

# Taxonomic Characterization On Some Species Of Thaingen Village In Tiddim Township

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## Abstract

The selected area of the taxonomic study is Thaingen village which is located in Tiddim Township, Chin State of Myanmar. This area is situated at 23 ° 12' N Latitude and 93 ° 48' E Longitude. The samples of Eudicots plants from study area were collected, identified and classified during the year 2018. In the study area, totally 15 species belonging to 15 genera of 13 families were presented. The resulting species were systematically arranged according to the APG IV system (2016). The morphological characters of all the collected species were described with colour photographs. Moreover, an artificial key to the studied species are also described.

**Keywords:** identified and classified, morphological character

## Introduction

The study area of Thaingen village is located in Tiddim Township, Chin State of Myanmar. This area were mountainous and it is situated on altitude 2000 m above sea level. In the past, difficult transport made people go across the mountain and spur ranges. The natural vegetation of the area were very beautiful Tuangzalat or tree rhododendron plants and many kinds of orchids were abundantly found. The woody plants in this village were covered by the aerial portion of plants, such as trees, small trees and shrubs. The people in the surrounding villages of the study area are cultivating many crops and vegetables alternately throughout the year for their survival of life. Thus, the Thaingen village were very interesting area.

The aims of this research area are to identify and classify the flowering plants from the study area, to describe the morphological characters of collected species and to contribute the floristic information of natural vegetation in Thaingen village in Tiddim Township.

## Materials and Methods

The specimens were collected from Thaingen village in Tiddim Township during the year 2018. Then, these collected specimens were kept immediately into the plastic bags in order to identify and classify systematically. The morphological characters of all the collected specimens were made on the natural habit including inflorescences types and flowers colour recorded by digital camera. The collected specimens were recorded and plant location by using the GPS (Global Positioning System).

The taxonomic identification of collected plants were carried out by referring to Hooker (1879), Hutchinson (1959), Backer (1963–1968) and Dassanayake (1980–2001). The

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collected plants were studied and systematically arranged into families, according to the APG IV (Angiosperm Phylogeny Group) system (2016). The genera and species were also arranged in alphabetically. Myanmar names were referred to Hundley and Chit Ko Ko (1987) and Kress *et al.* (2003). Then, the artificial key to the studied species were also constructed.

## Results

### Artificial Key to the Species

1. Plants woody----- 2
1. Plants herbaceous or shrubby or twining or lianas----- 4
  2. Ovaries inferior; leaves compound; fruits drupaceous-----  
----- 15. *Sambucus javanica*
  2. Ovaries superior; leaves simple; fruits capsular----- 3
3. Flowers white; stamens adnate to the base of petals; stigma 5 fid-----  
----- 4. *Schima wallichii*
3. Flowers red; stamens free; stigma capitate----- 5. *Rhododendron arboreum*
  4. Placentation pendulous or marginal or parietal ----- 5
  4. Placentation axile ----- 8
5. Leaves simple ----- 6
5. Leaves compounds ----- 7
  6. Stamens fistular; leaf blades oblong-ovate; inflorescences dichasial cymes; stems numerous----- 1. *Anemone obtusiloba*
  6. Stamens angular; leaf blades elliptic lanceolate; inflorescences paniculate racemes; stamens 5----- 6. *Swetia nervosa*
7. Flowers zygomorphic, pale purple; ovaries superior; fruits pods -----  
----- 2. *Desmodium oblongum*
7. Flowers actinomorphic, yellow; ovaries inferior; fruits achenes -----  
----- 3. *Potentilla chinensis*
  8. Stamens 5----- 9
  8. Stamens 2 or 4 ----- 12
9. Leaf margin entire; inflorescences racemes----- 10
9. Leaf margin coarsely dentate; inflorescences cymes ----- 11
  10. Flowers blue; calyx campanulate; stigma capitate----7. *Cynoglossum zealanica*
  10. Flowers pink; calyx tubular; stigma bifid ----- 10. *Nicotiana tabacum*
11. Plants twining; leaf base broadly cordate; flowers bright yellow; -----  
----- 8. *Merremia vitifolia*
11. Plants shrubby; leaf base oblique; flowers pale blue -----9. *Nicandra physalodes*
  12. Stems and branches terete; ----- 13
  12. Stems and branches quadrangular;----- 14
13. Leaf blades lanceolate, leaf margin entire; flowers actinomorphic, white -----  
----- 11. *Buddleja asiatica*
13. Leaf blades ovate oblong, leaf margin serrate; flowers zygomorphic, yellow -----

