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Forest Department  
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**Preliminary Survey on Medicinal Values of Some  
*Dendrobium* Species Occurring in Kutkai Township,  
Northern Shan State**



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**December, 2009**

**ရှမ်းပြည်နယ်မြောက်ပိုင်း၊ ကွတ်ခိုင်မြို့နယ်အတွင်းရှိ ဒမ်ဒရီဘီယမ်သစ်ခွဲမျိုးစိတ်အချို့၏  
ဆေးဖက်အသုံးဝင်ပုံကို ပဏာမကွင်းဆင်းလေ့လာခြင်း**

မြင့်မြင့်စန်း၊ သုတေသနလက်ထောက်-၂  
သစ်တောသုတေသနဌာန

ခင်ဝင်းမြင့်၊ တွဲဘက်ပါမောက္ခ (ငြိမ်း)  
သစ်တောတက္ကသိုလ်

**စာတမ်းအကျဉ်းချုပ်**

ကွတ်ခိုင်မြို့နယ်သည် များပြားလှသော သဘာဝအရင်းအမြစ်များနှင့် သစ်ပင်များပေါကြွယ်ဝသောကြောင့် ထူးခြားသည့် သစ်တောဂေဟစနစ်တစ်ခုရှိသည့် မြို့နယ်တစ်မြို့နယ် ဖြစ်ပါသည်။ ဒေသခံပြည်သူများသည် သစ်ခွပင်များနှင့် ဆေးဘက်ဝင်အပင်များကို စုဆောင်းရူးယူကြပြီး ဈေးနေ့များတွင် ရောင်းချကြပါသည်။ သူတို့သည် သစ်ခွပင်များ၏ စီးပွားရေးအရ အရေးပါပုံကို ကျယ်ကျယ်ပြန့်ပြန့် သိရှိကြသော်လည်း အဖိုးတန်သော ဆေးဖက်အသုံးဝင်ပုံကို သိသူနည်းပါးပါသည်။ ထို့ကြောင့်ပဏာမကွင်းဆင်းလေ့လာရာတွင် သစ်ကပ်သစ်ခွပင် (၂၂)မျိုး၊ မြေစိုက်သစ်ခွပင်(၃)မျိုးအပါအဝင် စုစုပေါင်း (၂၅)မျိုးကို စုဆောင်းရရှိခဲ့ပါသည်။ ၎င်းအပင်တို့၏ သိပ္ပံအမည်၊ မြန်မာအမည်နှင့် အသုံးဝင်သော အစိတ်အပိုင်းများကို လေ့လာခဲ့ပါသည်။ ၎င်းတို့အထဲမှဒမ်ဒရီဘီယမ်သစ်ခွမျိုးစိတ် (၁၀)မျိုးကို အသေးစိတ် တင်ပြထားပါသည်။ ဤစာတမ်းတွင် ကွတ်ခိုင်မြို့နယ်ရှိ မျိုးတုန်းလုနီးပါး ဖြစ်သော သစ်ခွများနှင့် ၎င်းတို့ကို ထိန်းသိမ်းစောင့်ရှောက်ရန်အတွက် စိုးရိမ်ရသော ပြဿနာများကို ဆွေးနွေးတင်ပြအပ်ပါသည်။

**Preliminary Survey on Medicinal Values of Some *Dendrobium* Species Occurring in  
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**Abstract**

Kutkai Township has a unique forest ecosystem harboring a rich flora and vast natural resources. The local people collect the orchids and medicinal plant from the wild and on sale at the market days. They are widely known for their economic importance but less for their medicinal value. The present preliminary survey, some 25 species of Orchids including 22 Epiphytes and 3 terrestrials were collected. Scientific name, local name and the parts of the plant used were described. Among them 10 *Dendrobium* species were presented in detail. This paper also discussed some of the threats to the orchids of this region, as well as some very serious problems regarding their conservation.

