

To Study The Some Collected Species Of Sub-family Bambusoideae From Ngwe Saung Area, Ayeyarwady Region

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ABSTRACT

The sub-family of Bambusoideae belongs to family Poaceae. Poaceae is widely distributed family among the Angiosperm. The taxonomic study of the family Poaceae (Gramineae) from Ngwe Saung Area, Ayeyarwady Region during from 2011-2014 has been undertaken. The study area is 8.2 square miles (5239.72 areas) and located between latitude 16 46' and 16 52' North and also between longitude 94 23' and 94 25' East, at an elevation of upto 217 meters above sea level. Altogether 1 genera, 9 species of bamboo of grass sub-family Bambusoideae in family Poaceae. Taxonomic descriptions are accompanied by the photograph of habit, nature of culm sheath, young shoot and branching system were also collected species were thoroughly stuelies and fully described and artificial keys to the genera, species had been constructed. The available vernacular names used are also started. Key words: Poaceae, sub-family Bambosoideae, tribe Bambuseae, Ayeyarwady Region.

INTRODUCTION

The studied area of Ngwesaung is 8.2 square miles (5239.72 acres). It is located between latitude 16°46' and 16°52' North and also between longitude 94°23' and 94°25' East. The area is bounded on the north by Thazin village tract, east by Chaungtha reserved forest, south by Sinma village tract and west by Bay of Bengal. According to Köppen's climatic classification the climate of the area is Tropical Monsoon (Am) climate. Natural vegetation in this area is evergreen deciduous forest and mangrove. The Reserved forests are Talakwa Reserved Forest, Mazali Reserved forest, Sinma Reserved forest and Chaungtha Reserved forest. The studies area consists of coastal sandy beach, flat plain region, eastern hilly region and motor road side. The soil type are meadow clay soil and laterite soil state that Tin Hninn Khaing, 2010.

In Myanmar, Poaceae is represented by 144 genera and 551 species, including the bamboos of 15 genera and 105 species according to Hundley and Chit Ko Ko, 1987. The grasses are different from other Angiosperms in their unique flower features. 152 genera and 624 species of Poaceae by Kress, 2003, including the Bamboos species.

Bamboo is a common term for a large number of giant grasses that include many different species and varieties. Bamboos have many uses worldwide from building materials to paper. They often have a tree-like habit and can be characterized as having woody, usually hollow culms, complex rhizome and branch systems, petiolate leaf blades with prominent sheathing organs. Moreover, all members possess similar anatomical features in the leaf blades, i.e. fusoid cells and arm cells, which set the bamboos apart from grasses.

This paper represents the taxonomic study on Sub-family bambusoideae from Ngwe Saung area of Ayeyarwady Region in Myanmar. Based on the specimens collected for the present study from June, 2010 to February, 2014, There are 9 species of 1 genera belong to sub-family bambusoideae. In selected area of Ngwe Saung including in sandy soil, were marshy soil, hardy soil area, open field area, forest area, hill slope area, arriving sea water area, water logged area. The study areas were Talakwa, Nyaunggon, Madawgon, Kwingalay, Seintaung, Maezai, Elephant Campus,

25.7 miles, 26th miles, 26.7 miles, Ngwe Saung, Bugwegyi, Nyaunghmaw, Shaukchaung, Gyaingle, Magyihmaw, Kyautphar, Ohntapingon and Sinma.

The present work is aimed to examine the morphological characters of collected species of grasses grown in Ngwesaung Area, Ayeyawady Region, to verify the classification and identification of Bamboos and to contribute a partial taxonomic information of Poaceae in Myanmar.

MATERIALS AND METHODS

The specimens are collected once per month during the flowering and fruiting periods. The collection period started in 2010 June. Colored photographs of all the plants in its habit and spikelets as seen are taken for visual records.

The drying and preparation of herbarium sheets of collected resource plants are made according to the method of Lawrence (1968) and Nyo Maung (2003). Once material is pressed and thoroughly dried, it is mounted on standard herbarium sheets measuring 11.5 x 16.5 inches. The mounted herbarium specimens are kept in Botany Department, University of Yangon.

The taxonomic descriptions were accompanied by the photographs of habits, inflorescence, ligules, spikelets as seen and parts of the florets. For bamboos, only vegetative parts were studied and identified, because bamboos flower only once in a life time.

