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Application of natural dyes on khadi for infants wears

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Abstract

Nature is that thing which is really beauty for live. Nature Provide a lot of things which is really essential for living for living being. As nature provide living things nature also gives as a lot things on which people research

Natural dye are those dyes which comes out of the waste of natural ingredients, such as peels of fruits, vegetable, dried petals of flowers, even died insects can also provide some things such as dyes for coloring, fertilizers etc.

As the name of the title Natural suggest harmless to the nature, to the skin that comes in contact with it. Natural dyes are having some inherent advantage such as given below-

No health Hazard

Very high sustainability

Easy extraction and purification.

Renewable source many more. (Virendra Kumar Gupta 2019)

With the natural dyes there are many fibers and fabric are available which is made by naturally ingredients and also harmless as natural dyes for used. Because of taking care of skin is important always brings things which is made by natural ingredients, naturally procedure etc. as list of good fabric for wearer cotton, khadi on the top.

Because of texture of cotton and other properties putting in mind there is khadi fabric which is best for known for his properties. Smoothness, lighter and has high breathability is the best property of khadi for used.

As khadi is good for adult it also best for infants, kids also.

Being all sustainable or "DESHI" Khadi and natural dyes are best for using on any kind of application.

As Nature providing best things for us since the Earth exoplanet, we also have to provide best things for our next generation. So, from eating to wearing for infants, kids, etc khadi fabric with application of natural dyes is best for them.

Keywords: Dyes, fibers, sources, infants, fashion, textile

Introduction

Natural dyes are dyes obtain from plants, animals, or minerals. Moreover, By using natural dyes over these other choices, you are helping conserve the environment and lowering human dependence on harmful products.

Every day we speak to people who have a keen interest in natural dyes. Some have never dyed anything before; others have been dyeing for decades.

In textile industry many categories of fibers, dyes are available. Many times it is seen that natural dyes and natural fibers, being bored and a little difficult subject, students start losing interest in the subject.

This subject is sometimes linked up to ignoble and considered as non-glamorous. Natural dyes and natural fibers play an important role in Fashion/textile industries and production houses. It will be beneficial for students to learn the subject with interest as there is a huge scope for invention.

Natural dye

Until the 1850s virtually all dyes were obtained from natural sources, most commonly from vegetables, such as plants, trees, and lichens, with a few from insects. Solid evidence that dyeing methods are more than 4,000 years old has been provided by dyed fabrics found in Egyptian tombs according to Dange. S. is using different mordents is necessary to improve color fastness.

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Also she stated that variety of color fastness is obtained by using different methods or conditions and also she revealed that for block printing with dye extract from turmeric and onion peels gives excellent colorfastness result.

Properties of natural dyes

1. Natural dyes are mostly eco-friendly, biodegradable, less toxic, and less allergenic
2. Antimicrobial/antibacterial property
3. UV protection.
4. Deodorizing
5. Mosquito repellent. (Deepti Pargai, Shahnaz Jahan and Manisha Gahlot 2019)

Application/characteristics of natural dyes

Compared to synthetic dyes natural dyes are safer and since it does not contain harmful chemicals there is a very low possibility for causing skin allergies. Mostly all plant dyes are safe to be worn.

Natural dyes tend to fade easily, so for making. The dyes stick to the fabric dye fixative are used, this can be in the form of starch, seaweed, Alum (hydrated double sulfate salt), table

salt, vinegar.

Fabrics dyed with natural dyes are more delicate and have to be handled with care; it should not be dried directly in sunlight.

