

THE PRELIMINARY STUDY ON SOME NATIVE ORCHIDS IN EAST BAGO AREA

Moe Sandar Shein¹, Khin Swe Swe Htun², Moe Moe Shwe³, Thanda Soe⁴

Abstract

The present study deals with the native orchids of Bago urban area and some reserved forest in Bago Township. Especially study sites are Bago urban area, Hpa Yar Kalay, Hpa Yar Gyi village, around Baw Net Gyi, Moe Youn Gyi Ramsar site Wingabaw elephant camp and Myout Zarmani Wildlife Sanctuary of Bago Township. Bago area is hot weather and high receives of rainfall so a lot of epiphyte (fern and Orchids) they have grown well on the old big trunk. Most of the collected orchids are epiphyte, terrestrial and hydrophytes. In this recent study (7) genera and (13) species were collected in every season from study area. Collected genera namely *Acampe*, *Aerides*, *Dendrobium*, *Eulophia*, *Habenaria*, *Liparis* and *Rhynchostylis* were recorded with photograph have taken habitat of orchids in nature. Collected species were classified, identified and described with colour photograph of nature habitats and inflorescences. The morphological characters have been emphasized and artificial keys to the species have been constructed. GPS location system was used and also introduced conservation method for students extra curriculum.

Keyword: Bago Township, native orchids, epiphyte, terrestrial, hydrophyte, artificial key, extra-curriculum

Introduction

The family Orchidaceae are largest family of among Angiospermae, Monocotyledonae. Some botanist estimated about 35,000 species among flowering plants. They can grow well in Temperate, Subtropical and tropical region but exception of ice capped and deserts. (Dassanayake, 1981)

The study areas are Bago Urban area, Hpa Yar Kalay, Hpa Yar Gyi village, Wingabaw elephant camp, Road side of cross road to Highway near Wingabaw village, around the Moe-Youne-Gyi Ramsar site and surrounding village of Bago Township. Some of the specimens were collected from Sa-lu reserved forest and Myauk Zarmini wildlife sanctuary. Bago Township is located on the east by Daik-U and Waw Township, on the north by Kawa Township, on the west by Hlegu Township and on the south by Kyaut-ta-ga Township and it lies between N 17° 20' 12' and E 96° 28' 47". Sa-lu reserved forest is lower tropical forest, Myauk Zarmini wildlife Sanctuary is mixed upper mix deciduous forest. It lies between N 18° 10' 828" and E 96° 15' 0.81". Genus *Habenaria*, *Dendrobium*, *Eulophia*, *Cymbidium*, *Acampe*, *Rhynchostylis* and *Aerides* have been collected in the study area in recent work.

In this recent study, (3) subfamily belong to (5) Tribes (4) Subtribe (8) genera and (14) species have been recorded from the study area including epiphyte, terrestrial and only one aquatic Orchids. The classification and taxonomic description of collected specimens are provided with coloured photographic and keys of genera and species are also constructed and GIS recorded.

¹ Dr, Associate Professor, Bago University

² Dr, Lecturer, Bago University

³ Dr, Professor and Head, Bago University

⁴ Dr, Assistant Lecturer, Bago University

Methodology

The specimens were collected from Eastern part of Bago District. All these specimens were colourful photographed to record their actual habitat and the nature of inflorescence. The collected specimens were classified according to Dressler's classification (R.L. Dressler's (1927) and identified by Seidenfaden (1992) Grant: B (1966): Nantiya Vaddhanaputi (2006) Hooker, J.D. (1954). Seidenfaden and Smith (1965), Dassanayake, M.D. (1981), Flora of China Vol. 25, (2013) and Flora of Thailand Vol. XI & XII. Part I&II (2014) methods. Herbarium specimen well prepared and submitted to Botany Department Yangon University.

Arrangement of the Subfamily, Tribe, Subtribe and Genera in the Present Study

Class : Liliopsida (Monocotyledoneae)

Subclass : Orchidales

Family : **Orchidaceae**

Subfamily : (I) Orchidoideae
(II) Epidendroideae
(III) Vandoideae

I Subfamily : Orchidoideae

Tribe : Orchideae

Subtribe : Orchidinae

Genera : (1) ***Habenaria***

II. Subfamily : Epidendroideae

Tribe : Malaxideae

Genera : (2) ***Liparis***

Tribe : Epidendreae

Subtribe : Dendrobiinae

Genera : (3) ***Dendrobium***

II. Subfamily : Vandoideae

Tribe : Cymbideae

Subtribe : Cryptopodiinae

Genera : (4) ***Eulophia***

Tribe : Vandaeae

Subtribe : Sarcanthinae

Genera : (5) ***Acampe***

(6) ***Aerides***

(7) ***Rhynchostylis***

The classification of Subfamilies in the study is in accordance with **Dressler (1927)** and the key below is cited from **Seidenfaden and Wood, (1992)** described in “The Orchids of Indochina”.

