CHAPTER - 5
RESULT

5.1 DESCRIPTION:

5.1.1 Presentation of data:

The plant species having ethnomedicinal importance are altogether one hundred and seven in numbers. Out of one hundred and seven plant species collected, ninety seven belongs to Dicotyledons, six comes under Monocotyledons and four are Ferns. The plant species represent sixty four families (Table No.1).

Scientific names of the plants are arranged alphabetically, where an effort has been made to give the latest botanical names with the help of IPNI (International Plant Names Index) web site: http://www.ipni.org. Description of the plant species are made in the sequence of : scientific name, local name, family, locality, botanical description, habit, habitat, micro-climatic status/condition (ambient temperature, altitude, humidity, light intensity) of the growing site of the plant species, phenology, associates, ecology/silvicultural character, analysis of soil (content of Nitrogen : N in percentage : %, content of Phosphorus : P in Kilograms per Hectres : kg/ha, content of Potassium : K in Kilograms per Hectres : kg/ha, Hydrogen potentials : pH and Organic compound : OC content in percentage : %) collected from the growing site of the plant species, parts used, uses, their mode of preparation, mode/route of application and threat status.

Among the 64 families, the families Euphorbiaceae and Asteraceae have the maximum number of 7 plant species each followed by Rubiaceae, Malvaceae and Fabaceae with 6, 5, 4 species respectively. (Table No.1).

Taxonomic description of plants follow successively.
5.1.2 Description of plants:

*Abelmoschus moschatus* (Pl. IV, Photo 10)

Scientific name : *Abelmoschus moschatus* Medik.

Local Name : Uichhuhlo

Family : Malvaceae

Locality : Tualcheng

Botanical Description : A soft, herbaceous trailing plant to 2 m in length, with soft hairy stems. Leaves polymorphous, the lower ovate, acute or roundish-angled, the upper palmately 3-7 lobed, hairy on both surfaces. Flowers large, corolla bell-shaped, yellow with purple centre. Capsules fulvous-hairy, pyramidal-oblong, acute.

Habit : A soft, herbaceous trailing shrub with soft hairy stems.

Habitat : In open places, grasslands and open clearings, etc., at low and medium altitudes.

Micro-climatic Status/Condition:
- Ambient temperature : 24°C
- Altitude : 1300 m
- Humidity : 54%
- Light intensity : 85170 lux

Phenology:
- Leaf shedding : Annual herb
- Flowering : September - October
- Place of flower : Axillary
- Fruiting : October – December

Associates : *Ageratum conyzoides, Plantago major, Clerodendrum spp.*

Ecology/Silvicultural character:
High light demander, heavy and continuous rain effects crops growth negatively, can be easily regenerate by natural and artificial methods.

Soil:
- N : 0.04 %
- P : 14.2Kg/ha
- K : 254.0 Kg/ha.
- pH : 6.2
- OC : 1.0%

Parts used : Leaves, roots and seeds.
Uses : Sprain, inflammations and removal of thorn.

Mode of Preparation : Leaf and root paste as a poultice for sprain and inflammations. Leaf paste is also used as poultice for removing thorn stuck in the body.

Mode/Route of application : External application.

Status/Category : Not assessed for the IUCN Red List

*Acer oblongum (Pl. IV, Photo 11 & Fig. 5)*

Scientific name : *Acer oblongum* Wall.ex DC

Local Name : Thingphingphihlip

Family : Aceraceae

Locality : Tualcheng

Botanical Description : A small or medium-sized evergreen tree. Leaves broadly oblong to lancelike, long pointed, toothless, blue-green beneath, finely hairy when young. Inflorescence corymbose, pubescent on leafy terminal and lateral shoots, 5-15 cm long. Pedicels pubescent. Flowers 5-merous, 7-9 mm across, greenish-white. Sepals linear, 1-2 mm wide, acute, pubescent. Petals narrowly lanceolate, 1-2 mm wide. Stamens 8, inserted on disc. Ovary pubescent, styles free nearly to the base. Samaras glabrous, 2-3 cm long; wings veined, divergent, constricted at base; nutlets gibbous, locules white-pubescent inside.

Habit : A small or medium-sized evergreen tree.

Habitat : Rare in Mizoram. Found in lime-free soils in forests at higher altitude of Tualcheng, etc.

Micro-climatic Status/Condition: Ambient temperature : 19°C
Altitude : 1245 m
Humidity : 50 %
Light intensity : 18500 lux
<table>
<thead>
<tr>
<th>Phenology</th>
<th>Leaf shedding</th>
<th>April-May</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>New Leaf</td>
<td>June - July</td>
</tr>
<tr>
<td></td>
<td>Flowering</td>
<td>October - November</td>
</tr>
<tr>
<td></td>
<td>Place of flower</td>
<td>Terminal or lateral</td>
</tr>
<tr>
<td></td>
<td>Fruiting</td>
<td>January - March</td>
</tr>
</tbody>
</table>


| Ecology/Silvicultural character | Light demander, resistant to jhum fire, no problem in natural regeneration. |

| Soil                  | N : 0.22%  |
|                       | P : 2.19 kg/ha |
|                       | K : 102 kg/ha |
|                       | pH : 5.0 |
|                       | OC : 2.17% |

| Parts used | Bark |

| Uses       | Diarrhoea and dysentery |

| Mode of Preparation | Decoction of the bark is taken for diarrhea and dysentery. |

| Mode/Route of application | Oral |

| Status/Category | Endangered |

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**Adiantum lunulatum (Pl. IV, Photo 12)**

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Adiantum lunulatum Burm. f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Lungsam</td>
</tr>
<tr>
<td>Family</td>
<td>Pteridaceae (Adiantaceae)</td>
</tr>
<tr>
<td>Locality</td>
<td>Ngopa</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>Leafy fern. Fronds often elongated, rooting at apex, pinnate, pinnae sub-dimidate; sori borne in a continuous line along the edge.</td>
</tr>
<tr>
<td>Habit</td>
<td>Leafy fern.</td>
</tr>
</tbody>
</table>
**Habitat**: Commonly found on rock and slopes of the lower hills as well as under shade near swamps.

**Micro-climatic Status/Condition:**
- Ambient temperature: 18°C
- Altitude: 1200 m
- Humidity: 61%
- Light intensity: 74150 lux

**Phenology**:
- Flowering: June - September.
- Place of flower: Axillary
- Fruiting: October – March

**Associates**: Mosses and ferns

**Ecology/Silvicultural character**: Shade bearer, resistant to heavy rainfall, regenerate naturally.

**Soil**:
- N: 0.092%
- P: 1.98 kg/ha
- K: 19 kg/ha
- pH: 4.84
- OC: 0.76%

**Parts used**: Stem and leaves

**Uses**: For removing gravel from gall bladder and heart disease

**Mode of Preparation**: Either decoction or raw eaten of the stem and leaves is used for removing gravel from gall bladder, it is also used for heart disease.

**Mode/Route of application**: Oral.

**Status/Category**: Not assessed for the IUCN Red List

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**Adina cordifolia (Pl. V, Photo 13)**

**Scientific name**: *Adina cordifolia* (Roxb.) Brandis.

**Local Name**: Lungkhup

**Family**: Rubiaceae.

**Locality**: Ngopa

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Botanical Description: A large deciduous tree, up to 40 m tall by 2.2 m in diameter. Leaf is big, heart shaped, 10-22 cm long, pubescent, simple stipulate, opposite cordate and ovate. Flower brown. However, yellow flower is reported elsewhere (Kirtikar & Basu, 1981). Inflorescence panicle. Fruits very numerous, in round heads.

Habit: A large deciduous tree.

Habitat: Common in deciduous and semi evergreen forest. Grown on sandy loam soil in tropical and semi evergreen forests.

Micro-climatic Status/Condition: Ambient temperature: 25 °C
Altitude: 1300 m.
Humidity: 47%
Light intensity: 14700 lux

Phenology: Leaf shedding: Evergreen. However, the species is deciduous elsewhere (Brandis, 1990)
New Leaf: March - April
Flowering: June – July. It is also reported up to August (Chatterjee & Prakashi, 1997)
Place of flower: Axillary
Fruiting: August – September. Fruiting in October – December is reported by Chatterjee & Prakashi (1997)

Associates: Thea sinensis, Parkia roxburghii, Cinnamomum bejholghata.

Ecology/Silvicultural character: Light demander, resistant to jhum fire, no problem in natural and artificial regeneration.

Soil: N: 0.21%
P: 2.11 kg/ha
K: 102 kg/ha
pH: 6.0
OC: 2.10%

Parts used: Bark
Uses: Sprain, diarrhoea and stomach ulcer.
Mode of Preparation : Decoction of the bark is used as lotion for sprain, it is also taken orally to cure diarrhoea and stomach ulcer.

Mode/Route of application : Externally and orally

Status/Category : Not assessed for the IUCN Red List

### Aeschynanthus hookeri (Pl. V, Photo 14)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Aeschynanthus hookeri C.B.Clarke</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Pawhrual (zam chi)</td>
</tr>
<tr>
<td>Family</td>
<td>Gesneriaceae (Gloxinia family)</td>
</tr>
<tr>
<td>Locality</td>
<td>Aiduzawl</td>
</tr>
</tbody>
</table>

**Botanical Description**

Stems ca. 40 cm, glabrous. Leaves opposite; petiole 6-10 mm; leaf blade narrowly elliptic to oblong, 7-9 cm × 2.3-4 cm, thick leathery, glabrous, adaxially drying smooth or wrinkled, abaxially not punctate, base broadly cuneate, margin entire, apex acuminate; lateral veins indistinct. Cymes pseudoterminal, 4-10-flowered; peduncle absent; bracts persistent, green, triangular to lanceolate, 5-9 cm × 1.5-3 mm. Pedicel 1-1.5 cm, glabrous. Calyx red or purple, 1-1.3 cm, 5-lobed from above to near middle; tube 5-6 mm in diam. at mouth; lobes ovate to broadly triangular, 3-7 cm × 2.2-3.2 mm, outside glabrous. Capsule ca. 30 cm. Seeds with 2 hairlike appendages at hilar end, to 13 mm, opposite end with 1 hair like appendage to 7 mm.

**Habit** : Climber

**Habitat** : Rarely found in Mizoram in sandy rocky places in disturbed forets.

**Micro-climatic Status/Condition:**

| Ambient temperature | 18 °C |
| Altitude            | 1250 m |
| Humidity            | 56 %  |
| Light intensity     | 82200 lux |
### Phenoology

- **Flowering**: June - July.
- **Place of flower**: Axillary
- **Fruiting**: August – September

### Associates

- *Securinega virosa*, *Osbeckia rostrata*, *Mussaenda glabra*.

### Ecology/Silvicultural character

Light demander, acceptable to jhum fire, natural regeneration.

### Soil

- **N**: 0.092%
- **P**: 12.0 kg/ha
- **K**: 156 kg/ha
- **pH**: 5.5
- **OC**: 1.66%

### Parts used

- Leaves

### Uses

- Sprain

### Mode of Preparation

The leaves are crushed with a piece of lime to make paste and then applied to sprain particularly in the waist.

### Mode/Route of application

External application.

### Status/Category

Not assessed for the IUCN Red List

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**Ageratum conyzoides** *(Pl. V, Photo 15)*

- **Scientific name**: *Ageratum conyzoides* L.
- **Local Name**: Vailenhlo
- **Family**: Asteraceae
- **Locality**: Lungtian
- **Botanical Description**: An erect, annual, foetid herb, 30-60 cm high. Leaves are opposite, pubescent with long petioles and include glandular trichomes. Inflorescence a terminal corymb; flowers pale blue, in small head. The fruit is an achene with an aristate pappus and is easily dispersed by wind.
Habit: An erect annual herb.

Habitat: Common in moist shady and waste places, roadsides and gardens.

Micro-climatic Status/Condition:
- Ambient temperature: 20 °C
- Altitude: 1090 m
- Humidity: 44%
- Light intensity: 9815 lux

Phenology:
- Leaf shedding: Annual herb
- Flowering: Throughout the year
- Place of flower: Axillary
- Fruiting: Throughout the year

Associates: *Mikania micrantha, Cissus javanica, Chromolaena odorata, Ageretum adenomorpha.*

Ecology/Silvicultural character: Moderate light demander, acceptable to jhum fire, regenerate naturally.

Soil:
- N: 0.31 %
- P: 11.2 kg/ha
- K: 165.0 kg/ha
- pH: 5.0
- OC: 1.0 %

Parts used: Leaves

Uses: Itches due to Lungphur (small caterpillar), tonsillitis.

Mode of Preparation: Juice of the crushed leaves is applied to itches caused by a small caterpillar called Lungphur (Mizo). Juice of the crushed leaf is applied externally around the throat to cure tonsillitis.

Mode/Route of application: External

Status/Category: Not assessed for the IUCN Red List

*Alstonia scholaris* (Pl. VI, Photo 16)

Scientific name: *Alstonia scholaris* (L.) R.Br.

Local Name: Thuamriat

Family: Apocynaceae
Locality : Bualpui H

Botanical Description : A middle sized to large evergreen tree. Leaves 5-8, whorled, elliptic-lanceolate or elliptic oblong, bluntly acuminate, 3-5 x 8-20 cm. cuneate, narrowed into a petiole. Flowers greenish white, in terminal umbellate cymes. Fruits (follicle) often pendulous and paired, clustered, cylindric and linear up to 60 cm long; seeds with hair.

Habit : A middle sized to large evergreen tree.

Habitat : Very frequent in Mizoram in tropical evergreen and semi-evergreen forests. It thrives well on sandy loam soil in tropical and semi evergreen forests.

Micro-climatic Status/Condition:  
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>25 °C</td>
</tr>
<tr>
<td>Altitude</td>
<td>1200 m</td>
</tr>
<tr>
<td>Humidity</td>
<td>43%</td>
</tr>
<tr>
<td>Light intensity</td>
<td>12800 lux</td>
</tr>
</tbody>
</table>

Phenology :  
<table>
<thead>
<tr>
<th>Phenological Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf shedding</td>
<td>September - October</td>
</tr>
<tr>
<td>New Leaf</td>
<td>February - March</td>
</tr>
<tr>
<td>Flowering</td>
<td>February - March</td>
</tr>
<tr>
<td>Place of flower</td>
<td>Terminal</td>
</tr>
<tr>
<td>Fruiting</td>
<td>April – May</td>
</tr>
</tbody>
</table>

Associates : Tetrameles nudiflora, Bauhinia variegate, Duranta rapens

Ecology/Silvicultural character: Light demander, resistant to high rainfall, acceptable to jhum fire, artificial and natural regeneration is easy.

Soil :  
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.160 %</td>
</tr>
<tr>
<td>P</td>
<td>12.76 kg/ha</td>
</tr>
<tr>
<td>K</td>
<td>72 kg/ha</td>
</tr>
<tr>
<td>pH</td>
<td>5.5</td>
</tr>
<tr>
<td>OC</td>
<td>1.6 %</td>
</tr>
</tbody>
</table>

Parts used : Roots, bark and latex.

Uses : Hypertension, malaria, dysentery, antiseptic, fever, stomachache.

Mode of Preparation :  
1) A decoction of the bark is taken for hypertension at the rate of tablespoonful three times per day.
2) Infusion of crushed root bark is taken for Malaria. Decoction of root bark is taken against dysentery at the rate of one cup thrice daily.
3) The milky juice or latex is applied on cuts and wounds. The latex is taken in small quantity for fever and stomachache.

Mode/Route of application : Oral administration, local application as an ointment.

Status/Category : Lower Risk

*Ampelocissus latifolia* (Pl. VI, Photo 17)

Scientific name : *Ampelocissus latifolia* (Roxb.) Planch.

Local Name : Hruipawl

Family : Vitaceae

Locality : Tualpui

Botanical Description : A weak herbaceous climber, with a tuberous root stock. Leaves orbicular or broadly cordate 7-15 x 8-15 cm, 3-7 lobed, lobes acute, serrate-dentate, ± glabrous on both sides; petiole 3-5 cm long, stipules minute, deciduous. Inflorescence a compact thyrsoid cyme; peduncle 6-7 cm long, ending in a long bifurcate tendril. Flowers numerous, deep reddish. Clayx truncate or obscurely 5 toothed. Petals 5, oblong. Ovary 10-lobed at apex, sunken in the disc, style absent; stigma cup shaped. Berry globose, black, 6-7 mm, 2 seeded, rarely 3 seeded. Seeds elliptical, margin rugose, transversely with a linear tubercle on the back and bluntly ridged on the face.

Habit : An extensive climber.

Habitat : Common in Mizoram, in tropical dense forests and semi-evergreen forests. It is grown in moist shady places under primary and secondary forests.

Micro-climatic Status/Condition:

- Ambient temperature : 19 °C
- Altitude : 1200 m
- Humidity : 42 %
- Light intensity : 3640 lux
Phenology: Leaf shedding: March - April
New Leaf: May - June
Flowering: July - August
Place of flower: Axillary
Fruiting: August – October

Associates: Mikania mikrantha, Eupatorium odoratum, Ficus spp.

Ecology/Silvicultural character: Shade bearer, resistant to heavy rainfall, natural regeneration has no difficulty but artificial regeneration is very difficult.

Soil:
- N: 0.173%
- P: 0.56 kg/ha
- K: 88 kg/ha
- pH: 5.7
- OC: 0.94%

Parts used: Roots and leaves.

Uses: Tooth-ache, excess urination.

Mode of Preparation:
1) Juice of crushed roots is taken orally to stop excess urination mixed with blood. The medicine is drunken 1 cup (100 ml) twice or thrice daily.
2) The leaves are chewed against teeth set on edge.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List

**Aporusa octandra (Pl. VI, Photo 18)**

Scientific name: Aporusa octandra (Buch.-Ham. ex D.Don.) Vick.

Local Name: Chhawntual

Family: Euphorbiaceae.

Locality: Rabung

Botanical Description: A small or middle sized evergreen tree. Leaves elliptic-oblong or oblong lanceolate, acuminate, 2.5-6 x 8-12 cm, obscurely crenate; nerves 5-7 pairs, slender; base cuneate or rounded. Flowers dense yellow, clustered on the axils and scars of fallen
leaves on old branches, forming a yellow mat on the ground when fallen. Fruits ovoid-oblong, beaked, yellowish when ripe.

Habit: A small or middle sized evergreen tree.

Habitat: Common throughout Mizoram, particularly in tropical semi-evergreen forests and secondary mixed bamboo forests. It is grown on compact sandy-loam soil.

Micro-climatic Status/Condition: 
- Ambient temperature: 20 °C
- Altitude: Upto 1500m
- Humidity: 42%
- Light intensity: 14700 lux

Phenology:
- Leaf shedding: Evergreen
- New Leaf: March - April
- Flowering: November - January
- Place of flower: Axillary
- Fruiting: February – March

Associates: Schima wallichi, Sapium baccatum, Actinodaphne obovata, Clerodendrum viscosum

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire and heavy rainfall, natural and artificial regeneration has no problem.

Soil:
- N: 0.168 %
- P: 13.0Kg/ha
- K: 975Kg/ha
- pH: 6.1
- OC: 2.0%

Parts used: Bark and wood

Uses: Stomach-ache, Stomach ulcer, diarrhoea, dysentry, colic etc

Mode of Preparation: Decoction or Infusion of the inner bark is taken orally for colic and stomach-ache @ one cup twice or thrice daily for atleast three days. The bark is boiled in water and water is taken as a remedy for stomach ulcer, diarrhoea and dysentery.

Mode/Route of application: Oral administration

Status/Category: Not assessed for the IUCN Red List
**Artemisia indica** (Pl. VII, Photo 19)

Scientific name : *Artemisia indica* Willd.

Local Name : Sai

Family : Asteraceae

Locality : Vanchengpui

Botanical Description : Tall aromatic herb or undershrub, stem cylindrical, paniculately branched, solid and brown; leaf simple, alternate, lanceolate, agitate; white flower borne on panicled head, petal ligulate; fruit achene, minute, pappus absent.

Habit : Tall aromatic herb or undershrub.

Habitat : Not common in Mizoram, grows in an open fallow land.

Micro-climatic Status/Condition:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>24 °C</td>
</tr>
<tr>
<td>Altitude</td>
<td>1400 m</td>
</tr>
<tr>
<td>Humidity</td>
<td>42 %</td>
</tr>
<tr>
<td>Light intensity</td>
<td>12800 lux</td>
</tr>
</tbody>
</table>

Phenology:

<table>
<thead>
<tr>
<th>Event</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf shedding</td>
<td>June - November</td>
</tr>
<tr>
<td>New Leaf</td>
<td>February - March</td>
</tr>
<tr>
<td>Flowering</td>
<td>December – March. However, flowering in the month of August – November is reported by Chaterjee &amp; Prakash (1997)</td>
</tr>
<tr>
<td>Place of flower</td>
<td>Axillary</td>
</tr>
<tr>
<td>Fruiting</td>
<td>April – May</td>
</tr>
</tbody>
</table>

Associates : *Schima wallichii, Ageretum conyzoides, Eupatorium odoratum.*

Ecology/Silvicultural character: Needs abundant light or moderate light demander, acceptable to jhum fire, moderately resistant to heavy rainfall, natural regeneration has no difficulties but artificial regeneration is difficult.

Soil:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.138 %</td>
</tr>
<tr>
<td>P</td>
<td>13.32 Kg/ha</td>
</tr>
<tr>
<td>K</td>
<td>81 Kg/ha</td>
</tr>
<tr>
<td>pH</td>
<td>4.3</td>
</tr>
<tr>
<td>OC</td>
<td>0.88 %</td>
</tr>
</tbody>
</table>
Parts used : Leaves

Uses : Malaria, nose bleeding, stomach ulcer, cancer.
Mode of Preparation : The leaf is boiled and the water is used for bathing to heal malaria. Juice of crushed leaves is used to stop bleeding from the nose. Decoction of leaves is used against stomach ulcer and cancer.

Mode/Route of application : External application

Status/Category : Not assessed for the IUCN Red List

_Bauhinia variegata_ (Pl. VII, Photo 20)

Scientific name : _Bauhinia variegata_ Linn.

Local Name : Vaube

Family : Leguminosae (Caesalpiniaeae).

Locality : Tualte

Botanical Description : A small to medium-sized tree. Leaves ovate, 14 x 10-15 cm, divided into 2 lobes, rigidly subcoriaceous, deeply cordate; nerves 11-15. Flowers variegated, white to pink or purple, axillary or terminal racemes. Fruits flat pods, dehiscent, slightly falcate, 2-3 x 15-13 cm; seeds 11-15.

Habit : A small to medium-sized tree.

Habitat : Very common throughout Mizoram, particularly in tropical semi-evergreen forests.

Micro-climatic Status/Condition: Ambient temperature : 21 °C
Altitude : 1200 m.
Humidity : 41 %
Light intensity : 15780 lux

Phenology : Leaf shedding : March - April
New Leaf : May - June
Flowering : February - March
Place of flower : Axillary
Fruiting : April – May
Associates: *Tetrameles nudiflora, Alstonia scholaris, Duranta rapens*

Ecology/Silvicultural character: Light demander, resistant to jhum fire and heavy rainfall. Artificial and natural regeneration has no problem.

Soil:
- N: 0.157%
- P: 14.2Kg/ha
- K: 254.0Kg/ha
- pH: 6.2
- OC: 1.0%

Parts used: Bark and wood

Uses: Dyspepsia and flatulence, diarrhea.

Mode of Preparation: 1) Decoction of roots is given in dyspepsia and flatulence.
2) Decoction of bark is taken orally for diarrhoea @ ½ cup (50 ml) once or for twice daily. It is also taken to cure ulcers.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List

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*Begonia inflate* (Pl. VII, Photo 21)

Scientific name: *Begonia inflata* Cl.

Local Name: Sekhupthur

Family: Begoniaceae

Locality: N.E.Khawdungsei

Botanical Description: A soft herb; stem sometimes streaked with red. Leaves oblong-lanceolate, acuminate; base obliquely cordate. sinuate-dentate c. 12 cm long; stipules subulate. Flowers axillary, dichotomous, pinkish white. Fruits trigonous, inflated; seeds ellipsoid or obvoid.

Habit: A soft herb.
Habitat: Occasional in Mizoram, in moist rocky habitat near streams and river in primary forests. It is grown on sandy rocky places and river banks under primary forests.

Micro-climatic Status/Condition: Ambient temperature: 20 °C
Altitude: 1120 m
Humidity: 62 %
Light intensity: 90170 lux

Phenology: Flowering: April - May
Place of flower: Axillary
Fruiting: June – October

Associates: Ageratum conyzoides, Mikania micrantha, Musa spp.

Ecology/Silvicultural character: Shade bearer, resistant to heavy rainfall, natural regeneration is seen but artificial regeneration is very difficult.

Soil: N: 0.148 %
P: 11.2 Kg/ha
K: 165.0 Kg/ha
pH: 5.0
OC: 1.0 %

Parts used: Whole plant.

Uses: Stomachache, food allergy, pile disorder, genito-urinary problems.

Mode of Preparation: The root is eaten raw against stomachache and food allergy. The stem is also eaten raw against pile disorder. The white roots are boiled in water and the water is taken as effective remedy against genito-urinary problems.

Mode/Route of application: Oral administration, Local application.

Status/Category: Not assessed for the IUCN Red List
**Bergenia ciliata** (Pl. VIII, Photo 22)

**Scientific name**: *Bergenia ciliata* (Haw.) Sternb.

**Local Name**: Khamdamdawi

**Family**: Saxifragaceae

**Locality**: Maite

**Botanical Description**: A creeping plant with big stout stem. Leaves broadly ovate or sub-orbicular, 5-35 cm long, coarsely hairy, dotted on lower surface; margin ciliated; base cordate, with large sheath. Flowers with pink, purple, corymbose on slender peduncles. Fruits sub-globose; seeds sub-pyramidal, smooth.

**Habit**: A perennial procumbent herb.

**Habitat**: Occasional in Mizoram, in sub-tropical hill forests above 100 m asl. It is grown on cliff and rocky places at higher altitudes.

**Micro-climatic Status/Condition:**
- Ambient temperature: 18 °C
- Altitude: 1200-1600 m
- Humidity: 67%
- Light intensity: 17250 lux

**Phenology**
- Leaf shedding: September - October
- New Leaf: November
- Flowering: May - June
- Place of flower: Terminal
- Fruiting: August – September

**Associates**: Setaria glauca, Eleucine indica, Cyprus rotundus.

**Ecology/Silvicultural character**: Shade bearer, resistant to high rainfall, but acceptable to jhum fire, natural and artificial regeneration has no problem.

