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Orchid diversity at the Chirang Reserve Forest of BTAD, Assam

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ABSTRACT

Chirang Reserve Forest of Kokrajhar district is a bordering area of neighboring country Bhutan and it has rich biodiversity with a boon of nature. Orchids with its charming and tantalizing beauty are a characteristic plant of tropical region of Assam. The present study set out to explore the world of orchid with 33 species and 21 genera in the natural world of Chirang Reserve Forest in Haltugaon Division of lower Assam. 13 species of them are recorded under Appendix II of CITES list. Whereas 11 rare and endangered species were also identified from the reserve.

KEYWORDS: Orchids, Chirang Reserve Forest, BTAD, Assam, Threats,

BACKGROUND :

India with a vast geographic area and diverse climatic condition is rich in plant genetic resources. The orchids have naturalized here in great profusion and form 10% of the world orchid flora, which constitute the second largest flowering family with 184 genera and about 1600 species (1,2). The *orchidaceae* is a cosmopolitan family distributed throughout the world from sea level to alpine regions. The orchids represent one of the largest and highly evolved groups of flowering plants. The number of species of orchids in India varied in different region mainly due to the prevailing climatic condition. They dominate in the region having cool, temperate and moist climate and show maximum diversity in Eastern Himalayas, including the North Eastern region, where they are represented by more than 730 and 675 species respectively followed by 267 species in Western Ghats, 255 species in Western Himalayas and 117 species in Andaman and Nicobar Islands.

Amongst the available orchid resources in India, majority of them are confined to the NE states because of its prevailing congenial climatic conditions, diverse terrain and altitudinal variation, which provide suitable habitat for orchids. Majority of orchids in NE states of India are epiphytic, they predominate in the region having cool, temperate and moist climatic condition. The region represents 876 species of 151 genera which constitute about 70% of the total orchid flora of the country (5) (Jain, 1985)

Orchids with its charming and tantalizing beauty are the characterized plant of NE India with about 675 species with 76 species are endemic to the region, 34 are endangered and 18 are either extinct or nearly extinct. The recent data reveals the presence of about 293 species in Assam representing 44.39 % of NE and 24.42 % of India's total species(3).

The orchids like *Rhyncostylis retusa*, *Aerides odoratum* are intimately linked with the culture of the local communities; numbers of orchid species are used for medicinal purposes by various tribes in the region since time unknown.

Study Area :

The Chirang Reserve Forest falls under the Haltugaon Forest Division of the Western Assam Circle Conservancy. The RF lies in between 26º 06' 56.05" N to 26º 54' 1.95" N latitude and 90º12'03.76"E to 90º29'07.02"E longitude covering an area of 592.54 sq km (*11*). The Chirang Reserve forest is located within the Assam-Duars in the western Assam region. It can be considered a plateau, rising gently towards the north where it meets the Bhutan Hills. The elevation reaches as high as 500 m in the north. The plateau merges with the cultivated lands in the south and drains towards the River Brahmaputra (*11,5*). From the north, and for a few kilometers to the south, the tract is composed of rocks and pebbles, and remains waterless for most of the year, representing a typical Bhabar characteristic. The major forest type of the region is characterized by natural regeneration of Bhabar and Terai sal forests (4). Located adjacent to lower central Bhutan, the RF falls within the Assam Plain Endemic Bird Area and a marginal part of the Eastern Himalaya Endemic Bird area with a significant avian diversity. The Reserve Forest is a part of the Ripu-Chirang elephant corridor and shares its eastern boundary with Manas Tiger Reserve as a potential Mammalian Habitat (*6*).

Due to its unique geographic location Chirang Reserve Forest is rich in floral diversity and one of the rich reservoirs of orchids.

Materials and Method :

Numbers of field visits were undertaken on different parts of the Chirang Reserve Forest during the period of 2010-12. Herbariums were prepared from the collected specimens by following standard methods (9) and these herbariums were identified with the help of herbarium specimens of Botany Dept. Gauhati University, BSI Shillong and consulting available literature. The status of the plants were identified by using the CITES literature and Red Data list of IUCN. (12)

OBSERVATIONS :

The present study could identify 33 orchid species of 21 genera from the Chirang Reserve Forest. 57% of the species have been found to be terrestrial while 43% species are epiphytic in nature. Among the orchid species identified, Acame papillosa Lindley, Rhynchostylis retusa (Bl.) Pers, Papilionnanthae teres (Roxb.) Lindl, Aerides odorata Lour, are of common occurrence in the reserve. Arundina graminifolia (D.bon) Hochr., Goodyera procera (Wall) Ex Ker-Gawl, Pholidota imbricate (Roxb.) Lindl., Vanilla pilifera Holtt., Zeuxine longilabris (Lindl.) Trimen, Z. strateumatica (L.) Schl. etc. are of very rare occurrences in the reserve. The species Geodorum densiflorum(Lamk.) Schl., Vanilla pilifera Holtt. etc are found to be of scattered occurrence in the reserve.

