International Journal of Research and Review
www.ijrrjournal.com E-ISSN: 2349-9788; P-ISSN: 2454-2237

Review Article

Traditional Natural Dyes Used for Dyeing Fibre and Fabrics of Manipur

Dr. Y. Prabhabati Devi

ACTO, Home Science,
KVK, Chandel, ICAR Manipur Centre, Manipur, India

ABSTRACT

Natural dyes are dyes or colorants that are derived from plants, animals, insects and minerals .Most of the natural dyes are obtained from parts of plants-leaves, stem, barks, seeds, flowers, roots etc. The present study is on dyeing of fibre and fabric with natural dye in Manipur. The study started by reviewing a wide range of literature like books, journals, bulletins concerned with natural dye and interview with people who engaged in this age-old tradition. All the documents available in written form were documented properly. Colour photograph of some of the handloom products dyed with natural dye were taken. The people of the state still use these dyes for dyeing of their handloom products which are famous all over the world. Different mordants like acidic and alkaline obtained from natural resources were also used to get different shades and also to increase the colour fastness of the fabric.

Key words: natural dye, age-old tradition, mordant, handloom, colour fastness.

INTRODUCTION

Manipur is a hilly state in the North eastern corner of India. It lies $23^0$49' and $25^0$41'N latitude and between $92^0$59' and $94^0$45'E longitude. The state covers an area of 22,327 sq km. It is the biodiversity hotspot of many indigenous natural dyes. Natural dyes are dyes or colourants that are derived from plant, animal, insect and mineral. Natural dyes are prepared from both dye bearing plants and insect. Most of the dyes are obtained from parts of plants, leaves, flowers, stem, bark and root etc (Chakravarty, S. and Kakaty, H. R. 2015). By 15,000 BC, scientists have been able to date the black, white, yellow and reddish pigments made from Ochre (a natural earth pigment) agriculture around 7,000 – 2,000 BC, man began to produce and use textiles, and stared 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. Rural areas in the North-Eastern part of India are abundant in natural resources. There are many trees, flowers and insects in the north-east India which can be used as major sources of natural dye. Manipur is the hotspot for flora and fauna. Natural flora and fauna are full of exquisite colours, fascinating and attracting human being towards a vast portfolio of possibilities. A large number of flora and fauna have been identified for extraction of colour and their diversified use in textile dyeing of fibres and fabrics. Extraction of natural dye from marigold flower and dyeing of fibre and fabric serve as a potential source of natural colourants which can be used in textile industry for dyeing purpose. The flavonoids and carotenoids present in the marigold flower gives a good dyeing agent for cotton and silk fabric (Chandra Kumar Jha and et al, 2014).

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 resources. Natural dyes are eco and

user friendly as well as non-toxic and non-allergic in nature. Use of wealth of colours in handloom product is a unique feature of the textiles tradition of Manipur. The non tribal plain people mostly used cotton and silk of natural hues. The fabrics are adorned by ornamental border woven with dyed yarn. On the other hand, the handloom product of tribal people, both the hills and the plain are always colourful. In both the cases the yarn (fibre) are dyed first and use in its dyed state. It is evident from old records that people from north eastern region especially Manipur has greater wealth of indigenous dyes yielding plant in every village as dyeing is an indispensable part of traditional textiles.

METHODOLOGY

For this present investigation, review of literature like books, journals and bulletin were collected. Interviews were also conducted with person still engaged in this age old tradition. All the documents available in written form and reports were documented properly. Color photographs of the some of the indigenous handloom products have also been taken. Efforts have also been made to find the correct names in accordance with the latest international code of Botanical Nomenclature.

TRADITIONAL NATURAL DYES USED FOR DYEING FIBRE AND FABRICS OF MANIPUR:

In the following enumeration, natural dye yielding plants are given. Local names have been provided for all species and techniques of extraction of dye stuff were also enumerated as follows:

1. ***Amoora spectabilis*** Miq. (Meliaceae)
Local name – *Oongang*.

