A Study on Some Medicinal Plants Found in Kyat-sa-kan Village, Thazi Township

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Abstract

The present research deals with the medicinal plants found in Kyat-sa-kan Village, Thazi Township, Mandalay Region were studied. In the present study, some species of wild medicinal plants were collected and identified during January 2020 to February 2021. Among them, 10 medicinal plants belonging to10 genera of 10 families in Angiosperms were presented and which are solely used in traditional medicine. Data information of these plants was recorded from personal interviews with traditional practitioners and local people. There are seven plant parts used for medicinal purpose. The most important parts are leaves, followed by rhizomes and roots and then, the stem and whole plant. As a result, these plants were most effectively cured for dysentery and fever. In the future, this study on medicinal plants will apply results towards the benefit of both traditional medicine and local people. The present research will provide information on medicinal plants for other researchers and for the Pharmaceutical Industry in Myanmar.

Key words: medicinal plants, identified, parts used, folk uses, Kyat-sa-kan area

Introduction

Plants have been crucial sources of both preventive and curative traditional medicine preparation for human beings since ancient time (Christophe Wiart, 2000). For thousands of year herbal medicine has been used throughout the world to keep people healthy and to help them in the fight against diseases. World health organization estimated that more than 3.5 billion people in developing countries rely on plants as components of their primary health care (Ministry of Health 2003).

Plants have played a vital role in traditional medicinal in Myanmar. The knowledge and information of the uses of plants as medicine had been handed down orally from generation and generation. Although modern medicine is now available in the study area, strong culture benefits, coupled with the easily available and long recognized benefits of medicinal plants that herbal medicine continues to play a major role in primary health care. Since many years they have been used to treat and prevent many types of disease. Medicinal plants play an important in our natural wealth (Pharm, *et al.*, 1999). They serve an important therapeutic agent as well as valuable raw material for manufacturing numerous not only traditional medicine but also modern medicine. The history of medicinal plants uses for treating disease and ailments.

The study area of Kyat sakan village, Thazi Township is located in Mandalay Region of Central Myanmar. Kyat sakan village lies between Pyi nyaung village and Thonese-kun-na-maing village along the Meiktila-Taunggyi Union Highway in Thazi Township. It is located at the coordinate of 20°48'59" N latitude and 96°26'45" E longitude (Figure 1). The study village can get average monthly temperature of 85°F and total annual rain fall of above 40 inches.

Human discovered plants and plant parts that could be released their illness and suffering disease from ancient time to present days. Although many medicinal research papers were published worldwide including Myanmar but there was no report from this area. Therefore, the present study emphasized on medicinal plants grown in Kyat-sa-kan Village,

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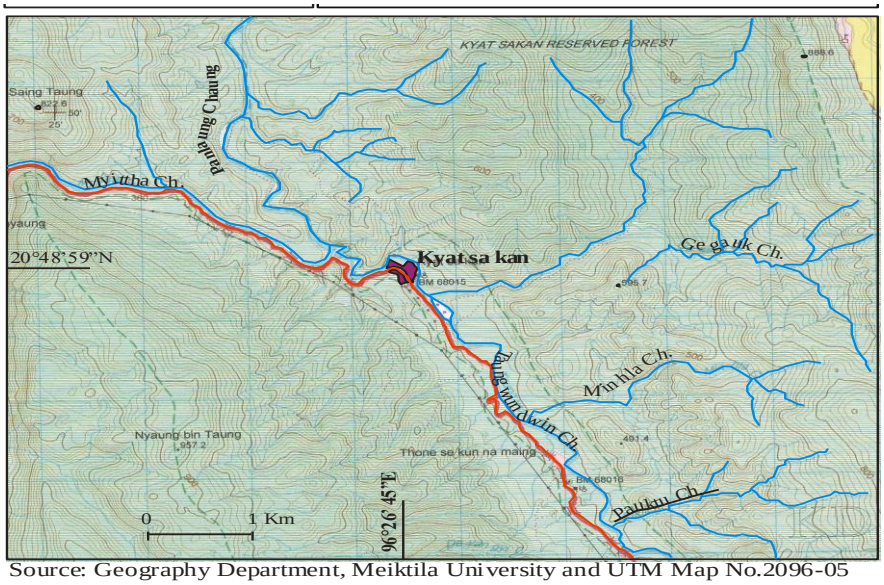
Thazi Township. The aim and objectives of this present research are to identify the collected specimen found in study area; to records parts used and uses of available medicinal plant found in study area; to provide information on medicinal plants for other local people and traditional practitioners and researchers.

