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NATURAL DYES AND TEXTILE AS CULTURAL MARKER: A STUDY AMONG THE TAI PHAKE OF UPPER ASSAM, NORTHEAST INDIA

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Abstract

Costumes, motif on textiles and colour combination elucidates the folk identity in the world. The Tai Phake is the most prominent and second largest group among six Tai groups of Assam, Northeast India who have migrated during the Ahom period and entered Assam in the middle part of eighteen century. They maintain a rich mosaic of cultural heritage inherited from their ancestors. Traditional costumes of the tribe are adorned with significant colours which are extracted from natural plant resources. In the present study the traditional knowledge of natural dyes and dyeing technique and traditional costumes of Tai Phake was documented and discussed. Field study was undertaken during September 2016 to February 2017 following methods of semi-structured interview and participant observation. This study established that natural dye and colour combination of costumes play a central role in the socio-cultural life of Tai Phake. During the study time mainly two plants are used as source of dyeing agents and five plants are used in the process of dyeing in their costumes. Colour combination of costumes differentiates age gradation among male and marital status among female. Ethnobotanical exploration in indigenous societies can provide, among other information, exploitation of natural resources as source of colour and dyes in material and religious life. Such information can be judiciously used to develop important products that will benefit the community and human society in general.

Keywords: Tai Phake; Traditional costumes; Natural dyes; Folk identity

INTRODUCTION

Natural dyes are colorants derived from plants, minerals or invertebrates. Roots, barks, leaves, berry and woods are the sources of natural dyes of plants. Oldest record of natural dyes was found in China dated 2600 B.C. The art of dyeing is as old as the Athorba Veda. Cave painting, art and crafts of Ajanta and Ellora demonstrated the existence of natural dye in ancient times. Colour in clothing has been extensively used since 5,000 years (Kar and Borthakur, 2007). Coloured garments and traces of madder (*Rubia cordifolia* L.) are found at the time of Indus Valley Civilization in the ruins of Mohenjo-Daro and Harappa (Teron and Borthakur, 2012). Saffron (extracted from flower of *Crocus sativus* L.) and henna (extract from leaves of *Lawsonia inermis* L.) are two dye stuff are recorded even before 2500 B.C., (Guljarani, 2001). Natural dyes are believed to be safe due to their non-toxic, non-carcinogenic and biodegradable nature and also people can handle with care and safely. Every community has their own traditional dresses dyed with natural dye.

Northeastern region of India is one of the biodiversity hotspots of the country. It is the harbour of natural plant resources for material culture of different tribes residing in this bio-geographical region. In this paper traditional knowledge of dyes and the practice of dyeing yarn (especially Muga silk) and weaving of significant textiles of the Tai Phake community are presented. The tradition of dyeing and making traditional dresses in traditional loom is one of the unique age old cultures of the Tai Phake. Conservation of dye yielding plant resources as well as forest coverage can provide a greater chance to protect the gradual erosion of availability of

natural dye or fascinating hoes in the traditional costumes of the Tai Phake. In context to Northeast India several publications have been cited on dye yielding plants and traditional technology of dyeing process of different tribes such as Mahanta and Tiwari (2005), Bhuyan and Saikia (2005), Das and Kalita (2017), Akimpou et al., (2005), Upadhyay and Choudhary (2012), Kikim et al., (2015) etc.

MATERIALS AND METHODS

The present study was conducted in three different villages namely Namphake, Bor Phake and Pha Neng of Assam, Northeast India. Nam Phake village is situated in Dibrugarh district and other two are under Tinsukia district. In Dibrugarh district, the Nam Phake village is situated about 60 km east of Dibrugarh town and only 5 km from Naharkatia town. Total population count of the village is 594. Traditional houses, traditional costume of the people and the beautiful Buddha Vihar attract various tourists from different places, even from Thailand, China etc. The people of the Tai Phake villages always wear their traditional dresses during their presence in the village. Bor Phake village is the oldest of the Phake villages of India. The village and the surrounding forest areas are tremendously affected by soil erosion of the Buridihing River. Due to the shrinkage of forest cover, the material cultures of the people are diminishing day by day. Pha Neng as compared to Nam Phake and Bor Phake, is a small village and the population of the village is 230 comprising of 27 families. It is located on the bank of the river Tirap and is 5 km away from Lidu Colliery in the Southeast region of Assam.

Both Tinsukia and Dibrugarh districts fall under Northeast bio geographic zone of East Himalayan range and also lie on the south bank of mighty Brahmaputra River. Like every civilization, the Tai Phake villages are also situated in the bank of a river. Nam Phake and Bor Phake villages are located in the bank of Burhidihing River while Pha neng grows beside Tirap River. The people of the tribe are eco-friendly to their surroundings and are mainly dependent on the luxuriant biodiversity of plant resources for their livelihood.