It is middle-sized evergreen tree found wild in Tamenglong district. As the local name suggests, a pale scarlet colour is obtained from the hardwood by boiling in water. Acids and alkalies are added before use. It is used for dyeing cotton fabrics.

2. ***Areca catechu*** Linn. (Arecaceae)
Local name - *Kwa pambi*.

It is a slender tall palm with annulated stems, commonly cultivated in the Jiribam sub-division. A copper red dye is obtained from the nuts. The crushed nuts are mixed with water and allowed to stand for a few hours. On adding lime, a copper red dye is obtained. The dye is used in painting.

3. ***Basella alba*** Linn. (Basellaceae)
Local name – *Uroksumbal*.

It is a wild, glabrous twinning herb of common occurrence. A deep purpose colour is obtained from the ripe fruits of this plant. Different colours can also be obtained from the leaves and stems. The dye is generally extracted with water and is used for dyeing fabrics and in painting.

4. ***Bauhinia purpurea*** Linn.
(Caesalpiniaceae)
Local name - *Chingthrao angangba*.

A moderately sized deciduous tree, it is commonly found in the Imphal valley, sometimes cultivated for the beautiful flowers. A rose-purple dye is obtained from the fresh flowers. The fresh petals are directly applied on the cloth or surface to be coloured. The dye is also used in painting.

5. ***Bixa Orellana*** Linn. (Bixaceae)
Local name - *Ureirom*.

It is a small evergreen tree, commonly cultivated in the homestead compounds. A pale red dye is obtained from the arils of the seed. The seeds are soaked in cold water for dyeing locally made cotton towels and loin-clothes and also in painting.

6. ***Carthamus tinctorius*** Linn. (Asteraceae)
Local name - *Kushum lei*.

A branched annual herb, it is commonly cultivated during the summer season. Either a golden yellow dye (locally known as Sana Phige Machu) or a pink red dye can be extracted from the flowers using different extraction techniques. The fresh petals are wrapped with the leaves of *Stachyphrynium imbricatum* (Roxb.) K.

Schum. (Local name-Leihourra) and then allowed to ferment for a few days. The fermented petals are mixed with water and filtered. The yellow dye so obtained is concentrated by boiling. Addition of common salts results in a golden yellow dye, while a pink red dye can be obtained by adding alkalies obtained from the ashes of *Achyranthes aspera* Linn. (Local name - *Khujum pere*). The dyes so extracted are used for dyeing of cotton and silk clothes and also in painting. The flowers are offered to God on Manipuri New Year's Day (Cheiraoba).

7. ***Celosia argentea*** Linn. (Amaranthaceae)
Local name - *Haorei angangba*.

It is an erect glabrous annual plant, commonly cultivated in the gardens throughout the state. A pink red dye is obtained from the flowers. The dye is used for painting.

8. ***Clitoria ternatea*** Linn. (Papilionaceae)
Local name - *Aprajita*.

An annual climber, it is commonly cultivated for the flowers in the Manipur Valley. A blue dye is obtained from the dried flowers. The dried petals are powdered and then mixed with cold water. The mixture is allowed to stand for 3-4 hr and filtered. The dye is used only for painting.

9. ***Clerdendrum bracteatum*** Wall. Ex Walp. (Verbenaceae)
Local name - *Kuthap*.

It is a glabrous shrub of common occurrence in wastelands and river banks throughout the state. A pale green dye is obtained from the leaves. The fresh leaves are crushed and boiled in water until the dye is fairly concentrated. After cooling, acidic dye mordants are added before use. The dye is used for painting.

10. ***Curcuma domestica*** Valeton (Zingiberaceae)
Local name - *Yaingang*.

An annual with rhizomatous underground stem, it is cultivated throughout the state. A golden yellow dye is obtained from the underground rhizomes. The dye can be extracted either in hot or cold water containing ashes extracted by burning *Zanthoxylum acanthopodium* DC. (Local name - *Muthrubi*). By adding lime water or alkalies, a brick red dye could also be obtained. The dye is used for dyeing and painting.

