



A Survey of traditional natural dye practice of Sri Lanka Today: A possible path pointing towards the development of the natural dye industry

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Abstract

Aim: The research aims to unearth cultural norms for using natural dyes that can be adapted for modern clothing production. The ability to dye with natural pigments is compared to synthetic dyes. Natural dyeing problems include a lengthy extraction process, moderate colorfastness to washing and light, and a lack of availability in large quantities, making them some of today's most pressing research priorities. To achieve more vibrant colors, most modern users of natural dyes resort to fixing agents containing heavy metal chemicals, which negatively affect environmental health. Sustainability in clothing has recently emerged as an important metric for the fashion industry.

Method: Primary data was gathered through in-depth, descriptive interviews with people who have been using natural dyes for a long time in their craft. Black clay dyeing and the process of dying Buddhist robes with indigo have both been used for centuries. As practiced traditionally, natural dyes, mordants, fixing agents, and washing and drying practices are documented.

Findings: It was discovered that plants producing milky sap, tannin such exudations, and mud dyeing are effective fixing agents for producing more vibrant colors.

Implications/Novel Contribution: In this study, we propose the true concept of natural dyeing, which can be used as a selling point when promoting naturally colored goods.

Keywords: Natural dye, Tradition, Milky sap, Tannin, Mud dyeing, Darker hues

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INTRODUCTION

"A dyed textile is more than a colored cloth; it is a historical record" (Saltzman, 1992). The use of natural dyes in Sri Lanka dates back some 2,500 years. The transmission of traditional knowledge from one generation to the next can be very time- and energy-consuming. Since ancient times, this information has been refined through application and passed down to the current generation. In rural Sri Lanka, using natural dyes is still widely practiced. Native peoples have access to a wealth of information, including traditional wisdom. Compared to modern needs, traditional knowledge increases potential. It is demonstrated that traditional knowledge in Sri Lanka is contextually specific, allowing for providing solutions to natural dye stakeholders in other parts of the world.

The study's goal is to uncover Sri Lankan cultural practices involving natural dyes, where a wide variety of dye materials, natural mordants, fixing agents, washing, and drying techniques can be found, all of which have potential modern-day applications in the fashion industry. Natural dyes have the following qualities: they are extracted from plants, are water soluble, have an affinity, contain a color component, have a fixing agent, and are fast. Plant materials such as leaves, bark, roots, fruits, and flowers are processed to extract the dyes used to color textiles. Chemicals called mordants and fixing agents facilitate the bond between the paint and the support material. This bond produces an insoluble compound that aids dye adhesion to cells. Mordants used in modern dyeing are always made of heavy metals like aluminum, ferrous, copper, magnesium, potassium, manganese, or lead. In natural dyeing, the mordants are derived from plants rather than chemicals or metals. Yarns and textiles can be dyed. Over 35 years ago, Sri Lanka's handloom industry was the primary source of yarn and textile dyeing.

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Thus, it was anticipated that gaining a deeper understanding of Sri Lanka's historic natural dye practices would lead to innovative new uses for the country's thriving natural dye market. For this study, interviews were conducted with a cross-section of natural dye artists working in the Western, Central, and Southern provinces of Sri Lanka. In-depth interviews were conducted to glean descriptive details about their dye substances, mordants, and fastening techniques. An archive of dye recipes exists. It has been discovered that traditional dyers in Sri Lanka use plants with various secretory products, such as milky sap, tannin, and other exudations and mud dyeing, which give good fixing agents to achieve brighter hues.