**Soil**
- N: 0.157 %
- P: 12.21Kg/ha
- K: 254Kg/ha
- pH: 5.0
- OC: 1.1%

**Parts used**: Stem

**Uses**: Diarrhoea, dysentery, sores, ulcers, burns
Mode of Preparation: Infusion of stem is taken orally for diarrhoea and dysentery @ ½ cup (50 ml) twice daily. Sometimes, the root is chewed. Juice of stem is used for burns and sores by external application; it is also used in stomach ulcers.

Mode/Route of application: Oral administration, External application.

Status/Category: Not assessed for the IUCN Red List

**Boehmeria rugulosa (Pl. VIII, Photo 23)**

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Boehmeria rugulosa</em> Wedd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Lenlang</td>
</tr>
<tr>
<td>Family</td>
<td>Urticaceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Cheural</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>A small to medium-sized evergreen tree up to 30 ft tall. Leaves alternate, long pointed, with toothed margins and three prominent veins; lower surface white velvety. Flowers small, greenish-yellow, in thin pendulous spikes 5-15 cm long. Fruit is an achene, pointed at both ends.</td>
</tr>
<tr>
<td>Habit</td>
<td>A small to medium-sized evergreen tree up to 30 ft tall.</td>
</tr>
<tr>
<td>Habitat</td>
<td>Frequent in Mizoram, grown mostly in open forest.</td>
</tr>
<tr>
<td>Micro-climatic Status/Condition:</td>
<td>Ambient temperature: 20 °C</td>
</tr>
<tr>
<td></td>
<td>Altitude: 1450 m</td>
</tr>
<tr>
<td></td>
<td>Humidity: 43 %</td>
</tr>
<tr>
<td></td>
<td>Light intensity: 18500 lux</td>
</tr>
<tr>
<td>Phenology</td>
<td>Leaf shedding: Evergreen</td>
</tr>
<tr>
<td></td>
<td>Flowering: August-September</td>
</tr>
<tr>
<td></td>
<td>Place of flower: Axillary</td>
</tr>
<tr>
<td></td>
<td>Fruiting: October – November</td>
</tr>
<tr>
<td>Associates</td>
<td><em>Callicarpa arborea, Anogeissus acuminate</em>.</td>
</tr>
</tbody>
</table>
Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, regenerate naturally

Soil:
- N : 0.152 %
- P : 12.21 Kg/ha
- K : 254 Kg/ha
- pH : 5.0
- OC : 1.1%

Parts used: Barks

Uses: Cuts, burn and sore

Mode of Preparation: Juice of the bark is applied to treat fresh cuts and also helps in blood coagulation. Crushed bark is also applied to burns and sores.

Mode/Route of application: External

Status/Category: Not assessed for the IUCN Red List

_Bryophyllum pinnatum_ (Pl. VIII, photo 24)

Scientific name: _Bryophyllum pinnatum_ (Lamk.) Oken

Local Name: Ruhseh

Family: Crassulaceae

Locality: Chawngtlai

Botanical Description: A perennial herbs. Lower and uppermost leaves simple, the middle ones usually pinnately compound with 3-5 leaflets, opposite, blades flat, elliptic, 5-20 cm long, 2-10 cm wide, margins crenate, sometimes producing bulbils, petioles 2-10 cm long. Flowers in panicular cymes 20-80 cm long, each one pendent on pedicels 1-2.5 cm long; sepals pale yellow, streaked with red, connate, cylindrical, inflated and papery, the tube 2.5-4.5 cm long, the lobes ca 1 cm long; corolla 3-6 cm long, the exserted part maroon, sparsely glandular pubescent.

Habit: A perennial herbs.
Habitat: In open settled areas, thickets, dry second-growth forests, sometimes planted, and locally abundant.

Micro-climatic Status/Condition:
- Ambient temperature: 21 °C
- Altitude: 1170 m
- Humidity: 42%
- Light intensity: 87540 lux

Phenology:
- Flowering: January - May
- Place of flower: Terminal
- Fruiting: June – July

Associates: Cultivated

Ecology/Silvicultural character: Moderate light demander, acceptable to heavy rainfall and jhum fire, regenerates naturally and artificially.

Soil:
- N: 0.162%
- P: 0.87 Kg/ha
- K: 98 Kg/ha
- pH: 5.67
- OC: 1.20%

Parts used: Leave

Uses: Sprain, joint pain

Mode of Preparation: The leaf is warmed in a fire and then placed firmly over sprain or joint pain for pain relief.

Mode/Route of application: External

Status/Category: Not assessed for the IUCN Red List

### Byttneria aspera (Pl. IX, Photo 25)

**Scientific name**: *Byttneria aspera* Colebr. ex Roxb.

**Local Name**: Zawngluang

**Family**: Sterculiaceae

**Locality**: N.E.Khawdungsei
Botanical Description: Lianas, shrubs, or subshrubs. Leaves simple, stipulate, petiolate; leaf blade various shapes, but usually orbicular or ovate; foliar nectaries present. Sepals ovate, ca. 2 mm, puberulent, apex acute. Petals yellowish white, and purple-red adaxially, apex 2-lobed, with long ligulate appendix, nearly as long as sepals. Fruits globose or ovoid-globose, 3–4 cm in diam., spiny, spines short and robust, puberulent. Seeds oblong, ca. 12 mm, black when mature. Fl. spring and summer.

Habit: Lianas, shrubs, or subshrubs.

Habitat: Occasional in Mizoram, in open forests, valley stream sides. NE. Khawdungsei, Maite, etc.

Micro-climatic Status/Condition: Ambient temperature: 21 °C
Altitude: 1145 m
Humidity: 42%
Light intensity: 2670 lux

Phenology: Flowering: April - July
Place of flower: Axillary
Fruiting: October – December

Associates: *Bischofia javanica, Ficus spp., Entada, pursaetha.*

Ecology/Silvicultural character: Shade bearer, resistant to jhum fire, heavy rainfall and drought, regenerate naturally.

Soil: N: 0.373 %
P: 21.73 Kg/ha
K: 127 Kg/ha
pH: 6.2
OC: 1.34 %

Parts used: Stem

Uses: Mouth and tongue ulcers.

Mode of Preparation: The main stem is cut to produce juice which is then collected and used as mouth wash in mouth and tongue ulcers.

Mode/Route of application: Orally.

Status/Category: Not assessed for the IUCN Red List
**Carica papaya (Pl. IX, Photo 26)**

Scientific name : *Carica papaya* Linn.

Local Name : Thingfanghma

Family : Caricaceae.

Locality : Vartek

Botanical Description : A soft-wood tree. Leaves glabrous, palmatifid, 12-24 in. across, on long hollow petioles, forming a round tuft at the top of the stem, stipules. Flowers pale yellow, fragrant, in axillary panicles, generally dioecious, but occasionally a few female flowers on a male plant. Fruit indehiscent, fleshy, sulcate, seeds black, numerous, embedded in sweet pulp, the testa consisting of an inner hard and outer soft layer. Embryo straight, cotyledons flat, in oily albumen.

Habit : A soft-wood tree.

Habitat : Cultivated in Mizoram, in tropical evergreen and semi-evergreen forests. It is found both in dry compact and moist loamy soil in primary forests.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1100 m.
Humidity : 47 %
Light intensity : 23010 lux

Phenology : Leaf shedding : February - March
New Leaf : March - April
Flowering : Throughout the year
Place of flower : Axillary
Fruiting : Throughout the year

Associates : Cultivated

Ecology/Silvicultural character: Light demander, resistant to jhum fire, heavy rainfall and drought, natural and artificial regeneration has no problems.

Soil : N : 0.172 %
P : 14.2 Kg/ha
K : 254.0 Kg/ha
pH : 1.0%
OC : 6.2

Parts used : Leaf, latex, fruit and seed.
Uses: Enlarged liver, enlarged spleen, dysentery, centipede bite, intestinal worm, scabies, burn, cancer etc.

Mode of Preparation:
- The unripe fruit is steamed with chicken which is eaten to cure enlarged liver.
- The ripen fruits is eaten against enlarged spleen and liver problems.
- The green fruit is chopped and dried which is taken for treating dysentery.
- The fluid extracted from the un-ripened fruit is applied against centipede bite.
- Intestinal worm of a child is killed by eating seeds of the plants.
- Scabies and other skin diseases are used to cure by applying the latex of the plants.
- A leaf crushed with sugar into paste is applied to burns.
- Decoction of half dried leaves is used to cure cancer.

Mode/Route of application: Oral administration, external application.

Status/Category: Rare in the wild; cultivated abundantly

**Castanopsis echinocarpa** (Pl. IX, Photo 27)

Scientific name: *Castanopsis echinocarpa* Miq.

Local Name: Thingsia

Family: Fagaceae

Locality: Ngopa

Botanical Description: Trees 5-10 m tall; young branchlets and young leaf blades abaxially pubescent and with glabrescent, rusty brown, waxy scalelike trichomes. Petiole 1-1.5 cm; leaf blade elliptic to ovate, 9-16 × 3.5-5 cm, abaxially reddish brown but may become gray to grayish brown with age, base acute to rounded, margin entire or rarely with 1 or 2 teeth, apex acute; midvein adaxially impressed; secondary veins 11-14 on each side of midvein, sometimes impressed. Infructescences ca. 25 cm; rachis slender. Cupules
loosely arranged, globose to ellipsoid, 1.6-2.2 cm in diam., outside covered with brownish, small, lamellate, waxy scalelike trichomes, sometimes pubescent, wall to 1 mm thick; bracts spinelike, sparsely covering cupule, 3-5 mm, slender, free but a few in bundles. Nut 1 per cupule, broadly conical, 1.5-2 × 1-1.6 cm, glabrous; scar basal, 8-10 mm in diam.

Habit : Trees 5-10 m tall.

Habitat : Evergreen forests. Ngopa, NE. Khawdungsei, etc.

Micro-climatic Status/Condition:
- Ambient temperature : 23 °C
- Altitude : 1100 m
- Humidity : 41 %
- Light intensity : 78150 lux

Phenology :
- Leaf shedding : Evergreen
- Flowering : April - May
- Place of flower : Axillary
- Fruiting : September – October of following year

Associates : *Ficus* spp., *Aporusa octandra*, *Schima wallichii*.

Ecology/Silvicultural character: Light demander, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil :
- N : 0.137 %
- P : 3.92 Kg/ha
- K : 220 Kg/ha
- pH : 5.4
- OC : 1.4%

Parts used : Stem

Uses : Mouth and tongue ulcer, pneumonia.

Mode of Preparation : Young stem is cut to produce juice which is used as mouth wash to cure mouth and tongue ulcer, it is also taken orally for pneumonia.

Mode/Route of application : Orally.

Status/Category : Not assessed for the IUCN Red List
Catharanthus roseus (Pl. X, Photo 28)

Scientific name: Catharanthus roseus (Linn.) G.Don.

Local Name: Kumtluang (parvar)

Family: Apocynaceae.

Locality: N. Vanlaiphai

Botanical Description: A perennial under shrub. Leaves opposite, obovate or oblong, mucronate, glossy, 2-3 x 2.5-6 cm; base narrowed to a short petiole with 2-glands at the base. Flowers white or pink to deep rose-coloured in axillary cluster. Fruits 2, cylindrical follicles, many seeded.

Habit: A perennial under shrub.

Habitat: Introduced in Mizoram as an ornamental plant in gardens and grow in waste open places.

Micro-climatic Status/Condition: Ambient temperature: 24 °C
Altitude: 1040 m
Humidity: 51%
Light intensity: 19050 lux

Phenology: Leaf shedding: Evergreen
Flowering: Throughout the year
Place of flower: Axillary
Fruiting: Throughout the year

Associates: Cultivated

Ecology/Silvicultural character: Light demander, acceptable to heavy rainfall and drought, natural and artificial regeneration has no problem.

Soil: N: 0.172 %
P: 14.2 Kg/ha
K: 254.0 Kg/ha
pH: 1.0%
OC: 6.2

Parts used: Leaves and flowers.

Uses: Hypertension, Diabetes.

Mode of Preparation: The leaves or flowers are boiled and the water is taken orally against hypertension and diabetes.
tablespoonful (10 ml) twice or thrice daily. Some people chew the flowers for hypertension. Juice of the crushed leaves is also used for hypertension. White flowers are preferred to red ones.

Mode/Route of application : Orally.
Status/Category : Not assessed for the IUCN Red List

Centella asiatica (Pl. X, Photo 29)

Scientific name : Centella asiatica (Linn.) Urban.
Local Name : Khawte/Lambak
Family : Apiaceae.
Locality : Thingsai
Botanical Description : A prostrate herb with long stolons. Leaves orbicular, crenate, 2-8 cm across, palmately nerved, deeply cordate, long petioled, up to 30 cm. Flowers pale pink, in clusters or umbels. Fruits ovoid, rugose, crowned by persistent petals; seeds compressed.

Habit : A prostrate herb with long stolons.
Habitat : Frequent but scattered at different localities throughout Mizoram. It is grown in moist and damp places.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1420 m
Humidity : 47 %
Light intensity : 12070 lux

Phenology : Leaf shedding : Not periodical
Flowering : April - May
Place of flower : Axillary
Fruiting : May – June

Associates : Plantago major, Sonchus spp., Grasses.
Ecology/Silvicultural character: Shade bearer, resistant to drought and heavy rainfall, natural and artificial regeneration has no difficulties.

Soil:
- N: 0.143 %
- P: 6.2 Kg/ha
- K: 194.0 Kg/ha
- pH: 5.1
- OC: 1.3%

Parts used: Whole plant

Uses: Liver disorder, jaundice, kidney problem, hypertension, water-brash or heartburn, itches, cuts, wounds, eyesore, gastroenteritis, cholera and children’s cough and cold.

Mode of Preparation: Decoction of the leaves with *Phyllanthus fraternus* is taken orally for liver disorder. The aerial part is eaten raw for jaundice and kidney problem. Fresh leaves are chewed and swallowed daily for 7 days as an effective remedy against hypertension, water-brash or heartburn. The juice of crushed leaves is applied on itches, cuts and wounds and dropped into the eye (2-3 drops) for eyesore. Cold infusion of leaves is taken as tea for gastroenteritis, cholera and children’s cough and cold.

Mode/Route of application: Oral administration, local application

Status/Category: Not assessed for the IUCN Red List

**Chonemorpha fragrans** (Pl. X, Photo 30)

Scientific name: *Chonemorpha fragrans* (Moon.) Alston

Local Name: Theikelkisuak

Family: Apocyanaceae

Locality: Cheural

Botanical Description: A large climber; Leaves broadly-ovate, bi-forked, shortly acute, 18 x 26 cm, dark-green above, pale beneath, pubescent; base shallowly cordate,
Fimbriate. Flowers white, fragrant, axillary peduncled cymes; follicles in pairs, up to 30 cm long; beak curved.

Habit : A large climber.

Habitat : Frequent in Mizoram, in tropical evergreen forests. It is grown on sandy-loam soil in primary forests of Sangau, Cheural, Dampui, etc.

Micro-climatic Status/Condition:  
- Ambient temperature : 22 oC
- Altitude : 1350 m
- Humidity : 38 %
- Light intensity : 11750 lux

Phenology :  
- Leaf shedding : Evergreen
- Flowering : March
- Place of flower : Terminal
- Fruiting : April – May

Associates : *Quercus semiserrata*, *Leea bracteate*, *Laportea cresulata*, *Ficus sp.*

Ecology/Silvicultural character: Shade bearer resistant to jhum fire and heavy rainfall, natural and artificial regeneration has no difficulty.

Soil :  
- N : 0.197 %
- P : 11.2 kg/ha
- K : 165.0 kg/ha
- pH : 5.0
- OC : 1.0 %

Parts used : Latex and root bark.

Uses : Wounds, cuts, jaundice and placental disorder.

Mode of Preparation : The inner portion of the root bark is crushed and mixed with a small quantity of water, the water is then filtered and drinks against retained placenta at the dose of one cup twice daily; it is said that chicken should not be eaten while taking the medicine. The latex is applied to the wounds and cuts. Decoction of bark is used for treating placental disorder and jaundice by taking half cup twice a day.

Mode/Route of application : Local application and orally.

Status/Category : Not assessed for the IUCN Red List.
**Chromolaena odorata** (Pl. XI, Photo 31)

Scientific name : *Chromolaena odorata* (L.) R.M.King & H.Rob.

Local Name : Tlangsam

Family : Asteraceae.

Locality : Ngharchhip

Botanical Description : A scandent shrub. Leaves ovate-lanceolate or triangular, acuminate, dentate-serrate, 3-nerved up to the apex, intramarginal, pubescent on nerves beneath; base oblique, cuneate; petiole to 4.5 cm long; stipules large, lanceolate. Flowers terminal and supra-axillary corymbose heads, white in colour; bracts lanceolate. Fruits minute, light and dispersed by wind.

Habit : A scandent shrub.

Habitat : Very common throughout Mizoram, in fallow lands, clearings, waste places and immediate surroundings of villages and towns.

Micro-climatic Status/Condition: Ambient temperature : 25 °C
Altitude : 1200 m
Humidity : 48 %
Light intensity : 72150 lux

Phenology : Leaf shedding : Partial shedding in January - February
New Leaf : March - April
Flowering : October - December
Place of flower : Axillary
Fruiting : December – January

Associates : *Mikania micrantha, Ferns.*

Ecology/Silvicultural character: Light demander, acceptable to jhum fire but resistant to drought, natural regeneration is adequate.

Soil : N : 0.142 %
P : 15.2 Kg/ha
K : 187.0 Kg/ha
pH : 5.0
OC : 1.0%

Parts used : Leaves.
Uses : Cuts and wounds, stomach ulcer and dysentery.

Mode of Preparation : The juice of crushed leaves is applied externally on fresh cuts and wounds as haemostatic. Decoction of leaves is taken for stomach ulcer and dysentery.

Mode/Route of application : External application.

Status/Category : Not assessed for the IUCN Red List

**Chukrasia tabularis** (Pl. XI, Photo 32)

Scientific name : *Chukrasia tabularis* A. Juss.

Local Name : Zawngtei

Family : Meliaceae

Locality : Tialdawnglung

Botanical Description : A lofty deciduous tree. Leaves pinnate, pubescent when young; leaflets 10-16, alternate, unequal-sided, ovate or elliptic-lanceolate, 3.5-6 x 5-12 cm, acuminate, pubescent or velvety; nerves 10 pairs; base oblique. Flowers greenish-white, large in terminal peduncle. Fruits ellipsoidal, c. 3.5 cm long, very hard, blackish, speckled with lenticels outside; valves usually 3; seeds flat, dark-brown, broadly winged.

Habit : A lofty deciduous tree

Habitat : Common in Mizoram, particularly in tropical wet evergreen forests

Micro-climatic Status/Condition:
- Ambient temperature : 18 °C
- Altitude : 1440 m
- Humidity : 57 %
- Light intensity : 8900 lux

Phenology:
- Leaf shedding : November - December
- New Leaf : February - March
- Flowering : April - May
- Place of flower : Terminal panicles
- Fruiting : December – March

111
Associates: *Cinnamomum gladuliferum, Anogeisus acuminate.*

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, drought and heavy rainfall, naturally regenerate, but artificial regeneration is very difficult.

Soil: 
- N: 0.143%
- P: 18.4 Kg/ha
- K: 187.0 Kg/ha
- pH: 5.0
- OC: 1.1%

Parts used: Fruits, bark, seed-coat and wood.

Uses: Diarrhoea, Gastric problem and Flatulence.

Mode of Preparation: Infusion of crushed fruits is taken orally for diarrhoea. Infusion of bark is taken orally against gastric problem and flatulence. The medicine is taken @ teaspoonful (5 ml) twice daily. Decoction of seed-coat is taken orally for diarrhoea @ teaspoonful (5 ml) twice or thrice a day; the seed-coat is also eaten raw.

Mode/Route of application: Orally.

Status/Category: Lower risk

*Cissus javanica* (Pl. XI, Photo 33)

Scientific name: *Cissus javanica* DC.

Local Name: Hlosangharhmai

Family: Vitaceae.

Locality: Changzawl

Botanical Description: Slender climber with a hard base and subangular, glabrous, red branches. Leaves ovate-lanceolate, acute or acuminate. crenate-serrate, membranous, cordate or sub-truncate at the base, glabrous, with irregular translucent white blotches on the upper surface, purple beneath; tendril forked. Flowers tetramerous, in umbellate cymes, calyx fleshy, petals yellowish. Fruit reddish purple to black.
Habit: Climber.

Habitat: Frequent in Mizoram. It is generally grown on the roadside and calm places.

Micro-climatic Status/Condition:
- Ambient temperature: 25 °C
- Altitude: 950 m.
- Humidity: 49%
- Light intensity: 5850 lux

Phenology:
- Flowering: May - July
- Place of flower: Axillary
- Fruiting: September - November

Associates: Costus speciosus, Plantago major, Schima walichii.

Ecology/Silvicultural character: Shade bearer, resistant to heavy rainfall and drought, regenerate naturally.

Soil:
- N: 0.147 %
- P: 11.2 Kg/ha
- K: 165.0 Kg/ha
- pH: 5.0
- OC: 1.0%

Parts used: Whole plant.

Uses: Itches, stomachache, sore, boil and sprain.

Mode of Preparation: The whole plant is boiled with water and the water is used for bathing and a small quantity is drunk for itches. Decoction of the plant mixed with Centella asiatica is used for stomachache. The juice of crushed plant is applied externally on the wounded surface of sprain, boil and sore.

Mode/Route of application: External application

Status/Category: Not assessed for the IUCN Red List

_Clausena suffructiosa_ (Pl. XII, Photo 34)

Scientific name: Clausena suffructiosa (Roxb.) Wight & Arn.

Local Name: Santawkhi (Bru)

Family: Rutaceae
Locality : Lawngtlai

Botanical Description : Shrubs or small trees, upto 5m tall, glabrous, young parts tomentoes. Leaves 15-30cm long, 5-15 foliolate or sometimes more, imparipinnate; leaflets alternate, obliquely ovate-oblong or ovate lanceolate, 4-10 x 2-4cm, obtuse, caudateacuminate at apex, glandular crenulate along margins, membranous, young ones tomentoes, older ones glabrous; petiolules upto 5mm long. Racemes axillary in the upper portions of branchlets, tomentoes or glabrous; flowers whitish, fragrant; calyx ovate-deltate, glandular, glabrescent or ciliolate petals oblong, concave, glabrous. Berries globose, purplish-orange when ripe, pellucid; seeds soliitary, ovoid, compressed.

Habit : Shrubs or small trees, upto 5m tall, glabrous, young parts tomentoes.

Habitat : Common in evergreen forests, grows on moist soil in shady areas, Lawngtlai, Saiha, etc.

Micro-climatic Status/Condition: Ambient temperature : 26 °C
Altitude : 950 m
Humidity : 47 %
Light intensity : 4870 lux

Phenology : Flowering : March - June
Place of flower : Axillary
Fruiting : September- November

Associates : Murraya koenigii, Phoebe lanceolata, Sterculia hamiltonii.

Ecology/Silvicultural character: Shade bearer, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil : N : 0.138 %
P : 10.10 Kg/ha
K : 149 Kg/ha
pH : 5.1
OC : 1.2 %

Parts used : Young stem and leave.

Uses : Headache, stiff and sore due to delivery.

Mode of Preparation : Decoction of young stem and leaves mixed with leaves of Phoebe lanceolata is taken orally @ 1 cup
daily and then use for bathing to cure headache, stiff and sore due to delivery for three days. The prepared water should not be used more than three days.

Mode/Route of application : External and oral.

Status/Category : Not assessed for the IUCN Red List

**Costus speciosus (Pl. XII, Photo 35)**

Scientific name : *Costus speciosus* (Koenig) Smith.

Local Name : Sumbul

Family : Costaceae.

Locality : Khawkawn

Botanical Description : A perennial herb. Leaves elliptic-oblong, spirally arranged; cuspidate acute, 3-5 x 10-22 cm, silky pubescent beneath. Flowers white, on terminal oblong spike, dense flowered; bracts ovate, reddish. Fruits globose 3-gonous, red; seeds black or dark brown.

Habit : A perennial herb.

Habitat : Common throughout Mizoram, usually in clearings and damp places or river banks, in both tropical evergreen and semi-evergreen forests. It is grown on various types of soil from dry sandy to moist loamy soil. It is found in Ngopa, Khawzawl etc.

Micro-climatic Status/Condition:

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<th>Value</th>
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<tr>
<td>Altitude</td>
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<td>Humidity</td>
<td>42 %</td>
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<td>Light intensity</td>
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Phenology:

<table>
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<th>Phenology</th>
<th>Value</th>
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<tbody>
<tr>
<td>Flowering</td>
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<tr>
<td>Place of flower</td>
<td>Terminal</td>
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<tr>
<td>Fruiting</td>
<td>October – March.</td>
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</tbody>
</table>

Flowering and fruiting During August - September is reported by Jain et. al, 1991.
Associates: *Albizia procera, Clerodendrum bracteata, Mikania micrantha.*

Ecology/Silvicultural character: Shade bearer, can withstand heavy rainfall; natural and artificial regeneration has no difficulty.

Soil:
- N : 0.152 %
- P : 1.83 Kg/ha
- K : 82 Kg/ha
- pH : 5.4
- OC : 0.86 %

Parts used: Rhizome and seeds.


Mode of Preparation:
- Juice of the crushed leaves is drop directly to the eyes for ophthalmia. The juice is also taken orally for kidney problems.
- Juice of the crushed roots is taken orally for stomach problems and kidney problems.
- Cold infusion of the rhizome is taken orally for kidney trouble. The medicine is taken at the dose of one tablespoon thrice daily.
- Juice of rootstock is taken for stomatitis.

Mode/Route of application: Orally and external.

Status/Category: Not assessed for the IUCN Red List

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**Curanga amara (Pl. XII, Photo 36)**

Scientific name: *Curanga amara* Juss.

Local Name: Khatual

Family: Scrophulariaceae

Locality: Biate

Botanical Description: A smooth, prostrate herb. Petioles 0.5 – 2 cm; leaf blade ovate to sometimes suborbicular, abaxially hispid on veins, adaxially short hispid, base cuneate, rounded or truncate, margin crenate-serrate, apex
acute; lateral veins 4 or 5 on each side of mid-rib. 
Racemes 4 – 8 flowered. Pedicel to 1 cm. Calyx 
lobes oblong-ovate, to 1.4 x 1 cm in fruit, veins 
conspicuously reticulate; lower slobe smaller than 
upper; upper lobe often apically 2-lobed; 2 lateral 
lobes linear. Corolla white or red brown; tube ca 6.5 
mm, constricted at middle; apically narrowly 
suboblong, emarginated. Capsule ovoid, 5-6 mm.

