DEVELOPMENT OF WOMEN KURTA WITH ANTI BACTERIAL AND UV PROTECTION

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ABSTRACT

Textiles and clothing infused with medicinal herbs are becoming popular, especially in urban India. After invention of synthetic dyes, natural dyes are not used because of the advantage of synthetic dye over natural dye in respect of application,colour range, fastness properties, and availability.But, some synthetic dyes are hazardous, carcinogenic and also release vast amount of pollutant in the environment during their manufacturing,Bandhej is a combination of a cluster of patterns, beautiful colour combinations and charming whirls. Wearing Bandhani is a mark of identity in numerous communities. Bandhej is generally worn as a marriage outfit or on traditional occasions.Bandhani is generally made up of natural colours Bandhani is one of the notorious cloth patterns in India. Bandhani of Gujarat is veritably notorious in India. It's a traditional numerous other garment accessories as well. The process of making one Bandhani is lengthy and this process is complicated.The main source used in this fashion is an natural color.Natural colorings arenon-toxic,bio-degradable,anti-bacterial,anti-microbial and it also have a UV protection which drop the threat of getting skin cancer. On this fashion the Terminalia chebula plays an important part which is called as" king of drug" it was also called as myrobalan operation of the waterless excerpt of T. chebula rich in tannins and vitex negundo has a antimicrobial agents provides an effective terrain friendly finish. It bettered the fibre's, UV protection capacities, light fastness and perspiration fastness along with antimicrobial properties.These process were done on the cotton fabric which have the property of immersion, breathability and good strength.

Key words:Natural dye ,Bandhani Technique , Lehariya TechniqueTerminalia Chebua ,king of medicine ,Vitex Negundo ,anti-bacterial properties, UV protection.

INTRODUCTION

The cloths which are dyed exclusively with herbal extracts without using any chemicals are called herbal textiles .These gravies are applied to the fabric using natural ingredients in order to save medicinal parcels. Further, bleaching of cloth is done by exposing it to sun without the use of any chemical bleach.The generality of herbal fabrics has been derived from Ayurveda, the ancient Indian system of vedic healthcare. Ayurvastra is a branch of Ayurveda.

THE PROBLEM WITH SYNTHETIC CLOTHING DYE

The problem with synthetic colorings lies with the fact that utmost colorings that are used for vesture and hair related uses contain chemicals that are carcinogenic and are largely toxic. Back in 1992, a disquisition that was submitted to the Environmental Protection Agency set up that short term exposure to this adulterant caused a variety of adverse side goods analogous as business, bladder excrescence and upper respiratory tract vexation.