Results

In this paper(3) subfamily,(5) tribes, (4) subtribes and (7) genera and (13) species have been collected from study area.

(I) Subfamily- Orchidoideae

In this recent study only one genus *Habenaria* of subfamily Orchidoideae was collected from study area.

Subfamily	Tribe	Subtribe	Genus	Species	Myanmar Name
Orchidoideae	Orchideae	Orchidinae	<i>Habenaria</i>	<i>trichosantha</i>	မြနင်းဖြူ မြေပေါက်သစ်ခွ

1. *Habenaria* Willd.

Terrestrial, deciduous, tuberous herbs. Foliage leaves one to several, basal lanceolate, elliptic, ovate, with one to several sterile bracts upper the foliage leaves, hairy. Inflorescence terminal, racemose few to many, small to medium sized resupinate, various coloured, sepals concave, erect always forming hood with petals , lateral sepals spreading or reflexed. Petals entire, labellum trilobed, rarely entire, clawed, spur long or short clavate, sauate, rarely absent. Colum short, anther erect or reflexed adjacent and separate rarely. Pollinia 2, rostellum trilobed. Ovary glabrous or papillose. Fruit capsule, dehiscing by longitudinal slit.

Note: In this recent study only one genus *Habenaria* in study area.

1.1 *Habenaria trichosantha* Lindl.



Habit



Inflorescenc



Flower



Flower parts

Terrestrial, stem short with scattered 3-4 leaves on flowering shoot. Foliage leaves elliptic ovate, acute, mucronate. Sterile bracts suberect, lanceolate acute 4-6 cm long and 2.4 cm side.

Inflorescence terminal, 5-10 cm long with 8-10 flowers, semi-dense with lanceolate floral bracts. Flower 2.2 cm across, white. Dorsal sepal erect, ovate oblong with shortly pubescent, lateral sepals reflexed, oblong ovate acute. Petals linear-furcate, acuminate, margin entire. Labellum pure white trilobed, midlobe linear - lanceolate, subacute 1.2 cm long and 1.00 cm wide, side lobes spreading with deeply cleft, filiform, laciniae, spur cylindric, green-column short.

Myanmar name - Ma-hinn-Phyu- Maypauk-Thitkhwa (မြနှင်းဖြူ မြေပေါက်သစ်ခွ)

Occurrence - Myauk Zamini Wildlife Sanctuary, (N 18°05' 82" E 96° 13' 08")

Distribution - NE India, Bhutan, Myanmar, N Thailand (www.plantillustration.org.)

Ecology - Terrestrial. Alt 1412 m. Flowering period -August-September.

II. Subfamily Epidendroideae

In this recent study only one genus *Dendrobium* of subfamily Epidendroideae was collected from study area.

Subfamily	Tribe	Subtribe	Genus	Species	Myanmar Name
Epidendroideae	Malaxideae		<i>Liparis</i>	<i>Liparis sp</i>	None
	Epidendrae	Dendrobiinae	<i>Dendrobium</i>	<i>aggregatum</i>	ရတနာရေခက်
				<i>crepidatum</i>	ဂနိုင်းနဘေးပေါက်
				<i>aphyllum</i>	လက်တံရှည်
				<i>parcum</i>	ကျိုးခြေ
				<i>pulchellum</i>	ဆင်မမျက်ကွင်း
				<i>moschatum</i>	ဝါဆိုပန်း

2.1. Liparis.

Herbs, terrestrial, lithophytic or rhizomatous and leaves reduce to scales. Stem pseudobulb, sometimes with many nodes, fleshy stem when young covered by sterile bract. Leaves 1- several linear to ovate or elliptic, plicate or not, thinly textured, two leathery, basal or cauline or arising from the apex or sub terminal nodes of pseudobulb. Inflorescence erect, racemose, lexy or densely many flowers. Floral bract persistent. Flowers small to medium size, usually resupinate. Sepal spreading dorsal sepal free, lateral sepals free or sometimes fused. Petals free, often reflexed, linear nod like sepals. Lip often reflexed, ovate, oblong, entire or lobed, usually with a basal callus, without spurs. Column incurved, long with wing at apex or base. Pollinia 4 in pairs, waxy, bilaterally flattened, restellum thinly texture. Capsule subglobose.

