

Traditional dye yielding plants of Manipur, North East India

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Manipur is one of the richest states in plant biodiversity in the North Eastern states of India. Different ethnic groups, residing in Manipur before the introduction of the chemical dyes into the state, used the dyes extracted from the plants. The survey was undertaken during 2002-2003 in different parts of Manipur. Eighteen traditional dye yielding plants belonging to sixteen families have been reported, which different ethnic communities of Manipur use for dyeing the cloth and other items.

Key words: Natural Dyes, Traditional Dyes, Dye Yielding Plants, Manipur

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Manipur state lies between 23.83° North latitude and 93.03°-96.98° East longitudes in North East India (Fig.1). Its total geographical area is about 22,327 sq km, of which forest area is about 15,154 sq km (67.8% of the total geographical area). It is bounded by Myanmar in the East, Assam in the West and Mizoram in the South and South West. The state is inhabited by 29 different ethnic groups of people.

The climate is moderate ranging from sub-tropical to warm temperate in the hilly regions, with maximum temperature ranging between 24°C and 35°C in summer and minimum temperature from 0°C to 10°C in winter.

Since time immemorial, different ethnic groups in the valley and hilly regions of Manipur state have practiced the art of dyeing clothes and other items. The natural dyes were obtained from plants and have been used by weavers for imparting different shades of colour to different clothes, bamboo baskets, flowerpots, fishing nets, etc. Vegetable dyes have been reported to be used by confectioners and weavers¹⁻². Dyeing is done in the yarn stage in order to get the desired colour. Due to easy communication system, better education and more influx of tourists, the synthetic dyes were also brought in and slowly the indigenous system of dyeing is replaced by synthetic dye. The choice of multiple colours, easy availability and lesser time required in preparing these dye, have made synthetic dyes more popular³. In Manipur, it is believed that chemical dye was on sale in the Imphal

market (Keithel) around 1905 AD. Fast chemical dye was found to be known since 1930 AD⁴.

Methodology

The present work is based on information collected from different weavers/dyers through interviews and informal discussions concerning the traditional/indigenous dyeing techniques. Field trips were conducted in various parts of Manipur during 2002-2003. The plant specimens were collected during the survey and were identified with the local weavers/dyers and by consulting related books on dye yielding plants^{4,5}.

Observations

In this enumeration, the plant species are arranged alphabetically with the names of the family in parenthesis followed by plant status. The vernacular names, if any, are also given as Rongmei (R), Manipur (M). The indigenous mode of preparation and its uses are presented as follows:

1. *Achyranthes aspera* Linn. (Amaranthaceae)

Herb, Vern.: Khujumpere (R & M)

Whole plant is first dried, burnt to ashes and is mixed with water. This dye is used as adhesive for various colours and making the colour brighter.

2. *Averrhoa carambela* Linn. (Oxalidaceae)

Tree, Vern.: Rupuan thai (R), Heinoujom (M)

Mature fruits are taken and its juice is squeezed into the water containing tub. It is used as a good adhesive to the Ureirom (*Bixa orellana*) dye. (Fig. 2)

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Fig. 1. Location Map of Manipur

3. *Bixa orellana* Linn. (Bixaceae)

Small tree, Vern. : Pheisangbang (R), Ureirom (M)

The plant imparts reddish colour to the clothes or yarn threads. Fruits are collected by placing a net below the tree or directly plucked by hand. Seeds are soaked in the Utti (prepared from burn *Pisum sativum* Linn., *Musa paradisiaca* Linn., etc.) (Figs 3 & 4). Some seeds are then taken in clean and thin clothes and rubbed into the water with hand. The liquid thus obtained, is used for dyeing clothes or yarn threads. For durability of the dye, the clothes are again soaked for around 2 days in the liquid prepared from *Garcinia xanthochymus* Hook.f. fruits.

4. *Carthamus tinctorius* Linn. (Asteraceae)

Herb, Vern. : Kusumlei (R & M)

The petals yield a pink dye. The flowers especially the petals are collected and kept until they become decayed. The decayed petals are rolled in the palm making into balls of thumb size. This process is referred to as "Leipak Samba". Two to three balls are enough to dye the yarn threads for one phanek (skirt).

5. *Clerodendrum odoratum*. D.Don (Verbenaceae)

Shrub, Vern.: Ganmakhui (R), Kuthap (M)

This dye gives the greenish (pale green) colour to the clothes/yarn threads. Plants especially the leaves are collected and crushed into the tub containing

water. The water turns light green in colour. Intensity of the colour depends on the amount of the leaves used. Then the thread or cloth is soaked overnight and slightly squeezed and spread in shade. The process is repeated 6 to 7 times until the desired colour is obtained.

6. *Curcuma domestica* Valetton syn. *C. longa* Linn. (Zingiberaceae)

Herb, Vern.: Gachangrim (R), Yaingang (M)

The plant gives the yellowish colour. Fresh rhizomes are crushed into pieces and allowed to soak in water. Clothes or threads are soaked overnight and dried in similar way as done for "kum" and others.