**Key words:** Kutkai Township, *Dendrobium* species, Medicinal uses

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## 1. Introduction

Orchids are herbaceous plants that are classified in their own family, the orchidaceae. It is the largest and most diverse of the flowering plant (Angiosperm) families, with over 800 described genera and 35,000 species in the world. According to Dr John Kress and his team informed that there are 738 orchid species in their revise “Checklist of the trees, shrubs, herbs and climbers of Myanmar”.

*Dendrobium*, a member of the family Orchidaceae, includes approximately 1100 species distributed in different parts of the world. In Myanmar, the genus is represented by 170 species (Hundley and Chit Ko Ko.). Of which some *Dendrobium* species are increased demand and high price in the trade by other related species. Many *Dendrobium* species are listed under endangered taxa in the Convention on International Trade in Endangered Species of wild Fauna and flora (CITES).

*Dendrobium* Species are either epiphytic or occasionally lithophytic. They have adapted to a wide variety of habitats, from the high altitudes in the Himalayan mountains to lowland tropical forest and even to the dry climate of Australian desert.

Most of the orchids are rich in alkaloids, flavonoids, and glycosides. According to reference from agriculture, there are 23 *Dendrobium* species found to possess medicinal value in Myanmar. Especially in China and some parts of Europe and America, Africa and Australia orchids have been used as traditional drugs for a long time (P.K. Dash, 2008). In India the medicinal properties of orchids have been used since vedic period. *Dendrobium* (Shih-hu) Shih-hu is a term used to describe all *Dendrobium* and some *Flickingeria* species in China. According to one estimation there are 1400 *Dendrobium* species in China, but only some of them, especially the *Eugenanthe*, provide the drug Shih-hu in its various forms. The frequently used Shih-hu includes such orchids as Chin chai Shih-hu (Golden Hairpin *Dendrobium*), Er Huan Shih-hu (Earring *Dendrobium*), Ma poen Shih-hu (Horse Whip *Dendrobium*), Huan tsao Shin-hu (Yellow Herb *Dendrobium*), and Yu kue Shin-hu (Melon *Flickingeria*). Among them, the Er Huan Shin-hu (Earring *Dendrobium*), for example, was used as a stomachic in Japan. It was used to treat night sweats in Taiwan, to fortify a person's baby, to strengthen the kidneys and to cure impotence.

By far the most commonly used species in the preparation of shih-hu is *Dendrobium nobile* Lindl. This variety of Shih-hu has been valued greatly in China since the Han dynasty (200BC to 200AD). It is used as a tonic and a strengthening medicine. It is also reputed to impart longevity and serve as an aphrodisiac. The stems are used to

alleviate thirst, calm restlessness, accelerate convalescence, and reduce dryness of the mouth.

Some people use wild orchids for making herbal medicine. Bulbs of *Habenaria* spp. and some terrestrial orchids are used as ingredients in some folk medicines. Paste from the pounded leaves and bulbs of *Cymbidium* spp. is used by traditional orthopaedists. Although there are 170 species of orchid having medicinal value only a few are noted. . Other orchid species are used as herbal remedies for diarrhoea and dysentery (Saw Lwin, 2000). Therefore it is a necessity to carried out the medicinal orchids in Myanmar. To fulfill this requirement a collection was made in Kutkai area of Northern Shan State.

The uses of orchids in herbal medicine has a very long history. There is not a single ailment for which therapeutic and curative elements are not found in one or the other orchids species. It is also reported that orchids were held in great reputes as a medicine with strengthening and demulcent qualities in “Ayurveda”.

## **Objectives**

The objectives of the research are

- (1) To identify some orchid species which has medicinal value and its market potential
- (2) To support effective orchids management in Kutkai area

## **2. Literature Review**

As early as 200BC the Chinese Phamacopoeia “the Sang Nang Pen Tsao Ching” mentions *Dendrobium* as a source of tonic, astringent, analgesic, anti-inflammatory substances (Singh et al. 2007).

Similarly in 1892, E de wildemen had already begun investigation of orchid alkaloids in domesticated. European orchids species as well as *D. nobile* and *Phalaenopsis lueddemanniana* .

