

Vegetable dyes used by the Meitei community of Manipur

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The paper describes 34 plant species, belonging to 30 families, used in the extraction of dyes by the Meitei community of Manipur. The plant parts used in the extraction of dyes along with the method of extraction and their uses have also been described in detail. Besides these dye-yielding plants, another 19 plant species belonging to 14 families, used as dye mordants have also been included. The people of the state still use these dyes for dyeing of their handloom products, which are famous all over the world.

Keywords: Vegetable Dyes, Meitei Community, Manipur, Ethnobotany
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Manipur is a hilly state in the North eastern corner of India. It extends between 23°49' and 25°41'N latitudes and between 92°59' and 94°45' E longitudes. The state covers an area of 22,327 sq km. The state is bounded on the North by Nagaland, on the East by Myanmar, on the South by Mizoram and Chin Hills of Myanmar and on the West by the Cachar district of Assam. The major portion of the state consists of ranges of hills with a North and South facing aspects. The central portion of the state is occupied by the oval-shaped "Imphal Valley" with an area of about 1545 sq km. The elevation of the state varies between 550 and 3000 m above the mean sea level. Average annual rainfall is about 146.71 cm. The mean temperature varies between 5°C and 32°C while the relative humidity varies between 43% and 92%, respectively.

People of different ethnic groups and communities inhabit the state of Manipur. 29 recognised tribal communities belonging to the Kuki and Naga groups inhabit the hills of Manipur. These tribal communities constitute nearly 30% of the total state population. The major inhabitants of the state are the Meiteis, an Indo-Mongoloid group speaking the Tibeto-Burman language, which is included in the VIII Schedule of the Indian constitution. They inhabit mainly in the Imphal valley and constitute 57% of the population of the state according to 2001 census. Besides these, Manipur Muslims, the second single largest group in the state constituting 7% of the total population and seven schedule caste communities inhabit the state.

The people of Manipur have been using different materials for the extraction of dyes since time immemorial. Mention on the use of dyes by the people of Manipur is found in the old literature of the state like the Royal Chronicle (*Cheitharol Kumbaba* in Manipuri). The main sources of dyes used by the people of the state, are mainly the plants and different types of soils, limestone, gypsum, etc. Very little information is available on the dye-yielding plants of Manipur¹⁻⁶.

An attempt has been made for the first time to describe the dyes extracted from plants (Figs 1-4) by the Meitei Community of Manipur. The traditional methods of extraction as well as the plant parts used in the extraction have also been mentioned briefly. These locally extracted dyes are still used for dyeing of handloom products of the state (Figs 5-8), which are famous all over the world for their indigenous designs and quality.

Methodology

For the present investigation, interviews were conducted during 1997-2002 with persons still engaged in this age old tradition. All the documents available in written form and the reports appearing in the local dailies and other local journals have also been consulted. Plant species have been collected and identified using standard literature and herbaria. Colour photographs have also been taken for some of the species as well as some of the handloom products. Efforts have also been made to find the correct names in accordance with the latest International Code of Botanical Nomenclature.

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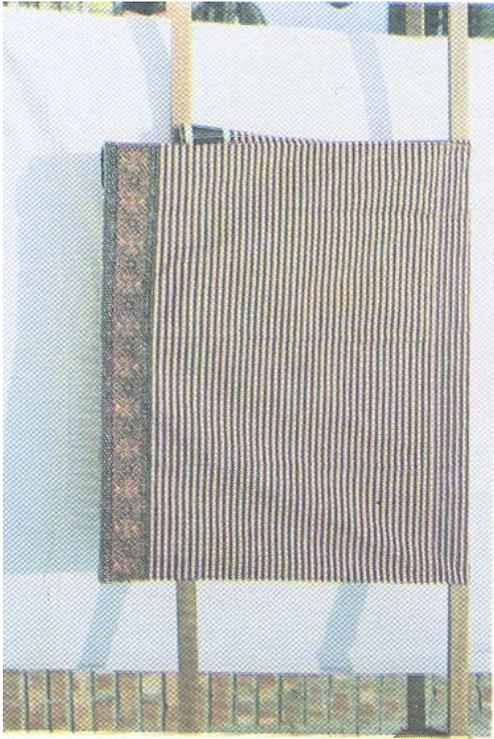


