bath as long as possible, best is overnight. Once it is dyed the fabric is washed and kept for drying and then stitched into a beautiful summer wear dress for women.

A person prefers comfort while choosing a garment, especially during summer they try to wear which gives them good feel. And this mud dyed garment can give this feel and can attract a customer. The light weight outfit and the yellowish color obtained gives a minimal look to the garment, and creates a masterpiece product from the natural ingredients.

Index Terms - Mud dyeing, Sustainable, Fabrics, Mordant, Summer Wear.

I. INTRODUCTION

Mud dyeing is a natural process of dyeing fabrics using clay mud. It is an age-old traditional method followed by people. In different places dyeing is done in different methods. In Sumba in 90's during World War 2 people used mud dyed garments, whereas in India Angami Nagas community from Nagaland used to dye their garments by boiling them in Tsopru plant water and then bury the fabric in mud for couple of days. Each place and people had different interesting methods of dyeing where they use different mordants. Even the mordants used in the process is natural such as barks, fruits, plants and so on. Africa is the best-known place for mud dyeing. A mud dyed cloth is known as Bogolanfini in Africa. Clay mud is best for dyeing. Mud dyeing is a fascinating process. The mud dyed fabric gives a beautiful brownish colour and it is long lasting. The colour of the mud changes according to the location and climatic changes. As the mud colour changes the colour we get while dyeing will be different as it can vary from black-grey to red-brown shade of colours. No toxic chemicals and heat are involved in the dyeing process and this mud dyeing technique brings back the ancient method of natural dyeing and colors used.

Mud printing technique is something interesting and new. The printing technique done with mud is known as Dabu printing. The printing technique trying here is completely different and an easy method of printing. The binders used for the printing is the same used for dyeing (Soya milk and gooseberry powder). The print paste is made into solid form and stencil printing the fabrics is another easy method. The printing is done like the normal printing process, but the paste used in the print is made it interesting.

II. SANDY SOIL

Sandy soil also known as Light soil, is coarse in texture. This soil is formed from the breakdown of granite and limestone. This soil is not suitable for growing plants and does not have water holding capacity. Less nutrient sand with no plant growing capacity. Sandy soil contains lot of air in it. Sandy Soil is mainly used for construction, agricultural needs, foundation of building.

III. CLAY SOIL

Clay soil is a type of soil comprised of fine mineral particles. It is soft, and loose earthy material. Clay soil is used in the making of the flower pots, bricks, gardening, constructions and so on. Clay soil is very heavy soil type, which has high nutrients. It remains wet and cold in winter season and dry in summer. It has the smallest particles compared to other soil particles. Clay soil is very sticky. It has no airspace because the particles are lightly packed and when it gets dry it becomes heavy. When it's wet we can mould it into any shape as we want. Clay soil is best for growing fruit trees, and ornamental plants..

IV. PEATY SOIL

V. Peat soil is a type of soil made from organic matters. It is dark in colour. It has high water holding capacity and have high nutrient content. It has a soft texture. This soil is used to regulate pH level of soil. Peat soil is spongy and best for rice crops. It is also known as black soil. Peat soil is pathogen free and prevents compaction. Soil carbon and nitrogen are two major nutrients found in peat soil.

Linen

Linen is a textile fabric made from the fibres of flax plant. It is extremely strong and lightweight fabric. Linen fabric is durable compared to other fabrics. Linen has good moisture absorbing capacity. Linen fabric is best for bedding as it is soft and comfortable. And it also dries faster than other fabrics. Linen is anti-bacterial fabric; it protects us from harmful bacteria and germs. The linen fabric opted for summer season. There are four different types of linen in use:

DAMASK LINEN

PLAIN WOVEN LINEN

LOOSELY WOVEN LINEN

SHEETING LINEN

Linen fabric is breathable and feels cool. More it is washed, softer it gets. Linen is one of the most expensive fabrics. Linen is made from the stems of the flax plant, which are strong and can be grown in poor soil with very little water. It is bio-degradable. As the other parts of linen plant such as leaves, seeds are used in food industry there is no wastage of plant. Linen is insect repellent fabric, fabric protect us from the bite of insects like moth. It is anti-allergic, ventilates and insulates well. Linen also wrinkles faster than most other types of fabric.