INFUSING THE NATURAL EXTACT ON BANDHANI TECHNIQUE

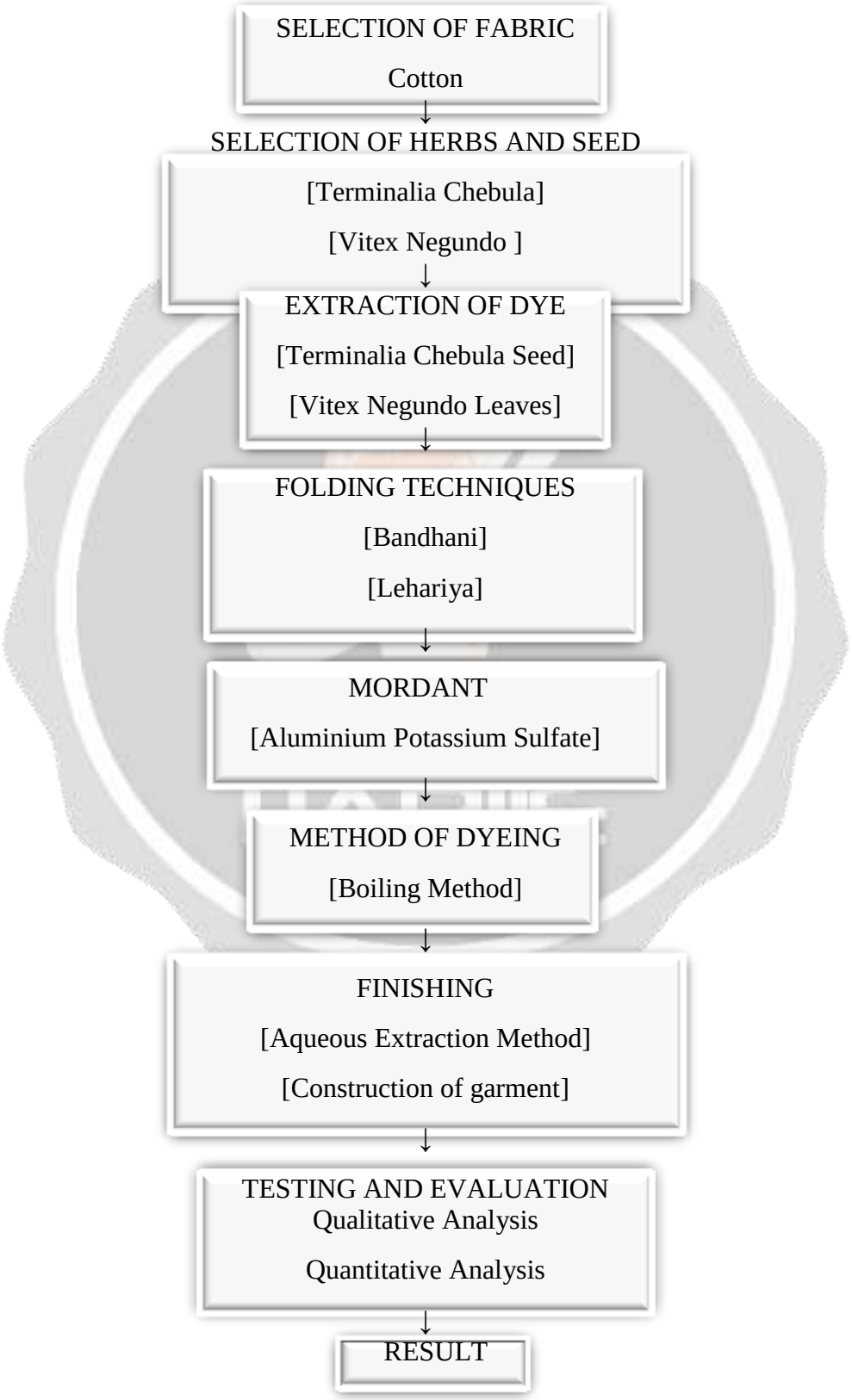
BANDHANI TECHNIQUE

Bandhani is a tie and color fashion on woven cloth. The name Bandhani is used colloquially for both the fashion of tie and color as well as the final cloth Bandhanis are brightly coloured and vibrant; and have a myriad of patterns; designs include flowery, abstract, beast motifs or geometric patterns. Knots are arranged in various patterns to make interesting designs. The tied knots affect in blotches in the final dyed cloth.

LEHARIYA TECHNIQUE

Fashion Leharia, A Rajasthani word fluently signifying waveforms of water, from which nearly all of its designs are inspired.Tie and Bepaint forms of craft are one of the oldest form of coloring fabrics in numerous patterns and designs.

MATERIALS AND METHODS



MATERIALS AND METHODS

SELECTION OF FABRIC

PLAT- I

Cotton fabric[woven]

COTTON

A woven fabric made of cotton yarns or yarns produced from a mix of cotton and chemical filaments or attained by weaving cotton and chemical or mixed vestments. Cotton fabric is one of the most generally used types of fabrics in the world .Other corridor of the cotton factory are put to good use and are used in the product of foods, plastics and in paper products, according to the National Cotton Council of America .The first cotton cloth factory was erected in Manchester, Great Britain, in the late 18th century (Pozhideev.N, 1975).