2.1. Liparis sp.



Habit



Inflorescence



Flower

Herbs, terrestrial. Stem cylindric, 2-8 cm long 1.2 cm in wide, fleshy with 2-3 node enclosed by sheaths. Leaves 3-6, petiole sheath like, 15-20 cm long, plicate, blade ovate to elliptic, 2-3 cm wide, membranous, margin entire, apex subacuminate. Inflorescence terminal with 8-10 flowers, floral bracts deltoid. Flowers greenish yellow with green pedicel. Dorsal sepal linea or broadly linea, 0.2 cm long and 0.1 cm wide, margin revolute, apex obtuse, lateral sepal narrowly ovate oblong slightly oblique. Petals reflexed, parallel with lip, filiform, greenish yellow with reddish brown in margin. Lip oblong ovate, base narrowed and with 2 suboblong calli, apex truncate and emerginate. Column stout, distinctly with narrow wing. Capsule obovate.

Myanmar name - None

Occurrence -Moe-Youne- Gyi Ramsar Site, Bago township, (N 18 °55'- E 96° 25')

Distribution - Myanmar

Ecology - Terrestrial, wetland, grow in the water. Alt 8 m. Flowering period -June-October.

(3) *Dendrobium*

This genus have more or less elongated cylindrical leafy pseudobulbs at stems, the leaves being generally bifarious, alternate and flat , they differ as in habit, so in size. The flowers are lateral and either solitary, in fascicles or in raceme. The sepals and petals all the segment of the flowers except the lip are nearly uniform in shape the general difference being that of the outer segment or sepal , two lateral sepals are larger than the other and adhere commonly to the side of the column, or usually prolonged into a blunt spur. The lip is always sessile. Pollinia 4 in pairs side by side, quite free, anther 2-celled.

Key to the species of Genus *Dendrobium*

- 1. Stem long----- 2
- 1. Stem short ----- 3
 - 2. Stem slender. Inflorescence with 2-3flowers. ----- 4
 - 2. Stem stout. Inflorescence with many flowers. ----- 5
- 3. Stem tuff, ridges. Inflorescence with many flowers. Flower golden yellow. Lip orbicular, yellow patch on the mesochile.----- 1. ***Dendrobium aggregatum***
- 3. Stem stout with white velum, smooth. Inflorescence with 2-3 flowers. Flower white. Lip cordiform with yellow in the basal half, white edges with pink in front. -----
-----2. ***Dendrobium crepidatum***
 - 4. Stem long and straight. Flower pale purple, about 3.5 cm across lip spatulate, pale yellow with purple vein at the base.3. ***Dendrobium aphyllum***
 - 4. Stem branched. Flower greenish yellow, about 0.5 cm across. Lip longer than the sepal. Lip greenish yellow with small brownish purple dot on hypochile.-----
----- 4. ***Dendrobium parcum***
- 5. Flower creamy white. Lip rounded with two dark blotches on each side of lip.-----
-----5. ***Dendrobium pulchellum***

5. Flower orange yellow. Inflorescence with 4-6 flowers. Lip pouch with incurved edges, with long ciliate vein inside and two maroon blotches or each side at the base.-----

----- **6. *Dendrobium moschatum***

3.1. *Dendrobium aggregatum* Roxb FL iii 477.

Dendrobium lindleyi Steud

D. jenkinsii Wall.



Habit



Inflorescence



Flower parts

Epiphyte dwarf, evergreen species, clustered. Stems fusiform with furrow pseudobulbs about 5-6 cm long and 3.00 cm wide. Leaves solitary, oblong ovate, tip notched. Inflorescence loop drooping lateral raceme. Flowers are deep golden yellow with an orange yellow stain at the hypochile, about 300cm across. Sepal ovate obtuse spreading. Petals much broader ovate, base cuneate. Mantum subglobose. Lip shortly clawed transversely oblong from a short convolute at the base, pubescent, entire ciliolate. Column yellow. Pollen masses 4 in pairs.

Myanmar Name - Yadana Shwe Khat (ရတနာရွှေခက်)

Occurrence - HpaYar Kalay village, (N 18 ° 55'- E 96° 25')

Distribution - Myanmar, Deccar, Sikkim, Bhutan, NE India, Thailand and China (**Seidenfaden 1992**) Arrancan, Martabow, Tenassenim Hook. f. (**Grant. B. 1966**), NW Myanmar, EW in Southern China (**Holttum, 1964**)

Ecology - Epiphyte, well grow on the old trunk of mango tree. Flowering period- February- March

3.2. *Dendrobium crepidatum* Lindl & Paxton

Dendrobium lawanum Lindl.

Dendrobium roseum Dalz Hook.



