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STUDIES ON DISTRICTWISE DISTRIBUTION OF ORCHID SPECIES IN ARUNACHAL PRADESH, INDIA

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Abstract

The present paper deals with comparative distribution of orchid species with their number in each district such as West Kameng- 443, Lower Subansiri- 26, Changlang- 39, Upper Siang- 37, Tawang- 14, East Kameng- 95, Upper Subansiri- 9, Anjaw- 19, Tirap- 36, Siang- 7, Longding- 4, Lohit- 17, Namsai- 10, West Siang- 3, Papum Pare- 13, Shi-Yomi- 12, Lower Dibang Valley- 4, and Kurung Khumey- 20. The paper also deals with listing of specimens and type specimens such as Holo type, Para type, and Iso type available in Orchid Herbarium Tippi (OHT). Further, herbaria of state, regional, and national has the reference of OHT as a specimen repository to ARUN, APFH, ASSAM, and CAL. The present study was an attempt to provide district wise information on orchids in atleast 1-3 localities of collection sites with their wide range of geographical location and altitude; the study is based on frequent field trips upto the border of neighbouring countries with the state. The state is known to have a total of 568 species in141 genera based on specimens available in OHT collected from different parts of the state. Out of these, 383 species in 77 genera are epiphytes, 161 species in 52 genera are terrestrial, and 24 species in 24 genera are mycoheterotrophs.

Introduction

ARUNACHAL PRADESH is situated in the extreme NorthEast corner of India, between 26°30' and 29°30' North latitude and 91°30' and 97°30' East longitude. It shares international border with Bhutan in the West, China in the North and NorthEast, Myanmar in the East; and inter-state boundary with Nagaland in the East and Assam in the South. The undulating topography associated with heavy rainfall, varied climatic conditions, and wide altitudinal range from 200 to 7750 m amsl of the Great Himalayas has resulted in a great diversity of habitats and forest types. At present, there are 26 districts in Arunachal Pradesh including new districts by carving out from a few districts such as West Siang to Shi Yomi and Lepa-Rada; Lower Subasiri to Kamle; Kurung Kumey to Kra Daadi; Lohit to Namsai; East Kameng to Pakke-Kessang; East Siang to Siang and Upper Siang; West Siang and East Siang to Lower Siang *etc*. Amongst the various districts, as per the record in Orchid Herbarium Tippi (OHT), West Kameng has the maximum number of species *i.e.* 443, followed by East Kameng (95), Changlang (39), Upper Siang (37) *etc*. Most of the field trips were carried out during 1970 to 2012 by Dr. S N Hegde and A N Rao assisted by research scholars and field staff and a few times with scientists from Botanical Survey of India, University, GB Pant Institute, APSC for Science and Technology *etc*.

Material and Methods

Frequent field trips were conducted in different parts of the state. Each trip was for 10-30 days; GPS, collection bags, preservative solution, pressing board, blotting sheets, reference books *etc*. were carried along. Specimens were made from collections for geographical indicator (GI), in herbarium (OHT) for future reference. During the collections, local people were taken as companions as area guides in the deep forests; these included farmers, village head, traditional hunters *etc*. Habitats of the species were visited and one or two voucher specimens were collected for reference. Orchid species were identified using available literature, specimen in OHT, ARUN, APFH (SFRI), and by consulting researchers of BSI, Itanagar. Live collections of the species were cultivated in teak plantation at Orchid Centre, Tippi for *ex situ* conservation. Specimens in herbarium (OHT) were represented as species^{S} and live plant in their natural habitat were represented as species^{L}.

Results and Discussion

The present paper deals with comparative distribution of orchid species with their number in each district such as West Kameng- 443, Lower Subansiri- 26, Changlang- 39, Upper Siang- 37, Tawang- 14, East Kameng- 95, Upper Subansiri- 9, Anjaw- 19, Tirap- 36, Siang- 7, Longding- 4, Lohit- 17, Namsai- 10, West Siang- 3, Papum Pare- 13, Shi-Yomi- 12, Lower Dibang Valley- 4, and Kurung Khumey- 20. There were 568 species belonging to 144 genera. Out of these, 383 species in 77 genera were epiphytes, 161 species in 52 genera were terrestrial, and 24 species in 24 genera were mycoheterotrophs. Amongst epiphytes, largest genera

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are *Dendrobium* (47 spp.+1 var.), *Bulbophyllum* (47 spp.+2 var.), *Oberonia* (22 spp.), *Coelogyne* (20 spp.); amongst terrestrials, *Calanthe* (16 spp.), *Goodyera* (12 spp.), *Liparis* (16 spp.+1 var.), *Zeuxine* (8 spp.), *Herminium* (7 spp.), *Cheirostylis* (7 spp.+1 var.) and amongst mycoheterotrophs, *Epipogium* (5 spp.), *Galeola* (3 spp.), and *Gastrodia* (2 spp.) are the largest genera. Consultation of national and different regional herbaria *i.e.* CAL, ASSAM, ARUN, APFH, and Orchid Herbarium Tippi (OHT) at Orchid Research Centre, Tippi indicated that number of specimens were collected from the districts by the Scientists of APRC, BSI, Itanagar, and the state forest department; these include RS Rao, G Panigrahi, J Joseph, D B Deb, A S Rao, S K Jain, P K Hajra, A R K Shastry, R M Dutta, G D Pal, J Lal, K Haridasan, S N Hegde, A N Rao. The distinguishing feature of Orchid Herbarium Tippi (OHT) is the deposition of type specimens which is as follows:

