

Development of Cotton Ayurvastra Using Tie & Dye Technique with Natural Dyes

Abstract

Ayurvastra is an ancient technique of dyeing textiles using medicinal herbs. The present work was aimed to develop cotton Ayurvastra using natural dyes. In this study a questionnaire was prepared by the investigator to find out the requirements for designing Ayurvastra. According to the information received, investigator designed and constructed the garments for girls. Looking at the suitability and the purpose, natural dyes and tie and dye techniques were selected. Later, garments were evaluated for comfort, overall appearance, and designs. The findings of the study revealed that the range of cotton Ayurvastra accepted by the most of the people as they think cotton Ayurvastra are better options in different types of skin disease and comfortable than regular garments.

Keywords: Ayurvastra, Textiles, Natural Dyes, Cotton Etc.

Introduction

Clothes have always fulfilled a variety of functions, be it fashion, protection or emotional support. In recent years, the co-operation among physicians, surgeons, microbiologists, physiologists and textile scientists have produced multitude of innovative applications for textiles, especially in the functional field. With the growing trend in enhancing beauty through healthy means, customers request for apparels and home textiles containing not only their original basic characteristics, such as warmth and comfort, but also want extra functions, including cleaning, perfuming, changing appearance, protection, or correction of body odors and keeping the more natural and healthier life.

Cosmetic textile is a concept of releasing cosmetic ingredient to the human skin. Though the term "Cosmetic Textiles" is new but it originated from Ayurveda which is the ancient old Indian system of Vedic healthcare. On contact with human body, cosmetic textiles are designed to transfer inactive substance for cosmetic purposes. The principle is achieved by simply imparting the cosmetic and pharmaceutical ingredients into the fabric of the clothing so that with the natural movements of the body, the skin is slowly freshened, revitalized or cured according to the ingredient used.

Ayurvastra

The Sanskrit word 'Ayur' means life and Vastra mean dress. Ayurvastra is the garment that is based on the Ayurvedic principle that regular contact with a cloth made from the yarns infused with organic herbs and medicinal plant extracts will relieve metabolic disorders and leads a healthy living. It is hundred per cent pure cotton handloom fabric made out of dyes using various ayurvedic herbs. It can be used as Ayurvedic treatment for diseases like skin infections, hypertension, asthma, arthritis and also for boosting immunity. From the ancient times Ayurvastra were being prepared by dying of yarn and fabric with herbs to obtain different effects on the skin.

Efficacy of Ayurvastra

Many clinical experiments have been conducted to show the effectiveness of Ayurvastra. It was found through various trials that Ayurvastra can help those suffering from skin diseases, Arthritis Eczema, Psoriasis, Rheumatism and blood pressure. All these trials showed marked improvements. By coming in contact with Ayurvastra, the body loses toxins and its metabolism is enhanced. The most effective time to wear Ayurvastra clothing is when the body is most at rest such as during sleep or meditating because this is when the body is naturally healing and re-



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establishing its balance. This is why Ayurvastra cloth is often used as sleepwear, bed sheets, towels, meditation clothes.

Ayurveda identifies seven unique layers of the skin where each layer has a distinct function. Starting from the outermost layer, the seven layers defined by Ayurveda are Avabhasini, Lohita, Shweta, Tamra, Viding, Rohini and Mamsadhara. The fourth layer, Tamra, supports the immune system and performs the function of acting as a barrier. Skin infections reflect an imbalance in this layer. The Ayurvastra clothing can improve the skin's ability to act as a barrier to external environmental toxins.

Objectives of the Study

The main objective of the study are-

1. To select the garment design for the development of Ayurvastra for women.
2. To tie & dye the cotton fabric using various natural dyes.
3. To develop six Ayurvastra from the best selected designs.
4. To assess acceptability and marketability of developed garments.

Review of Literature

Rangari N.L.et.al., (2012) suggested that the chemicals present in the natural dyes and colors of both plants and insect which in the past, man has exploited for their colour, can be understood and exploited for the health and wellbeing of mankind in future.