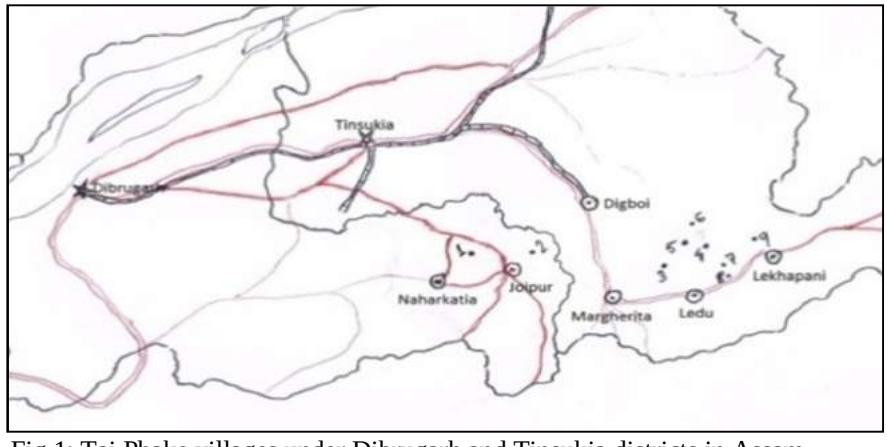

Fig.1: Tai Phake villages under Dibrugarh and Tinsukia districts in Assam
(1. Nam phake; 2. Tipam Phake; 3. Bor Phake; 4. Man mo; 5.Nong Lai; 6. Long Phake; 7. Ningam; 8. Moung Lang; 9. Pha neng)

The People

The Tai Phake, a small population, inhabitant of riverine areas of Dibrugarh and Tinsukia district of Assam, are originally a hill tribe within the great Tai group. The Tais are distributed from Assam extending up to the Chinese province of Kwansi and from Bangkok to the Interior of Yunnan (Sharma and Thakur, 1982). There are six different Tai groups in Assam i. e. Tai Ahom, Tai Phake, Tai Khamti, Tai Turung, Tai Khamyang and Tai Aiton. The Tai Phake is the second largest group among these six groups. They are Buddhist by religion and entered Assam during 18th century. The main objective of this paper is to identify the dye yielding plants they use as dyestuff for their traditional textiles.

Traditional Knowledge on Natural Dye and its Application

Every woman and girl of Tai Phake are expert in weaving their own traditional dress. They collect natural dye from bark, fruit, flower, rhizome, leaves of the plants and mixed with water. The process of extraction and dyeing on muga silk is a lengthy one. Traditional costume of Tai Phake are adorned with full of bright colour combination. They have the technical knowledge of extraction of yellow dye from *Garcinia xanthochymus* to increase fastness in Muga silk yarn and from *Strobilenthus cusia*, they extract dark green dye. The bark of *Garcinia* has yellow dye which becomes brighter when addition to the extract of the leaves of *Maesa reticulata*. Noteworthy that, the process of dyeing of yarn has always been done in the winter season and the water which is utilised in the process is collected from a river. In winter season the river water becomes calm and almost clean and they store this clean water in earthen ware for future utilisation.

Data Collection

Field studies were conducted among Tai Phake women in three different villages of the study areas during September 2017 to February 2018 through semi structured interview (Alexiades, 1996) and participation observation. The information of natural dyes and the process of colouration are collected from 16 women of three different villages and participated in the dyeing process with the women of Nam Phake village. The collected specimens were identified with the help of references and made into herbarium by standard method (Jain and Rao 1977) and deposited in the herbaria of the Life Science Department, Assam University, Diphu Campus, for future reference.

RESULTS AND DISCUSSION

Traditional costume of Tai Phake are adorned with full of bright colour combination. Every woman is an expert weaver. They have the technical knowledge of extraction of dye and dyeing method to increase fastness in Muga silk yarn (Gohain, 2005). They use a special type of traditional loom (*Ki hook*) (Gohain, 2005) (Fig 2). During the study period the weaver use mainly two dye yielding plant for extraction.

Significance of Colour

The uses of natural dyes in different dresses are an important aspect of the Tai Phake community. The following are some the dresses having specific natural colours.

Pha-Nung: The aged male Tai Phake people use *Pha-Nung* with a colour combination of black, or white with a mixed combination of Green, Golden Yellow and Violet.

Young boys use *Pha-Nung* with purple blue as prime colour and mixed with Yellow, Green, black, white, violet etc.

