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# A Checklist of Orchids Inside Dibrugarh University Campus, Assam, North-East India

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## ABSTRACT

Widespread, ornamentally valuable angiosperm orchids belong to the family Orchidaceae. The Dibrugarh University campus is rich in biodiversity. Therefore, a survey was conducted inside the 500 acres area of the university to know the orchid diversity inside the campus. The campus bears 22 different orchid species belonging to 17 genera. The presence of two rear species like *Dendrobium nobile* and *Vanda bicolor* was reported from the campus. The campus provides a habitat for endangered species like *Aerides odorata*. *Dendrobium* and *Cymbidium* are the two dominant genera from the campus. The campus holds 17% of total species found all over the Dibrugarh district and 6% of species found in Assam. The species found inside the campus are economically important as they can be used as medicine, food and ornamentally. Although the university has a healthy environment for orchids still, they need more scientific methods and strategies to be developed for their conservation.

**Key words :** Conservation, *Cymbidium*, *Dendrobium*, Epiphytes, Orchids, Ornamental flower.

## Introduction

Orchids are considered the most beautiful flower. These widespread colourful flower-bearing plants belong to one of the largest families Orchidaceae. They show diversity in terms of size, shape, colour, fragrance etc. Orchids are not only aesthetic, but they are very sensitive to ecological disturbance therefore they are considered an ecological indicator. A decline in orchid diversity implies a declining condition of air and soil. Orchids are mostly perennial and can be epiphytes, saprophytes, terrestrial etc Gogoi (2017)

About 763 genera and almost 28000 species of Orchidaceae are distributed over the world (Christenhusz and Byng, 2016). North-East India is one of the hotspots for orchids around the world

and it has around 72% of the total orchids found in India Baruah (2001).

From ancient times orchids are famous for their ornamental value as well as medicinal properties. Greek philosopher and Father of Botany Theophrastus first mentioned orchids in his book "Enquiry into plants" in about 300 BC. In India also there was mention of orchids and their medicinal use in "Vedas" Gogoi (2017).

The study of orchids in Assam was initiated by S. Chowdhury and after that several naturalists like K. Gogoi, and I.C. Baruah made deeper studies on the orchids of Assam and entire North-East India.

Assamese people use orchids like *Rhyncostylis retusa*, *Aerides rosea*, *Aerides odorata* etc. as tradition from time immemorial. They are widely used in the spring fest "Bihu" as a symbol of love and affection.

Assam's weather and environmental conditions is very favourable for the growth of orchids. However, they are nowadays facing threats because of the increasing number of tea plantations, illegal timber harvesting, landslide, flood, erosion, deforestation, increasing use of herbicides, rapid urbanization etc Gogoi (2017).

The Dibrugarh university campus holds a very appropriate environment for orchids. Therefore, the variety of orchid species available inside the campus along with their conservation status needs to be studied, so that proper conservation strategies can be imposed to protect them.

### Study Area

Dibrugarh University in Dibrugarh district, Assam is located 5 km away from Dibrugarh town spread over 500 acres. The map coordinates of the university are 27.4495° N, and 94.8979° E. The university is surrounded by tea gardens and is rich in flora and fauna.

### Materials and Methods

An extensive and intensive field survey on the campus of Dibrugarh University was conducted for 1 year from March 2021 to February 2022 considering every season of the year. Major plant species were collected during the study period these species were processed and mounted into an herberium. Identification of the flora has been done with the help of

several regional and local floras using methods described by Kanjilal *et al.* (1940), Balakrishnan (1981, 1982), Deb (1983), Baruah (1992), Nath (1999), Baruah (2001), Bora and Kumar (2003), Nath (2006), Begum (2008), Barthakur (2008), Daimary (2011), Boro (2016) and matched at ASSAM-Herbarium and with available online herbarium specimens deposited in K, L, AMES, NY, etc. For up-to-date nomenclature of the taxa recent floras, literature, and websites such as IPNI, Tropicos and www.plantsoftheworldonline.org were consulted. In Table I, different taxa are added along with scientific names, common names, and statuses in Assam Basumatary *et al.* (2022).

### Results and Discussion

A total of 22 varieties of orchids are found inside the Dibrugarh University Campus (Table 1). Several extensive literature surveys suggested that in Assam a total of 396 species belonging to 101 genera were recorded. Therefore, at Dibrugarh University Campus about 6% of total species are found. These 22 orchids belong to 17 different genera which are almost 22% of the total genera recorded from Assam. With 5 different species which occupy about 23% of the total orchid found inside the campus *Dendrobium* genera is dominant followed by *Cymbidium* which has 2 species i.e., 9% of total orchids. In the case of the remaining 15 species, all of them belong to 15 different Genera (Fig. 2).