SELECTION OF SEED

PLATE-II

Terminalia chebula

Chebula, generally called as chebulic myrobalan/ harda, belongs to family Combretaceae of genus Terminalia. Terminalia grown in Asian mainland.T. chebula is a popular traditional drug not only used in India but also in other countries of Asia and Africa. It possesses laxative, diuretic, cardiotonics, hypoglycemic,anti-bacterial,anti-fungal, antioxidant, and anticancer parcels. Hydrolysable tannins, chebulagic acid, chebulinic acid, gallic acid, and ellagic acid are the major tannin ingredients present in myrobalans. Besides the complex tannin admixture of myrobalans is also known to yield a color T chebula rich in tannins and other antimicrobial agents provides an effective terrain friendly finish. It bettered the fibre's,UV protection capacities,light fastness and perspiration fastness along with antimicrobial parcels.(Aparna Upadhyay., 2014)

VETEX NIGUNDO LEAVES

PLATE-III

Vitex negundo

(Nirgundi) is one of the veritably useful factory in Indian System of drug. It's a large sweet shrub distributed throughout India .It has been used for the different conditions like cephalgia, otalgia, arthritis, bellyache,

rheumatism, skin conditions, urinary diseases, injuries, ulcers,Bronchitis, malaria fever, epilepsy, haemorrhoids, dysmenorrhoea as one of the effective drug. This review gives a raspberry's eye view substantially on the pharmacognistic characteristics,Traditional uses, and pharmacological conduct of Vitex Medicinal uses in Ayurveda.(Sapna Gautam., 2020).

COLLECTION OF SEED AND LEAVES

The dried seed of Terminalia chebula was collected from a original grocery store and vitex negundo fresh leaves were collected hard my house.

PREPARATIONS FOR DYEING

Originally, the seed and leaves were washed with water to remove the contaminations. also, they were diced into 2 millimeter-thick pieces of chips and they were dried under sun for about 2 days.Then grind the dried seed to powder, After that it was used for the process.

PLATE-IV

Terminalia chebula -Powder

SCOURING

The fabric was washed for 30 min in hot water containing soap to remove contaminations. also the fabrics were irrigated with water and eventually dried at room temperature.

PLATE-V

Scouring

MORDANT

ALUMINIUM POTASSIUM SULFATE

PLATE-VI

Aluminium pottassium sulfate

In order to set the colour when using natural colourings alum is demanded to play its part as a chemical agent which allows a response to do between the colour and the fabric .It may added to colour source to impact it doesn't serve as a color source on its own. The fabric is saturated with the caustic, also during the dyeing process the color reacts with the caustic, forming a chemical bond and attaching it to the fabric.Quantum of alum to use in mordanting is important, it is recommended that alum is 12 of the weight of fiber,or 1 tablespoon for 100 grams of fiber.(Bijanmaleki.,2018).

FOLDING TECHNIQUE

PLATE-VII

Bandhani process

PLATE-VII

Lehariya process

Cloth is tied finely with vestments and bepainted instages.The tied cloth when opened results in colorful patterns and motifs.The design for Bandhani and lehariya is transferred onto the cloth using fugitive colour. The cloth is pulled by pinching with the help of the fingernails or with a small nail shaped essence ring, and also tightly tied around with a thread. This forms the color repel area of the cloth. The tying process is done strictly following the pattern published on the cloth. The vestments used are generally synthetic.After the cloth has been tied, it's washed to remove the fugitive colour published on the cloth.The cloth may be consecutively tied and bepainted with sauces (Rajan., 2007).

