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Fashion accessories made by Calendula dyed cotton fabrics

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ABSTRACT

Dyeing is the process of adding colour to textile products like fibers yarns and fabrics. Dyeing is normally done in a special solution containing dyes. Natural dyes can be used for dyeing almost all types of natural fibers. Here we have taken cotton fabric for the purpose of dyeing. Cotton is the fabric for every home and it is widely used and produced by the textile industry. It has now been proved that India was the country to manufacture cotton. The scientific name marigold is calendula. Marigold is a genus of annual or perennial mostly herbaceous plants in the sunflower family (Asteraceae). Depending on the species, marigold species growing well in almost any sort of soil. Most horticultural selections grow best in soil with good drainage even though some cultivators are known to have good tolerance to drought. Marigold flower used for the extraction of natural dye. After the dyeing process, we have created fashion accessories.

Keywords— Fashion accessories, Calendula, Cotton fabrics

1. INTRODUCTION

The word textile was originally used to define a woven fabric and processes involved in weaving. Textile refers to any material made of interlacing fibers or yarns. The yarn is produced by spinning raw fibers of wool, flax, cotton or other material to produce long strands. Textiles are formed by weaving, knitting, crocheting, knotting or pressing fibers together. The production of textiles is a craft whose speed and side of production has been altered almost beyond recognition by industrialisation and the introduction of modern manufacturing techniques, however, for the main types of textiles, plain weave, twill or satin weave there is little difference between the ancient and modern methods.

Here we have taken cotton fabric for the purpose of dyeing. Cotton is the fabric for every home and it is widely used and produced by the textile industry. It has now been proved that India was the country to manufacture cotton. It is obtained from seeds of cellulose seed fibre measuring 10-65mm of length and white to beige in colour in its natural state. As cotton occupies 50% of the consumption of fibers by might in the world. It is called the king of textile. It is the shortened of the textile fiber. Cotton with short length fibers is technically known as “short staple”. The main advantage of cotton fibre is that it provides no harms at all. We prefer cotton fabric because it is more comfortable in all climatic conditions. It is also inexpensive.

Dyeing is the process of adding colour to textile products like fibers yarns and fabrics. Dyeing is normally done in a special solution containing dyes. Natural dyes can be used for dyeing almost all types of natural fibers. Textiles coloured with natural dyes are preferred by environmentally conscious consumers and today there is a niche market for such textiles. Dyeing can be done at any stage of manufacturing of textile-fibre, yarn, fabric or a finished textile product including garment and apparels. The property of colour freshness is depended upon two factors –a selection of proper dye according to the textile material to be dyed and selection of the method for dyeing the fibre, yarn or fabric.

There are two types of dyes-natural and synthetic dyes. Dyes can be derived from natural material such as plant leaves, roots, bark, insect secretions, and minerals are called Natural dyes. The dye is a coloured substance that has an affinity to the substrate to which it is being applied. The dye is generally applied in an aqueous solution and may require a mordant to improve the fastness of the dye on the fibre. Both dyes and pigments are coloured because they absorb only some wavelength of visible light. Dyes are usually soluble in water whereas pigments are insoluble. Some dyes can be rendered insoluble with the addition of salt to produce a lake pigment. Dye stuff prefers to the plant or other material from which the dye is extracted complete palates are achieved by dyeing in one bath sequential dyeing in two or more baths. The majority of natural dyes are vegetable dyes from plant biological sources such as fungi and lichens.

Flowers are available in eastern India and are grown almost every season but a huge amount of unsold flowers are wasted every day in west Bengal. It can be used in small scale industry as well as in large scale industry. These unsold flowers create a big problem

for disposing of as well as this can create environmental pollution also. But these unsold flowers can be used as dying purpose for textile and residual can be also used as bio-fertilisation. These flower dyes are eco-friendly also it has no side effects on the skin. We chose marigold for dyeing.