Saharan M. (2015) Suggested in her research article that Ayurvastra is a branch of India's ancient form of medicine, Ayurveda. Ayurvastra is used by Ayurveda health clinics in the treatment of a broad range of diseases such as diabetes, skin infections, eczema, psoriasis, hypertension, high blood pressure, asthma, arthritis, rheumatism, cardiac problems and as general health products.

Yadav P.(2012) conducted a study on different medicinal plants. Plants were air-dried, mechanically powdered and applied on fabric. The results showed that the extraction of these plants were suitable for dyeing different types of cloths such as cotton and wool.

Bhatnagar R. and Dr. Singh V.P.(2017) intended to promote the use of natural dyes and other natural techniques to make a cloth have qualities of Ayurveda and this cloth is termed as Ayurvastra. They compared the properties of Ayurvastra and other clothes and proved that ayurvastra can be seen useful to treat various skin diseases, metabolic disorder, blood pressure etc.

Karekar N(2013) suggested that such textiles have their applications in providing medicinal value and aroma to the garment. Ayurvastra (also marketed as cosmetotextiles on a broad term) has been used for treating enumerable range of diseases such as diabetes, arthritis, skin infections, hyper tension, fever etc. Results by using sensorial evaluations showed that performance of such garments lasts for more than 30 days.

Stafford L.(2011) in her article elaborated that clothing as means to protect and heal goes back

to the Rigveda, an ancient and sacred Hindu text composed in about 1500 BCE, as well as the Ayurvedic scriptures, Charaka Samhita (400-200 BCE) and Sushruta Samhita. Until about 100 years ago, they said, people in many parts of India were still using various forms of natural dyeing, in which people repeatedly dipped their clothing in an herb-based preparation after each wash.

Methodology

This research work was done in several phases. These are as follows:

Phase I

In this phase various preliminary works which were required for further study were done.

Materials & Methods

Materials

Dyes & mordants-Natural dyes and mordants were purchased. Fabric- 100% cotton fabric was used.

Chemicals

Laboratory grade chemicals (mordants) were used for this study-Alum (Aluminum Potassium Sulfate), Chrome (Potassium Dichromate), Iron (Ferrous Sulfate)

Equipments

Equipments used in the Present Study were Weighing balance, Water bath, Dye bath, Beakers, Spoons, and Oven.

Methods

Scouring of Cotton Cloth

Scouring of cotton cloth was done by washing it in a solution containing 0.5g/lit Sodium carbonate and 2g/lit nonionic detergent at 50°C for 25 minutes, keeping the material to liquor ratio of 1:40. The scoured cotton was thoroughly washed with tap water and dried at room temperature. The scoured material was soaked in clean water for 30 minutes prior to dyeing or mordanting

Mordanting

Pre-mordanting technique was used for cotton fabric. First the fabric was treated with the mordant and then dyed

Pre-mordanting with Alum

Alum was measured at 5% wof, dissolved in hot water in a mordanting jar. Jar was filled with enough water to fully cover the fabric. Now add wet fabric in it and heated up to 80 - 90°C and kept for 60 minutes then fabric rinsed with tap water.

Pre mordanting with Iron

Same procedure was followed for Iron.

Pre mordanting with Chrome

Same procedure was followed for Chrome.

Selection of Garment Designs

For this research study, some unisex garments were developed which can be used by both gender i.e. men and women like top, pyjama, kaftan or kurta. Total six garments were developed. To finalize garment designs, 12 sketches were drawn and 6 designs were selected on the basis of rating. Rating was done by 30 students and faculties of the department

Phase II

In this phase, following works was done.

Tie & Dyeing

For the embellishment of the garments, tie & dye technique were used. Natural dyes were used as base colour and then tie & dye was done, whereas

some of the garments were first stitched & then tied and dyed. Various tie & dye techniques like folding, pleating, marbling, knotting and pulse tying were used.