Material and Methods

In this research, the field studies were conducted in Kyat-sa-kan village, Thazi Township from January 2020 to February 2021. Plant specimens were properly collected and recorded with photographing and field notes. The collected specimens for the taxonomic identification have been done by referring the available literature such as Hooker (1879), Backer (1965) and Dassanayake (1980-2001). Myanmar names were received from Hundley & Chit Ko Ko (1987) and Kress, W. John, (2003). And then, some specimens were stored as herbarium in Meiktila University.

Medicinal data information were received from literatures and also collected through personal interviews with traditional practitioners and local people by using structured interviews. The questions were "Did you use these plants in traditional medicine?" "Which parts? How did you prepare?" For each plant recorded on questionaries had to be filled (Nicky Britten, 2007). Then, the Scientific name, Myanmar name, English name, Family, flowering period, outstanding features, part used, properties, and folk uses of the studied plant were comprised and investigated.



Source: Geography Department, Meiktila University and UTM Map No.2096-05

Figure 1. Location map of study area

Results

The information of medicinal plants used in traditional medicines is surveyed both from literatures and traditional practitioners. The plants that have been solely prescribed to treat ailments by traditional practitioners and local people. A total of 10 species used in traditional medicines were collected and identified.

1. Scientific name – ***Aeginetia indica*** **L. (Figure 3.A)**

Myanmar name – Kauk-hlaing-ti
English name – Forest Ghost Flower
Family – Orobanchaceae
Flowering period – June to September

Perennial herbaceous root-parasites, devoid of chlorophyll. Root slightly fleshy, with small branches. Stems unbranched or lanceolate branched from near base, arising from rhizome. Leaves usually absent, if present red; blade ovate or lanceolate. Inflorescences solitary or clustered at stem apex, scapes pinkish red, erect, terminal, unbranched glabrous. Flowers reddish pink, usually solitary, bisexual, zygomorphic, pentamerous hypogynous, nodding at the apex, ebracteolate, pedicellate, ebracteolate. Calyx 5-lobed, spathaceous, ovate, slightly connate at the base, persistent. Corolla 5-lobed, tubular, indistinctly bilabiate; tube slight curved; lobes subentire. Stamens 4, didynamous, free, epipetalous. Ovary superior, oblongoid, unilocular, many ovule in the locule, four parietal placentation; stigma peltate. Fruits capsular conical, long ovoid. Seeds ellipsoid, yellow.

Part used – whole plant
Properties – It has sweet taste.
Folk uses – The crushed juice of the whole plant is remedy for diabetes, liver diseases and arthritis.

2. Scientific name – ***Andrographis paniculata*** **(Burm.f) Wall.ex Nees. (Figure 3.B)**

Myanmar name – Hsay-khar-gyi
English name – Creat
Family – Acanthaceae
Flowering period – November to March

Outstanding features

Perennial herbs; stems quadrangular, puberulent. Leaves simple, opposite and decussate, exstipulate; blade elliptic or lanceolate, entire along the margin, glabrous on both surfaces. Inflorescenses axillary and terminal paniculate cyme. Flowers white, bracteates, pedicellate, ebracteolate, bisexual, zygomorphic, pentamerous, hypogynous. Calyx 5 segments; tubular; lobes linear-lanceolate, the outer surfaces pubescent with glandular hairs. Corolla deeply bilabiate, white, the upper lip 2-lobed, the lower lip 3-lobed, the inner surfaces with purple coloured spots. Stamens two, epipetalous; filament ciliate upwards; anthers dithecous, introrse, exserted, dehiscence longitudinally. Ovary ellipsoid, bicarpellary, syncarpous, bilocular, one ovule in each locule, axile placentation; style filiform; stigma simple. Fruits loculicidal capsule, ellipsoid. Seeds 4-5, subquadrate, rugose.