Holo Type

Pinalia arunachalensis, P. kamlangensis, Dendrobium sessanicum, Porpax seidenfadenii, India arunachalensis, Cheirostylis sessanica, Gastrodia mishmensis, Pinalia lohitensis, Oberonia arunachalensis, Ione arunachalense, Herminium haridasanii, Gastrochilus arunachalensis, G. sessanicus, Biermannia arunachalense, B. jainiana, Herminium longilobatum, Epipogium sessanum, Rhomboda arunachalensis, Cheirostylis munnacampensis, Gastrodia arunachalensis, Sarcoglyphis arunachalensis, Zeuxine lindleyana, Oberonia katakiana, Cheirostylis gunnarii, Cleisostoma tricallosum etc.

Para Type

Herminium longilobatum, Cheirostylis tippica, Diplomeris josephii, Gastrodia arunachalensis, Sarcoglyphis arunachalensis, Zeuxine lindleyana (OHT), *Z. lindleyana* (ARUN), *Z. lindleyana* (APFH), *Oberonia katakiana, Cheirostylis gunnarii, Erythrodes seshagiriana, Pinalia connata, Cleisostoma tricallosum, Porpax seidenfadenii, Cheirostylis munnacampensis, Oberonia katakiana* (ASSAM), *O. katakiana* (CAL), *Cheirostylis gunnarii* (CAL), *C. gunnarii* (ASSAM), *C. gunnarii* (OHT), *Herminium haridasanii, Erythrodes seshagiriana* (OHT), *Epipogium sessanum, Pinalia connata, Biermannia jainiana, Cheirostylis munnacampensis, Cleisostoma tricallosum etc.*

The state is known for its rich diversity of orchids including nearly 45% of the country's total species. Some of these are new record to the state and the country. But according to one of the IUCN reports, 144 orchid genera reported from Arunachal Pradesh belong to 10 subfamilies, 22 tribes, and 47 subtribes as per the classification proposed by Szlachetco (1995). Rao (2010) estimated that 588 species occurred in the state, of which 32 were endemic; he further stated that the number may go much higher after completion of the botanical explorations in yet to be explored forest area (20-30%), in the state leading to many possible new species and new distributional records.

Orchids of West Kameng District

Tropical Forest

This forest type occurs up to an elevation of 900 m amsl starting from the plains and foothills bordering to Assam. The climatic conditions associated with it are high temperature and heavy rainfall up to 3000 mm. This can be seen all the localities during summer and moderate winter along the foothills. The district is the most exploited for orchid collections (Table 1) amongst various localities.

Tippi

The area is topographically same but each locality has got its own local name. Orchid Research centre is located at Tippi at an altitude of 141 m amsl. The geographical location of the centre is N 27°02'09.4" and E 92°36'25.6". The centre has an arborium of *Tectona grandis* where more than 250 species of saprophytic, epiphytic, and terrestrial orchids are under both *in situ* and *ex situ* conservation. Under *in situ* conditions, *Didymoplexis pallens,* a mycoheterotroph and *Spiranthes sinensis,* a terrestrial orchid was found. Most of tropical species (*Aerides multiflora, A. rosea, A. williamsii, Apostasia odorata, A. wallichii, Bulbophyllum clarkeanum, Cymbidium aloifolium, Dendrobium fimbriatum, D. moschatum, D. nobile, Pinalia amica etc.*) were under *ex situ* conservation which were collected from degraded forest lands of different districts.

Khellong

Khellong is located in the western part of Doimara Reserve Forest and geographical location is N 26°58'02.0" and E 92°25'10.3" at an altitude of 357 m amsl. The species available are *Aerides williamsii, Bulbophyllum clarkeanum, B. thomsonii, Rhynchostylis retusa, Cleisostoma aspersum, C. filiforme, Chrysoglossum erraticum, Kingidium deliciosum, Luisia inconspicua, L. trichorhiza, Liparis paradoxa, Micropera mannii, Oberonia falcata etc.*

Kimi-Bana

Kimi is located in the Southern part of Eagle Nest Wildlife Sanctuary. The geographical location of Kimi

Table 1. Orchids of West Kameng District (Tropical forest).

Species	Remark
Apostasia odorata	OHT
A. wallichii	OHT
Aerides williamsii	OHT
A. rosea	OHT
A. multiflora	OHT
A. fieldingii	OHT
Ascocentrum semiteretifolium	OHT
A. himalaicum	OHT
Acanthophippium sylhetense	OHT
Arundina graminifolia	OHT
Agrostophyllum brevipes	OHT
A. khasianum	OHT
Acampe papillosa	OHT
A. ochracea	OHT
Bulbophyllum cornutum	OHT
B. congestum	OHT
B. cylindraceum	OHT
B. capillipes	OHT
B. clarkeanum	OHT
B. cornu-cervi	OHT
B. affine	OHT
B. griffithii	OHT
B. sikkimense	OHT
B. thomsonii	OHT
B. sarcophyllum	OHT
B. macraei	OHT
B. spathulatum	OHT
B. nodosum	OHT
B. piluliferum	OHT
Cymbidium munronianum	OHT
C. aloifolium	OHT
C. devonianum	OHT
C. cochleare	OHT
C. elegans	OHT
C. lancifolium	OHT
Cleisostoma subulatum	OHT
C. filiforme	OHT
C. tricallosum	OHT
C. sagittriforme	OHT
C. discolor	OHT
C. aspersum	OHT
Corymborkis veratrifolia	OHT
Chrysoglossum assamicum	OHT
C. erraticum	OHT