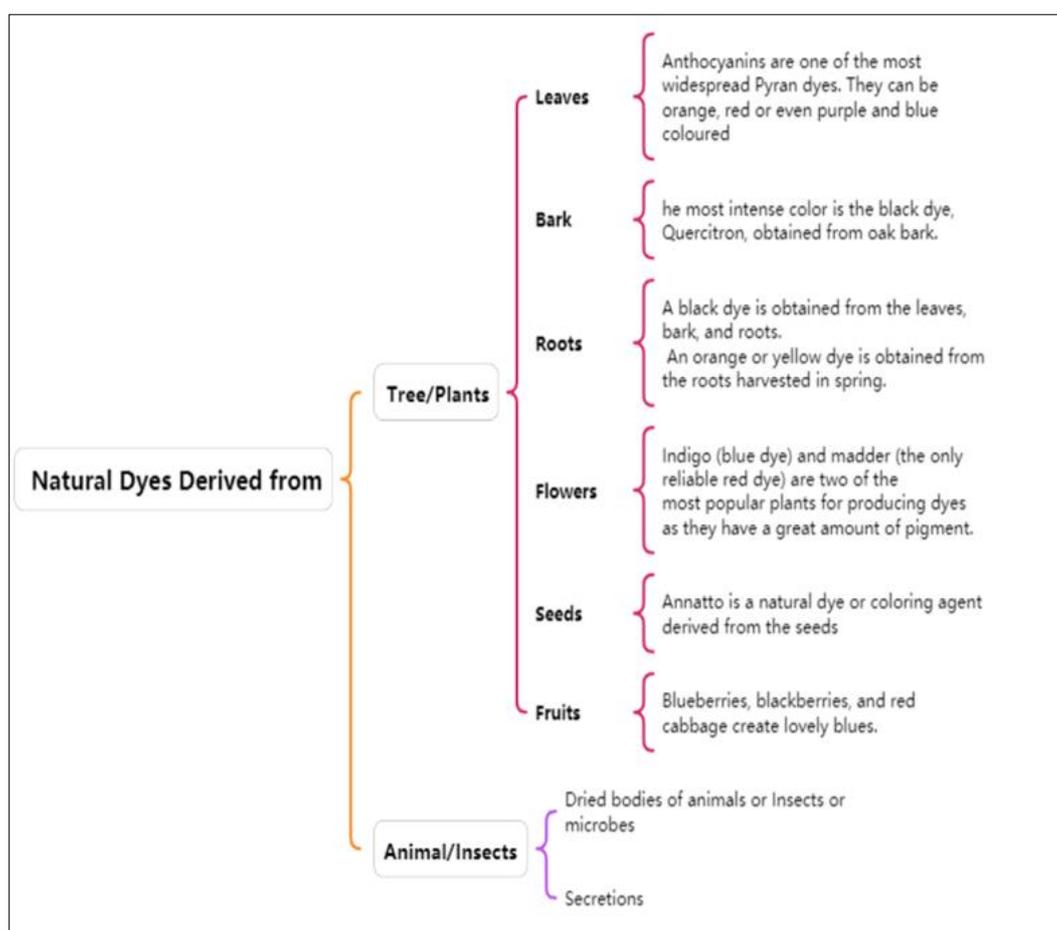
Types of natural dyes

There are two types of natural dyes. Adjective or additive dyes such as madder must use a mordant (a chemical that fixes a dye) to Affiliated with fibers. These are the most common type and have been used for at least 2,000 years. Substantive dyes Affiliated with a fiber without the use of a mordant or they contain a natural mordant which is tannin. Examples of substantive dyes include safflower, cochineal, and black walnut.

Which means Substantive, meaning that they do not require a mordant, or adjective, meaning that a mordant is required

Source of natural dyes

As per the title the main and major source for natural dyes is "Nature". There are lots of things come under the nature such as animal, plants, minerals etc. some example for source of natural dyes is given below.



Advantage of natural dyes

Minimal Environmental Impact: Because they come from natural sources, natural dyes are not harmful to the environment, which makes it so appealing for consumers. Natural dyes are biodegradable and disposing them doesn't cause pollution.

Renewable: Natural dyes are obtained from renewable sources that can be harnessed without imposing harm to the environment.

Color pay-off: If you're going for a soft hue or soothing shade, natural dyes can help you achieve that look.

Safe: Some natural dyes, such as carmine found in lipsticks, will not cause harm or health problems when ingested.