----- 12. *Melasma arvense*  
14. Plants lianas; leaf base cordate; flowers white; stigma bifid, fruits drupe -----

----- 13. *Congea tomentosa*  
14. Plants shrubby; leaf base attenuate; flowers pale purple; stigma simple; fruits capsule ----- 14. *Eranthemum pulchellum*

**1. *Anemone obtusiloba*** D. Don, Prod. 194. 1825. (Figure 1. A)

Myanmar name : Tha yae pan

Family name : Ranunculaceae

Flowering period : March to June

Perennial erect herbs, stems fistular, tomentose. Leaves simple, alternate, with dissected, three-partite, exstipulate, petiolate; blades oblong-ovate, green, slightly velutinous above, sparsely sericeous beneath, cuneate at the base, serrate along the margin, acute at the apex. Inflorescences dichasial cymes. Flowers bisexual, actinomorphic, hypogynous, polymeric, white. Sepals 4-to 10, free, petaloid, broadly lanceolate or oblong, white, glabrous. Petals absent. Stamens numerous, free, exserted; filaments slender; anther dithecous. Ovary superior, pendulous placentae; style short; stigma simple. Fruits aggregate.

**2. *Desmodium oblongum*** Wall. ex Benth., Pl. Jungh. 224. 1852. (Figure 1. B)

Myanmar name : Kyu

Family name : Fabaceae

Flowering period : October to December

Annual, erect herbs to shrubs; stems and branches cylindrical, woody. Leaves unifoliolate compound, alternate; stipulate; petiolate; blades oblong, green, glabrous above, white pubescent beneath, obtuse or rounded at the base, entire and ciliate along the margin, acuminate at the apex, subcoriaceous. Inflorescences paniculate racemes. Flowers bisexual, zygomorphic, hypogynous, pentamerous, purplish. Calyx 5-lobed; tubes campanulate, pale green, glabrous; lobes deltoid, pale green, glabrous. Corolla papilionaceous; standard obovate, purplish, glabrous; wings oblong, pale purple, glabrous; keels oblong, pale purple, glabrous. Stamens 10, diadelphous; filaments filiform; anthers uniform dithecous. Ovary superior, marginal placentae; style filiform; stigma capitate. Pods compressed, 6- or 7-jointed, indehiscent.

**3. *Potentilla chinensis*** Ser., Prodr. (DC.) 2: 581. 1825. (Figure 1. C)

Myanmar name : Taung strawberry

Family name : Rosaceae

Flowering period : September to December

Perennial erect herbs; stems and branches solid, terete densely pubescent. Leaves imparipinnately compound, alternate; stipulate, petiolate; leaflets irregularly arranged; sessile, oblong, green above and white beneath, pubescent on both surfaces, truncate or rounded at the base, serrate along the margin, obtuse at the apex. Inflorescences corymbose cymes. Flowers bisexual, actinomorphic, epigynous, pentamerous, yellow,

showy. Calyx 5, free, oblong-lanceolate, green, pubescent. Petals 5, free oblong, yellow, rounded at the apex, glabrous. Stamens numerous, free inserted; filaments filiform, yellow, glabrous; anthers ditheous. Ovary inferior, pendulous placentae; style terminal; stigma simple. Fruits of several achenes.

**4 *Schima wallichii* (DC.) Choisy in Zoll., Syst. Verz 2.Ind. Archip.144. 1854. (Figure 1.D)**

Myanmar name : Thitya byu

Family name : Theaceae

Flowering period : May to June

Perennial trees; stems and branches terete; bark irregularly cracked, dark reddish brown, glabrous. Leaves simple, alternate, exstipulate; petiolate; blades oblong to oblong lanceolate; dark green above, pale green beneath, glabrous on both surfaces, rounded at the base, wavy entire along the margin, acute at the apex. Inflorescences cymose. Flowers bisexual, actinomorphic, hypogynous, pentamerous, white. Calyx 5-lobed, campanulate, pale green, puberulous, hairy at the mouth. Petals 5, oval oblong, white, glabrous, outer one concave. Stamens numerous, adnate to the base of petals; filaments filiform; anthers ditheous. Ovary superior, axile placentae; styles terminal; stigma 5 fid. Fruits simple, capsular, woody, globose.