Identification of these specimens were done by referring references of Hooker (1897), Hafliger and Schloz. (1981), Nasir and Ali (1982), The systematic arrangement was based on Thomas Cope (1982), Meredith (1959), Bor (1960), Backer (1968), Mannetje and Jones. (1992), Dassanayake Floral of Ceylon (1994), Hedberg Inga and Sue Edwards (1995), For bamboos the systematic arrangement was based on Dransfield, 1995, Zhengyi *et al*, Flora of China (2006) and internet websites information.

The key to the species are strictly dichotomous, which the contrasting sections bear the same number and parallel. The included tribes, genera and species are arranged in alphabetical sequence.

RESULTS

Subfamily BAMBUSOIDEAE

Tribe BAMBUSEAE Nees, *Agrost. Bras.* 520. 1892.

Tall woody arborescent or shrubby bamboos; rhizomes pachymorph or leptomorph. Culms perennial, woody, diffuse, pluricaespitose or unicaespitose, erect, scrambling, or rarely climbing; internodes usually hollow, terete or quadrangular, sometimes flattened or grooved above branch clusters; basal nodes often with ring of aerial roots or rarely with hardened root thorns. Culm branches solitary to fasciculate at nodes, basal branch sheathing. Two types of leaves; one on most of main culm (culm leaves) and on ultimate branches (folia leaves); culm leaf except apex usually deciduous, modified into culm sheaths with a supportive and protective role; sheath thickened, blade much reduced, thickened, not photosynthetic; auricle absent or when present oral setae often well developed on auricle margins. Foliage leaf sheath with interior ligule and a less distinct external ligule, ligules scarious, with or without acuricles, or oral scale; blade flat, broad, linear to oblong-lanceolate, base narrowed into pseudopetiole, articulating and eventually separating from persistent sheath, transverse veinlets forming distinctly tessellate vention. Inflorescences a small panicle or raceme, borne at the tips of the branches but often aggregated in cluster of sessile florets in spikelets or pseudospikelets, branching absent to compound, bracteate or

ebracteolate. Spikelets prophyllate or not, glumes often poorly distinguished from basal bracts and lemmas, semelauctant or iterauctant; lodicules absent to minute, usually 3, ciliate, nerved, posterior narrower than anterior pair. Stamens usually 3 or 6, rarely very many. Style short or long, stigmas 1 – 3. Fruit caryopsis, sometimes succulent with thickened, fleshy pericarp; starch grain simple, angular.

Genus 1. **BAMBUSA Schreber, Gen. Pl. 236. 1789.**

Type species: *Bambusa arundinacea* (Retz.) Willd.

Artificial key to the selected species of the genus *Bambusa*

1. Armed bamboos.....2
1. Unarmed bamboos.....3
 2. Culms bright green, spiny basal branches forming loosely interlaced, spreading from base upwards, spines recurved; culm leaf auricles inconspicuous..... **1. *Bambusa bambos***
 2. Culms grayish green, spiny basal branches forming a densely interlaced thicket, spreading horizontally, spines straight and curved; culm leaf auricles conspicuous, **2. *B. blumeana***
3. Culm sheath apically symmetrical, the auricles equal or subequal.....4
3. Culm sheath apically asymmetrical, the auricles unequal.....6
 4. Culms bluish to grayish-green. Culm sheath purplish-brown, the auricles falcate **6. *B. polymorpha***
 4. Culms yellow or dark green. Culm sheath brown, the auricles erect, not falcate.....5
5. Internode pitcher shaped, swollen, glaucous. Culm leaf blade narrow triangular- acute **9. *B. wamin***
5. Internode cylindrical, not swollen, yellow with green stripes. Culm leaf blade broadly triangular-ovate-acuminate **8. *B. vulgaris***
6. Branches many with 1 dominant. Culm sheath base folded, the auricles continuous with sheath. Folia leaf-base not oblique, the apex long twisted needle-like point **5. *B. oliveriana***
6. Branches many with 3 dominant. Culm sheath base not folded, the auricles continuous with blade. Folia leaf-base oblique, the apex acuminate7
7. Culm sheath broadly triangular, length less than ½ basal width, the two auricles horizontal **7. *B. tulda***
7. Culm sheath triangular, length more than ½ basal width, larger auricle slanted downward along the sheath margin 8
 8. Culm internodes subsolid; branches develop from all nodes. Culm sheath apex slightly asymmetrical, the larger auricle oblong to oblong- lanceolate, the smaller auricle elliptic, the blade tip abruptly acuminate **3. *B. burmanica***
 8. Culm internodes hollow; branches develop from 2nd or 3rd node up. Culm sheath apex long slanted along one side, asymmetrical, the larger auricle oblanceolate to narrow oblong, the smaller auricle oblong, the blade tip cuspidate..... **4. *B. eutuldoides***

1.1. *Bambusa bambos* (L.) Voss., Vilm. Blumengartn. ed. 3. 1: 1189. 1896.