11. ***Emblica officinalis*** Gaertn.
(Euphorbiaceae)
Local name - *Heigru*

It is a small deciduous tree, very common in the hills of Maniur. A reddish black dye is obtained from the bark and fruits. The dye is extracted by crushing the bark or fruits in cold water and allowed to stand for 48 hrs. The dye is concentrated by boiling and adding common salt. The dye is used for dyeing of fishing nets.

12. ***Erythrina stricta*** Roxb. (Papilionaceae)
Local name - *Kurao angangba*.

Kurao angangba is a deciduous tree with strong incurved prickles, common in the Manipur valley and sometimes planted in the homestead compounds. A coral red dye is obtained from the dried flowers. The dried and powdered flowers are added to sufficient amount of cold water and allowed to stand for a few hours. Slake lime and common salts are added as mordants. It is used for painting.

13. ***Hisbiscus rosa-sinensis*** Linn.
(Malvaceae)
Local name – Juba kushum

It is a large shrub, commonly cultivated in the gardens throughout the state. A red dye is obtained from the fresh flowers. The petals are directly applied to the surface to be coloured. In ancient times, the petals were rubbed on the pages of hand written books to protect them from insects.

14. ***Iris bakeri*** Wall. (Iridaceae)
Local name – *Kombirei*.

A large clumped herb, it grows wild in marshy places particularly at Lamphel. A

deep blue colour is obtained from the dried flowers. The flowers are also offered to God on Manipuri New Year's Day (Cheiraoba). The dye is mainly used for painting.

15. ***Melanorrhoea usitata*** Wall. (Anacardiaceae)
Local name - *Pungdon*.

Pungdon is a large deciduous tree with very stout branches, a rare plant available only in Manipur along the border with Myanmar. An oily blackish dye is obtained from the wood and roots. The crushed and cut plant parts are boiled in water for about 25 minutes and cooled down. Acidic dye mordants and common salts are to be added for concentrating the dye. The dye is generally used for dyeing and painting.

16. ***Parkia timoriana*** (A.D.C.) Merr. (Mimosaceae)
Local name -*Yongchak*

It is a medium-sized, unarmed tree with spreading branches, very common throughout the state. It is also extensively cultivated for the edible fruits. A reddish dye is obtained from the stem and fruits. Pieces of stem and outer green covers of the fruits are soaked in cold water in earthen vessels for 24 hrs. The filtrate is used for dyeing all types of fishing nets. The people of the state use the fruits as delicious food item during winter season.

17. ***Pasania pachyphylla*** (Kurz.) Scott. (Fagaceae)
Local name - *Kuhi*.

A large evergreen tree, it is common in the hills of Manipur. A reddish dye is obtained from the bark. Fresh bark pieces are soaked in cold water for about 48 hrs. Acidic dye mordants are added before use. The dye is mainly used for dyeing fishing nets and cotton fabrics.

18. ***Punica granatum*** Linn. (Punicaceae)
Local name - *Kaphoi*

It is a shrub with 4-angled branches, cultivated in the homestead compounds in the valley areas. Pieces of the fruit after removal of the seeds are soaked in cold water to extract the dye. The dye is used for dyeing fishing nets.

19. ***Solanum ferox*** Linn. (Solanaceae)
Local name - *Khamu*.

A much branched, armed shrub, it is found wild in the wastelands and forests. A deep chocolate coloured dye is obtained from the mature fruits. The fruits are crushed and soaked in water for 3 hrs. An equal volume of the juice extracted from *Achyranthes aspera* Linn. (Local name- Khujum pere) is added to the fruit extract. After adding alkalies, the extract is concentrated by boiling. The dye is used only for printing of designs and patterns (Local name – Khamen chatpa) on cotton and silk fabrics.

20. ***Strobilanthes cusa*** (Nees) Imlay syn. ***S. Flaccidifolius*** Nees, (Aanthaceae)
Local name - *Kum*.