LITERATURE REVIEW

The [Dilhani \(1959\)](#) defines dye as a natural or synthetic substance used to add colour to or change the colour of something. Encyclopedia Britannica describes Dye, substances used to impart colour to textiles, paper, leather, and other materials such that the colouring is not readily altered by washing, heat, light, or other factors to which the material is likely to be exposed. Dyeing and printing are processes of which raw textile fibers convert into finished goods that add much to the appearance of textile fabric. Natural dyeing is a method of dyeing using plants or animal substances which are taken from the natural environment without using any chemical treatments ([Ferlien, John, Sema, & Vivien, 2018](#); [Yusuf, Shabbir, & Mohammad, 2017](#)). [Vankar \(2000\)](#) explains primarily four sources from which natural dyes are available. Those are specialized plant and animal sources (various parts of plants like roots, stems, barks, leaves, fruits and seeds may contain colouring matter which can be exploited and dried bodies of certain insects and minerals), By-products (especially lac dye), Chemical synthesis (this involves synthesis of dyes with molecular structures identical to those of natural dyes), Tissue or cell culture by DNA transfer biotechnology (Certain fungi).

Dyes do not combine directly with the material they are intended to colour. A fixing agent is required where dye and the fabric bind together which is called mordant. The mordant is usually a metal such as aluminum or iron which binds to the fibre and to the dye. The mordant affects the fastness or permanence of the dye. And the mordant may drastically change the colour that the dye imparts to the fibers ([Saltzman, 1992](#)). Some natural dyes contain natural mordants ([Kahraman, 2016](#); [Vankar, 2000](#)). Natural dyes are substantive, requiring a mordant to fix to the fabric, and prevent the colour from either fading with exposure to light or washing out. These compounds bind the natural dyes to the fabric. ([Cardon, 2009](#)) introduces that generally, mordants that were used over time were divided into two types, acid and basic, where acid mordants are used to bond acid dyes and basic mordants to bond basic dyes. Acid mordants have generally been derived from tannin, readily available from oak balls or bark; occasionally they are vegetable oils. Basic mordants, however, come from the salts of various metals, particularly aluminum, chromium, iron, copper, zinc or tin.

Plants that produce milky sap has been a fixing agent to achieve brighter hues for ages. Some members of mango produce a viscous or adhesive fluid (milky sap) which turns black and is used as a varnish or for tanning and even as a mordant for red dyes ([Yadav, Yadav, & Singh, 2018](#)). Ancient Celtic race in Britain named Picti used sap of plant to produce blue colour ([Saltzman, 1992](#)). Moreover, the milky sap has been used as a medicine for treatment for years. It is a value addition to a naturally dyed fabric. Milky saps have shown different activities like antimicrobial, antioxidant, anti-bacterial, anti-inflammatory, anti-asthmatic activity, anticancer activity, anti-ulcer activity, wound healing activity, anti-convulsant activity, biological activity, anti-diarrheal activity, anti-pyretic activity, pharmacological activity in human being and animal ([Belemkar & Ramachandran, 2015](#); [Nawrot et al., 2020](#)).

[Gulrajani \(2001\)](#) claims that Tannins are most important ingredients in the dyeing with natural dyes producing yellow, brown, grey and black colors. In the dyeing of textiles, tanning from the basis of so-called natural mordant. They also modify the affinity of fibres towards different dyes. A black tanning process improves the wash fastness of some dyes. [Mozaffari and Maleki \(2018\)](#) state that nowadays, dyers use tannins for preparing cotton so as to enable it to retain coloring matter permanently before mordanting the cotton fabric with alum. [Krizova \(2015\)](#) states that black colour is obtained from the barks and leaves of trees and shrubs that are rich in tannins, in combination with ferric or ferrous salts. Tannins, generally in combination with various mordant salts, provide a wide range of brown, reddish, gray or black shades with good fastnesses.

Mud dyeing is a traditional mordant dyeing technique. Bogolan or mud cloth is a traditional, handmade

African textile indigenous to the Bamana Tribe of Mali, where it has been produced and worn for generations (Limaye et al., 2012). The Bogolan dyeing follows a specific and unique procedure that utilizes natural products: textile, plants (rich in tannins), and clay-based mud (rich in iron). Mud is rich in minerals such as Aluminum, Iron (ferrous sulphate), and magnesium. Bogolan cloth suggests that the iron originally present in the clay is transferred to the cloth where it interacts with tannins, resulting in dark pigments strongly bound to the cotton fiber surfaces. Amami Oshima, island, southern Japan, a process of mud-dyeing used in the production of the Amamian kimono cloth Oshima tsumugi. Again, they use tannin and iron combinations to make brighter hues (Linton, 2020). It is seen that mud dyeing is carried out with tannin which produces by native plants.

