



**Government of the Union of Myanmar**  
**Ministry of Forestry**  
**Forest Department**



**Survey on the Lesser Known Species of Medicinal Plants  
of East Yoma and the Socio-Economic Status of the Local  
Communities**

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**အရှေ့ရိုးမရှိ လူသိနည်း ဆေးဝင်ပင်များကို ရှာဖွေဖော်ထုတ် လေ့လာခြင်းနှင့်  
ဒေသခံလူထု၏ လူမှုစီးပွားရေး အခြေအနေကို စစ်တမ်းကောက်ယူခြင်းစာတမ်း။**

ဒေါ်ခင်ဝင်းမြင့်

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လက်ထောက်ညွှန်ကြားရေးမှူး  
သစ်ဂုဏ်သတ္တိနှင့် အသုံးချမှဌာနစု  
သစ်တောသုတေသနဌာန၊ ရေဆင်း။

**စာတမ်းအကျဉ်းချုပ်**

ဤသုတေသနစာတမ်းသည် ပျဉ်းမနား၊ ရေဆင်းနှင့် အနီးဆုံးဖြစ်သော အရှေ့ရိုးမ တောင်ကြောရှိ ဆေးဝင်ပင် များကို ရှာဖွေစုဆောင်းပြီး သိပ္ပံနည်းကျ မှတ်တမ်းပြုစုထားသော စာတမ်းဖြစ်ပါသည်။ ယခု စာတမ်းတွင် ဆေးဝင်ပင် အမျိုး (၂၀)ပါဝင်ပြီး သိပ္ပံအမည်၊ မြန်မာအမည်၊ မျိုးရင်းနှင့်ဆေးဝင်ပုံတို့ကို တင်ပြ ထားပါသည်။ ထို့အပြင် ဒေသခံ တိုင်းရင်းသား တို့၏လူမှု စီးပွားအခြေအနေကိုပါ စစ်တမ်းပြုထားပါသည်။ ကွင်းဆင်း လေ့လာရာတွင် အောက်ဖော်ပြပါ နေရာများကို ရွေးချယ်ဆောင်ရွက် ခဲ့ပါသည်။ ၎င်းတို့မှာ (၁)မရမ်းတောင် အမြင့်ပေ ၂၂၇၀၊ (၂)လွဲကြီး အမြင့်ပေ ၉၀၀၊ (၃)ဆင်သော့ အမြင့်ပေ ၇၅၉၊ (၄)ခွေးတူလေး အမြင့်ပေ ၉၅၀၊ (၅)ပေါင်းလောင်းဒေသ အမြင့်ပေ ၉၁၀ (ရေအားလျှပ်စစ်စီမံကိန်း ဆောင်ရွက်နေသော ပေါင်းလောင်းမြစ် ပတ်ဝန်းကျင်)၊ (၆)အင်တိုင်းတော (အရှေ့ရိုးမ တောင်ခြေနှင့် သစ်တောသုတေသနဌာနအကြား) တို့ဖြစ်ပါသည်။ ဤသုတေသနလုပ်ငန်းမှ ရရှိလာသော အကျိုး အမြတ် သည် ဒေသခံတို့၏ ပညာရေး၊ ကျန်းမာရေး၊ စီးပွားရေး အသိအမြင်တို့ကို ကျယ်ပြန့်စေခြင်း၊ လူနေမှု ဘဝ မြှင့်တင်တိုးတက် လာနိုင်စေခြင်းနှင့် သဘာဝ ပတ်ဝန်းကျင် ထိန်းသိမ်းရေး၏ အရေးကြီးပုံကိုပါ သိရှိ လာနိုင်စေမည် ဖြစ်သည့်အပြင် ဒေသခံတို့ ကိုယ်တိုင် ပါဝင်ထိန်းသိမ်း ဆောင်ရွက် မှသာလျှင် အောင်မြင် နိုင်မည် ဖြစ်ကြောင်းကို ကောင်းစွာ နားလည် လာနိုင်စေမည် ဖြစ်ပါသည်။

# **Survey on the lesser Known Species of Medicinal Plants of East Yoma and the Socio-Economic Status of the Local Communities**

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## **Abstract**

This paper presents the scientific names ( and also Myanmar names ) and family relationship of (20) medicinal plant species, their uses and the socio-economic importance for the local communities. The research was conducted in the following areas viz. (1)Mayan-taung 756m (2270 feet), (2) Hlwegyi 300m (900 feet), (3) Sinthawt 253m (759 feet), (4)Khwe-tu-lay 316 m (950 feet), (5)Paunglaung area 303m (910 feet) ( Paunglaung river side and electrical power station project area ) and (6) Indaing forest ( between the basal area of East Yoma and F.R.I. ), Yezin 200 m (600 feet) above sea level respectively. The output of the research would benefit the local communities in enhancement of the knowledge in indigenous medicine which would help better the health condition, and could lead to improve their socio-economical situations. Conservation of biodiversity could be achieved through better living conditions which encouraged the people participation.

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## 1. Introduction

Plant wealth of a country is an index of its prosperity and the only way to assess is by botanical survey. It is both assiduous and time consuming job, but the output of such studies is of great scientific and commercial value. The economic growth of a country depends on sustainable development of the environments and proper utilization of natural resources. Myanmar is rich in natural resources of a vast forest area having valuable timber species and other forest products e.g ornamental plants like orchids and also a large number of medicinal plants .

Myanmar is rich in medicinal plants. Some well-known medicinal plants are, in Shan State, Tabin-taing-mya-nan (*Cissus discolor*), Shan-say-kha (*Andrographis paniculata*); in Kachin State, the famous kantauk, machit and mashawt from the snow-capped mountains; in Chin State, Nat-say-gamon, Dry Zone Areas the well-known trees at high medicinal value such as magyi (*Tamarindus indica*), Tamar (*Azadirachta indica*), Kokko (*Albizia lebbek*), Hta-naung (*Acacia lencophloea*), Ganda-sein (*Prosopis juliflora*), Suphyu (*Acacia arabica*), Sha-zaung-let-put (*Aloe barbadensis*), Si-mi-tauk (*Gloriosa suberba*) and shaw-plyn (*Sterculia venosa*); in the Dawna Taung of Karen State, the phalar-nge (*elettaria cardamomum*); in the Kayah State, the Cinnamon bark; and from the coastal areas of Tanintharyee Division and Rakhaine State, brown and red algae which are used in manufacturing medicine or as medicament.

Out of total number 250,000 of flowering species in the world, more than 150,000 species are found in tropical countries. ASEAN countries alone have more than 35,000 species, out of which more than 6,000 species are invaluable medicinal plants ( ASEAN Experts Groups on Herbal and Medicinal Plants, 1997 ). According to Hundley and Chit Ko Ko ( 1987 ), Myanmar flora are made up of more than 7,050 species out of which 2,000 are trees or small trees while the rest herbs, shrubs and climbers.