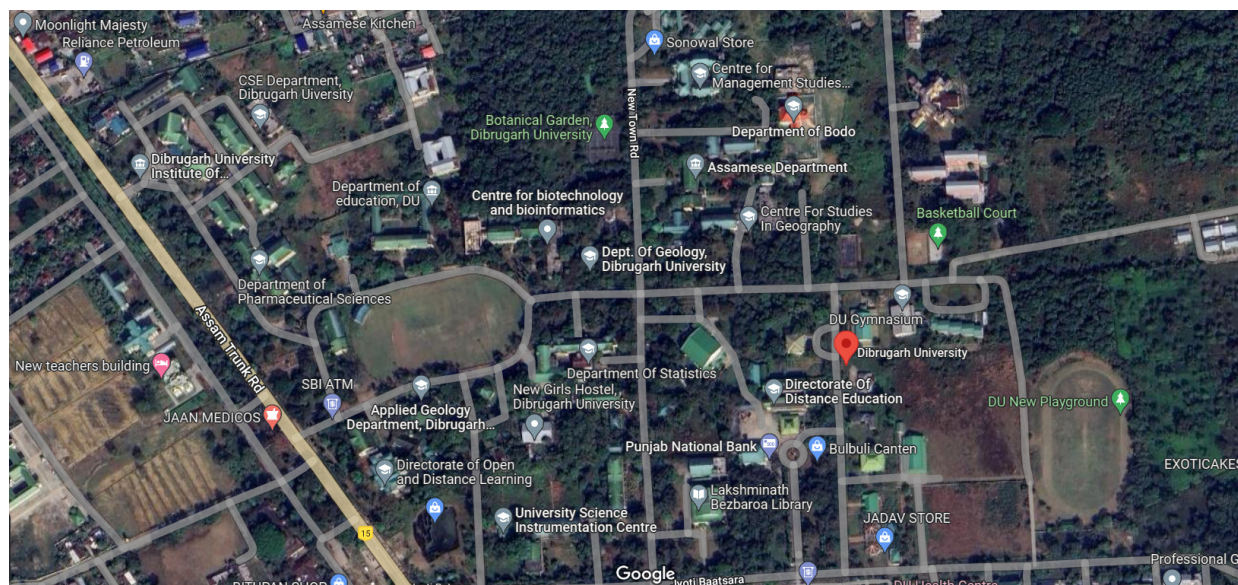
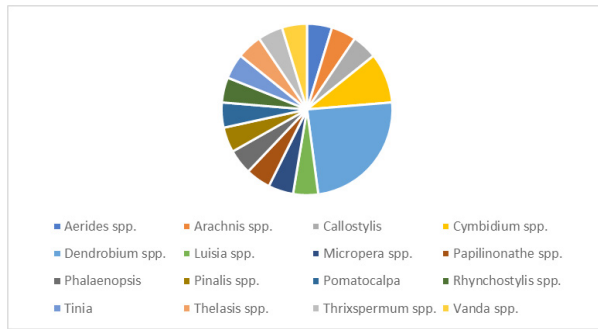


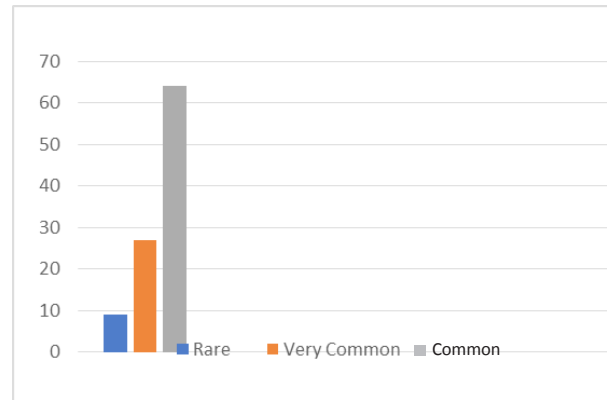
Fig. 1. Map showing the study area



**Fig. 2.** Showing the percentage abundance of different orchid genera found inside the Dibrugarh University campus.

In the Dibrugarh district now 134 species belonging to 55 genera of orchids were found which means inside the Dibrugarh university campus 17% of total orchid species of the district are growing and they occupy 31% of the total genera found in the district.

Inside the campus, two rare orchid species were also observed: *Dendrobium nobile* and *Vanda bicolor*. Besides these 14 common and 6, very common species are also found on the Dibrugarh University Campus. This means out of all species 9% species are rare, 27% species are very common and the remaining 64% species are common (Fig. 3).