**5. *Rhododendron arboreum* Sm., Exot. Bot. 1: 9. 1805. (Figure 1. E)**

Myanmar name : Taung zalat ni

Family name : Ericaceae

Flowering period : January to April

Perennial small trees; stems and branches, solid, woody thickening at the base; bark dark brown, rustly tomentose. Leaves simple, whorl, spirally arranged, cluster at the end of branches, leathery, exstipulate; petiolate; blades oblong, green above, whitish green beneath, rugose above and silvery with rustly tomentose beneath, cuneate at the base, entire along the margin, acuminate at the apex. Inflorescences heads. Flowers bisexual, actinomorphic, hypogynous, pentamerous, red. Calyx 5-lobed; lobes ovate, green, tomentose. Corolla campanulate, 5-lobed; lobes ovate; tubes tubular, red, crimson. Stamens 10, free; filaments filiform; anthers ditheous. Ovary superior, axile placentae; style terminal; stigma capitate. Fruits carpsular, cylindrical, wooly, curved.

**6. *Swertia nervosa* Wall. ex G. Don. Gen. Hist. 4. 177. 1837. (Figure 1.F)**

Myanmar name : Say kha lay

Family name : Gentianaceae

Flowering period : October to January

Annual erect herbs; stems angular, greenish purple, glabrous. Leaves simple, opposite, exstipulate, sessile; blades elliptic lanceolate, greenish, glabrous on both surfaces, cuneate at the base, entire along the margin, acuminate at the apex. Inflorescences paniculate racemes. Flowers bisexual, actinomorphic, hypogynous, pentamerous, white. Sepals 5, free, linear-lanceolate, green, glabrous. Corolla 5-lobed, deeply divided, yellowish green with one orbicular gland near the base of each; lobes

obovate, white, glabrous. Stamens 5, free, inserted; filaments linear; anthers ditheous. Ovary superior, parietal placentae; style very short; stigma globose. Fruits capsular, many seeded, two valved ovate- oblong.

7. *Cynoglossum zealanica*, (Vahl) Thunb. ex Lehm., Neue. Schriften Natur f. Ges. Halle 3(2); 20. 1817. (Figure 1. G)

Myanmar name : Unknown

Family name : Boraginaceae

Flowering period : July to October

Perennial erect herbs; stems and branches terete, suffrutescent. Leaves simple, alternate, exstipulate, sessile; blade oblong- lanceolate, green and scabrous above, pale green and strigose beneath, slightly rounded at the base, entire along the margin, acute at the apex. Inflorescences racemes, one sided scorpioid. Flowers bisexual, actinomorphic, hypogynous, pentamerous, blue. Calyx campanulate, deeply 5- lobed; lobes obovate, imbricate; tube short. Corolla campanulate, 5- lobed; lobes ovate, blue, glabrous; tubes tubular, glabrous. Stamens 5, free, inserted; filaments short; anthers ditheous. Ovary superior, axile placentae; style gynobasic; stigma capitate. Fruits simple, 4 nutlets, ovoid.

8. *Merremia vitifolia* (Burm.f.) Hall. f., Bot. Johrb. Syst. 16: 552. 1893. (Figure 1. H)

Myanmar name : Sa pyit nwe

Family name : Convolvulaceae

Flowering period : January to April

Annual twining herbs; stems terete, densely hirsute, white trichomes. Leaves simple, alternate, exstipulate; petiolates; blades orbicular, palmately 5-lobed, membranous, green, densely pubescent on both surfaces, the lobes broad triangular, broadly cordate at the base, coarsely dentate along the margins, acuminate at the apex. Inflorescences cymes. Flowers bisexual, actinomorphic, hypogynous, pentamerous, bright yellow. Sepals 5, free, subequal, ovate-oblong, reddish green, glabrous within, patently hirsute without. Corolla campanulate, shallowly 5-lobed; tubes narrow to widened above, yellow, glabrous; lobes rounded, bright yellow, glabrous. Stamens 5, free, inserted; filaments filiform; anthers ditheous. Ovary superior, axile placentae; style filiform; stigma 2, globose. Fruits loculicidal capsules, subglobose, pale brown, glabrous.