Historical evidence had shown that even at the time of Lord Goddama Buddha (600 B.C) medicinal plants and herbs were used indicating since 26000 years ago medicinal plants were used in the Indo-Burman area. And also the physician, Zewaka used medicinal plants about 2500 years ago.

In the modern time the well known Sayadaw and Physician Ashin Naga Thein in his famous works -Encyclopedia of Medicinal Plants described 1297 medicinal plants are their uses.

## 2. Objectives

The objectives of the research are:

- (1) to survey some of the east Yoma (Shan Yoma) areas for specimen collection and documentation of medicinal plants.
- (2) to know the traditional uses of the medicinal plants by rural communities of the areas surveyed.
- (3) to assess the socio-economic situation of the local communities in the area

## 3. Survey Area

The survey area were 5 places in the east Yoma (Shan Yoma), namely :Mayantaung, Hlwe Gyi, Paung Laung river area, Sinthawt including Khwe-Tu-Lay and indaing Forest near F.R.I campus.

The names of the survey area mentioned above are corresponded to the villages and communities found in that area.

#### 4. Collection of Medicinal Plants

The collection of medicinal plants was carried out during the last year and it was done all the year round. The total of 112 species were collected. Twenty species were taxonomically identified and parts of the plants which were used for medicinal purpose were made known. And they were presented in this paper. Uses and chemical constituents of the parts used for medicine in other countries were also referred. During the survey the following species were collected.

- (1) *Amorphophallus campanulatus* Blume. (Wa-u)
- (2) *Andrographis paniculata* (Burm.f.) Nees ( Say-kha-gyi)
- (3) *Baleria* spp. (Na-ga-mauk)
- (4) *Butea superba* Roxb.(Pauk-nwe)
- (5) *Calanthe* spp. (Myay-site-thit-khwa)
- (6) *Cissus discolor* (Ta-bin-taing-mya-nan)
- (7) *Crinum defixum* Ker-gaul (Ko-yan-ga-lay)
- (8) *Curcuma aromatica* Salisb.(Nanwin-yaing)
- (9) *Dioscorea esculenta* Burkill (Wet-ka)
- (10) *Dioscorea pentaphylla* willd.(Kwyay-u)
- (11) *Dioscorea sativa* Linn. (Myauk-u)
- (12) *Elettaria cardamonum* Matom (Phalar-yaing), (Chin-paung phalar)
- (13) *Gloriosa superba* Linn. (Si-mi-tauk)
- (14) *Millettia extensa* Benth. (Wun-u)
- (15) *Millettia racemosa* Benth. (ya-za-wun-nwe)
- (16) *Mucuna prurita* Hook. (Khway-le-yar)
- (17) *Nervilia fordii* Hance. Schltr. (Ta-bin-shwe-hti)
- (18) *Rauwolfia serpentina* benth. (Bon-ma-yar-zar)
- (19) *Stephania* spp. (Taung-kya)
- (20) *Tinospora cordifolia* miers. (Sin-tone-ma-nwe)

The collected specimens were photographed for documentation in nature and also in medicinal plant garden at FRI and some were preserved as herbarium specimen. Some live specimens were brought back for planting at FRI and for propagation.

##### 4.1 Discussion with the local communities

During the survey and collection of the medicinal plants in Shan Yoma, discussion with local people on their knowledge of indigenous medicine, their socio-economic situation and their awareness of environment and biodiversity was made.

#### 5. The Results

- (1) The collected specimens from the 5 localities were identified, according to the scientific names, common names, Myanmar names and the families they belonged to in taxonomical order. General descriptions, distinguishing characters, parts of plants and their medicinal uses were found out.

References concerning the uses in other countries were also presented. Chemical constituents of the plants whenever literature references were available were referred. Parts of the plants used for propagation were also mentioned.

The descriptions of 20 species of collected medicinal plants in the survey areas are given. The documentations by photos were also represented.

- (2) According to the survey, number of species belonging to Zingiberaceae was the largest. *Ellettaria cardamomum* was not found in sinthawt and Khway-tulay areas. And Bonmayaza was abundant in Sinthawt area and absent in Hlwe-gyi. Many species belonging to families Acanthaceae, Apocynaceae, Araliaceae, Caesalpinaceae, Cyperaceae, Dioscoreaceae, Lauraceae, Liliaceae, Meliaceae, Menispermaceae, Orachidaceae, Papilionaceae, Vitaceae and Ferns were found and recorded.
- (3) Data concerning the socio-economic situations were also collected through discussion with the local villagers.
- (4) Native and local uses of the medicinal plants were found out.

## 6. Discussion and Conclusion

According to the villagers, as far as they remember, traditional medicine and use of medicinal plants had been their health welfare for more than a century. Concerning the collected materials, the local medicinal practitioners agreed that they were highly potent and effective in the treatment of diseases. And also many of the 20 collected species were Known to them as medicinal plants.

Medicinal plants collected belong to different families of the flora, indicating that the surveyed area is rich in medicinal plants and therefore, needs to be further investigated. One of the objectives of the International Medicinal Plants Net work (IMPAN) is to conserve and propagate medicinal plants. According to the Net work (IMPAN) two-thirds of the medicinal plants receded in the world are found in developing countries, and many of them have become extinct before they can be made use of due to natural catastrophe and biotic interference. Many medicinal plants are found in Myanmar and to tackle the whole would be a tremendous work. It is reasonable to take up part by part as in the case of this study. Even in the East Yoma which is a small area, according to information there are many valuable medicinal plants still to be discovered. It is also quite obvious and necessary that the conservation is one of the most necessary task to be undertaken before the arrival of natural disasters and human destruction.

