

**AN ANALYTICAL STUDY ON TRADITIONAL TECHNIQUES OF DYEING
TEXTILES WITH NATURAL DYES IN ASSAM, INDIA**

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ABSTRACT: *Natural dyes are dyes or colorants that are derived from plants, animals, insects and minerals. Natural dyes are prepared from both dye bearing plants and insects bases, utilizing the various properties. Most of the dyes are obtained from parts of plants– leaves, stem, barks, seeds, flowers, roots etc. Rural areas of Assam in North Eastern part of India are abundant in natural resources. There are many trees in the Northeast India which can be used as major sources of natural dye. Natural dye has a great demand in the international market. Today, people around the globe are rediscovering colour through the use of renewable and non-toxic natural sources. The present study is on the traditions and practices of Natural Textile Dyes in Assam. The paper focuses on the oral traditions, existing available documented information and targets to yield an informative document of natural textile dyes in Assam. The study started on reviewing a wide variety of literatures concerned with natural textile dyes in general, and such practices specific to the region. The study then moved to tap the oral traditions, and practices prevailing in the region, alongwith the sources and extraction and dyeing methods.*

KEYWORDS: Natural Dye, Textile, Assam, Traditions and Culture

INTRODUCTION

Scientists have been able to date the black, white, yellow and reddish pigments made from Ochre (a natural earth pigment) used by primitive man in cave paintings to over 15,000 BC. With the development of fixed settlements and agriculture around 7,000-2,000 BC, man began to produce and use textiles, and started adding colour to them. Before the introduction of synthetic colours, people used to dye the yarns by naturally available colours from their surroundings or locally available tree barks, flowers, leaves, roots, fruits, insects etc. People of Assam know the art of dyeing from the very early times, which was mainly made by natural sources like lac, indigo, madder and other products. Lac dyeing was culture of ancient Assamese people. Currently Lac industries are mainly found in Kamrup district in Assam, and the Khasi, Jaintia and Garo hills districts of Meghalaya. Coloured robes dyed with Lac are very popular among eastern tribes.

Nowadays, people have a craze for natural things; cotton, natural colours or living colours are very much accepted by the new generation, and many people at different levels, social, academic, scientific or cultural research, have come out actively participating to preserve the traditional components of civilization.

Natural dyes

Natural dyes are dyes or colorants that are derived from plants, animals, insects and minerals. Natural dyes are prepared from both dye bearing plants and insects bases, utilizing the various properties. Most of the dyes are obtained from parts of plants— leaves, stem, barks, seeds, flowers, roots etc. Rural areas of Assam are abundant in natural resource, which are not explored. There are many trees in the Northeast which can be used as major sources of natural dye. Natural dye has a great demand in the international market. Today people around the globe are rediscovering colour through the use of renewable and non-toxic natural sources.

Natural dyeing is very complicated process, if we think to make it for production or for dyeing textiles in vast quantities. There are lesser ranges of colours and also natural dyes are not very colour fast. For many centuries the methods used in dyeing were carefully guarded secrets, passed on by word of mouth. But about the 16th century, many groups of dyers and different forms of organizations began to keep written records giving a clear picture of art of the dyeing at that time. The methods had remained unchanged for at least 1,500years. Dyeing is an ancient art which predates written records. There are unique uses of dyes and dyeing methods in each country. Primitive dyeing techniques included sticking plants to fabric or rubbing crushed pigments into cloth. The methods became more sophisticated with time and techniques using natural dyes from crushed fruits, berries and other parts of plants, which were boiled into the fabric and gave light and wash fastness (resistance), were developed. Some of the well-known ancient dyes include madder, a red dye made from the roots of the *Rubia tinctorum*, blue indigo from the leaves of *Indigofera tinctoria*, yellow from the stigmas of the saffron etc. Few examples of parts of plants used for Natural dyes- Flowers- (*Sewali phul*) and Hibiscus (*Joba phul*), Marigold (*Gendhai Phul*); Leaves- Henna (*Jetuka pat*), Indigo (*Nil*), Teak (*Segun*); Barks-Jack fruits, Red sandal wood; Skins- Pomegranate, Onion; Roots- Madder, Turmeric.