9. *Nicandra physalodes* (L.) Scop., Introd. 182. 1777. (Figure 1.I)

Myanmar name : Bauk thi pin

Family name : Solanaceae

Flowering period : June to November

Annual erect shrubs; stems and branches angular, longitudinal furrowed, fistular, green, glabrous. Leaves simple, alternate, exstipulate; petiolate; blades ovate-oval oblong, membranous, green, glabrous on both surfaces, oblique at the base, coarsely- dentate along the margin, acuminate at the apex. Inflorescences solitary cymes. Flowers bisexual, actinomorphic, hypogynous, pentamerous, pale blue, showy. Calyx campanulate, deeply 5-lobed green, tomentose, persistent; tubes very short, green, tomentose; lobes broadly ovate-

cordate, recurved. Corolla campanulate, shortly 5-lobed; tubes cylindric, pale blue, glabrous; lobes orbicular, blue with creamy centre, glabrous. Stamens 5, equal, epipetalous, inserted; filament filiform, adnate to the base of corolla tube; anthers ditheous. Ovary superior, axile placentae; style slender; stigma capitate. Fruits simple, baccate, many - seeded, globoid, yellow when ripe, glabrous, enveloped by persistent calyx.

**10. *Nicotiana tabacum* L., Sp. Pl. 180. 1758. (Figure 1.J)**

Myanmar name : Say ywet gyi

Family name : Solanaceae

Flowering period : October to December

Annual erect herb; stems and branches terete, green sparsely strigose. Leaves simple, alternate, sessile, exstipulate; petiolate; leaf-blades oblong-lanceolate, viscidly hairy on both surfaces, attenuate at the base, entire along the margin, acuminate at the apex. Inflorescences paniculate racemes. Flowers bisexual, actinomorphic, hypogynous, pentamerous, pink. Calyx tubular with 5-lobes glandular hairy; tubes tubular; lobes triangular. Corolla cylindrical-campanulate, 5-lobed; tubes tubular, widen above; lobes broadly ovate, glabrous. Stamens 5, inserted to the base of corolla tube; filaments filiform; anthers ditheous, dorsifixed, dehiscent by longitudinal slit. Carpels 3; ovary superior, axile placentae; style 3, basally connate; stigma bifid. Fruits loculicidal capsules, obovoid, 3-lobed, sparsely strigose.

**11. *Buddleja asiatica* Lour., Fl. Cochinch. 72.1790. (Figure 1.K)**

Myanmar name : Unknown

Family name : Scrophulariaceae

Flowering period : December to March

Perennial erect shrubs; stems and branches terete, pale green, white tomentose. Leaves simple, opposite and decussate, exstipulate; petiolates; blades lanceolate, membranous, green and glabrous above, pale green and white tomentose beneath, attenuate at the base, entire along the margin, acuminate at the apex. Inflorescences paniculate spikes. Flowers bisexual, actinomorphic, hypogynous, tetramerous, white. Calyx campanulate, 4-lobed, pale green, glabrous within, densely pubescent without, persistent; tubes tubular; lobes triangular oblong. Corolla tubular, 4-lobed, white, glabrous within, pubescent without; tubes cylindric, slightly curved; lobes equal, broadly ovate. Stamens 4, equal, epipetalous, alternate with corolla lobes; filaments filiform; anthers ditheous. Ovary superior, axile placentae; style slender, very short; stigma club-shaped. Fruits capsular, ellipsoid, greenish brown, glabrous.