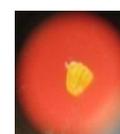
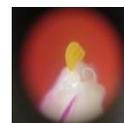
Habit



Inflorescence



Flower parts



Pollinia

Epiphyte. Stem striate, covered with lumen like as white line, pendulous, about 1ft. Leaves oblong acute, glabrous. Raceme short with 2-4 flowers from leafless stems. Flower white expended about 3.4 cm. Sepals oblong, acute, white, tinged with pink. Petals obovate, broader than the sepals, glossy waxy texture, white tipped with purple. Colum curved. Pollinia 4. . Lip rounded cordiform pubescent with yellow in the basal half white edges with pink in front, thick edges at base unite in a transversely ridges on each side

Myanmar name - Ga-Naing-Nabay (ဂနိုင်းနဘေးပေါင်)

Occurrence - Myauk Zamani Wild life Sanctuary, (N 18 ° 4' 83"- E 96° 13' 45")

Distribution - Decon Himalaya, Thailand and China (Seidafrdon, 1992), Laos, Vietnam (<http://www.theplantlist.org>)

Ecology - Epiphyte, well grow in tufts on the trunk of the big tree. Flowering period - March-April

3.3. *Dendrobium aphyllum* (Roxb). Fischer

D. pierardii Roxb.ex Wook.

D. evagrnanum Giageep, Bull.



Habit



Inflorescence



Flower



Pollinia

Epiphyte Evergreen. Stem long and slender, pendulous, about 2-3ft .Leavers lanceolate acuminate, sessile about 6-8cm long and3.0cm wide. Inflorescence 2-3 flowers on each node. Flower marvue. Sepals 3, dorsal oblong lanceolate acute, lateral sepals oblong lanceolate acute, fuse at the base forming mentum. Petals oblong broader than the sepals. Lip spatulate, convolute at the base, slightly undulate margin with pubescent, pale creamy yellow with purple veins in throat. Column short, pollinia masses, 4 in pairs, operculum white.

Myanmar Name - Lat Tan Shay (လက်တံရှည်)

Occurrence - Myout Zarmani Wild life Sanctuary (N 18 ° 51' 95"- E 96° 14' 6")

Distribution - India to China and south to Malaya (**Seidenfaden 1992**) Eastern tropical Himalia and southward to tenasserim (**Grant.B.1966**) widely in Myanmar. India, Malaya, introduced from Myanmar (Holttum, 1964)

Ecology - Epiphyte, well grow on the old trunk, Flowering period- April-May

3.4. *Dendrobium parcum* Rchb.f.

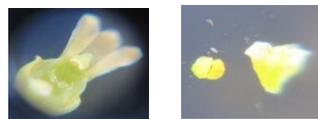
Dendrobium parcoides Guill



Habit



Flower



Pollinia

Epiphyte. Stem branched, wiry, about 20-30 cm long 0.4 cm wide, dark brown. Leaves linear-lanceolate 6-8.00 cm long. Raceme extremely short with 2 flowers. Flower long greenish yellow. Sepal and petals high greenish yellow. Sepal oblong obtuse with three nerved. Petals linear spatulate medium broad, obtuse, much longer than the sepals. Lip much longer than the sepals, broadly orbicular retuse apex, small purple dots on hypochile. Column short with foot. Pollinia 4 in masses.

Myanmar name - Kyeey-Chey (ကျီးချေ)

Occurrence - Myout Zarmani Wild life Sanctuary, (N 18 ° 05' 96"- E 96 ° 13' 86")

Distribution - Myanmar, Thailand (Seidafrdon, 1992)

Ecology - Epiphyte, well grow on tree. Flowering period - February-March

3.5. *Dendrobium pulchellum* Roxb ex. Linl.Gen, and SP, Orchid, 82:FL .ind,486

D. dalhousiearum Wall.



Habit



Inflorescence



Flower

Epiphyte, evergreen species. Stem stout, terete subfusiform about 20 50 cm high, marks red purple line. Leave linear oblong, base cordate, raceme drooping lateral 5-10 flowers. Flower very large rosy-creamy cold, about 6-8 cm long and wide. Sepals oblong acute, petals much broader than the sepal, mentum rounded. Lip shortly clawed orbicular oblong, tip and side densely glandular villous on epichile, two large dark crimson blotches on each side at the base of the lip. Colum short and stout, column and anther dark purple. Pollen masses 4 in pairs.

Myanmar Name - Sin -ma myat -kwin (ဆင်မမြက်ကွင်း)

Occurrence - Hpa Yar Kalay, Hpa Yar Gyi village and Wingabaw elephant camp (N 18 ° 56'- E 96 ° 22')

Distribution - Myanmar, Nepal, NE India, Thailand, China and Malaysia.

