

Study on Myanmar amazing terrestrial Wild Orchids in Taunggyi district of Southern Shan State

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Abstract

This paper is concerned with the wild orchids of natural habitats in Aung Ban and Heho area, Yee-Aye reserved forest in Kalaw Township, Hopone area and Se-Si Township of Taunggyi District in Southern Shan State. There are various types of forests in Southern Shan State. Yee-Aye reserved forest is hill evergreen forest type. Various kinds of wild orchids have been found in this study area. This paper has recorded some terrestrial wild orchids from study area. They are terrestrial and sometime epiphyte orchids. Photographs have been taken to record habitats of orchids in nature. All the specimens were taken photographs and pressed herbarium in Department of Botany in Yangon University. This paper belongs to (6) genera and (11) species and one variety were collected, classified, identified and described with photograph of their natural habitats and inflorescences.

Key word -Taunggyi, Kalaw, Hopone, Se-Si in Southern Shan State, wild orchids, terrestrial lithophyte

Introduction

Taunggyi district located in Southern Shan State of Myanmar. Various types of forest occur in this area. They are Hill evergreen forest, Moist Upper Mixed Deciduous forest, Indine forest, Tropical rain forest and Alpine forest. Wild orchids stretched out all over the areas of Myanmar, especially tropical temperate zone. The selected area was situated in that type of zone flourished with various types of flora. The recent research has chosen Aung Ban, Se-Si, Heho area and southern part of the Yee-Aye reserved forest, rode side on Hopone during raining season. Some terrestrial orchids bloom in this season and have been collected for identification. Selected places are around Tha-yet-Pu and Boad-Daw-Si-Naw monastery between Aung Ban and Heho roadside on the lime stone hill. It lies between North latitude 20° 40' 36° and east longitude 96° 43' 43° in Kalaw Township. Most terrestrial orchids were gathered in this area. Some terrestrial orchids collected from southern part of Yee-Aye reserved forest. The Yee-Aye reserved is hill evergreen forest, situated in Southern West part between Kalal and Thazi Township about 5.5 miles far from Kalaw City and has been established since 1912. The area of this forest is about 1952 acres and altitude of 929 meters and lies between North Latitude 20° 36' and East longitude 96° 31' and average temperature is 27°C during summer. Some terrestrial orchids were also collected from Se-Si and Heho Township. *Genus Paphiopedilum, Brachycorythis, Habenia, Thunia, Calanthe* and *Cymbidium* have been found in this study Area. In this recent study (3) sub-family, (3) tribe, (4) sub tribe, (6) genera and (11) species were compiled from this study area. The classification and taxonomic description of collected specimens are provided with coloured photographic and artificial keys of Tribe, Sub tribe, Genera and Species are also constructed.

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Methodology

The specimens were collected from Se-Si Township, Taunggyi and Hopone area of Taunggyi District. All these specimens were colourful photographed to record their actual habitat and the nature of inflorescence. The collected specimens were classified according to Dresseler's classification (R.L.Dresseler's1927) and identified by Seidenfaden (1992) Grant: B(1966): Nantiya Vaddhanaputi (2006) Hooker, J.D.(1954). Seidenfaden and Smitch (1965) and Dassanayake, M.D. (1980), Flora of Thailand, (2014) and Flora of China Vol. 25, (2015), method. Herbarium specimen well prepared and submitted to Botany Department Yangon University.

Results

In this resent study Subfamily Cypridoideae includes only one genus *Paphiopedilum*. Three species of genus *Paphiopedilum* was collected in this study area.

I. Sub-family Cypridoideae

Subfamily	Tribe	Subtribe	Genus	Species	Myanmar Name
Cypridoideae	–	–	<i>Paphiopedilum</i>	<i>bellatum</i> Rchb.f. <i>spicerianum</i> (Rchb.f.) Stein <i>parashii</i> Rchb (Rolfe) Pfitz <i>charlesworthii</i> Rchb f	ခွန်မြစ်စမ်း မြွေမင်းသမီး စော်ဂျီမှတ်ဆိပ် မြွေမင်းသား