Part used – Whole plant
Properties – It has bitter taste.
Folk uses – Decoction of the whole plant is used for diabetes, malaria, headache, colic, fever, dyspepsia and dysentery.

3. Scientific name – ***Hellenia speciosa*** **(J.Koenig) S.R.Dutta (Figure 3.C)**

Myanmar name – Phalan-taung-mwe
English name – Indian spiral ginger
Family – Costaceae
Flowering and – May to September

Outstanding features

Perennial, succulent rhizomatous herbs; rhizome tuberous, irregular; aerial stems erect, hard. Leaves simple, alternate and spirally arranged, closed sheathing petiolate; blades narrowly ovate to broadly-lanceolate, cuneate at the base, more or less undulate along the margin, acute to acuminate at the apex. Inflorescences terminal dense spikes, flowering portion ovoid with bright red bracts. Flowers white, infundibuliform, large, fragrant, bisexual, zygomorphic. Calyx infundibuliform to tubular, white, persistent. Corolla infundibuliform, white. Fertile stamen erect, the filaments flattened, the basal staminodes two, linear-oblongoid, yellow, the labellum very large, suborbicular, white, undulate. Ovary oblongoid, trilocular with two ovules in each locule on the axile placentae, the style filiform, the stigma shallowly cupular. Seeds ovoid.

Part used – Rhizome, stem and leaves
Properties – It has acrid taste.
Folk uses – The juice of rhizome is applied to relief headache. The powder of rhizome is used for rheumatism, anti-inflammatory and diabetes. The decoction of stem is used in fever and dysentery. The decoction of leaves is used as a treatment for mental disorders.

4. Scientific name – ***Curcuma aromatica*** **Salisb. (Figure 3.D)**

Myanmar name – Malar-phyu; Taw-sa-nwin
English name – Wild turmeric; Preety Ginger
Family – Zingiberaceae
Flowering period – June to September

Outstanding features

Rhizomatous herbs, with tuber bearing roots, prostrate, aromatic, yellow within. Leaf basal, tufts, 5-7 leaves, simple, exstipulate, petiolate; blades broadly lanceolate, entire along the margin, pubescent on both surfaces. Inflorescences terminal, dense cylindric spike, with enlarged coloured bracts. Flowers pinkish white, bisexual, zygomorphic, trimerous, epigynous; bracts adnate to each other forming a pouch; coma bracts pink, bracteolate, pubescent. Calyx 3-lobed, short cylindrical; lobes dorsally split. Corolla 3-lobed, funnel-shaped, pinkish-white. Fertile stamens 1, inserted; filaments filiform; anthers oblong, dithecous, basifixed, dehiscing by longitudinal slit; upper one staminode, broadly ovate and concave; labellum orbicular, deeply yellow, lateral staminodes oblong. Ovary inferior, oblongoid, trilocular, many ovules in each locule on the axile placentae, villous. Fruits capsular, ellipsoid, many-seeded. Seeds endospermic.

Part used – Rhizome and leaves
Properties – It has pungent and bitter.
Folk uses – The powder of rhizome is used for carminative and skin ailment. The decoction of rhizomes and leaves are used for the treatment of indigestion, rheumatism, wound healing, and dysentery.

5. Scientific name – ***Croton persimilis* Mull. Arg. (Figure 3.E)**

Myanmar name – Thetyin-gyi
English name – Unknown
Family – Euphorbiaceae
Flowering and – January to March

Outstanding features

Perennial tree. Leaves simple, alternate, stipulate, petiolate; blade elliptic oblong, serrate along the margin, glabrous on both surfaces. Inflorescences axillary or terminal paniculate cymes. Flowers small, bracteates, ebracteolate, pedicellate, unisexual, actinomorphic, pentamerous, hypogynous. Staminate flowers at the upper portion, the pistillates at the lower portion. Staminate flowers: calyx 5-partite, lepidote, persistent; corolla 5-lobed, ovate, villous within, glabrous outside, pale yellowish green. Stamens 12, inserted on a villous receptacle; filaments exerted; anthers dithecous, basifixed, longitudinal dehiscence. Pistillate flowers: calyx 5-partite, basally connate, deltoid, valvate; corolla absent; stamens absent. Ovary ovoid, tricarpellary, syncarpous, trilocular, one ovule in each locule, axile placentation; style 3; stigma bifid. Fruits globose, 3-lobed, depressed with persistent calyx. Seeds oblongoid, pale green.