The history of dyeing goes back to the Neolithic period. Until the synthetic dyes were commercialized and developed in the middle of the 19th century, the coloring of textiles was directed by using the colors extracted from natural sources such as plants and animals since ancient times (Verenkar & Krishnan, 2017). Dyed textile material found in Egypt had been dated to 3200 BC and in India 2000 BC (Bechtold, Turcanu, Ganglberger, & Geissler, 2003). Buddhist robe is the main and the most accurate evidence for the history of natural dyeing in Sri Lanka goes back 2550 years. Dyes for robe are obtained from six kinds of dye substances such as roots and tubers, plants, bark, leaves, flowers, and fruits. The robe was known as Civara in the Pali language which is recorded in the Vinaya-pitaka of the Pali Canon or Tripitaka. The great chronicle of Mahavaggapali in its 8th Chapter- 'Civarakkhandhakaya' is devoted to describe the robe of Buddhist priests and its traditional practices. The method of dyeing starts with preparing dye bath 'let a drop of dye fall into water, or on to your nail (in order to try if the dye is duly boiled) and also to use a (large) trough for dyeing (cloth) (Max, 1982). In the ancient times robes had become stiff because of too much dye. In order to have smooth robes the Lord Buddha advises to beat it with the hands. Transferring the dyed cloth to a robe has standard traditional custom and norms. The Lord Buddha advises his chief attendant Ananda to make the robe by being inspired by the pattern of rice fields in the village of Magadha. Venerable Ananda observed the Magadha fields and sewed strips of cloth representing a paddy field into a pattern separated by narrower strips to represent paths between the fields. Kathina ceremony or 'robe giving' ceremony takes pride of place since such a robe can only be offered once a year only at the ceremony after vas (rainy season) which has been continued since ancient times of the Buddhist society. Coomaraswamy (1956) stated in Medieval Sinhalese Art, that current practice of offering Kathina robes of Sri Lanka started by mid-20th Century. The Buddha brought in a rule that a monk who had observed vas (the period when the priest observes religious rites) and completed the period could possess another robe in addition to the prescribed set of three. Therefore, preparing Buddhist robe from making yarn to spun, weaving, dyeing, sewing has been continued as an essential religious ritual in Buddhist society. Coomaraswamy (1956) cites Rupavaliya and mentions "even Kings frequently performed this ceremony, employing hundreds of persons in all such work as picking the cotton, after it is extracted from the fruit, weighing, converting it into balls, spinning, weaving, washing, cutting into pieces, stitching, dyeing". Poojavaliya also mentions that eighty Kathina robes had been made overnight completing all the workmanship including stretch from plucking cotton and dyeing up to the finishing point (Coomaraswamy, 1956). Mahavamsa mentions that "on a certain occasion, King Parakrama Bahu II (1236-70), offered no less than eighty robes to the priesthood, in memory of the eighty chief disciples of the Buddha" (Dilhani, 1959). It is mentioned some accepted colours of the robes too. It is further stated that "now at that time the Chabbaggiya Bhikkhus wore robes that are blue, light yellow, crimson, brown, black and brownish yellow or dark yellow colour.

