

Study on Myanmar Wild Orchids (Subfamily Vandoideae) in Kalaw Area of Taunggyi district in Southern Shan State

Moe Sandar Shein
Bago University
drmoesan35@gmail.com

Ohn Mar Than
Bago University

Khin Swe Swe Htun
Bago University

Abstract

This paper is concerned with the wild orchids (Subfamily Vandoideae) of natural habitats in Aung Ban and Heho area, Yee-Aye reserved forest in Kalaw Township and Hopone area of Southern Shan State. There are various types of forests in study area. Yee-Aye reserved forest is hill evergreen forest type. Various kinds of wild orchids have been found in this study area. They are epiphytes, lithophytes, terrestrial and very rare saprophytic orchids. Photographs have been taken to record habitats of orchids in nature. In this paper belongs to (5) genera and (7) species were collected, classified, identified and described with photograph of their natural habitats and inflorescences and constructed by own key and record with GPS location

Keyword: Taunggyi, Kalaw, Hopone, Southern Shan State, wild orchids, Vandoideae, Saprophyte

1. Introduction

This paper focused on Subfamily Vandoideae of family Orchidaceae found in Kalaw area. This area is located in Southern Shan State and 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 and collected area is Aung Ban and Heho area and southern part of the Yee-Aye reserved forest all reasons. Some terrestrial and epiphyte orchids have been collected for identification. Most terrestrial orchids were gathered in this area. Some epiphytes, lithophytes and 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 of the epiphytic orchids found on (Laukya) *Schima wallichii* L. and (Thit Awe) *Shorea obtuse* during all seasons. In this recent research (5) genera and (7) species were compiled from this study area.

2. Methodology

The specimens were collected from Kalaw Township and Hopone Township of Taunggyi District in Southern Shan State. 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's (1927) and identified by Seidenfaden (1992) Grant. B (1966): Nantiya Vaddhanaputi (2006) Hooker, J.D. (1954). Seidenfaden and Smitch (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 University of Yangon.

Arrangement of the Subfamily; Tribe: Subtribe: Genus and Species

Class :Liliopsida (Monocotyledoneae)
Subclass: :Orchidales
Family :Orchidaceae
Subfamily :Vandoideae
Tribe :Polystachyeae
Genera :(1) *Polystachya*
Tribe : Vandaeae
Subtribe :Sarcanthinae
Genera :(2) *Vanda*
:(3) *Papilionanthe*
:(4) *Holcoglossum*
Tribe : Cymbidieae
Subtribe : Cryptopodiinae
Genera :(5) *Cymbidium*

This classification of Subfamilies in the study is in accordance with Dresseler [2]

3. Results

In this recent study Subfamily Vandoideae includes (3) tribe, (2) Subtribe (4) genera and (6) species were collected.

Subfamily Vandoideae

In this research work three Tribe under Subfamily Vandoideae have observed in this area.

Key to the Tribe of Subfamily Vandoideae

1. with pseudobulb. Inflorescence usually terminal flower to resupinate-----
----- *Polystachyeae*.
1. Plant pseudobulb absent. Inflorescence lateral. Flower resupinate-----2.

2. Plant always monopodial epiphyte -----

-----**Vandaeae**

2. Plant sympodial epiphyte-----

-----**Cymbidieae**

According to the Dressler's Classification only one genus under Tribe **Polystachyae**.

(1) *Polystachya concreta* (Jacq) Garay.f Sweet.

Distinct Character

This species can be distinguished by its branched inflorescence. Flower greenish yellow. Mentum obtuse and hyperresupinate.



Fig.(1) 1. *Polystachya concreta* (Jacq) Garay.f Sweet.

Myanmar Name- Pan -Paung-Pyan)

Collected Area - Yee-Aye-Reserved Forest
N 20°34'36"E 96°23'42"

Flowering Period- June to July

Distribution Pantropical[11]Cambodia,
India,Indonesia,Laos,Malaysia,Philipi,
SriLinka,Thailand,Vietnum,Africa,Su
btropical andTropical America[1]

Ecology -Epiphyte, Lithophyte, mixdeciduous
forest,alt726 m.

In this research work four genera of Subtribe Sarcanthinae under Tribe Vandaeae was collected in this area.

Key to the genera of Subtribe Sarcanthinae

1. Stem long and erect, flower large and many sepals and petals widely flattened at the narrow base-----

-----**(1) *Vanda***

1. Stem short, erect or portrate, flower medium and few, sepals and petals not flattened at the base-----**(2).**

2.Stem long, Lip stout, midlobe of lip down forward by cleft, sidelobe of lip distinct, sometime embracing the column-----

(2)*Papilionanthe*

2. Stem short, lip thin texture, midlobe of lip broadly forward not cleft, sidelobe of lip small, not embracing the column-----

-----**(3) *Holcoglossum*.**

In this paper only two species of genus *Vanda* which is *Vanda coerulea* Var. Griff. ex. Lindl and *V.sp* were collected in study area.