Species	Remark
Chiloschista lunifera	OHT
Cheirostylis tippica	OHT
C. yunnanensis	OHT
Cleisocentron trichromum	OHT
Callostylis rigida	OHT
Calanthe clavata	OHT
C. masuca	OHT
C.densiflora	OHT
Coelogyne viscosa	OHT
C. ovalis	OHT
Collabium chinense	OHT
Dendrobium mannii	OHT
D. moschatum	OHT
D. nobile	OHT
D. densiflorum	OHT
D. cumulatum	OHT
D. formosum	OHT
D. fimbriatum	OHT
D. lituiflorum	OHT
D. jenkinsii	OHT
D. lindleyi	OHT
D. anceps	OHT
D. acinaciforme	OHT
D. aduncum	OHT
D. aphyllum	OHT
D. sulcatum	OHT
D. terminale	OHT
D. transparens	OHT
D. cathcartii	OHT
D. ruckeri	OHT
Diplomeris hirsuta	OHT
Didymoplexis pallens	OHT
Doritis wightii	OHT
Diploprora championii	OHT
D. truncata	OHT
Esmeralda clarkei	OHT
Epipogium roseum	OHT
Ephemerantha macraei	OHT
Gastrochilus inconspicuus	OHT
G. rutilans	OHT
G. suavis	OHT
G. arunachalensis	OHT
G. obliquus	OHT
G. lindleyana	OHT

Table 1. Orchids of West Kameng District (Tropical forest) (contd.).

Species	Remark	Species	Remark
Habenaria pectinata	OHT	*Pteroceras suaveolens*	OHT
H. latilabris	OHT	*Papilionanthe teres*	OHT
Kingidium deliciosum	OHT	*Paphiopedilum villosum*	OHT
Luisia trichorhiza	OHT	*P. venustum*	OHT
L. filiformis	OHT	*Perislylus prainii*	OHT
L. zeylanica	OHT	*P. goodyeroides*	OHT
L. inconspicua	OHT	*Porpax seidenfadenii*	OHT
Liparis distans	OHT	*Podochilus khasianus*	OHT
L. paradoxa	OHT	*Pomatocalpa armigerum*	OHT
Micropera obtusa	OHT	*P. undulatum*	OHT
M. mannii	OHT	*P. wendlandorum*	OHT
Malaxis aphylla	OHT	*Pennilabium proboscideum*	OHT
M. purpurea	OHT	*P. struthio*	OHT
M. khasiana	OHT	*Phaius tankervilleae*	OHT
Nervilia infundibulifolia	OHT	*Phalaenopsis mannii*	OHT
N. plicata	OHT	*Rhynchostylis retusa*	OHT
N. juliana	OHT	*Robiquetia spicata*	OHT
Nephelaphyllum pulchrum	OHT	*R. succisa*	OHT
Oberonia falcata	OHT	*R. spathulata*	OHT
O. recurva	OHT	*Rhomboda arunachalensis*	OHT
O. auriculata	OHT	*Smitinandia micrantha*	OHT
O. anthropophora	OHT	*Spiranthes sinensis*	OHT
O. maxima	OHT	*S. lancea*	OHT
O. myriantha	OHT	*Spathoglottis plicata*	OHT
O. prainiana	OHT	*Stereosandra javanica*	OHT
O. katakiana	OHT	*Stereochilus hirtus*	OHT
O. rufilabris	OHT	*Sarcoglyphis arunachalensis*	OHT
O. iridifolia	OHT	*Schoenorchis gemmata*	OHT
O. caulescens	OHT	*Tropidia curculigoides*	OHT
Ornithochilus fuscus	OHT	*Tylostylis discolor*	OHT
Pinalia bractescens	OHT	*Tainia latifolia*	OHT
P. bambusifolia	OHT	*T. wrayana*	OHT
P. paniculata	OHT	*Trichotosia pulvinata*	OHT
P. pubescens	OHT	*T. velutina*	OHT
P. dasyphylla	OHT	*Thelasis longifolia*	OHT
P. flavescens	OHT	*T. pygmaea*	OHT
P. hindii	OHT	*Thunia alba*	OHT
P. stricta	OHT	*Trias nasuta*	OHT
P. discolor	OHT	*Taeniophyllum complanatum*	OHT
P. pannae	OHT	*T. stella*	OHT
P. rufinula	OHT	*Uncifera obtusifolia*	OHT
P. ferruginea	OHT	*Vanda cristata*	OHT
Pholidota imbricata	OHT	*Zeuxine gracilis*	OHT
P. articulata	OHT	*Z. nervosa*	OHT

is N 27°18'3.5676" and E 93°58'25.7268" and its altitude is 550 m amsl. The orchid species available are *Acanthophippium sylhetense, Aerides multiflora, A. rosea, Bulbophyllum clarkeanum, B. cylindraceum, Chrysoglossum assamicum, Cleisostoma aspersum, Cymbidium aloifolium etc.* The other collection localities are Doimara-Khellong, Kimi-Bana, Doimara RF. Rowta, Foothills, Deputa, Khupi, Saleri (Nafra) *etc.*

Subtropical Forest

This forest type occurs at an altitudal range of 900 m upto 2600 m and is essentially evergreen and dense in nature and the orchid species found here are listed in Table 2.