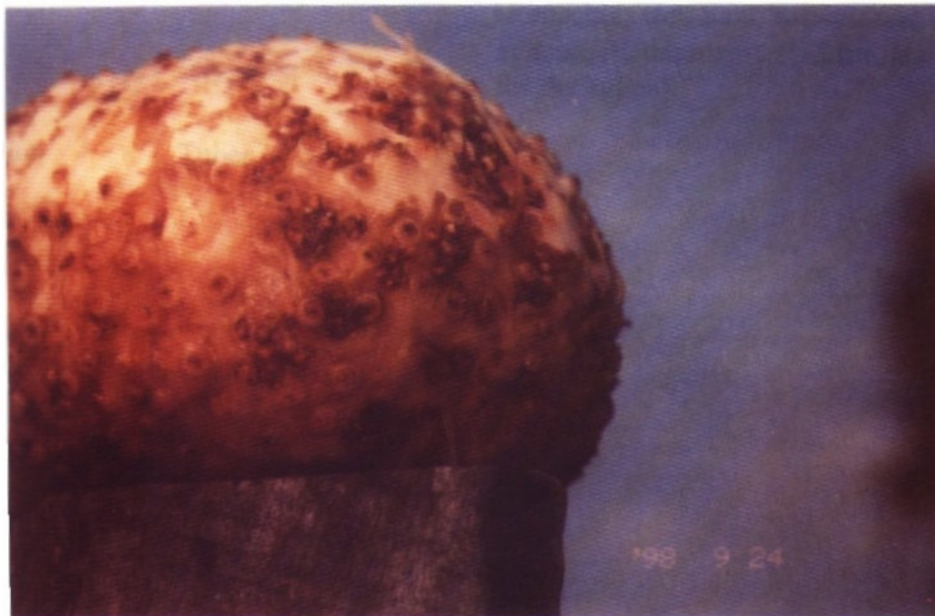
Socio-economic situation in the area is improving but the living standard of about 90% is still low. The bad socio-economic situation is in the villages due to lack of education and lack of marketing knowledge. They suffer under the manipulation of merchants and brokers. For example, the merchants of brokers collected Wa-u Paying about 3-5 Kyats per viss, for which the villagers had to climb high mountains, and to get there and back needed sometimes the whole day's journey carrying a heavy load. Reading and writing are not only the education they need but also knowing the value of their labor and knowledge of selling and buying of materials they produced is also needed. The rural communities should be aware of the environment they live in, and to protect it for future generations.



In conclusion the following points are made:

1. During the survey many families of the medicinal plants were found out.
2. Many of the 20 species presented in this paper were known to the local people but had not been documented for this area.(East Yoma)
3. Potential for finding a diversified number of species of medicinal plants is great in the surveyed area, therefore further survey and investigation are needed.
4. Concerning socio-economic aspect the people in the areas are poor and education level is low. It is required that they may be educated not only in reading and writing but also in value of their labor and marketing aspects, in awareness of environment which would lead to participate in the conservation of forest together with the local authorities and forest officers.

Dkwm 01



Wa-u (*Amorphophallus campanulatus* Blume.)

Scientific Name	<i>Amorphophallus campanulatus</i> Blume.
Common Name	Devil's Tongue, Cobra-plant
Myanmar Name	Wa-u
Family	Araceae
Description	Annual herb 3-4 ft high, with perennial tuber. Large underground tuber, shape globose size 6-10 inches in diameter, outer color light yellow or pale straw, surface rough with small, tubercles, Leaves 1-3 ft long, palmate compound, 3-5 leaflets, alternate, petiole long Smooth and shiny, greenish-white spots. Flower spadix with large spathe. Taste of the tuber mucilaginous. odourless.
Parts use	Tuber
Distinguishing characters	Large underground tuber, shape globose, size 6-10 inches in diameter outer color light yellow or pale straw, surface rough with small tubercles, taste mucilaginous, odorless.
Chemical constituents	Enzyme
Uses	<ul style="list-style-type: none"> <li>- Native - As a food only, but believe to have tonic effect.</li> <li>-Indigenous Medicine - Tonic,appitizer, ingredient in Nandwin-sha-put-say</li> <li>Other countries - Tuber use for facial creams , cosmetics, tonic, stomachache, stimulant, expectorant and is used in acute rheumatism. Reduce fats (especially for the ladies).</li> </ul>
Propagation	Tuber.

Dkwm 02



Say-kha-gyi(*Andrographis paniculata* Burm.f.)Nees.

Scientific Name	<i>Andrographis paniculata (Burm.f.) Nees.</i>
Common Name	Kariyet, common andrographis; sinta
Myanmar Name	Say-kha-gyi
Family	Acanthaceae
Description	Annual or Perennial herb, 30-70 cm high. Stem 4 - side, laterally much branched. Leaves opposite, ovate - lanceolate, tapering at both ends, margin entire, glabrous, deep green. Inflorescence terminal and axillary paniculate racemes. Flowers small, white. Fruits linear, acute pubescent, upright. Odorless, taste strongly bitter.
Parts used	The whole plant or the leaves only.
Distinguishing characters	As described above. Strong bitter taste and the explosive mechanism of the fruit.
Chemical constituents	Glucoside, andrographolide, flavonoid.
Uses	<ul style="list-style-type: none"> <li>- Native      - Fevers, asthma</li> <li>- Indigenous Medicine      -Tonic, fevers, asthma, bronchitis, diabetes, antimalaria.</li> <li>- In other countries      - Antimalaria, gastroenteritis, tonsillitis, boils, wounds, snake bites, anti-bacterial, antiinflammatory, immuno-suppressive properties. The leaves are used in treating dysentery, diarrhoea, fever, cough, sore throat, bronchitis</li> </ul>
Propagation	By seeds



Dkwm 03



Na-ga-mauk (*Baleria* spp.)

Scientific Name	<i>Baleria spp.</i>
Common Name	Nil.
Myanmar Name	Na-ga-mauk
Family	Acanthaceae
Description	Herbs 2-4 ft high. Stem quadrangular, stiff. Leaves simple, opposite ovate-oblong, tip acute, entire, glabrous on both surfaces, upper surface deep green to purplish, lower pale with distinct venations texture rough, stiff, hairy on the lower veins. Spikes dense, many flowered, arise from a pair of large hairy bracteoles, 1-sided, sepals minutely strigose, petals blue. Fruits capsule, oblong with acute tips. Seeds ovoid, brown, compressed, silky.
Part use	The whole plant.
Distinguishing characters	Described as above.
Chemical constituents	Not known.
Uses	Native Indigenous Medicine In other countries -Snake-bite, scorpion sting. -Snake-bite, scorpion sting. -Not known
Propagation	By seeds

Dkwm 04



Pauk-nwe (*Butea superba* Robx.)



Scientific Name	<i>Butea superba</i> Roxb.
Common Name	Nil.
Myanmar Name	Pauk - nwe
Family	Papilionaceae
Description	A long climbing shrub about 50 feet high. Extremely large tubers jointed at an interval of about 1 ft. Variable in shape and size. Shape irregularly rounded-oblong-elliptic lanceolate, Single tuber 1-5 ft. long, 6-12 in, in diameter. Jointed tubers about 10-15 ft. long. Vertically furrowed, light brownish colour, tissue soft therefore can be easily cut, internally it is white in colour fibrous, fibers stiff and long. Leaves trifoliate large stipellate leaves. Axillary or terminal racemes or panicles. Flowers scarlet which are conspicuous feature of the forest landscape, about 1 feet long, large, showy. Calyx, campanulate, corolla exserted. Stamens diadelphous. Ovary two - ovuled.
Part use	Tubers
Distinguishing characters	Extremely large tubers jointed at an interval of about 1 ft. Variable in shape and size. Shape irregularly rounded-oblong-elliptic lanceolate. Single tuber 1-5 ft. long, 6-12 in. in diameter. Jointed tubers about 10-15 ft. long. Vertically furrowed, light brownish colour, tissues soft therefore can be easily cut, internally it is white in colour fibrous fibers stiff and long.
Chemical constituents	Roots two glycosides. Flowers crystalline components, being butrin.
Uses	<div> <div>-Native</div> <div>-Indigenous Medicine</div> <div>-In other countries</div> </div> <div> <div>- Nil</div> <div>- Tonic</div> <div>- Root red dyes</div> <div>- Fibers - strong and useful, valuable fodder</div> </div>
Propagation	Seeds



Dkwm 05

Myay-site-thit-khwa (*Calanthe angustifolia* Lindl.)