Children wear a mix colour of white, purple blue, green red, yellow etc. Males use

Shou (shirts) of different types with their age grading.

Shin: Women wear *Shin* (*Mekhela* in Assamese) and consist of three parts. The lower two parts is known as *shin* and the upper part is called *Haou shin.*

Colour of Shin Differs with Marital Status

Married women use silver and onion colour.

Unmarried girls put on *Shin* with silver, onion and black colour.

Aged women wear *Shin* with green and silver colour.

Dye Yielding Plants

Traditional costumes of the Tai Phake are dyed with fascinating hues obtained from plants and other sources. Often crafts are also dyed with an unidentified vegetable dyes. During this period seven plants used in extraction have been recorded viz. *Strobilanthes cusia* (Fig. A) is the principal source of natural dye. Other plants are *Garcinia xanthochymus* (Fig. B), *Maesa reticulata* (Fig. C)**,** seeds of *Ricinus communis* L.**,** *Oryza sativa* L. and Ma Kaing (*Cycas* species, Fig. D).

Table 1: Plant species for dyeing process

Plant name & family	Local name	Part use	Mode of application
Strobilanthus cusia (Nees) Kutz [Acanthaceae]	Hompat	Leaf	Extract black dye from the leaves.
Garcinia xanthochymus Hook. [Clusiaceae]	Mu la	Bark	Extract yellow dye from the bark
Maesa reticulata C.Y.Wu [Primulaceae]	Mouit	Leaf	Mix with *Garcinia* to increase the brightness
Ricinus communis L. [Euphorbiaceae]	Mau kong	Seed	Use to reduce the foam in the dye solution
Oryza sativa L. [Poaceae]	Nam khao	Seed	To make the thread rough that easily separate from each other
Cycas species [Cycadaceae]	Mak kaing	Cone	To comb the thread
Albizia lebbeck (L.) Benth [Fabaceae]	May kang	Stem	To make the solution alkaline

Process of Dyeing

Black colour on Muga Yarn: Leaves of *Ram* plant (*Strobilanthes cusia)*, Castor seeds (*Ricinus communis*), lime and plant ash (Firewood of *Albizia lebbeck*) water are important requirements in the dye yielding process. The leaves are thoroughly washed with water and kept in earthenware with some quantity of water and allowed to ferment for a week. After that, the leaves are squeezed and the dye is collected in the same pot. Equal amount of lime is then added to the dye and stirred with a stick, producing foams. Three or four crushed castor (*Ricinus communis*) seeds are then added to reduce the foam. The pot is

covered and the mixture is kept undisturbed for 2-3 days in sunlight to allow precipitation.

Threads or yarns are usually dyed on a sunny day. The upper layer of water is decanted and adequate quantity of ash water is added to the precipitate to make the solution alkaline. Ash solution is prepared by adding water to wood ash taken in conical bamboo basket; the filtrate which is alkaline in nature is collected in a container.

Yarns or threads are dipped into the alkaline dye solution gradually from one end. After five days, the yarns are taken out and excess dye is rinsed with water and dried in the sunlight and then soaked again in the dye solution. The process is repeated three to five times until a desired shade is obtained. For proper binding of dye, coloured yarns are boiled with sticky rice (*Oryza sativa*) to make the thread rough and the colour permanent. The yarns are taken out from the solution, washed and further processed by beating with a piece of wood on a wooden plank. The yarns are finally washed with water and subtended tightly on bamboo to dry. During drying, the threads are separated from each other with thorny fruit of *Mak Kaing* (*Cycas* species). Fully dried threads are ready for weaving.

Yellow colour on Muga Silk Yarn: The Tai Phake people have their own tradition to make the Muga silk yarn bright golden colour to weave. They use two different plants for this golden yellow colour. The bark of *Garcinia xanthochymus* and leaves of *Maesa reticulata* plant are collected. The upper rough portion of the bark are removed and made into small pieces and then pounded in a wooden mortar and sieved to make fine particles. Two parts of *Garcinia* bark powder and one part of *Mouit* are taken to boil with Muga silk yarn. For better colouration of the yarn, it is stirred with a bamboo stick. The boiled materials are kept for few hours to cool. The complete process has to be done repeatedly until the required shade is obtained. The final colour of the yarn becomes bright gold.

Violet colour on Black yarn: Violet colour is made by adding the extraction of *Strobilanthes* into the black yarn and boiled 3-4 times repeatedly. The black yarn becomes violet in colour.

The most noticeable point is that the whole amount of water used in dyeing process is collected only from the river in winter season when the river water is calm and clear. But for summer season they preserve the water in earthen ware to do this work as the water becomes muddy during summer.