Part used – Roots, root bark, and leaves
Properties – It has hot and bitter taste.
Folk uses – The roots are soaked in water and the liquid is drunk for colic, dyspepsia, liver disease and high blood pressure. The bark of the root is used in best antidote for snake. The leaves are crushed and used them as body pain, and poultice for abscess.

6. Scientific name – ***Chromolaena odorata* (L.) R.M.King&H.Rob. (Figure 3.F)**

Myanmar name – Bi-zat; Jamani
English name – Siam Weed; Devil Weed
Family – Asteraceae
Flowering period – November to February

Outstanding features

Perennial erect shrubs. Leaves simple, opposite and decussate, exstipulate, petiolate; blades ovate or triangular oblong, dentate along the margin, acuminate at the apex, pubescent on both surfaces, glandular beneath. Inflorescences terminal, paniculate capitulum in corymbs. Flowers pale purple, unisexual or bisexual, zygomorphic, pentamerous, epigynous; bracteate, ebracteolate. Pappus unequal, filifrom spinulose. Corolla 5-lobed, tubular, pale purple; tube about 0.5 cm long; lobes deltoid acute recurved. Stamens 5, epipetalous, inserted; filaments free, filifrom; anthers syngenesious, dithecous, basifixed, extrorse, apiculate, obustely base, dehiscing by longitudinal slits. Ovary inferior, oblong, 5-angled, unilocular, solitary ovule in the locule, basal placentation; style filiform; stigmas 2, linear filiform, far exserted. Fruits achene, oblongoid, brown. Seeds black, obovoid or oblongoid.

Part used – Leaves
Properties – It is hot, and bitter taste.
Folk uses – Decoction of the dried leaves is used for cough, fever and diuretic. The juice from crushed leaves is applied as skin diseases, inflammation, poultice on wounds.

7. Scientific name – ***Plumbago zeylanica* L. (Figure 3.G)**

Myanmar name – Kan-gyoke-phyu
English name – white leadwort
Family – Plumbaginaceae
Flowering and – November to January

Outstanding features

Perennial straggling herbs; stems and branches cylindrical, striated, glabrous. Leaves simple, alternate, exstipulate, petiolate; blades ovate, entire and undulate along the margin, glabrous above, scales beneath. Inflorescence terminal racemes, many-flowered, glandular hairs. Flowers white, bisexual, actinomorphic, pentamerous, hypogynous, bracteates, shortly pedicellate. Calyx 5 lobed, tubular, covered with stalked, globose crimson-tipped green glands, persistent. Corolla 5-lobed, tubular; lobes obovate. Stamens 5, free; anther dithecous, basifixed, dehiscing by longitudinally. Ovary oblong, superior, unilocular, one ovule in the locule, pendulous placentation; style 5, connate, terminally 5-branched; stigma simple. Fruit capsule, oblong, included in the calyx. Seeds solitary.

Part used – Roots, Leaves and Milky sap
Properties – It has sweet taste.
Folk uses – The roots is used to cure dysentery, lung diseases. The leaves are used for dissolving phlegm. The milky sap is applied the treatment of skin diseases such as eczema, scabies, and ringworm.

8. Scientific name – ***Persicaria chinensis* (L.) H. Gross (Figure 3.H)**
Myanmar name – Maha-gar-kyan-sit; Boktaung-wetkyein
English name – Chinese smartweed; Chinese knotweed
Family – Polygonaceae
Flowering period – September to January

Outstanding features

Perennial, woody erect herbs. Leaves simple, alternate, stipulate; blades ovate to ovate-oblong, entire to crenate-denticulate along the margin. Inflorescence terminal and axillary, pedunculate capitulum, combined into corymbose panicle. Flowers white to occasionally pinkish-white, bisexual, actinomorphic, pentamerous, hypogynous, slightly fragrant; bracts lanceolate, glabrous; sessile; ebracteolate. Perianth segments 5, connate up to the middle or below the middle, subequal, elliptic-oblong, prominently nerved, eglandular, accrescent. Stamens 8, free, epipetalous, inserted. Disk-lobes less prominent. Ovary superior, trigonous-ovoid, unilocular, one ovule in the locule, basal placentation; styles 3, connate at the base; stigma capitate. Nutlets trigonous-ovoid, grayish-black, not shining, with short beak, enclosed by fleshy perianth at maturity.