<table>
<thead>
<tr>
<th>Habit</th>
<th>A smooth, prostrate herb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat</td>
<td>On forested slopes at low altitudes, ascending to 400 meters, rather rare and local.</td>
</tr>
<tr>
<td>Micro-climatic Status/Condition:</td>
<td>Ambient temperature : 24 °C</td>
</tr>
<tr>
<td></td>
<td>Altitude : 950 m</td>
</tr>
<tr>
<td></td>
<td>Humidity : 47%</td>
</tr>
<tr>
<td></td>
<td>Light intensity : 7900 lux</td>
</tr>
<tr>
<td>Phenology</td>
<td>Flowering : July - September</td>
</tr>
<tr>
<td>Place of flower</td>
<td>Terminal</td>
</tr>
<tr>
<td>Fruiting</td>
<td>October - November</td>
</tr>
<tr>
<td>Associates</td>
<td>Cultivated</td>
</tr>
<tr>
<td>Ecology/Silvicultural character:</td>
<td>Shade bearer, resistant to heavy rainfall, natural and artificial regeneration has no difficulty.</td>
</tr>
<tr>
<td>Soil</td>
<td>N : 0.164 %</td>
</tr>
<tr>
<td></td>
<td>P : 14.2 Kg/ha</td>
</tr>
<tr>
<td></td>
<td>K : 254.0 Kg/ha</td>
</tr>
<tr>
<td></td>
<td>pH : 6.2</td>
</tr>
<tr>
<td></td>
<td>OC : 1.0%</td>
</tr>
<tr>
<td>Parts used</td>
<td>Stem and leaves.</td>
</tr>
<tr>
<td>Uses</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Mode of Preparation</td>
<td>Decoction of the stem and leaves is taken orally for hypertension. Dried leaves grounded to powder is also mixed in curry and eaten with food.</td>
</tr>
<tr>
<td>Mode/Route of application</td>
<td>Oral.</td>
</tr>
<tr>
<td>Status/Category</td>
<td>Least concern</td>
</tr>
</tbody>
</table>
Curcuma caesia (Pl. XIII, Photo 37)

Scientific name : Curcuma caesia Roxb.

Local Name : Ailaidum

Family : Zingiberaceae

Locality : Puilo

Botanical Description : A rhizomatous herb to 1.2 m high; root-stock large, pale yellow or grey inside; leaves large, broadly lanceolate or oblong, with a broad purple brown cloud down the middled; flowers pale yellow, reddish at outer border, shorter than the bracts.

Habit : A perennial herb.

Habitat : Cultivated in Mizoram in kitchen garden as germplasm conservation. It is grown in tilted sandy loam soil in open or partial shaded areas.

Micro-climatic Status/Condition:
- Ambient temperature : 25 °C
- Altitude : 1100 m
- Humidity : 48 %
- Light intensity : 81935 lux

Phenology : Flowering : June – July (Spikes appear before and/or along with the leaves.)

Place of flower : Terminal

Associates : Cultivated

Ecology/Silvicultural character: Cultivated in tilted sandy-loam soil in open or partial shaded areas.

Soil :
- N : 0.174 %
- P : 14.2 Kg/ha
- K : 254.0 Kg/ha
- pH : 6.2
- OC : 1.0%

Parts used : Rhizome.

Uses : Food poisoning, stomachache, bruises, sprain, rheumatic pain, piles disorder and skin problems.

Mode of Preparation : The rhizome is taken orally against food poisoning and stomachache. It is bitter and the paste is
externally applied on bruises, sprains and rheumatic pains. Rhizome paste is also used in piles and leucoderma

Mode/Route of application : Oral and External application.
Status/Category : Not assessed for the IUCN Red List

*Dendrocnide sinuata* (Pl. XIII, Photo 38)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Dendrocnide sinuata</em> (Blume) Chew</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Thakpui</td>
</tr>
<tr>
<td>Family</td>
<td>Urticaceae.</td>
</tr>
<tr>
<td>Locality</td>
<td>Rullam</td>
</tr>
</tbody>
</table>

**Botanical Description**

An evergreen shrub. Leaves broadly elliptic to ovate-oblong, acuminate, 7-15 x 15-30 cm, crenulate in the upper half; nerves 12-16 pairs; base rounded or cordate; petiole stout, up to 8 cm long; Flowers greenish white, in axillary panicked dichotomously branched. Fruit (achene) obliquely ovoid.

**Habit**

An evergreen shrub.

**Habitat**

Common in Mizoram as undergrowth in tropical wet evergreen forests, particularly on the bank of rivers and streams.

**Micro-climatic Status/Condition:**

- Ambient temperature : 24 °C
- Altitude : 1320 m.
- Humidity : 52 %
- Light intensity : 5650 lux

**Phenology**

- Leaf shedding : Evergreen
- New Leaf : March - April
- Flowering : December - March
- Place of flower : Axillary
- Fruiting : May - June.

**Associates**

*Hydechium coccinium, Polygonum glabrum, Rubus birmanicus, etc.*

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Ecology/Silvicultural character: Shade bearer, natural regeneration has no problems, resistant to heavy rainfall.

Soil:
- N : 0.152%
- P : 13.4 Kg/ha
- K : 115.0 Kg/ha
- pH : 5.4
- OC : 12.4%

Parts used: Roots.

Uses: Diarrhoea, dysentry, liver problem, stomach ulcer, kidney problem, burns.

Mode of Preparation: The roots are crushed with crabs and mixed with water and the water is drunk against diarrhoea and dysentery at a dose of half cup thrice daily. It is also taken for kiney problem. The roots are crushed with live crabs and spadix of Musa spp. and then the water is taken orally for liver ailment and stomach ulcer. The root is crushed to make into paste and then applied on burns.

Mode/Route of application: Oral and external.

Status/Category: Not assessed for the IUCN Red List

_Derris robusta_ (Pl. XIII, Photo 39)

Scientific name: _Derris robusta_ Benth.

Local Name: Thingkha

Family: Fabaceae

Locality: Tialdawnglung

Botanical Description: A tree up to 20 m tall. Leaflets up to 20, elliptic – oblong, base narrowed and une ual, mucronulate at apex, puberulous on both surfaces when young but often glabrescent above. Inflorescence axillary, flowers white, fascillated; calyx golden hairy, campanulate; corolla white, standard without basal
callosities. Fruit strap-shaped, with a wing along one side.

**Habit** : A tree up to 20 m tall.

**Habitat** : Occasional in Mizoram. It is grown in sandy rocky slopes and in tropical forests.

**Micro-climatic Status/Condition:**
- Ambient temperature : 23 °C
- Altitude : 1447 m
- Humidity : 49 %
- Light intensity : 8900 lux

**Phenology** :
- Flowering : April - June
- Place of flower : Axillary
- Fruiting : July – October

**Associates** : Schima wallichii, Emblica officinalis, etc.

**Ecology/Silvicultural character:** Light demander, resistant to jhum fire and heavy rainfall, artificial and natural regeneration has no difficulties.

**Soil** :
- N : 0.147 %
- P : 17.8 Kg/ha
- K : 118 Kg/ha
- pH : 5.4
- OC : 1.20 %

**Parts used** : Bark

**Uses** : Tooth-ache, diarrhea.

**Mode of Preparation** : The barks is crushed and apply to tooth-ache, juice of the crushed bark is taken for diarrhea.

**Mode/Route of application** : Oral.

**Status/Category** : Not assessed for the IUCN Red List

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**Dillenia pentagyna (Pl. XIV, Photo 40)**

**Scientific name** : *Dillenia pentagyna* Roxb.

**Local Name** : Kaihzawl

**Family** : Dilleniaceae
Locality: Changzawl

Botanical Description: A large deciduous tree with a straight bole; bark greyish-white; leaves very large in young plant, up to 120 cm long, crowded at branch ends, ob lanceolate or obovate, acute, 1-20 x 20-60 cm, sharply dentate; base attenuate; flowers in fascicles of 5-8, bright yellow; fruits sub-globose c. 1.5 cm across; seeds ovoid.

Habit: A large deciduous tree.

Habitat: Quite frequent in Mizoram, in tropical evergreen and semi-evergreen forests. It is found both in dry compact and moist loamy soil in primary forests.

Micro-climatic Status/Condition: Ambient temperature: 27 °C
Altitude: 1050 m
Humidity: 41%
Light intensity: 12300 lux

Phenology: Flowering: March - April
Place of flower: Terminal
Fruiting: May - June

Associates: Helicia robusta, Aporusa octandra etc.

Ecology/Silvicultural character: Light demander, resistant to jhum fire and drought, natural regeneration is seen but artificial regeneration is difficult.

Soil:
N: 0.143 %
P: 11.2 Kg/ha
K: 165.0 Kg/ha
C: 1.0%
pH: 5.0

Parts used: Leaves, Bark and wood.

Uses: Diabetes, kidney problem, cancer, colic, stomach-ulcer, rheumatism.

Mode of Preparation: Decoction of the young leaves is taken orally for cancer, a person having lungs cancer is reported to be cured with this medicine during the field work.
Decoction of the bark is taken orally for diabetes, kidney problem and also given to cancer patients @ 2-4 tablespoonfuls twice daily.
Infusion and decoction of the bark is taken as an effective cure for colic and stomach-ulcer at the dose of ¼ cup twice daily.

The paste made of bark is applied externally on rheumatic pains.

Mode/Route of application : Oral administration, external application.
Status/Category : Not assessed for the IUCN Red List

*Dinochloa compactiflora* (Pl. XIV, Photo 41)

Scientific name : *Dinochloa compactiflora* Kurz.
Local Name : Sairil
Family : Poaceae.
Locality : Maite
Botanical Description : A tufted straggling evergreen bamboo, arching over tall trees; nodes thickened; internodes up to 60 cm long; culm sheaths 7 x 15 cm, truncate at throat, dilated at the base, covered with ad-pressed hairs; leaves oblong or lanceolate, acuminated, scabrous, 2.5-5 x 15-25 cm; base rounded; flowers small, dense heads on large panicles; fruits (caryopsis) ovoid, 2-3.5 cm across.

Habit : A straggling evergreen bamboo
Habitat : Frequent in Mizoram, in tropical wet evergreen forests and sub-tropical dense forests. It is generally found in moist dense forests.

Micro-climatic Status/Condition:
- Ambient temperature : 21 °C
- Altitude : 7450 m
- Humidity : 67%
- Light intensity : 1870 lux

Phenology :
- Flowering : Not seen
- Fruiting : Not seen

Associates : *Trachycarpus martiana, Calamus erectus, Engelhardtia spicata.*
Ecology/Silvicultural character: Shade bearer, resistant to drought and heavy rainfall, natural and artificial regeneration has no difficulties.

Soil:
- N : 0.178 %
- P : 27.08 Kg/ha
- K : 174 Kg/ha
- pH : 6.2
- OC : 1.7 %

Parts used : Stem.

Uses : Cuts, influenza, cough, chest complaints and Dandruff.

Mode of Preparation:
1. The outer skin is scraped off and applied externally on cuts and bandaged to stop bleeding.
2. The sap oozing out of the cut-stem is given to children for influenza, cough and chest complaints. It is also applied to scalp as anti-dandruff.

Mode/Route of application : Oral administration, external application.

Status/Category : Not assessed for the IUCN Red List

*Elsholtzia blanda* (**Pl. XIV, photo 42**)

Scientific name : *Elsholtzia blanda* Benth.

Local Name : Nauhri

Family : Lamiaceae

Locality : Siatlai

Botanical Description : An aromatic under shrub, gregarious; branches quadrangular, greenish; leaves opposite, peltate, elliptic lanceolate, serrate, acuminate, 1 – 3 x 3 – 10 cm; base narrowed to the petiole; flowers greenish white, in axillary-terminal spikes up to 8 cm long; fruits ellipsoid.

Habit : An under shrub.
Habitat: Not common in Mizoram, restricted to high altitude in sub-tropical hill forests.

Micro-climatic Status/Condition:
- Ambient temperature: 20 °C
- Altitude: 1450 m
- Humidity: 52%
- Light intensity: 61450 lux

Phenology:
- Flowering: September - October
- Place of flower: Axillary & Terminal
- Fruiting: October – January

Associates: Phlogacanthus tubiflorus, Piper sp., Clerodendrum sp., Quercus sp.

Ecology/Silvicultural character: Moderate light demander. It is grown as undergrowth near streamlets in primary forests.

Soil:
- N: 0.143 %
- P: 12.21 Kg/ha
- K: 254 Kg/ha
- pH: 5.0
- OC: 1.1%

Parts used: Aerial parts.

Uses: Children’s disease called ‘Nauhri’ a combination of fever, cholera, skin disease and inflammation.

Mode of Preparation: (1) Infusion of aerial part of the plants is used for children’s disease called ‘Nauhri’ a combination of fever, cholera, skin disease and inflammation. The medicine is taken at the dose of 10ml twice daily.

Mode/Route of application: Orally and external application.

Status/Category: Not assessed for the IUCN Red List

**Emblica officinalis (Pl. XV, Photo 43)**

Scientific name: *Emblica officinalis* Gaertn.

Local Name: Sunhlu

Family: Euphorbiaceae

Locality: Chhawrtui
Botanical Description : A small tree. Leaves feathery, sub-sessile, linear-oblong, acute; base rounded. Flowers greenish-yellow, axillary fascicled on branchlets. Fruits depressed globose; obscurely 6-lobed, 1.5-2 cm across, 3-celled; seeds 6, trigonous.

Habit : A small tree

Habitat : Fairly common throughout Mizoram; less common in tropical evergreen forests, most common in tropical semi-evergreen forests. It is found in sandy-rocky places in secondary mixed deciduous forests.

Micro-climatic Status/Condition:  
Ambient temperature : 21 °C  
Altitude : 1300 m  
Humidity : 46 %  
Light intensity : 72100 lux

Phenology :  
Flowering : March-May  
Place of flower : Axillary  
Fruiting : September-November.

Associates : Schima wallichii, Aporusa octandra, Engelhardtia spicata, Grasses.

Ecology/Silvicultural character: Light demander, resistant to jhum fire and drought, natural and artificial regeneration has no difficulty.

Soil :  
N : 0.138 %  
P : 2.22 Kg/ha  
K : 23.1 Kg/ha  
pH : 4.9  
OC : 0.72%

Parts used : Bark, leaves, fruits, seeds.

Uses : Diarrhoea, dysentry, stomatitis, gum-bleeding, nose bleeding, ringworm, cuts, wounds, eye-sore, liver problem, cough, hiccup with fever, cutaneous diseases

Mode of Preparation : 1) The bark is crushed and the juice is taken against diarrhoea and dysentry. The medicine is taken @ 1/2 cup (50 ml) twice daily.  
(2) Decoction of leaves is used as gargle for stomatitis and gum bleeding.  
(3) Fresh or dry fruits are crushed and the juice is mixed with the juice of Citrus lemon and taken as stomachic, in dysentry, nose bleeding and gum-bleeding @ tablespoonful (10 ml) 2 times per day.
(4) Juice of bark is used for washing eye-sore.
(5) The above mixture is also applied on cuts and wounds, ringworm and cutaneous diseases.
(6) Decoction of the seeds is used for eye-washing with the help of clean cotton or soft cloth to remove particles that causes eye-itch.
(7) The fruits are crushed and the juice is strained through cloth and taken for cirrhosis of liver @ tablespoonful (5 ml) thrice daily.
(8) A combination of the pulp of *Emblica officinalis*, *Terminalia bellirica* and *Terminalia chebula* in the form of powder (*Triphala*) is very useful in cough and hiccup associated with fever.

Mode/Route of application : Oral administration, external application.
Status/Category : Not assessed for the IUCN Red List

**Engelhardia spicata (Pl. XV, photo 44)**

Scientific name : *Engelhardia spicata* Lechen ex Blume.
Local Name : Hnum
Family : Junglandaceae
Locality : Hmuntha
Botanical Description : A large deciduous tree. Leaf pinnately compound, leaflet oblong – lanceolate, entire, pubescent. Flower yellow, where female flower pendulous while male flower slender spike.
Habit : Large deciduous tree.
Habitat : Occasional in Mizoram. It grows in an open area of virgin forest.
Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1060 m
Humidity : 57 %
Light intensity : 4750 lux
Phenology : Leaf shedding : October - December
New Leaf : January - March
Flowering: March - April  
Place of flower: Terminal  
Fruiting: May – June  

 Associates: *Terminalia myrcocarpa*, *Myristica longiflora*, *Schima wallichii*. 

Ecology/Silvicultural character: Moderate light demander, resistant to heavy rainfall, regeneration difficult.  

| Soil |  
|---|---|---|---|---|---|---| 
| N  | 0.142% |  
| P  | 5.17 kg/ha |  
| K  | 99 kg/ha |  
| pH | 5.0 |  
| OC | 0.62% |  

Parts used: Bark  
Uses: Diarrhoea and dysentery.  
Mode of Preparation: Decoction of bark is used for diarrhoea and Dysentery.  
Mode/Route of application: Orally  
Status/Category: Lower Risk  

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*Entada pursaetha* (Pl. XV, Photo 45 & Fig. 6)  

Scientific name: *Entada pursaetha* DC.  
Local Name: Kawi  
Family: Mimosaceae  
Locality: Maite  
Botanical Description: Large woody climber; stem gnarled; branches terete; bark grayish-brown; leaves bipinnate; main rachis grooved; leaflets 4-6 pairs, oblong-obtuse or acute, 2-3 x 4-6 cm, shining above; flowers creamy-white to pale yellow, fragrant, in axillary or terminal panicled spikes; pods woody, up to 130 cm long (largest fruit in India), falcate or curved, constricted between the seeds; seeds compressed, discoidal,
shinning on edge, brownish-orange, powder on the center, very fragrant.

Habit : Large woody climber.

Habitat : Common throughout Mizoram, particularly in tropical semi-evergreen forests.

Micro-climatic Status/Condition:  
- Ambient temperature : 19 °C  
- Altitude : 1400 m  
- Humidity : 52 %
- Light intensity : 8560 lux

Phenology :  
- Flowering : March - April.  
- Place of flower : Axillary or terminal panicked spike  
- Fruiting : March - May

Associates : Duabanga grandiflora, Ficus sp., Toona ciliate, Chisocheton paniculata, etc.

Ecology/Silvicultural character:  
Moderate light demander, acceptable to jhum fire, natural regeneration.

Soil :  
- N : 0.147 %
- P : 3.92 Kg/ha  
- K : 220 Kg/ha
- pH : 5.4
- OC : 1.4%

Parts used : Seeds, twigs.

Uses : Fever, delirium, mumps, convulsion, leech.

Mode of Preparation : The seed is burned to produce smoke and the smoke is then inhaled for 15 minutes to cure fever and delirium especially for children.

The seeds are grounded into a paste and mixed with un-cooked egg very mildly and then applied externally in mumps.

The seeds are soaked in water and the water is dropped into the nostril against water leech.

The young shoots and leaves are boiled and the water is used for bathing against convulsions.

Mode/Route of application : Oral administration, bathing.

Status/Category : Rare
**Erythrina stricta** (Pl. XVI, Photo 46)

**Scientific name**: *Erythrina stricta* Roxb

**Local Name**: Fartuah

**Family**: Fabaceae.

**Locality**: Bualpui H

**Botanical Description**: A medium-sized to large deciduous tree with conical prickles; bark yellow, corky, deeply furrowed; leaves large; leaflets 3-nate, deltoid, broader than long, 7-20 x 5-18 cm; base rhomboid-oblique, cuneate; flowers scarlet-red, seconded, crowded at branch ends; fruits spindle-shaped pods, narrowed at both ends; seeds 2-3, reniform.

**Habit**: A medium-sized to large deciduous tree with conical prickles

**Habitat**: Common throughout Mizoram, most frequent in tropical semi-evergreen forests and less frequent in tropical evergreen forests.

**Micro-climatic Status/Condition**: Ambient temperature: 24 °C
Altitude: 1200 m.
Humidity: 48%
Light intensity: 82100 lux

**Phenology**: Flowering: February - March
Place of flower: Terminal
Fruiting: March – May

**Associates**: *Ficus semi-sordata, Bauhinia indica, Sterculia colorata.*

**Ecology/Silvicultural character**: Light demander, resistant to jhum fire, heavy rainfall and drought, artificial regeneration is easy but natural regeneration is difficult.

**Soil**: N: 0.148 %
P: 6.2 Kg/ha
K: 194.0 Kg/ha
pH: 5.1
OC: 1.3%

**Parts used**: Bark and stem.

**Uses**: Diarrhoea, dysentery and stomach ulcer.
**Mode of Preparation**
Decoction of inner bark with the bark of *Emblica officinalis* is taken orally for diarrhea and dysentery. A young stem is cut to produce juice which is taken orally for stomach ulcer.

**Mode/Route of application**
Orally.

**Status/Category**
Not assessed for the IUCN Red List

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**Eupatorium odoratum (Pl. XVI, Photo 47)**

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Eupatorium odoratum</em> L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Bengal hlo/ Midum hlo</td>
</tr>
<tr>
<td>Family</td>
<td>Asteraceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Teikhang</td>
</tr>
</tbody>
</table>

**Botanical Description**
Erect or straggling, aromatic undershrubs, 1.5-3 m tall; stems repeatedly branched, villose-pubescent, with angulate branches. Leaves opposite, petioled, triangulate-ovate, deltoid, or ovate-lanceolate, 3.5-12 x 2 – 6 cm, acute-long acuminate, cuneate at base, margins irregularly dentate-serrate or sometimes entire, pubescent beneath. Heads more or less cylindrical, up to 1.5 cm long, 20-30 flowered, in terminal, usually trichotomous corymbs. Involucral bracts multi-seriate, ovate-lanceolate, acute or obtuse. Florets whitish purple, odorous. Achenes small, narrow-oblong, 5-angled, blackish; pappus stiff, white.

**Habit**
Errect or strangling shrub.

**Habitat**
Common in open places, along road sides and forest fringe.

**Micro-climatic Status/Condition:**
- Ambient temperature: 25 °C
- Altitude: 1442 m
- Humidity: 57 %
- Light intensity: 12100 lux

**Phenology**
- Flowering: September- November
- Place of flower: Terminal
- Fruiting: January – March
Associates : *Ageratum conyzoides*, *Chromolaena odorata*, *Polygonum barbatum*.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, heavy rainfall and drought, regenerate naturally.

Soil :

- N : 0.142%
- P : 15.2 Kg/ha
- K : 187.0 Kg/ha
- pH : 5.0
- OC : 1.0%

Parts used : Leaves

Uses : Cuts and wounds, kidney problems.

Mode of Preparation : The juice of crushed leaves is applied externally on fresh cuts and wounds as haemostatic and antiseptic. Decoction of leaves is taken orally for kidney problems.

Mode/Route of application : External Uses & oral.

Status/Category : Not assessed for the IUCN Red List

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**Euphorbia hirta** (Pl. XVI, Photo 48)

Scientific name : *Euphorbia hirta* L.

Local Name : Sazubeng

Family : Euphorbiaceae

Locality : Bawklang

Botanical Description : Terrestrial, annual, erect herb, up to 60 cm tall. Leaves simple, not lobed or divided, opposite, sessile or stalked, elliptic, less than 2 cm long/wide, hairy on both sides, denser pilosity along the veins in the lower face, more scattered on the upper side; leaf base asymmetric, margin finely dentate, apex acute, base acute, 3-veined not to the top. Flowers unisexual, solitary or grouped together in an axillary cyme, stalked, petals absent. Fruit a capsule opening with 3 valves.
Habit : Terrestrial, annual, erect herb, up to 60 cm tall.

Habitat : It is frequent in Mizoram, scattered in open forests above 900 m. Grown in roadside and moist shady places.

Micro-climatic Status/Condition: Ambient temperature : 27 °C
Altitude : 1250 m
Humidity : 79 %
Light intensity : 49000 lux

Phenology : Leaf shedding : Annual herb
Flowering : June - July
Place of flower : Axillary
Fruiting : August – September

Associates : Plantago major, Lindernia ruelloides, etc.

Ecology/Silvicultural character: Moderate light demander, acceptable to jhum fire, resistant to heavy rainfall, regenerate.

Soil : N : 0.143 %
P : 0.56 Kg/ha
K : 62 Kg/ha
pH : 5.0
OC : 0.62 %

Parts used : Stem and leaves

Uses : Kidney problems, and dysentery

Mode of Preparation : Decoction of the stem with leaves is taken orally for kidney problems and dysentery.

Mode/Route of application : Oral

Status/Category : Not assessed for the IUCN Red List

Ficus auriculata (Pl. XVII, Photo 49)

Scientific name : Ficus auriculata Lour.

Local Name : Theibal/Theibate

Family : Moraceae
Locality : Chawngtlai

Botanical Description : A small tree, evergreen tree, 3-10 m tall, with wide spreading crown. Bark warty, pale-grey or, young twigs pubescent, hollow. Leaves are alternately arranged, carried on 4-6 cm long stalks. They are obovate-elliptic to elliptic, papery, densely small tuberculate on the underside, hairless above, base shallowly heart-shaped to broadly wedge-shaped, margin irregularly toothed. Male flowers: sessile, ostiolar, in several whorls; large, inflated, imbricate; stamens 2 (-3), filaments much longer than another. Gall flowers in lower part of male hypanthodium, with 2-3-lobed calyx. Female flowers: subsessile to pedicellate; sepals united, 2-3-lobed; ovary with subterminal long hairy style, stigma dilated-cylindric. Figs are clustered on short branchlets of old stems, dark red when mature, pear-shaped to spherical, with 4-6 longitudinal ridges and small tubercles.

Habit : A tree of 5-10 m tall with a wide crown.

Habitat : It usually occurs in windbreaks of the forest, in forest clearings, or at the edge of rain forests.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1120 m
Humidity : 41 %
Light intensity : 12150 lux

Phenology : Leaf shedding : Evergreen
Flowering : August - September
Place of flower : Axillary
Fruiting : October – November

Associates : Erythryna stricta, Prunus cerasoides, Aporusa octandra.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, heavy rainfall and drought, regenerate naturally.

Soil : N : 0.157 %
P : 1.70 Kg/ha
K : 124 Kg/ha
pH : 5.6
OC : 1.40 %

Parts used : Leaves, Bark
Uses : Cuts, Wounds, Diarrhoea

Mode of Preparation : The leaves are crushed and the paste is applied on cuts and wounds. Juice of the crushed bark is also effective for cuts, wounds and diarrhoea.

Mode/Route of application : External and Oral.