(Seidenfaden1992) Native to Assam and Tenasser in Singapore Island, Malaya (Holtum,1964).

Ecology - Epiphyte, well grown on the trunk of Kok ko. Flowering period- May-Jun

3.6. Dendrobium moschatum (Buch. Ham.) Sw.



Habit



Inflorescence



Flower

Epiphyte. Stem brown slender. Leaves linear oblong, reddish green. Raceme 5-6 lax flowers arising on the top of the stem. Flower yellowish orange, large showy, about 7.00 cm long and wide. Sepals ovate-obtuse. Petals broadly rounded, larger than the sepals, glabrous. Edge of lip incurved forming a pouch, yellow with two maroon blotch at epichile and long ciliate veins, outside pubescent on incurved edge. Column long with red spot. Anther 2-celled. 4 pollinia.

Myanmar Name - Wah-so -Pan (ဝါဆိုပန်း)

Occurrence - Hpa Yar Kalay, Hpa Yar Gyi village, Bago urban area. (N 18 ° 56'- E 96 ° 25')

Distribution - Himalaya, Myanmar, Thailand and China (Seidenfaden; 1992). Native in lower Myanmar (Holtum, 1964)

Ecology - Epiphyte, well grown on the old trunk, Flowering Period -May- June

(III) Subfamily Vandoideae

Subfamily	Tribe	Subtribe	Genus	Species	Myanmar Name
Vandoideae	Cymbidieae	Crytopodineae	Eulophia	<i>Andamanensis graminea</i>	ဂမုန်းသဇင် စေတီဂမုန်း
			<i>Cymbidium</i>	<i>aloifolium</i>	သစ်တက်လင်းနေ
	Vandaeae		<i>Acampe</i>	<i>papillosa</i>	မီးမလောင်ပန်း
			<i>Aerides</i>	<i>odorata</i>	စာကလေးပန်း
			<i>Rhyncostylis</i>	<i>retusa</i>	ကြောင်မြီးနံ့သာ

Key to the genera of Tribe Cymbidieae

1. Terrestrial, stem tuber or corm. Inflorescence erect, branched. Flower medium. Column short-----
----- ***Eulophia***
1. Epiphyte or terrestrial, pseudobulb. Inflorescence pendulous. Flower large to medium. Column long with wings----- ***Cymbidium***

Key to the genera of Subtribe Cryptopodineae

1. Inflorescence subumbel, spur short, branching, very short. Flower small and medium size -----
----- ***Acampe***
1. Inflorescence longer than the leaves, unbranching, spur distinct. Flower medium. -----
----- (2)
2. Inflorescence large, not like fox tail, spur forward, not flattened----- ***Aerides***
2. Inflorescence like fox tail, spur backward, laterally compressed----- ***Rhychostylis***

4. *Eulophia* R. Br. ex Lindl.

Like the above mentioned genera in the Cymbidieae tribe. *Eulophia* has two pollinia but they are supplied with both a simple stipes and a viscidium. Nearly all species are terrestrial with tubers or short pseudobulbous stems with more than one leaf and erect lateral inflorescence of usually several flowers. More than 240 species have been described most of them in Africa from Indochina.

Key to the Species of Genus *Eulophia*

1. Leaves ovate. Inflorescence unbranched with lax flowered. Flower greenish yellow. Midlobe of lip large broadly claw with three keels on hypochile. -----
----- **1. *Eulophia andamarensis***
1. Leaves lanceolate. Inflorescence branched with many flowers. Flower yellowish green with dark brown veins. Midlobe of lip forking toward epichile with 3-5 keels on hypochile, densely covered with long fat papillose. ----- **2. *Eulophia graminea***

4.1. *Eulophia andamarensis* Rchb.f.

***Eulophia keithii* Ridl., J. Linn**

***Eulophia poilanei* Gagrep., J. Bul.**



Habit



Inflorescence



Flower

Terrestrial. Leaves lineal-lanceolate during glowering. Stem stout tuberous about 5-8 cm long 4.00-6.00 cm wide. Raceme lax flowered, bract small, about 2.00 ft. flower greenish yellow, 2.5-3.00 cm across. Sepals, petals oblong acute, green with brownish veins, about 1.5 cm long

0.5 cm wide. Lip trilobed, sidelobed of lip small, obtuse, midlobe large broadly claw, orbicular with three keels on hypochile ending on middle of epichile, middle one longest, spur conical, obtuse. Column foot long, operculum small. Pollinia 2 with short stipe.