LINEN

Hemp Fabric

Hemp fabric is an organic fabric made from the hemp plant using organic techniques & methods. Hemp fabric is three times stronger than cotton. Also has good abrasion resistance. It is very durable. It easily absorbs dyes and get soften each wash with fibre being degraded. It is naturally resistant to mould and mildew. Hemp fabric wrinkles easily, at the same time it has poor drapability. It is also known as industrial hemp. Hemp fibres are from the stems of Cannabis Sativa. Hemp fabric have high tensile strength. Hemp fabric is an eco-friendly fabric. It is a best option for summer. Hemp is also used in the making of house hold textiles. No chemicals used in the growing of hemp plant. Hemp fabric

can be used to make jeans, dresses, skirts, and so on. Hemp is best for blending. Hemp fabric have lot of benefits which will not cause any harm. Hemp plant requires little amount of water than other plants and this plant also give back lot of nutrients to the soil. Hemp fabric can easily recycle and it is considered as the future of slow fashion hemp fabric creates an eco-friendly product where it proves that it is completely sustainable.



HEMP

Organic Cotton

Naturally cultivated cotton without using any chemicals such as fertilizers and pesticides are known as Organic Cotton. It makes low impact in the environment. They feel very soft and are safe to use. Suitable for any climatic changes. It is highly versatile and breathable. It is environment friendly and sustainable. It does not have any harsh manufacturing process. The fabric is anti- allergic and need only less water for growing cotton. Organic cotton is a long-lasting fabric and durable. The production of organic cotton releases less carbon and safe for farmers. Organic cotton can be used in daily wear clothing. The whole process of making of organic cotton is done in a natural process. Any kind of dresses can be made using this fabric, because it is having good drapability. It is a GOT certified fabric. The fabric is lightweight and can be easily washed. They are free of toxins. Comparing to other fabrics it is cheaper to produce an organic cotton fabric. Best for all skin types. The organic cotton creates a healthy environment and it makes a perfect eco – friendly fabric.



ORGANIC COTTON

Printing techniques

Printing with natural dyes is something interesting and creative we can do. And it is an eco-friendly method of printing. There are different printing techniques which we can do using natural dyes. We can do screen & block printing using natural dye. Mostly screen printing is done using natural dyes. The printing done with wood block is also known as Calico Print.

Screen Printing

Screen printing is a printing technique done with the help of mesh. Screen printing is a easy method of printing. The natural dye will be available in powder form and with water it is made into a thick paste. The fixers and binders used are also natural. The paste prepared is poured on top of the sheet and then dragged it to the end, by then the ink will be evenly spreaded. The ink passes through the open areas of the stencil and transfers to the fabric.



SCREEN PRINTING

Block Printing

Block printing is a printing method done using wood blocks or carved blocks. It is an age-old printing technique. It is a slow process. The paste prepared is applied to the block using sponge and then press it on the fabric as required. In block printing, the block will be used 2 or 3 inch thicker and have flat surface. Mostly traditional designs are done on the block. Block printing was introduced in 18th century. The paste used for block printing should be thick.



BLOCK PRINTING

Stencil Printing

Stencil printing is a kind of printing method which involves the passing of ink through a stencil to the fabric surface. In stencil printing we can customize design according to our need. Stencil printing is also known as screen printing. It is an easy method of printing. The stencil used for the printing can be reused again and again.



Stencil print

Dyeing Process



CLAY MUD



MUD SOLUTION



MIXING OF AMLA POWDER



DIPPING OF FABRIC



SOAKED FABRIC



DYED FABRIC

Printing Technique



CLAY MUD AND SILT MIXTURE



ADDING OF AMLA POWDER



PRINT PAST



PRINTED FABRIC

CONSTRUCTION OF GARMENT



FINAL PRODUCT





CONCLUSION

Sustainable clothing is something we like to have in our daily life, which protect us from lot of health issues and at the same time save nature from the toxic chemicals. The mud dyeing is an old technique of dyeing which was used in early 80s and 90s. The clay mud gives a cool feel during summer and the clay mud dye can make our body cool through this dyeing process. The sustainable dyeing process and the natural colors obtained through the dyeing is attracting customers and giving them a promise of healthy world. The fabrics used are highly sustainable and best for dyeing, it has the capacity to absorb color.

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