**Fig. 3.** Showing percentage of different statuses of orchids found on the Dibrugarh University Campus

Most of the orchids inside Dibrugarh University Campus's flowering and fruiting time is March to July i.e., mostly in the spring season. Inside the campus, we found more epiphytic orchids than terrestrial orchids as epiphytic orchids show higher diversity.

The presence of two rare species of Assam inside the Dibrugarh University campus suggested that the environment is favourable for growing such orchids on the campus. Moreover, the presence of species

**Table 1.** Checklist of orchids found inside the Dibrugarh University Campus

Scientific Name	Common name	Status in Assam	Flowering and Fruiting Time
<i>Aerides odorata</i>	The Fragrant Aerides	Common	March-August
<i>Arachnislabrosa</i>	The Lip-Like Arachnis	Common	August-November
<i>Callostylis rigida</i>	The Different Colored Eria	Very common	January-June
<i>Cleisostomasubulatum</i>	The Awl-Shaped Cleisostoma	Common	March-August
<i>Cymbidium aloifolium</i>	The Aloe-Leafed Cymbidium	Very common	April-September
<i>Cymbidium bicolor</i>	The Two-Coloured Cymbidium	Common	April-July
<i>Dendrobium aphyllum</i>	The Hooded Dendrobium	Common	March-July
<i>Dendrobium lituiflorum</i>	The Bent Receme Dendrobium	Common	April-July
<i>Dendrobium nobile</i>	The Noble Dendrobium	Rare	March-July
<i>Dendrobium spatella</i>	The Little Board Flat Blade Dendrobium	Common	May-July
<i>Dendrobium transparens</i>	The Translucent Dendrobium	Common	April-July
<i>Luisia tristis</i>	The Terete leaf Luisia	Common	April-July
<i>Micropera rostrata</i>	The Beaked Micropera	Common	April-July
<i>Papilionanthe teres</i>	The Terete Leaf Papilionanthe	Very Common	April-August
<i>Phalaenopsis mannii</i>	Mann's Phalaenopsis	Common	March-July
<i>Pinaliaamica</i>	Lovely Pinalia	Common	March-July
<i>Pomatocalpaundulatum</i>	The Undulate Pomatocalpa	Very Common	March-June
<i>Rhynchostylis retusa</i>	Foxtail Orchid	Very Common	March-July
<i>Tinia latifolia</i>	The Broad-Leafed Tinia	Ver Common	March-June
<i>Thelasispygmaea</i>	The Tiny Thelasis	Common	July-October
<i>Thrixspermum trichoglottis</i>	The Hairy Lip Thrixspermum	Common	March-April
<i>Vanda bicolor</i>	The Two-Colored Vanda	Rare	February- April

like *Aerides odorata* whose IUCN status is endangered indicates good health on the campus. *Phalaenopsis* spp. cannot tolerate long-term cold and chilling therefore as on the campus *Phalaenopsis mannii* is growing naturally which shows the temperature of the study area is right for such sensitive species Sheehan and McConnell (1980).

*Cymbidium* species are considered as one of the significant commercial species as inside the campus two cymbidium species are found they can be conserved efficiently for commercialization. As orchids are rich in alkaloids, flavonoids, glycosides etc. some species are found inside the campus such as the fruit and leaves of *Aerides odorata* used in healing wounds, the whole plant of *Cymbidium aloifolium* used in curing eye weakness, paralysis et. By indigenous people. Similarly, various parts of *Dendrobium nobile*, *Rhynchostylis retusa*, and *Vanda teres* are also used in traditional medicine Bhattacharjee and Das (2008). As the campus shows the richness in such varieties of orchids it suggests the campus holds a great scope for cultivating such medicinally important plants.

*Cymbidium* spp. is popularly used as food in Bhutan Bhattacharjee and Das (2008). As *Cymbidium* genera is one of the major species found inside there is a huge scope of using these as food.

## Conclusion

Recording of the occurrence of 22 species under 17 genera of orchids within the 500 acres area of the Dibrugarh University campus can be considered significant. Although various anthropogenic activities are going on inside the campus still there is diversity among orchid species and it is providing suitable habitat for their growth. Human activities like the Construction of new buildings and roads etc. are increasing inside the campus. Therefore, new conservation strategies and scientific cultivation is the need of the hour. Although the University has an orchid house it is not under good maintenance. Therefore, the authority needs to show some concern about the ex-situ conservation of these important orchid species.

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## Conflict of Interest

The authors have no conflict of interest.

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