Table 1-Dyeing Specifications Dyeing with Madder, Henna and Turmeric

S. No.	Garments Design	Dye Used	% of Dye	Mordant Used	% of Mordant	Tie-dye technique
1.	Design- I	Henna	5%	Iron	5%	Umbrella
2.	Design- II	Madder+ Henna	5% + 1%	Chrome	5% + 1%	Lehariya
3.	Design- III	Madder+ Henna	5% + 1%	Alum+Chrome	5% + 1%	Cord
4.	Design- IV	Turmeric + Henna	1% +5%	Alum +Iron	1%+5%	Folding
5.	Design- V	Madder	5%	Alum	5%	Pulse tying
6.	Design -VI	Turmeric +Madder	1%+5%	Chrome+ Iron	1%,5%	Umbrella

Dye bath was filled with required water and dye material was added to it. Temperature was brought up to about 60°C and boiled for an hour. Fabric was added to it and dyeing was continued for another 1 hour at the temperature of 80°C

Stitching of Garments

Garments were got stitched by tailor just because of time limitation.

Phase III

Assessment of Acceptability and Marketability of Developed Garments

Assessments of acceptability and marketability of garments was done by 30 students and faculty members through filling questionnaire.

Data Collection

The primary data was collected by gathering information from questionnaire and secondary data were collected from some books, journals and internet.

Analyses of Data

Analysis of collected data was done to express the complex information into simple, logical, and graphical form.

Result & Discussion

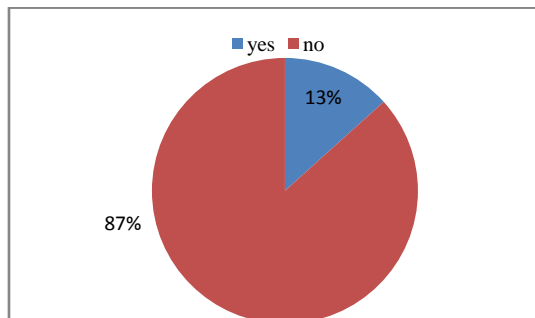
Result has been presented in the following sub-sections.

Result of the Preliminary Survey

A preliminary survey was conducted to assess the variety of Ayurveda designs, types, and materials available in the market.

Table- 5.1 Awareness of Ayurveda

S. No.	Awareness of Ayurveda	No. of respondents	Response in %
1.	yes	4	13.33
2.	no	26	86.67*



It is concluded from above table that only 13.33% respondents were aware of Ayurveda and 86.67% of the respondents were not aware of these.

Table -5.2

Availability of Ayurveda in the Market

S.No.	Availability of Ayurveda in the market	No. of respondents	Response in %
1	Yes	7	23.33
2	No	23	76.67*

It is seen from the above table that 23.33% respondents have seen Ayurveda in the market whereas 76.67% of the respondents have never seen them in market.

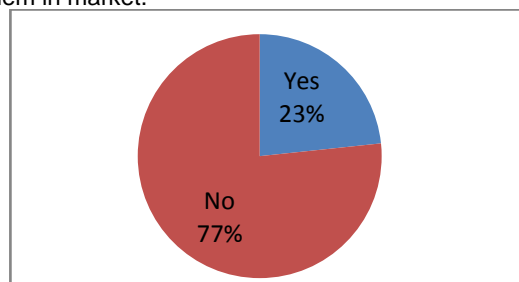
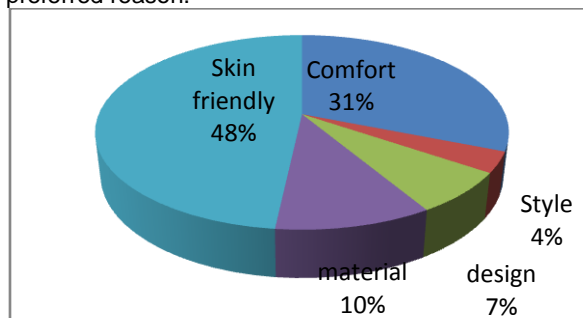


Table 5.3

Assessment of Reasons to buy Ayurveda

S.No.	Reasons to Buy Ayurveda	No. of Respondents	Response in %
1	Comfort	10	30
2	Style	1	3.33
3	Design	2	6.67
4	Material	3	10
5	Skin Friendly	14	46.66*

From the above table, it can be analyzed that mostly girls buy Ayurveda just because of their skin friendliness. After that comfort is the second most preferred reason.



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It can be analyzed from the above table that the most of respondents preferred cotton fabric (80%) for ayurveda followed by wool (10%), silk 6.67% and Polyester 3.33% respectively.