1.*Paphiopedilum*

Key to the species of Genus *Paphiopedilum*

1. Flower white subcampunulate, odd sepal large, very concave staminode rounded, white with purple sport.....1.1 *P.bellatulum*
1. Flower various colour, odd sepal erect and medium size staminode various shape and colour2
 2. Flower greenish yellow with brown stripe, odd sepal erect with excurved margin and white, lateral sepals expended with wavy margin, staminode convex with two purple patches.....
 - 1.2. *P.spicerianum*
 2. Flower various colour, odd sepal apex acute, lateral petals not wavy, staminode not convex.....3
 3. Inflorescence 6-8 flower. Flower yellowish green. Odd sepal erect ovate acute. Lateral petals long narrow and trust.....1.3 *P.parashii*
 3. Inflorescence single, flower greenish brown. Odd sepal large and expended. Lateral petals patent. Linear oblong 1.4 *P.chlesworthi*

1.1 *Paphiopedulum bellatulum* Rchb.f
Myanmar name: Khun-Mya-San (ခွန်မြဝမ်း)



Flowering time - March -July
 Collected Area -Around Tha Yet Pumonestry, Kalaw ,N20°30'-E 96°16'
 Distribution -Myanmar, Thailand(**Flora of China**)

1.1 *Paphiopedulum bellatulum* Rchb.f
Myanmar name: Khun-Mya-San (ခွန်မြဝမ်း)



Flowering time - March -July
 Collected Area - Ho Pone, Township, N20°15'-E 97°16'
 Distribution-Myanmar, Thailand (**Flora of China, Vol. 25, 2015**)

1.2 *Paphiopedulum spicerianum* Rchb.f
Myanmar name: Mgwe-Min-Thamee (မြွေမင်းသမီး)



Flowering time - April

Collected Area - Yee-Aye-Quen quarter Taunggyi N20°18'-E 96°36'

Occurrence - Taunggyi district (Pinlong) Township

Distribution - Myanmar, Thailand, (**Flora of Thailand,2014**)

1.3 *Paphiopedilum parishii* (Rchb.f) Stien.

Myanmar name: Zaw Gyi Moke Sate (ဇော်ဂျီမုတ်ဆိတ်)



Flowering time- June -July

Collected Area- Naung-Pa-Yin protected public forest (Kaung Hto village)
N20°18'-E 96°36'

Distribution-Myanmar, Thailand, Laos (**Flora of China, Vol. 25,2015**)

1.4 *Paphiopedilum charlesworthii* (Rolfe) Pfitz.

Myanmar name: Mwe-Min-Tha (မြွေမင်းသာ)



Flowering time - September-October

Collected Area - Kaung-Hto village, Ho- pone ,N20°10'-E 97°25'

Distribution- Myanmar (native) ,Thailand (**Flora of Chinna,2014**)

II.SubfamilyOrchidoideae

	Tribe	Subtribe	Genus	Species	Myanmar Name
Orchidoideae	Orchideae	Orchidinae	<i>Brachycorythis</i>	<i>Helpferi</i> (Rchb.f) summerh <i>helpferi alba</i> (Rchb.f) summerh	None
		Habenariinae	<i>Habenaria</i>	<i>Dentate</i> (SW) Schltr <i>lucida</i> (Wall ex Lindl) <i>sumatrana</i> (L.) R.Brown	ကတောင်စွပ် None None

2. *Brachycorythis*

Only one species *Brachycorythis helpferi* (Rchb.f.) summer was collected in this study area. This genus closely related to *Habenaria*. This species have floral bracts very similar to the normal leaves.

2.1 *Brachycorythis helpferi* (Rchb. f.) Summer

Myanmar name: None



Flowering time - June-July

Collected Area - Blue Mountain Hopone, Taunggyi, Hopone Township,
N20° 15' -E 96° 30'

Distribution - Assam, Myanmar and Thailand (**Orchids of Indochina,1992**)

2.1. *Brachycorythis helferi alba* (Rchb.f.) Summer

Myanmar name: None

**Flowering time-** June-July

Collected Area - Blue Mountain Hopone, N 20°15'-E 96°30'

Occurrence - Kalaw, Taunggyi, Hopone Township.