According to (Bensky D,1986) orchids, particularly the species, *Dendrobium officinale* have been used as medicinal herbs for centuries. According to some research there are at least 50 orchids species used and especially in traditional Chinese medicine formulas. So, now a day, all *Dendrobium* spp. are used for medicine and medicinal purposes, mainly for strengthening the immune systems.

Brain Morris (2003), has described twelve orchids currently used as medicinal in Malawi. Nine of these are used for stomach complaints and two for fertility problems. Interestingly *Eulophia* spp., as employed to promote friendship, the former being dried and pounded into a powder and the latter prepared as an infusion of the roots.

Hock, Chan CC (2003), Some Chinese orchid preparations that are used in Traditional Chinese herbal medicine. An orchid product called “shi-hu” is currently for sale and made from several *Dendrobium* species. It is recommended for indigestion, rehydration, as an anti-pyretic, to increase white cells in the blood and reduce “fidgets”. Interestingly, the Chinese use it for stomach and lung cancer, derived from *D. loddigesii*, has anti-cancer activity for stomach and lung cancer cell lines and also *Gastrodia elata* is grown commercially. It is used to treat allergies and relieve headache and fatigue.

Similarly, the Indian *vanda* orchid does indeed express anti-proliferative effects against various types of cancers, including those from cancer of germ cells, lung cancers and stomach cancers (Ho and Chen, 2003).

Still other orchids has been used in the treatment of epilepsy, flatulence, rheumatism and sparms. They have also been used for sedative and flavor enhancers and for everything from cramps to increased virility (Kong, 2003).

In China, *Gastrodia elate* tubers were used for food, raw or steamed and roasted in Japan, Tibet. This orchid is an important herbal medicine for the control of the internal movement of wind according to the ancient Chinese medicine theory. Rhizomes, stalks and dried tubers are used to treat headaches, dizziness, epilepsy, rheumatism, fever, lumbago, In Korea, the tubers were used to treat nervous disorders, percent the common cold and serve as a tonic. Dried plants were used in Japan to treat vertigo, and nervous diseases, especially in children (Kong Jm et.al., 2003).

The Chinese medicinal orchids found in Myanmar forest represent 15 genera and 24 species. The medicinal orchids belong to the following genera: *Calanthe*, *Coelogyne*, *Cymbidium*, *Cypripedium*, *Dendrobium*, *Ephemerantha*, *Eria*, *Galeola*, *Gastrodia*, *Gymnadenia*, *Habenaria*, *Ludisia*, *Nervilia*, *Thunia* (Satake, M, Lee Ijung, 2004).

In Zambia, Davenport and Bytebier (2004), have described an “orchid rush” whereby the boiled root tubers of terrestrial orchids are used to make a food dish, chikanda or kinaka.

According to Reddy et al. (2005), the different ethnic groups of Andhra Pradesh are known to use some species of orchids for the treatment of ailments that are associated within different diseases.

(Kumar et al, 2005) has described *Vanda tassellate* has had a long history of use by the native population for its anti-inflammatory properties.

In Eastern Ghats, many of the orchids have a medicinal value like *Bletilla striata*, *Cypripedium pubescens*, *Dendrobium*, *Gastrodia elata*, *Acanpe praemorsa*, *Cymbidium aloifolium*, *Geodrum densiflorum*, *Habenaria* spp., *Malaxis acuminata* and *Vanda tesellata*.

Recently, it has been reported that orchids molecules are important in reducing fevers, serving as anti-impotence aids, increasing the white blood cell count, curing eye diseases, treating fatigue and headaches and most importantly, functioning as anti-cancer agents (Bulpitt, 2005).