Part used – Stems and leaves
Properties – It has sour taste.
Folk uses – The crushed stem is used in the treatment of rheumatism. The decoction of leaves is used in remedy for dyspepsia, dysentery, diarrhea, and hepatitis. The juice of the leaves is applied in toothache, earache and wound healing.

9. Scientific name – ***Ocimum americanum* L. (Figure 3.I)**
Myanmar name – Pin-sein-yaing; pin-sein-hmway
English name – Limehairy; Hoary basil
Family – Lamiaceae
Flowering period – Throughout the year

Outstanding features

Annual, much-branched, aromatic herbs; stems and branches pubescent, subquadrangular. Leaves simple, opposite and decussate, exstipulate, petiolate; blades elliptic lanceolate, finely crenulate along the margin, aromatic. Inflorescences terminal, verticillaster cymes. Flowers white or pale purple, bisexual, zygomorphic, pentamerous, hypogynous bracteates, ebracteolate. Calyx 5-lobed, bilabiate, purplish green, pubescent. Corolla 5-lobed,

bilabiate, white or pale purple, pubescent without, glabrous within, villous without. Stamens 4, free, didynamous, epipetalous, exserted; filament filiform; anthers dithecous, dorsifixed, introrse, dehiscing by longitudinal slits. Disc surrounding the ovary. Ovary superior, 4-partite, ovoid, tetralocular, one ovule in each locule, axile placentation, glabrous; style gynobasic, filiform, glabrous; stigma bifid, white. Nutlets 4, subtrigonous, smooth, dark brown.

Part used – Leaves and seed

Properties – It has astrindent taste.

Folk uses – The leaf juice obtained from crushing is applied for coughs, asthma, skin disease, stomach pain due to gastritis, and poultice. Crushed seeds are used in antidote.

10. Scientific Name – ***Solanum erianthum* D.Don. (Figure 3.J)**

Myanmar Name – Daung-satpya
English Name – Potato tree; tobacco tree; Turkey berry
Family – Solanaceae
Flowering Peroid – September to February

Outstanding features

Perennial unarmed, shrubs to small trees; stems and branches densely stellate-tomentose. Leaves simple, alternate, exstipulate, petiolate; blades broadly elliptic, entire along the margin, stellately tomentose on both surfaces. Inflorescences axillary or terminal, compound corymbose cymes with many-flowered. Flowers white or pale purple, bisexual, actinomorphic, pentamerous, hypogynous, ebracteate, pedicellate, ebracteolate. Calyx campanulate, about half way divided, persistent, calyx enlarging in fruiting stage, densely stellate tomentose without. Corolla rotate, tubular. Stamens 5, free, included, adnate to the throat of the corolla tubes; filaments short; anther dithecous, introrse, basifixed, dehiscing by apical pore. Ovary ellipsoid or ovoid, bilocular, many ovules in each locule, axile placentation; style filiform; stigma subcapitate. Fruits berry, globose, stellate tomentose while young, yellow when ripe, many-seeded. Seeds small, white, reticulate.

Part used – Roots, Root bark and Leaves

Properties – It has bitter and sour taste.

Folk uses – The juice of leaves is applied in the treatment of hemorrhoids. The decoction of leaves is remedy for vertigo. The decoction of root is used for dysentery, fever, diarrhea. Decoction of root bark is remedy for anti-inflammatory and arthritis.

Table.1 List of the useful part of medicinal plants in study area.