The scientific name marigold is calendula. Marigold is a genus of annual or perennial mostly herbaceous plants in the sunflower family (Asteraceae). Depending on the species, marigold species growing well in almost any sort of soil. Most horticultural selections grow best in soil with good drainage even though some cultivators are known to have good tolerance to drought. Marigold flower used for the extraction of natural dye. They are generally pest free and are often planted as companion plants in the vegetable garden because of their ability to repel nematodes. Marigolds are inexpensive, almost always listed as a favourite for producing rich vibrant yellowness green yellowness and orange depending on the dye concentration and choice of mordant. Amount of flower for a particular volume of water and extraction time where optimizer on the basis of the intensity of colours of the extract as indicated by optical activity. Tie and dye is the process of decorating and adding personality to the fabric. In this process, tie prevents the cloth from the die, while this untied makes the dye. Tie and dye is a modern term invented in the mid-1960s in the United States for a set of ancient resist dyeing techniques and for the production of these processes. Folding, tying, stitching, crumpling or otherwise preparing the fabric inhibits the flow of dye to some areas. The whole point of the type and dyeing is to prevent the dye from reaching the fabrics evenly. Any place that the dye can't reach will stay white or a lighter colour of course. The gradations of colour from intense to light can be beautiful. You can accomplish them by folding the fabric tied it with a string using rubber bands etc.

Embroidery is a craft of decorating fabric or other materials using a needle to apply thread or yarn. Embroidery may also incorporate other materials such as pearls, beads, quills and sequins. Embroidery is available with a wide variety of thread or yarn colour. Some of the basic techniques or stitches of the earliest embroidery are chain stitch, stem stitch, button hole or blanket stitch, running stitch, satin stitch and back stitch etc. Those stitches remain in the fundamental techniques of hand embroidery today. The present work is carried out keeping the above in mind and has been framed with the following objectives:

- To extract the dye from calendula flower (marigold)
- To design accessories for college students using calendula (marigold) flower dyed cotton fabric
- To improve the aesthetic appearance of the product by adding trims and surface ornamentation.
- To evaluate the acceptability of the developed product

2. METHODOLOGY

The detail of the material used and the methodology employed in carrying out the work “fashion accessories made by calendula dyed cotton fabrics” is given under the following heading

- (a) Selection of samples
- (b) Dye extraction
- (c) Preparation of fabric for dying
- (d) Dyeing process
- (e) Tie and die
- (f) Product development
- (g) Evaluating the acceptability of the developed product

2.1 Selection of sample

2.1.1 Fabric: White cotton material of 4 meters was bought and divided into 4 pieces. In which one the piece used for sampling and the rest were used as fair samples.

2.2 Dye extraction

The raw materials of natural dyes were first collect and then used for extraction. We used yellow marigold flowers. The yellow marigold flowers are first boiled in water to get the extract.

2.2.1 Marigold flower: Marigold was first cleaned and unnecessary part of the flower was cut. And the petals of the flower is separated. Then the yellow natural dye was extracted by applying in the ratio 5:5 corresponding to the ratio of 5kg of marigold flower to 5ml of water.

- Marigold flower petals that are separated
- And the flower is taken in a vessel and boiled with water for 45 minutes
- Then squeezing the flower with towel
- After the squeezing proces, the extract again boiled and add 1/2 table spoon Alam to it.
- The extract is then used for dyeing



Fig. 1: Dye extraction

2.3 Preparation of fabric for dyeing

- The cotton cloth to be mordant is taken and dipped in a vessel of 1 litre of water
- Sufficient amount of salt is added in it and stirred well
- It is kept for 45 minutes in a water bath with constant stirring
- The fabric is ready to be dyed.



Fig. 2: Preparation of fabric for dyeing

2.4 Dyeing process

- The mordant cotton cloth after tying is dipped in the vessels containing the extract solution and stirred well for 45 minutes.
- After 45 minutes, the beaker is taken and kept in the basin.
- The dyed cloth is taken out from the vessel and washed it with cold water to remove the remaining dye extract stains from the cloth.
- The tying thread is then cut off and removed to obtain patterns.



Fig. 3: Dyeing process

2.5 Tie and die

The basic process has the following steps:

- Preparation of fabric
- Tying of the fabric
- The fabric is tie into four or more with using thread before tying
- Dipping of the textile into the dye solution
- Removal of the knots after dyeing
- Washing
- Opening the knots of the fabric



Fig. 4: Tie and die

2.6 Product development

Various type of accessories developed from this dyed fabric. We proudly introduce these products only for college students according to eco-friendly use. The accessories are money purse, pencil pouch, sling bag, file bag and college bag. These are made up of using this fabric instead of plastic .we made accessories by using eco-friendly died fabric.

2.6.1 Money purse: The dyed cotton cloth cut in 2 pieces in the shape of the semi-circle. And the measurement varies with length 9.5cm*9.5cm and the width 10cm*10cm. fold and sew it's one's end. Attach that folded endings with zipping. After this setting joins all the sewed pieces with semi-circle shape. Have to do the small coin pocket inside the purse. Then the embroidery with a French knot, running stitch and the simple mirror work. Length varies 5cm*5cm and the corner measurement varies width same as length measurement (5cm*5cm). Attach it inside the purse. A small bow is also attached to the side of the purse. After cut the projected seemed cloth inside the purse. The small money in a purse is now ready to use.