Status/Category : Not assessed for the IUCN Red List

**Ficus semicordata (Pl. XVII-Photo No. 50)**

Scientific name : *Ficus semicordata* Buch.-Ham. ex Smith

Local Name : Theitit

Family : Moraceae.

Locality : Ngopa

Botanical Description : A small tree; twigs hirsute; bark red brown; leaves elliptic to oblong-lanceolate, 4-8 x 12-30 cm, acuminate, repand-serrate, scabrid above, less pubescent beneath; base very unequal, semi-cordate or semi-sagittate, with a broad round lobe on one side with 3-4 nerved; lateral nerves 8-15 pairs; male sepals 3; female sepals 4; receptacles (fruits) globose or pyriform, hispid, in pairs or clusters; fruiting branches running on the ground or arising from the trunk and main branches, often ripening underground, dark-red when ripe.

Habit : A small tree

Habitat : Frequent in Mizoram, in tropical evergreen and semi-evergreen forests. It is grown in dry and slopy localities on sandy-rocky soils.

Micro-climatic Status/Condition:

- Ambient temperature : 23 °C
- Altitude : 1070 m
- Humidity : 48 %
- Light intensity : 12300 lux

Phenology:

- Leaf shedding : Evergreen
- Flowering : Not seen
Place of flower : Not seen
Fruiting : Most of the year
(Ripening in May – September)


Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil :

<table>
<thead>
<tr>
<th>Element</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.10 %</td>
</tr>
<tr>
<td>P</td>
<td>3.92 Kg/ha</td>
</tr>
<tr>
<td>K</td>
<td>220 Kg/ha</td>
</tr>
<tr>
<td>pH</td>
<td>5.4</td>
</tr>
<tr>
<td>OC</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Parts used : Root-bark.

Uses : Ophthalmia, snake-bite.

Mode of Preparation : Seven leaves are put together in such a way that one over the other and rolled in a cone shape; it is then filled with warm ashes to produce water from below. The water is then dropped directly to the eyes to cure ophthalmia. The latex is applied to snake-bite.

Mode/Route of application : Orally

Status/Category : Not assessed for the IUCN Red List

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*Gelsemium elegans* (Pl. XVII, Photo 51)

Scientific name : *Gelsemium elegans* Benth.

Local Name : Hnamtur

Family : Lo-ganiaceae.

Locality : Ngopa

Botanical Description : An evergreen scandent shrub.; bark thick, warty and green; wood vessels numerous, fibrous; leaves opposite, ovate-acuminate, 4-8 x 9-12 cm, thin,
membranous; lateral nerves 5-6, distant; base rounded or oblique; Flowers golden yellow, in axillary trichotomous cymes; fruits inflated, 2 celled; seeds oblong, numerous.

Habit : An evergreen scandent shrub.

Habitat : Frequent in Mizoram at higher altitudes above 1000 m in sub-tropical hill forests.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1150 m.
Humidity : 42 %
Light intensity : 72300 lux

Phenology : Leaf shedding : Evergreen
Flowering : April - May
Place of flower : Axillary
Fruiting : June - August

Associates : Quercus sp., Eurya serasifolia, Measa indica.

Ecology/Silvicultural character: Moderate light demander, acceptable to jhum fire, grown on sandy loam soil under shady forests as an undergrowth.

Soil : N : 0.10 %
P : 3.92 Kg/ha
K : 220 Kg/ha
pH : 5.4
OC : 1.4 %

Parts used : Leaves, Root-bark.

Uses : Asthma, diarrhoea, stomach-ache.

Mode of Preparation : The leaf is processed like tobacco leaf for smoking, which is then smoke like cigarette to cure asthma. Decoction of leaf is taken orally against diarrhoea and stomach-ache at the dose of not more than half cup per day. It can be deadly poisonous to human beings if taken too much. Incidence of death was reported during field work in Ngopa village due to eating of the fruits.

Mode/Route of application : Orally and External.

Status/Category : Not assessed for the IUCN Red List
**Hedyotis diffusa** (Pl. XVIII, Photo 52)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Hedyotis diffusa</em> Willd.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Kairem</td>
</tr>
<tr>
<td>Family</td>
<td>Rubiaceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Rabung</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>An annual diffuse flaccid weed, stems numerous, prostrate, often rooting at the nodes. Leaves subsessile, 2-3.2 cm long, linear or linear-lanceolate, acute. Flowers very small, white, usually solitary, sessile or on very short pedicels. Capsules broader than long, very truncate and flat on the top.</td>
</tr>
<tr>
<td>Habit</td>
<td>A slender annual herbs.</td>
</tr>
<tr>
<td>Habitat</td>
<td>Not common in Mizoram. Found on road sides and humid open fields.</td>
</tr>
<tr>
<td>Micro-climatic Status/Condition :</td>
<td>Ambient temperature : 23 °C</td>
</tr>
<tr>
<td></td>
<td>Altitude : 1250 m</td>
</tr>
<tr>
<td></td>
<td>Humidity : 45 %</td>
</tr>
<tr>
<td></td>
<td>Light intensity : 15900 lux</td>
</tr>
<tr>
<td>Phenology</td>
<td>Leaf shedding : Annual herb</td>
</tr>
<tr>
<td></td>
<td>Flowering : May - July</td>
</tr>
<tr>
<td></td>
<td>Place of flower : Axillary</td>
</tr>
<tr>
<td></td>
<td>Fruiting : August – October</td>
</tr>
<tr>
<td>Associates</td>
<td><em>Adiantum lunulatum</em>, <em>Ageretum conyzoides</em>, Ferns.</td>
</tr>
<tr>
<td>Ecology/Silvicultural character:</td>
<td>Moderate light demander, resistant to drought and heavy rainfall, regenerate naturally.</td>
</tr>
<tr>
<td>Soil</td>
<td>N : 0.187 %</td>
</tr>
<tr>
<td></td>
<td>P : 13.0 Kg/ha</td>
</tr>
<tr>
<td></td>
<td>K : 575 Kg/ha</td>
</tr>
<tr>
<td></td>
<td>pH : 6.1</td>
</tr>
<tr>
<td></td>
<td>OC : 2.0 %</td>
</tr>
<tr>
<td>Parts used</td>
<td>Aerial parts</td>
</tr>
<tr>
<td>Uses</td>
<td>Sprain and sciatica</td>
</tr>
<tr>
<td>Mode of Preparation</td>
<td>The aerial parts of the plant are boiled with <em>Lindenia ruelloids</em> in water and the water is used as lotion to massage sprain and sciatica.</td>
</tr>
</tbody>
</table>
Mode/Route of application : External application
Status/Category : Least Concern

*Hedyotis scandens* (Pl. XVIII, Photo 53)

Scientific name : *Hedyotis scandens* Roxb.
Local Name : Kelhnamtur
Family : Rubiaceae
Locality : Ngopa

Botanical Description : A slender woody much-branched climbing shrub; leaves elliptic-oblong or lanceolate, caudate or acuminate, rather thick, nerves obscure; base narrowed to channelled petiole; flowers white or creamy white, in axillary and terminal panicked corymbose cymes; pedicels horizontal, slender; fruits obovoid or globose; seeds minute, numerous.

Habit : A slender soft wooded climber.
Habitat : It is common throughout Mizoram, particularly in waste places in tropical secondary forests. Grown in moist shady areas and waste place.

Micro-climatic Status/Condition:
- Ambient temperature : 24 °C
- Altitude : 1070 m
- Humidity : 40 %
- Light intensity : 12070 lux

Phenology:
- Leaf shedding : Partial shedding in winter
- Flowering : May to June. However, flowering in cold weather reported by Biswas & Chopra (1982).
- Place of flower : Axillary
- Fruiting : July - August


**Associates**: *Thea sinensis, Maesa indica, Schima wallichii, Artocarpus gomezianus.*

**Ecology/Silvicultural character**: Low light demander; tolerate shade in early stage, resistant to heavy rainfall, natural regeneration satisfactory, artificial regeneration through stem cuttings.

**Soil**

- N : 0.145 %
- P : 11.2 Kg/ha
- K : 165.0 Kg/ha
- pH : 5.0
- OC : 1.0%

**Parts used**: Roots, leaves.

**Uses**: Toothache, malaria fever, jaundice, kidney trouble, dysuria.

**Mode of Preparation**: The leaf is chewed and the water is retained in the mouth for toothache. Infusion of the roots and leaves is taken as an effective remedy against malarial fever. The medicine is taken @ tablespoon (10 ml) twice daily. The leaves in combination with the leaves of *Passiflora nepalensis* wall. in equal proportion is boiled and the water is taken orally against fever @ tablespoonful (10 ml) twice daily. Infusion of the leaves is commonly employed to cure jaundice, kidney trouble and removal of stones in the kidney/gall-bladder. The juice of crushed leaves is taken for dysuria.

**Mode/Route of application**: Oral administration

**Status/Category**: Not assessed for the IUCN Red List

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*Helicia robusta* *(Pl. XVIII, Photo 54)*

**Scientific name**: *Helicia robusta* Roxb.

**Local Name**: Pasaltakaza

**Family**: Proteaceae

**Locality**: Rabung
Botanical Description: A middled sized evergreen tree; bark thick whitish brown; leaves dark green paler below, opposite, oblong lanceolate, hard and stiff, smooth surface, taper at apex; flower and fruit not seen.

Habit: A middled sized evergreen tree.

Habitat: Rare in Mizoram, in tropical evergreen and semi-evergreen forest.

Micro-climatic Status/Condition:
- Ambient temperature: 24 °C
- Altitude: 1100 m
- Humidity: 42 %
- Light intensity: 3850 lux

Phenology:
- Leaf shedding: Evergreen
- Flowering: Not seen
- Fruiting: Not seen

Associates: Schima wallichi, Terminalia citrine, Aporosa octandra.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, natural regeneration has no problem but artificial regeneration is difficult.

Soil:
- N: 0.149 %
- P: 41.2 Kg/ha
- K: 161 Kg/ha
- pH: 4.5
- OC: 1.0%

Parts used: Rootstock, leaves and flowers.


Mode of Preparation: Decoction of the bark and root bark is taken orally to cure placental problems, kidney problems and stomach sore.

The crushed bark is boiled with 250g of fruits of Emblica officinalis and 125g of sugar to produce about one litre of the water; the water is taken orally for stomach problems, intestinal and pile problems.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List
**Hibiscus rosa-sinensis (Pl. XIX, Photo 55)**

- **Scientific name**: *Hibiscus rosa-sinensis* L.
- **Local Name**: Laifual/Midum pangpar
- **Family**: Malvaceae
- **Locality**: Vanchengpui
- **Botanical Description**: An ornamental shrub or small tree. Leaves ovate-lanceolate, more or less acuminate, irregularly and coarsely serrate towards the top. Flowers large, axillary solitary, corolla 7.5 cm diam., tubular below, red.
- **Habit**: An ornamental shrub or small tree.
- **Habitat**: Commonly cultivated as a garden ornamental shrub.
- **Micro-climatic Status/Condition**: Ambient temperature: 21 °C, Altitude: 1400 m, Humidity: 44 %, Light intensity: 72000 lux
- **Phenology**: Leaf shedding: Evergreen, Flowering: Almost throughout the year, Place of flower: Axillary, Fruiting: Almost throughout the year
- **Associates**: Cultivated
- **Ecology/Silvicultural character**: Light demander, acceptable to heavy rainfall, natural and artificial regeneration is done easily.
- **Soil**: N: 0.152 %, P: 25 Kg/ha, K: 123 Kg/ha, pH: 5.6, OC: 1.22 %
- **Parts used**: Leaves and Flowers.
- **Uses**: Cancerous swellings, mumps, fever and jaundice.
- **Mode of Preparation**: The leaves and flowers are beaten into a paste and poultice onto cancerous swellings and mumps. A decoction is used as a lotion in the treatment of...
fevers. The flower is put onto a fire for a second and eaten directly to cure jaundice.

Mode/Route of application : External application.
Status/Category : Not assessed for the IUCN Red List

_Hiptage benghalensis_ (Pl. XIX, Photo 56)

**Scientific name** : *Hiptage benghalensis* (L.) Kurz
**Local Name** : Raisentur
**Family** : Ebenaceae.
**Locality** : Ngharchhip
**Botanical Description** : A large, woody, evergreen, straggling or climbing shrub with young branches being grey tomentose it belongs to the family Malpighiaceae. The opposite and entire leaves are oblong to ovate-lanceolate, 9-21 cm long and 4-9 cm wide, acute or acuminate, glabrous, and have petioles of c. 1 cm length. White and fragrant flowers of 2-3 cm diameter are borne in erect, pubescent racemes of 10-20 cm length, the pedicels being 15-20 mm long. Flowers have a yellow centre and orbicular to elliptic petals that are hairy outside. Fruits are samaras with three wings each, the middle wing being 4-6 cm long and the lateral wings 2-3 cm long.

**Habit** : A large, woody, evergreen, straggling or climbing shrub

**Habitat** : Habitat variable. Prefers climates ranging from warm temperate to tropical. Dry and moist areas from sea level to 1000m.

**Micro-climatic Status/Condition:**
- Ambient temperature : 24 °C
- Altitude : 1060 m
- Humidity : 48 %
- Light intensity : 12850 lux

**Phenology**
- Leaf shedding : September - October
- New Leaf : February - March
- Flowering : September–December
Place of flower : Axillary
Fruiting : January – March

Associates : *Acer laevigatum, Eupatorium odoratum, Rubus* spp.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, regenerates naturally.

Soil :
- N : 0.154 %
- P : 3.33 Kg/ha
- K : 150 Kg/ha
- pH : 5.2
- OC : 0.92 %

Parts used : Root bark.

Uses : Diarrhoea, dysentery and stomach ulcer.

Mode of Preparation : Decoction of crushed root bark is taken orally for dysentery at the dose of which as much as one can drink. Root bark is air dried and powdered, mixed with water. One pinch of the powder is enough for one cup of water. Used against severe diarrhoea, dysentery and stomach ulcer by taking one cup thrice daily.

Mode/Route of application : Orally

Status/Category : Not assessed for the IUCN Red List

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**Houttuynia cordata** (Pl. XIX, Photo 57)

Scientific name : *Houttuynia cordata* Thunb.

Local Name : Uithinthang

Family : Saururaceae

Locality : Vanchengpui

Botanical Description : A creeping herb with fleshy stems and a scent that has been described as lemon, sandalwood, coriander or raw fish. The leaves are alternate, broadly heart-shaped, 4–9 cm long and 3–8 cm broad. The lower parts of the leaf stalks form a sheath round the stem.
The leaves are usually heart-shaped, 4–10 cm long and 2.5–6.0 cm wide, and purple underneath. The flowers are small, crowded into a short spike around 2 cm long, with four white, petal-like bracts at the base. The fruits are apomictic, i.e. they develop seeds without being fertilized.

Habit : A creeping herb with fleshy stems.

Habitat : Shrubberies and damp places to 1300 m in Mizoram. Often found as a weed in wet fields. Stream edges, wet woodlands, damp grassy places, paddy field margins, roadsides.

Micro-climatic Status/Condition:  
Ambient temperature : 22 °C  
Altitude : 1380 m  
Humidity : 48 %  
Light intensity : 3210 lux

Phenology :  
Leaf shedding : Annual herb  
Flowering : April - September  
Place of flower : Terminal  
Fruiting : June – October

Associates : Cultivated

Ecology/Silvicultural character: Shade bearer, resistant to drought, natural and artificial regeneration has no difficulties.

Soil :  
N : 0.152 %  
P : 25 Kg/ha  
K : 123 Kg/ha  
pH : 5.6  
OC : 1.22 %

Parts used : Whole plant

Uses : Sinus

Mode of Preparation : Smelling of the plant is done to cure sinus.

Mode/Route of application : Smelling

Status/Category : Not assessed for the IUCN Red List
**Imperata cylindrical** (Pl. XX, Photo 58)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>:</th>
<th>Imperata cylindrical Linn.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>:</td>
<td>Di</td>
</tr>
<tr>
<td>Family</td>
<td>:</td>
<td>Poaceae.</td>
</tr>
<tr>
<td>Locality</td>
<td>:</td>
<td>Khawbel</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>:</td>
<td>A perennial herb; rootstock creeping, stoloniferous; culms solid; leaves flat, linear-lanceolate, acuminate, up to 2m long, margins scabrid; base narrowed; petiole channelled; flowers silvery-white, speciform, panicles to 45 cm long, very dense; panicles purplish when young; fruits (caryopsis) small, elliptic-oblong, brown, light and loose.</td>
</tr>
<tr>
<td>Habit</td>
<td>:</td>
<td>A perennial herb</td>
</tr>
<tr>
<td>Habitat</td>
<td>:</td>
<td>Very common or abundant throughout Mizoram. It is grown on loamy clay soil in open areas, particularly in fallow lands, newly burnt jhums and old jhum lands.</td>
</tr>
</tbody>
</table>

**Micro-climatic Status/Condition:**
- Ambient temperature : 23 °C
- Altitude : 1070 m
- Humidity : 39 %
- Light intensity : 78210 lux

**Phenology**
- Flowering : March - April
- Place of flower : Panicled
- Fruiting : April – May

**Associates**
- Wendlandia grandis, Schima wallichii, Eurya acuminate, Sterculia colorata.

**Ecology/Silvicultural character:**
- Light demander, non resistant to jhum fire, resistant to drought and heavy rainfall, natural regeneration is adequate.

**Soil**
- N : 0.151 %
- P : 8.3 Kg/ha
- K : 210 Kg/ha
- pH : 5.1
- OC : 0.8 %

**Parts used**
- Roots and Aerial parts.

**Uses**
- Round-worms and pin-worms, urinary problem.
Mode of Preparation: The roots are washed and crushed and the juice is taken orally against round-worm and pin-worm. Juice of crushed aerial parts mixed with sugar is taken orally for urinary problems.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List

**Jasminum nervosum (Pl. XX, Photo 59)**

**Scientific name**: *Jasminum nervosum* Lour

**Local Name**: Hruikhawng/Mau-fim

**Family**: Oleaceae

**Locality**: Tualpui

**Botanical Description**: A scandent shrub, glabrous, stem green and smooth; leaves ovate lanceolate, acuminate, chartaceous, glossy above, 3-nerved; 2-4 x 3.5-12 cm, a pair of basal nerves extending up to the apex and anastonosing with secondary nerves; base rounded or sub-cordate; flowers white, in axillary 2-5 flowered cymes; lobes 7-10; fruit ellipsoid, small.

**Habit**: A scandent shrub.

**Habitat**: Common in Mizoram, found in open places as well as under shade.

**Micro-climatic Status/Condition**: Ambient temperature: 23 °C
Altitude: 1250 m
Humidity: 37 %
Light intensity: 5750 lux

**Phenology**: Leaf shedding: Evergreen
Flowering: January – March
Place of flower: Axillary
Fruiting: March – May

**Associates**: *Wendlandia grandis, Quercus incana, Embelia nutans, Globa sp., Psychotria sp.*
Ecology/Silvicultural character: Shade bearer, acceptable to jhum fire, resistant to heavy rainfall, natural regeneration satisfactory.

Soil:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.146 %</td>
</tr>
<tr>
<td>P</td>
<td>10.1 Kg/ha</td>
</tr>
<tr>
<td>K</td>
<td>149 Kg/ha</td>
</tr>
<tr>
<td>pH</td>
<td>5.1</td>
</tr>
<tr>
<td>OC</td>
<td>1.2%</td>
</tr>
</tbody>
</table>

Parts used: Leaves.

Uses: Dysentery, diarrhea and toothache.

Mode of Preparation: Leaves are chewed for dysentery, diarrhea and toothache. It is also used by infusing the crushed leaves.

Mode/Route of application: Orally

Status/Category: Not assessed for the IUCN Red List

*Justicia zeylanica* (Pl. XX, Photo 60)

Scientific name: *Justicia zeylanica* Medicus.

Local Name: Kawldai

Family: Acanthaceae

Locality: Lungkawlh

Botanical Description: An evergreen, perennial shrub; bark grey; leaves ovate-lanceolate, acuminate, attenuate; flowers pure white, with pink dots, clustered towards the ends of branchlets in axillary spikes; bracts large, ovate, mucronate; fruit clavate, c. 2 cm long, pubescent, channeled; seeds-4, orbicular, tubercled.

Habit: An evergreen, perennial shrub.

Habitat: Frequent in Mizoram, usually planted as hedge plants throughout Mizoram.

Micro-climatic Status/Condition:

<table>
<thead>
<tr>
<th>Component</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>29 ºC</td>
</tr>
<tr>
<td>Altitude</td>
<td>1410 m.</td>
</tr>
<tr>
<td>Humidity</td>
<td>66 %</td>
</tr>
<tr>
<td>Light intensity</td>
<td>12100 lux</td>
</tr>
</tbody>
</table>
Phenology:
- Leaf shedding: Evergreen
- New Leaf: February - April
- Flowering: February - April
- Place of flower: Terminal
- Fruiting: February – May

Associates: *Terminalia bellirica, Globa sp., Morinda sp.*

Ecology/Silvicultural character: Moderate light demander, resistant to heavy rainfall, natural and artificial regeneration is not easy because of which they are now become under endangered species.

Soil:
- N: 0.109 %
- P: 2.22 Kg/ha
- K: 231 Kg/ha
- pH: 4.9
- OC: 1.1%

Parts used: Leaves.

Uses: Burns, cuts, wounds, chronic fever/malarial fever, whooping cough.

Mode of Preparation: Crushed leaf is applied to burns externally. Juice of crushed leaves is applied externally on cuts and wounds as haemostatics. The leaves are boiled and the water is used for bathing and the leaf paste is applied on the whole body as an effective cure for chronic fever/malarial fever. The water is also taken orally @ tablespoonful (10 ml) twice daily for 3 days. This routine is followed for 3 consecutive days. Juice of young leaves mixed with honey is taken for whooping cough.

Mode/Route of application: Orally and external.

Status/Category: Not assessed for the IUCN Red List

*Kalanchoe integra* (Pl. XXI, Photo 61)

Scientific name: *Kalanchoe integra* (Medik.) O. Kuntze

Local Name: Kangdamdawi

Family: Crassulaceae
Locality : Tawizo

Botanical Description : A perennial glabrous fleshy herbs; stems fistular, 0.3-1.2 m tall. Leaves simple, spathulate-oblong or obovate, lanceolate, 7-20 x 2-5 cm, base cuneate, crenate-serrate along margins, glabrous, upper leaves trifoliate; petioles 2-5 cm long. Cymes subcorymbose, flattish, elongate; bracts few, scattered, linear, 0.6-1.2 cm long. Flowers erect, light yellow-pink, fragrant; sepals ca 7 mm long; lobes elongate triangular, united at base; corolla tube glabrous, ca 1.5cm long, constricted at middle.

Habit : A perennial glabrous fleshy herb with pale pink flowers.

Habitat : Rare in Mizoram, in Sub-tropical hill forests. Grows in Tawizo.

Micro-climatic Status/Condition: Ambient temperature : 22 °C
Altitude : 1500 m
Humidity : 48 %
Light intensity : 87200 lux

Phenology : Flowering : December – February
Place of flower : Axillary
Fruiting : March - April

Associates : Chromolaena odorata, Urena lobata, Grasses.

Ecology/Silvicultural character: Light demander, resistant to jhum fire and heavy rainfall, natural regeneration is satisfactory but artificial regeneration is difficult.

Soil : N : 0.162 %
P : 6.2 Kg/ha
K : 194.0 Kg/ha
pH : 5.1
OC : 1.3%

Parts used : Leaves

Uses : Burns

Mode of Preparation : Juice of crushed leaves alongwith the paste is applied on burns.

Mode/Route of application : External application

Status/Category : Not assessed for the IUCN Red List
**Knema linifolia (Pl. XXI, Photo 62)**

**Scientific name** : *Knema linifolia* (Roxb.) Warb.

**Local Name** : Thingthi

**Family** : Myristicaceae

**Locality** : Maite

**Botanical Description** : Trees to 20 m tall, 25–35 cm d.b.h.; bark rough, grayish brown; branches slightly drooping, arising at top, with dense rusty pubescence; leaf blade obovate-lanceolate, (15–)24–40 × 7–13 cm, petiolate, widened at middle, papery or subleathery, finely hairy, glabrescent on both surfaces, base rounded, apex acuminate or long acuminate; lateral veins 20–25 pairs, prominent on both surfaces; male inflorescences 0.8–1 cm. Male flowers 2–5-fascicled on short peduncle; buds ovoid or obovoid, 7–10 × 5–6 mm, with dense brown pubescence; pedicel 1.2–1.5 cm; bracteole inserted at about middle or in lower part of pedicel; perianth lobes 3; staminate disk concave; anthers 13–18, sessile. Female flowers 2–4-fascicled, ca. 6 mm; ovary broadly ovoid, pubescent; stigma bifid, each lobe again shallowly 2-lobulate. Infuctescences short, often with 1 fruit; Fruit nearly sessile, ellipsoid or ovoid, 2.5–4 × 2.2–2.5 cm, with rusty hairs 0.5–1 mm; pericarp 2–3 mm thick. Aril red, laciniate at apex.

**Habit** : Trees to 20 m tall.

**Habitat** : Low hilly forests, moist mountain slopes. Maite, Mualpheng etc.

**Micro-climatic Status/Condition:**
- **Ambient temperature** : 22 °C
- **Altitude** : 1450 m
- **Humidity** : 47 %
- **Light intensity** : 13850 lux

**Phenology**
- **Flowering** : August - September
- **Place of flower** : Axillary
- **Fruiting** : October – November

**Associates** : *Schima wallichii, Engelhardtia roxburghiana, Thunbergia coccinea.*
Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, heavy rainfall, regenerate naturally.

Soil :

- N : 0.167 %
- P : 21 Kg/ha
- K : 128 Kg/ha
- pH : 5.7
- OC : 1.1 %

Parts used : Latex

Uses : Stomachache and ulcer.

Mode of Preparation : The latex is mixed with honey and warm water which is taken orally to cure stomachache and ulcers.

Mode/Route of application : Orally

Status/Category : Not assessed for the IUCN Red List

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*Lindenia ruelloids* (Pl. XXI, Photo 63)

Scientific name : *Lindenia ruelloids* (Colsm) Pennel.

Local Name : Thasuih

Family : Scrophulariaceae.

Locality : Chiahpui

Botanical Description : A trailing herb; rooting at the nodes; leaves obovate-oblong, serrate, obtuse, 1-2.5 x 204 cm, reddish; flowers bluish, subtended by green calyx, in axillary-terminal cymes; fruits capsule, small, slender, up to 2.5 cm long; seeds yellow.

Habit : A trailing herb

Habitat : It is frequent in Mizoram, scattered in open forests above 900m. Grown in moist shady places.