Distribution - Myanmar

3. *Habenaria*

Terrestrial herb, the root with tuber and leaves spiral basal, clustered. Inflorescence terminal lip with basal spur. Anther erect, Pollinia 2-4 caudical attached to the basal visidia. The stigma convex

Key to the species of Genus *Habenaria*

1. Leaves lanceolate. Flower many medium size. Side lobes of lip fan-shaped without fringed. Spur short about 2.0 cm**3.1 *H. dentata***
1. Leaves ovate acute. Flower small. Side lobe of lip not fan-shaped.....2
 2. Flower green well spaced on the peduncle, rounded. Lateral sepals reflexed spreading. Sepals and petals forming a hood. Spur longer than the ovary attached to the ovary.....**3.2 *H. lucida***
 2. Flower white, dense on the peduncle, bell-shaped. Lip equally three pointed lobe at edge curved downward, spur short.....**3.3 *H. sumatrana***

3.1 *Habenaria dentata* (SW.) Schltr

Myanmar name: Katawsuik (ကတော့်စွပ်)



- Flowering time - June-July
 Collected Area - Northern part of Aung ban.N20°16'-E 96°31'
 Occurrence - Kalaw, Ho-pone Township
 Distribution - Himalaya to Myanmar, Thailand, China, Japan, Philippines, Malaya (**Orchids of Indochina,1992**)

3.2 *Habenaria lucida* Wall. ex Lindl. Myanmar name: None

- Flowering time - June-October
 Collected Area - Naung-Pa-Yin protected public forest, Hopone Township
 -.N20°18'-E 96°363'
 Distribution - East India, Myanmar, Yunan (**Orchids of Indochina, 1992**)

3.3 *Habenaria sumatrana* (L.) R. Brown

Myanmar name: None



Flowering time - June-July

Collected Area - Northern part of Aungban, Kalaw, Taunggyi, Ho-pone Township.
- N20°18'-E 96°39'

Distribution - India, China, throughout Malaysia R.E. Holttum, (1964)

III. Subfamily Epidendoideae

Subfamily	Tribe	Subtribe	Genus	Species	Myanmar Name
	Arethuseae	Thuniinae	<i>Thunia</i>	<i>alba</i>	(ကျောက်သစ်ခွ)
		Bletiinae	<i>Calanthe</i>	<i>triplicata</i>	သင်္ဃန်းကြီးအဖြူ

4. *Thunia*

Only one genus *Thunia* under subtribe Thunninae of Tribe Arethusae was collected in Hopone area.

Only species *Thunia alba* was collected in study area. *Thunia alba* (lindl.) Rchb.f. This species can be separated by its whitish lip with five yellow keels in the centre and brownish yellow stripe.

4. *Thunia alba* (lindl.) Rchb.f.

Myanmar name: Kyaut-thit-kwa(ကျောက်သစ်ခွ)



Flowering time - March-April

Collected Area - Pin-ngo village (Hopone) N20°25'-E 97°30'-Kalaw, Taunggyi, China
Hopone Township.

Distribution - NE India, Nepal, Bhutan, Myanmar, , Vietnam, Malaysia. (Flora of Thailand, 2015)

5. *Calanthe*

Calanthe triplicate (Willem.) Ames has lip trilobe, deeply cleft of midlobe with spurred, the spur often long and slender, calli at the base. The column short Pollinia 8, in two group.

5. *Calanthe triplicata* (Willem.) Ames

Myanmar name: Thazin-kyi-aphyu (သဇင်ကြီးအဖြူ)



Flowering time - June -July

Collected Area - Around Yee Aye lake Yee-Aye reserved forest N20°25'-E 97°13'

Distribution - India to Japan, South to Australia, Pacific Island (**Orchids of Indochina, 1992**)

IV. Subfamily Vandoidea

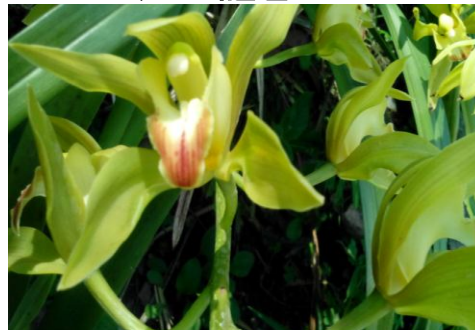
Subfamily	Tribe	Subtribe	Genus	Species	Myanmar Name
	Cymbidieae	Cytopodiinae	<i>Cymbidium</i>	<i>lowianum</i>	(ပန်းသက်ရှည်ကြား)

1. *Cymbidium* SW.