**12. *Melasma arvense* (Benth.) Hand., Mazz. Symb. Sin Pl. 7. 843. 1936. (Figure 1.L)**

Myanmar name : Unknown

Family name : Scrophulariaceae

Flowering period : January to March

Annual erect herbs; stems and branches terete, green, hispid. Leaves simple, opposite and decussate, exstipulate; petiolates; blades ovate oblong, green, pubescent on

both surfaces, attenuate at the base, serrate along the margin, acute at the apex. Inflorescences spikes. Flowers bisexual, zygomorphic, hypogynous, pentamerous, yellow, sessile. Calyx campanulate, 5-lobed; tubes tubular, glandular hairy; lobes triangular, glandular hairy. Corolla bilabiate, 5-lobed; tubes cylindrical, glabrous. Stamens 4, didynamous, epipetalous; filament filiform; anthers ditheous. Ovary superior, axiles placentae; style terminal; stigma capitate. Fruits simple, capsular, ovoid, pubescent.

**13. *Congea tomentosa*** Roxb., Cor. Pl. 3:90. 293. 1820. (Figure 1.M)

Myanmar name : Hmwe zok

Family name : Lamiaceae

Flowering period : January to April

Perennial large lianas; stems and branches quadrangular, brownish green, densely brown tomentose. Leaves simple, opposite and decussate, exstipulate; petiolates; blades ovate, brownish green above and pale beneath, minutely strigose above and villous beneath, coriaceous, slightly cordate at the base, entire along the margin, acute at the apex. Inflorescences panicle. Flowers bisexual, zygomorphic, hypogynous, pentamerous, white, sessile; involucral bracts 3 per head, elliptic-oblong, pale violet above, greenish beneath, tomentose on both surfaces, obtuse at the base, entire along the margin, rounded at the apex, middle ones bifid. Calyx funnelform, 5-toothed, pale green, pubescent within, long soft hairy without; tubes tubular, teeth triangular. Corolla bilabiate, 2-lipped; tubes slender, white; throat widened. Stamens 4, didynamous, epipetalous; filaments filiform, adnate to the corolla throat; anthers ditheous. Ovary superior, axile placentae; style filiform; stigma bifid. Fruits simple, drupeaceous, obovoid, glabrous.

**14. *Eranthemum pulchellum*** Andrews, Bot. Repos 2: t. 88. 1800. (Figure 1. N)

Myanmar name : Unknown

Family name : Acanthaceae

Flowering period : December to May

Perennial erect shrubs; stems and branches quadrangular, solid, deeply furrowed, green, pubescent. Leaves simple, opposite and decussate, exstipulate; petiolates; blades ovate-lanceolate, membranous, dark green above and pale green beneath, scarious on both surfaces, attenuate at the base, entire along the margin, acuminate at the apex. Inflorescences dichotomous spike. Flowers bisexual, zygomorphic, hypogynous, pentamerous, pale purple; sessile. Calyx campanulate, 5-toothed, white, glabrous, persistent; tubes cylindrical; teeth triangular, acuminate at the apex. Corolla tubular, 5-lobed; tubes slender, narrow to widen above, purplish white. Stamens 2, epipetalous; filaments filiform, adnate at the mouth of corolla tube; anthers ditheous. Ovary superior, axile placentae; style filiform; stigma simple. Fruits loculicidal capsules, club-shaped, greenish brown, glabrous.

**15. *Sambucus javanica*** Reinew ex Blume, Bijd. 657. 1825. (Figure 1.O)

Myanmar name : Pale ban

Family name : Caprifoliaceae

Flowering period : May to August

Perennial small trees; stems terete. Leaves imparipinnate compound, opposite, exstipulate; petiolates; leaflets oblong lanceolate, 7 to 9, green, glabrous on both surfaces, obtuse to cuneate at the base, serrate along the margin, acuminate at the apex. Inflorescences corymbose cymes. Flowers bisexual, actinomorphic, epigynous, pentamerous, yellow. Calyx adnate to the ovary, 5-lobed, imbricate, often enlarged in fruits. Corolla broadly campanulate, 5 lobed; lobes shortly; lobes triangular, equal. Stamens 5, epipetalous, slightly exerted; filament filiform; anthers ditheous. Ovary inferior, axile placentae; style short; stigma trilobed. Fruits drupaceous, ellipsoid, indehiscent, black when ripe.