The species Acame papillosa(Lindley) Lindley, Arundina graminifolia(D.bon) Hochr., Aerides odorata Lour., Bulbophyllum careyanum(Hook.) Spreng, Cymbidium aloifolium(L.) Swartz, Dendrobium aphyllum(Roxb.) Fiscer, Dendrobium fimbriatum Hook, Didymoplexis pallens Griff., Papilionnanthae teres(Roxb.) Lindl, Phaius tankervillae(Hook. F) Hollt, Pholidota imbricata (Roxb.) Lindl., Rhynchostylis retusa (Bl.).Pers, are recorded from the reserve which is listed in Appendix II of the CITES list as on 23rd June 2010. (7,12). 11 rare and endangered species Acame papillosa (Lindley) Lindley, Aerides odorata Lour., Arundina graminifolia (D.bon) Hochr., Bulbophyllum careyanum (Hook.) Spreng. Cymbidium aloifolium (L.) Swartz Dendrobium aphyllum (Roxb.) Fiscer Phaius tankervillae (Ban. Ex Her.) Bl. Pholidota imbricata (Roxb.) Lindl. Rhynchostylis retusa (Bl.).Pers Zeuxine strateumatica (L.) Schl. is also identified from the reserve (8).

Sl No	Species	Habit	Status
1.	Acame orchracea (Lindl.) Hochr.	(Terrestrial)	-
2.	Acame papillosa (Lindley) Lindley	(Epiphytic)	EN
3.	Aerides odorata Lour.	(Epiphytic)	EN
4.	Arundina graminifolia (D.bon) Hochr.	(Terrestrial)	EN
5.	Bulbophyllum careyanum (Hook.) Spreng.	(Terrestrial)	EN
6.	Bulbophyllum crassipes Hook.	(Epiphytic)	EN

7.	Calanthe angusta (Lindl.)	(Terrestrial)	CITES Appendix II
8.	Calanthe masuca Lindl.	(Terrestrial)	-
9.	Calanthe triplicata (Willeme.) Ames	(Terrestrial)	CITES Appendix II
10.	Cymbidium aloifolium (L.) Swartz	(Terrestrial)	EN
11.	Dendrobium aphyllum (Roxb.) Fiscer	(Epiphytic)	EN
12.	Dendrobium chrysotoxum Lindl.	(Epiphytic)	CITES Appendix II
13.	Dendrobium fameri Paxton	(Epiphytic)	CITES Appendix II
14.	Dendrobium fimbriatum Hook	(Terrestrial)	CITES Appendix II
15.	Dendrobium jenkinsii Wall. Ex. Lindl.	(Epiphytic)	CITES Appendix II
16.	Dendrobium transparens Wallich ex Lindley.	(Epiphytic)	CITES Appendix II
17.	Didymoplexis pallens Griff.	(Terrestrial)	CITES Appendix II
18.	Eria pubescens (Hook) Lindl. Ex Steud.	(Epiphytic)	-
19.	Eulophia obtusa (Lindley) Hook.f.	(Terrestrial)	CITES Appendix II
20.	Flickingeria fugax Rechib.f.	(Epiphytic)	Not Listed
21.	Geodorum densiflorum (Lamk.) Schl.	(Terrestrial)	CITES Appendix II
22.	Goodyera procera (Wall) Ex Ker-Gawl	(Epiphytic)	CITES Appendix II
23.	Liparis paradoxa (Lindl.) Rchb. f.	(Terrestrial)	-
24.	Papilionnanthae teres (Roxb.) Lindl	(Epiphytic)	CITES Appendix II
25.	Peristylus constrictus (Lindl.)	(Terrestrial)	-
26.	Peristylus goodyeroides (D.Don) Lindl.	(Terrestrial)	CITES Appendix II
27.	Phaius tankervillae (Ban. Ex Her.) Bl.	(Terrestrial)	EN
28.	Phaius longipes {Hook. F} Hollt	(Terrestrial)	-
29.	Pholidota imbricata (Roxb.) Lindl.	(Epiphytic)	EN
30.	Rhynchostylis retusa (Bl.).Pers	(Epiphytic)	EN
31.	Vanilla pilifera Holtt.	(Epiphytic)	-
32.	Zeuxine longilabris (Lindl.) Trimen	(Terrestrial)	-
33.	Zeuxine strateumatica (L.) Schl.	(Terrestrial)	EN

CONCLUSION :

The orchid diversity in the Chirang Reserve Forest is under threat of extinction. The major threats for the orchid diversity in the Chirang Reserve Forest are deforestation, encroachment, collection from the wild for medicinal and commercial uses etc. Most of the orchid species of the region are listed in Red Data Book and CITES. Immediate attention is required to conserve the flora of the reserve with special reference to the orchid species. There is a need of urgent attention from every stakeholder to conserve the bio-diversity specially the orchid diversity of the Chirang Reserve Forest.

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