Sessa

Sessa orchid sanctuary is a 100 km^2 protected area of natural habitat of orchids with more than 200 species including new and endemic species. The sanctuary is more unique in having 7 endemic mycoheterotrophic species from 2 genera. The quadrangular geographical locations of Sessa orchid sanctuary (i) two corners of south is 27°06'.102" N and 92°31'.559" E (Western side) and 29°09'.648" N and 92°33'.428" E (Eastern side, Digi Nallah) at an altitude of 1146 and 1780 m amsl respectively and (ii) two corners of north is 27°07'.509" N and 92°27'.352" E (Eagleness Peak, Eastern side) and 27°06'.119" N and 92°24'.740" E (Chaku camp, Western side) at an altitude of 2780 and 2411 m amsl respectively. The orchid species available are *Bulbophyllum guttulatum, B. odoratissimum, Coelogyne fimbriata, Otochilus fuscus, Phaius flavus, Pinalia paniculata etc.*

Dirang

Dirang is a subcentre located at the geographical location of N 27°2'28.9" and E 092°14'12.6" at an altitude of 1655 m amsl. Orchid species available in the subcentre are *Cymbidium makinonii, Dendrobium falconeri, D. fimbriatum, D. moschatum, D. nobile, Paphiopedilum faierrianum etc.* The unique feature of the subcentre is the large cultivation of Lady slipper orchids. The other localities are Chaquanti, Rahung, Chanderbasti-panchavati, Mathlapudung *etc*.

Temperate Forest

These type of forests occur in all districts as a continuous belt along altitude between 1800-3500 m.

Table 2. Orchids of West Kameng District (Subtropical forest).

Species	Remark
Anoectochilus sikkimense	OHT
A. grandiflorus	OHT
A. abbreviatus	OHT
A. roxburghii	OHT
A. elwesii	OHT
A. lanceolatus	OHT
Apyllorchis montana	OHT
Anthogonium gracile	OHT
Acanthophippium striatum	OHT
Agrostophyllum callosum	OHT
Arachnis clarkeia	OHT
Acrochaene punctata	OHT
Acampe longifolia	OHT
Bulbophyllum gymnopus	OHT
B. loherianum	OHT
B. gamblei	OHT
B. hymenanthum	OHT
B. guttulatum	OHT
B. hastatum	OHT
B. helenae	OHT
B.hirtum	OHT
B. emarginatum	OHT
B. ebulbum	OHT
B. eublepharum	OHT
B. elatum	OHT
B. devangiriense	OHT
B. reptans	OHT
B. scariosum	OHT
B. khasianum	OHT
B. trichocephalum	OHT
B. odoratissimum	OHT
B. retusiusculum	OHT
B. sarcophyllum	OHT
B. parviflorum	OHT
B. repens	OHT
B. caespitosum	OHT
B. scabratum	OHT
B. obrienianum	OHT
B. retusiusculum	OHT
B. polyrrhizum	OHT
B. protractum	OHT
B. pencillium	OHT
B.cauliflorum	OHT
B. bisetum	OHT
B. delitescens	OHT
Bulbophyllum arunachalense	OHT
B. emarginatum	OHT
B. pulchrum	OHT

Table 2. Orchids of West Kameng District (Subtropical forest) (contd.).

