Traditional knowledge and natural dyeing system of Manipur – with special reference to Kum dye

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Revised: 05.12.2008

The Meitei women practice dyeing in Manipur using varieties of plant leaves, flowers and tree barks. However, the use of kum (Strobilanthus flaccidifolius) is more significant than any other type of vegetable dyes because of its superior quality than the others. The paper focus on the traditional knowledge and traditional dyeing system in Manipur emphasizing on the preparations of kum dye and preparation of dyes of different colours using kum.

Keywords: Manipur, Natural dyes, Kum, Traditional knowledge

IPC Int. Cl.: D01, D01H13/30, D06P

There is an inextricable link between indigenous ethnic culture and biological diversity1-7. Natural dyes had been used in most of the ancient civilization, eg. India, Egypt, Greece, Aztec and others8-9. The process of dyeing was started during the reigns of King Taothing–Mang (264–364 AD). The system of dyeing was progressed during the reign of King Yanglou Keiphaba (969-984 AD), who introduced the beautiful textile name Hij Mayek (latter Known as Hijam Mayek), having colourful dyes, which were worn by the women folk of Manipur. During the reign of King Loyumba (1074–1122 AD) of Manipur, the traditional system of dyeing clothes using different varieties of plant leaves, flowers, fruits and barks of plants was first introduced.

Vegetable dyes
Since very early times, Meitei women of Manipur valley and tribal women of the hills of Manipur have been doing the work of dyeing threads and clothes by using varieties of plant leaves, flowers and barks. In their own home-estates (field), the women used to grow such plants (from which dyeing colour could be extracted). Besides, such plants were available in the surrounding hills. Though it was used for domestic purposes, the indigo (colour) from Kumna (Strobilanthus flaccidifolius) plants was found to be on sale till recent times (Fig. 1). If one grows Kumna amongst the various plants used for extracting dye, one should not let it die; if one should, then it was believed that it would lead to misfortune. The plant can be grown in wet areas through out the year. There existed a practice according to which the leaves of the plant had to be collected during a specified period in the year depending upon the stage of its growth whether in the flowering or when it was fully grown. There was also the practice of collecting the leaves...
within the specified period and then preserving these. The methods of preparing dye from plants and flowers and also types of plants from which dyes are extracted, are found to be different from one village to another. These dyes were used to dye the cotton and Kabrang-silk threads. Types of colour ranged from mild ones to bright ones.

Preparation of Kum dye

The methods discussed below for the preparation of the various components of Kum are based on the traditional procedure being practiced in Manipur particularly by the Meitei of Mekola, Mayang Langjing and tribals of Thuiyang.

Preparation of Kum Sunu (oyster lime)

The preparation of Kum sunu by the tribals and Meiteis follow the same procedure. Kum sunu is actually the calcined oyster shell (CaCO₃). The traditional fashion of calcination is carried out by burning the shell along with dried cow dung and hay. The shells are placed in the core of the dried cow dung and hay (Fig. 2). The ash is kept untouched for one whole night or about 12 hrs, and the burnt shells are collected and powdered and sieved. The grinned powder is then hydrolysed with about half litre water for about 200 gm of powder. The solution is then heated till the evaporation completes and the precipitate thus obtained is branded as Kum Sunu.

Preparation of Kuhi (Pasania pachyphylla)

The preparation of Kuhi is made by boiling Kuhi (Pasania pachyphylla) bark with water in a metal pot until the solution becomes dark red colour (Fig. 3). The coloured solution, Kuhi is decanted and ready for use.

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\text{Kuhi Bark + Water \xrightarrow{Boiling} Kuhi solution}
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250 gm I L 1 hr

Preparation of Utti (alkali)

About 10 bundles of rice straw (hay) are burnt and the ashes are collected. The ashes are then put into a lightly knitted bamboo basket and water is filtered through the ashes. This water becomes alkaline and is called Utti (alkali), which is consequently used in tile dyeing process (Fig. 5).

Preparation of Kum sye (Indigo-Kum Machu)

At the first stage of its preparation, the buds and leaves of the plant which sprout in the month of Wakching (Jan-Feb) and Fairel (Feb-March) are plucked, cut into pieces and put into a pitcher locally known as Kharung (earthen pot) in which water is poured. The proportion of leaves to water is about 2 kg of leaves in 8 L of water. The pitcher is then kept for about seven days at the Yenakha (outer southern side) of the house where there is sunlight, so that the leaves undergo proper fermentation. In some cases, when proper sunlight is not available the number of days of fermentation is lengthen to about 20 days or so. After this, the cover of the pitcher is removed and pitcher is stirred with a multi pronged stick, known as Yaibi or Kumsu-Chei. After careful stirring the solid things like leaves are removed. To the solution oyster lime or kum sunu is added and properly stirred with Kumsu-chei. In doing so bubbles are formed which are to be removed from time to time. The stirring is done until the solution becomes reddish in colour. The whole solution could be boiled or the material be kept in the pitcher for one or two days so that proper sedimentation takes place. Then the clear liquid is decanted. The residue is poured though a thick cloth placed over some required amount of ash utti, which acts an as absorbent of water contained in the residue. The residue from the cloth is collected, which is the prepared kum.