2.6.2 Pencil pouch: Take a dyed cloth of length 13inches and width 8inches. Place the canvas on to the cloth of same length and width and iron it. Then stitch the end of the cloth with zipping in length wise then attach the ends on the sides. Then the pouch is ready. The pouch is decorated with Back stitch embroidery using a black colour thread and a black colour lace is fixed at the edges of the pouch.

2.6.3 Sling bag: To make a sling bag, we take marigold dyed cloth in 10 inches length and 9 inches width with the same measurement of the canvas. This canvas fixes it over the cloth by ironing. Make another piece with the same procedure. Design of the flap is drawn in canvas with the same width of the marigold dyed cloth. The rectangle piece of dyed fabric is stitched under the sewing machine. Then the flap piece stitched with the same procedure. This stitched canvas is placed on the front side of the rectangle pieces in which it's one side has been already jointed. Then the lace is stitched in the edges of the rectangle piece and flap. The zip is placed in a separated dyed cloth and thus cloth is fixed in the upper portion of the rectangle pieces below the flap. The strip has been cut from the dyed cloth with length 47inches and width 1 1/2 inches. And then this strip is stitched on the upper portion of the bag.

2.6.4 File Bag: Take 4 pieces of dyed cloth of length 15 inch and width 12 inches. Take the canvas and cut it with the same measurement and fix it over the cloth by ironing. Do the same and make another, so 2 pieces of cloth with a canvas inside is the pattern, like they're there are 2 pieces made. Then a strip of the bag was made by taking 2 pieces of cloth of 4 inches and 15 inch length. And this each piece was folded and stitched under the swing machine. Then these 2 pieces were where attached to both the front and back piece of bag. Then a zip was attached to the front opening of the bag and then the 2 front and back was put together and stitched along the front and back on the wrong side. Then 4 inch width and 7inch length rectangle were cut from the cloth and attached to the middle of the bag and then the bag was put into it's the right side. Then white lace was stitched along the strips and sides of the bag. Drawing are made on the front side of the bag.

2.6.5 College bag: For the construction of a college bag using eco-friendly dyed cloth. Two major pieces consisting of the lower portion is taken. The back portion of the bag is having length 15 inch and width 12 inches. And the front portion length 15 inch and width 22 inches. One side of the back and front portion with lining are jointed. An inner pocket is stitched in the inside the back portion lining. A strip of length 11 inch and width 1.5 inches being fixed on the back piece. To hold the straps two straps having a length of 25. 5 inch width 3inch are joining in appropriate gaps marked in the strip stitched on the back portion of the bag. A flap is attached along with the strip. The length of the flap is 10inch and width 9 inches. Onto the middle lower portion of the front portion of the front piece of the bag, a front pocket is stitched. The pocket size is according to the major flap that has been already stitched. The length of 7 inches and width 9 inch is the measurement of this pocket. The lower edge of the pocket stitched in a pattern by folding inside in the length of 2inch. And a flap joint on above of the already stitched pocket. Its length will be 6 inches and a width of 9 inches. The stitched front and back piece is reversed on to the wrong side. And a piece (a lower piece of the bag) is attached or stitched by folding the seam allowance. It is of semi-circular pattern of length 12 inch and width 5inch. One side of the adjustable strap is attached to the one side of the strap and another side of the adjustable strap to the flap and middle portion of the front piece. 6 holders are attached at a distance of 6 inches between them around the top border of the bag. Two layers of the black net are placed on the major flap of the bag. Having black lace on borders of the same. Along black strap is put around insert the holder to adjust the top portion of the bag. On the flap of the lower pocket embroidery works are done.

2.8 Evaluating the acceptability of developed product

The products were displayed to the 10 students of Vimala College, Thrissur and feedbacks were taken using a ranking performance shown in the appendix. The attributes were a colour combination, style, utility and overall appearance. Rank 1, 2, 3 were given to products which stood excellent, very good and good.

3. RESULT AND DISCUSSION

The Result and discussion of the research work entitled "fashion accessories made by calendula dyed cotton fabrics" were presented and discussed under the following headings:

- (a) Product development
- (b) Product evaluation
- (c) Acceptability of the developed product
- (d) Price suitability of the developed product

3.1 Product development

3.1.1 Article 1: This well designed money purse was constructed according to the eco-friendly use for college students. The white cotton fabric was a tie and died using the yellow marigold flower to give a mustard yellow colour. To become more attractive mirror work is done with it. Running stitch is done around the mirror work with blue thread. Also, French knot stitch is done with red embroidery thread. A bow is fitted at the side of the purse.it is easy to handle.