Species	Remark	Species	Remark
Brachycorythis obcordata	OHT	*Cremastra appendiculata*	OHT
B. iantha	OHT	*Cyperorchis mastersii*	OHT
Biermannia jainiana	OHT	*Dendrobium wardianum*	OHT
Calanthe biloba	OHT	*D. bicameratum*	OHT
C. chloroleuca	OHT	*D. farmeri*	OHT
C. herbacea	OHT	*D. chrysanthum*	OHT
C. triplicata	OHT	*D. falconeri*	OHT
C. tricarinata	OHT	*D. devonianum*	OHT
C. trulliformis	OHT	*D. pendulum*	OHT
Cymbidium longifolium	OHT	*D. gibsonii*	OHT
C. grandiflorum	OHT	*D. heterocarpum*	OHT
C. giganteum	OHT	*D. eriiflorum*	OHT
C. gammieanum	OHT	*D. pauciflorum*	OHT
C. pendulum	OHT	*D. sessanicum*	OHT
C. sinense	OHT	*D. parciflorum*	OHT
C. mastersii	OHT	*D. longicornu*	OHT
C. cyperifolium	OHT	*D. chrysotoxum*	OHT
C. ensifolium	OHT	*D. primulinum*	OHT
C. faberi	OHT	*D. hookerianum*	OHT
C. macrorhizon	OHT	*D. macrostachyum*	OHT
C. mackinnonii	OHT	*D. monticola*	OHT
Cephalanthera damasonium	OHT	*D. candidum*	OHT
Ceratostylis himalaica	OHT	*Diglyphosa latifolia*	OHT
Cryptochilus luteus	OHT	*Diploprora truncata*	OHT
C. sanguineus	OHT	*D. championii*	OHT
Coelogyne griffithii	OHT	*Epipogium sessanum*	OHT
C. flaccida	OHT	*E. africanus*	OHT
C. barbata	OHT	*Epigeneium amplum*	OHT
C. longipes	OHT	*E. fuscescens*	OHT
C. flavida	OHT	*E. rotundatum*	OHT
C. fuscescens	OHT	*Eulophia zollingeri*	OHT
C. punctulata	OHT	*E. hormusjii*	OHT
C. prolifera	OHT	*Eriodes barbata*	OHT
C. ochracea (=*C. nitida*)	OHT	*Esmeralda cathcartii*	OHT
C. occultata	OHT	*Epipactis helleborine*	OHT
C. rigida	OHT	*Flickingeria fugax*	OHT
C. nitida	OHT	*Galeola javanica*	OHT
C. schultesii	OHT	*Gastrochilus distichus*	OHT
C. stricta	OHT	*G. inconspicuus*	OHT
C. elata	OHT	*G. acutifolius*	OHT
Cleisostoma williamsonsii	OHT	*G. calceolaris*	OHT
C. paniculatum	OHT	*Oreorchis micrantha*	OHT
Cleisostoma racemiferum	OHT	*Otochilus fuscus*	OHT
C. simondii	OHT	*O. albus*	OHT
Chiloschista usneoides	OHT	*O. porrectus*	OHT
Cheirostylis sessanica	OHT	*Pinalia carinata*	OHT
C. munnacampensis	OHT	*P. bipunctata*	OHT

Table 2. Orchids of West Kameng District (Subtropical forest) (contd.).

Species	Remark
P. coronaria	OHT
P. apertiflora	OHT
P. amica	OHT
P. acervata	OHT
P. excavata	OHT
P. connata	OHT
P. clausa	OHT
P. fragrans	OHT
P. confusa	OHT
P. corneri	OHT
P. pusilla	OHT
P. spicata	OHT
P. graminifolia	OHT
Platanthera juncea	OHT
Pachystoma senile	OHT
P. pubescens	OHT
Phaius flavus	OHT
P. mishmensis	OHT
Phreatia elegans	OHT
Pholidota rubra	OHT
P. undulata	OHT
P. praecox	OHT
Gastrochilus intermedius	OHT
G. sessanicus	OHT
G. bigibbus	OHT
G. dasypogon	OHT
Gastrodia arunachalensis	OHT
Goodyera vittata	OHT
G. foliosa	OHT
G. vridiflora	OHT
G. hispida	OHT
Herminium monophyllum	OHT
H. lanceum	OHT
H. haridasanii	OHT
Habenaria seshagiriana	OHT
H. ensifolia	OHT
H. arietina	OHT
Kingidium taeniale	OHT
Liparis nervosa	OHT
L. odorata	OHT
L. mannii	OHT
L. delicatula	OHT
L. cordifolia	OHT
L. slectandaliana	OHT
L. resupinata	OHT
L. plantaginea	OHT
L. perpusilla	OHT

Species	Remark
L. cespitosa	OHT
L. bistriata	OHT
L. gamblei	OHT
L. bootanensis	OHT
L. bituberculata	OHT
Malaxis accuminata	OHT
M. calophylla	OHT
M. aphylla	OHT
M. latifolia	OHT
M. josephiana	OHT
M. josephii	OHT
Monomeria barbata	OHT
Neogyna gardneriana	OHT
Oberonia jenkinsiana	OHT
O. acaulis	OHT
O. pachyrachis	OHT
O. pumila	OHT
O. pyrulifera	OHT
O. treutleri	OHT
O. longilabris	OHT
O. obcordata	OHT
Panisea demissa	OHT
Pomatocalpa spicatum	OHT
Phalaenopsis parishii	OHT
Paphiopedilum fairrieanum	OHT
Peristylus lawii	OHT
Papilionanthe vandarum	OHT
Sigmatogyne tricallosa	OHT
Stereochilus hirtus	OHT
Sunipia racemosa	OHT
S. scariosa	OHT
S. andersonii	OHT
S. jainii	OHT
S. intermedia	OHT
S. candida	OHT
Spathoglottis pubescens	OHT
S. ixioides	OHT
Tropidia pedunculata	OHT
Thelasis khasiana	OHT
Taeniophyllum arunachalense	OHT
Taeniopsis barbata	OHT
Vanda pumila	OHT
V. alpina	OHT
V. stangeana	OHT
Zeuxine flava	OHT
Z. lindleyana	OHT
Z. longilabris	OHT
Z. goodyeroides	OHT

The vegetation is characterized by open and apparent lax storied nature with dominance of oaks and members of Aceraceae, Magnoliaceae, Ericaceae, particularly the species of *Rhododendron*. The orchid species found here are listed in Table 3.

Table 3. Orchids of West Kameng District (Temperate forest).