Myanmar name - Ga-Mone Thazen (ဂမုနဲးထဇင်)

Occurrence - Bago Urban Area and Pha-Yakalay village, (N 17 ° 35' 28"- E 96 ° 36' 40.3")

Distribution - Andamans, Hyamans, Thailand, Malaya and Sumatra (Seidafdon 1992). Tamasserim, Meulnur, Andaman Island. (Grants. 1964)

Ecology - Terrestrial. Flowering period - May-June.

4.2. *Eulophia graminea* Lindl.



Habit



Inflorescence



Flower



Terrestrial stem at the base tuberous with thick roots. Leaves linear-lanceolate. Scape 30-50 cm, raceme, lax-flower. Flower greenish purple. Sepals linear-lanceolate, 3-5 nerved, acuminate, petals oblong acute with 3-nerved. Lip trilobes, shorter than the sepals white with green edges. Side lobes obtuse, greenish yellow with brown stripe, midlobe large broadly elliptic to obovate, margin undulate, three to five keels on hypochile terminating on middle of epichile, produce numerous long tubercles, the medium largest, without papillose. Spur conic, obtuse. Anther 2-celled. Pollinia 2.

Myanmar Name - Say-ti-ga-mone (စေတီဂမုနဲး)

Occurrence - Bago urban area, Salu reserved forest. (N 17 ° 34' 28"- E 96 ° 37' 27.8")

Distribution - Andamans, Myanmar, Thailand, Kalaya and Sumatra (Seidenfaden, 1992). Myanmar, Andaman Island (Grant's; 1966). India to Philippines (Holtum, 1969)

Ecology - Terrestrial, lower tropical rain forest. Flowering Period - March-May

5. *Acampe* Lindl.

Rather large coarse plants with fleshy strap-shaped leaves, bilobulate at apex, the inflorescence shorter or rarely longer than leaves, usually branching with dense, non-resupinate flowers. Flowers fleshy, lip adnate to the short stout, footless column, a short conical sac without backward callus inside, but usually hairy and often with a longitudinal median callus. Pollinarium with a small elliptic viscidium, stipes strap-shaped to clavate, hardly twice as long as diameter of pollinia. There may be 8-9 species in the genus, but half of them are very little known and of uncertain validity. In Indochina 3 species have been recorded. (Seidenfaden 1992)

5.1. *Acampe papillosa* (Limell) Lindl.

Saccolobium papillosum Lindly, Edwards Bot Reg.18 ad-1552-1832.



Habit



Inflorescence



Flowers

Epiphyte, stem short about 7-10 cm with distichous with bilobed ended leaves. Inflorescence subumbellate about 1-3 cm with many short branched, with dense flowers. Flower yellow with reddish brown transverse stripe about 0.6 cm across fragrant. Sepals oblong, Petals oblong smaller than the dorsal sepal. Lip trilobed, divided into hypochile and epichile, pure white with purple sport on hypochile, epichile ovate with straight with hairs. Column stout with horns and subglobose operculum. Pollinia 4, united in pairs, globose, rostellum short.

Myanmar name - Mee- Ma-Laung-Pan (မီးမလောင်ပန်)

Occurrence - Myanmar, Bago Township, Road side of in Winkabaw village (N 17° 34' 208" - E 96° 36' 22.8")

Distribution - Bangladesh, Bhutan, NE India, Laos, Myanmar, Nepal, Thailand, Vietnam (Flora of China Vol. 25) NE Himalaya eastwards to Myanmar and Thailand. (Flora of Thailand)

Ecology - Epiphyte on the trunk of on Rode side. Alt. 11m. Flowering period - November- December.

6. *Aerides*

Stem stout and fairly long with thick and long roots. Leaves flat or terete. Inflorescence simple or branched, suberect or drooping with many flowers, moderately large, usually scented flowers. Sepals and petals similar, spreading, lateral sepals oblique at the base and connate with the prolonged base of the column. Colum short, lip join with the clow of the column, spurred or bagged, trilobed, side lobes small, centre variously shaped. Pollen 2, massed, cleft on long narrow stipe.

6.1. *Aerides falcata* Lour, FL.Coch 525. 1790

Aerides retrofractum Wall. MSS



Habit



Inflorescence



Flower

Epiphyte. Stem about 8-10 high. Leaves a little undulate. Inflorescences pendulus, laxflowered. Flowers white with pale violet tip, about 2.5cm across. Sepals broadly ovate, lateral sepals broadly ovate adnate to the column foot. Petals smaller than the sepals. Lips movable, trilobe, lateral lobe falcate, midlobe obovate convex, ciliated, deep rose in the middle, margin erose, apex emerginate, spur upward. Column short, anther beak at the apex. Pollinia 2, slender, waxy.