Table- 5.4
Assessment of Reasons for Not Buying Ayurveda

S.No.	Reasons	No. of Respondents	Response in %
1	Lack of availability	12	40
2	Higher cost	18	60*

From the above table it can be analyzed that 40% respondents did not purchase Ayurveda because of lack of availability, the other factor was that determine influenced the purchase of Ayurveda was higher cost of the Ayurveda.

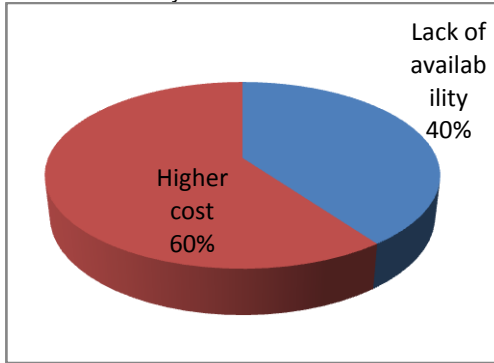


Table -5.5
Assessment of Age-Group for Using Ayurveda

S.No.	Age group	No. of respondents	Response in %
1.	Infant & children	4	13.33
2.	Teenage	1	3.33
3.	Young & old persons	2	6.67
4.	All age group	23	76.67*

It can be analyzed easily that 76.67% of girls agreed that these garments must be used by all age groups. Whereas, 13.33% girls recommended for infants & children, 6.67% for young & old persons, and 3.33% for teenage girls.

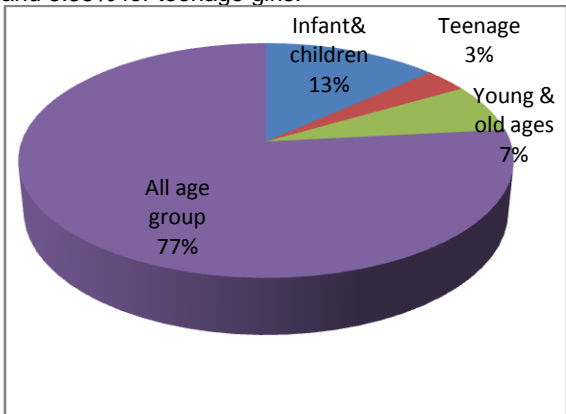


Table- 5.6 Fabric Preferences for the Ayurveda

S.No.	Fabric	No. of respondents	Response in %
1	Cotton	24	80*
2	Polyester	1	3.33
3	Silk	2	6.67
4	Wool	3	10

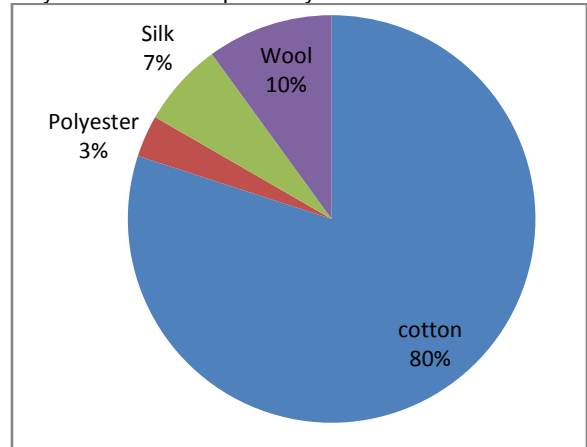


Table- 5.7
Colour Preferences for Developing the Ayurveda

S.No.	Color will you prefer	No. of respondents	Response in %
1.	Light	17	56.67*
2.	Dark	13	43.33

According to the data collected, 56.67% respondents preferred light colour while 43.33% of respondents preferred dark colour