### 3. Materials and Methods

Preliminary survey on the orchids of Kutkai Township was undertaken in October, 2008. 25 species were collected from natural forest near the two villages namely, Hman yan and Hga ly. The collected specimens were as follows:

- |             |                               |
|-------------|-------------------------------|
| Epiphyte    | 1. <i>Aeride</i> spp.         |
|             | 2. <i>Ascocentrum</i> spp.    |
|             | 3. <i>Coelogyne</i> spp.      |
|             | 4. <i>Cymbium</i> 2 spp.      |
|             | 5. <i>Dendrobium</i> 10 Spp.  |
|             | 6. <i>Hologlossium</i> spp.   |
|             | 7. <i>Liparis</i> spp.        |
|             | 8. <i>Otochilus</i> spp.      |
|             | 9. <i>Bulbophyllum</i> 2 spp. |
|             | 10. <i>Gastrochilus</i> spp.  |
|             | 11. <i>Rhynocostylis</i> spp. |
| Terrestrial | 1. <i>Habenaria</i> spp.      |
|             | 2. <i>Thunia</i> spp.         |
|             | 3. <i>Arundina</i> spp.       |

The specimens were carried by using card box and some were placed in wooden press. Flowers were kept in formalin Acetic acid of 2:1:1. Fresh plants were kept in home garden. Species which possess both vegetative and reproductive parts were

identified through taxonomic descriptions. Confirmation was made by using Myanmar Native Orchids by Saw Lwin Vol.1,2 (2004) and various references.

### **Study Area**

Kutkai Township is situated in Northern Shan State it is located between 23°15' to 24°35' and 97°35' E to 98°15'E. Elevation is about 1500 meters above sea level, occupies an area of 126139 acre. The tribal people are Palaung, Kachin, Shan, Lesu etc. They depend on the forest resources for their livelihood

Soil type is loamy, higher elevation soil is rocky. Temperature range from 6 °C to 30 °C annual. Rain fall is 68 inches the most conspicuous mountains are Ngam Nge mountain(7443)feet, Lyoin Hpyan Lon mountain (7352)feet, Lyoin Syam Sip mountain (6125)feet. The forest types are hill and grassland forest, green hill forest and dry hill forest.

These species collected from Hman-yam and Hga-ly villages and some were on sale from market day by the local people. Although they represent only a small proportion of Myanmar total, they grow in large quantities and are quite varied.

## **4. Results**

### **Materia Medica of Medicinally important Orchids**

1. Scientific Name : *Dendrobium cariniferum* Rchb.f

Myanmar Name : Mahar deiwi

Family : Orchidaceae

Key Characteristics: Stems cylindrical or sometimes slightly fusiform, 10-28cm long. Leaves several, 8-11cm x 1.5-4cm, abaxial surface and amplexicaul sheaths densely black-hairy. Raceme arising from defoliated stem, often 1-2 flowers, slightly scented, sepals and petals creamy white, mentum conical, lip trumpet-shaped disc, short-fimbriate along adaxial veins.

Flowering time : February-April

Distribution : Shan State

Part Use : Stem/fruit

Uses : Tonic

2. Scientific Name : *Dendrobium chrysotoxum* Lindl.  
Myanmar Name : Shwe tu, Mouk Khan War  
Family : Orchidaceae  
Key Characteristics : Stems fusiform, 6 - 13 cm long, with 2 - 5 nodes and many obtuse ridges. Leaves 2 - 5, subterminal, 18 - 20cm x 2 - 3.5cm, not sheathing basally. Racemes subterminal, 15-20cm long, laxly many-flowered, sepals and petals, golden-yellow; mentum subglobose, lip subreniform or oblate, adaxially tomentose-pubescent.  
Flowering time : May -June  
Distribution : Kayin State, Shan State, Bago Division, Mandalay Division  
Part Use : Stem/flower  
Uses : Tonic
3. Scientific Name : *Dendrobium crepidatum* Lindl.  
Myanmar Name : Ganaing Na Bay Pauk  
Family : Orchidaceae  
Key Characteristics : Stems pendulous, cylindrical, 30-40 cm long. Leaves many, 5-10 cm x 1-1.3 cm, base amplexicaul-sheathing; sheaths green and white-striped. Racemes arising from defoliated stem, very short, with 1-4 flowers, sepals and petals white tipped with pink, mentum subglobose, lip orbicular or broadly obovate  
Flowering time : April-May  
Distribution : Chin State, Shan State, Kachin State, Mandalay Division, Kayah State  
Part Use : Stem  
Uses : Arthritic, Tonic, rheumatism