Due to the distinct lowering in the dyestuff costs per kg of dyed goods was achieved at the beginning of the 20th century, the development of synthetic dyes took place (Bechtold et al., 2003). In 1856 William Henry Perkin made the first synthetic dye. Further, synthetic dyes were also growingly popularized due to the limited and dull range of colors of natural dye (Kant, 2012). And also, the prolonged extraction process, moderate colorfastness to wash and light, non-availability in bulk quantities, and less reparability made the limited usage of natural dyes in the textile industry such reasons were raised up as negative points in natural dyeing (Gulrajani, 2001; Samanta & Agarwal, 2009). With good fastness properties, the wide range of colours available at low to moderate costs was the primary reason for the replacement of natural dyes with synthetics (Bechtold et al., 2003). Adverse environmental impacts have been created by petrochemical-based synthetic dyes, and their toxic nature (Kant, 2012). Water and environmental pollution occur due to the removal of wastewater to natural water streams after the dyeing process as

energy creates carbon footprint and chemicals that are harmful in nature. Due to the above facts, the textile dyeing process is known as one of the most globally unfavorable industrial process (Chequer et al., 2013).

Even though the poor fastness properties and the laborious procedures of application in natural dyeing are available, the process of natural dyeing is conserved by the key concept of sustainability. Most of the textile dye practitioners select the one bath dyeing procedure that rejects the two-bath dyeing process due to issues of time consumption and risks of lower reproducibility. Both textile workers and wearers of the cloths are expecting the reduction of exposure to harmful chemicals. Until the natural dyes are not affected with chemicals the remaining water can be fit into the natural ways of biodegradation (Vankar, Shanker, & Wijayapala, 2009). According to Fletcher, rising of the environmental awareness of the society the usage of eco-friendly natural dyes is becoming significantly important today (Fletcher, 2009). It is suggested to develop standardized dyeing techniques, improve colorfastness properties, obtain a new spectrum of colors and examine an economical process for extraction and application of natural dyes to successfully commercialize this process (Samanta & Agarwal, 2009). This situation remains debatable due to the discussion of expected advantages resulting from the future use of natural dyes. Zarkogianni, Mikropoulou, Varella, and Tsatsaroni (2011) suggest an array of advantages along with natural dyeing in dye houses as follows

- Simple and fast dyeing process, no intermediary drying steps.
- One-bath dyeing.
- A broad range of shades formed by a basic set of vivid dyes, including dark hues.
- Easy alteration of deviations in color depth and shade.
- Satisfactory fastness properties.
- Applicability in dyeing machines in use today.
- Observation of existing wastewater limits.
- No use of mordant based on Cu, Sn, or Cr salts.
- Bio-degradability of dyes in unwanted water treatment plants.
- Non-toxic properties of dyes and non-allergic potential of dyed material.
- Consumption of chemicals and energy comparable or lesser than the current state-of-the-art systems based upon synthetic dyestuffs.

The awareness of the real notion of natural dye colours can be educated. Aesthetic appreciation stresses importance of psychological arouses of the subject (Jacobsen, 2010). Humans appreciate a wide range of entities aesthetically: painting, sculpture, music, opera, theatre, literature, design and buildings but also faces, flowers, landscapes, food, machinery, habitats and various objects of everyday life (Jacobsen, 2010). Art is stimuli in aesthetic appreciation (Leder, Belke, Oeberst, & Augustin, 2004). It can be suggested that the real notion of natural dyeing is its unique nature of art. Natural dyeing belonged to traditional society. During the course of time, the process of dyeing has never changed. It is a slow process. The unique selling point is inherited values and customs which will give the customer an exotic experience. During the Kandyan Kingdom (the last Kingdom of Sri Lanka which was lasted from 14th Century AD to 1815) colours that were used in costumes were limited to red and blue Coomaraswamy (1913). Soft hues, slow colour resisting nature is unique to natural dyeing. The art of dyeing of cloth is an ancient technique practiced by native artisans. Coomaraswamy (1913) states that 'Sri Lanka work is essentially cotton.' Blue, white or red coloured works are applied to a blue or white background. King Wimala Dharma Suriya I (1591-1604) developed cotton farming during his reign (Abeyasinghe, Dewaraja, & Somarathne, 1977). Cotton was grown in the land of Vanni (Arasaratnam, 1958). Discussing domestic dyeing in Sri Lanka (?) (?) claims that no yarn is now dyed locally, except occasionally with an aniline green. It seems, however, natural to suppose that the red and blue dyeing, with madder and indigo, used to be done by weavers themselves, but evidence to that effect is very scanty. Now a days, the red and blue yarn are available in Batticaloa as they are imported from India. The blue colour substance has been difficult to obtain earlier, then later black colour has been substituted, but the appearance has not achieved the expected level. It seems that a better blue colour yarn is obtainable in Jaffna, and supposed to be supplied in some quantity of this to the Talagune weavers. Coomaraswamy (1907) in his study of dyeing in Ceylon explores two plants Chaya (Oldenlandia umbellata) and Patangi (Coesalpinia sappan) which were extensively used for dyeing in Ceylon in the following items, the old Kandyan flags and Hindu