Difference between natural dyes and synthetic dyes

There is lot of differences which is shows that natural dyes are better than synthetic dyes. Because of the properties of natural dyes and its advantages natural dyes are somehow better hen synthetic dyes.

Table 1: Difference between Natural dyes and synthetic dyes

Difference between Natural dyes and Synthetic dyes		
Sr. No	Natural Dyes	Synthetic dyes
1	Natural dyes are purely developed from nature	Synthetic dyes are Man-made
2	Bio-degradable and easy to remove from the textile	Table in any reaction and difficult to remove from textile.
3	Have. no health hazardous	Have health hazardous
4	Colors obtained from nature source tend to be earthy and. subtle	Synthetic dyes often produce garish, muddy colors
5	Poor fastness properties	Good fastness properties
6	Have renewable source	Haven't renewable source
7	Natural dyes material are expensive	Are readily available at low cost
8	Lower color yield	Better color yield
9	Less effects on the environmental due being its natural occurrence	Bad effect on the environmental due being its chemical nature

Problem analysis

After some research I got to know that there are some cases in which they showed that they allergic from synthetic dyes, even of little babies to adult they have some crises while used or using synthetic dyes in daily ware. It's happened because

of has chemical nature of synthetic dye so, here is some example of those cases this much harm can be happened if you use synthetic dyes for infant wear. Babies have very delicate skin so we have to take care of them as they have delicate skin in delicate way.



<https://bumpsnbaby.com/how-should-i-dress-my-baby-with-eczema/>

Fig 1: Problem analysis

Precautions for infants

Always select natural fibers over synthetic fibers.
Choose cloths which dyed natural ingredients.
Sniff it – if there's an overwhelming smell of chemicals, or synthetic smell put it back!
Always, wash new clothes before wearing in order to remove residual chemicals.
Buy fewer, better-quality clothes. The cheaper they are, the more likely they come from factories with lower standards.

Why to choose natural dyes for your newborn's wardrobe

Natural dyeing procedure has been an aged lore in India. Recent invention of chemical dyes and their disproportionate usage has caused health related problems. Lots of variations that give rise to good colors are present in the forest and other waste lands. Collection of these dyes will not only be provided live hood to rural people but also make dye ready for promoting value chain in natural dyes. Natural dyes are obtained from renewable resources and the usage of these dyes contributed to the conservation of nature. As the pigment content in these dyes is very low, lots of source raw material is required. Natural dyes are not promoted in large quantities as these dyes are consumed only by few specified groups.

There are lots of reasons for using natural dyes and natural fibers for making infants wear such are given below:

Safe

Natural dyes are having very few quantities of toxic pesticides they are genuinely safe for infants and kid because they are non-toxic, non-allergic.

Kind on Environments

Not using chemical leaves smaller carbon footprints, helps prevent water contamination and soil erosion.

Skin Friendly Dyes

Colors add life to clothes, however when the dyes used to color your baby's clothes comprise chemicals which can be ingested or inhaled, it can cause your baby considerable distress. Additionally, some babies try to put their clothes in their mouth, resulting in the dyes going into their system. In the dyeing of organic cotton, only vegetable and natural dyes are used, ensuring that your baby potentially doesn't come in contact with any material that will cause them distress.

Best fabric for infant's wear

Babies are created naturally, so why add chemicals to them as they grow? Mainstream clothing is full of harmful chemicals; the chance for newborns to absorb harmful chemicals from their clothes is much higher.