4. Scientific Name : *Dendrobium dixanthum* Rchb.f.  
Myanmar Name : Shwe War Ga Lay  
Family : Orchidaceae  
Key Characteristic: Stems long slender, 30-40cm, smooth. Leaves many 10-15cm x 0.7 x 1.1 cm, linear-lanceolate. Racemes arising from leafless stem, 2-4cm long, with 3-5 flowers, sepals and petals bright yellow, mentum subglobose, lip pale yellow.  
Flowering time : February –March  
Distribution : Shan State, Mon State  
Part Use : Stem  
Uses : Tonic
5. Scientific Name : *Dendrobium falconeri* Hook.  
Myanmar Name : Myet Thit Khwa  
Family : Orchidaceae  
Key Characteristics: Stems pendulous, 30-40 cm long, much branched, the nodes of branches often swollen. Leaves many, 5-7 cm x 0.3-0.7 cm, base with pink tubular sheaths. Racemes often arising from branches, mostly 1-flowered, sepals and petals rose purple or white; mentum subglobose, lip ovate-rhombic.  
Flowering time : December-February  
Distribution : Chin State, Shan State, Kachin State  
Part Use : Stem  
Uses : Lung cancer, Tonic

6. Scientific Name : *Dendrobium findlayanum* Par & Rchb.f  
Myanmar Name : Cho Chin Thithkwa, Shwe Sit Kyoo  
Family : Orchidaceae  
Key Characteristics : Stems 2 cm long, internodes swollen, obconical or compressed conical, 3-3.5 cm long. Leaves several, 5.5-8 cm x 1.3-2 cm, base amplexicaul sheathing. Racemes arising from defoliated or sometimes leafy stem, with 2 flowers. pale lavender sepals and petals, mentum subcylindrical, lip sub-orbicular.  
Flowering time : February-March  
Distribution: : Bago Division, Mon State, Shan State  
Part Use : Stem  
Uses : Injection, Pain
7. Scientific Name : *Dendrobium fimbriatum* Hook.  
Myanmar Name : Arme Let Tan To  
Family : Orchidaceae  
Key Characteristic : Stems cylindrical or sometimes slightly swollen towards the base, 50-100 cm long. Leaves many 8-16 cm x 2-3.6 cm, base amplexicaul-sheathing. Racemes arising from defoliated stem, 5-15 cm long, laxly 6-12 flowers, sepals and petals bright yellow, mentum subglobose, lip sub orbicular, margins compound-fimbriate.  
Flowering time : May-June  
Distribution : Mandalay Division, Chin State, Shan State, Kachin State, Kayah State  
Part Use : Stem  
Uses : Fever, Tonic

8. Scientific Name : *Dendrobium moschatum* (Buch-Ham.) Sw.  
Myanmar Name : Waso Pan  
Family : Orchidaceae  
Key Characteristics: Stems suberect, up to 1 m long. Leaves many, 10-15 cm x 1.5-3 cm, base amplexicaul-sheathing. Racemes subterminal, pendulous, up to 20 cm long, with several to more than 10 flowers, sepals and petals white or yellow, mentum conical, lip cuculate, semi-globose.  
Flowering time : April - May  
Distribution : Tanintharyi Division, Shan State, Mon State  
Part Use : Leaves  
Uses : Bone fractured, Tonic
9. Scientific Name : *Dendrobium nobile* Lindl.  
Myanmar Name : Dawn Mee Thitkhwa  
Family : Orchidaceae  
Key Characteristics: Stems erect, cylindrical, slightly compressed, 10-60 cm long, narrowed towards the base, internodes often somewhat obconical. Leaves many, 6-11cm x 1-3 cm, base, amplexicaul-sheathing. Racemes arising from leafy or leafless stem, 2-4cm long, with 1-4 flowers, sepals and petals pale rosy-pink, mentum conical, lip broadly ovate.  
Flowering time : February –April  
Distribution : Chin State, Shan State, Kachin State  
Part Use : Stem, fresh/dried  
Uses : Immune, aphrodisiac, stomachic, analgesic, tonic, pulmonary tuberculosis, fevers, lumbago