Until the second half of 19th century, everywhere in the world, natural dyes were the only sources of colours for everyday textiles. Natural dyed fabrics were used as aesthetic value, symbolic power, and therapeutic functions. Natural dyes are practiced almost every part of the world from the early times, which was passed from generation to generation orally.

SIGNIFICANCE AND METHODOLOGY

Now a days people are becoming health conscious, they are going organic or herbal, or natural. People have weakness for organic food, organic textiles, herbal cosmetic or medicines and we all love natural products or the benefits of natural products. But few people know about natural dyes, and practicing of natural dyes is gradually diminishing. Many unique sources and processes must urgently be recorded before it is too late. These dyes are mild, eco-friendly in nature, good for our health, skin, and we feel comfortable. These natural dyes are very popular in developed countries, and few places in India and Assam. Throughout history, natural colours have played a major role in economic and cultural exchanges between nations.

Unfortunately, there is no proper photo or written documentation, no written resources in well-structured forms and or proper colouring procedures and its availability in regards to our state Assam. Few people, who know also, do not want to disclose or teach the procedures to others, the practices are confined within their own communities.

It is therefore, of great importance to have a comprehensive study on the natural dyes, so that a formal documentation with all associated factors could be gathered. The scope of the present study contributes towards revival of the vanishing culture of natural dyeing in the state of Assam, and would also serve for documenting the sources, processes, importance, and variety of colours and also for preserving the living cultural knowledge of our ethnic tribes or pre-Aryan indigenous people.

The methodology of current research work is of hybrid in nature. It involves study, analysis, and documentation. Experiments also play a major role in the research work, as natural dye is a practice. Thus different kinds of methodologies for completion of the research works have been adopted. Primary, secondary data collection and analysis have been adopted, resulting compilation of the evolution and practices of natural dyeing techniques.

The primary and secondary data collection and analysis have also contributed to the structured documentation of the research findings. Experimental analysis for few dyeing techniques and practices have resulted the chapter of preservation of the samples following the practices. Primary data collection, study, and analysis, along with documentation were through visit to different Organizations, persons and places in the state of Assam, India. Few are-Guldasta, Boko, Kamrup; Vijoy Nagar, Kamrup; Sualkuchi Institute of Fashion Technology; meeting with Research Scholars of Institute of Advance Studies in Science and Technology; Villagers of Lokhra Karbi Village, Guwahati; Shyamgaon, Titabor; Botanical Garden- Gauhati University; Visiting the Villages- Barnaddi, Nalbari, Assam; Sundarbori, Guwahati and Ahomgaon (near Garchuk, Guwahati). Secondary sources includes- Handique Collage Library; Assam Textile Institute Library; Gauhati University K.K. Handrique Library; written material collection of Mr. Chandan Keshav, Mirza, Kamrup, who is an activist and industrialist on Natural textile dyes; different books, research papers, booklets, workshop handouts, newspapers articles and internet.

Also through Experimentation, different procedures and techniques have been studied and analysed. Information from primary and secondary sources has been experimented manually. Procedure and results are documented with different characteristics parameters like-Colour extractions methods; dyeing procedures on piece of fabrics; Different shades obtained by different methods (mixing); Colour fastness of different colorants. Sample dyeing was done by Marigolds, Kehraj, Silikha, Tea, Turmeric, Aparajita, Bixa, Nuni, Onion skin etc.

Natural Dye in Assam: Traditions

In Assam, dyeing culture is mostly prevailing among the indigenous peoples like *Garo, Karbi, Boro, Rabha, Mishing, Tye-phake, Tye Turung* etc. Assam is gifted with unlimited colours from nature, but all colours are not for dyeing textiles, needs mastering to know which part can be used for colouring and also the process of dyeing. The practice has been significantly decreasing due to the less awareness of systematic identification of plant and few insect sources and extraction process. The handicrafts workers of the region are utilizing readily available cheap synthetic dyes on their woven fabrics and slowly people of Assam forgot the use and practice of dyeing with natural dyes for textile fibers. The methodologies for extraction of dyes from natural raw materials are different for different colours, different materials. Usage pattern for different dyes for different types of yarns, textiles are also different. Those differences are also significant from community to community, locality to locality. Although such practices have been significantly decreasing in later half of last century due to easy availability of