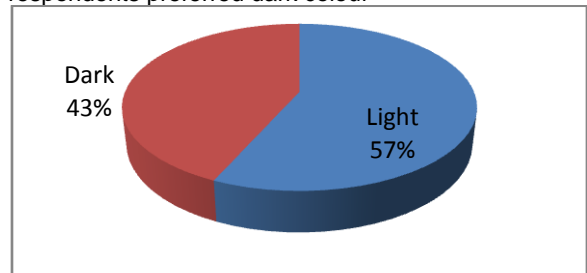
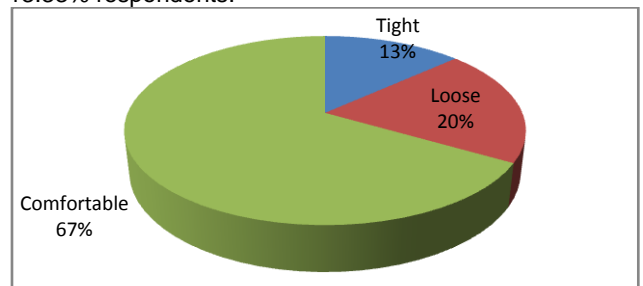


Table 5.8
Fitting Preferences for Ayurveda

S.No.	Fitting	No. of respondents	Response in %
1.	Tight	4	13.33
2.	Loose	6	20
3.	Comfortable	20	66.67*

Table number 5.6 shows that 66.67 % of the respondents preferred comfortable fitting of the garment whereas 20% of them wanted loose fitting of the garment. Tight fitting was preferred by only 13.33% respondents.



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design 1 and 6. Only 3.33% person preferred garment design 5.

Table- 5.9 Length Preferences for the Garments

S.No.	Prefer for Length Garments	No. of respondents	Response in %
1	Long	6	20
2	Medium	21	70*
3	Short	3	10

Table number 6.7 shows that 20% of the respondents liked long length of the garment whereas 70% of them preferred medium length and short length of the garment preferred by 10% people.

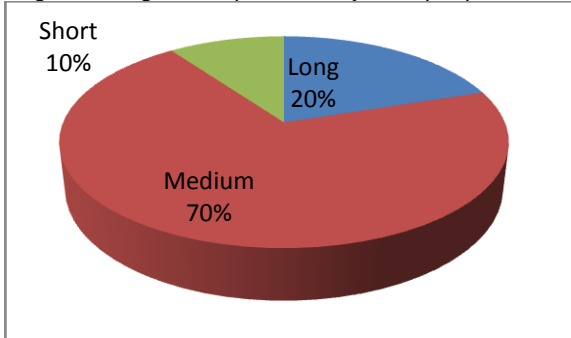


Table- 5.10

Preference of Garment Type

S.No.	Other garment pattern	No. of respondents	Response in %
1.	Basic silhouette	7	23.33
2.	Flared dresses	4	13.33
3.	Short dress	5	16.67
4.	Robes	14	46.67*

From the above table it can be analyzed that 46.67% of girls prefer robes as Ayurveda. The next most preferred garment style was basic silhouette which is liked by 23.33% of girls. 16.67% of girls preferred Short dresses, and 13.33% of girls preferred flared dresses.

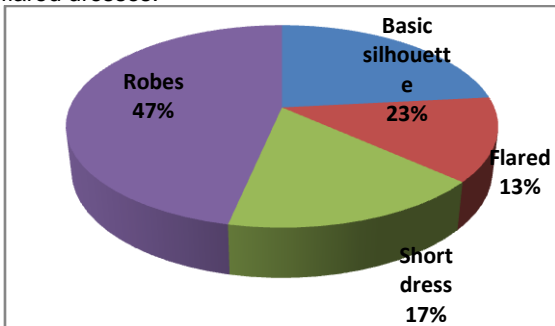


Table- 5.11 Preferences for the Garments Design

S.No.	Design like the best	No. of respondents	Response in %
1	Design 1	2	6.67
2	Design 2	3	10
3	Design 3	19	63.33*
4	Design 4	3	10
5	Design 5	1	3.33
6.	Design 6	2	6.67

From the above table, it can be analyzed that 63.33% of respondents preferred design 3 for final garment construction. Next most preferred was Design 2 and 4 with 10%. 6.67% of them preferred