temple hangings used to be so done, almost certainly by Tamil workmen. Painted clothes are popular in Jaffna for the Sinhala consumer. Colour limitation made the era with a unique sartorial taste. Availability of natural dye substances is limited. Cost of the natural dyeing process is considerable. Durability of natural colours is less. This real notion is suggested as a unique selling point of natural dyeing.

METHODOLOGY

The research is qualitative data analysis. Primary data were gathered from direct conversations. Natural dye practitioners who have been involved in traditional natural dye practice were interviewed. The data collection strategy used is determined by the question of the study and by determining which sources of data will yield the best information with which to answer the question (Merriam, 2002). Secondary data was gathered from journal articles, books, and found resisting processes, samples, and dye. Moreover, primary data helps to understand the real lifestyle of the natural dye of Sri Lanka that gives justification for the real notion of natural dye. The selected natural dye practitioners from Western, Central, and Southern provinces of Sri Lanka were interviewed for this research. Descriptive interviews were held to identify the properties of dye substances, mordants, fastening methods that they use in detail. Different qualities of the same dye substances could be identified through thorough discussions. Semi structured interviews were selected as the method for data collection because that helps to investigate the situation in detail and obtain rich descriptions from the participants regarding the dyeing process and techniques (Yin, 2003). Interviews were conducted to obtain information regarding the source and type of natural dyes being used, dye process (recipe), mordant (fixing agent), colour fastness and durability of the final product. Their experiences with natural dye have been recorded. The approach was well received by study participants and proved its value, revealing important factors of traditional natural dye practices. Observational data represent a first-hand encounter with the phenomenon of interest rather than a secondhand account obtained in an interview (Merriam, 2002). Further telephone conversations were held to clarify information, data was recorded as chart lists and categories of information and many photographs which gave an impression for the research were taken. Collected data was relatively analyzed with ample of information such as interviewed information and relevant literature. Dye recipes were listed down and the processes were recorded step by step in this research process. Data analysis began while the data was collected. Data analysis is essentially an inductive strategy where one begins with a unit of data (any meaningful word, phrase, narrative) and compares it to another unit of data, all the while looking for a common pattern across the data. These patterns are given names (codes) and are refined and adjusted as the analysis proceeds (Merriam, 2002). Data were coded for descriptive labels and categorized according to dye substances, mordants, fixing agents, washing methods, and drying methods.

RESULTS AND DISCUSSION

Two existing natural dyeing techniques of Sri Lanka are recorded. Dyeing of Buddhist robe with tannin and milky sap included dye substances and traditional mud dyeing are the two methods that revealed traditional dye substances, mordants, fixing agents which have been a practice in Sri Lankan culture for ages. Dyeing priests robes is a collective effort done annually. The act is considered as high merit. It was noticed that the act is culturally and religiously bond with the community. The Buddhist robe never abandoned nature and it is significant that even after two thousand five hundred years it still follows the same practice and practice over time. There are great opportunities to strengthen this sophisticated sustained tradition and develop into an eco-friendly industry with the technology tools and knowledge in use today. The Buddhist robe and its process, which expresses the path to natural dyes and the important concept of sustainability, provides impetus for the creation of a natural an elegant industry in the handloom sector of Sri Lanka.