Micro-climatic Status/Condition:

- Ambient temperature : 24 °C
- Altitude : 1100 m
- Humidity : 42 %
- Light intensity : 57100 lux
Phenology: Leaf shedding: Annual herb
Flowering: May - June
Place of flower: Axillary
Fruiting: July – August

Associates: Plantago major, Eleusine sp.

Ecology/Silvicultural character: Low light demander, acceptable to jhum fire, resistant to heavy rainfall, regenerate naturally.

Soil:
- N: 0.132 %
- P: 11.2 Kg/ha
- K: 165.0 Kg/ha
- pH: 5.0
- OC: 1.0%

Parts used: Whole plant.

Uses: Joint pain, sprain, swelling, spasmodic

Mode of Preparation: The aerial part is boiled in water and a piece of cloth is dip in the warm water which is used for fomentation in joint paint and sprain. Infusion of the plant is used as a lotion for local swelling, sprains and as antispasmodic

Mode/Route of application: Local application.

Status/Category: Not assessed for the IUCN Red List

Lithocarpus dealbata (Pl. XXII, Photo 64)

Scientific name: Lithocarpus dealbata (Hook. f. & Thoms.) Rehd.

Local Name: Fah

Family: Fagaceae

Locality: Thaltlang

Botanical Description: Trees rarely to 20 m tall; bud scales, branchlets, petioles, leaf blades abaxially, rachis of inflorescences, and scales of cupule tawny tomentose with short hairs. Petiole 1-2 cm; leaf blade ovate, ovate-elliptic, or lanceolate, 7-14 × 2-5 cm, thickly papery to leathery, concolorous or
abaxially grayish and with waxy scale, base cuneate, margin entire or rarely apically shallowly undulate, apex acuminate to acute; midvein adaxially slightly raised and usually sparsely pubescent; secondary veins (8-)10-13 on each side of midvein; tertiary veins abaxially conspicuous, ± parallel. Male inflorescences clustered at apex of branches, rarely to 15 cm. Female inflorescences sometimes androgynous, rarely to 20 cm; cupules in clusters of 3(-5). Infructescences usually 5-8 cm. Cupule cupular, 0.8-1.4 × 1-1.8 cm, enclosing 1/2 to most of nut; bracts imbricate, triangular, appressed or a few spreading. Nut depressed globose to subglobose, slightly smaller than cupule, apex rounded, ± flat, or rarely convex, wall ca. 1 mm thick; scar covering ca. 1/3 (-1/2) of nut, convex.

Habit : Evergreen tree up to 20 m high.

Habitat : Not common in Mizoram, on humus sandy loam soil in primary forest mostly at higher altitude.

Micro-climatic Status/Condition:  
Ambient temperature : 21 °C  
Altitude : 1350 m  
Humidity : 41 %  
Light intensity : 9200 lux

Phenology :  
Leaf shedding : Evergreen  
Flowering : September - December  
Place of flower : Terminal axillary

Fruiting : April – November of the following year.

Associates : Castanopsis spp., Vitex peduncularis, Callicarpa arborea

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil :  
N : 0.214 %  
P : 26.10 Kg/ha  
K : 110 Kg/ha  
pH : 5.1  
OC : 2.4 %

Parts used : Wood

Uses : Ringworm and vitiligo.
Mode of Preparation : Half dried wood when put on fire produce froth from the other end, which is used as lotion to remove ringworm and vitiligo.

Mode/Route of application : External

Status/Category : Not assessed for the IUCN Red List

*Lobelia angulata* (Pl. XXII, Photo 65)

**Scientific name** : *Lobelia angulata* Forst.

**Local Name** : Choakthi

**Family** : Lobeliaceae.

**Locality** : Ngopa

**Botanical Description** : A small creeping herb, pubescent, rooting on lower stem; leaves cordate-ovate, repand or slightly notches; 1 x 2 cm, denticulate; flowers greenish-pink; berries ellipsoid with persistent style on tip, pinkish-black.

**Habit** : A creeping herbs with mauve-colored, berries.

**Habitat** : Scattered in Mizoram, on waysides and clearings in tropical secondary forests. It is grown on walls of road in damp places and open spaces.

**Micro-climatic Status/Condition:**

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<th>Value</th>
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<tr>
<td>Altitude</td>
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</tr>
<tr>
<td>Humidity</td>
<td>42 %</td>
</tr>
<tr>
<td>Light intensity</td>
<td>81950 lux</td>
</tr>
</tbody>
</table>

**Phenology** :

- Leaf shedding : Annual herb
- New Leaf : After germination
- Flowering : April - May
- Place of flower : Axillary
- Fruiting : June – August

**Associates** : *Plantago major, Polygonum sp.*

**Ecology/Silvicultural character** : Shade bearer, acceptable to jhum fire, natural and artificial regeneration has no problems.
Soil :  
N : 0.112 %  
P : 1.35 Kg/ha  
K : 76 Kg/ha  
pH : 5.6  
OC : 0.92 %

Parts used : Fruits

Uses : Tonsillitis, pneumonia, asthma and lungs trouble.

Mode of Preparation : The fruit together with *Centella asiatica* made into paste is taken orally to cure tonsillitis, pneumonia, asthma and lungs trouble at the dose of one teaspoon thrice daily.

Two or three fresh fruits are also eaten against tonsillitis.

Mode/Route of application : Oral administration

Status/Category : Not assessed for the IUCN Red List

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*Lobelia nicotianifolia* (Pl. XXII, photo 66)

Scientific name : *Lobelia nicotianifolia* Roth ex Schult.

Local Name : Berawchal

Family : Campanulacea

Locality : Khawzawl

Botanical Description : A hairy annual shrub that reaches a height of three meters; leaves very large, up to 45 cm long in lower part of stem, smaller upwards, margins not entire; the main nerve of the leaves whitish; Flowers large white, in very large terminal bunches; fruit 8 mm, roundish. Seeds many, small, yellowish, and brown.

Habit : A hairy annual shrub that reaches a height of 3 meters.

Habitat : It is common throughout Mizoram. It is usually grown on the edge of home garden.
Micro-climatic Status/Condition:
- Ambient temperature: 21 °C
- Altitude: 1250 m
- Humidity: 48%
- Light intensity: 71900 lux

Phenology:
- Leaf shedding: Annual shrub
- Flowering: November-December
- Place of flower: Terminal
- Fruiting: January – February

Associates: Eupatorium odoratum, Justicia zeylanica, Scoparia dulcis.

Ecology/Silvicultural character:
Light demander, resistant to drought and heavy rainfall, regenerate naturally.

Soil:
- N: 0.104%
- P: 22.5 Kg/ha
- K: 250 Kg/ha
- pH: 6.1
- OC: 1.20%

Parts used: Lac

Uses: Snake bite, ringworm.

Mode of Preparation: The lac is applied to snake bite and ringworm.

Mode/Route of application: External

Status/Category: Not assessed for the IUCN Red List

Lonicera macrantha (Pl. XXIII, Photo 67)

Scientific name: Lonicera macrantha DC.

Local Name: Leihruisen

Family: Caprifoliaceae.

Locality: N.E.Khawdungsei

Botanical Description: A large climber; stem rigid and dark red; leaves ovate or oblong-ovate, caudate-acuminate, 1-4 x 9-10 cm, rugose above, villous beneath; base cordate;
flowers white fading to yellow in short compact terminal panicles; berries fleshy ovoid, ellipsoid, narrowed at tip.

Habit : A large climber.

Habitat : Very frequent throughout Mizoram, in tropical evergreen and semi-evergreen forests.

Micro-climatic Status/Condition: Ambient temperature : 22 °C
Altitude : 1022 m
Humidity : 53 %
Light intensity : 15850 lux

Phenology : Flowering : April - June
Place of flower : Terminal
Fruiting : July – October

Associates : Albizia chinensis, Wendlandia grandis, Schima wallichii, Erianthus longisetosus.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire and heavy rainfall, natural regeneration has no difficulty but artificial regeneration is difficult.

Soil : N : 0.244 %
P : 22 Kg/ha
K : 143 Kg/ha
pH : 5.6
OC : 1.23 %

Parts used : Leave, root.

Uses : Cuts, wound, diarrhoea, cancer

Mode of Preparation : Juice of the crushed leaf and paste is applied to cuts and wounds; it acts as antiseptic and blood coagulant. Infusion leaves is taken orally as an effectively remedy against diarrhoea. The medicine is taken @ 1/2 (50 ml) twice daily. Decoction of the root is reported to be used for cancer.

Mode/Route of application : External and Oral administration.

Status/Category : Not assessed for the IUCN Red List
Lygodium flexuosum (Pl. XXIII, Photo 68)

Scientific name : *Lygodium flexuosum (L) SW*

Local Name : Hnungzangzum

Family : Lygodiaceae

Locality : Lawngtlai

Botanical Description : A climbing fern; rachis twining; pinnae digitately lobed; pinnules ternate, bearing fertile and infertile parts; veins forked; spores marginal in biseriate spike, numerous.

Habit : A climbing fern.

Habitat : Common throughout Mizoram, in waste places and in primary forests.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 750 m
Humidity : 45 %
Light intensity : 72100 lux

Phenology : Spores : January - September

Associates : *Ammomum dealbatum, Dillenia indica, Baccaurea rammiflora, etc.*

Ecology/Silvicultural character: Moderate light demander, natural regeneration is seen, but artificial regeneration is difficult.

Soil : N : 0.157 %
P : 15 Kg/ha
K : 125 Kg/ha
pH : 5.6
OC : 1.54 %

Parts used : Stem, roots and leaves.

Uses : Excessive menses, antihelmentic, wounds and scabies.

Mode of Preparation : Three stems are tie together around shin to stop excessive menses. The roots are ground to a paste and made into pills. Three pills are taken 3 times a day as antihelmentic. Leaves are made into poultice and applied to wounds and scabies twice daily.
Mode/Route of application : Orally and externally.
Status/Category : Not assessed for the IUCN Red List

**Malvaviscus arboreus** (Pl. XXIII, Photo 69)

Scientific name : *Malvaviscus arboreus* Cav.
Local Name : Saparngeng
Family : Malvaceae (Mallow family)
Locality : Vartek

**Botanical Description** : It is a spreading shrub to 2-3 m high. Stems densely clothed in stellate hairs; leaves are densely clothed in velvety to tough hairs, ovate to nearly circular, heart-shaped, not lobed or shallowly 3-lobed. Leaf margin is crenate-serrate. Leaves are 5-15 cm long with stalks 2-12 cm long; flowers are borne solitary or few in fascicles, in leaf axils. Petals are scarlet. There also exists a pink cultivar called 'Rosea'. Flowers are pendulous, 2-3 inches long.

Habit : It is a spreading shrub to 2-3 m high.
Habitat : Very common throughout Mizoram. It is also cultivated as ornamental plants. Best in full sun but will tolerate light shade.

**Micro-climatic Status/Condition:**

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<th>Status/Condition</th>
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<td>Altitude</td>
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<tr>
<td>Light intensity</td>
<td>82250 lux</td>
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**Phenology**

<table>
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<tr>
<th>Phenology</th>
<th>Status/Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leaf shedding</td>
<td>Evergreen</td>
</tr>
<tr>
<td>Flowering</td>
<td>Throughout the year</td>
</tr>
<tr>
<td>Place of flower</td>
<td>Axillary</td>
</tr>
<tr>
<td>Fruiting</td>
<td>Throughout the year</td>
</tr>
</tbody>
</table>

**Associates** : Cultivated

**Ecology/Silvicultural character** : Light demander, resistant to heavy rainfall and drought, artificial regeneration is easy but natural regeneration is difficult.
Soil:
- N: 0.127%
- P: 39.9 Kg/ha
- K: 130 Kg/ha
- pH: 4.9
- OC: 1.0%

Parts used: Flower

Uses: Sore

Mode of Preparation: The flower is crushed and made into paste, which is applied on sores.

Mode/Route of application: External

Status/Category: Endangered in the wild; cultivated abundantly

**Mallotus philippensis (Pl. XXIV, Photo 70)**

Scientific name: *Mallotus philippensis* Muell

Local Name: Thingkhei

Family: Euphorbiaceae

Locality: Lungpho

Botanical Description: A small to medium-sized evergreen to semi-deciduous tree; branchlets, young leaves and inflorescence rusty tomentose. Leaves variable, 7.5-15 cm long, ovate or ovate-lanceolate, acuminate, entire or slightly toothed. Flowers dioecious, small; the males clustered in erect, long, terminal spikes; the females in short spikes. Capsules 8-13 mm diam., 3-lobed, brick-red.

Habit: Evergreen tree up to 12 m tall.

Habitat: Common under storey trees in evergreen to semi-evergreen forests up to 1500 m. Lungpho, E. Lungdar, etc.

Micro-climatic Status/Condition:
- Ambient temperature: 22 °C
- Altitude: 1310 m
- Humidity: 46%
- Light intensity: 19080 lux
**Phenology**
- Leaf shedding: Evergreen
- Flowering: September - November
- Place of flower: Axillary
- Fruiting: February – May

**Associates**: *Garcinia paniculata, Callicarpa arborea, Prunus cerosoides, etc.*

**Ecology/Silvicultural character**: Moderate light demander, resistant to jhum fire, drought and heavy rainfall, regenerate naturally and artificially.

**Soil**
- N: 0.186 %
- P: 13.40 Kg/ha
- K: 132 Kg/ha
- pH: 5.5
- OC: 0.66 %

**Parts used**: Bark

**Uses**: Diarrhoea and dysentery

**Mode of Preparation**: Decoction of the bark is taken orally against diarrhea and dysentery at the dose of one cup thrice daily.

**Mode/Route of application**: Oral administration.

**Status/Category**: Not assessed for the IUCN Red List

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**Mallotus roxburghianus (Pl. XXIV, Photo 71)**

- **Scientific name**: *Mallotus roxburghianus* Muell. Arg.
- **Local Name**: Zawngtenawhlung
- **Family**: Euphorbiaceae.
- **Locality**: Ngentiang

**Botanical Description**: A shrub or an evergreen small tree; young parts softly pubescent; bark grey and rough; leaf big, rough, green, paler beneath. Leaves alternate, caudate-acuminate, distantly serature, 6-15 x 10-15 cm; base rounded; nerves 5 at the base,
intramarginal; tertiaries scariform; veinlets reticulate; petiole up to 15 cm long; Flowers recemess, terminal, as long as leaves. Fruits 3-lobed, sub globose.

Habit : A shrub or small tree.

Habitat : Not common in Mizoram, particularly in tropical evergreen forests and mixed bamboo forests. It is grown in moist shady areas.

Micro-climatic Status/Condition:
- Ambient temperature : 19 °C
- Altitude : 1140 m
- Humidity : 37 %
- Light intensity : 41700 lux

Phenology:
- Leaf shedding : October - December
- New Leaf : December
- Flowering : May - June
- Place of flower : Terminal
- Fruiting : August – September

Associates : *Garcinia paniculata, Callicarpa arborea, Murraya hoenigii, Prunus cerosoides.*

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, drought and heavy rainfall, regenerate naturally.

Soil:
- N : 0.140 %
- P : 14.43 Kg/ha
- K : 220 Kg/ha
- pH : 5.1
- OC : 1.6%

Parts used : Bark and leaves.

Uses : Diabetes, hypertension.

Mode of Preparation : Decoction of leaves is taken orally to cure diabetes by taking one cup twice daily, it is also taken for diarrhoea; decoction of bark is good to control hypertension by taking one cup twice daily.

Mode/Route of application : Oral administration

Status/Category : Not assessed for the IUCN Red List
**Millettia pachycarpa** (Pl. XXIV, Photo 72)

**Scientific name**: *Millettia pachycarpa* Benth.

**Local Name**: Ru-lei

**Family**: Fabaceae

**Locality**: Aiduzawl

**Botanical Description**: A large scandent shrub or climber; stem dark grey rough; young parts and inflorescence rusty brown tomentose; leaves 6-10 pairs imparpinate; leaflets oblanceolate or lanceolate, 2.5–5 x 2-22 cm, abruptly acuminate or caudipate, villous beneath; nerves 9-13; base rounded; petiole short; flowers violet or pinkish, c. 2.5 cm long, in axillary recemes or terminal panicles; pedicels stout'; pods rugose, 2.5 x 8.5 cm indented between seeds; seeds 1-3.

**Habit**: A large scandent shrub or climber.

**Habitat**: Common throughout Mizoram, in secondary and primary forests. It is grown on sandy loamy soil in shady places. In Mizoram it is found in the forest of Aiduzawl, Tualpui, etc.

**Micro-climatic Status/Condition**: Ambient temperature : 22 °C
Altitude : 1400 m
Humidity : 40 %
Light intensity : 11800 lux

**Phenology**: Flowering : March - April
Place of flower : Axillary
Fruiting : June – November

**Associates**: *Macaranga denticulate, Desmos chinensis, Litsea glutinosa*.

**Ecology/Silvicultural character**: Shade bearer, resistant to jhum fire, heavy rainfall and drought, regenerate naturally.

**Soil**: N : 0.184 %
P : 26.10 Kg/ha
K : 110 Kg/ha
pH : 5.1
OC : 2.4%

**Parts used**: Bark and root bark.
**Mirabilis jalapa (Pl. XXV, Photo 73)**

- **Scientific name**: *Mirabilis jalapa* Linn.
- **Local Name**: Ara-tukkhuan
- **Family**: Nyctaginaceae
- **Locality**: Chawngtla
- **Botanical Description**: Herbs annual, to 1 m tall. Roots tuberous, black or black-brown. Stems erect, much branched, cylindric, glabrous or slightly pubescent, inflated on nodes. Petiole 1-4 cm; leaf blade ovate or ovate-triangular, 3-15 × 2-9 cm, base truncate or cordate, margin entire, apex acuminate. Flowers usually several clustered at apex of branches, fragrant; pedicel 1-2 mm. Involucre campanulate, ca. 1 cm, 5-lobed, lobes triangular-ovate, acuminate, glabrous, persistent. Perianth purple, red, yellow, white, or variegated; tube 2-6 cm; limb 2.5-3 cm in diam., opening in late afternoon, closing next morning. Stamens 5; filaments slender, exserted; anther globose. Fruit black, globose, 5-8 mm in diam., coriaceous, ribbed and plicate. Endosperm white mealy.

- **Habit**: Annual herb.
- **Habitat**: Frequent in Mizoram, usually in waysides and clearings in tropical semi-evergreen forests and secondary forests. It is found on sandy dry soil and sandy loam soils in waste places.

**Micro-climatic Status/Condition:**

- Ambient temperature: 22 °C
- Altitude: 1100 m
- Humidity: 35%
- Light intensity: 82250 lux
Phenology

Leaf shedding: Annual herb
Flowering: June - October
Place of flower: Stem
Fruiting: August – November

Associates: Cultivated

Ecology/Silvicultural character: Light demander, resistant to heavy rainfall and drought, artificial regeneration is not difficult but natural regeneration is difficult.

Soil

N: 0.124 %
P: 2.22 Kg/ha
K: 23.1 Kg/ha
pH: 4.9
OC: 1.1 %

Parts used: Root, leaf.

Uses: Malaria, typhoid, retained placenta, itches, anti-inflammatory.

Mode of Preparation: Decoction of the crushed root is taken orally with honey to cure Malaria and typhoid. Juice of the crushed roots is used to remove retained placenta. Infusion of leaves is used for itching by applying externally. Sprain and bone fractures are treated with this plant by bandaging over the injured area with the leaves.

Mode/Route of application: Oral and external application.

Status/Category: Not yet assessed for the IUCN Red List

*Morinda angustifolia* (Pl. XXV, Photo 74)

Scientific name: *Morinda angustifolia* Roxb.
Local Name: Lum
Family: Rubiaceae.
Locality: Lawngtlai
Botanical Description: Erect shrub or small tree, ca. 6 m tall; branches quadrangular, glabrous. Leaves opposite, 6-9 x 15-26 cm, oblanceolate, acute, glossy above, pale beneath; nerves 10-18 pairs; base attenuate; petiole channeled. Flowers white, c. 3 cm across; corolla-tube 3 cm long; stamens 5, yellow; pistil short. Fruits obovoid-globose, turbinate.

Habit: Erect shrub or small tree.

Habitat: Frequent throughout Mizoram, in tropical evergreen and semi-evergreen forests. It is grown on sandy loam soil in open places.

Micro-climatic Status/Condition:
- Ambient temperature: 25 °C
- Altitude: 940 m.
- Humidity: 42 %
- Light intensity: 92100 lux

Phenology:
- Leaf shedding: April - May
- New Leaf: August
- Flowering: February - March
- Place of flower: Terminal
- Fruiting: April – May.
  However, flowering and fruiting during February – October is reported by Jain et al. (1991).

Associates: *Morus alba, Adina cordifolia, Rhus javanica.*

Ecology/Silvicultural character: Moderate light demander, non resistant to jhum fire, resistant to heavy rainfall, natural regeneration is simple and artificial regeneration is also very easy through the stem.

Soil:
- N : 0.104 %
- P : 14.40 Kg/ha
- K : 73 Kg/ha
- pH : 4.5
- OC : 0.88 %

Parts used: Root.

Uses: Liver enlargement and jaundice

Mode of Preparation: Decoction of the chopped root is taken orally by diluting it with a small quantity of water at the dose
of one cup twice daily for three days to cure liver enlargement and jaundice.

Mode/Route of application : Orally
Status/Category : Not assessed for the IUCN Red List

*Mussaenda roxburghii* (Pl. XXV, Photo 75)

Scientific name : *Mussaenda roxburghii* Hk. f.
Local Name : Vakep
Family : Rubiaceae
Locality : Tualpui
Botanical Description : Large shrub with strong quadrangular stem, young stem pubescent and fleshy. Leaf simple, pubescent, opposite, stipulate, entire, acuminate. Flower small, red, panicle, pentamerous, one of the sepal is modified into leaf-like form but white and hairy; fruit small green siliqua.

Habit : A large shrub.
Habitat : Thickets or forests on mountains; sea level to 1150m.

Micro-climatic Status/Condition: 

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Phenology :

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<td>February - March</td>
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<tr>
<td>Flowering</td>
<td>July - August</td>
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<tr>
<td>Place of flower</td>
<td>Axillary</td>
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<tr>
<td>Fruiting</td>
<td>October – November</td>
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</tbody>
</table>

Associates : *Lantana camara, Albizia chinensis, Schima wallichii.*
Ecology/Silvicultural character: Shade bearer, acceptable to jhum fire, natural regeneration is difficult but artificial regeneration can be done easily by stem cutting.

Soil:
- N: 0.174 %
- P: 14.2 Kg/ha
- K: 254.0 Kg/ha
- pH: 6.2
- OC: 1.0%

Parts used: Leaves and Bark

Uses: Cuts and wounds, Snake bite.

Mode of Preparation: The leaves or bark is crushed to make paste and applied on fresh cuts, wounds and snake bite. Leaves chewed raw to make paste and applied externally to snake bite.

Mode/Route of application: External application.

Status/Category: Not assessed for the IUCN Red List

**Nervelia plicata** (Pl. XXVI, Photo 76)

Scientific name: *Nervelia plicata* (Andr.) Schltr.

Local Name: Hnahkhat

Family: Lamiaceae

Locality: Ngopa

Botanical Description: Single leaf appearing after inflorescence bearing scape, prostrate, dark green, mottled with purplish-brown, purplish underside, shortly petioled; petioles up to 1-2(3) cm long; blade reniform or orbicular with cordate base, 7-12 cm in diam., margin entire or very inconspicuously wavy, remotely ciliate, nerves fan-like, scattered ciliate. Scape 8-15 cm tall, with 3-4 tubular sheaths and 1-3 flowers. Bracts very small, ovate, shorter or equaling the pedical of ovary. Sepals and petals subequal, spreading,
narrowly lanceolate, green. Labellum ovate when spread out, lower part whitish or rose-coloured, embracing the column, with thickened yellow midrib, apex pale violet, minutely emarginate. Column narrowed in lower half. Ovary and pedicel ridged.

Habit : Single leaf herb

Habitat : Not common in Mizoram, in shaded and damp places at lower altitude. Phainuam, Ngopa, etc.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1020 m
Humidity : 56 %
Light intensity : 7800 lux

Phenology : New Leaf : August - October
Flowering : April - May
Place of flower : Main stem just above ground
Fruiting : Not seen

Associates : Mangifera indica, Curcuma sp., Curculigo capitulata.

Ecology/Silvicultural character: Shade demander, resistant to heavy rainfall, regenerate naturally.

Soil : N : 0.241 %
P : 10.2 Kg/ha
K : 104 Kg/ha
pH : 4.2
OC : 1.2 %

Parts used : Root and leaves

Uses : Stomachache, diarrhea and dysentery.

Mode of Preparation : Root and leaf paste is taken orally for stomachache, diarrhea and dysentery.

Mode/Route of application : Orally

Status/Category : Not assessed for the IUCN Red List
**Onychium siliculosum (Pl. XXVI, Photo 77)**

**Scientific name** : *Onychium siliculosum* (Desv.) C. Chr.

**Local Name** : Kangdamdawi

**Family** : Adiantaceae

**Locality** : Lawngtlai

**Botanical Description** : The fronds are 15 to 40 cm long, finely 3- to 4-pinnately divided. Pinnules are small, narrow, and numerous; sterile ones usually spatulate, less than 5 mm long, often toothed at the apex; the fertile ones are pod like, linear, entire, acuminate, 5 to 20 cm long and 1 to 2 mm wide. The indusium and sori are of a rich golden-yellow color.

**Habit** : A small fern.

**Habitat** : Common throughout Mizoram, found on moist shaded places and on the road sides.

**Micro-climatic Status/Condition:**
- Ambient temperature : 25 °C
- Altitude : 854 m.
- Humidity : 42 %
- Light intensity : 12100 lux

**Phenology** :
- Leaf shedding : Annual herbs
- Flowering : Not seen
- Fruiting : Not seen

**Associates** : *Ageretum conyzoides*, *Passiflora nepalensis*, Ferns.

**Ecology/Silvicultural character** : Moderate light demander, resistant to heavy rainfall and drought, regenerate naturally.