This prepared kum is put into a dry small earthen pot so that any amount of water contained in the residue may be completely absorbed by the earthen pot. It is to be noted that, kum is prepared/extracted in cold condition and in the presence of sunlight. To make fast colour, the ashes taken from burning of the leaves of Khujumpere (Achyranthes aspera) (Fig. 4) (pH5) or Laphu chanang are added. This prepared kum dye produces greyish blue colour (Figs. 6 & 7).

Preparation of dyes of different colours using Kum

Black

For deep black (cool black) or blue-grey, highly plastic clay is mixed in the above mentioned kum infused liquid, or after dyeing in the kum liquid, the material is dipped in the clay water and kept for one or two days and then dipped in the liquid infusion of heikru (Emblica officinalis) or the infusion is added to the kum black. The black colour is also made after mixing two liquids i.e. one liquid, taken after storing at bark of shahi (Pasania dealbata) in the water and the kum. The liquid taken from the leaves of Kuthap (Clerodandron adoratus) is added to make the colour fast.
Dark green -Asangbada Musinba Machu

*Kum* and *U-Napu* are mixed and then it is again mixed with the powder taken from the bark of mango tree, in this way, the colour is prepared. To make the colour fast, there is the practice of mixing of alkaline not only with *Kum Sunu* but also with ashes taken from burning Kabowkhaji, bark of Kairang plant (*Symplocos* sp), *Yangli* (a kind of creeper, which is also used at the time of brewing local wine), Laphu chanang, Khujum Pere, etc. Sometime Chingleibak is liquefied in water and boiled; the thread or cloth is then dyed.

**Black deep (warm)**

For warm black, the fabric or yarn is dyed in the red liquid of *ureirom* (*Bixa orellana*) or the infusion of the bark of *Kuhi* (*Pasania pachyphylla*) before it is dipped in *Kum* infusion. There are also other methods of dyeing black, but *Kum* is the best. The colour dyed in *Kum* is permanent and the lustre increases as the yarn or cloth is washed.

**Dark-tan —Heikha Apatpa Machu**

This colour is made after mixing two liquids i.e. one liquid taken from storing in water the bark of *kuhi* (*Pasania pachyphylla*) plant and the *Kum*.

**Green (Olive)**

Many peoples of Manipur know the principle of making olive green colour out of the mixture of yellow and blue. Mixture of equal quantity of *U-napu* (*Minispermaceae*) and *Kum* produces the colour of olive green and by adjusting the quantity of each, bluish green or yellowish green could be produced. Here, the dyed yarn or cloth is dipped in the infusion of bark of mango (tannic acid used as mordant).

**Brownish black colour**

The colour can be obtained by adding *amla* bark solution, *Heining* (*Spondias magnifera*) solution and dark grey clay, locally known as *Laimu* to the *Kum* solution.

**Kum Lairemma (Indigo colour)**

While preparing *Kum*-indigo, some people after examining the stage of the *Kum* dye also add juice taken from *Heibung* (*Garcinia xanthochimus*), Sugarcane juice (molasses), puffed rice, etc. Such *Kum*, which is being kept in a pitcher for making dye, is also regarded as *Lairemma* (Goddess). As such, whatever fruit or food items added into *Kum* as mentioned earlier is believed to be an offering which is offered to the *Kum Lairemma*. Such prepared *Kum* (indigo) which could now be used for dyeing, was put into small pitchers and these are used to be brought to the Khwairamband Keithel (Khwairamband market) for sale at high price.
Preparation of dyes using vegetable/plants other than Kum

Dark brown-Kahi Machu

This dye is taken by storing Kuhi bark in water. There is a difference in the dye taken from long time of storage and the one taken from short time of storage in water. The colour becomes darker if it is taken from long time of storage in water.

Light brown — Shahi Machu

This dye is taken from storing in the water of Shahi tree bark. It is lighter than the dye taken from Kuhi tree. To make the dye more fast, the ashes taken from Kum Sunu and Laphu Chanang are added into the above solution.

Black brown

Infusion of the bark of heikru (Emblica officinalis) and heining (Spondias magnifera) with plastic clay containing iron oxide and the yarn or cloth is dipped in it.

(d) Indian red — Khamu Machu (Khamen Chappa)

This dye is taken from Khamu leaves stored in water and then decayed. To make the dye faster, Kum sunu is added. The Khamu dye used to be poured into the hole of the patterned block where a cloth is fastened. From this process, the cloth came to be known as Khamu Chappa, which later on is called as Khamen Chappa.