Fig.1. *Bixa orrellana* Linn.
(Local name-Ureirom)

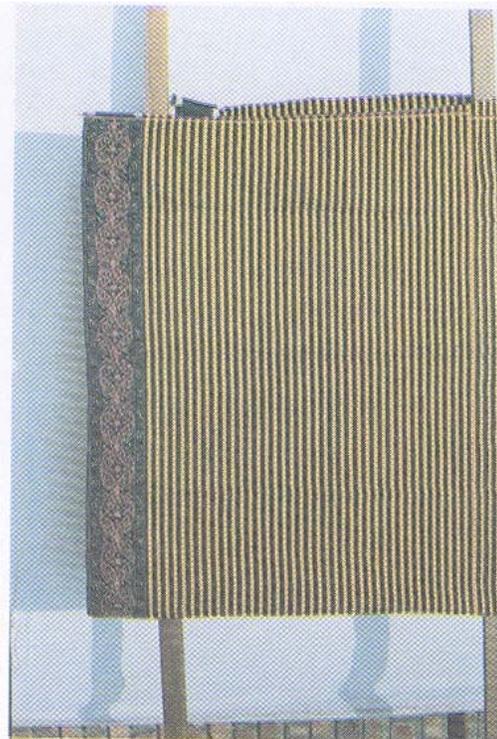


Fig.2. *Erythrina stricta* Roxb.
(Local name-Kurao angangba)

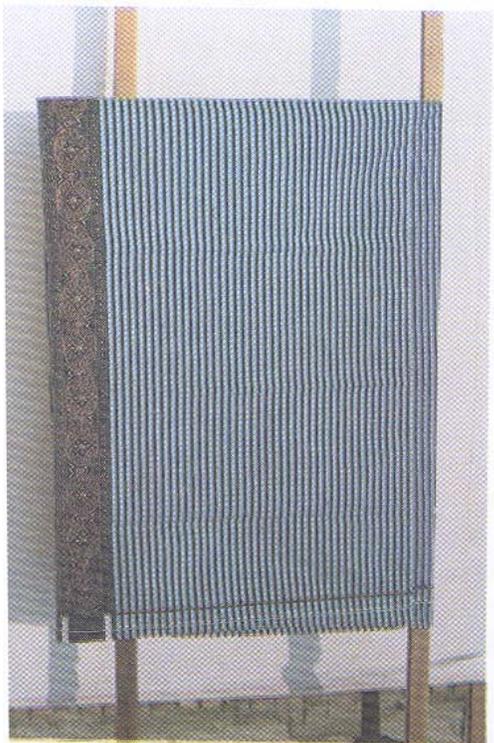


Fig.3. *Mallotus philippensis* Muell-arg.
(Local name-Ureirom laba)



Fig.4. *Parkia timoriana* (A.D.C.) Merr.
(Local name-Yongchak)



Fig. 5. Lady's loincloth (Local name - Phanek Mayeknaiba Thambal leikhok machu)

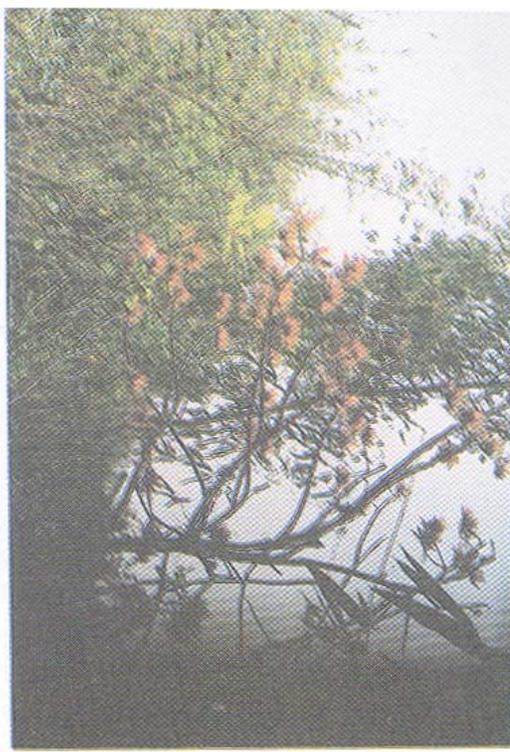


Fig. 6. Lady's loincloth (Local name - Phanek Mayeknaiba Sana phige machu)