Key to the species of genus *Vanda*

1. Flower blue.Sepal and petals tessellate.Lip subquadangular midlobe-----

-----**(1)*V.coerulea***

1. Flower brown.Inflorescence with compact flowers
Sepals and petals not tessellate.Lip narrowly protruding with ending rounded bilobed. -----

-----**(2)*V.sp***

(1)*Vanda coerulea* Griff.ex.Lindl.

Distinct Character

This species can be distinguished by tessellated sepals and petals. Lip with 3 ridges at the centre.

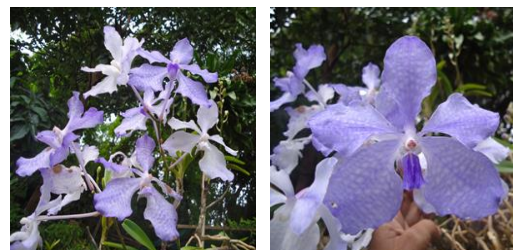


Fig (2) 1.1 *Vanda coerulea* Griff.ex. Lindl.

Myanmar Name - (Moe-Hlone-Hmine)

Collected Area -Yee-Aye-Reserved Forest
N 20°33'26"E 96°41'42"

Flowering Period-June to October

Distribution -NE Myanmar, N Thailand [1],
India,Myanmar,Thailand (W3
Tropicos Kew Monocot List IPNI),
Holttum 1964 [3]

Ecology -Epiphyte, Open forest, alt 1206m

(1.2)*Vanda sp.*

Distinct character

This species has erect long inflorescence with compact flowers and narrowly protruding lip with ending bilobed.



Fig;(3) 1.2.*Vanda sp*

Myanmar Name - (None)

Collected Area - Thit Chaut-Pin Reserved forest
Sesi Township
N 19°3'36"E 97°4'42"

Flowering Period - April to May

Distribution - Myanmar

Ecology - Epiphyte, dry forest, Alt412m

(2) *Papilionanthe teres* (Roxb.) Sch.Itr

Distinct Character

This species can be distinguished by its large flower, lip embracing the column and midlobe deeply cleft at the tip.



Fig (4) 1. *Papilionanthe teres* (Roxb.) Sch.ltr

Myanmar Name - (Yoe Set-Gyi)
Collected Area - Yee-Aye-Reserved Forest
 N20°42'36"E 96 33'42"
Flowering Period -April to May
Distribution Endemic [11] Myanmar,
 Andaman Island [4]
Ecology -Epiphyte, lithophyte, rock
 forest, Alt 824m

(3) *Holcoglossm Kimballinum* (Rchb.f.) Garay

Distinct Character

This species can be separated by its very light pinkish perianth, dark brown spot and yellow tinted with sidelobes of lip and midlobe with four long purple line.



Fig. (5) 1. *Holcoglossm Kimballinum* (Rchb.f.) Garay

Myanmar Name - (Kyet-Thon-Meik-Pan)
Collected Area - Yee-Aye-Reserved Forest
 N 20°30'36" E 96°33'32"
Flowering Period - September to November
Distribution – Endemic [11], Myanmar,
 Andaman Island [5], Myanmar,
 Thailand, Laos, S China [1] and
 [10]
Ecology - Epiphyte, rock forest,
 Alt1427 m.

According to the Dressler classification (1927) [3] only one Subtribe Cryptopodiinae under Tribe Cymbidieae includes only three genus *Cymbidium*.

Key to the species of Genus *Cymbidium*

1. Saprophyte. Leaves absent. Sepal and petals pale yellow with red purple scribe. Lip obovate with whole in the center.-----

----- (1) *C.macrorhiza*

1. Epiphyte. Leaves narrowly oblong acute. Sepal and petals white. Midlobe of lip triangular with one yellow keel in the center.-----

----- (2) *C. mastersii*

(1) *Cymbidium macrorhizon* Lindl.

Distinct Character

This species is very rare saprophytic orchids. This species *C. macrorhizon* Lindl can be distinguished by its lip, with present of small aperture on the lip and red spot on the upper surface of the epichile.



Fig. (6) 1.1 *Cymbidium macrorhizon* Lindl.

Myanmar Name - (None)
Collected Area - Yee-Aye-Reserved Forest
 N 20°36"E 96°43'42"
Flowering Period -April
Distribution - NEYunnan, NIndia, Laos
 Myanmar, Nepal, Pakistan,
 Thailand [1], Panjub
 eastwards to Japan [11]

(1.2) *Cymbidium mastersii* Griff ex.Lindl.

Distinct character

This species can be distinguished by it long linea peduncular bract, pure white flower and lip with yellow patch in the center.

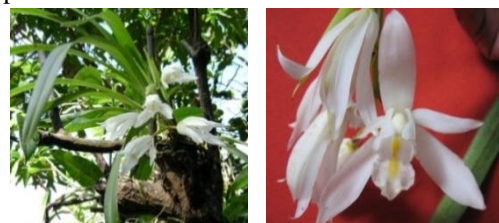


Fig. (7) 1.2 *Cymbidium mastersii* Griff ex.Lindl.