Scientific Name	<i>Calanthe</i> spp.
Common Name	Nil.
Myanmar Name	Myay-site-thit-khwa
Family	Orchidaceae
Description	Stem underground bulb, thick, white, about 1-1.5 in. in diameter. Roots stout, thick and fleshy, white, arise all around of the bulb, 1-1.5 in. Long. Leaves long about 1 ft., petioled, narrowly lanceolate or elliptic lanceolate light greynish colour, veins parallel, convergent to leaf tip, veins 7-9 more distinct at the lower surface, both surfaces glabrous. Scape slender, 6-10 in, sheaths appressed. Inflorescence racemose, short, many flowered; flowers white with a yellowish red center, petals white broad 5-nerved.
Part use	Bulb
Distinguishing characters	Stem underground bulb, thick, white, about 1-1.5 in. in diameter
Chemical constituents	Not known
use	Native -Nil Indigenous Medicine -Tonic, nan-dwin-sha-put-say In other countries -Nil.
propagation	Bulb

Dkwm 06

Ta-bin-taing-mya-nan (*Cissus discolor*)

Scientific Name	Cissus discolor
Common Name	Nil.
Myanmar Name	Ta-bin-taing-mya-nam (white) Ta-bin-taing-mya-nam (Red)
Family	Vitaceae
Description	Climber about 60 feet high. Stem slender, weak, 6 - angle with longitudinal furrows, Extremely large tubers jointed at an interval of about 1 ft. Variable in shape and size. shape irregularly rounded - oblong-elliptic lanceolate, single tuber 1-5 ft. long, 6-12 in. in diameter. Jointed tubers about 10-15 ft. long. Vertically furrowed, light brownish colour, tissues soft therefore can be easily cut, internally it is white in colour fibrous, fibers stiff and long. Leaves trifoliate large stipellate leaves. Axillary or terminal racemes or panicles. Flowers scarlet which are conspicuous feature of the forest landscape, about 1 feet long, large, showy. Calyx, campanulate, corolla exserted. Stamens diadelphous. Ovary two-ovuled.
Part use	underground stem
Distinguishing characters	Extremely large tubers jointed an interval of about 1 ft. Variable in shape and size. Shape irregularly rounded-oblong-elliptic lanceolate, Single tuber 1-5 ft. long, 6-12 in. in diameter. Jointed tubers about 10-15 ft. long. Vertically furrowed, light brownish colour, tissues soft therefore can be easily cut, internally it is white in colour fibrous, fibers stiff and long.
Chemical constituents	Roots two glycosides. Flowers crystalline components, being butrin.
Uses	-Native -Indigenous Medicine -In other countries -Antitumor, amticanur -Tonic, Antitumor, amticanur - Root red dyes - Fiber- strong and useful fiber valuable fodder
Propagation	Cuttings of underground stem



Dkwm 07

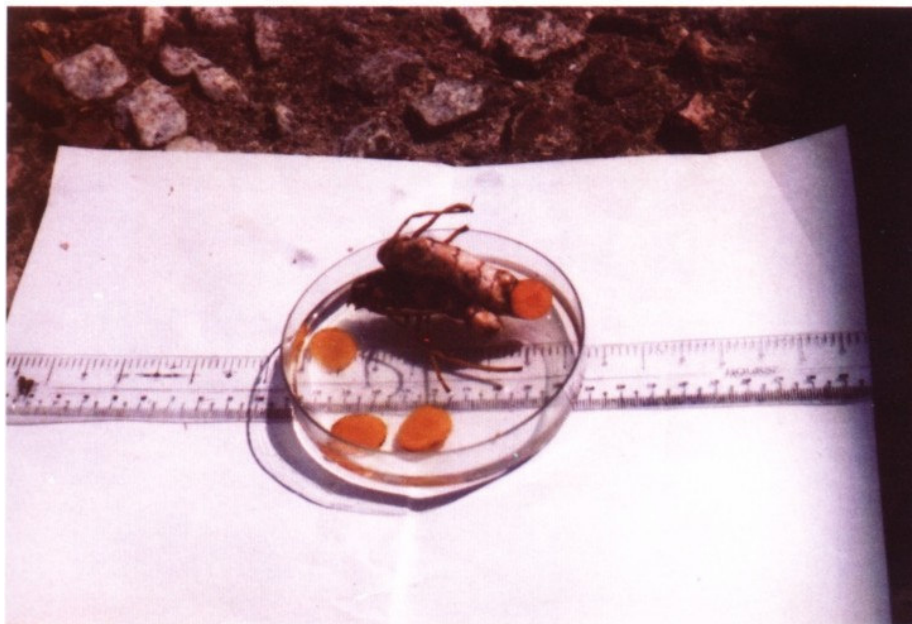


Ko-yan-gale (*Crinum defixum* Ker-Gaul.)

Scientific Name	<i>Crinum defixum</i> Ker-Gaul
Common Name	Poison Bulb
Myanmar Name	Ko-yan-ga-lay
Family	Amarylliaaceae
Description	Bulb about 4 in. in diameter, smooth, white, mostly globose. Leaves linear 1-1.5 ft long about 1 in wide. Scape stout, 6-8 in. long. Inflorescence umbels. Flowers white, large, fragrant at night perianth, lobes linear acute reflexed, whitish red, filament long red style red. Fruit sub-globose, purplish red.
Part use	Underground Bulb
Distinguishing characters	Underground stem bulbous, small, white, mostly globose .
Chemical constituents	Bulbs posses toxic principle. Leaves devoid of toxic principle.
Uses	<div> <div>-Native</div> <div>-Indigenous Medicine</div> <div>-In other countries</div> </div> <div> <div>- Nil.</div> <div>- Urinary infections, flatulence, gastric, asthma, bronchitis.</div> <div>- Nauseant, emetic, burns, carbuncle, emolient, toxic to cattle.</div> </div>
Propagation	Bulb



Dkwm 08



Taw-sanwin (*Curcuma aromatica* Salisb.)