Pale rose - Lei machu

This dye is taken from the fruit of a plant Ureiro (Bixa orellana). The ripen fruits are crushed in water; its seed and solid things are removed; then the fruit mixed water is boiled. Some people use it without boiling under the fire. Then, the threads or the clothes are dipped into it and then dried in the sun. After drying up, these are again washed in plain water. If this is not done, people believe that the person, who wears it, will become stricken with a kind of disease known as Laikoi- ring worm. To make the dye fast, Kum- sunu and Angom Yensil (Polygonum Chinese) (pH 3) and the juice taken from heibung (Garcinia xanthochimins), heinoujom (Arverrhoa carambold), etc. are also added.

Orange - red

When ash of banana stem is added to water in which Ureiro seed is squeezed, orange-red colour is produced in the liquid.

Meiri - machu

In this case, the yarn or cloth to be dyed is first boiled in the Ureiro infusion to which pieces of roots of U-napu are added, then the yarn or cloth is soaked in the acidic infusion of Heibung and then again it is soaked in the water containing dissolved lac. With varying ratios of Ureiro and U-napu liquid, different shade of orange could be obtained.

Maroon red

For this colour, Ureiro infusion is boiled with bisintri (gentian red) and the yarn or fabric is soaked in the liquid to increase brightness of the yarn. It is then boiled in the liquid of Heigru leaves (Emblica officinalis) or Heibung (Garcinia xanthochimins).

Pink - Leimachu (Thambal Lei Machu)

The process of preparing this colour is known as Leipak Semba. This colour is dyed mostly on the fine-silk. The colour is extracted from the petals of Kusum Lei (Carthamus tinctorius), a type of flower which blooms in the month of Sajibu (April-May) and which is offered to the deities by the Meiteis during the time of the religious event, known as Cheiraoba. The flower (bright orange yellow coloured) blooms during months of Sajibu to Inga (April-June). The process of preparing colour is in the following way: at first, the petals are plucked from the fully bloomed flower. These plucked petals are then bound in a type of plantain leaf, known as Leihoura (Anomum sp) till these became decayed. After this, the decayed petals are rolled into small balls about the size of thumb each and these balls are then slightly flattened. This process is known as Leipak Semba. In order to get dye, they are then kept under immersion in water and these can be rubbed too. The colour mixed with water is then boiled by fire. Then, threads or clothes are dipped into it and dyed. To make the colour fast, an indigenously prepared item known as Utti-alkali (made of ashes taken from burning dried Laphu Chanang) is added into the dye. To make the colour a little brighter, a liquid extracted from crushing a plant, known as Khuju Pere (Achyranthihes aspera) is added into the dye.

Green - Asangba (Sambam Machu)

This dye is taken from a type of creeper known as Sambum. It is taken after its bark is dipped and stored in the water. Kum Sunu is added into it to make the colour fast. This kind of creeper is widely grown and available in the hills like Koubru, Nongmaiijing and Phunal.
Yellow - Napu Machu

The colour is taken from U- napu. The said tree is first dried and then crushed and its powder is mixed with that of Meitei Yaingang (Curcuma domestica) and the mixed powder is boiled with water.

Discussion

In this way, the colours are made. It is the time to work now for revitalization of traditional dyeing systems of Manipur in order to keep this precious indigenous knowledge. Use of natural dyes through the art of dyeing and printing is one of our richest heritages. The Meitei women (also tribal women of the hills) of Manipur have been dyeing threads and clothes by using varieties of plant leaves, flowers, fruits and bark of trees. Even today, people not only in rural areas but those living in urban areas are using these dyes and are in high demand. However, it is unfortunate that the natural dyes had to pay a very heavy price due to the development of synthetic dyes. With the influx of chemical dyes for most of the traditional colours including blue from the nineteenth century AD the use of natural dyes has gradually gone out of existence from many parts of the country. However, there are some places where natural dye is still used in smaller scale. One such case is Kum dyeing in Manipur. The dye is used in Manipur, Nagaland and the Northeast hill region.

Synthetic dyes are based on toxic raw materials and intermediates. The effluents from the industry are a cause of environment pollution. Moreover, many of the chemical (synthetic) dyes contain CFC from the solvents, which are one of the most dangerous ozone depleting substances. Natural dyes are not only free from these hazards but also could assist the regeneration of the environment if plans were developed to cultivate these plant varieties on a commercial scale. Finally, emphasis should be made on the replaceability of resources. Petrochemicals are limited and irreplaceable, while the vegetable based resources of dyes are replaceable besides being biodegradable. The Kum collection and dye extraction work is done with the help of women from kadom pokpi village about 15 km from Imphal. Today, the art of vegetable dyes is preserved only in the pockets by only a few zealots. Very little organised efforts has been made so far to revive and promote this art. So it is the right time to start work to revive and promote this valuable knowledge of traditional dyeing system of Manipur.

Conclusion

To create awareness of availability and promotion of fabrics items created with natural dyes, suitable promotion and publicity need to be launched. In order to revive the art and to promote the use of natural dyes, it is essential that research and development work on such dyes be placed on an organized footing.

References

5 Rajmuhon N, *Traditional Dyeing Skills of the Meiteis*, (Proc National Seminar on Science, Philosophy and Culture in Manipur Language and Literature, 14–16 July 2003, Manipur University Campus, Manipur).