METHOD OF DYEING

PLATE-IX

Boiling method

FINISHING

EXTRACTION METHOD

AQUEOUS EXTRACTION METHOD

For optimizing the birth system of colour element in waterless medium, dried and finely cut source material of natural color is grinded in powdered formand also the colour element is uprooted in water employing a standard process.The waterless birth of color liquor is carried out under varying condition, similar as time of birth, temperature of birth bath. The dried greasepaint of Terminalia Chebula and Vitex Negundo was collected from ayurveda store also have to dry that on the sun, grind them and make a fine greasepaint,10g of the powder was mixed with 40 ml of water and was kept at 25ºC for 8h, filtered through sludge paper, also the cotton material should be dipped on the boiling result also kept it overnight, after shadow dry the cloth, also suture the cloth to women kurta Fabric was dipped in the uprooted result and boiled at 80C for 1hour.Excess excerpt was squeezed out and samples were dried under tones.(Dayal., 2001).,The dyed fabric is Sewed as women kurta.

PLATE-X

Kurta

RESULT AND DECISSION

QUALITATIVE ANALYSIS

ANTIBACTERIAL TEST

PREPARATION OF THE BACTERIAL INOCULUM

Stock cultures were maintained at 4°C on slopes of nutrient agar and potato dextrose agar. Active culture for experiments were prepared by transferring a loop full of cells from stock cultures to test tubes of 50ml nutrient broth bacterial cultures were incubated with agitation for 24hours and at 37°c on shaking incubator and fungal cultures were incubated at 27°c for 3-5 days. Each suspension of test organism was subsequently stroke out on nutrient agar media and potato dextrose agar. Bacterial cultures then incubated at 37°c for 24 hours and fungal incubated at 27°c for 3-5 days. A single colony was transferred to nutrient agar media slants were incubated at 37°c for 24 hours and potato dextrose slant were incubated at 27°c for 3-5 days. These stock cultures were kept at 4°c. For use in experiments, a loop of each test organism was transferred into 50ml nutrient broth and incubated separately at 37°c for 18-20 hours for bacterial culture.

WELL DIFFUSION METHOD

The antibacterial activity and antifungal activity of crude extract extracts was determined by Well Diffusion method (Bauer et al., 1996). MHA plates were prepared by pouring 20ml of molten media into sterile petriplates. After solidification of media, 20-25µl suspension of bacterial inoculums was swabbed uniformly. The sterile paper discs were dipped into required solvents then placed in agar plates. Then 10-50 all of plant extract was poured into the wells. After that, the plates were incubated at 37°C for 24 hours. Assay was carried into triplicates and control plates were also maintained. Zone of inhibition was measured from the edge of the well to the zone in mm. The tested cell suspension was spread on mullerhintonagar plate and potato dextrose agar. well were put into the agar medium using sterile forceps. plant extract were poured on to wells. Then plates were incubated at 37°c for about 24 hours and control was also maintained. Zone of inhibition was measured from the clear zone in mm.

Antibacterial activity was performed by agar diffusion method. Van der Watt et al., 2001. The stock culture of bacteria(E.coli and S. aureus) were received by inoculating in nutrient broth media and grown at 37 % for 18 hours. The agar plates of the above media were prepared. Each plates was inoculated with 18 hours old cultures the bacteria were swab in the sterile plates. Cut the 5 wells Pour the extract in ratio 25 µl, 50 µl, 75 µl, 100 µl. All the plates were incubated at 37°C for 24 hours and the diameter of inhibition zone was noted in cm.

Agar well diffusion method has been used to determine the antimicrobial activities and minimum inhibitory concentrations or plant extracts against Gram positive, Gram negative bacteria. The extracts exhibited antibacterial activities against tested microorganisms.

PLATE-XI

Escherichia-coli bacteria

PLATE-XII

Staphylococcus aureus

Organisms (s. mutans)	E. coli	Staphylococcus aureus
Myrobalan and Vitex Nigundo	0.5 cm	1.0cm
Standard (chloramphenicol)	1.0cm	1.0cm

Report:

The result find the myrobalan and vitex negundo treated cloth having antibacterial activity against the E.Coli and staphylococcus aureus.