It is a glabrous shrub often cultivated for the dye in the Manipur valley. Brilliant blue and black dyes are obtained from the leaves and stem of this plant. Both fresh and dry plant parts can be used for the extraction. According to the choice of colour, the dye is extracted by different methods such as crushing with water, by fermentation or by boiling. For extracting blue dye, the fresh leaves are soaked in cold water for 3 days in airtight earthen vessels. The dye is then concentrated by boiling after the addition of common salts. For black dye, air dried leaves are pounded in a mortar and then fermented in airtight earthen vessels for 3 days. After adding dye mordants, the extract is concentrated by boiling. Dyes extracted from this plant are most popularly used for dyeing of costly loin clothes of the womenfolk of the state. The loin clothes are locally known as Phanek Mayek Naiba (Kumjingbi), Kum luppi and Higok kumballei). The earthen vessel used is locally known as Kumphu.

21. **Targets putula** Linn. (Asteraceae)
Local name - *Sanarei*.

It is annually cultivated throughout the state for the variously coloured flowers. The dye is generally extracted from the dried flowers. The colour of the dye depends upon the colour of the flowers but generally yellow and golden yellow dyes are extracted. The dye is used in painting. Sometimes the fresh petals are directly applied on the surface to be coloured.

22. ***Terminalia citrina Roxb***. Ex Flem. (Combretaceae)
Local name - *Manahee*.

A large deciduous tree, it grows wild in the Barak Drainage forest, sometimes cultivated. A blackish dye is obtained from the bark. The dye is extracted just by soaking or boiling the bark in water. The dye is used for dyeing and painting.

23. ***Zizania caduciflora*** Hand-Mazz. (Poaceae)
Local name - *Ishing Kambong*.

It is an aquatic perennial herb, common in marshy areas and lakes. A black dye is obtained from the culms infected by a fungus, *Melanopsichium esculentum* P. Hen. The dye is extracted in cold water. The dye is used for dyeing and painting.

Besides the above mentioned species, there are several other plants such as *Cascabela thevetia* (Linn), Lippold (Local name - *Utonglei*), *Datura stramonium* Linn (Local name -*Sangoidak amuba*), *Impatiens balsamina* Linn (Local name - *Khujang*), *Indigofera tinctoria* Linn (Local name - *Neem macha*), *Ipomoea quamoclit* Linn (Local name - *Nunggarei angangba*), *Nelumbo nucifera* Gaertn (Local name -*Thambal*) and *Nymphaea pubescens* Willd (Local name -*Tharo*) which are used for the extraction of dyes.

For colour fastness, mordanting is very important. Mordant may be acidic or alkaline. Mordants are available in nature throughout the year. By the use of mordant a number of different shades of colour can be obtained from a single dye sources. Mordant can be applied in three ways. Pre-mordanting is the application of mordant before application of natural dye. Simultaneous mordanting is the application of mordant with dye at the same time. Post mordanting is the application of mordant after application of dye. Nowadays people have a craze for natural things; cotton natural colours or living colours are very much accepted by new generations and many people at different levels have come out to preserve the natural dye.

PLANTS USED AS SOURCE OF ACIDIC DYE MORDANTS:

Several acidic fruits have also been used a sources of acidic dye mordants. The choice of fruit depends upon the colour of the dye. Some of the commonly used acidic fruits are:

Name of the plant	Family	Local name
Ananas comosus (Linn.) Merr.	Bromeliaceae	Kihom
Averrhoa carambola Linn.	Averrhoaceae	Heinoujom
Cirtrus latipes (Swingle) Tanaka	Rutaceae	Heiribob
Citrus limon (Linn.) Burm.f.	Rutaceae	Champra
Citrus medica Linn.	Rutaceae	Heijang
Emblica officinalis Gaertn.	Euphorbiaceae	Heigru
Garcinia pedunculata Roxb.	Clusiaceae	Heibung
Mangifera indica Linn.	Anacardiaceae	Heinou
Rhus hookeri Sahni & Bahadur	Anacardiaceae	Heimang