7. *Embllica officinalis* Gaertn. (Euphorbiaceae)

Tree, Vern. : Talouthai (R), Heikru (M)

Crushed fruits/bark or both are soaked in water for 4 to 5 days or boiled. It is used as adhesive for dyeing dark colour.

8. *Garcinia xanthochymus* Hook.f. (Guttiferae/Clusiaceae)

Tree, Vern. : Puangthai (R), Heibung (M)

Fruits are cut into pieces and soaked in water or cut pieces are taken in a clean piece of cloth and squeezed into the water. The prepared liquid is used as adhesive to different dyes.



Fig. 2. *Averrhoa carabola* Linn.

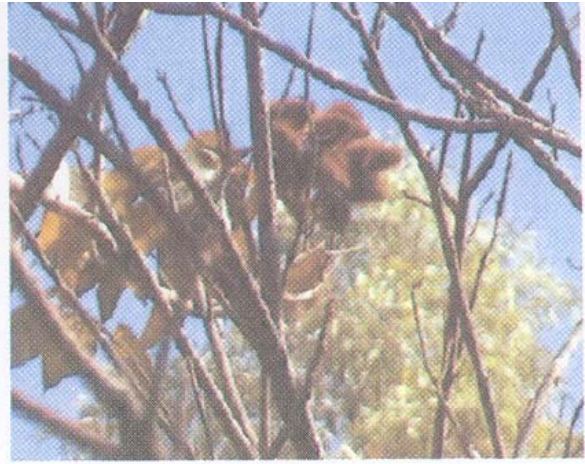


Fig. 3. *Bixa orellana* Linn.



Fig. 4. *Bixa orellana* Linn. seeds



Fig. 5. *Knoxia roxburghii* (Spreng) M.A. Rau



Fig. 6. *Strobilanthes flaccidifolius* Nees



Fig. 7. Tareng naiba (Women spinning dyed thread from *Bixa orellana* Linn.)

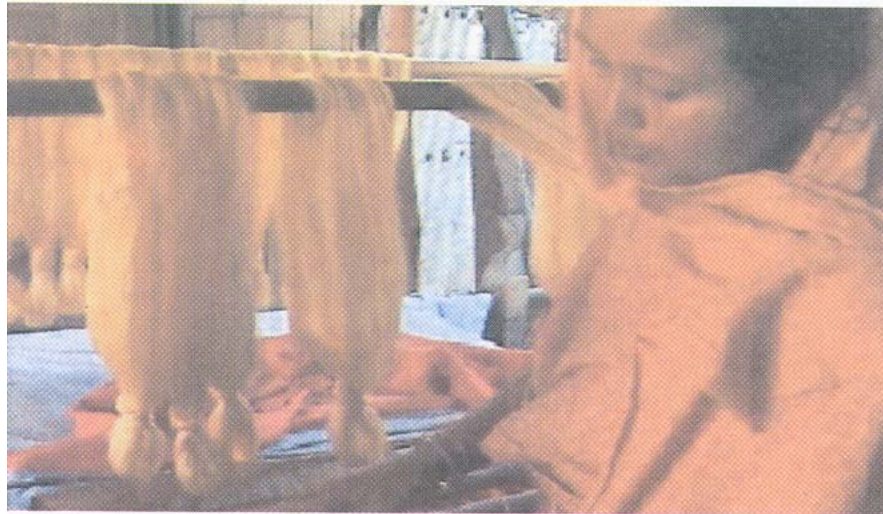


Fig. 8. Chanang thaba (Drying process of the dyed thread)



Fig. 9. Konda phisaba (Woman weaver dyeing cloth)

9. *Knoxia roxburghii* (Spreng.) M.A. Rau (Rubiaceae)

Herb, Vern. : Hurim (R), Yachubi (M)

Leaves are chewed by the children to colour their teeth (greenish/brownish). This is generally practiced by different ethnic groups of people of the state (Fig. 5).

10 *Parkia roxburghii* G. Don (Mimosaceae)

Tree, Vern. : Kampai (R), Yongchak (M)

Fruit skin is soaked in water for two to three days and the liquid is collected. It gives dark brown colour and used as adhesive for different dye especially for red colour.

11. *Pasania pachyphylla* (Kurz) Schottky (Fagaceae)

Tree, Vern.: Dungc (R), Kuhi (M)

Stem bark is cut into pieces and soaked in a pitcher containing water for 6 to 7 days. It is now ready for dyeing.

It is used to obtain black colour and dark brown colour. For pure black, the thread or cloth is alternately soaked in *Strobilanthes cusia* (Nees) Imlay (kum) liquid and *Pasania pachyphylla* (kuhi) liquid until the desired colour is obtained. And for dark brown colour, it is soaked in kuhi (*Quercus* spp.) prepared liquid.

12. *Plumbago indica* Linn. (Plumbaginaceae)

Herb, Vern. : Mukaklei (R & M)

Flowers are collected in large amount and its petals are crushed and soaked in water. Clothes or yarn threads dipped into this liquid acquire pale red colour. This is not regularly used, since it involves collection of large amount of flowers.