Arundo bambos L., Sp. Pl. 81. 1753.

Vernacular name: Kya-kat-wa (Fig-1)

1.2. *Bambusa blumeana* J.A. and J.H. Schult., Syst. Veg. 7: 1343. 1830.

Vernacular name: Kya-kat-wa (Fig-2)

1.3. *Bambusa burmanica* Gamble, Ann. Roy. Bot. Gard. Cal. 7. 1: 35. 1896.

Vernacular name: Wapayaung (Fig-3)

1.4. *Bambusa eutuldoides* McClure, Lingnan Univ. Sci. Bull. 9: 8. 1940.

Vernacular name: Thaik-wa (Fig-4)

1.5. *Bambusa oliveriana* Gamble, Ann. Roy. Bot. Gard. Cal. 7: 130. 1896.

Vernacular name: Waphyu-gale (Fig-5)

1.6. *Bambusa polymorpha* Munro., Trans. Linn. Soc. Lond. 26: 98. 1868.

Vernacular name: Kyathaung-wa (Fig-6)

1.7. *Bambusa tulda* Roxb., Fl. Ind. 2: 193. 1832.

Vernacular name: Thaik-wa (Fig-7)

1.8. *Bambusa vulgaris* Schrad. ex Wendl. Coll. Pl. 2: 26. 1810.

Vernacular name: Shwe-wa (Fig-8)

1.9. *Bambusa wamin* A. Camus, Les Bambusees, 135.1913.

Vernacular name: Wamin, Wa-pate (Fig-9)

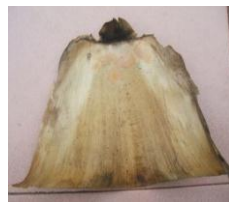
Habit



Ligule



Culm Leaves



Foliage Leaves



Spines



Fig. 1. *Bambusa bambos* (L.) Voss.



Fig. 2. *Bambusa blumeana* J.A & J.H. Schult.

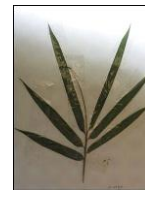


Fig. 3. *Bambusa burmanica* Gamble



Fig. 4. *Bambusa eutuldoides* McClure.



Fig. 5. *Bambusa oliveriana* Gamble.



Fig. 6. *Bambusa polymorpha* Munro.



Fig. 7. *Bambusa tulda* Roxb.



Fig. 8. *Bambusa vulgaris* Schrad. ex Wendl.



Fig. 9. *Bambusa wamin* A. Camus

DISCUSSION AND CONCLUSION

The grass family Poaceae (Gramineae) is one of the largest in number of genera and species. There are 4 subfamilies in Poaceae. They are Bambusoideae, Arundinoideae, Chloridoideae and Panicoideae. Altogether 75 genera and 1250 species of bamboo distributed in tropical, Subtropical and temperate zone of different part of the earth, Among them, 45 genera and 70 species of bamboo found in tropical Asia. In this paper, 1 genera and 9 species were presented from Ngwe Saung Area in Ayeyarwady Region. *Bambusa bambos*, *B. blumeana*, *B. eutuldoides*, *B. tulda* Roxb, *B. burmannica*, *B. oliveriana*, *B. wamin*, , Species *B. vulgaris* is found in hill slope area. Among them *Bambusa bambos* contains high levels of silica and is used in many ways in Ayurvedic medicine. (Website 1). *B.blumeana*, *B.burmanica*, *B.eutuldoides*, *B.oliveriana* , *B.polymorpha* and *B.tulda* are edible .*B.vulgaris* (Shwe-wa) are excellent for ornamental landscape in this area. They are medicinal uses as remedy for rheumatism (in stem) and treat abscesses and malaria (in shoot). (Website 2)

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Website

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