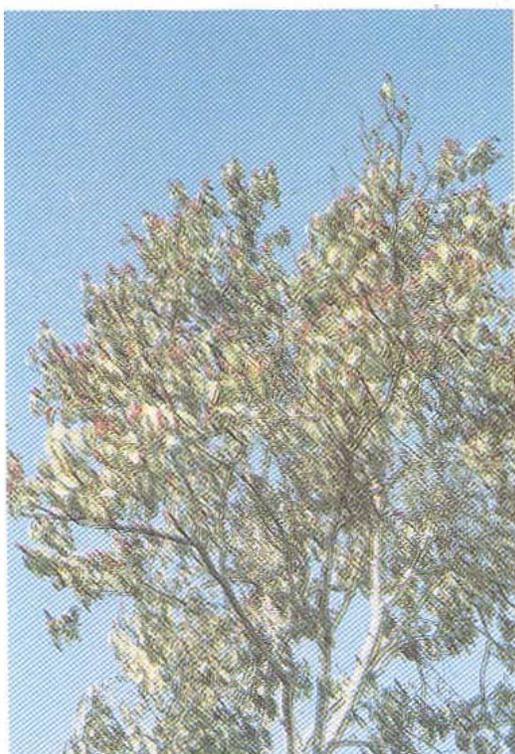


Fig. 7. Lady's loincloth (Local name - Phanek Mayeknaiba Higok machu)



Fig. 8. Lady's chaddar (Local name - Rani Phi Sana phige machu)

Results

In the following enumeration, the plants are arranged in alphabetical order. Local names have been provided for all the species.

(a) Dye Yielding Plants

1. *Acacia catechu* Willd. (Mimosaceae)
Local name - Kabokhaje.
A middle-sized tree with brown bark. It is a rare plant occurring wild along the border with Myanmar. A fast reddish black dye is obtained from the heartwood of the plant by boiling in water. Small chips of the heartwood are boiled in water for about one hour. Then the dye is concentrated by evaporation in iron vessels. The dye is used in the preparation of local inks and dyeing cotton fabrics.
2. *Amoora spectabilis* Miq. (Meliaceae)
Local name – Oongang.
A 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.
3. *Areca catechu* Linn. (Arecaceae)
Local name-Kwa pambi.
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.
4. *Basella alba* Linn. (Basellaceae)
Local name – Uroksumbal.
A wild, glabrous twinning herb of common occurrence. A deep purple 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.
5. *Bauhinia purpurea* Linn. (Caesalpiniaceae)
Local name- Chingthrao angangba.
A moderately sized deciduous tree, commonly found in the Manipur 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.
6. *Berberis manipurana* Ahr. (Berberidaceae)
Local name-Oonapu.
A shrub of very rare occurrence. Grows wild in Ukhrul district. As the local name suggests, a beautiful yellow dye is obtained from the stem and roots by boiling in water. Acids and alkalis can be added for concentrating the dye. It is mainly used for dyeing mulberry silk fabrics (locally known as Kabrang).
7. *Bixa orellana* Linn. (Bixaceae)
Local name-Ureirom.
A small evergreen tree, commonly cultivated in the homestead compounds (Fig. 2). A pale red dye is obtained from the arils of the seed. The seeds are soaked in cold water to extract the dye. This dye is commonly used for dyeing locally made cotton towels and loin-clothes and also in painting.
8. *Carthamus tinctorius* Linn. (Asteraceae)
Local name – Kushum lei.
A branched annual herb, 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-Leihoura) 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).
9. *Celosia argentea* Linn. (Amaranthaceae)
Local name-Haorei angangba.
An erect glabrous annual, commonly cultivated in the gardens throughout the state. A pink red dye is obtained from the flowers. The dye is used for painting.