### Discussion

The present research with the some taxonomic members of the flowering plants growing in Thaingen village in Tiddim Township. Altogether 15 species belong to 15 genera of 13 families were collected. All of them are under Eudicots have been presented. In the present work, the species *Desmodium oblongum* were rarely occurred in studied area. This species have papilionaceous corolla, diadelphous stamens and marginal placentation. *Anenone obtusiloba* were widely distributed throughout the studied area. These species consist of dissected leaves, dichasial cymes and stamens numerous. *Potentilla chinensis* were observed in this area. These species composed of imparipinnately compound, yellow flowers and convex receptacles. The species *Schima wallichii* have large flower, solitary, bibracteolate, stamens bundles, axile placentation and indehiscent fruit. The species *Rhododendron arboreum* were very dominant and abundantly found in everywhere. The inflorescences of this plant are characteristically terminal condensed umbelliform raceme and each pedicle with two bracteoles at the base.

The species *Cynglossum zealanica* were rarely occurred in studied area. The inflorescences of this plants are characteristically lax and one sided scorpioid, gynobasic style and stigma capitate.

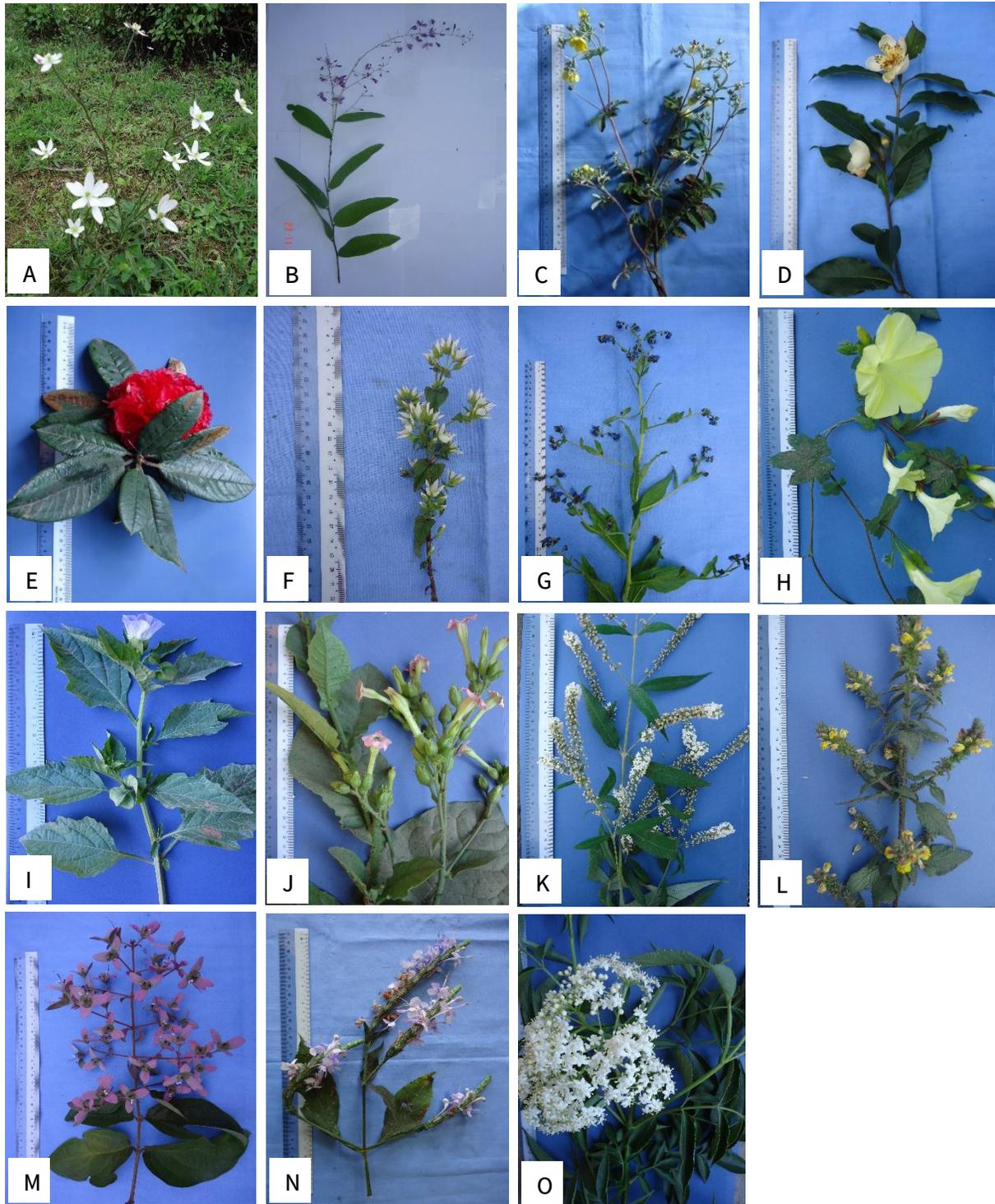


Figure 1. A. *Anemone obtusiloba* D. Don

C. *Potentilla chinensis* Ser.

E. *Rhododendron arboreum* Sm.

G. *Cynoglossum zealanica*, (Vahl)

Thunb. ex Lehm.

I. *Nicandra physalodes* (L.) Scop.

K. *Buddleja asiatica* Lour.

B. *Desmodium oblongum* Wall. ex Benth.

D. *Schima wallichii* (DC.) Choisy in Zoll.

F. *Swertia nervosa* Wall. ex G. Don.

H. *Merremia vitifolia* (Burm.f.) Hall.

J. *Nicotiana tabacum* L.

L. *Melasma arvense* (Benth.) Hand.

The species *Merremia vitifolia* were found throughout the studied area. The species were conspicuous mid petaline bands with corolla, bilobed stigma, milky latex present and exerted stamens. The species of *Nicandra physalobes* and *Nicotiana tabacum* were rarely occurred in studied area. This species have flowers actinomorphic, sepals enlarge around the fruit, petals contorted and numerous seeds. The species *Buddleja asiatica* and *Melasma arvense* were commonly distributed everywhere. These species consist of stamens 4, ovary superior and axile placentation.