No.	Scientific Name	Part used						
		Leaves	Root bark	Seed	Rhizome or Root	Stem	Milky sap	Whole plant
1	*Aeginetia indica* L.							√
2	*Andrographis paniculata* (Burm.f) Wall.ex Nees.							√
3	*Hellenia speciosa* (J.Koenig) S.R.Dutta	√			√	√		
4	*Curcuma aromatic* Salisb.	√			√			
5	*Croton persimilis* Mull.Arg	√	√		√			
6	*Chromolaena odorata* (L.) R.M.King&H.Rob.	√						
7	*Plumbago zeylanica* L.	√			√		√	
8	*Persicaria chinensis* (L.) H. Gross	√				√		
9	*Ocimum americanum* L.	√		√				
10	*Solanum erianthum* D.Don.	√	√		√			

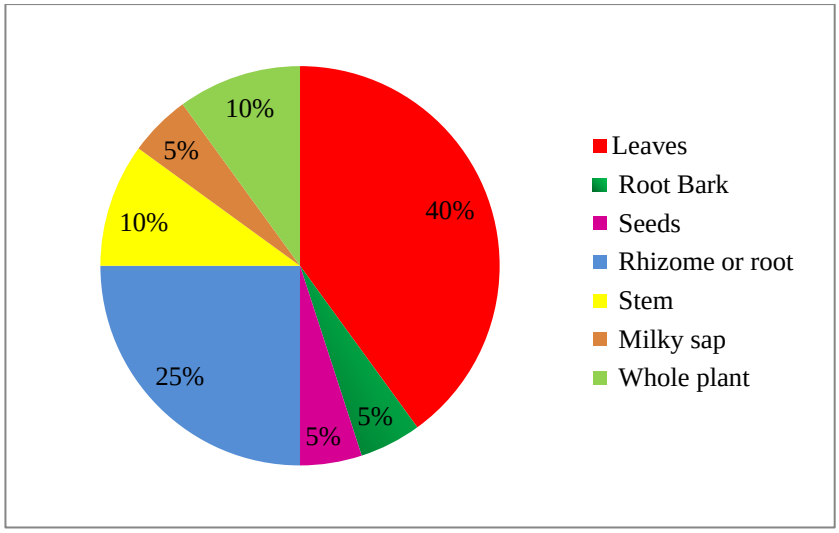


Figure. 2 The most useful part of medicinal plants in study area.