10. *Clitoria ternatea* Linn. (Papilionaceae)
Local name – Aprajita.
An annual climber, 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.
11. *Clerodendrum bracteatum* Wall. ex Walp. (Verbenaceae)
Local name- Kuthap.
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.
12. *Cordia grandis* Forst. (Boraginaceae)
Local name- Lamuk.
A middle sized deciduous tree, grows wild in Tamenglong district. A black dye is obtained from the fruit and bark of this plant. The dye is extracted in cold water. The dye is used for painting.
13. *Curcuma domestica* Valetton. (Zingiberaceae)
Local name – Yaingang.
An annual with rhizomatous underground stem, 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- Mukthubi). By adding lime water or alkalies, a brick red dye could also be obtained. The dye is used for dyeing and painting.
14. *Cuscuta reflexa* Roxb. (Cuscutaceae)
Local name – Uri napu.
A leafless, twinning parasite, commonly found in the Manipur Valley. A yellow dye is obtained from the whole plant by crushing in cold water. It is used for dyeing of cotton clothes and in painting.
15. *Dipterocarpus turbinatus* Gaertn.f. (Dipterocarpaceae)
Local name – Yangou.
A tall tree of common occurrence along the Indo-Myanmar border at Moreh and Lokchao. A whitish dye is obtained from the wood by boiling in water. The same dye could also be obtained from the sap of the plant. The dye is used for painting.
16. *Emblica officinalis* Gaertn. (Euphorbiaceae)
Local Name – Heigru.
A small deciduous tree, very common in the hills of Manipur. 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.
17. *Erythrina stricta* Roxb. (Papilionaceae)
Local name-Kurao angamba.
A deciduous tree with strong incurved prickles, common in the Manipur valley and sometimes planted in the homestead compounds (Fig. 3). 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.
18. *Hibiscus rosa-sinensis* Linn. (Malvaceae)
Local name – Juba kushum
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.
19. *Iris bakeri* Wall. (Iridaceae)
Local name-Kombirei.
A large clumped herb, 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.
20. *Mallotus philippensis* Muell-Arg. (Euphorbiaceae)
Local name- Ureirom laba.
A small evergreen tree grows wild throughout the valley (Fig. 4). A crimson red dye is obtained from the fruits. The sun dried fruits are soaked in

cold water to extract the dye. The dye is used for dyeing silk fabrics.

21. *Melanorrhoea usitata* Wall. (Anacardiaceae)

Local name- Kheu.

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.

22. *Osbeckia chinensis* Linn. (Melastomataceae)

Local name- Yachubi.

A weak, erect under shrub, very common in the hills surrounding Manipur Valley. A violet dye is obtained from the fruits. The crushed fruits are soaked in local made wine or country liquor for best results. As the local name suggests, this dye was popularly used in olden days for colouring teeth.

23. *Parkia timoriana* (A.DC.) Merr. (Mimosaceae)

Local name- Yongchak.

A medium-sized, unarmed tree with spreading branches, very common throughout the state (Fig.5). 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.

24. *Pasania pachyphylla* (Kurz.)Scott. (Fagaceae)

Local name-Kuhi.

A large evergreen tree 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.

25. *Piper betle* Linn. (Piperaceae)

Local name-Pana mana/Kwa mana.

A climber with cordate, elliptic leaves, cultivated mainly in the Jiribam sub-division. A deep reddish dye is obtained by crushing the fresh

leaves along with the seeds of *Areca catechu* Linn. and lime in cold water. The dye is used for painting.

26. *Psidium guajava* Linn. (Myrtaceae)

Local name-Pungdon.

A small, sub-deciduous tree generally cultivated in the Manipur Valley. A reddish brown dye is obtained from the young fruits. The dye is extracted by crushing the fruit in cold water. The dye is mostly used for painting.

27. *Punica granatum* Linn. (Punicaceae)

Local name-Kaphoi.