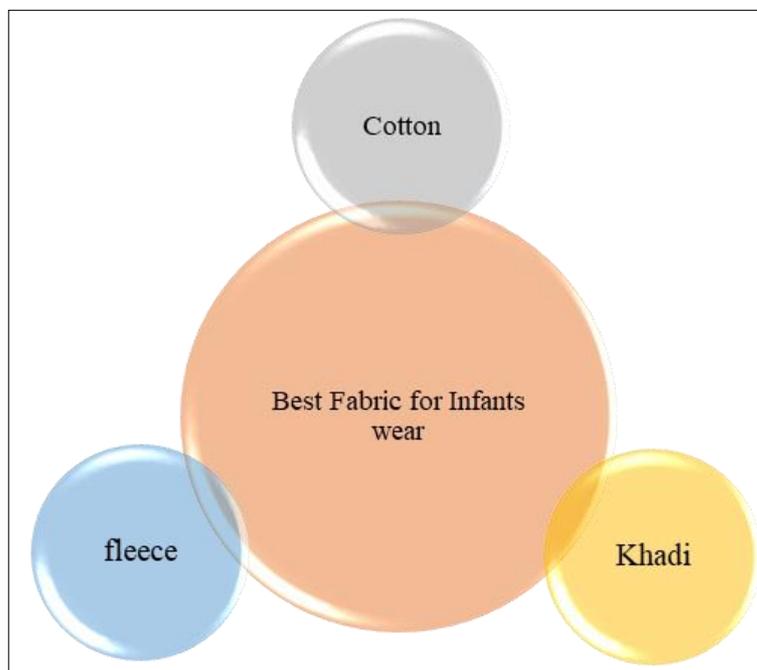


Fig 2: Types of Fabric

Khadi

Khadi, The Revolutionary Fabric

« If we have the khadi spirit in us, we would surround ourselves with simplicity in every walk of life », Mahatma Gandhi



Fig 3: Image of cotton flower

Khadi is derived from khaddar, it is a hand-spun and woven natural fibre cloth promoted by Mahatma Gandhi as swadeshi (self-sufficiency) for the freedom struggle of the Indian subcontinent, 'Khadi' term is used throughout India, Pakistan and Bangladesh.

Properties of khadi

It is soft and comfortable.

It wrinkles easily.

It absorbs perspiration quickly.

Khadi fabric is lighter and has high breathability as it is woven by hand.

This property of Khadi makes the wearer feel warm in winters and cool in summers.

Khadi has a natural tendency to shrink and lose color.

Khadi: perfect for clothing

The major Feature of Khadi is that it is cool in summers and warm in winters because of its tactile property and soft feel. It takes time to produce Khadi because of it is hand woven and hand spun fabric.

Air balls are formed during hand weaving the fabric because of the thick and thin places present on hand spun fiber. Therefore, Khadi is cooler, softer, and more absorbent and breathes better compared to that of powerloom fabrics. Khadi material is a body-friendly fabric that does not cause any allergies or irritations, unlike other synthetic fabrics. Khadi products are highly durable and long-lasting

Infants

Infants or babies are very delicate that's why parents are very worry about them. In everything parents think too much for their babies, from food to clothing they take care in every think of their babies.

Because they can't talk parents has to understand what they are trying to say by their action or behaviour.

Because they having very delicate skin which is easily get reacted or infected by any chemical or any other thing.

Because of they do not understand what is good or what is bad they put any things in mouth which may cause reaction or harm to babies. Some things are easy to put in mouth for babies are cloths. That why parents have to take extra care about their clothing.

For having safe, comfortable and harm-free clothing parents has to be choose that kind of clothing which is safe for babies even if they putting into mouth.

That why there are some fabric and some dyes are good and safe and harmless for baby.

Selection of material

Khadi

There are lots of material are available for making infants wear but according to research khadi is best.

Keeping safety, comfort, breathability and skin- friendly things in mind researcher selected khadi fabric for research.

“Khadi ...a handspun and hand wove fabric made by any natural fiber. It is produce only in India should approved by Khadi and Village Industries commission”.

Mulmul Khadi-A cotton fabric is plain weave. It's 100% pure cotton that is hand-spun, hand woven. This khadi/Mulmul khadi fabric is light weight and airy which provided dual advantage- cooling in summer and warmth in winter.

Collection of Material

Natural Dye

With the good quality fabric research has to take best dyes for making infants wear.

“Feel natural, be natural.”

Keeping safety and irritation from synthetic dyes in mind researcher chosen natural dyes.

Researcher take petals of marigold flowers for dyeing on khadi fabric for infants wear.