Species	Remark
Bulbophyllum retusiusculum	OHT
Calanthe plantaginea	OHT
C. alismifolia	OHT
C. brevicornu	OHT
C. herbacea	OHT
C. mannii	OHT
Cymbidium goeringii	OHT
Dienia cylindrostachya	OHT
Gymnadenia orchidis	OHT
Goodyera recurva	OHT
G. schlechtendaliana	OHT
Herpysma longicaulis	OHT
Hetaeria rubens	OHT
Habenaria stenantha	OHT
Liparis kwangtungensis	OHT
Nervilia gammieana	OHT
N. scottii/macroglossa	OHT
Pinalia vittata	OHT
Peristylus latilobus	OHT
P. fallax	OHT
Platanthera stenantha	OHT
Porpax elwesii	OHT
Panisea tricallosa	OHT
Papilionanthe uniflora	OHT
Satyrium nepalense	OHT
Vandopsis undulata	OHT

Bampu Road

Bampu is one of the boundaries of Sessa orchid sanctuary in Western side. The geographical location of Bampu is 27°03'.95" N and 92°24'.365" E at an altitude of 1951 m amsl. The other adjoining localities are Chaku camp, Muna camp, Khellong *etc*.

Eagle Nest

A Sessa orchid sanctuary road is passing through the peak of Eagle Nest wildlife sanctuary. After passing through this peak, either side of the road is going down. *Pleione* species were growing on the moss covered rock or soil. Lama camp is the nearest camp to this peak located at an altitude of 2400 m in eastward and Sunder View at a geographical location of 27°06'.881" N and 92°26'.213" E at an altitude of 2550 m amsl in westward.

Shergaon-Tengingaon

The geographical location of Shergoan is N 27°07'51.6" and E 92°15'51.0" at an altitude of 1967 m amsl. The other nearest localities are Chillipam, Gaucham village, Rupa *etc*.

Mandala

The geographical location of mandala is N 27°16'30.7" and E 92°15'20.4" at an altitude of 3177 m amsl. *Bulbophyllum* spp., *Ceologyne* spp., *Liparis* spp. *etc*. were found.

Sange

The geographical location of Sange is N 27°27'30.1" and 092°06'17.4" E at an altitude of 3072 m amsl. The collected species are *Satyrium nepalense, Orchis chusua, Pleione humilis etc*.

Orchids of Lower Subansiri District

Tropical Forest

This forest type occurs up to an elevation of 900 m amsl starting from the plains and foothills bordering Assam. The orchid species found here are listed in Table 4.

Table 4. Orchids of Lower Subansiri District (Tropical and Subtropical forest).

Species	Remark
Bulleyia yunnanensis	OHT
Calanthe puberula	OHT
Cryptochilus luteus	OHT
C. sanguineus	OHT
Coelogyne longipes	OHT
C. flavida	OHT
C. prolifera	OHT
C. occultata	OHT
C. raizadae	OHT
Galeola lindleyana	OHT
G. falconeri	OHT
Ione arunachalense	OHT
Liparis plantaginea	OHT
L. cespitosa	OHT
Oberonia longilabris	OHT
Otochilus porrectus	OHT
Pinalia jenggensis	OHT
P. graminifolia	OHT
P. connata	OHT
Peritylus richardianus	OHT
Papilionanthe uniflora	OHT
Sunipia intermedia	OHT

Subansiri Bridge

The geographical location of Subansiri Bridge (Assam) is N 27°26'56.4" and E 94°14'56.6" at an altitude of 93 m amsl. The orchid flora of this area is similar such as *Aerides multiflora*[L], *A. rosea*[L], *Dendrobium aphyllum*[L], *Pinalia flavescens*[L], *Rhynchostylis retusa*[L], *Spiranthes lancea*[L], *S. sinensis*[L] *etc*.

Subtropical Forest

Lebya-Penggo Pass

The geographical location of Lebya-Penggo Pass is N 27°32'22.8" and E 93°56'06.3" at an altitude of 2498 m amsl. After the collections, we returned from this place which we climbed as a maximum height in the Tale Wildlife Sanctuary. The collection of orchid species from Pange to Tale valley are *Bulbophyllum odoratissimum*[L], *Calanthe brevicornu*[L], *C. mannii*[L], *Coelogyne fimbriata*[L], *Cymbidium mackinonii*[L], *Dendrobium longicornu*[L], *Liparis cespitosa*[L], *Pholidota articulata*[L], *Pinalia grandiflora*[L] *etc.* The orchid species found here are listed in Table 4.

Potin

The geographical location of Potin is N 27°19'58.3" and E 93^{0}49'20.2" at an altitude of 997 m amsl. This is located in the lower elevation of this forest zone. The collection was intensive and the orchids are *Cymbidium munronianum*[L], *Dendrobium aphyllum*[L], *D. moschatum*[L], *Phaius tankervilleae*[L] *etc*.

Joram Top

The geographical location of Joram Top is N 27°32'00.9" and E 93°47'39.9" at an altitude of 1766 m amsl. The orchids at this place include *Cymbidium pendulum*[L], *Dendrobium aduncum*[L], *D. hookerianum*[L] *etc*.

Temperate Forest

No representative specimen was available in OHT and also there is no report of collection from temperate forest zone.

Orchids of Changlang District

Tropical Forest

The orchid species found here in different localities are listed in Table 5.

Table 5. Orchid of Changlang District (Tropical forest).