**Soil** :
- N : 0.104 %
- P : 14.40 Kg/ha
- K : 73 Kg/ha
- pH : 4.5
- OC : 0.88 %

**Parts used** : Leaves

**Uses** : Burns

**Mode of Preparation** : Leaf paste is applied on burns.

**Mode/Route of application** : External

**Status/Category** : Not assessed for the IUCN Red List
**Oroxylum indicum** (Pl. XXVI, Photo 78)

**Scientific name**: *Oroxylum indicum* (Linn.) Vent.

**Local Name**: Archangkawm

**Family**: Bignoniaceae

**Locality**: Hnahlan

**Botanical Description**: A small deciduous tree to 10 m tall, branched at the top; bark brownish-grey; leaves 2-pinnate; rachis cylindric, warty; leaflets 2-4 pairs, elliptic-ovate, acuminate, 4-10 x 6-12.5 cm; base rounded or subcordate; flowers large, erect, purplish, in terminal lax racemes upto 60 cm long, foetid; fruits flat, sword shaped, pods on stout peduncle 30-60 cm, semi-woody; seeds flat, with silvery wings.

**Habit**: A small tree.

**Habitat**: Common in Mizoram, grows in a damp and shady locality.

**Micro-climatic Status/Condition**: Ambient temperature: 22°C
Altitude: 1250 m
Humidity: 48%
Light intensity: 62100 lux

**Phenology**: Leaf shedding: September - October
New Leaf: December
Flowering: March
Place of flower: Terminal
Fruiting: May – June

**Associates**: *Quercus semiserrata*, *Leea bracteate*, *Laportea cresulata*.

**Ecology/Silvicultural character**: Shade bearer, resistant to heavy rainfall, natural regeneration is difficult, propagated by artificial method.

**Soil**: N: 0.137 %
P: 2.22 kg/ha
K: 23.1 kg/ha
pH: 4.9
OC: 1.1 %

**Parts used**: Rooted-bark, bark and fruits.
Uses: Cancer, enlarged liver, placental problems, hypertension and fever.

Mode of Preparation: Decoction of the young fruits is taken orally to cure cancer. Decoction of the bark is taken orally against liver enlargement. Decoction of the root with the bark is used to cure placental problems. Decoction of the young leaves and the fruit are taken orally for hypertension and fever.

Mode/Route of application: Oral administration, local application.

Status/Category: Not assessed for the IUCN Red List

*Osbeckia sikkimensis* (Pl. XXVII, Photo 79)

Scientific name: *Osbeckia sikkimensis* Craib.

Local Name: Builukhampa

Family: Melastomataceae

Locality: Ngopa

Botanical Description: Erect shrub; stem quadrangular with hairs; leaf lanceolate, acuminate, 2.5-5 x 7-12 cm, margins ciliate, tomentose above, slightly strigose beneath; basal nerves 5, running up to the apex; tertiaries sclariform; stipules folioceous; flowers pink or purple, in pyramidal terminal and axillary spikes; fruit ovoid-oblong or cylindric with a narrowed neck, covered with scattered stellate hairs, truncate.

Habit: Shrub, attains upto 1.5 m.

Habitat: Frequent in Mizoram, in sub-tropical hill forests. It grows on sandy loose soils in secondary open forest.

Micro-climatic Status/Condition: Ambient temperature: 23 °C
Altitude: 1070 m
Humidity: 46 %
Light intensity: 72100 lux

Phenology: Leaf shedding: December - February
New Leaf: March - April
Flowering : August - September
Place of flower : Terminal
Fruiting : October – December

Associates : *Mussaenda roxburghii, Schima wallichii, Maesa Indica.*

Ecology/Silvicultural character: Shade bearer, non resistant to jhum fire, can be easily regenerate by natural and artificial methods.

Soil :
- N : 0.187 %
- P : 17.0 Kg/ha
- K : 99.0 Kg/ha
- pH : 5.5
- OC : 1.22 %

Parts used : Roots, leaf

Uses : Kidney problem, genito-urinal problem, toothache, stomachic, pile trouble.

Mode of Preparation : Juice of the crushed roots is taken orally for kidney trouble; the root is also eaten raw. Decoction of the root is taken orally to cure genito-urinal problem and as stomachic. The dried leaf is used in toothache. A crushed root is put together with some chicken in small pot without water. The small pot is then put in a bigger pot filled with water and then boiled. The extracted solution is taken orally for pile trouble.

Mode/Route of application : Oral administration.

Status/Category : Not assessed for the IUCN Red List

*Pandanus fascicularis* (Pl. XXVII, Photo 80)

Scientific name : *Pandanus fascicularis* Lam.
Local Name : Ramlakhuih
Family : Pandanaceae
Locality : Niawhtlang
Botanical Description: Much branched shrubs or small trees with numerous, thick prop roots. Leaves ensiform, up to 250 x 8 cm, caudate-acuminate, prickly on the margins and midrib, glossy green. Male inflorescence spicate, pedunculate, fragrant. Bracts linear-lanceolate or lanceolate, yellowish, lower ones flagelliferous. Spikes 5-11, up to 10 cm long. Stamens many, racemose on stamenophores; anthers cuspidate. Female inflorescence solitary, terminal, pedunculate, globose or ellipsoid. Bracts whitish yellow, lower ones leaf-like. Carpels confluent in groups (phalanges) of 5-15; stigma U- or V-shaped. Fruit a syncarp, up to 25 cm long, orange or reddish; phalanges turbinate, up to 8 x 4.5 cm.

Habit: A shrub or a small tree with many aerial roots.

Habitat: Frequent in Mizoram, in hilly rocky slopes of tropical evergreen forests.

Micro-climatic Status/Condition: Ambient temperature: 22 °C
Altitude: 1400 m
Humidity: 52 %
Light intensity: 17800 lux

Phenology: Flowering: August - September
Place of flower: Terminal
Fruiting: October – November

Associates: Schima wallichii, Rhus semialata, Macaranga indica.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil: N: 0.194 %
P: 12.21 Kg/ha
K: 254 Kg/ha
pH: 5.0
OC: 1.1 %

Parts used: Root and leaves.

Uses: Kidney trouble and stomach ulcer.

Mode of Preparation: Decoction of the chopped root mixed with the chopped root of Ananas comosus is taken orally to cure kidney trouble and to remove stone from the kidney at the dose of one cup thrice daily. It is also used with Osbeckia sikkimensis in some place.
Decoction of the root is taken for stomach ulcer. Decoction of the leaves is also used for kidney trouble.

<table>
<thead>
<tr>
<th>Mode/Route of application</th>
<th>Oral</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status/Category</td>
<td>Not assessed for the IUCN Red List</td>
</tr>
</tbody>
</table>

**Passiflora nepalensis** *(Pl. XXVII, Photo 81)*

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Passiflora nepalensis</em> Wallich.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Nauawimu</td>
</tr>
<tr>
<td>Family</td>
<td>Passifloraceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Thaltlang</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>Glabrous, slender, tendril climbers with angular stems, up to 2.5 m tall. Leaves alternate, ovate to lanceolate, 5-10 x 2 x 4.5 cm., base rounded or subcordate, acute to acuminate at apex, ±entire along margins, glabrous on both surfaces, basal nerves 3-5; lateral nerves 3-5 pairs; petioles 2-5 cm long with two glands. Flowers in axillary cymes, 0.8-1.2 cm across, whitish, cup-shaped; sepals 0.7-0.8 cm long, not horned; petals 0.6-0.7 cm long; corona filiform; stamens 5. Fruits subglobose to globose, 1-1.2 cm across, glabrous, purplish; seeds 10-15, ± 0.2 cm across, obovoid.</td>
</tr>
<tr>
<td>Habit</td>
<td>Climber</td>
</tr>
<tr>
<td>Habitat</td>
<td>Frequent in Mizoram. Generally found in abandoned jhumland and disturbed forests.</td>
</tr>
</tbody>
</table>

**Micro-climatic Status/Condition:**

<table>
<thead>
<tr>
<th>Environment</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>22 °C</td>
</tr>
<tr>
<td>Altitude</td>
<td>1330 m</td>
</tr>
<tr>
<td>Humidity</td>
<td>42 %</td>
</tr>
<tr>
<td>Light intensity</td>
<td>52100 lux</td>
</tr>
</tbody>
</table>

**Phenology**

<table>
<thead>
<tr>
<th>Event</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering</td>
<td>June - July</td>
</tr>
<tr>
<td>Place of flower</td>
<td>Axillary</td>
</tr>
<tr>
<td>Fruiting</td>
<td>August – September</td>
</tr>
</tbody>
</table>
Associates: *Mikania micrantha, Artemesia sp., Thysanachaena maxima.*

Ecology/Silvicultural character: Moderate light demander, non resistance to jhum fire, but resistance to heavy rainfall, regenerate naturally.

Soil:

- N : 0.178 %
- P : 11.2 kg/ha
- K : 165.0 kg/ha
- pH : 5.0
- OC : 1.0 %

Parts used: Roots and stem.

Uses: Malarial fever and cold fever.

Mode of Preparation: Juice of the crushed root is taken orally for the treatment of malarial fever and cold fever thrice a day @ three tablespoonfuls.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List

**Persea minutiflora** (Pl. XXVIII, Photo 82)

Scientific name: *Persea minutiflora* Kosterm.

Local Name: Nghalenglutar

Family: Lauraceae

Locality: Vanchengpui

Botanical Description: Shrubs to medium-sized trees, evergreen. Bark reddish brown, thin, fissured. Leaves alternate, aromatic. Leaf blade pinnately veined; surfaces pubescent, especially abaxially, becoming glabrescent with age; domatia absent. Inflorescence appearing when mature leaves are present, axillary, flowers in pedunculate, compound cymes. Flowers bisexual; tepals persistent, yellowish, pubescent, outer tepals slightly shorter than inner; stamens 9,
Habit: Shrub to medium-sized tree, evergreen.

Habitat: Not common in Mizoram, grows in open forest.

Micro-climatic Status/Condition:
- Ambient temperature: 22 °C
- Altitude: 1400 m
- Humidity: 46%
- Light intensity: 62150 lux

Phenology:
- Leaf shedding: Evergreen
- Flowering: April - May
- Place of flower: Axillary
- Fruiting: September – October

Associates:
- Schima wallichii, Callicarpa arborea, Albizia chinensis.

Ecology/Silvicultural character:
Light demander, resistant to jhum fire, drought and heavy rainfall, regenerate naturally.

Soil:
- N: 0.157 %
- P: 14.43 Kg/ha
- K: 220 Kg/ha
- pH: 5.1
- OC: 1.6

Parts used:
- Leaves.

Uses:
Removal of poisonous hair of caterpillars.

Mode of Preparation:
The leaf is boiled with water and the water is used for the removal of poisonous hair of certain caterpillars from the hand or off the body.

Mode/Route of application:
External

Status/Category:
Not assessed for the IUCN Red List.
**Phoebe lanceolata** (Pl. XXVIII, Photo 83 & Fig. 7)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Phoebe lanceolata</em> (Nees) Nees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Nuhbanthi</td>
</tr>
<tr>
<td>Family</td>
<td>Lauraceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Lawngtlai</td>
</tr>
</tbody>
</table>

| Botanical Description | Trees, 4-15(-20) m tall. Bark gray-white. Branchlets slender, older ones gray-brown or brown, young ones glabrous or yellowish brown puberulent and soon caducous. Buds densely yellowish gray tomentose. Petiole 1-2.5 cm, glabrous; leaf blade usually purplish red on both surfaces when young, lanceolate or elliptic-lanceolate, 13-22(-25) × 3-5.5(-6.5) cm, thickly papery, abaxially pubescent when young, glabrous on both surfaces when old, midrib thick, elevated adaxially, lateral veins 9-13(-15) pairs, slender but conspicuous, veinlets invisible on both surfaces or slightly conspicuous abaxially, base attenuate and decurrent, apex acuminate or long acuminate, summit usually falcate. Panicles variable in length, usually 12-15 cm, longer one to 20 cm, shorter one 4-5 cm, branched near top of peduncle; peduncle and pedicel glabrous. Pedicel as long as perianth, usually glaucous. Flowers pale green or yellowish green, 3-4 mm. Perianth lobes subequal, ovate, 2.5-3 mm, glabrous outside, gray-white pubescent inside. Filaments gray-white pubescent at base, those of 3rd series with sessile glands at base. Ovary glabrous. Fruit ovoid, 9-12 × 6-7 mm, usually with short rostrum at apex; fruiting pedicel slightly thickened; persistent perianth lobes straw-yellow, leathery, clasping base of fruit or lax. |

<table>
<thead>
<tr>
<th>Habit</th>
<th>Tree, 4-15(-20) m tall.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habitat</td>
<td>Rare under storey trees in evergreen forests, grows on moist shady places.</td>
</tr>
</tbody>
</table>

**Micro-climatic Status/Condition:**

- Ambient temperature: 26 °C
- Altitude: 950 m
- Humidity: 47 %
- Light intensity: 6870 lux

**Phenology**

- Flowering: April – May
- Place of flower: Terminal
- Fruiting: July – September
Associates: *Sterculia hamiltonii, Murraya koenigii, Clausena suffructicosa.*

Ecology/Silvicultural character: Shade bearer, resistant to drought and heavy rainfall, regenerate naturally.

Soil:
- N: 0.138%
- P: 10.10 Kg/ha
- K: 149 Kg/ha
- pH: 5.1
- OC: 1.2%

Parts used: Leaves

Uses: Headache, stiff and sore due to delivery.

Mode of Preparation: The leaves mixed with young stem and leaves of *Clausena suffructicosa* is boiled with water in a pot using some big leaves as its lid, one cup of the water is drunk and then use for bathing to cure headache, stiff and sore due to delivery daily for three days. The prepared water should not be used more than three days.

Mode/Route of application: External

Status/Category: Critically Endangered

*Plantago erosa* (Pl. XXVIII, Photo 84)

Scientific name: *Plantago erosa* Wall.

Local Name: Kelbaan

Family: Plantaginaceae

Locality: Rabung

Botanical Description: A stemless perennial herb with stout rootstock; leaves radical, oblong ovate, 2.5-8 x 6-13 cm, irregularly toothed, sub-acute, 3-7 veined; base tapering, cuneate; petiole long, up to 5 cm long; flowers small, on slender scape or spike, up to 5 cm long, bracteate; fruits ovoid; seeds very minute, black, angled.
Habit : An herb.

Habitat : Frequent in Mizoram usually in wayside and clearings in tropical semi-evergreen forests and secondary forests.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1100 m
Humidity : 47 %
Light intensity : 11750 lux.

Phenology : Flowering : March-April.
Place of flower : Axillary
Fruiting : April-May.

Associates : Murraya koenigii, Clausena suffruticosa, Sterculia hamiltonii.

Ecology/Silvicultural character: Moderate light demander, resistant to drought and heavy rainfall, regenerate naturally.

Soil : N : 0.152 %
P : 12.21 kg/ha
K : 254 kg/ha
pH : 5.0
OC : 1.1 %

Parts used : Whole plant.

Uses : Bone fracture and dislocation, diarrhoea, fever, inflammation, burns.

Mode of Preparation : 100g of the plant (with roots) is mixed with one teaspoon of lime and then crushed to make into paste. The paste is then applied to bone fracture and dislocation, by placing the leaf of Musa paradisiaca upon the paste; it is then bandaged with cloth. Infusion of the plant is taken orally for fever, inflammation and diarrhoea. The medicine is taken @ tablespoonful (10 ml) twice or thrice daily. The pressed juice of leaves is applied on burns and bruises.

Mode/Route of application : Oral administration, external application.

Status/Category : Not assessed for the IUCN Red List.
**Pramanthes scandens**  *Pl. XXIX, Photo 85*

**Scientific name**: *Pramanthes scandens* Lour.

**Local Name**: Kawlhlo/Pandamdawi

**Family**: Asteraceae.

**Locality**: Lawngtlai

**Botanical Description**: A slender climber without tendrils; stem green; branches in any direction from thenode; young part slightly pubescent, leaf lanceolate, serrate, short petiole, spirally alternate, simple; flower white panicle with lots of pappus; fruit achene.

**Habit**: A slender climber without tendrils.

**Habitat**: Moderate light demander, non resistant to jhum fire, natural regeneration has no problem. Lawngtlai, Saiha, etc.

**Micro-climatic Status/Condition**: Ambient temperature : 27 °C
Altitude : 985-1340 m.
Humidity : 58%
Light intensity : 82100 lux

**Phenology**: Flowering : April - June
Place of flower : Terminal
Fruiting : July – August

**Associates**: *Securinegavirosa*, *Rubus* spp., *Cinnamomum bejolghota*, *Schima wallichii*.

**Ecology/Silvicultural character**: Moderate light demander, non resistant to jhum fire, natural regeneration has no problem.

**Soil**: N : 0.152%
P : 9.28 Kg/ha
K : 201 Kg/ha
pH : 5.1
OC : 0.87%

**Parts used**: Leave.

**Uses**: Scabies.

**Mode of Preparation**: Juice of the crushed leaves is applied to sores due to scabbies; it gives a bit of heating sensation.
Prunus jenkinsii (Pl. XXIX, Photo 86)

Scientific name : *Prunus jenkinsii* Hook. f. & Thomson

Local Name : Keipui

Family : Rosaceae

Locality : Vanchengpui

Botanical Description : Deciduous shrub or small tree. Leaves are smooth, simple, broad, ovate or broad-elliptic or lanceolate, unlobed and toothed along the margin. Color is medium green. Inflorescences apparently axillary, solitary or to 3-flowered in a fascicle; bracts small, soon caducous. Flowers opening before or at same time as leaves. Hypanthium campanulate. Sepals 5, imbricate. Petals 5, white, sometimes purple-veined, rarely greenish, inserted on rim of hypanthium, imbricate. Fruit a drupe, glabrous, often glaucous, usually with a longitudinal groove.

Habit : Deciduous shrub or small tree.

Habitat : Not common in Mizoram, found mostly in mountain regions, ravines above 1000m. Vanchengpui, Thaltlang, etc.

Micro-climatic Status/Condition:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>22 °C</td>
</tr>
<tr>
<td>Altitude</td>
<td>1400 m</td>
</tr>
<tr>
<td>Humidity</td>
<td>37 %</td>
</tr>
<tr>
<td>Light intensity</td>
<td>82100 lux</td>
</tr>
</tbody>
</table>

Phenology:

<table>
<thead>
<tr>
<th>Phenology</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flowering</td>
<td>October - November</td>
</tr>
<tr>
<td>Place of flower</td>
<td>Axillary</td>
</tr>
<tr>
<td>Fruitting</td>
<td>January – March</td>
</tr>
</tbody>
</table>

Associates : Cultivated
Ecology/Silvicultural character: Light demander, resistant to drought and heavy rainfall, natural and artificial regeneration has no difficulties.

Soil:
- N: 0.157 %
- P: 14.43 Kg/ha
- K: 220 Kg/ha
- pH: 5.1
- OC: 1.6

Parts used: Leaves

Uses: Kidney trouble

Mode of Preparation: Infusion of the crushed leaves is taken orally against kidney trouble.

Mode/Route of application: Oral

Status/Category: Not assessed for the IUCN Red List

*Pseudodrynaria coronans* (Pl. XXIX, Photo 87)

Scientific name: *Pseudodrynaria coronans* Wall.

Local Name: Awmvel

Family: Polypodiaceae

Locality: Chawngtlai

Botanical Description: A large epiphytic plant white paw like rhizome covered with thick brown hairs, encircling the host tree; fronds sessile, pinnatisect, lower ones gradually shorter; veins conspicuous, anastomising; sori oval, confluent in one row between each pair of lateral veins; spores bilateral.

Habit: An epiphytic fern

Habitat: Common throughout Mizoram, in tropical evergreen and semi evergreen forests.

Micro-climatic Status/Condition:
- Ambient temperature: 23 °C
- Altitude: 1200 m
Humidity : 38 %  
Light intensity : 5940 lux

Phenology : Spores : May – November

Associates : Epiphytic mosses and some orchids on tree trunk.

Ecology/Silvicultural character: Resistant to heavy rain, drought, regenerate naturally, artificial regeneration is easy by stem cutting and knot on the tree trunk.

Soil : Epiphyte, do not grow on soil.

Parts used : Rhizomes.

Uses : Herpes, irregular heart beat.

Mode of Preparation : Juice of the crushed rhizome is applied to herpes zoaster. About 50g of the stem is boiled in 750 ml of water; the water is then taken orally for irregular heart beat at the dose of teaspoonful twice daily, it is better if taken with honey.

Mode/Route of application : External application and oral.

Status/Category : Not assessed for the IUCN Red List

**Pueraria lobata (Pl. XXX, Photo 88)**

Scientific name : *Pueraria lobata* (Willd.) Ohwi

Local Name : Hruiduk

Family : Fabaceae

Locality : Mualcheng

Botanical Description : Perennial climber. Stem twining, setose. Stipules 10-12 mm long, free lateral, setose. Leaf pinnately trifoliolate, petiole 5-30 cm long, pilose. Stipels 8 mm long, setose, petiolule 5-8 mm long, pilose, lamina 7.5-21 cm long, 7.5-20.0 cm broad, broadly ovate to trilobed, tip acute, pubescent on both sides. Inflorescence an axillary, peduncled raceme, 15-32 cm long, velutinous, peduncle 2-3 cm long. Bracts c.
3 mm long, pilose to setose. Pedicel c. 7 mm long, pilose. Calyx 10-14 mm long, setose, teeth unequal, longest 7-12 mm long. Corolla purple with yellow spot at the base of the standard. Vexillum c. 15-18 cm long. Fruit c. 2.5-6.0 cm long, 7-8 mm broad, hispid, hairs brown.

Habit : Perennial herb

Habitat : Common in jhum lands and along the roadside ridges.

Micro-climatic Status/Condition: Ambient temperature : 26 °C
Altitude : 1000 m
Humidity : 75%
Light intensity : 51800 lux

Phenology : Flowering : August - September
Place of flower : Axillary
Fruiting : October – November

Associates : Thunbergia grandiflora, Mikania micrantha, Chromalaena odorata.

Ecology/Silvicultural character: Moderate light demander, resistant to heavy rainfall and drought, natural regeneration is adequate.

Soil : N : 0.184 %
P : 7.2 Kg/ha
K : 299 Kg/ha
pH : 4.9
OC : 0.8 %

Parts used : Leaves, stem.

Uses : Antiseptic, kidney trouble

Mode of Preparation : Leaves and stems are crushed into paste and then applied to cuts, wounds. The stem is cut and blows from one side to produce the juice which is applied to cuts and wounds. Decoction of the crushed stem and leaves is taken orally for kidney trouble.

Mode/Route of application : External application and oral.

Status/Category : Not assessed for the IUCN Red List
**Punica granatum** (Pl. XXX, Photo 89)

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Punica granatum</em> L.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Theibuhfai</td>
</tr>
<tr>
<td>Family</td>
<td>Lythraceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Bawktlang</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>Tree or large shrub, up to 5 m tall, branches near the base and often provided with spines. Leaves opposite or cluster, oblong or obovate, 1-5 x 0.5-2 cm, base narrower, apex obtuse or narrower, entire along margins, surface shiny, glabrous on both surfaces. Flowers at the top of the branchlets, orange red, calyx tube funnel shaped, 2-3 cm long, coriaceous, red or pale yellow; lobes 5-7, 8-12 mm long, erecto- patent or patent with rounded apex. Berries subglobose, 3-12 cm in diam., red-pink or yellowish-white, crowned by calyx segments; seeds numerous, juicy.</td>
</tr>
<tr>
<td>Habit</td>
<td>Tree or large shrub.</td>
</tr>
<tr>
<td>Habitat</td>
<td>Cultivated in the garden or in residential compounds.</td>
</tr>
</tbody>
</table>
| Micro-climatic Status/Condition: | Ambient temperature : 24 °C  
Altitude : 1250 m  
Humidity : 57 %  
Light intensity : 91950 lux |
| Phenology             | Flowering : February - May  
Place of flower : Terminal  
Fruiting : May – June |
| Associates            | Cultivated |
| Ecology/Silvicultural character: | Light demander, acceptable to jhum fire, resistant to heavy rainfall, natural and artificial regeneration has no difficulty. |
| Soil                  | N : 0.157 %  
P : 23.3 Kg/ha  
K : 189 Kg/ha  
pH : 5.0  
OC : 1.2 % |
| Parts used            | Leaves, fruits, bark. |
Uses : Diarrhoea, cholera, genito-urinary problem, typhoid, malaria and kidney trouble.

Mode of Preparation : Fresh leaf is directly eaten for diarrhea. Juice of the crushed leaves or fruit peel is taken for cholera. Juice of the crushed fruit is also taken orally for genito-urinary problem at the dose of 1 cup twice daily. Decoction of the bark is taken for typhoid, malaria and kidney trouble.

Mode/Route of application : Oral

Status/Category : Least Concern

Quercus serrata (Pl. XXX, Photo 90)

Scientific name : *Quercus serrata* Murray

Local Name : Sasua

Family : Fagaceae

Locality : Tualcheng

Botanical Description : Trees to 25 m tall, deciduous. Leaves subsessile to petiolate; petiole to 3 cm, glabrous or glabrescent; leaf blade narrowly elliptic-ovate, ovate-lanceolate, or obovate, (5-)7-17 × (1.5-)3-9 cm, thinly leathery, with adherent single hairs when young, abaxially glabrous or occasionally stellate tomentose, base cuneate to nearly rounded, margin glandular serrate, apex acuminate to acute; secondary veins 7-12 on each side of midvein. Female inflorescences 1.5-3 cm. Cupule cupular, 5-8 mm × 1-1.2 cm, enclosing 1/4-1/3 of nut; bracts triangular, adherent, margin pilose.

Habit : Trees to 25 m tall.

Habitat : Rare in Mizoram, grows on moist fertile soil mostly in Champhai district.

Micro-climatic Status/Condition:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ambient temperature</td>
<td>19 °C</td>
</tr>
<tr>
<td>Altitude</td>
<td>1300 m</td>
</tr>
<tr>
<td>Humidity</td>
<td>47 %</td>
</tr>
<tr>
<td>Light intensity</td>
<td>75200 lux</td>
</tr>
</tbody>
</table>
**Phenology**
- Flowering: March - April
- Place of flower: Axillary
- Fruiting: September – October

**Associates**: *Aporusa octandra, Acer oblongum, Schima wallichii, Rhododendron arboreum.*

**Ecology/Silvicultural character**: Light demander, resistant to jhum fire, drought and heavy rainfall, natural regeneration has no difficulty but artificial regeneration is not easy.