Dyeing can be done with either fabric or yarn. It was found that dyeing of Buddhist robe is processed manually and it was noticed that all villages are well aware of dye substances. Usually plant extracts are used in raw form, or dried form, or powder form. From all three forms, colour intensity was found to be high. The most general method is plant extracts are chopped into small pieces, dried them in sunlight and grind them to obtain a dye power. Plant extracts are not only used as dyes, but also as a mordant (fixing agent) in the dyeing process. As a bonding medium (mordant) salt (Sodium Chloride) is added to the boiling dye bath. Either plant extracts or non-toxic mordants such as Alum are always being used in the dyeing process (Mozaffari & Maleki, 2018). Alum

was known as one of the most imperative components of textile industry before the introduction of chemical dyes in the 1850s. Alum, as a natural dye is safe and non-toxic.

The traditional robe colour is darker hues. Priests were forest dwellers in ancient times. Darker hues protected the wearer from wild beats. Besides, the fragrance of the robe converts to a similar essence of natural plants and misleads the animals. The fragrance of the fabric will protect the wearer from insects.

Table 1: Dye substances and their extract colours which have been traditionally practiced by the people of Sri Lanka (The color range is from dark red to dark brown)

Substance	Botanical Name	Extract Colors
Aralu barks (produce tannin)	Terminalia chebula	Shades of black
Bulu peels, Fruit, Leaves (produce tannin)	Terminalia beleria	Shades of orange and brown
Gokatu Kiri (milky sap) from Gokatu tree (heartwood)	Tribulus terrestris	Shades of brown
Waraka Tree Bark (milky sap) and roots	Artocarpus integrifolia	Shades of Yellow, yellow occur
Pathagi (heartwood) (produce tannin)	Coesalpinia sappan	Shades of red

Most of the substances used for this dyeing process are with more acidity. As [Belemkar and Ramachandran \(2015\)](#), [Nawrot et al. \(2020\)](#) show in their researches plants which produce milky saps have shown different activities like antimicrobial, antioxidant, anti-bacterial, anti-inflammatory, anti-asthmatic activity, anticancer activity, anti-ulcer activity, wound healing activity, anti-convulsant activity, biological activity, anti-diarrheal activity, anti-pyretic activity, pharmacological activity in human being and animal.

Steps of the traditional practice of dyeing the robe are explained below:

1. Washing the fabric. Fabric is washed with pipe-clay (Kiri mati) or cow dung to clean the fabric. In traditional stories, it said that pipe-clay (Kiri mati) was used to make soap in the past ([Kalyanathissa, 2019](#)).
2. Making of dye (Pandu). Dye substances which consist of tannin are mostly used. As [Gulrajani \(2001\)](#), [Mozaffari and Maleki \(2018\)](#) and [Krizova \(2015\)](#) show Tannins are most important ingredients in the dyeing with natural dyes producing yellow, brown, grey and black colors. Traditional dye practitioners have a great instinct on finding substances that consist of tannin. If you live with nature you will learn that every plant produces dye. In which part of the plant produces better dye will understand through hands-on practice ([Kalyanathissa, 2019](#)).
3. Dye substances are boiled in medium heat for a long period to prepare the dye solution. The dye is observed and checked by dipping a piece of cloth from time to time. Once the fabric is soaked with dark hues it is decided as ready to dye the robe. The colors extracted from these dye substances can be changed and vary from each other because it depends according to the amounts of substances added to the dye. The dye is kept in clay pots ([Imendra, 2019](#); [Wikramasinghe, 2019](#)).
4. The fabric is dipped in the dye bath and let it dyeing gently. 5. Drying the robe in the night breeze in the moonlight about 2 to 3 days. It should not expose to the sunlight before having the yellowish color (after dried in the breeze for 2 to 3 days) as it might give a bad aroma. ([Imendra, 2019](#); [Wikramasinghe, 2019](#)).
6. Washing the robe with water and Bombu leaves (*Symplocos cochinchinensis*). Boil the Bombu leaves at a medium temperature and wash the robe well with it. Soap does not use. It does not let the robe to touch with raindrops before washing it with Bombu Leaves (*Symplocos cochinchinensis*) because black spots might appear in the robe unevenly. Even coloring is expected from the process of dyeing ([Kalyanathissa, 2019](#)).
7. After washing the robe with Bombu leaves (*Symplocos cochinchinensis*) it can be dried under sunlight ([Kalyanathissa, 2019](#)).