Species	Remark
Aerides williamsii	OHT
A. multiflora	OHT
Bulbophyllum clarkeanum	OHT
B. affine	OHT
B. piluliferum	OHT
Cymbidium eburneum	OHT
Calanthe clavata	OHT
Ceratostylis teres	OHT
Coelogyne ovalis	OHT
Cheirostylis moniliformis	OHT
C. pusilla	OHT
Dendrobium acinaciforme	OHT
D. transparens	OHT
D. kentrophyllum	OHT
Diplomeris josephii	OHT
Flickingeria albopurpurea	OHT
Gastrochilus arunachalensis	OHT
Liparis longipes	OHT
Malaxis latifolia	OHT
Micropera mannii	OHT
Oberonia prainiana	OHT
O. parvula	OHT
Pinalia bractescens	OHT
P. clausa	OHT
P. biflora	OHT
P. pudica	OHT
Rhynchostylis retusa	OHT
Robiquetia succisa	OHT
Smitinandia micrantha	OHT
Schoenorchis gemmata	OHT
Tainia wrayana	OHT
Thrixspermum arachnites	OHT

Miao

The geographical location of Miao is N 27°29'12.9" and E 96°12'43.2" at an altitude of 165 m amsl. The survey and collection for orchids was done at a place from where Namdhapa National Park is 25 km away and 8 km from Miao town. The trip was restricted to this point following road block due to incessant rain. The collection records as per the OHT (Orchid Herbarium Tippi) are:

Subtropical Forest

The species including *Anoectochilus roxburghii*[S], *Bulbophyllum sarcophyllum*[S], *Coelogyne flavida*[L], *Dendrobium parciflorum*[L] were collected from various localities (Deban, Motijeel, Namdhapha, Minzongyasong, Deban to 25 miles, Deban to 20 miles, Namsang, Madhuban, and Dimachang) (as per the specimens available in OHT).

Temperate Forest

The species at temperate forest are *Zeuxine clandestine*[L], *Z. flava*[L], *Z. nervosa*[L] *etc*.

Orchid of Upper Siang District

Tropical Forest

The orchid species found here in different localities are listed in Table 6.

Table 6. Orchid of Upper Siang District (Tropical forest).

Species	Remark
Arundina graminifolia	OHT
Anthogonium gracile	OHT
Bulbophyllum cauliflorum	OHT
B. clarkeanum	OHT
Coelogyne fuscescens	OHT
C. ovalis	OHT
Cleisostoma sagittiforme	OHT
Dendrobium moschatum	OHT
D. nobile	OHT
D. densiflorum	OHT
Dendrobium fimbriatum	OHT
Liparis mannii	OHT
L. viridiflora	OHT
Luisia trichorhiza	OHT
Pinalia acervata	OHT
P. amica	OHT
P. hindii	OHT
Uncifera obtusifolia	OHT
Vanda bicolor	OHT
V. cristata	OHT

Tuting

The geographical location of Tuting is N 28°59'.511" and 53°53'.497" E at an altitude of 598 m amsl. Tuting is located in Indo-China border. *Dendrobium vexabile* was collected from Tuting. The other localities are Gosang, Ramsing, Yingkiong *etc*. The orchid species collected from the district as specimens at OHT are:

Subtropical Forest

The orchid species collected from the region are listed in Table 7.

Table 7. Orchid of Upper Siang District (Subtropical forest).

Species	Remark
Bulbophyllum odoratissimum	OHT
Cymbidium grandiflorum	OHT
C. cyperifolium	OHT
C. elegans	OHT
Cephalantheropsis gracilis	OHT
Chrysoglossum assamicum	OHT
Dendrobium chrysanthum	OHT
Dendrobium falconeri	OHT
Eulophia zollingeri	OHT
Liparis cespitosa	OHT
L. bistriata	OHT
Malaxis callophylla	OHT
Pinalia apertiflora	OHT
P. pulchella	OHT

Dona Hills (Jengging)

The geographical location of Jengging is 28°34'33.7116" N and 95°0'15.5448" E at an altitude of 1200 m amsl.

Temperate Forest

Mouling National Park

The geographical location of the park lies in between E 94°42" to 95°51" and N 28°28" to 28°43" at an altitude ranging from 750 m to about 3000 m amsl and its highest peak being the 3064 m. *Cephalantheropsis gracilis* and *Coelogyne fimbriata* have been collected from this forest zone of the park that remains specimen representatives in OHT (Orchid Herbarium Tippi).

Orchids of Tawang District

Tawang is located in the extreme western corner of Arunachal Pradesh. It lies between 27°25" to 27°45" N and 91°42' to 92°39" E covering an area of 2,172 km^2. The district shares boundary on East with West kameng, Tibet (China) on North and Bhutan on West and South. The district is the most fascinating and beautiful land with picturesque snow covered peaks of Himalayan ranges upto 3500 m amsl (Mahapatra, 2010). Basing on structural and compositional characteristics, the vegetation of the district can be broadly classified under the following major types (cf. Champion and Seth, 1968; Kaul and Haridasan, 1987).