**Soil**
- N : 0.22%
- P : 2.19 kg/ha
- K : 102 kg/ha
- pH : 5.0
- OC : 2.17%

**Parts used** : Bark

**Uses** : Stomach ulcer

**Mode of Preparation** : Decoction of the dried inner bark is taken orally for stomach ulcer.

**Mode/Route of application** : Oral

**Status/Category** : Not assessed for the IUCN Red List

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**Ricinus communis** *(Pl. XXXI, Photo 91)*

**Scientific name** : *Ricinus communis* Linn.

**Local Name** : Mutih

**Family** : Euphorbiaceae.

**Locality** : Puilo

**Botanical Description** : Herbs erect, often single-stemmed but sometimes bushlike or treelike, 2-5 m tall; younger parts glaucous, whole plant often reddish or purplish. Stipules connate, 2-3 cm; petiole 20-40 cm; leaf blade palmately 7-11-lobed, 30-50(-100) × 30-50(-100) cm, margin serrate. Inflorescence to 30 cm. Male flowers: pedicels 5-17 mm; calyx lobes 5-8 × 3-5 mm; stamens 7-8 mm. Female flowers: pedicels
5-10 mm; sepals ca. 5 mm; styles 2-5 mm. Fruiting pedicel to 45 mm; capsule ellipsoid or ovoid, 1.5-2.5 cm, echinate, spines to ca. 5 mm, sometimes smooth. Seed 7-12 mm, grayish, silvery, or beige with darker markings; caruncle depressed-conical, 2-3 mm wide.

Habit : Herb or big shrubs.

Habitat : Common throughout Mizoram, usually in waysides distributed areas and waste land near human settlement. It strives well in moderate climate.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1100 m
Humidity : 48 %
Light intensity : 62100 lux

Phenology : Flowering : June - September.
Place of flower : Terminal
Fruiting : August - December.

Associates : Cultivated

Ecology/Silvicultural character: Moderate light demander, resistant to drought and heavy rainfall, natural and artificial regeneration has no difficulties.

Soil : N : 0.187 %
P : 22.5 Kg/ha
K : 500 Kg/ha
pH : 6.1
OC : 1.2 %

Parts used : Leaves

Uses : Liver enlargement, Asthma

Mode of Preparation : Juice of the crushed leaves mixed with pepper is taken orally by diluting it with a small quantity of water for liver enlargement. The leaf is warmed in a fire and paste on the waist to cure asthma.

Mode/Route of application : External application, oral administration.

Status/Category : Not assessed for the IUCN Red List
**Saraca asoca** (Pl. XXXI, Photo 92 & Fig. 8)

**Scientific name** : *Saraca asoca* Roxb.

**Local Name** : Mualhawih.

**Family** : Caesalpiniaceae

**Locality** : Khawkawn

**Botanical Description** : Small tree. Leaves peripinnate, 15-25 cm long, leaflets 4-6 pairs, oblong-lanceolate, acute, 3-5 x 10-20 cm drooping when young, dark-green above; base slightly oblique. Flowers orange-scarlet, fragrant, in dense axillary corymbs appearing with the leaves. Fruits oblong 2.5-3.5 x 10-16 cm, veined, compressed, acute at both the ends; seed 4-8, oblong, compressed.

**Habit** : Small tree.

**Habitat** : Found in tropical evergreen forests. It is suitably grown on humas loamy soil on evergreen forest.

**Micro-climatic Status/Condition:**
- Ambient temperature : 24 °C
- Altitude : 1200 m
- Humidity : 38 %
- Light intensity : 42180 lux

**Phenology** :
- Leaf shedding : Evergreen
- New Leaf : March
- Flowering : April - May
- Place of flower : Axillary
- Fruiting : June – July

**Associates** : *Ficus glomerata, Cyathocalyx mortabaniens, Holigarna longifolia.*

**Ecology/Silvicultural character:** Non resistant to jhum fire, resistant to heavy rainfall, natural regeneration has problem whereas artificial regeneration can be done without much problem.

**Soil** :
- N : 0.167 %
- P : 22 Kg/ha
- K : 54 Kg/ha
- pH : 5.0
- OC : 0.66 %

**Parts used** : Bark and root bark
Uses : Stomach ulcer.

Mode of Preparation : Infusion of the crushed bark is taken orally for stomachache. Decoction of the bark is taken for stomach problems and it enhances White blood corpuscles (WBC).

Mode/Route of application : Oral administration, local application.

Status/Category : Vulnerable

Schima wallichii (Pl. XXXI, Photo 93)

Scientific name : Schima wallichii (DC) Korthals

Local Name : Khiang

Family : Theaceae

Locality : Cherhlun

Botanical Description : A tree; Leaves oblong-lanceolate or obovate, 2-5 x 5-13 cm, acute or acuminat, shining above, pubescent along nerves beneath; base cuneate; flowers white, fragrant, solitary, axillary, on lenticellate pedicels; staments yellow, appearing with the leaves; Fruits c.2 cm across, sub-globose, a loculicidal capsule, 5-celled, silky while young, warty when mature.

Habit : Evergreen tree.

Habitat : Common throughout Mizoram, from tropical evergreen to sub-tropical hill forests.

Micro-climatic Status/Condition: Ambient temperature : 23 °C
Altitude : 1250 m.
Humidity : 47 %
Light intensity : 82700 lux

Phenology : Leaf shedding : Evergreen
New Leaf : March - April
Flowering : April - May
Place of flower : Axillary
Fruiting : November – February
Associates: *Aporusa octandra, Ilex umbellulata, Wendlandia grandis.*

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, natural regeneration is possible but artificial regeneration is difficult.

Soil:
- N: 0.174%
- P: 1.22 Kg/ha
- K: 121 Kg/ha
- pH: 5.5
- OC: 1.35%

Parts used: Bark, fruit.

Uses: Cuts and wounds, snake bite.

Mode of Preparation: Inner layer of the bark is crushed and the juice is applied on cuts and wounds. Dry fruit is grounded to powder and applied to snake bite externally.

Mode/Route of application: External application.

Status/Category: Not assessed for the IUCN Red

*Scoparia dulcis* (Pl. XXII, Photo 94)

Scientific name: *Scoparia dulcis* Medic.

Local Name: Perhpawngchaw

Family: Scrophulariaceae.

Locality: Ngopa

Botanical Description: Erect, much branched herb, glandular; stem angled; leaves-3- alternately rhomboid or whorled, elliptic, tapering at the base into a short petiole, coarsely serrate on the upper half, glossy-above, dull beneath; flowers white, small, axillary, numerous, on slender pedicels; fruit globose or sub-globose, valves ultimately bifid; seeds obovoid, angled.

Habit: A herb.
Habitat : Very common throughout Mizoram near human settlement area. It is grown on varied type of soil, in open spaces and waste places.

Micro-climatic Status/Condition:
- Ambient temperature : 22 °C
- Altitude : 1200 m
- Humidity : 42 %
- Light intensity : 82300 lux

Phenology:
- Leaf shedding : Partial leaf shedding in the month of February – March.
- New Leaf : March - April
- Flowering : March - May
- Place of flower : Axillary
- Fruiting : May – December


Ecology/Silvicultural character:
Moderate light demander, acceptable to jhum fire, resistant to heavy rainfall and drought, natural regeneration has no difficulty but artificial regeneration is difficult.

Soil:
- N : 0.148 %
- P : 11.2 kg/ha
- K : 165.0 kg/ha
- pH : 5.0
- OC : 1.0 %

Parts used : Whole plants.

Uses:
Diarrhoea, dysentery, stomachache, kidney trouble, cuts, wounds, jaundice and genito-urinary trouble.

Mode of Preparation:
Juice of the crushed aerial parts is taken for diarrhoea, dysentery, stomachache, kidney trouble and also applied on cuts and wounds. Infusion of the crushed aerial parts is taken for jaundice and genito-urinary trouble. Decoction of the whole plant including the roots is taken for kidney trouble.

Mode/Route of application : Oral administration, external application.

Status/Category : Not assessed for the IUCN Red List
Securinega virosa (Pl. XXXII, Photo 95)

Scientific name : Securinega virosa (Roxb. ex Willd.) Baill.

Local Name : Saisiak

Family : Euphorbiaceae

Locality : Lungpho

Botanical Description : A straggling shrub, stem often with spiny at the base; bark reddish-brown, peeled off in thin strips; leaves obovate or sub-orbicular, acute, 1.5 - 4 x 2-6 cm; petiole short; flowers greenish-yellow, scented, in axillary clusters; fruits globose, berries, white, fleshy or pulpy, 0.5 cm across; seeds 3-6, punctuate.

Habit : A shrub, dioecious.

Habitat : Mostly found in the vicinity of towns/villages, in sandy rocky places in disturbed forests.

Micro-climatic Status/Condition:
- Ambient temperature : 24 °C
- Altitude : 1310 m
- Humidity : 47 %
- Light intensity : 12100 lux

Phenology:
- Leaf shedding : November- December
- New Leaf : March - April
- Flowering : May - August
- Place of flower : Axillary
- Fruiting : July – September

Associates : Osbekia rostrata, Mussaenda glabra, Musa spp.

Ecology/Silvicultural character: Light demander, acceptable to jhum fire, natural regeneration is seen but artificial regeneration is difficult.

Soil:
- N : 0.174 %
- P : 12.0 Kg/ha
- K : 156 Kg/ha
- pH : 5.5
- OC : 1.66 %

Parts used : Leaves

Uses : Small pox, measles, scabies, malaria.
Mode of Preparation: The leaves are boiled for about 15-30 mins and then cooled, which is used for bathing children having small pox, measles, scabies, malaria.

Mode/Route of application: External (Bathing)

Status/Category: Not assessed for the IUCN Red List

**Senecio scandens** (Pl. XXXII, Photo 96)

**Scientific name**: Senecio scandens Buch.-Ham. ex D.Don.

**Local Name**: Saiekhlo

**Family**: Asteraceae.

**Locality**: Rabung

**Botanical Description**: A slender climber; stem greenish, ribbed, terete; branches zig zag, grooved or ribbed; young parts slightly pubescent; leaves hastate while young, ovate lanceolate when old, acuminate, 1-2.5 x 5-12 cm, crenate or distantly denticulate, coarsely hairy; midrib channelled above, raised beneath; nerves arcuate, anastomosing; base acute; petiole auricled; flowers heads yellow, on lax divaricate terminal corymbs; involucre bracts 10-15, linear-oblong, retrorse; achenes ribbed or 4-angled, recurved or retrorse; pappus white, c. 1 cm long.

**Habit**: A perennial climber.

**Habitat**: Rare in Mizoram but seen here and there in tropical hill forests and secondary forests. It is grown on dark brown sandy loose soil in open forests.

**Micro-climatic Status/Condition**: Ambient temperature: 24 °C
Altitude: 1350 m
Humidity: 48%
Light intensity: 72500 lux

**Phenology**: Flowering: February - April
Place of flower: Terminal
Fruiting: April – May

Ecology/Silvicultural character: Low light demander, non resistant to jhum fire, natural and artificial regeneration is possible

Soil:

<table>
<thead>
<tr>
<th>Element</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.187 %</td>
</tr>
<tr>
<td>P</td>
<td>13.0 Kg/ha</td>
</tr>
<tr>
<td>K</td>
<td>575 Kg/ha</td>
</tr>
<tr>
<td>pH</td>
<td>6.1</td>
</tr>
<tr>
<td>OC</td>
<td>2.0 %</td>
</tr>
</tbody>
</table>

Parts used: Leaves and aerial parts.

Uses: Cancer, diabetes, pain relief, sprain, ulcerated cancer/ulcers.

Mode of Preparation: Decoction of the leaves is taken against cancer and diabetes and as pain relief. The leaves is crushed with lime to make paste and applied to sprain especially on waist. The leaves or aerial parts of plant are boiled in small quantity of water for 2-3 minutes. The water is strained through a clean cloth in a container and the solution is used for treatment of ulcerated cancer/ulcers at the dose of 4 cups daily.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List

*Sida rhombifolia* (Pl. XXXIII, Photo 97)

Scientific name: *Sida rhombifolia* L.

Local Name: Khingkhih

Family: Malvaceae

Locality: Pamchung

Botanical Description: Subshrubs erect or prostrate, many branched, to ca. 1 m tall. Branchlets stellate. Stipules spinelike, 3-5 mm; petiole 2-5(-8) mm, stellate puberulent; leaf blade rhombic to oblong-lanceolate or obovate,
rarely linear-lanceolate, 1-4.5 × 0.6-2 cm, abaxially
gray-white stellate pilose, adaxially sparsely stellate
pilose to subglabrous, base broadly cuneate, margin
dentate, apex obtuse to acute. Flowers solitary,
axillary. Pedicel 1-2.5 cm, densely stellate
tomentose, articulate above middle. Calyx cup-
shaped, 4-5 mm, abaxially stellate pubescent, lobes
triangular, apices acute. Corolla ca. 1 cm in diam.;
petals yellow, obovate, ca. 8 mm, base attenuate,
apex rounded. Filament tube 4-5 mm, glabrous.
Style branches 8-10. Fruit semiglobose to broadly
turbinate, 6-7 mm in diam.; mericarps 7-10, 2.5-3
mm excluding awn, shallowly grooved to near base,
eventually dehiscent, side walls usually thin, not
veined, stellate puberulent, apex usually (1 or)2-
awned, awns to 1.5 mm. Seeds reniform, ca. 2 mm,
blackish.

Habit : Terrestrial, perennial, erect, shrub, up to 200 cm tall.

Habitat : Common in Mizoram, mostly found close to
settlements, along roads and paths, and in forest
edges and clearings.

Micro-climatic Status/Condition: Ambient temperature : 25 °C
Altitude : 1075 m
Humidity : 47 %
Light intensity : 92270 lux

Phenology : Flowering : July - November
Place of flower : Axillary
Fruiting : Not seen

Associates : Ageretum conyzoides, Bidens biternata, etc.

Ecology/Silvicultural character: Light demander, acceptable to jhum fire, resistant
against drought and heavy rainfall, naturally
regenerated.

Soil : N : 0.152 %
P : 10.5 Kg/ha
K : 111 Kg/ha
pH : 5.8
OC : 1.4%

Parts used : Root

Uses : Genito-urinary problem
Mode of Preparation: Decoction of the root mixed with the root of *Dendrocnide sinuate* is taken orally for the treatment of genito-urinary problems.

Mode/Route of application: Oral

Status/Category: Not assessed for the IUCN Red List

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**Smilax glabra** (Pl. XXXIII, Photo 98)

**Scientific name**: *Smilax glabra* Roxb.

**Local Name**: Tluangngil

**Family**: Smilacaceae

**Locality**: N.E. Khawdungsei

**Botanical Description**: A slender climber with nodose or knotty roots; stem unarmed; leaves alternate, distant, elliptic-lanceolate, 3.5-4.5 x 5-18 cm, acuminate or subcaudate, glaucous beneath, 3-costate; base rounded or cuneate; petiole and sheath up to 1.8 cm long; cirrhi very slender and coiled; flowers in axillary umbels, many-flowered, white, minute; Berries dark blue.

**Habit**: A slender climber.

**Habitat**: Not common in Mizoram, grows on sandy soil in the shady places.

**Micro-climatic Status/Condition**: Ambient temperature: 24 °C
Altitude: 1022 m
Humidity: 41%
Light intensity: 51850 lux

**Phenology**: Flowering: June - July
Place of flower: Axillary
Fruiting: November – January

**Associates**: *Schima wallichii, Litsea salicifolia, Globba sp.*

**Ecology/Silvicultural character**: Shade bearer, resistant to drought and heavy rainfall, naturally regenerated.
Soil:
N: 0.452 %
P: 4.0 kg/ha
K: 135.0 kg/ha
pH: 4.3
OC: 1.2 %

Parts used: Tuber.

Uses: Sciatica, gynaecological problems, stomachache, kidney trouble and hypertension.

Mode of Preparation: The tuber is sliced and then crushed, which is mixed with local beer (Zu-fang) and taken orally for sciatica. Decoction of the root/tuber is taken against gynaecological problems at the dose of half cup thrice daily. It is also taken to cure stomachache, kidney trouble and hypertension.

Mode/Route of application: Oral administration.

Status/Category: Not assessed for the IUCN Red List.

*Solanum anguivi* (Pl. XXXIII, Photo 99)

Scientific name: *Solanum anguivi* Lam.

Local Name: Tawkte

Family: Solanaceae.

Locality: Lungkawlh

Botanical Description: A shrub up to 10 ft high; branches herbaceous. Bark smooth, pale brown or greenish grey, warty, armed; blaze greenish; often with curved prickles; young parts and inflorescence thickly stellate-tomentose. Leaves 2-5 by 1-3.5 in. ovate or oblong, serrate or obtusely lobed; lobes often sub-acute or acute, thinly herbaceous, stellate-tomentose, green above, grey or dirty tomentose beneath; prominently on the nerves and midrib beneath; lateral nerves 3-5 on either half; base usually truncate, unequal; petiole up to 1.5 in. long. Flowers bluish purple, 0.5-0.75 in. across, in extra-axillary or sub-terminal racemose cymes; pedicels and peduncle often prickly; pedicels 0.8 in. long, thickened above. Calyx stellate, pubescent outside, usually prickly. Corolla
tomentose outside; lobes reflexed. *Fruits* globose, smooth, 1-1.25 in. in diameter, yellow.

**Habit** : A shrub.

**Habitat** : Very common in Mizoram, and widely cultivated also.

**Micro-climatic Status/Condition:**
- Ambient temperature : 21 °C
- Altitude : 1410 m.
- Humidity : 48 %
- Light intensity : 12700 lux

**Phenology** :
- Flowering : June - October
- Place of flower : Axillary
- Fruiting : November - January

**Associates** : Cultivated.

**Ecology/Silvicultural character:** Moderate light demander, resistant to heavy rainfall, natural and artificial regeneration has no problem.

**Soil** :
- N : 0.163 %
- P : 22.2 kg/ha
- K : 231 kg/ha
- pH : 4.9
- OC : 1.1 %

**Parts used** : Root, leaf, stem, flower and fruit.

**Uses** : Hypertension, herpes, enlarging scar.

**Mode of Preparation** :
- A boiled or raw fruit is eaten against hypertension. A crushed fruit is applied to herpes. It is also applied to enlarging scar to stop its enlargement.

**Mode/Route of application** : Oral administration and external application.

**Status/Category** : Not assessed for the IUCN Red List

**Solanum khasianum (Pl. XXXIV, Photo 100)**

**Scientific name** : *Solanum khasianum* Cl.

**Local Name** : Rulpuk/At-hlo

**Family** : Solanaceae.
Locality : Chawngtlai

Botanical Description : A spiny undershrub to 1m tall, whole part covered with straight and curved pickles. Leaves ovate or deltoid-acute, lobed; lobes triangular, hirsute and prickly on both surfaces, 5-12 x 6-18 cm; base sub-cordate; petiole to 4 cm long. Flowers white or pale-yellow in few flowered axillary racemes. Fruits globose, greenish spotted while young, yellowish when ripe, c. 2.5 cm across; seeds many, compressed, smooth and brown.

Habit : A spiny undershrub

Habitat : Rare in Mizoram, but seen at different places in roadside, forest edges and waste places above 700m.

Micro-climatic Status/Condition: Ambient temperature : 23 °C
Altitude : 1250 m
Humidity : 36 %
Light intensity : 82100 lux

Phenology : Leaf shedding : February - March
New Leaf : April
Flowering : July - August
Place of flower : Axillary
Fruiting : November – February

Associates : Mikania micrantha, Ageretum conyzoides, Centella asiatica.

Ecology/Silvicultural character: Light demand is high, resistant to heavy rainfall, regeneration by natural and artificial methods without problem.

Soil : N : 0.157 %
P : 12.21 kg/ha
K : 254 kg/ha
pH : 5.0
OC : 1.1 %

Parts used : Fruit/seeds.

Uses : Tooth ache/Tooth-worm.

Mode of Preparation : The smoke of burnt fruit/seed sucked through a pipe (bamboo or leafstalk of papaya) and retained in the mouth is said to expel tooth-worms from the mouth.

Mode/Route of application : Smoke

Status/Category : Not assessed for the IUCN Red List
**Sonerila maculate** (Pl. XXXIV, Photo 101)

**Scientific name** : *Sonerila maculata* Roxb.

**Local Name** : Thaksenhlo

**Family** : Melastomataceae

**Locality** : N.E. Khawdungsei

**Botanical Description** : Small herbs, 10-20 cm tall; stem with spreading hairs. Leaves opposite, ovate to lanceolate, 3.0-10 x 2.0-5.0 cm, base unequal to rounded, acute to attenuate at apex, serrulate and ciliate along margins, both surfaces with spreading hairs, under surface sometimes purple; lateral nerves 4-6 pairs; petioles 2.0-5.0 cm long, hairy. Flowers 3-merous, 10-12 mm across, purple, present in condensed, axillary, scorpionoid cymes; calyx tube 3-5 mm long, campanulate, glabrous; petals ± 7 mm long, elliptic. Capsules 5-7 x 2-4 mm, glabrous, oblong, funnel shaped.

**Habit** : Small herbs, 10-20 cm tall.

**Habitat** : Common, on ground in moist places inside forests.

**Micro-climatic Status/Condition:**
- Ambient temperature: 24 °C
- Altitude: 1050 m
- Humidity: 57 %
- Light intensity: 9850 lux

**Phenology** :
- Flowering: September - November
- Place of flower: Axillary
- Fruiting: December – February

**Associates** : *Lonicera macrantha, Begonia inflata, Mikania micrantha.*

**Ecology/Silvicultural character:** Shade bearer, resistant to heavy rainfall and drought, regenerates naturally.

**Soil** :
- N : 0.452 %
- P : 4.0 kg/ha
- K : 135.0 kg/ha
- pH : 4.3
- OC : 1.2 %

**Parts used** : Leaves
Uses : Itching sore.
Mode of Preparation : Juice of the crushed leaves is applied to itching sore.
Mode/Route of application : External
Status/Category : Not assessed for the IUCN Red List

**Spilanthes oleracea** (Pl. XXXIV, Photo 102)

Scientific name : *Spilanthes acmella* L.
Local Name : Ankasate
Family : Asteraceae
Locality : Tawizo

Botanical Description : Annual herb with erect stems, sometimes decumbent. Leaves opposite, simple; petiole 2–6.5 cm long; blade broadly ovate to deltate, 5–11 cm × 4–8 cm, base truncate to shortly attenuate, apex acute to shortly acuminate, margin dentate. Inflorescence a discoid head up to 2.5 cm × 1.5 cm; involucral bracts 15–18, 3-seriate, up to 8 mm × 1 mm, apex acute; receptacular bracts straw-coloured, often tinged purple-red, up to 6 mm × 1 mm. Disk flowers 400–620, corolla 5-merous, yellow, up to 3.5 mm long. Fruit an achene 2–2.5 mm × 1 mm; pappus consisting of 2 bristles.

Habit : Annual herb with erect stems, sometimes decumbent.
Habitat : Very common throughout Mizoram, in open and moist places inside forest.

Micro-climatic Status/Condition: 
- Ambient temperature : 22 °C
- Altitude : 1550 m
- Humidity : 48 %
- Light intensity : 74500 lux

Phenology : 
- Leaf shedding : Annual herb
- Flowering : February - July
- Place of flower : Axillary
- Fruiting : August – October

Ecology/Silvicultural character: Moderate light demander, resistant to drought and heavy rainfall, artificial and natural regeneration has no difficulties.

<table>
<thead>
<tr>
<th>Soil</th>
<th>N</th>
<th>0.162 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>6.2 Kg/ha</td>
<td></td>
</tr>
<tr>
<td>K</td>
<td>194.0 Kg/ha</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>OC</td>
<td>1.3%</td>
<td></td>
</tr>
</tbody>
</table>

Parts used: Flowers

Uses: Dental caries.

Mode of Preparation: The flower is directly applied to dental caries.

Mode/Route of application: Oral

Status/Category: Not assessed for the IUCN Red List

**Stellaria media** ([Pl. XXXV, Photo 103](#))

<table>
<thead>
<tr>
<th>Scientific name</th>
<th><em>Stellaria media</em> (L.) Vill.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Changkalrit</td>
</tr>
<tr>
<td>Family</td>
<td>Caryophyllaceae</td>
</tr>
<tr>
<td>Locality</td>
<td>Khawzawl</td>
</tr>
</tbody>
</table>

Botanical Description: Annual or biennial herbs with slender branched stems, prostrate or ascending. Leaves opposite, ovate (sometimes truncate at base), short-mucronate, petiolate. Blades to +2cm wide, +2cm long, glabrous, green above, lighter green below, entire. Petiole to +2cm long, sometimes winged, pubescent. Single flowers from leaf axils. Also terminal cymes of +3 flowers. Peduncles 1-3cm long, pubescent. Corolla white, rotate, 5-6mm broad. Petals 5, deeply notched and appearing as 10, glabrous, to 2mm long, free. Petal lobes oblong. Stamens typically 3-5, attached at base of ovary, alternating with petals. Styles 3, spreading. Sepals 5, free, to 5mm long, pubescent with glandular-tipped hairs, ovate-lanceolate, green. Capsules to +6mm
long, 4mm wide, glabrous, with +/-15 seeds. Seeds 1mm in diameter, tuberculate, rotund.

Habit : Annual or biennial herbs.

Habitat : Very common throughout Mizoram, grows on moist soil in partial shady areas.

Micro-climatic Status/Condition:
- Ambient temperature : 24 °C
- Altitude : 1070 m
- Humidity : 42 %
- Light intensity : 14800 lux

Phenology :
- Leaf shedding : Annual herbs
- Flowering : Throughout the year
- Place of flower : Axillary
- Fruiting : Throughout the year

Associates : *Centella asiatica*, *Ageretum conyzoides*, Ferns.

Ecology/Silvicultural character: Moderate light demander, resistant to drought and heavy rainfall, natural regeneration is adequate.

Soil :
- N : 0.185 %
- P : 22.5 Kg/ha
- K : 500 Kg/ha
- pH : 6.1
- OC : 1.2 %

Parts used : Aerial parts

Uses : Diarrhoea, herpes zoster, kidney trouble, common cold.

Mode of Preparation : The aerial part is crushed and taken against diarrhoea. Juice of the crushed leaves is applied to herpes zoster. Decoction of the aerial part mixed with bark of *Mangifera indica* or the roots of *Osbeckia sikkimensis* is taken for kidney trouble. The aerial part is boiled and the steam is inhaled as an effective remedy for common cold.

Mode/Route of application : External and oral administration.

Status/Category : Not assessed for the IUCN Red List
**Stemona tuberosa** (Pl. XXXV, Photo 104)

**Scientific name** : *Stemona tuberosa* Lour.

**Local Name** : Sang

**Family** : Stemonaceae.

**Locality** : Tualpui

**Botanical Description** : Twiner or scandent with fasciculated roots; stem dark-green, smooth, nodes present; leaves ovate-cordate, 2-3 whorled or opposite, 7.5-11 x 15-20 cm long, acuminate, coriaceous; base 9-12, costate; petiole 7-10 cm long; bracts lanceolate; flowers 2-3, usually 2, often opposite, companulate, 6.5 cm long; capsule ovoid-oblong, 4-5 cm long; seeds 5-8.