Dyeing process on khadi with Natural ingredients for Infants wear

For Making Infants wear there are variety of fabric are available, but keeping safety and comfort in mind researcher choose khadi fabric for it.

Also there are lots of natural ingredients are available but researcher chose marigold flowers petals for has medicinal value. Marigold flower has best medicinal value which is.

The main medicinal applications of marigold are skin conditions of all kinds, including contusions, bruises and varicose veins. Minor skin injuries and inflammation can also be successfully treated. Marigold ointment promotes wound healing for eczema and sunburns.

In the making process researcher firstly take 1(109 gm) meter fabric of khadi from KPRTC (MGM Khadi, Paithani research and training center).which is purely handmade and safe to use.

Step after selecting material is wash the fabric with clean cold water for removing last impurities from fabric or removing dust/durt from fabric.

Keep that fabric for dry; remember that fabric should properly dry.

After that next process adding mordant.

Mordanting is the most important process of preparing fibers to accept color. This is not an optional step but there are many mordant variations, and indigo as a vat dye does not require a mordant. Using a mordant helps to ensure the most durable and long-lasting colors

Prototypes images



Fig 4: Prototypes

Data analysis and interpretation

Present study entitled Application of natural dyes on khadi for infants wear. For this study descriptive research methodology has been applied. Primary data has been collected through questionnaire and Interview. The questionnaire is used as a

Harda

There are same equations for using harda for particular measured fabric. Because of researcher chosen 1 meter (109gm) of khadi fabric harda has taken 21.8 gm.

Now take water 2ltr 180ml (according to fabric and harda weight). After that boil that water and add 21.8 gm harda in it. Put that fabric in it. Now keep doing constantly up and now to that fabric, for properly adding harda on every inch of that fabric.

Now next step is drying process. Fabric should dry properly.

Printing Step

There are lots of techniques for dyeing such as just tie and dye, block printing, batik etc.

So, researcher decided to do Block printing method. For block printing method there are paste which is apply on fabric by using blocks, because after that when maker put fabric in dye bath then color will show only on where did you mark stamp or block on fabric. It's just reversed technique of batik.

For making that paste for block print tamarind seed powder is used because of it is an adhesion agent. Its superior water absorption property makes it an excellent thickening agent.

It's also had medicinal value for that. Which is Tamarind seed boosts skin elasticity, provides hydration and smoothness. This contains hyaluronic acid that helps in skin moisturization and smoothest fine lines and wrinkles.

Now making that paste take 21.5 gm. tamarind seed powder.

Take one bowl of water nearly half liter water.

Put it on gas add that tamarind seed powder keep stir that paste till properly mix well.

Now add (12.5gm) alum in it for it improves light and wash fastness of all-natural dyes and keeps colors clear. It is inexpensive and safe to use

Now dip that block in paste and add on fabric, when you use that dipped blocked on fabric that print vanished after some time, create print on all over of fabric.

Now time to dry that fabric. Next procedure is dye bath. For making fully natural dyed fabric researcher had chosen marigold flower. For making dye, boil 2.5ltr 180ml water with marigold flower petals. Boil it for half hour; stir that mixture up and down manner. Now remove that extract waste. Now put that fabric in extract water or dye and boil it for minimum one hour keep moving that fabric in up and down manner.

tool for the collection of relevant data regarding various aspects related to the women's who gave birth to child. The questionnaires have been distributed among 15 out of which 15 respondents and interview has been schedules among 05 out of which 05 have responded in the process of primary data

collection. The data was analyzed and presented in the form of table's and graphs. Interpretation of the tables and graphs is given for each table. The collected data has been coded and entered into the Microsoft Excel. Analyzed data presented in tabular form as percentage and average. Analytical techniques have been used to know the relationship between different variables. The questionnaire and interview consists of 06 parts, part one relates to the general profile of Mothers, part two relates to the Baby & Infant, part three relates to Skin allergies, part four relates to the Synthetic Dyes, part five relates to the Natural Dyes, part six relates to the Khadi Fabric One by one parts of the questionnaire and interview has been analyzed and presented as mentioned below.