Fig. 5: Plate 6

3.1.2 Article 2: This well designed pencil pouch was constructed according to the eco-friendly use for college students. The white cotton fabric was a tie and died using yellow marry gold flower to give a mustard yellow colour.to become more attractive a flower was made with back stitch using black thread. Then the pouch is decorated with black lace on edges.it is easy to handle for college students.



Fig. 6: Plate 7



Fig. 7: Plate 8

3.1.3 Article 3: This well designed sling bag was according to the eco-friendly use for college students. The white cotton material was died using yellow marigold to give a mustard yellow colour The purse is decorated with black tassels on the flap of the bag and black lace is fixed at the edges of the bag.it is easy to carry with the strip of the bag.



Fig. 8: Plate 9

3.1.4 Article 4: The file bag was constructed according to the eco-friendly use for college students. The white cotton fabric that is dyed using marigold give a mustard yellow colour. The file bag is fitted with black lace on all edges and doodling is done on one side and the other side is covered with a net kin net.it is easy to handle for the college students.



Fig. 9: Plate 10

3.1.5 Article 5: The casual college bag for students was constructed according to the eco-friendly use .the white cotton fabric that is dyed using yellow marigold give a mustard yellow colour. To make it more attractive it is joined with a net kin net on the flap of the bag. A flower is made with satin stitch on the outside of the pocket. It looks very simple and easy to handle.



Fig. 10: Plate 11

3.2 Product evaluation

The four products were exhibited and feedbacks took.

Table 1: Cost calculation

Product	Article 1	Article 2	Article 3	Article 4	Article 5
Raw materials	RS.58	RS.58	RS.58	RS.160	RS.160
Marigold Flower	RS.50	RS.50	RS.100	RS.100	RS.100
Trimmers	RS.49	RS.37	RS.80	RS.135	RS.53
Travel Expense	-	RS.50	-	RS.50	RS.50
Total cost	RS.157	RS.195	RS.238	RS.445	RS.363
Profit	23	23	23	23	23
Total price	RS. 180	RS. 218	RS. 261	RS. 468	RS. 386

The total price for the products was calculated based on the raw materials, cost, marigold flower, trimmers used and the profit. Article 1 cost RS.180/- Article 2 cost RS.218/- Article 3 cost RS.261/- Article 4 cost RS.468/- Article 5 cost RS.386/-.

The suitability of the cost was also judged, the cost kept for the product were accepted by the judges.

3.3 Acceptability of the developed product

The articles prepared was subjected to evaluate the acceptability of 10 students of Vimala College. Thrissur was selected for the evaluation of the products .we also taken the feedback from the 10 staff members of Vimala College.

Table 2: Acceptability of the developed product

Article	Total(max.500)	Acceptance (%)
Article 1	204	41%
Article 2	225	45%
Article 3	225	45%
Article 4	234	47%
Article 5	237	47%

Out of 5 designs Article 5, ranked as the best as it has scored highest mark that is 237. Article 4 was ranked as the second best and had a mark of 234. Article 2 and 3 were ranked as the third best with a mark of 225. Article 1 was scored as the lowest with a mark of 204. The evaluation reports that reveal that the products are commercially viable and product development as a money saving activity.

3.4 Price suitability of the developed product

For that product the suitability of the cost was also judged, the cost kept for the product were accepted by the judges.

Table 3: Price suitability of the developed product

Article	Low	Adequate	High
Article 1	10%	50%	40%
Article 2	10%	80%	10%
Article 3	10%	70%	20%
Article 4	10%	70%	20%
Article 5	10%	30%	30%

From the evaluation, it was found that 50% of judges reported that the price for Article 1 is adequate and 40% felt that the price is low for the product. In the case of the Article, 2, 80% of the judges felt the price is adequate and 10% felt the price is high and the 10% felt the price is low for that product. In the case of Article 3, the 70% felt the price is adequate, 20% felt the price is high 10% felt the price is low for the product. In the case of Article 4, 70% felt that the price is adequate and 20% felt that the price is high and 10% felt that the price is low for that product. In the case of article 5, 30% of judges felt that the price is adequate and 40% felt that the price is low and the 30% felt that the price is high.

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