Myanmar Name - Sa ka lay pan (ဆာကလေးပန်း)

Occurrence - Bago urban Area, Myauk Kyaung monastery, Bago township (N 17 ° 27'40" - E 96° 46' 78")

Distribution - Himalaya, Nepal, Southern China to Malaya (**Holttum, 1964**) Assam, Myanmar, Thailand, (**Seidenfaden, 1992**), Cambodia, NE India, Laos, Myanmar, Thailand, Vietrum (Flora of China, Vol. 25)

Ecology - Epiphyte, well grow on the old trunk. Alt. 192 m Flowering period- April-May

7. Rhynchosstylis

Epiphyte, stem stout and thick .Leaves long sessile channeled, unequally bilobed. Inflorescence dropping or erect, densely crowded flower with long cylindrical raceme. Petals smaller than the sepals, lateral sepals adnate to the column foot, deeply saccate with backward pointing laterally flatten spur. Rostellum projection and operculum rather long-pointed. Pollinia 2, the stipes of the pollinia long. A genus of 3-4 species, in many characters much similar to *Vanda*, differing e.g. in having light green lines in the leaves.

7.1. Rhynchosstylis retusa (L.) Blume Bijdr, 1825, 286 t, fig. 49-Gagnepain 1934

***R. praemossa* Blume**

***R. guttata* Rchd.**



Habit



Inflorescence



Flower



Epiphyte. Stem stout leafy stem. Leaves curved, channeled unequally truncate bilobed at the ends. Inflorescence axillary raceme, long pendulous, cylindrical. Flower dense white blotched with violet. Sepals ovate, lateral sepals orbicular-ovate, obtuse, petals oblong. Lip usually cuniform, rounded, entire, the lip with a compressed bluntish spur.

Myanmar Name - Kyaung-me-nant-tha (ကျောင်းမြီးနံ့သာ)

Occurrence - Bago urban area, widely distributed in Bago area. (N 17 ° 36' 28.9" - E 96 ° 36' 40.3")

Distribution - Thailand, Malaya, Indochina (**Seiden; 1992**). Ceylon, India, Malaya, Philippine (**Holtum; 1964**)

Ecology - Epiphyte, well grown on the old trunk of Kok ko. Alt. 10 m Flowering Period July to September

Discussion and Conclusion

The orchids family is very large one, it's number occurring in all part of the earth except the driest and coldest, but the great majority are found in the wetter parts of the tropics. In 1914, Schlechter estimate that about 15,000 different kinds of orchids had been described (Holtum, 1964). Some authors suggested 12,000 to 15,000 species and others as many as 35,000 species classified into (6) families namely Apostasioideae, Cyripedioideae, Spiranthoideae, Orchidoideae, Epidendroideae and Vandoideae (**Dressler, 1987**). In this research paper includes three subfamilies such as Orchidoideae, Epidendroideae, Vandoideae. There are (4) Tribes (5) Subtribes, (7) Genera and (13) Species in this recent study.

In the subfamily Orchidoideae, is tribe Orchidieae and subtribe Orchidinae. in recent study only one species of *Habenaria trichosontha* Lindl. was collected of genus *Habenaria*. *H. trichosontha* Lindl possess white flower and mid lobe of lip deeply cleft and spreading. In subfamily Epidendroideae only two genus *Liparis* under tribe Malaxideae and genus *Dendrobium* of subtribe Dendrobinae were recorded in study area. Among six species of genus *Dendrobium*, *D. aggregatum* is dwarf and tuft plants with golden yellow flowers, *D. crepidatum* Lindl. are green pseudobulb and whitish pink flower with rounded labellum and yellow patch at the base; *D. aphyllum* (Roxb) C.E.C Fisher is distinctly spatulate convolute lip with deep purple strip at the base; *D. parcum* Rohb.f. has lip such larger than the sepals, broadly orbicular retuse apex and small brownish purple spot on hypochile; *D. pulchellum* Roxb ex. Fid. consist of creamy white large flower, lip shortly orbicular oblong with maroon blotches on each side. *D. moschatum* (Buch. Hom) SW. has large flowers and pouch labellum with two reddish brown blotches at the base.