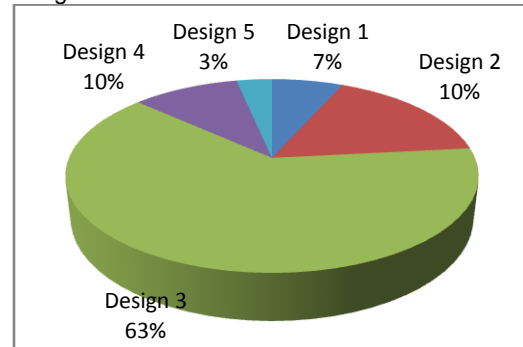


Table- 5.12

Preference for Price Range of Developed Garment

S.No.	price range (Rs.)	No. of respondents	Response in %
1	300-400	12	40
2	400-500	14	46.67*
3	500-600	3	10
4	600-700	1	1.33

From the above table, it can be analyzed that 46.67% of girls preferred the price range of 400-500/- for ayurveda. The next most preferred range was 300-400/- which is liked by 40 % of respondents. 10% of respondents preferred garments in 500-600/-range. Only 1.33% of respondents preferred 600-700/-range.

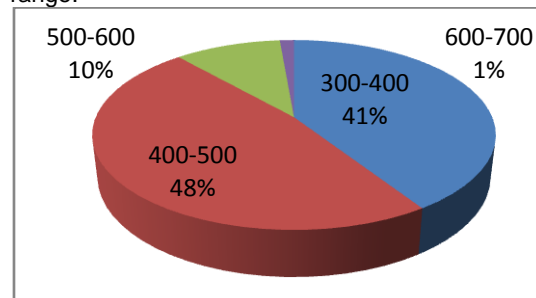


Table 5.13

Preferences for Techniques of Embellishment

S.No.	Technique of Embellishment	No. of Respondents	Response in %
1.	Tie & dye	21	70*
2.	Embroidery	1	3.33
3.	Printing	5	16.66
4.	Patchwork & appliqué	3	10

From the above table, it can be analyzed that about 70% of respondents preferred tie & dye whereas 16.66% preferred Printing on Ayurveda. 10% girls liked patchwork 3.33% respondents preferred Embroidery.

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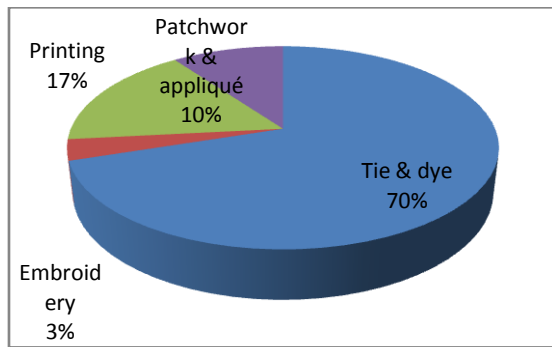


Table 5.14

Preference of Tie & Dye Techniques

S.No.	Tie & Dye Technique	No. of Respondents	Response in %
1.	Umbrella	4	13.33
2.	Folding	1	3.33
3.	Pulses tying	14	46.67*
4.	Lehariya	6	20
5.	Cord pulling	5	16.67

From the above chart, it can be analyzed that most preferred tie-dye method was pulse tying with 46.67% for Ayurvastra. The next preferred technique was Lehariya design which was liked by 20% of girls. 16.67% of respondents preferred the cord pulling, and 13.33% of girls preferred umbrella design and 3.33% liked folding technique.

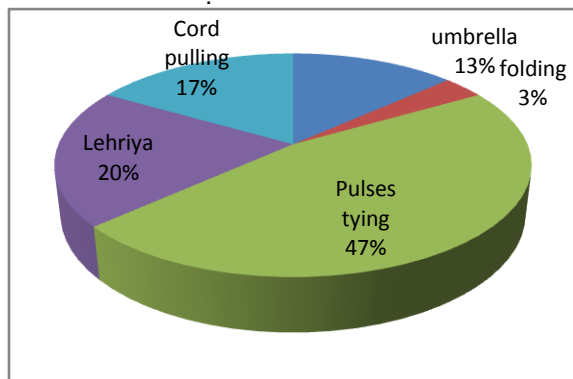
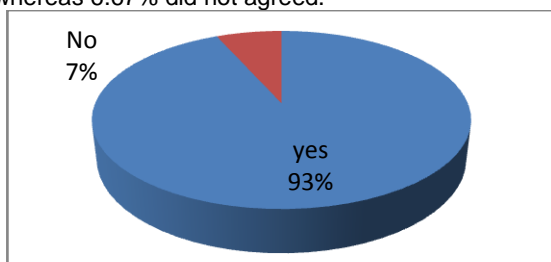


Table 5.15

Assessment of Eco Friendliness of Developed Garments

S.No.	Eco Friendliness	No. of Respondents	Total Average
i	yes	28	93.33*
ii	No	2	6.67

Table number 18 show that 93.33% respondents agreed that the garment are ecofriendly whereas 6.67% did not agreed.