13. *Polygonum chinense* Linn. (Polygonaceae)

Herb, Vern. : Angom Yensil (M)

Crushed whole plant is soaked in water for 2-3 days and the liquid is used as dye. It is used as adhesive for dark colour.

14. *Psidium guajava* Linn. (Myrtaceae)

Tree, Vern. : Bungton-thai (R), Pungton (M)

Fresh mature fruits are collected, crushed and soaked in water for 2-3 days. It is also used as adhesive for brown and black colour.

15. *Punica granatum* Linn. (Punicaceae)

Tree, Vern.: Puclei-thai (R), Kaphoi (M)

Bark or fruit's skin is cut into pieces and soaked in water for 2-3 days. It is used as adhesive for the black and brown colour.

16. *Quercus dealbata* (Fagaceae)

Tree, Vern. : Tha (R), Shahi (M)

The plant gives dark brown colour (of less colour intensity) to the clothes/yarn threads. The bark is cut into pieces and soaked in a pitcher containing water. This plant is used as a substitute for kuhi (*Quercus* spp.) plant. The dye obtained from this plant is considered inferior to the 'kuhi' dye.

17. *Strobilanthes cusia* (Nees) Imlay syn. *S. flaccidifolius* Nees. (Acanthaceae) Shrub, Vern.: Khimbang (R), Kumna (M)

Mature leaves are collected and soaked in a pitcher (Andro chaphu) containing water (Fig. 6). The pitcher is covered with clothes. The process is known as "Kum yeiba". The pitcher is then kept at the corner of the open room where proper air and light (not direct sun light) are available. The pitcher is kept undisturbed until the leaves get completely decayed. The pitcher is uncovered and stirred with a multi-pronged stick known as "Yakabi or Kumsu-chei" (Manipuri) or "Khim lat-tai" (Rongmei). Solid things are removed while stirring. Then Kum-sunu (ashes taken from burning Oysters) is added and stirred continuously. At this stage, bubbles are formed, which are removed with soft things like feather, etc. Bubbles are removed from time to time. Now the kum liquid is ready for dyeing clothes or threads.

It is mainly used to dye black colour (Kum-Machu by Meitei or Khim by Rongmei). The threads or clothes are properly washed, dipped into the prepared liquid, slightly squeezed and allowed to dry in the place where there is no direct sunlight but abundant air and light are available. This is usually repeated for 3 times a day until the desired colour i.e. Kum-Machu or Khim is obtained.

18. *Tectona grandis* Linn. f. (Verbenaceae)

Tree, Vern. : Chuangbang (R), Chingsu (M)

Leaves or barks are cut into pieces and soaked for about 2-3 days in water. Clothes or yarn threads which are dipped into this dye gives somewhat reddish colour.

Discussion

The present investigation has revealed that 18 plant species belonging to 16 families are commonly used as dye by different ethnic communities of Manipur (Figs 7-9). Out of the total species, 10 species are trees, 6 species are herbs and 2 species are shrubs. Different plants give different shades of colour (Table 1). Ten species are mainly used as main dye

Table 1—Natural dye yielding plants of Manipur

S.No.	Plant	Colour
1	<i>Bixa orellana</i> Linn.	Red
2	<i>Carthamus tinctorius</i> Linn.	Pink
3	<i>Clerodendrum odoratum</i> D.Don	Green
4	<i>Curcuma domestica</i> Valetton	Yellow
5	<i>Knoxia roxburghii</i> (Spreng.) M.A.Rau	Green
6	<i>Parkia roxburghii</i> G.Don	Brown
7	<i>Pasania pachyphylla</i>	Dark Brown, Black
8	<i>Plumbago indica</i> Linn.	Red
9	<i>Quercus dealbata</i>	Brown
10	<i>Strobilanthes flaccidifolius</i> Nees	Black
11	<i>Tectona grandis</i> Linn.f.	Red

and another 8 species are used as adhesive for the main dye. The present study emphasises importance of traditional knowledge in herbal dyeing technology.

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References

- 1 Ashish Ghosh, Traditional Vegetable dyes from Central West Bengal, *J Econ Tax Bot*, 27(4) (2003) 825.
- 2 Sampath Kumar V & Rao P S N, Dye yielding plants of Andaman & Nicobar Islands, *J Econ Tax Bot*, 27(4) (2003) 827.
- 3 Chandra Prakash Kala, Indigenous knowledge of Bhotiya tribal community on wool dyeing and its present statutes in the Garwal Himalaya, India, *Curr Sci*, 83(7) (2002) 814.
- 4 Mutua Bahadur, *Traditional Textiles of Manipur*, (Mutua Museum, Keisampat, Imphal), 1997, 25.
- 5 Mutua Bahadur, *Tribal Hand Woven Fabrics of Manipur*, (Mutua Museum, Keisampat, Imphal), 2000, 13.