chemical dyes, diversity in such chemical dyes, and also due to the easy methods of dyeing, but still in many parts of the state natural dye extraction and using for textiles are practiced. The significance and importance of using organic dyes in the world in recent days have started creating awareness in Assam for restoring such practices. The diversity of methods, wide range of such dyes, and permanency of such dyes in textiles support significant potential of further organizing and commercializations of natural dye practices in the state of Assam. Acceptance of such dyes in many developed countries has also contributed towards commercial viability of such practices, which could be easily converted into organized natural dye productions.

Almost all such natural textile dye producing practices are with oral traditions. This has resulted in vanishing many such methods and practices. There has not been any complete study and analysis on the entire practices. Scattered information is present in many literatures, mainly in cultural and religious books. Although there are few research works and studies related to natural dyes, mostly these are scientific studies, and concentrated on the botanical or chemical analysis and documentation. It is of great importance to have a complete and structured study on the natural textiles dyes of Assam, so that the practices extinguishing from our society could be well preserved.

Natural Textile Dyes in Assam: Techniques and Practices

Assam is a bio diversity paradise and it is a hot spot because of its varieties of silks species, which includes eri, endi, pat, and muga. They are part of our culture and of great economic significance for many people. In Assam lots of sources of natural dyes are available. The roots of the *Rubia sikkimise*, blue colour obtained from the leaves of Rom or *Strobilanthes cusia*, yellow from the stigmas of the sewali or night jashmin. Black colour is obtained from bark of *Jamun* and *Shlikha*. Young bettle leaf with nut was also used for natural dyeing. Natural dyes were practiced by the indigenous people of Assam before the chemical dyes were introduced. Although few communities still practice Natural Dyeing, but they keep their process secret. Now a days, Lac industries are mainly found in greater Boko and Mirza areas, Odalguri, Haropara of Vijoy Nagar, Gorchuk, Titabor, etc.

Dyes which are derived from plants, animals, minerals or insects are used in the form of- raw, paste or powdered or dried form. Interesting results can be obtained from dye stuff by experimenting with different soaking times; while part of the material can be used immediately and the remainder can be again kept in water for further few hours to several days in order to get different colour deepness or shades.

- Dyeing with flowers: The flowers are soaked submersed in water and boiled. *Flowers-marigold, night Jashmin (Sewali phul) and hibiscus (joba phul)*
- Dyeing with berries: The berries are washed and then crushed and boil in vinegar or lemon juice.
- Rhizomes and leaves with soft branches: Soaking the chopped rhizomes or the plants and fresh branches in warm water for one night.
- Roots- Madder, Turmeric, Madder roots Leaves- henna (jetuka pat)
- Seeds: Seeds also same procedure can be applied by first soaking the seeds and then crushed. (*bixa - sendur gosh*)

- Barks woods: Since these are difficult to dye, the bark woods are first made into chips, sawdust or if possible powdered. Dyeing barks it needs more time. (*Jack fruits, red sandal wood*)

Different Dyeing techniques used are –

- Direct dyeing: The process is done by soaking or boiling the fibers dipped in the water and dye or dye bath.
- Vat dyeing: The vat dyeing technique is specially for dyeing Assam Indigo (Rom). Indigo leaves or power gives a deep blue color on wool, silk, cotton etc. Dye bath are called vats, wooden vats, earthen pots are used in the early days, which are buried in the ground to maintain the temperature, so that the vat was not disturbed.
- Mordant dyeing: Some dyes do not bind strongly with textile fibers and can combine with various metallic salt and natural mordants. A mordant blends the dye staff to the fibers with added benefits of increased light, and wash fastness. In Assam Natural mordants available are Oxalis corniculata (tengeshi), Terminalia chebula, Rumex acetosa (suka), GarcinaSp, lime, alum, rice cakes used for rice beers, iron from the mountains of Assam-Meghalaya border etc. Alkali is used made from wood ash of bamboo. First bamboo is burnt in fire and then the wood ash is filtered. Water is then filtered with layers of this ash.