CONCLUSION

The present study on Natural dye and textile of Tai Phake community of Assam revealed that the unique culture of extraction of natural dye and lengthy dyeing process has been remained confined in their socio-cultural life. Although the rich cultural heritage is gradually fading away day by day due to the availability of cheap chemical dye and acculturation among new generation, still they are trying to maintain the culture of dying process in some remote villages. The use of Muga silk in the bride's garments is a compulsory culture among the people but today it is found only in the rich families due to expensive values. It has been observed that the culture of dyeing of different colour such as black, violate, purple, green have already dominated by synthetic dye except yellow dye which is extracted from the bark of *Garcinia xanthochymus*. The culture is now confined to the surviving aged women of the tribe. They are facing threat to protect their wealth of indigenous knowledge of dyeing culture due to the unavailability of sufficient amount of dye

yielding plant resources. It is seen that most of the women of the tribe never think about the conservation of dye yielding plants, they remove the bark of *Garcinia* plant so frequently that the plant ultimately die.

Though the natural dyes have few disadvantages over synthetic dyes but from the environmental point of view the traditional natural dyes might be an alternative way to develop eco-friendly environment around us. It is high time to document and conserve this treasure of indigenous knowledge system and wealth of dye yielding plant resources of our surroundings to make the culture sustainable one.

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REFERENCES

Akimpou G., Rongmei, K., Yadava, P.S., 2005. Traditional dye yielding plants of Manipur, North East India. Indian Journal of Traditional Knowlwdge. 4(1), 33-38.

Alexiades, M.N., 1996. Collecting ethnobotanical data: An introduction to basic concepts and techniques. In: Alexiades, M.N., (Eds.), Selected Guidelines for Ethnobotanical Research: A Field Manual. The New York Botanical Garden, Bronx, New York, pp. 53-94.

Bhuyan, R., Saikia, C.N., 2005. Isolation of colour components from native dye yielding plants in North Eastern India. Bioresource Technology. 96(3), 63-72.

Das, H., Kalita, D., 2017. Fibers and Dye Yielding Plants of North East India. In: Bioprospecting of Indigenous Bioresources of North-East India. Springer, pp.77-99.

Gohain, A., 2005. Tai Phake Hokolor Bastra Hilpa aru Huta Rong kora Paddhati. Anajori- Souvenir of Moran Anchalik Satra Santha, Rongali Bihu Samiti, Moranhat, Assam.

Gohain, N.P.T., 2005. Tai Phake Hakalor Boyon Hilpa Koukhal aru Prayug. Anajori- Souvenir of Moran Anchalik Satra Santha, Rongali Bihu Samiti, Moranhat, Assam.

Guljarani, M.L., 2001. Present status of natural dyes. Indian Journal of Fibre and Textile Research. 46(7), 19-28.

Jain, S.K., Rao, R.R., 1977. Handbook of Field Herbarium Methods. Today and Tomorrow Printers, New Delhi.

Kar, A., Borthakur, S.K., 2007. Dye yielding plants of Assam for dyeing handloom textile products. Indian Journal of Traditional Knowledge. 7(1), 166-171.

Kikim, A., Khan, M.R., Yadava, P.S., 2015. Traditional dye yielding plants used by different communities of Manipur, North Eastern India. 6(5), 591-597.

Mahanta, D., Tiwari, S.C., 2005. Natural dye yielding plants and indigenous knowledge on dye preparation in Arunachal Pradesh, North East India. Current Science. 88(9), 1474-1480.

Sharma, G.C., Thakur, B.R., 1982. The Tai Phake of Assam, B.R. Publication Corporation, Delhi.

Teron, R., Borthakur, S.K., 2012. Biological motifs and design on traditional costumes among Karbis of Assam. Indian Journal of Traditional Knowledge. 11(2), 305-308.

Teron, R., Borthakur, S.K., 2012. Traditional knowledge of herbal dyes and

cultural significance of colors among the Karbi ethnic tribe in Northeast India. Ethnobotany Research and Application. 10, 593-603.

Upadhyay, R., Choudhury, M.S., 2012. Study on some common plants for natural dyes. International Journal of Pharmaceutical Research and Bio-science. 1(5), 309-316.

Strobilasthus cusia

Garcinia

Maesa reticulata

Cycas

Loom

Taaw

Tam hang

Coloured thread in

Process of colouration

Process of colouration

Process of colouration

Process of colouration

Process of colouration

Process of colouration

Process of colouration

Colourful garment

Colourful garment

Colourful garment

Bride and groom

Locals in traditional attire

Tai Phake women in traditional attire