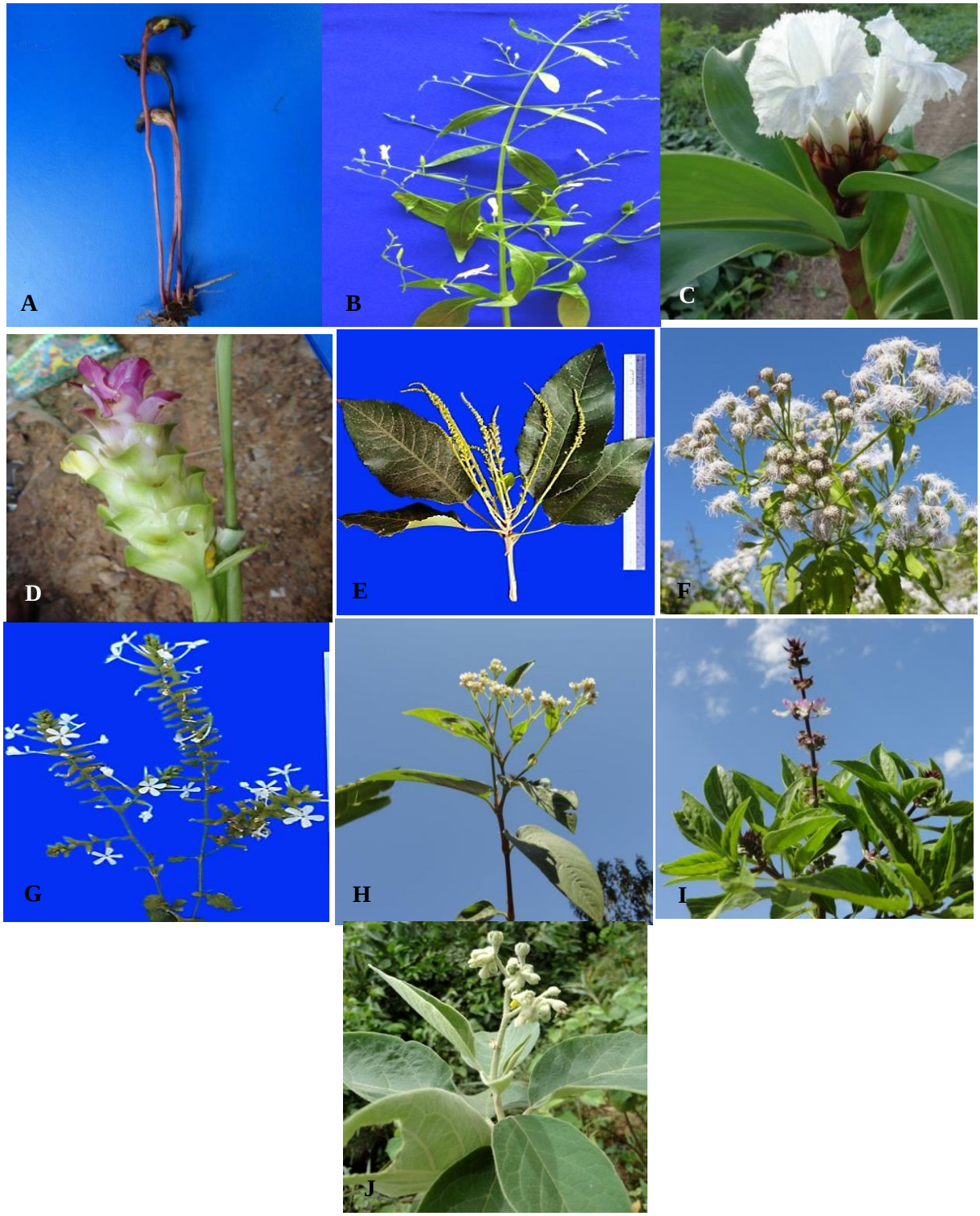


Figure 3. Habit of the studies species

A. ***Aeginetia indica*** **L.**
B. ***Andrographis paniculata*** **(Burm.f) Wall.ex Nees.**
C. ***Hellenia speciosa*** **(J.Koenig) S.R.Dutta**
D. ***Curcuma aromatica*** **Salisb.**
E. ***Croton persimilis*** **Mull. Arg**
F. ***Chromolaena odorata*** **(L.) R.M.King&H.Rob.**
G. ***Plumbago zeylanica*** **L.**
H. ***Persicaria chinensis*** **(L.) H. Gross**
I. ***Ocimum americanum*** **L.**
J. ***Solanum erianthum*** **D.Don.**

Discussion and Conclusion

The present research deals with the study on some medicinal plants found in Kyat-sa-kan village, Thazi Township. In this research, 10 species belonging to 10 genera of 10 families were recorded and their scientific name, families, Myanmar name, parts used and folk uses were also presented. In this result, a comparison has been made between the 10 species studied on their folk uses and literature.

The present study *Aeginetia indica* is perennial herb from the Orobanchaceae family, generally grows as a root parasite. According to Reza *et al*. (2020) revealed that the uses of *A. indica is* for tonic and anti-inflammatory medicinal herb and also used to treat chronic liver diseases, cough, arthritis, and diabetes in Taiwan and other countries. In the study area, *A. indica* is used the treatment for diabetes, liver diseases and arthritis.

Andographis paniculata is one of well-known plant in study area. The decoction of the whole plant of *A. paniculata* is used to cure malaria, diabetes, fever, and dysentery by oral administration which are in agreement those described by (Chevallier, 1996) and (Kirtikar 1975). But the uses of this plant for headache and colic are not available in literatures.

In the study area, the useful parts of *Hellenia speciosa* are treatment for headache, rheumatism, anti-inflammatory, diabetic, fever and dysentery and mental disorders. Pharm *et al.* (1999), Kapoor (2001), and V. A. Pawar et.al (2012) reported that the uses of this plant for rheumatism, dropsy, urinary diseases, jaundice found in literature and are not usable in study area. The uses of *Curcuma aromatica* plant is reported for gastrointestinal ailments, arthritic pain, inflammatory, wounds, skin infections, and insect bites (Umar, 2020). However, this plant in study área is used for carminative, skin ailment, indigestion, rheumatism, wound healing, and dysentery. These are unagreeded with the literatures.