Scientific Name	<i>Curcuma aromatica</i> Salisb
Common Name	Wild Turmeric, Yellow Zedoary
Myanmar Name	Taw-sanwin, Sa-nwingya, Sa-nwin phyu, Sa-nwin yang
Family	Zingiberaceae
Description	A perennial herb, about 1 m high underground stem or rhizome conical shape, bearing young tubers with long stalks, nodes and internodes distinct, outer color brown inner pale yellow or greyish. Leaves simple oblong-elliptic lanceolate entire, glabrous on both surfaces, intermingling of greenish and whitish color. Inflorescence cylindrical spike, arising from the leaves, bracts whitish green, flowers yellow. Odour aromatic.
Parts used	Rhizome.
Distinguishing characters	Conical shape, bearing many young tubers with long stalks, distinct nodes and internodes externally brown, internally pale yellow (or) greyish. Odour aromatic.
Chemical constituents	Essential oil 6.1%, oleoresin. Coloring matter-curcumin
Uses	<div> <div> -Native -Indigenous Medicine -In other countries </div> <div> -Stomachic, applied on sores -Stomachic, rheumatism, ulcers, menstrual pain, skin infections, tonic, carminative -Hepatitis, jaundice, ulcers, dyspepsias, stomachin. </div> </div>
Propagation	Rhizome cuttings.

Dkwm 10



Kyway-u (*Dioscorea pentaphylla* Willd.)

Scientific Name	<i>Dioscorea pentaphylla</i> Willd,	
Common Name	Five-leave Yam	
Myanmar Name	Kyway-u, Kyway-ka-doe	
Family	Dioscoreaceae	
Description	Annual herb with perennial tubers, aggregate into large irregularly lobed. Climbing stems about 10 ft. high, prickly and slightly hairy. The brown bulbules occur on the stem, variable in shape and size, mostly rounded-avoid, 0.5-1.0 inch. Leaves digitately five divided, segments oblong-acuminate; petioles twisted at the base. Flowers small, fragrant.	
Part uses	Underground tubers, and aerial bulbules (small Tubers)	
Distinguishing characters	Large tubers, variable in form, aggregation of lobe-like structures, externally it reveals dark brown to black with numerous, hair-like, long stiff roots, internally white.	
Chemical constituents	Tox. Principle dioscorine	
Uses	-Native	-As a food only.
	-Indigenous Medicine	-Tonic, diziness and emetic. Ingredient in preparation of nan-dwin-sha-put-say
	-In other countries	-The tubers are applied to ulcers, swellings tonic. In certain species of <i>Dioscorea</i> , the leaves are useful for intermittent fevers
Propagation	Tuber cuttings.	

Dkwm 09



Wet-ka (*Dioscorea esculenta* Burkill.)

Scientific Name	<i>Dioscorea esculenta</i> Burkill	
Common Name	Yam, lesser Yam	
Myanmar Name	Wet-ka, Karen Potato	
Family	Dioscoreaceae	
Description	-Annual herb with perennial underground large tuber. Spiny climber 10-15 ft high. Base of the stem produce many white roots, long, woody with numerous sharp, pointed, whitish spines 0.5-1.0 inch long arising from the surface, surrounding the tuber. Leaves broadly orbicular (or) cordate, acuminate, glabrous above, slightly hairy below, 8-11 nerved. Male spike flower and female raceme flowers minute.	
Part use	Tubers	
Distinguish characters	Tubers are variable in shape and size. Shape mostly rounded or oblong, maximum size about 1.5 ft in diameter, Externally reveals grayish white from which arise root hairs. Internal appearance white and mucilagenous nature.	
Chemical constituents	Toxic. principle dioscorine	
Uses tonic.	-Native	-As food only but believable as a
	-Indigenous Medicine youth, can be use	-Tonic, prolong longevity of life and a Vitamin E also.
	-In other countries	-Tubers are applied to ulcers. Grated tubers applied for swellings. In certain species of <i>Dioscorea</i> , the leaves are used for intermittent fevers.
Propagation	Tuber Cuttings	



Dkwm 11



Myauk-u (*Dioscorea sativa* Linn.)

Scientific Name	<i>Dioscorea sativa</i> Linn.	
Common Name	Aerial Yam, Aerial Potato	
Myanmar Name	Myauk-u, Lay-ah-Lu	
Family	Dioscoreaceae	
Description	-Perennial herb. tuber large, Variable in shape and size; Climbing stem glabrous, slender. Leaves-ovate-deeply cordate, tip acuminate, 5-10 costate; Flower male and female spikes, long, slender pendulous, green purplish green.	
Part use	Tubers and bulbules	
Distinguish characters	<ul style="list-style-type: none"> <li>- Tuber large, brownish externally and numerous hair arise from surface, long, slender and stiff. Internally white and mucilagerous nature.</li> <li>- Small bulbs protruding from the nodes of the aerial stem, shape mostly rounded-oval, 0.5-1.0 inch, brown externally and white internal.</li> </ul>	
Chemical constituents	Glucoside	
Uses	<ul style="list-style-type: none"> <li>-Native</li> <li>-Indigenous Medicine</li> <li>-In other countries</li> </ul>	<ul style="list-style-type: none"> <li>-As food only</li> <li>-Tonic</li> <li>-Dried powdered tubers applied to ulcers, piles, dysentery.</li> <li>-Leaves are useful for intermittent fever.</li> <li>-Tubers are broken into pieces and thrown into the water for attracting fish to certain spots wherethey can be easily caught.</li> </ul>
Propagation	-Tuber cuttings	

Dkwm 12



Phalar yaing (*Elettaria cardamomum* Maton.)



Scientific Name	<i>Elettaria cardamomum</i> Maton.
Common Name	Lesser cardamon, Wild cardamon.
Myanmar Name	Phalar yaing, Phalar nge, Chin baung phalar
Family	Zingiberaceae
Description	Perennial herb, 3-8 ft high. Root stock horizontal, woody, light yellow, from which the flowers and fruiting stem appears. Leaves linear-lanceolate, sessile, upper surface green, glabrous, and pubescent below. Basal portion of the leaf forming like a sheath overlapping each other. Inflorescence spike; flowers red. Fruit ovoid, three-valved, crimson. Seeds numerous, angular, aromatic.
Parts use	Fruits and seeds
Distinguishing character	Shape ovoid, 3-valved, crimson, red when ripe., Seeds, numerous, angular, aromatic.
Chemical constituents	Essential oils from seeds. Cineol, terpineol, terpinene, limonene.
Uses:	<div> <div>-Native</div> <div>- As a spice, and also use in stomachic flatulence, cough.</div> </div> <div> <div>-Indigenous Medicine</div> <div>- Fevers, cough, flatulence, asthma, bronchitis.</div> </div> <div> <div>-In other countries</div> <div>- Antibacterial and stomachi properties, flatulence, colic, vomiting, diarrhoea, cough, mouth wash, for tooth ache, gingivids. Also used as a flavoring agent in the preparation of some foods.</div> </div>
Propagation	Seeds and Root stock cuttings.

Dkwm 13



Si-mi-tauk (*Gloriosa Superba* Linn.)