In subfamily Vandoideae, genus *Eulophia* and *Cymbidium* of subtribe Cryptopodiinae was collected in recent study. Two species of genus *Eulophia* are *E. andamanensis* Rchb.f is greenish yellow flower and white broadly claw lip with three keels on hypochile and middle one is largest. *E. graminea* Lindl possess broadly low lip with three to five keels on hypochile which keels densely covered with long flat papillose. Three genera such as genus *Acampe*, *Aerides*, *Rhynchostylis* of subtribe Sarcanthinae are recorded in recent study. Only one species of genus *Acampe*, *Acampe papillosa* (Lindl) Lindl. possess subumbellate inflorescence and pure white labellum with purple spots on hypochile. One species of genus *Aerides*, *Aerides facalta* Lindl. consists of purple tips with flowers and distal half purple of midlobe. One species of genus *Rhynchostylis* is *Rhynchostylis retusa* (L.) Blume possess drooping dense flower inflorescence and green spur transversely compressed with rounded tip. In this research paper (10) Epiphyte, (3) Terrestrial and (1) aquatic species have been recorded.

Nowaday most of the people are interested in the wild orchids for their attractive colour and shape of flowers. *Dendrobium aphyllum*, *D aggregatum*, *D moschatum*, *D pulchellum* are widely distributed in Bago Division. *D aggregatum*, *D. aphyllum* and *D. moschatum* are native in Myanmar. (Holtum, 1964). Among them some species of *Eulophia graminea* found in Kachin and Thanintharia (Kress et. al, 2003) but also found in Bago division. *D. crepidatum* and *D. parcum* found in Kachin, Chin, Shan, Mandalay, Saging, Thaninthari but this species collected from Bago Division. *Acame papillosa* recorded in Thaninthari but also collected in Bago Division especially grow well and abundant in Taungoo district and *Rhynchostylis retusa* found abundantly in Bago. Bago area is high rainfall and hot weather so epiphyte, Orchidaceae family is widely distributed in Bago area. Some collected species conserved in Bago University by conservation methods for student extra curriculum. Botany students are very interested in orchids conservation.

References

- Backer, C.A, bakhuizer, R, C., Var Den Bring Jr, (1963) Flora of Java, Vol iii. & V.p Noord Half. Groningen. The Netherlands.
- Chen X., Liu., Z., Zhu GLang K., Ji Z., Luo Y., Jin X., Cribb P J., wood j.j., Gale S.W., Ormerod P., Vermeulen J.J., Wood H.P., Clayton D. and Bell A. Orchidaceae. In Flora of China, Vol-25. Wu, Z.Y. and P.H. Raven (Eds), Science Press Beijing and Missouri Botanical Garden, St. Louis. Pp.1-506.
- Dassanayake, M.D. (1981). A Revised Handbook to the Flora of Ceylon Published by Amerind Publishing Co. Pvt. Ltd., New Delhi.
- Dressler, R.L. (1927) The Orchids: Natural History and Classification
- Dr. Yoshikata Tanaka, Nyan Htun, Tin Tin Yee (ann) 2003) Wild Orchids of Myanmar Vol 1, 2, Printed in Thailand.
- Grand, B. (1966), The Orchid of Burma. Central press, Rangoon
- Henrik Æ. Pedersen, Hubert Kurzweil, Somran Suddee, Ed F. de Vogel, Phillip J. Cribb, Sahut Chantanaorrapint, Santi Watthanana, Stephan W. Gale, Tosak Seelanan & Chalermopol Suwanphakdee, (2014) Flora of Thailand. Vol. XII.
- Holtum, R.E. (1964). Orchid of Malaya, Vol. I, 3rd edition reprinted. Published by Government, Printing Office Singapore.
- Hooker, J.D.(1954) Flora of British India, Vol. V & VI.L. Reeve & co, .Ltd London
- Hundley, H.G. and Chit Ko Ko (1987) Last of Trees, Shrubs, Herbs And Principle Climbers etc. Government Printing press, Yangon Myanmar.
- Kress, J. W., Robert, A.D. Farr, E, & Yin Yin Kyi. (2003). A Checklist of the trees, shrubs, and climbers of Myanmar. Vol 45:1-590, Department of Systematic Biology, National History, Washington. DC, USA.
- Nantiya Vaddhavnaputi (2001). A Field Guide to the wild Orchids of Thailand, Printed in Thailand by O.S. Printing house, Bangkok
- Nantiya Vaddhavnaputi (2005). A Field Guide to the wild Orchids of Thailand, Printed in Thailand by O.S. Printing house, Bangkok.
- Nantiya Vaddhavnaputi (2006) Wild Orchids of Thailand, Avarin Printging and Publishing Rublic Co, Ltd. First Published in Thailand in (2006).
- Seidenfeden Gunna (1992) The Orchid of Indochina. Printed in Denmark. Aio Print Ltd., Odanse.
- Withner, Carl. L. (1959) The Orchids a Scientific Survey.

The Study Area of Bago Township