Indigo (Rom) Dyeing in Assam

Assam indigo (Rom) is still cultivated and used for dyeing eri silk and cotton fibers. In Assam indigo is called Rom, which is used to make a very dark blue similar to black lower garment called mekhela, popular among the women of *Khamyan* Tribe.

Case Study-1 (Indigo Dyeing):

Among the different traditional knowledge which still exist within local people of Shyam Gaon, a village in Titabor, Jorhat District of the State of Assam in North East India, is the dyeing of textiles with a plant called Rom. Rom is known as Assam Indigo, the scientific name of which is *Strobilanthes cusia*. The Rom or Indigo bearing plants are there in most of the *Shyam* households from the ancestral time. *Tai Shyams* are part of the *Khamyang* tribes who migrated from Thailand to Northeastern part of India. The traditional dye making process is still surviving in Shyam Gaon-Betbari. Dyeing culture of Indigo from fresh leaves of Rom is practiced in almost each and every family of Shyam tribes. Rom plant is cultivated almost in every household. The traditional or indigenous dyeing method followed by them is passed on by elders in their family, generation by generation. Among the Shyam tribes, the dyeing is mainly done by female members and passed to the next generation.

Case Study-2 (Practitioner):

Another regular practitioner is Mr. Naramohan Das in Kamrup district of Assam. We visited the residence of Mr. Naramohan Das of Village Haropara of Vijaynagar area of Kamrup District of Assam. He has his own cottage industry of Natural dyes. He does dyeing handloom textiles with natural dyes sourced from different parts of the state. He produces finished textile products like scarfs, stole carpets, mats, ladies garments, Jackets etc, and sells to customers local as well as foreigners. He is practicing from more than 20 years. He learned the process

of natural dyeing by himself mostly through experimentations. He is a master weaver, and is an expert in weaving, which he learnt from his mother. He weaves various types of silk fabrics and traditional dresses especially eri and muga stolls. Nara Mohon has also exported silk products dyed in natural dyes to places like Germany, Newzealand etc. The natural dyes that he uses to do are with-Halodhi (Turmeric), Gobor (Cowdung), Sahpat (Tea leaves), Jetuka (Henna), Indigo, and Lac. He also experiments by mixing different Dyes to get shades of colours. Indigo and turmeric are mixed to get bright leaf green colour and indigo and lac is mixed to obtain violet colour.

Mr. Das always dyes with proper measurements like professional dyers. Though it is not always necessary to use chemical mordant, but he used chemical mordants while dyeing with indigo powder. During Lac dyeing he used only natural Alum as a fixer or mordant which is not toxic.

CONCLUSION

Natural dyeing is an indigenous practice, which is continued from early days and also records say that dyeing culture migrated to Assam from Myanmar. In earlier days, dyes extracted from nature were widely used and were part of their life but in the present days its practice is vanishing day by day. Mostly all the tribes practice rearing of silk, spinning of cotton, but few tribes practice dyeing with natural dyes from locally available products. The sources mostly used for dyeing nowadays, and are common between all tribes are Lac and Assam indigo.

Now days there is interest and awareness among the people as they are very conscious about their health and also environment, therefore there is an urgent need to protect the environment from pollution emerged from industries, which causes imbalance of ecology. If proper uses of these natural resources can be done for dyeing textiles, then there will be less use of harmful chemical dyes and does causes less pollution. But due to lack of availability of accurate scientific data on extraction and dyeing method, it has not commercially succeeded like synthetic dyes.

Dyeing with natural dyes remained restricted among few people. This vast treasure of traditional knowledge which is our natural heritage, endangered species need to be protected. Dyeing with natural sources is still practiced by very few elderly people, and if the process is not documented and preserved chance is there not to find any essential information before it vanishes. An integrated effort by few individual people and people from different fields of Botany, Anthropologist, home science all have made it possible to revive the forgotten practices.

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