Scientific Name	<i>Gloriosa superba</i> Lin	
Common Name	Super Lily; Climbing Lily	
Myanmar Name	Si-mi-tauk	
Family	Liliaceae	
Description	A large scandent herb, with underground tubers, 3-10 ft. high, grasping by the tips of the leaves modified into spirals. Stem long, slender, weak, cylindrical, glabrous. Leaves simple, sub-opposite, ovate-lanceolate, tips elongate spiral, parallel venation, bright green, glabrous. Flowers large, showy, solitary or subcorymbose, brightly coloured, petals, yellow-orange-red by age, margins undulate. Fruit 3-celled capsule 1.5-2.5 in. long, large, green-dark green when mature. Seed numerous, reddish black at maturity.	
Part use	Tuber and seeds	
Distinguishing characters	Horizontal tubers dichotomously branched or unbranched, flattened or cylindrical, much pointed at both ends, 2-6 in long, about 0.6 in. across; a chain of fleshy arched tubers, budding from the convexity above. Externally it is covered by a thin layer of brown cork, circular scars present, papery like. Internally whitish-light yellow. Possess toxicity. Odour slightly acrid, taste faintly bitter, farinaceous. Seed globose, about 3-4 cm. in diameter, deep red with slight wrinkles. Odourless, tasteless.	
Chemical constituents	Alkaloids, superbine, gloriosine, colchicine	
Uses	Native	-Nil
	Indigenous medicine	- Ganorrhoea, sores. Leaves - Taenicide, bacteriostatic action, earache.
	In other countries	- Purgative, cholagogue, anthelmintic, leprosy, piles, colic, parasitical, infections of the skin, snake bites, scorpion sting, ganorrthaea, nasal suprapubic.
Propagation	Seeds and tubers.	





Dkwm 14



Wun-u (*Millettia extensa* Benth.)

Scientific Name	<i>Millettia extensa</i> Benth
Common Name	Nil.
Myanmar Name	Wun-u
Family	Leguminosae
Description characters	A large climbing shrub about 30 ft. Stem finely downy. Leaves pinnate compound, leaflets 3-5 obovate-oblong, tip acute, long petioled, elongated, glabrous rachis. Flowers short-pedicelled, close axillary racemes, sepals bell-shaped, petals densely silky, red. Pod hard and woody.
Part use	Roots and stem
Distinguishing	Stem prostrate, woody, greyish-brownish colour surface rough, wavy, slightly twisted, internally it reveals white, exuding red, gum-like, thick syrup when cut, tissues fibrous.
Chemical constituents	Not found Yet.
Uses	<div>Natives</div> <div>Indigenous Medicine</div> <div>In other countries</div> <div>-Bone fracture.</div> <div>- Bone fracture.</div> <div>-Not known</div>
Propagation	Not known Yet.



Dkwm 15

Ya-za-win-nwe (*Milletia racemosa* Benth.)

Scientific Name	<i>Millettia racemosa</i> Benth.
Common Name	Nil
Myanmar Name	Ya-za-win-new
Family	Papilionaceae
Description	A large, woody climber, about 20 ft high, appears like a tree. Leaves 7-9 pairs, imparipinnate, ovate-oblong, glabrous above, glabrescent below glabrescent, veins parallel more distinct at the lower surface, light grain above and pale below. Flowers axillary racemes or panicles, appears after the fallen of the leaves; calyx bell-shape, pale green, silky like; corolla exerted, whitish pink. Pods linear.
Part use	Roots
Distinguishing characters	Variable in shape and size, brownish external, whitish brown inside odourless, tasteless.
Chemical constituents	Not found Yet.
Uses	Native -Nil. Indigenous medicine -Digestion, flatulence, fevers, In other countries -Nil.
Propagation	Not known.



Dkwm 16



Khway-le-yar (*Mucuna prunita* Hook.)

Scientific Name	<i>Mucuna prurita</i> Hook
Common Name	Cowhage or Cowitch Plant
Myanmar Name	Khwe-la-yar
Family	Papilionaceae
Description	Annual liana with long slender stem, hairy when young, glabrous by age. Leaves alternate, trifoliate, leaf-lets ovate-rhomboid, glabrous above grey hairy silky below base oblique. Inflorescence racemes, drooping, about ten inches long flower purple. Pod about 3-inches long turgid, apex hooked, covered with dense persistent bristles, pale brown or greyish color.
Part use	Fruits and seeds.
Distinguishing characters	Fruit pale brown or grey covered with velvety like hairs, tip hooked 3-6 in. long 0.5-1.5 in. wide turgid, dense, pungent bristly. Seed-ovoid, compressed brownish color with black spots.
Chemical constituents	Seeds posses 4% reddish viscous oil, alkaloid mucunine and mucunadine.
Uses	<div> <div> -Native -Indigenous Medicine </div> <div> - Nil. -Root -diarrhoea. -Seed-Insect bites, tonic, ganorrhea, parkinsonism, -Fruit-Taenicide -Leaves- -In other countries </div> </div>
Propagation	Seeds.

Dkwm 17



Ta-bin-shwe-hti (*Nervilia fordii* Hance Schltr.)

Scientific Name	<i>Nervilia Fordii</i> Hance Schltr.	
Common Name	Nil.	
Myanmar Name	Ta-bin-shwe-hti	
Family	Orchidaceae	
Description	A terrestrial orchid with perennial sub- globose tuber, about 1 ft high usually one petioled leaf, appearing before the flowers. Underground tuber white, about 1.5 - 2.0 inches in diameter, fleshy. Aerial portion withers in winter and reappear in spring. Leaves simple, orbicular-cordate, tips acute, base deeply cordate, margins wavy, palmate veins distinct.	
Parts use	Tubers and Leaves.	
Distinguishing	A bulb-like underground tuber, white about 1.5-2.0 inches character in diameter, fleshy, Distinct nodes and internodes from which lateral roots appear. Leaves simple, orbicular- cordate., tips acute, base deeply cordate, margins wavy, palmate veins distinct. The colour of the leaves are deep purplish red when young and change to green by age.	
Chemical	The plant possess narcotic effect. ( According to the constituent Myanmar indigenous medicinal practitioner.	
Uses	-Natives -Indigenous Medicine -In other countries	-Nil. -Preparation of sleeping pills. -The leaves are used in treating stomachic stomachic stomachic stomachic stomachic pulmonary tuberculosis, cough, furunculosis, and depurative. Poultices of the pounded leaves are used against impetigo, and. painful inflammation. Protective medicine after child birth. -In Guan, the tubers were chewed to allay thirst.
Propagation	Tubers.	





Dkwm 18



Bon-ma-ya-za (*Rauwolfia serpentina* Benth.)