One of the traditional practices of producing darker hues are retting in mud dyeing (kalu mada). This is the most primitive and earliest method of mordant dyeing which obtains relatively dark hues in between grey and black ([Coomaraswamy, 1956](#)). After initially dyeing a textile, it is retted in black clay in the paddy fields to fix the color component and to achieve darker hues. This process continues due to the ferrous contained in black mud which is already a mordant ([Muthunayaka, 2019](#)). Steps are to treat the fabric with tannin-rich plant material, immerse the fabric in a stagnant pond, river or paddy field with black mud, keep the fabric soaked in black mud for about a whole day and finally wash the fabric well in flowing water ([Muthunayaka, 2019](#); [Wikramasinghe, 2019](#)).



Figure 1. Traditional dyeing method: black clay dyeing

Significant Findings from Two Case Studies

- Darker hues can be achieved from two traditional methods - dye substances from plants with milky sap and retting in black clay (this is mordant dyeing system).
- Naturally dyed fabrics are advised to wash without using soap.
- Naturally dyed fabrics can be washed using Bombu row leaves (*Symplocos cochinchinensis*) in boiled water.
- Any dye portion can be kept for a long time in a clay pot until it is restricted from the human touch.
- Pipe-Clay is a good rinsing substance.
- Drying the dyed fabrics using the breeze at night in the moonlight is the best drying method.
- Not let the raindrops touch the dyed fabric before it is dried once and washed with water; boiled with Bombu leaves (*Symplocos cochinchinensis*).

CONCLUSION, RECOMMENDATIONS AND IMPLICATIONS

A range of natural dye substances, mordants, and effective traditional practices of dyeing was discovered. It was found that plants with different types of secretory products like milky sap, tannin are good fixing agents to achieve brighter hues. Black mud uses to mordant dyeing which produces darker hues. Plant extracted dye substances are also being mordants at the same time if it contains aluminum, ferrous, copper, magnesium, potassium, manganese, or lead. It was found that natural dye substances enable producing a range of colors from dark hues to lighter hues. Softer hues are key characteristics of natural dyeing. It is suggested to focus on consumers who accept and admire the beauty and the real notion of natural dyeing. Traditional methods of washing and drying were found. These significant methods can be proposed to the present Textile Industry which can be used in a smarter way than the conventional methods and also a researcher can further laboratory tests about properties of this study which can be an advantage for the Textile Industry of Sri Lanka.

The countrys natural vegetation covers about one-third of the total land area, a resource that is both plentiful and a potential market for agriculture, textiles and product development. Sri Lanka is committed to economic development that is sustainable and economically friendly. In this context, the use of natural dyes is consistent with this policy. It offers the growth of more plant life, non-toxic chemical means of coloring and could ensure products that are completely unique to Sri Lanka. Sri Lanka is at an advantageous position since the country holds a rich reservoir of natural raw materials. Different parts (leaves, bark, seed, flowers, roots and woods) of a considerable number of plants have been reported to yield dyes, however a large number of them is hitherto unexplored. The applicability of plant dyes for industrial purposes makes high demands on the quality of the product, especially with respect to transportability and shelf life of the dyestuff as well as to the standardization of high-quality dyestuff and the reproducibility of the dyeing results.

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