Myanmar Name -(Pan-Thet-Shay-Down-Phyu)
Collected Area -Yee-Aye-Reserved Forest
 N 20°31'36"E 96°23'42"
Flowering Period - October
Distribution - Endemic [11], N India,
 Myanmar, N Thailand,
 China (website:www.orchidculture)

4. Discussion

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 [2]. Some orchidologist estimate as high as 30000 species [10], 35000 species [10] 72 genera and 554 species[5]. Hunderley and Chit koko, reported that 113 genera and 850 species in 1961 and 128 genera 739 species in 1986 as Myanmar native orchids.

The family Orchidaceae divided into (3) Subfamily such as Apostasioideae, Cyripedioideae and Orchidoideae by Schlechter, just divided (2) Subfamily such as Diandreae and Monandreae by Dressler [2] classified into (6) Subfamilies namely Apostasioideae, Cyripedioideae, Spiranthoideae, Orchidoideae, Epidendroideae and Vandoideae. In this study all of the collected specimens of wild orchids are classified according to the Dressler's classification system.

This paper was collected only one Subfamily Vandoideae which Subfamily is related with Subfamily Epidendroideae and Orchidoideae [2]. In this paper three Tribe Polystachyae, Vandae and Cymbideae are recorded. In this paper only one genus *Polystachya* under Tribe Polystachyae was collected in this recent study. *Polystachya concreta* (Jacq.) Garay & Sweet possess branched inflorescence and non resupinate yellowish green flowers. Three genera of Subtribe Sarcanthinae was observed this paper. They are Genus *Vand*, *Papilionanthe*, and *Holcoglossum*. Only one species of genus *Papilionanthe teres* (Rchb.f.) Schlta contain its large flower, lip embracing the column and midlobe deeply cleft at the tip. One species of genus *Holcoglossum kimballinum* (Rchb.f.) Garay has sidelobes of lip and midlobe with four long purple line. In this recent study also collected two species genus *Vanda* which is *Vanda coerulea* Griff. ex. Lindl, and *Vanda Sp. V.coerulea* possess large blue flower and tessellate sepals and petals. *V. sp* has narrowly protruding lip ending rounded bilobed. *V.bensonii* contain ovate, convex lip with three lamellae on mesochile and kidney shaped apex and white spur.

Under Tribe Cymbidieae only one Subtribe Cyrtopodiinae, which belongs to genus *Cymbidium* and only one rare saprophytic species namely *Cymbidium macrorhizon* Lindl. and *C.maetersii* has been collected in this recent study. *C. macrorhizon* is saprophyte and ovate acute lip with aperture at the center and *C. mastersii* contain white flower and one keel and yellow patch in the center.

In this paper (3) epiphyte, (2) lithophyte, (1) terrestrial and only (1) saprophytic species have been recorded.

5. Conclusion

Nowaday orchids are attractive in international markets and some of these are useful for medicine. China used the orchid in traditional medicine and imported the orchids from neighbouring countries including Myanmar. So some of the orchids become endangered species and nearly extinction. In fact, we would have to record and report to the government for

protection of natural heritage and contribute the knowledge about value of orchids to native sellers and orchid hunters. The orchidologist, can share their knowledge to local people how to protect and evaluate the wild orchids and conservation for the state and young generation. Moreover, Orchids are natural heritage and treasure plant of Shan State of Myanmar.

Acknowledgements

An author wish like to thank Dr. Aye Aye Tun, Rector of Bago University and Dr Yin Yin Than Prorector, Bago University for allowing me to undertake this research paper. I also thank to Dr San Wai Aung Professor and Head, Dr Tin Moe Aye professor, Botany Department, Bago University. I am also grateful to member of Forest Department in Kalaw Township for their kindly help with forest type literature and collecting of specimens during field trip.

References

- [1] Chen X, Liu, Z, Zhu, Glang, k, Ji Z, Luo, Y, Jim X., Cribb pj., Wood jj., Gale S.W., Ormerod P., Vermulen jj., et. all. Orchidaceae. In Flora of China, (2013). Vol-25. Science Press Beijing and Missouri Botanical garden, St. Louis. Pp.1-506
- [2] Dressler, R.L. (1927) The Orchids: Natural History and Classification
- [3] Dr. Yoshikata Tanaka, Nyan Htun, Tin Tin Yee (ann) (2003) Wild Orchids of Myanmar Vol1,2, Printed in Thailand.
- [4] Grant, B. (1966), The Orchid of Burma. Central press, Rangoon
- [5] Holttum, R.E. (1964). Orchid of Malaya, Vol. I, 3rd edition reprinted. Published by Government, Printing Office Singapore.
- [6] Hunderley, H.G. and Chit Ko Ko (1987) List of Trees, Shrubs, Herbs And Principle Climbers etc. Government Printing press, Yangon Myanmar.
- [7] Nantiya Vaddhavanputi (2005). A Field Guide to the wild Orchids of Thailand, Printed in Thailand by O.S. Printing house, Bangkok.
- [8] Seidenfeden Gunna (1992). The Orchid of Indochina. Printed in Denmark. Aio Print Ltd., Odanse.

Website; www.orchidsspecies.com
<http://www.orchidculture.com>.
<http://www.tropicos.org>.