Cymbidium lowianum Rchb.f has long inflorescence with many flowers, raceme, lateral. Sepals and petals yellowish green with pale vein. Lip trilobed, oblong acute, column long, concave. Anther 2 celled. Pollinia 2 with caudicle.

1. *Cymbidium lowianum* Rchb.f

Myanmar name: Pan-thet-shay-kyar (ပန်းသက်ရှည်ကြား)



Flowering time - November-March

Collected Area - Naung Pa Yin protected public forest (Kaung-Hto village)

N20°30'-E 97°13'

Distribution -NE and East Myanmar, Sand W Yunnan (**Flora of Thailand, 2014**)

This species is very distinct and large orchids. This species *C. lawnian* Lindl can be Distinguished by its long inflorescence with many distinct flowers and lip with large velvet maroon patch on the upper surface of the epichile.

Discussion and Conclusion

The Orchidaceae is the largest family of the flowering plants Kingdom, comprising a large number of species. Some author, suggest 12000 to 15000 species and others as many as 35000 species (**Dressler, 1927**). Some orchidologist estimate as high as 30000 species (**Cronquist, 1981**), 35000 species (**Margaret Hodgson, 1958**) 72 genera and 554 species (**Grant, 1995**). Hudeley and Chit koko, reported that 113 genera and 850 species in 1961 and 128 genera 739 species in 1986 as Myanmar native orchids. In this study all of the collected specimens of wild orchids are classified according to the Dressler's classification system. This paper includes (3) subfamilies such as Cyripedioideae, Epidendroideae and Vandoideae. There are (3) Tribe, (5) Subtribe and (6) genera and (11) species.

The Subfamily Cyripedioideae include only one genus *Papiopedilum*. The number of three species under genus *Papiopedilum* was collected in this study area namely *P.bellatulum* Rchb.f., *P.charlesworthii* (Rolfe) Pfitfand, *P.parashii*.(Rchb.f.) Stein. This Subfamily Cyripedioideae differs from other Subfamilies by possession of deeply saccate lip.

The Subfamily Orchidoideae includes only one Tribe Orchideae which belongs to Subtribe Orchideae and Habenariinae. The genus *Brachycorythis* are under Subtribe Orchideae and the Subtribe Habenariinae comprises only one genus *Habenaria*. In this paper the genus *Habenaria* includes (3) species. According to the Dressler's classification system, the Subfamily Orchidoideae occurs only one Tribe Orchideae which belongs to Subtribe Orchidinae and Habenariinae. The Tribe Orchideae is characterized by terrestrial with tuberoid root system and erect anther. The Genus of *Brachycorythis* under Subtribe Orchidinae was collected one species *B.helferi* (Rchb.f) summerh. The genus *Habenaria* under Subtribe Habenariinae was also found (3) species in the recent study. *H.dentata* (SW.) Schltr, *H.lucida* Wall. ex Lindl. and *H. sumatrana* (L.) R.Brown.

In Subfamily Epidandoideae, Two genera of Subtribe Thuniinae and Subtribe Bletiinae under Tribe Arethuseae was collected in the study area. Only one species of genus *Thunia* and a species of genus *Calanthe* was collected in the recent study. That is *Thunia alba* (Lindl.) Rchb. fand *Calanthe triplia* (Willem.) Ames. Subfamily Vandoideae is related with Subfamily Epidendroideae and Orchidoideae (Dressler 1927) Under Tribe Cymbidieae only one Subtribe Cyrtopodiinae, which belongs to genus *Cymbidium* and only one terrestrial species namely *Cymbidium lowianum* Rchb.f has been collected in this recent study.

Conclusion

In this recent study some genus *Papiopedilum*, *Papiopedilum charlesworthii* (Rolfe) Pfitf, *P.bellatum*, *P.parashii*, has been regarded as Myanmar native. (**Holtum, 1964**), (Margaret Hodgson 1986). Myanmar wild orchids are very famous among the neighboring countries. Especially China is very interesting Myanmar wild orchids for production of medicines. So Myanmar living jewels are gradually disappeared by human activities and timber production. Therefore all

nationality must be find out and maintain the living jewels for natural resource of Myanmar.

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Study Area of Taunggyi District