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.

28. *Rubia cordifolia* Linn. (Rubiaceae)

Local name- Moyum pambi.

A climber with quadrangular stem, grows wild in the forests adjoining Myanmar. A beautiful deep pink dye is obtained from the stem and roots of this plant. The dye is extracted by crushing the roots or stem in cold water. Acidic dye mordants are added before dyeing. It is used for dyeing and painting.

29. *Solanum ferox* Linn. (Solanaceae)

Local name- Khamu.

A much branched, armed shrub, 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.

30. *Strobilanthes cusia* (Nees) Imlay
syn. *S. flaccidifolius* Nees, (Acanthaceae)

Local name- Kum.

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.

31 *Tagetes patula* Linn. (Asteraceae)
Local name-Sanarei.

An annual, 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.

32 *Tectona grandis* Linn. f. (Verbenaceae)
Local name- Chingshu.

A large tree found in the forests along the border with Myanmar, sometimes cultivated. A maroon coloured dye is obtained from the leaves while a deep brownish colour is obtained from the barks. Either the bark or leaves are first crushed and then soaked in water for 2 hrs. After adding acids or alkalies, the dye is concentrated by boiling. The dye is generally used for painting.

33 *Terminalia citrina* Roxb. ex Flem.
(Combretaceae)
Local name- Manahee.

A large deciduous tree, 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.

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

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 34 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.

(b) 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
<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Khujum pere
<i>Alocasia macrorrhiza</i> Schott.	Araceae	Hongu
<i>Alpinia nigra</i> (Gaertn.) Burtt.	Zingiberaceae	Pullei
<i>Eclipta prostrata</i> Linn.	Asteraceae	Uchi sumbal
<i>Ficus hispida</i> Linn.f.	Moraceae	Ashi heibong
<i>Hedychium marginatum</i> C.B.Cl.	Zingiberaceae	Ingenllei
<i>Hedychium stenopetalum</i> Lodd.	Zingiberaceae	Loklei
<i>Musa paradisiaca</i> Linn.	Musaceae	Laphu
<i>Nicotiana tabacum</i> Linn.	Solanaceae	Hidak mana
<i>Pisum sativum</i> Linn.	Papilionaceae	Hawai tharak

(c) Plants used as source of Acidic Dye Mordants

Several acidic fruits have also been used as 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
<i>Ananas comosus</i> (Linn.) Merr.	Bromeliaceae	Kihom
<i>Averrhoa carambola</i> Linn.	Averrhoaceae	Heinoujom
<i>Citrus latipes</i> (Swingle) Tanaka	Rutaceae	Heiribob
<i>Citrus limon</i> (Linn.) Burm.f.	Rutaceae	Champra
<i>Citrus medica</i> Linn.	Rutaceae	Heijang
<i>Embllica officinalis</i> Gaertn.	Euphorbiaceae	Heigru
<i>Garcinia pedunculata</i> Roxb.	Clusiaceae	Heibung
<i>Mangifera indica</i> Linn.	Anacardiaceae	Heinou
<i>Rhus hookeri</i> Sahni & Bahadur	Anacardiaceae	Heimang

Discussion

From the above account, it can be observed that people of Manipur, particularly the Meiteis, still extensively use dyes extracted from plants for dyeing of their handloom products. Some of these dyes are also used in fine arts. So far no systematic investigation was carried out to enumerate all the dye yielding plants of the state. The specialty of these locally extracted plant dyes is that the synthetic dyes cannot match the particular hue and chroma of these dyes. Mention may be made that hues for the traditional clothes like *Pungou phanek*, *Thangjing mapal phanek*, *Phige phanek*, *Muga phanek*, etc. find their places in the customary and traditional dresses used on the occasions of death, anniversaries, marriages and worship of God, etc.

Further investigations are necessary to ascertain the total number of these dye-yielding plants available in

this state. Efforts should also be made to increase the use of these natural dyes on a larger scale. Conservation of the dye-yielding plants and revival of the age-old system of dyeing with scientific innovations is imperative to protect the system.

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