Scientific Name	<i>Rauwolfia serpentina</i> Benth
Common Name	Snake root
Myanmar Name	Bon-ma-ya-zar
Family	Apocynaceae
Description	Ever green herb about 1 ft high yield a milky juice. Underground stem or rhizomes cylindrical or slightly tapering, tortuous pieces. outer surface light brown with longitudinal ridges, inner portion reveals dense pale yellow wood, leaves in whorls of three, ovate- oblong, tip acute, base attenuate, margin entire, dark green above, pale below. Inflorescence axillary or terminal cymes with long peduncles. Flowers white, or pinkish white, corolla lobe white, tube pink, anthers inserted. Drupe ovoid, dark purplish when ripe. Odour slight and taste bitter.
Parts used	Rhizome
Distinguishing characters	Cylindrical or slightly tapering, tortuous pieces. outer surface light brown with longitudinal ridges, inner portion reveals dense pale yellow wood, odour slight and bitter taste.
Chemical constituents	Alkaloids, 2.64%, mostly reserpine
Use	<div> <div>- Native</div> <div>-Indigenous Medicine</div> <div>-In other countries</div> </div> <div> <div>-Hypertension</div> <div>-Hypertension parkinsonism diabetes,</div> <div>-Hypertension and neuropsychiatric disorders</div> </div>
Propagation	Rhizome cuttings.



Dkwm 19

Taung-kya-kyet-thwe (*Stephania* spp.)

Scientific Name	<i>Stephania spp.</i>
Common Name	Moonseed
Myanmar Name	Taung-Kya-Kyet-Thwe.
Family	Manispermaceae
Description	Scandant herb. 6-18 ft. long. Underground tuber large, stout, variable in shape and size, shape irregular rounded mostly light brown -dark brown externally and reddish brown internally. Leaves alternate, long-petioled, orbicular-suborbicular. Flowers axillary umbels, orange, male and female on different plants. Drupe globuse, compressed.
Part use	Tuberous roots.
Distinguishing characters	Underground tuber large, stout, variable in shape and size, shape irregular rounded mostly light brown -dark brown externally and reddish brown internally. Odourless, taste slightly floury. Red exudations appears from the cutting of tubers.
Chemical constituents	Alkaloids 2.5%. Stepharine, roemerine, cyclearine, gindarine, gindaricine, gindarinine.
Uses	Native -Nil. Indigenous medicine -Diabetes, hypertention, parkinsonism In other countries -Sedative, insomnia, stomach- ache, head-ache, asthma and fevers, pulmonary tuberculosis, dysentry.
Propagation	Nil.

Dkwm 20



Sin-tone-ma-nwe (*Tinospora cordifolia* Miers.)

Scientific Name	<i>Tinospora cordifolia</i> Miers
common Name	Heart leave; moon-seed
Myanmar Name	Sin - tone - ma - nwe
Family	Menispermaceae
Description	The roots are tuber-like, thickened here and there brownish. Evergreen perennial climber about 10-20 ft high outside, white inside. Stem long, slender, greyish-green, surface not smooth, prickles present. Leaves alternate, heart shape, base cordate, tip acute, nerves palmate, green color when young, greyish-yellow spots appear when mature. Inflorescence axillary racemes. Flowers small yellowish green. Drupe type of fruit. Seeds round.
Part use	Roots and stems.
Distinguishing characters	The roots are tuber-like, long, irregularly thickened, brownish externally and whitish internally.
Chemical constituents	Berberine, bitter substance, starch from roots and stems.
Uses	<div> <div>-Native</div> <div>-Indigenous medicine</div> <div>-Abroad</div> </div> <div> <div>-Tonic.</div> <div>-Digestion, prolong life, fevers, earache, rheumatism.</div> <div>-Sorethroat, laryngitis, colic, A poultice of pounded roots is effective in treating abscess and phlegmon. Starch used in chronic diarrhoea and dysentery.</div> </div>
Propagation	-Stem cuttings



## **7. Socio-Economic Aspects**

Developing countries have provided the subject matter for numerous case studies of single tribes or communities. This classical type of study is giving way to a similar design that involves social scientists who share a common cultural inheritance with the community of interest and who participate in the life of the community. Information is obtained through normal conversation and the use of a trained eye.

This type of study is particularly useful when there is a need to understand the attitudes, perceptions, and constraints influencing a community in a rapidly changing environment.

The study uses a mixture of methods.. personal observation, which for some periods or events may develop into participation the use of informants for current and historical data: straightforward interviewing and the tracing and study of relevant documents and records from local and government travellers,...etc

Community questionnaires are used in a wide range of inquiries. They are economical since the questions need to be asked of only a few people and certain information can be obtained with reasonable reliability for small communities. The existence and location of schools, markets, health centres and service offices are not likely to be in dispute and the existence and types of roads water supplies, sanitary facilities, and fuels will be ascertainable.

Socio-economic aspects were undertaken base on a guide line by T.T.Aye and U U Ga (1997).

## 7.1 Socioeconomic Aspects

Village Name	1. Hlwegyi ( east ) 2. Hlwegyi ( west )
Households	1. 50 2. 61
Population	1. 280 2. 322
Village area	Both Villages about 1500 æ1200 Sq ft
Occupation	plantation-taungya about 6 acres
Education level	Primary Level. Student 76. Teacher 2.
Economy	Plantation, selling bamboo and wa-u from the forest.
Main crops	Banana (Shweni), paddy, maize.
Seasonal crops	Paddy, maize, danyin, betel leaf, lemon
Energy	Nil.
Land tenure	Owner farmers, hired farmers nil.and landless nil.
Utilization of fuel wood	Bamboo, trees and shrubs
Sources of water	Stream, waterfall, hot spring
Livestock	Poultry (five members), Pig (seven)
Common fuel wood species	
Government organization	Forest, Primary School, Clinic, Armed Forces, Construction, M.T.E.
Social welfare association	Nil.
Information on medicinal plants.	Phalar, Thit-hmwe, Nanwin
Total identified and collected specimens of medicinal plants	12
House where traditional medicines are available	Nil.
Shops selling traditional medicines at village weekly bazaar	One
Households cultivating medicinal plants	Phalar, Nanwin.
Remarks	Socio-economy below average

## 7.2 Socioeconomic Aspects

Village Name	Koe-kwe
Households	27
Population	240
Village area	10 acres
Occupation	Taungya
Educational level	8 std. (three students), 9 std (one), 4 <sup>th</sup> std (twenty five )
Economy	Plantation
Main crops	Paddy, banana (shweni)
Seasonal crops	Maize, chilli, ground, pumpkin.
Energy	Nil.
Land tenure	Owner farmers.
Common fuel wood species	Pyinkadoe, Thit-saint, Hmyar-seik
Sources of water	Waterfall and stream
Livestock	Poultry and pig
Utilization of fuel wood	Bamboo, branches and twigs of trees
Government organization	MTE, construction, health clinic
Social welfare association	Nil.
Information on medicinal Plants	Curcuma species
Total identified and collected specimens of medicinal Plants	12 (similar area with Hlwe-gyi)
House where traditional medicines are available	Nil.
Shops selling traditional medicines at village weekly bazaar	Nil.
Households cultivating medicinal plants	Phalar yaing, Nanwin, Pinsein-net, Aloes.
Remarks	Poor