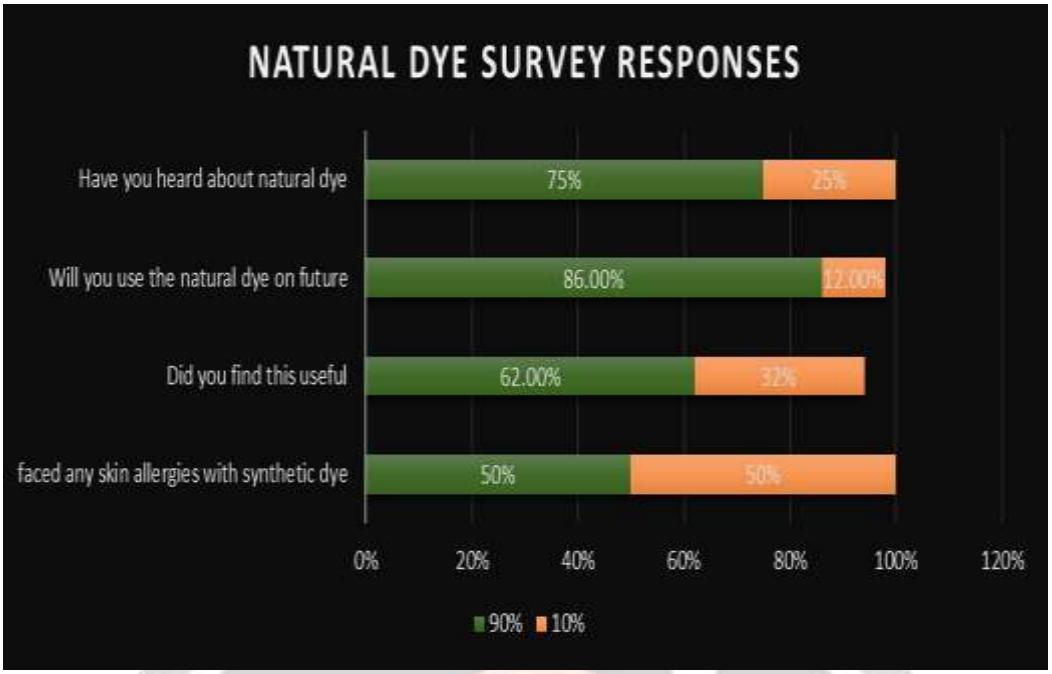
UV Protection test

The given fabric is testing for the Ultraviolet protection test under the UV light. While passing the UV Light at 600 nm through the cloth. The result shows 80 % of the UV is absorbed by cloth. The given cloth heaving UV Protection capacity.

QUANTITATIVE ANALYSIS

SURVEY QUESTIONS -RESPONSE

QUESTIONS	RESPONSE	
Does the natural dyed fabric helps to protect the skin from bacteria's and ultra violet rays	90%	10%
Have you faced any skin allergies while wearing the synthetic dyed cloth	50%	50%
Did you find this natural dyed fabric useful	62%	32%
Have you heard about natural dyed before this	87.5%	12.5%
Will you use the natural dyed fabric in future	75%	25%



COST OF THE DEVELOPED FABRIC

Cotton fabric	-Rs. 250
Terminaliya Chebula	-Rs.100
Alum	-Rs.215
Total Cost	-Rs.565

According to the calculated amount for raw material used for developing the Natural dyed fabric is Rs.565.It is less expensive as compared to the ones available in the market,when produced on large scale,still the cost can be reduced and the fabric can be produced at a cheaper rate.

SUMMARY AND CONCLUSION

Natural dye no way contaminate like synthetic dye as they're attained from the renewable resource. Some natural dye have veritably good colour fastness .lf the synthetic colourings are degraded as by products those are directly or indirectly vindicated to be health troubles. But it's tentative that the natural colourings fully degrade under natural conditions in a healthier way. So, a cloth stain must know the goods of variability for birth, mordanting and dyeing and should follow only the standardized form for selection fibre- acidulous natural colour system to get reproducible colour yield and colour matching besides to follow different eco-friendly ways to meliorate colour fastness to a possible extent . Here the dyed kurta gives the protection from bacteria and sun shafts which makes the good comfort to the wearer.

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