The species *Swetia narvosa* were rarely occurred in the study area. This species composed of plants angular flowers actinomorphic, ovary superior and stigma globose. The species *Congea tomentosa* were abundantly found in the studied area. This species has opposite and decussate leaves, deeply 4-lobed ovary and gynobasic style. The species *Eranthemum pulchellum* were commonly occurred in studied area. This species have development of floral bracts and bracteoles, usually bilabiate corolla associated with the bilocular ovary and dehiscent capsules.

In conclusion, 15 species belonging to 13 families were presented and all are wild plants. It is hoped that the present research studied is part of the information of Thaingen village in Tiddim Township and that can be used for advanced studies.

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#### References

- Backer, C.A. & R.C. B. V. D. Brink. 1963–1968. *Flora of Java*. Vol. 1–3 Rijksherbarium, Leyden. N.V.P. Noordhoff.
- Byng J.W., M.W. Chase, M.J.M. Christenhusz, & M.F. Fay. 2016. **An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV**. *Botanical Journal of the Linnean Society* 181: 1–20.
- Dassanayake, MD. 1980–2001. **A Revised Handbook to the flora of Ceylon**. Vol. 1 to 14, University of Peradeniya, Department of Agriculture, Peradeniya, Sri Lanka.
- Hooker, J.D. 1879. *The Flora of British India*, Vol. 1–7, L. Reeve & Co, 5. Henrietta Street, Convent Garden, London.
- Hundley, H.G. & Chit Ko Ko. 1987. *List of trees, shrubs, herbs and principle climbers; etc*. Fourth Revised Edition Shwe Daw Oo Press, Mayangon, Yangon, Myanmar.
- Kress, W. J., R. A. Defilipps, E. Farr & Yin Yin Kyi. 2003. **A checklist of the trees, shrubs, herbs, and climbers of Myanmar**. Department of Systematic Biology–Botany. National. Museum of Natural History Washington DC. USA.
- Lawrence, G.H.M. 1951. *Taxonomy of vascular plants*. The Macmillan Company. New York.