### 7.3 Socioeconomic Aspects

Village Name	Taung-kyat
Households	72
Population	230
Village area	200 acre
Occupation	Taung-yar
Education level	4 <sup>th</sup> std (one), 5 <sup>th</sup> std.(one)
Economy	Plantation,
Main crops	Paddy, maize and a few banana plantation
Seasonal crops	Nil.
Energy	Nil.
Land tenure	Owner farmers, hired farmers nil., landless nil.
Common fuel wood species	Bamboo (Wabo)
Sources of water	Stream, 28 miles away.
Livestock	poultry, Pig
Utilization of fuel wood	Bamboo, branches and twigs of trees.
Government organization	Primary school (one), clinic (one), infantry squadron
Social welfare association	Nil.
Information on medicinal plants	5 species, nwa-kyaung-tha-hmin-tan, Pinsein net, Myinkwa, Sin-tone-ma-new
Total identified and collected specimens of medicinal plants	Nil.
House where traditional medicines are available	Nil.
Shops selling traditional medicines at village weekly bazaar	One
Households cultivating medicinal plants	Pinsein-net, Myinkwa, Sin-tone-ma-new
Remarks	A few average, mostly below

## 7.4 Socioeconomic Aspects

Village Name	Sin-thwat and Pyinma-aing
Households	50 (Sin-thwat) / 8 (Pyinma-aing, one mile away from Sin-thwet)
Population	265
Village area	20 acre
Occupation	Taungya
Education level	4 <sup>th</sup> std (26 students), 5 <sup>th</sup> (1), 6 <sup>th</sup> (4), 7 <sup>th</sup> (12), 8 <sup>th</sup> & 9 <sup>th</sup> nil, 10 <sup>th</sup> (3), Graduate DE (2)
Economy	Banana
Main crops	Paddy, Maize, Chilli.
Seasonal crops	Pein-u, Pumpkin, Cucumber, Waxgourd, Bottlegourd.(These are not for sale)
Common fuel wood species	Assorted.
Land tenure	Owner farmers, (hired farmers nil., landless nil.)
Utilization of fuel wood	-
Sources of water	3 Stream, well and waterfall five miles away.
Livestock	poultry, 5 Pig and 4 Buffalows.
Energy	Fuel wood (branches and twigs)
Government organization	Primary school Forest, Clinic but no nurse
Social welfare association	Nil.
Information on medicinal plants	Bonmayaza, Tabin-shwe-hti, Kyar-ma-naing, Nalin-kyaw.
Total identified and collected specimens of medicinal plants	15
House where traditional medicines are available	Nil.
Shops selling traditional medicines at village weekly bazaar	Nil.
Households cultivating medicinal plants	Nil.
Remarks	Socio-economy below average



## 7.5 Socioeconomic Aspects

Village Name	Mayan-taung
Households	Round about 100
Population	600
Village area	800 acre
Occupation	Taung-yar
Education level	Primary School
Economy	Plantation,
Main crops	Paddy,maize, banana, beetle leaf, chin-paung phalar
Seasonal crops	Chin-paung, Chilli, gourd, pumpkin, maize
Energy	Battery system
Land tenure	Owner farmers, hired farmers nil., landless nil.
Common fuel wood species	Bamboo (Wabo)
Sources of water	Streams.
Livestock	poultry, pig
Utilization of fuel wood	Bamboo, branches and twings of trees.
Government organization	Primary school
Social welfare association	Nil.
Information on medicinal plants	More than 50 species.
Total identified and collected specimens of medicinal plants	32 species collected 15 species identified.
House where traditional medicines are available	Nil.
Shops selling traditional medicines at village weekly bazaar	Two
Households cultivating medicinal plants	Chin-paung-phalar, shar-zaung-latpat, Kun
Remarks	Average and above average

### 1997 Methodological Report

Sr. No	Station No.	Rainy Day	Rainfall		Temperature		Humi- dity	Evaporation	
			in	mm	Highest	Lowest		in	mm
1.	F.R.I, Eosin	86	51.42	1306.06	88°F	72°F	53	0.17	4.23
2.	Sin Thawt	65	41.46	1053.04	88°F	67°F	79	10	2.54

### Cambisol

### 1998 Methodological Report

Sr. No	Station No.	Rainy Day	Rainfall		Temperature		Humidity	Evaporation	
			in	mm	Highest	Lowest		in	mm
1.	F.R.I, Yezin	81	36.416	925.018	31°C	27°C	52.06	0.353	9.055
2.	Sin Thawt	84	46.477	1180.516	32°C	20°C	81.316	0.362	9.186

### Nitosal

### Some Lesser Known Medicinal Plants

(1)

Myanmar name	Say-ta-lone-u
Part use	Bulb
Uses	Fever

(2)

Myanmar name	Seik-phoo
Part use	Bulb
Uses	Fever, cough, digestion

(3)

Myanmar name	Hmo-kun-char
Part use	whole plant
Uses	sleeping pills



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1



2



3

(4)

Myanmar name	Kar-la-khan-ti
Part use	Bulb
Uses	A valuable- plant especially use in religious matters

**(5)**

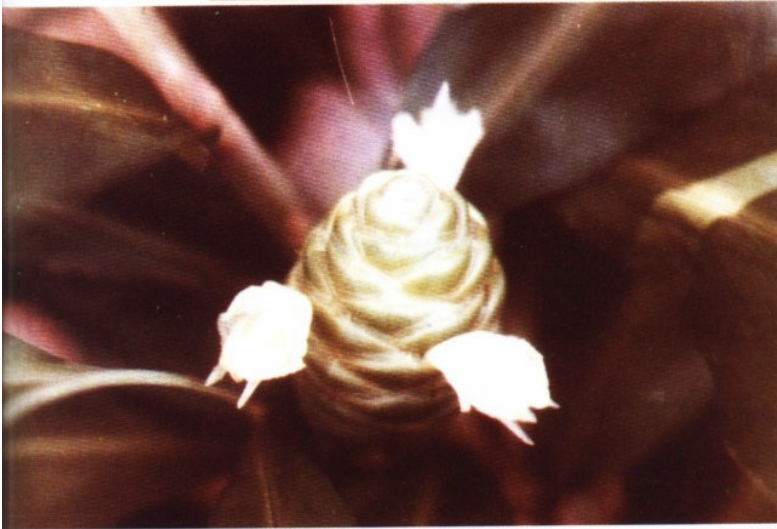
Myanmar name	Gant- eik
Part use	Bulb
Uses	Ganorrhoea, eyesalve

**(6)**

Myanmar name	Na-nwin yar
Part use	Rhizome
Uses	Tonic, remove flatulence

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4



5

6





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