In this studied, the species of *Croton persimilis* is a well-known medicinal plant. Bark, root, and seeds are used for purgative and high blood pressure. Root barks are used in external applications for sprains, useful in liver diseases. The bark of the root is used in best antidote for snake. The leaves are put under the bed linen before sleeping to cure the body-pain and poultice for abscess. According to Pharm *et al.* (1999) and Kapoor (2001), Bark, Seed, and Root: Used as a purgative, for liver disease, and high blood pressure. Moreover, the root bark is a remedy for chronic enlargement of liver, and to treat snakebites. Popular uses of this leaves include treatment of external wounds, and body pain especially applied to relieve inflammation; crushed and applied as a poultice; also used for scabies and which agrees with this study.

Chromolaena odorata in study area is being used traditionally as medicinal properties, especially for external uses as in wound skin, skin infections, inflammation, and the therapeutic agent for a variety of diseases, such as wound healing, anti-inflammatory, analgesic, fever, and diuretic. *E. odorata* is a weed that is used for the treatment of various ailments such as inflammation, skin infection and variety of diseases like diarrhea, diuretic activity and wound healing in the literature of Patel Jitendra *et. al* (2011).

Plumbago zeylanica is used for various diseases, as anti-inflammatory, anti-malarial, anti-microbial, blood coagulation, wound healing, and anti-cancer according to the literature (Paras Jain, 2014). The roots of *P. zeylanica* are used to produce a medicine having digestive properties. The uses of *P. zeylanica* in study area for dissolving phlegm, dysentery, leucoderma, lung diseases, and skin diseases are not agreed with literatures.

According to A.R. Srividya *et.al* (2012) reported that *Persicaria chinensis* is used in many diseases such as skin diseases, indigestion, and hepatitis, inflammatory wounds. In the study area its uses for dyspepsia, dysentery, diarrhea, hepatitis, rheumatism, toothache, earache and wound healing. Therefore, the literatures are not available for toothache, earache and wound healing.

The leaves of *Ocimum americanum* is used for treatment of coughing, asthma, skin disease, stomach pain due to gastritis, antidote and poultice in study area. Although, Pharm *et al.* (1999), also recorded that this leaves to get remedies from several ailments such as coughs, bronchial catarrh, ulcers, haemorrhoids, tuberculosis, stomach pains, ear and eye ailments.

In study area, the uses of *Solanum erianthum* are applied in the treatment of poultice, hemorrhoids vertigo. dysentery, fever, diarrhea, anti-inflammatory and arthritis. According to Ajasa A.M.O., 2004, this plant uses showed that the leaves are used for the treatment of cancer and malaria in Nigeria. In Taiwan, the leaves are used as maternal tonic and to treat lumbar neuralgia.

In the present study, the plants are solely used in traditional medicine were selected and described. Different parts of these plants such as the whole plant, rhizomes, root barks, seeds, leaves, and milky sap are useful as traditional medicine. The leaves are mostly used as traditional medicine and followed by rhizome, stem, whole plant and seed, root bark and milky sap respectively.

. In conclusion, the knowledge of medicinal plants in some regions are often lost in modern civilization, due to modern medicine is now available. However, some local people in study area rely on medicinal plants for their primary health care because low cost and easily available around environment. Therefore, these plants are necessary to analyze further for obtaining valuable medicines and this research might be highly beneficial for drug discovery and development in the area of traditional medicine.

Acknowledgement

Firstly, we would like to express my gratitude to Dr Ba Han, Rector, Meiktila University, for his permission to carry out this research work. We would like to our deepest gratitude to Dr Nay Aung and Dr Khin Hnin Ei, Pro-rectors, Meiktila University, for their kind permission to do the research work. Our special thanks are due to Dr Thida Myint, Professor and Head, Department of Botany, Meiktila University, for providing necessary helpful in this research. Finally, we are also grateful to Dr San San Oo, Professor, Department of Botany, Meiktila University, for her valuable advice and suggestion.

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