PLANTS USED AS SOURCE OF ALKALINE DYE MORDANTS:

The people of the state also use several plants species as mordant for dyes. These alkaline dye mordants are extracted from the fresh plants or from the ashes of the plant after burning. The ashes are added to water and then filtered. The filtrate is used as alkaline dye mordants. Some of the plants which are used as alkaline dye mordants are:

Name of the plant	Family	Local name
Achyranthes aspera Linn.	Amaranthaceae	Khujum pere
Alocasia macrorrhiza Schott.	Araceae	Hongu
Alpinia nigra (Gacrtn.) Burtt.	Zingiboraccac	Pullci
Eclipta prostrate Linn.	Asteraceae	Uchi sumbal
Ficus hispida Linn. F.	Moraceae	Ashi heibong
Hedychium margination C.B.Cl.	Zingiberaceae	Ingellei
Hedychium stenopetalum Lodd.	Zingiberaceae	Lokle
Musa paradisiaca Linn.	Musaceae	Laphu
Nicotiana tabacum Linn.	Solanaceae	Hidak mana
Pisum sativum Linn.	Papilionaceae	Hawai tharak

CONCLUSION

The people of Manipur have been using indigenous dye stuff from natural resources since time immemorial in handicraft, handloom and fine arts. Natural dyes are non-toxic natural sources which has great demand in the international market. The speciality of the locally extracted plant dye is that the synthetic dye cannot match the particular hues and chroma of the traditional and customary dresses used on the occasion of death anniversaries, marriage and worship of god etc. By using different acid and alkaline mordant from natural resources, it increases the colour fastness and also gives different attractive shade. By using natural dye, the people of Manipur can produce these dyes in large scale, commercially by opening factories and can compete with chemical synthetic dyes which are harmful from environmental point of view. This study will serve as a source for socio-environmental development of the people of Manipur in particular and for the nation in general.

REFERENCES

- Akimpou, G. Rongmei, R & Yadava P.S. Traditional dye yielding plants of Manipur, *Indian J. Traditional Knowledge*, 2005, 4(1) 33.
- Bahadur, Mutua. *Traditional Textiles of Manipur*, Imphal: Mutua Museum, Keishampat, 1997.
- Chakravarty, S and Kakaty, H.R. An analytical study on traditional technique of dying textile with natural dyes in Assam, India. *Global J. Of Arts, Humanities and Social Science*, 2005, Vol. (3) 10.
- Deb, D.B. Monocotyledonous plants of Manipur Territory, *Bull Bot Surv India*, 1961, Vol. (3) 115.
- Devi, L.D. *Folklore on the use of indigenous plants and animals in Manipur*, Vol I & II. Imphal: L. Dhanapati Publications, 1995.
- Lunalisa, P. Study of Certain Traditional Dyes of Manipur and Structural Elucidation of the Colourants, M.Sc. thesis to Manipur University, Canchipur, 2006.
- Lunalisa, P., Swapana, N. and Warjit, L. Natural dye yielding plants and indigenous knowledge of dyeing in Manipur, North East India. *Indian J. of Traditional Knowledge*, 2008, Vol. 7(1).
- Sharma, H.M, Devi, A.R. & Sharma, B.M. Vegetable dyes used by the Meitei community of Manipur, *Indian J. of Traditional Knowledge*, 2005, 4(1).33.
- Singh, N.P., Chauhan, A.S. & Mondal, M.S. *Flora of Manipur*, Vol. 1. Kolkata: Botanical Survey of India, 2000.
- Sinha, S.C. *Ethnobotanical study of Manipur*, Ph.D. thesis submitted to Manipur University, Canchipur, 1987.

How to cite this article: Devi YP. Traditional natural dyes used for dyeing fibre and fabrics of Manipur. International Journal of Research and Review. 2019; 6(1):202-207.

******