The result indicates that, 17 i.e. (85%) women's thinks that synthetic dyes are not safe, 2 i.e. (10%) women's thinks that synthetic dyes are safe and 1 i.e. (5%) women's didn't have any idea.

The result indicates that, 16 i.e. (80%) Knows about khadi and natural dyes, 2 i.e. (10%) No idea about khadi and natural dyes and 2 i.e. (10%) Respondent have little bit idea about it. The result indicates that, 16 i.e. (80%) that naturally dyes khadi is best option, 2 i.e. (10%) No idea about it and 2 i.e. (10%) respondent have little bit idea about it.

The result indicates that, 19 i.e. (95%) respondent thinks that use of natural dyes and khadi fabric for baby is safe to use, 1 i.e. (5%) respondent thinks that use of natural dyes and khadi fabric for baby is not safe to use.

The result indicates that, 19 i.e. (95%) respondent thinks that use of natural dyes and khadi fabric for baby is safe to use, 1 i.e. (5%) respondent thinks that use of natural dyes and khadi fabric for baby is not safe to use.

The result indicates that, 14 i.e. (70%) according respondent opinion about cloths that are being made by natural dyes and natural fibers is good and comfortable, environmental friendly and skin friendly too, 3 i.e. (15%) The result shows that opinion about cloths that are being made by natural dyes and natural fibers is good and comfortable, 2 i.e. (10%) opinion is cloths that are being made by natural dyes and natural fibers is skin friendly.

The result indicates that, 11 i.e. (55%) respondent knows how Natural dyes prevent skin from any cause, 9 i.e. (45%) respondent don't knows how Natural dyes prevent skin from any cause.

The result indicates that, 17 i.e. (85%) respondent knows that khadi is best for infants wear, 3 i.e. (15%) respondent didn't know that khadi is not good for infants wear.

The result indicates that, 15 i.e. (75%) respondent knows medicinal value of marigold flower, Tulsi or any other natural ingredient, 3 i.e. (15%) respondent didn't know medicinal value of marigold flower, Tulsi or any other natural ingredient.

The result indicates that, 17 i.e. (85%) respondent knows that khadi is best for infants wear, 3 i.e. (15%) respondent didn't know that khadi is not good for infants wear.

The result indicates that, 17 i.e. (85%) respondent look comfort and safety in babies clothing while buying, 1 i.e. (5%) respondent look quality in babies clothing while buying, 1 i.e. (5%) respondent look Price in babies clothing while buying, 1 i.e. (5%) respondent look Durability in babies clothing while buying.

The result indicates that, 15 i.e. (75%) respondent think that khadi is eco-friendly textile, 5 i.e. (25%), respondent think that khadi is not eco-friendly textile.

It's founded that Use of natural dyes on infants clothing could be promoted as there are safe on infant's skin. Natural dyes

made by using natural herbs could impart medicinal properties in the fabric which could be helpful in reduction of skin diseases and allergies.

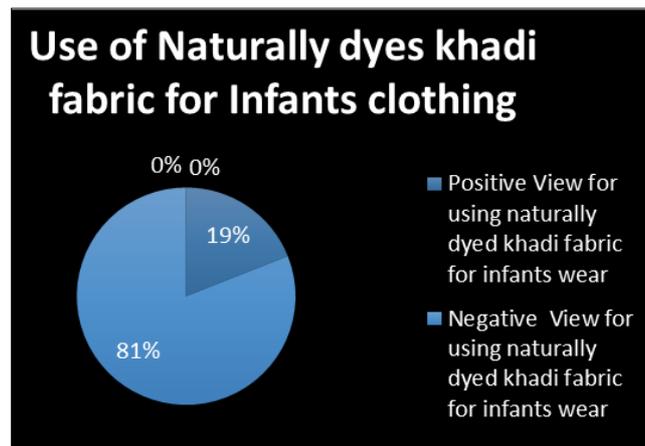


Fig 5: Review chat

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