10. Scientific Name : *Dendrobium pendulum* Roxb.fl.
- Myanmar Name : Mya-sit-kyoe
- Family : Orchidaceae
- Key Characteristics : Stems cylindrical, with many strongly swollen nodes and moniliform, 22-40cm long, internodes 2-2.5 cm long. Leaves many, 9-12 cm x 1.7-2.7 cm, base amplexicaul sheathing. Racemes arising from defoliated stem, with 1-3 flowers; sepals and petals white, mentum purplish-red, conical, lip suborbicular.
- Flowering time : May-June
- Distribution: : Shan State
- Part Use : Stem
- Uses : Liver tonic

## 5. Discussion

This research work covers along the fringe of forest and the camp was made at the two villages Hman-yam and Hga-ly. Collection was made at the end of rainy season. October 2008. Although it was said to be the end of rainy season. Occasional rainfall and landslide occur often, thus makes the path ways more slippery. In some places tall trees were cut down by the local dwellers in order to collect the orchid from high tree trunks mostly such as *Prunus cerasoides*, *Quercus glauca*, *Syzygium diospyrifolium*, *Quercus serrata*. As Kutkai is a high elevated about 1500 meter above sea level. The merchant from the neighboring countries buy all types of orchids and put all into large plastic bag and the mixture was weighed. 35 species of orchid collected in the first field trip. Among them 25 species possess both vegetative and reproduction organ. 10 species were only vegetative parts. Moreover, orchids and medicinal plants are Non Wood Forest Products. Therefore, both are very important for rural people. According to information there were many other orchids are still left in the forest and it is difficult to collect them. Due to the slippery soil landslide, the field trip were adjourned to the open season. A number of dead host trees fully loaded with epiphytic orchid can fall any time which lead to the loss of these precious orchid. The community living in study area use host trees for fuel wood. Orchid species attached to the dead log are mostly ignored without realizing their importance. There are threats to orchids through lopping of the host species which mostly

occurs to meet the needs of construction timber. Due to these activities, a number of epiphytic orchid species are facing greater and unexpected threats day by day.

## **6. Conclusion**

Hence, understanding the gravity of the situation, it is an urgent and timely need to collect these orchids and replanting them in a suitable habitat. Looking at the kind of degradation and destruction that such orchid colonies face, a strong approach is required not only for the restoration but also for long term benefit of natural environment. Therefore, the conservation of orchids and their host trees are important and necessary more than marketing value and medicinal value.

## **Acknowledgements**

First of all, we would like to express our sincere thanks to the Forest Department, Ministry of Forestry for financing this research. I am grateful to Dr. Saw Lwin, Floriculturist Association, for suggestion.

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14. ၂၀၀၈ခုနှစ်၊ ဆေးဘက်ဝင် သစ်ခွစိုက်ပျိုး ထုတ်လုပ်သူ သင်တန်းမှတ်စု၊ လယ်ယာ စိုက်ပျိုးရေးနှင့်ဆည်မြောင်းဝန်ကြီးဌာန



Plate(1) *Dendrobium cariniferum* Rchb.f



Plate(2) *Dendrobium chrysotoxum* Lindl.



Plate( 3) *Dendrobium crepidatum* Lindl.



Plate( 4) *Dendrobium dixanthum* Rchb.f



Plate( 5) *Dendrobium falconeri* Hook.



Plate( 6) *Dendrobium fimbriatum* Hook.



Plate(7) *Dendrobium findlayanum* Par& Rchb.f



Plate(8) *Dendrobium moschatum* (Buch. Ham)sw.



Plate( 9 ) *Dendrobium nobile* Lindl.



Plate( 10 ) *Dendrobium pendulum* Roxb.