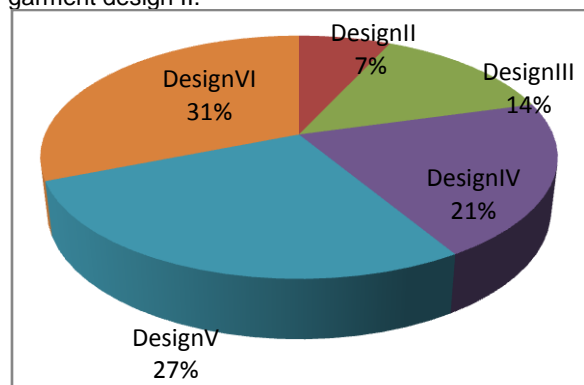
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Table 5.16

Assessment of the Most Preferred Garment

S.No.	Garment design	No. of respondents	Response in %
1.	Garment design I	-	-
2.	Garment design II	2	6.66
3.	Garment design III	4	13.33
4.	Garment design IV	6	20
5.	Garment design V	8	26.67
6.	Garment design VI	10	30*

From the above table, it can be analyzed that 30% of respondents preferred garment design VI. The next most preferred design was garment design V which was liked by 26.67% of respondents. 20% preferred the garment design IV, and 13.33% of preferred garment design III and 6.66% preferred garment design II.



Garments

Garment Design 1



Garment Design 2

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Garment Design 3



Garment Design 4



Garment Design 5



Garment Design 6



Conclusion

In present era, people are more health conscious than earlier time. This leads to the demand for natural products including clothing. People prefer to wear the cloths which are made up of natural sources, of soothing colors and comfortable while doing yoga and meditation. Ayurvastra is a type of clothing which has all these qualities. They are made up of natural fibres mostly cotton and dyed with natural dyes. In this research, attempt has been made to design and develop ayurvastra using natural dyes. As natural dyes like turmeric, henna and madder have medicinal qualities, that is why these natural dyes are used. By applying on fabric, these natural colors come into contact with the skin and sooth it. Ayurvastra which are available in market at present are mostly available in white color thus in this study, Tie & dye technique is used to create striking effects and design on the fabric. Developed garments were accepted by most of the respondents due to their trendy designs and vibrant colors.

References

1. www.ayurveda.in
2. www.ayurvedaonline.com/
3. <https://www.fibre2fashion.com/industry-article/6693/ayurveda-an-eco-friendly-textile>
4. https://www.researchgate.net/publication/272771234_Ayurveda_Herbal_couture_technology_in_textile
5. https://www.researchgate.net/publication/307580444_AYURVAstra_HERBAL_CLOTHING_A_new_technology_to_heal_naturally
6. Saharan M. (PDF) Ayurveda: A miracle mediherbal cloth. Available from: https://www.researchgate.net/publication/282455304_Ayurveda_A_miracle_mediherbal_cloth [accessed Dec 03 2018].
7. Rangari NT, Kalyankari TM, Mahajan AA, Lendhe PR and Ruranik PK (2012). Ayurveda: Herbal couture technology in textile. *International Journal of Research in Ayurveda and Pharmacy*, 3(5):733-736
8. <http://cms.herbalgram.org/heg/volume8/09September/Ayurveda.html?t=1315404173&ts=1543807401&signature=60e844a290382e59f55670a2eb096f3b>
9. http://ijirt.org/master/publishedpaper/IJIRT144716_PAPER.pdf
10. Karekar N, Lakhani P, Patel U; Ayurveda: A novel use of herbal drugs. *Pharma Tutor*, Available from <http://www.pharmatutor.org/articles/ayurveda-a-novel-use-of-herbal-drugs>