**Habit** : Twiner or scandent with fasciculated roots.

**Habitat** : Rare in Mizoram, on sandy loam soil in shady forest.

**Micro-climatic Status/Condition:**
- Ambient temperature : 22 °C
- Altitude : 1300 m
- Humidity : 37 %
- Light intensity : 7750 lux

**Phenology** :
- Flowering : March - April
- Place of flower : Axillary
- Fruiting : June – July

**Associates** :
- *Aporusa octandra*, *Emblica officinalis*, *Tabernaemontana diversicata*, *Globa* sp.

**Ecology/Silvicultural character** : Shade bearer, resistant to drought and heavy rainfall, regenerated naturally.

**Soil** :
- N : 0.186 %
- P : 15.5 kg/ha
- K : 221.0 kg/ha
- pH : 4.8
- OC : 1.4 %

**Parts used** : Tuber

**Uses** : Stomachache and cancer, tuberculosis.
Mode of Preparation : The tuber is taken directly for stomachache and cancer. Decoction of the tuber is taken against tuberculosis.

Mode/Route of application : Orally.

Status/Category : Not assessed for the IUCN Red List

*Stephania japonica* (Pl. XXXV, Photo 105)

Scientific name : *Stephania japonica* (Thunb.) Miers.

Local Name : Hnahbial

Family : Menispermaceae.

Locality : N.E. Khawdungsei

Botanical Description : A slender climber without tendrils; whole plant pubescent, branches striate or ribbed; stem green, cylindrical; leaves triangular-ovate, broader than long, peltate, pubescent under surface, apex blunt or sub-acute; nerves 9-11 at the base; flowers yellow, umbellate on very slender axillary pedicels; fruits globose, red when ripe.

Habit : A slender climber.

Habitat : Rare in Mizoram, grows on sandy soil in damp waste places.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1052 m
Humidity : 37 %
Light intensity : 42080 lux

Phenology : Leaf shedding : Partial shedding in November.
New Leaf : March - April
Flowering : March - April
Place of flower : Axillary
Fruiting : May – June

Associates : *Eupatorium odoratum, Callicarpa arborea, Bidens pilosa, Quercus spp.*
Ecology/Silvicultural character: Shade bearer, acceptable to jhum fire, resistant to heavy rainfall, natural regeneration has no difficulty but artificial regeneration is very difficult.

Soil:

<table>
<thead>
<tr>
<th>Element</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>0.152 %</td>
</tr>
<tr>
<td>P</td>
<td>4.0 kg/ha</td>
</tr>
<tr>
<td>K</td>
<td>135.0 kg/ha</td>
</tr>
<tr>
<td>pH</td>
<td>4.3</td>
</tr>
<tr>
<td>OC</td>
<td>1.2 %</td>
</tr>
</tbody>
</table>

Parts used: Root-stock.

Uses: Diarrhoea, stomach trouble.

Mode of Preparation: Decoction of the root-stock is taken orally against diarrhea associated with stomachache. Infusion or Juice of the crushed root is also taken for diarrhea and stomach trouble.

Mode/Route of application: Orally.

Status/Category: Not assessed for the IUCN Red List

*Sterculia hamiltonii* (Pl. XXXVI, Photo 106)

Scientific name: *Sterculia hamiltonii* (Kuntze) Adelb.

Local Name: Tlingi leh Ngama inchhawlthuaina

Family: Malvaceae

Locality: Lawngtlai

Botanical Description: Large shrub or small tree, 5-10 m tall. Leaves ob lanceolate or oblong elliptic, 12-26 x 5-10 cm, tapering at base, abruptly short acuminate at apex, entire along margins, coriaceous, glabrous above, sparsely stellately hairy beneath; lateral nerves 10-12 paired; petioles 2-5 cm long. Flowers in axillary rarely supra axillary, in 10-25 cm long, drooping panicles, 1.5-2 cm across, pinkish-red, velvety outside; calyx 5, tubular; lobes narrow, 8-12 mm long, patently white hairy outside; calyx 5, tubular; lobes narrow, 8-12 mm long, patently white hairy outside. Male flowers: staminal column short,
curved, glabrous, 4-5 mm long; Female flowers: ovary hairy with sterile anthers at base, ca 2 mm long. Follicles 2-5, oblong-lanceolate, 6-10 x 1-2 cm, drooping, beaked, spreading, crimson red inside, velvety outside, compressed; seeds 4-8, 1-1.5 x ca 0.8 cm, black, ovoid, smooth.

Habit : Large shrub or small tree.

Habitat : Common in evergreen forests, grows on moist soil in shady areas, along the road side in Lawngtlai, etc.

Micro-climatic Status/Condition: Ambient temperature : 26 °C
Altitude : 950 m
Humidity : 47 %
Light intensity : 7870 lux

Phenology : Flowering : April - August
Place of flower : Axillary
Fruiting : September – October

Associates : Murraya koenigii, Phoebe lanceolata, Clausena suffructicosa.

Ecology/Silvicultural character: Shade bearer, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil : N : 0.138 %
P : 10.10 Kg/ha
K : 149 Kg/ha
pH : 5.1
OC : 1.2 %

Parts used : Root

Uses : Ophthalmia

Mode of Preparation : The root is rub against stone and then dip in a clen and cold water for several times. The water is then filtered with a clean cloth and then dropped to the eyes to cure ophthalmia.

Mode/Route of application : External (eye drop).

Status/Category : Not assessed for the IUCN Red List
**Stereospermum collais (Pl. XXXVI, Photo 107)**

<table>
<thead>
<tr>
<th>Scientific name</th>
<th>Stereospermum collais (Buch.-Ham.ex Dillwyn)Mabb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Name</td>
<td>Zihnghal</td>
</tr>
<tr>
<td>Family</td>
<td>Bignoniaceae.</td>
</tr>
<tr>
<td>Locality</td>
<td>Ngopa</td>
</tr>
<tr>
<td>Botanical Description</td>
<td>A large deciduous tree; branches and leaves pubescent; bark grey, thick, rough; leaf imparipinate, up to 40 cm long; leaflets 4-6 pairs; ovate or elliptic, caudate-acuminate; nerves 8-9; base-oblique; petiole up to 4 cm long, channelled, lenticellate; flowers yellow, tinged with pale red in large drooping panicles; fruits slender up to 60 cm long, spirally twisted, curved sub-quadrangular or 4-angled.</td>
</tr>
<tr>
<td>Habit</td>
<td>A large deciduous tree.</td>
</tr>
<tr>
<td>Habitat</td>
<td>Frequent in Mizoram, in tropical evergreen and semi-evergreen forests. It is grown on sandy-rocky places and loamy soil in the forests.</td>
</tr>
</tbody>
</table>
| Micro-climatic Status/Condition: | Ambien temperature : 23 °C  
Altitude : 1080 m  
Humidity : 47 %  
Light intensity : 5900 lux |
| Phenology               | Leaf shedding : October - January  
New Leaf : March - April  
Flowering : April - May  
Place of flower : Terminal  
Fruiting : November – February |
| Associates              | Cordia dichotoma, Callicarpa arborea, Schima wallichii. |
| Ecology/Silvicultural character: | Moderate light demander, resistant to jhum fire, natural and artificial regeneration has difficulty. |
| Soil                    | N : 0.168 %  
P : 10.2 Kg/ha  
K : 201.0 Kg/ha  
pH : 5.5  
OC : 0.86 % |
| Parts used              | Bark, young leaves and shoots. |
**Uses**: Malarial fever, stomach problems, fungal/bacterial infection.

**Mode of Preparation**: Decoction of the bark is drunk and used for bathing against malaria. The young shoots are chewed and swallowed once every day for a week as stomachic. Juice of the crushed young shoot is applied to fungal/bacterial infection between fingers.

**Mode/Route of application**: Oral administration and external application.

**Status/Category**: Not assessed for the IUCN Red List

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**Syzygium cumini** (Pl. XXXVI, Photo 108)

**Scientific name**: *Syzygium cumini* (L.) Skeels

**Local Name**: Lenhmui

**Family**: Myrtaceae.

**Locality**: Ngharchhip

**Botanical Description**: A moderate sized evergreen tree to 30 m tall; bark dark-grey; leaves elliptic-oblong or ovate, sub-oblanceolate, narrowed at the base, glabrous; nerves close, fine forming a submarginal vein; petiole channelled. Flowers greenish white, sessile, in compound trichotomous panicles; fruits ellipsoid, up to 3 cm long, reddish pink while ripening, purplish black when fully ripe, juicy and edible.

**Habit**: Trees.

**Habitat**: Frequent in Mizoram, grows on sandy loam, well drained soil along streams in damp forests.

**Micro-climatic Status/Condition**: Ambient temperature : 24 °C
Altitude : 1040 m.
Humidity : 38 %
Light intensity : 7920 lux

**Phenology**: Flowering : March - May
Place of flower : Axillary
Fruiting : June – September

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**Associates**: Callicarpa arborea, Lagerstroemia parviflora, Cinnamomum spp.

**Ecology/Silvicultural character**: Moderate light demander, resistant to jhum fire, heavy rainfall and drought, regenerated naturally.

**Soil**

- **N**: 0.185 %
- **P**: 21.22 kg/ha
- **K**: 235.1 kg/ha
- **pH**: 4.9
- **OC**: 1.1 %

**Parts used**: Young shoots, fruits.

**Uses**: Headache, heart trouble, enlarged spleen, dysentery, stomach-ache.

**Mode of Preparation**: The young shoot is crushed and smelled for headache; it is good for patient who is in bed for a long time. The medicine is also given to person having heart trouble. The ripen fruit is taken raw for the treatment of enlarged spleen, dysentery, stomach-ache.

**Mode/Route of application**: External application, oral administration.

**Status/Category**: Not assessed for the IUCN Red List

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**Terminalia citrina (Pl. XXXVII, Photo 109)**

**Scientific name**: Terminalia citrina (Gaertner) Flem.

**Local Name**: Kharuan

**Family**: Combretaceae

**Locality**: Rabung

**Botanical Description**: Small to large deciduous tree, often with buttressed stems towards base; bark brown, more or less vertically fissured. Leaves opposite-subopposite, broadly ovate, lanceolate, elliptic or oblong, 4-12 x 1.5-6.5 cm. acuminate or acute at apex, glabrous at maturity, pubescent on nerves beneath, base narrowed into petiole. Flowers dull white; calyx
teeth glabrous outside, villous within. Drupes oblong-ellipsoid, slightly clavate, 2.5-4 x 1.5-2 cm, glabrous, obscurely 5-angled.

Habit: Small to large deciduous tree.

Habitat: Scarce in Mizoram in evergreen forest of Rabung.

Micro-climatic Status/Condition:
- Ambient temperature: 24 °C
- Altitude: 1240 m
- Humidity: 38%
- Light intensity: 15950 lux

Phenology:
- Flowering: June - August
- Place of flower: Terminal
- Fruiting: September - December

Associates: Helicia robusta, Albizia chinensis, Schima wallichii.

Ecology/Silvicultural character: Light demander, resistant to jhum fire and heavy rainfall, regenerate naturally.

Soil:
- N: 0.183%
- P: 13.0 Kg/ha
- K: 475 Kg/ha
- pH: 6.1
- OC: 2.0%

Parts used: Fruits

Uses: Stomach-ache

Mode of Preparation: Juice of the crushed fruit is taken orally in small quantity for stomach-ache.

Mode/Route of application: Oral

Status/Category: Not assessed for the IUCN Red List

Thunbergia coccinea (Pl. XXXVII, Photo 110)

Scientific name: Thunbergia coccinea Wall.

Local Name: Fahrah-hrui

Family: Acanthaceae.
Locality : Mualpheng

Botanical Description : An extrorse profusely branched climber with long pendent branches. Leaves 3-7 by 1-3.5 inch., lanceolate, elliptic or ovate lanceolate, acuminate, entire, serrate or remotely toothed, rather membranous, glabrous, 3-5 nerved; base rounded or shallow cordate; petiole 0.05-2 inch long. Flowers, usually fascicled at the nodes of lax elongated pendent racemes; bracteoles about 1 inch long, reddish. Calyx a minute rim. Corolla orange red; lobes reflexed. Capsule about 2 in. long.

Habit : Climber.

Habitat : Frequent in Mizoram. It is also cultivated as horticultural plant.

Micro-climatic Status/Condition: Ambient temperature : 24 °C
Altitude : 1400 m
Humidity : 38 %
Light intensity : 8100 lux

Phenology : Flowering : September-November.
Place of flower : Terminal
Fruiting : December - February.

Associates : Cultivated

Ecology/Silvicultural character: Moderate light demander, acceptable to jhum fire, regenerate naturally and artificially.

Soil : N : 0.143 %
P : 4.0 kg/ha
K : 135.0 kg/ha
pH : 4.3
OC : 1.2 %

Parts used : Stem and leaves.

Uses : Sore

Mode of Preparation : The whole plant is crushed to make into a paste which is applied on sore. Juice of the crushed stem and leaves is also used for sore.

Mode/Route of application : Externally

Status/Category : Not assessed for the IUCN Red List
Thunbergia grandiflora (Pl. XXXVII, Photo 111)

Scientific name: *Thunbergia grandiflora* Roxb.

Local Name: Vako

Family: Acanthaceae

Locality: Mualcheng

Botanical Description: A large climber; stem hairy and terete; leaves ovate, angularly lobed, 8-18 x 12-24 cm, scabrid above, pubescent beneath; nerves 5-7; base deeply chordate; petiole curve, upto 7 cm long; flowers large, light blue or bluish in auxiliary receme, fascicled; fruits upto 5 cm long, curve upwards with quetrous beak, pubescent; seeds flat, sub trigonous.

Habit: Climber

Habitat: It is fairly common throughout Mizoram, particularly in tropical secondary forests as weeds. It is also grown on brown loamy and sandy soils in open forests.

Micro-climatic Status/Condition:
- Ambient temperature: 26 °C
- Altitude: 1000 m
- Humidity: 75%
- Light intensity: 51800 lux

Phenology:
- Flowering: April - May
- Place of flower: Axillary
- Fruiting: September - November

Associates: *Anogeisus acuminate, Dalbergia stipulaceae, Aporusa octandra.*

Ecology/Silvicultural character: Moderate light demands, resistant to heavy rainfall and drought, natural regeneration is adequate.

Soil:
- N: 0.184 %
- P: 7.2 Kg/ha
- K: 299 Kg/ha
- pH: 4.9
- OC: 0.8 %

Parts used: Leaves, fruit.

Uses: Cuts and wounds, bee sting and snake bite.
Mode of Preparation: Juice of the crushed leaves is applied to fresh cuts and wounds as antiseptic and blood coagulant. The fruit is broken in the middle and put on the sting/biting point to sucked the poison in bee sting or snake bite.

Mode/Route of application: External application.

Status/Category: Not assessed for the IUCN Red List

Trevesia palmate (Pl. XXXVIII, Photo 112)

Scientific name: Trevesia palmata (Roxb.)

Local Name: Kawhtebel

Family: Araliaceae

Locality: Lungpho

Botanical Description: Unbranched small evergreen tree, armed with recurve prickles; young shoots rusty pubescent and prickly; leaves crooped at the apex, obicular in outline, deeply palmately lobed; lobes acuminate, serrate, 5-9 nerved from base; petiole up to 60 cm long, often prickly; flowers umbels, rusty tomentum while young; fruits ovoid, crowned by the style.

Habit: A small evergreen tree.

Habitat: Common throughout Mizoram, on banks of rivelets and shady rocky places in tropical evergreen and semi evergreen forests. Cultivated in garden.

Micro-climatic Status/Condition:
- Ambient temperature: 22 °C
- Altitude: 1310 m
- Humidity: 38 %
- Light intensity: 17900 lux

Phenology:
- Leaf shedding: Evergreen
- Flowering: November-December
- Place of flower: Axillary
- Fruiting: January–March

Associates: Cultivated.
Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, heavy rainfall and drought, natural and artificial regeneration have no difficulties.

Soil:  
- N: 0.184 %  
- P: 14.2 Kg/ha  
- K: 254.0 Kg/ha  
- pH: 6.2  
- OC: 1.0%

Parts used: Fruits and petiole

Uses: Ophalmia, stomachache and colic.

Mode of Preparation: The boiled fruits taken as vegetables are good for eye sight. Infusion of the basal portion of the petiole (stalk) is taken orally against stomachache and colic.

Mode/Route of application: Orally

Status/Category: Not assessed for the IUCN Red List

**Uncaria sessilifructus (Pl. XXXVIII, Photo 113)**

Scientific name: *Uncaria sessilifructus* Roxb.

Local Name: Ralsamkuai/Galsamkuai (Hmar)

Family: Rubiaceae.

Locality: Mimbung

Botanical Description: Climbing shrubs. Leaves elliptic-lanceolate, glabrous on both surfaces; lateral nerves 5-6 pairs; stipules bifid. Flowers in axillary or terminal peduncles; bracts obtuse; calyx slightly lobed; corolla glabrous. Capsules sessile.

Habit: An extensive woody climber.

Habitat: Frequent in Mizoram, grows on moist fertile soil in open forests.

Micro-climatic Status/Condition:  
- Ambient temperature: 22 °C  
- Altitude: 1335 m  
- Humidity: 40 %  
- Light intensity: 41930 lux
Phenology: Flowering: October - November
Place of flower: Axillary or terminal
Fruiting: January – February

Associates: *Eupatorium odoratum, Lantana camara.*

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire and drought, naturally regenerated.

Soil:
- N: 0.174 %
- P: 17.5 Kg/ha
- K: 185 Kg/ha
- pH: 5.1
- OC: 1.4 %

Parts used: Young shoots, coiled tendril.

Uses: Tonsilitis and throat pain

Mode of Preparation: The coiled tendril is plug and squized to produce juice, which is directly dropped to the throat or tonsils. Young shoots are also eaten for tonsillitis.

Mode/Route of application: Orally

Status/Category: Not assessed for the IUCN Red List

*Verbena officinalis* (Pl. XXXVIII, Photo 114)

Scientific name: *Verbena officinalis* Linn.

Local Name: Sicharuh (Mara)

Family: Verbenaceae

Locality: Tuipang L

Botanical Description: Herbs, annual or weakly perennial. Leaves narrowed into a petiole 0.3-4 cm; leaf blade ovate, obovate, or oblong, 2-8 X 1-5 cm, papery, hirsute especially on abaxial veins, margin coarsely dentate or cut to sometimes deeply pinnatifid or lobed. Spikes long, slender; bracts as long as calyx. Calyx 1-4 mm, pubescent, glandular. Corolla blue to pink, (2-4)8 mm, pubescent. Ovary glabrous. Nutlets oblong, ca. 2 mm.
Habit : Herbs, annual or weakly perennial.

Habitat : Not common in Mizoram, grows on well drained fertile soil. It requires moist soil but in sunny position.

Micro-climatic Status/Condition:
- Ambient temperature : 24 °C
- Altitude : 1350 m
- Humidity : 42 %
- Light intensity : 75310 lux

Phenology:
- Flowering : June - August
- Place of flower : Terminal
- Fruiting : September – October

Associates : Stellaria media, Bidens biternata, Euphorbia hirta.

Ecology/Silvicultural character:
- Light demander, acceptable to jhum fire, moderately resistant to heavy rainfall, naturally regenerated.

Soil:
- N : 0.157 %
- P : 12.21 Kg/ha
- K : 254 Kg/ha
- pH : 5.0
- OC : 1.1 %

Parts used : Leaves

Uses : Convulsion and Nau-hri (Children`s disease)

Mode of Preparation : Crushed leaves is applied to armpit, head, sole and neck of children against convulsion and Nauhri (Children`s disease) a combination of fever, cholera, skin disease and inflammation.

Mode/Route of application : External

Status/Category : Not assessed for the IUCN Red List

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*Vitex peduncularis* (Pl. XXXIX, Photo 115)

Scientific name : *Vitex peduncularis* Wall.

Local Name : Thingkhawilu

Family : Verbenaceae
Locality : Vawmbuk

Botanical Description : A medium-sized to large semi-deciduous tree.

Habit : A medium-sized to large semi-deciduous tree. Leaves 3-foliate; leaflets lanceolate, 2-5 x 6-16 cm; base acute. Flowers yellowish-white or green-white, in axillary lax peduncles. Fruits obovoid c. 1 cm across.

Habitat : Scattered in Mizoram, in tropical evergreen and semi-evergreen forests. It is grown on sandy-loam soil in mixed with bamboo forests.

Micro-climatic Status/Condition: Ambient temperature : 24 °C  
Altitude : 1200 m  
Humidity : 37 %  
Light intensity : 31970 lux

Phenology : Leaf shedding : October - January  
New Leaf : March - April  
Flowering : April - May  
Place of flower : Axillary  
Fruiting : July – September

Associates : Castonopsis tribuloides, Ostodes paniculata, Polygonum glabrum.

Ecology/Silvicultural character: Moderate light demander, resistant to jhum fire, natural and artificial regeneration has no problem.

Soil : N : 0.184 %  
P : 14.2 kg/ha  
K : 254.0 kg/ha  
pH : 6.2  
OC : 1.0 %

Parts used : Bark.

Uses : Placental problems, hepatitis, malarial fever, sprain and joint dislocation.

Mode of Preparation : Decoction of the bark is taken for placental problems and hepatitis. The leaves are boiled with water and the water is used for bathing against malarial fever. Decoction of the bark and with leaves is taken orally against malaria with jaundice; the solution should be drunk as much as one can but without any other medicine. The crushed bark is used in sprain and dislocation of joints by bandaging it with a piece of cloth.
Mode/Route of application : Oral administration, External application and bath.

Status/Category : Not assessed for the IUCN Red List

**Woodfordia fructicosa (Pl. XXXIX, Photo 116)**

Scientific name : *Woodfordia fructicosa* Kurz.

Local Name : Ainawn

Family : Lythraceae

Locality : Lungphunlian

Botanical Description : A large spreading deciduous or evergreen shrub; bark reddish-brown; young parts hairy; branches spreading, drooping; leaves opposite or in whorls of 3, sessile, ovate-lanceolate or oblong lanceolate, acuminate, puberulous above, white with black dots beneath; flowers numerous, brilliant-red in dense axillary clusters from the old wood, often completely covering the branches; fruits ellipsoid, irregularly dehiscent; seeds brown, obovoid, smooth, small.

Habit : A large spreading deciduous or evergreen shrub with bright brick red flowers.

Habitat : Rare in Mizoram, in dry tropical secondary forests in southern part of Mizoram. It is grown on rocky places and dry areas in secondary forests.

Micro-climatic Status/Condition:  
- Ambient temperature : 23 ºC  
- Altitude : 1200m  
- Humidity : 36 %  
- Light intensity : 78540 lux

Phenology :  
- Flowering : March - April  
- Place of flower : Axillary  
- Fruiting : April – May

Associates : *Tetrameles nudiflora, Milletia pachycarpa, Macaranga paniculata, Phyllanthus* spp.

Ecology/Silvicultural character: Light demander, acceptable to jhum fire, resistant to drought, regenerate naturally.
Soil:

- N: 0.152 %
- P: 12.21 Kg/ha
- K: 254 Kg/ha
- pH: 5.0
- OC: 1.1 %

Parts used: Flowers.

Uses: Dysentery

Mode of Preparation: The flowers are crushed and a small quantity of water is added; it is then filtered using a clean cloth. The filtrate is taken orally against dysentery.

Mode/Route of application: Oral administration

Status/Category: Not assessed for the IUCN Red List
5.2 SOCIO-ECONOMIC CONDITION OF THE STUDY AREA

Data on the socio-economic status of the 78 villages of the study area were collected during the year 2007 to 2009 by conducting group and or personal interview in each village. This shows that the economic status varies from place to place and from individual to individual, but it can be summarized that in general people are poor. The results of the present investigation give following inference about the inhabitants of the villages. Of the 78 villages, the total population is 95366 persons belonging to 19358 families. Among the villages, Sangau village has the highest population with 4800 inhabitants and Vartek village has the lowest population with 187 inhabitants. Majority of the population depends on traditional jhuming for their livelihoods (68.75%) while the rest engaged in Govt. services, small business and cottage industries. Out of 19217 houses of the study area only 3.55% of the houses are R.C.C. building, 94.16% are of tin roof and 2.28% are of local materials or thatched roofs (Table No. 6). These clearly indicates that their dependencies upon forest products is still very large.

Though the literacy rate of the state is high, only 352 persons of the study area completed master degree, 1699 graduated, 2819 passed higher secondary level and 6327 of them are matriculate. There are 59 High School, 101 Middle School, 143 Primary School and 187 Anganwadi within the 78 villages visited (Table No. 6).

Their standard of living is medium. Of all the houses in the study area, 98.11% were electrified, 56.94% with LPG connection and 94.49% houses with Telephone/Mobilephone connections (Table No. 6). Since the numbers of families with LPG connections are less, it shows that the use of firewood is still common in the study area. It was also noted that even among the families with LPG connections, the use of firewood is still unavoidable as the supply of gas cylinder is very difficult due to poor condition of the roads. Most of the villages were having good water supply system by
making several public water points in their villages. There are 71 community health centers available in the study area (Table No. 6). But as the supply of medicines to these health centers is insufficient, it results in traditional healing practices, thereby, collecting valuable medicinal plants from the forests. Though their dependency on the forest and its products are high, they are not aware of the sustainable utilization and habitat destruction of wild species which could lead to biodiversity loss and extinction of valuable species of plants. Therefore, steps should be taken in these regards.

Most of the families were having pig and poultry as a livestock, 47.54% of the families have poultry and 36.34% have pigs. Cows, Pony/Horse, Goat, Dog and Buffalo were also domesticated by 3.13%, 0.36%, 0.94%, 11.11% and 0.57% of the families respectively (Table No. 6).

5.3 DELINEATION OF MAP:

After collection of the plant samples, the forest beat was surveyed thoroughly to check the distribution patterns of plants. The adjacent forest beats were also covered to ascertain the range of distribution and degree of abundance of the plant species. The range of distribution was recorded. The topo sheets covering that particular area were collected, latitude and longitude were measured to delineate on the map to show the place of availability of the plants. In course of study the following topo sheets numbers were used: 83 H/4, 83 H/8, 84 A/14, 84 A/15, 84 B/13, 84 B/14, 84 B/15, 84 E/1, 84 E/2, 84 E/3, 84 E/4, 84 E/5, 84 E/6, 84 E/7, 84 E/8, 84 F/1, 84 F/2, 84 F/3.