Temperate Forests

Temperate broad leaved forest (2750-3000 m amsl)

Temperate coniferous and broad leaved forest (3000-3500 m amsl)

Sub-Alpine and Alpine Forest

Rhododendron scrub lands (4000-4300 m amsl)

Dwarf *Rhododendron* meadows (4200-4600 m amsl)

High altitude grassy meadows (4350-5250 m amsl)

Twenty five species from 17 genera have been listed (Mahapatra, 2010). The specimens available in OHT are *Anthogonium gracile*[S], *Bulbophyllum retusiusculum*[S], *Coelogyne corymbosa*[S], *C. fimbriata*[S], *C. occultata*[S], *Epigeneium fuscescens*[S], *Habenaria cumminsiana*[S], *Herminium longilobatum*[S], *Liparis cathcarthii*[S], *Pholidota rubra*[S], *Pleione humilis*[S], *P. hookeriana*[S], *Satyrium nepalense*[S], *Spiranthes lancea*[S], *S. sinensis*[S] *etc*.

During a field trip to Tawang district in 2015, *Dienia muscifera*[S] have been collected from T-Gompa whose geographical location is N 27°43'09.1" and E 091°47'59.6" at an altitude of 3650 m and another species was *Orchis chusua* collected from Sela Pass at the geographical location is N 27°30'12.7" and E 092°06'16.0" at an altitude of 4196 m amsl. Both the species were of the same forest types of *Rhododendron* scrub lands (4000-4300 m amsl). The total species collected from the district are 17 whose specimens are available in Orchid Herbarium Tippi (OHT).

Orchids of East Kameng District

East Kameng district lies between E 92°36" to 93°24" and N 26°56" to 27°59".

Tropical Forest

The orchid species found here in different localities are listed in Table 8.

Table 8. Orchid of East Kameng District (Tropical forest).

Species	Remark
Arundina graminifolia	OHT
Acampe papillosa	OHT
Agrostophyllum khasianum	OHT
A. brevipes	OHT
Aerides multiflora	OHT
Bulbophyllum affine	OHT
B. careyanum	OHT
B. congestum	OHT
B. crassipes	OHT
B. clarkeanum	OHT
B. capillipes	OHT
B. striatum	OHT
Cymbidium lancifolium	OHT
C. pendulum	OHT
Calanthe masuca	OHT
Coelogyne rigida	OHT
Cleisostoma subulatum	OHT
C. simondii	OHT
C. tricallosum	OHT
Chrysoglossum assamicum	OHT
Chiloschista lunifera	OHT
Dendrobium densiflorum	OHT
D. sulcatum	OHT
D. terminale	OHT
D. lituiflorum	OHT
D. anceps	OHT
D. aduncum	OHT
D. cathcartii	OHT
Flickingeria fugax	OHT
Goodyera procera	OHT
India arunachalensis	OHT
Kingidium deliciosum	OHT
Luisia trichorhiza	OHT
L. zeylanica	OHT
Mastigion ornatissimum	OHT
Micropera mannii	OHT
Oberonia anthropophora	OHT
O. rufilabris	OHT
O. prainiana	OHT
Pinalia ferruginea	OHT
P. carinata	OHT
P. fragrans	OHT
P. paniculata	OHT
P. pudica	OHT
P. tomentosa	OHT
P. pannae	OHT
Pholidota articulata	OHT
P. ehinensis	OHT
Phalaenopsis mannii	OHT
Pomatocalpa spicatum	OHT
P. undulatum	OHT
P. wendlandorumm	OHT
Robiquetia succisa	OHT
Stereochilus hirtus	OHT
Tylostylis discolor	OHT
Tainia latifolia	OHT
Taeniopsis barbata	OHT
Thelasis longifolia	OHT
Thrixspermum pygmaeum	OHT
T. centipeda	OHT
Uncifera acuminata	OHT

Pakhui Wildlife Sanctuary

Pakhui Wildlife Sanctuary lies in the undulating and hilly foothills at an elevations ranging from 150 to 2000 m amsl and its geographical location is 27°05' N and 92°51.5' E. The area of the sanctuary is 861.95 km^2. It is bounded by Kameng river in the West and North and Pakke river in the east. It is surrounded by contiguous forests on most sides. To the East, lies Papum Reserve Forest with an area of 1064 km^2. Towards the South

and South-East, the sanctuary adjoins reserve forest and Assam's Nameri National Park. To the West, it is bounded by Doimara Reserve Forest with an area of 216 km^2 and Eaglenest Wildlife sanctuary and to the North by Shergaon Forest Division. The forest type of the sanctuary are (i) tropical semi-evergreen on the lower plains and foothills, patches of tropical evergreen and (ii) subtropical broad leaved forests on the hilltop and higher reaches. The collection of orchids by Orchid Research Centre, Tippi was mostly from Pakhui Wildlife Sanctuary and its adjoining areas of wildlife sanctuary, National park, Reserve forest *etc*. which are mostly under tropical forest.

Subtropical Forest

The orchid species found here in different localities are listed in Table 9.

Table 9. Orchid of Upper Siang District (Subtropical forest).

Species	Remark
Bulbophyllum loherianum	OHT
B. delitescens	OHT
B. reptans	OHT
B. odoratissimum	OHT
B. trichocephalum	OHT
B. cupreum	OHT
B. hirtum	OHT
Biermannia bimaculata	OHT
Coelogyne stricta	OHT
C. elata	OHT
C. nitida	OHT
Dendrobium denudans	OHT
D. eriiflorum	OHT
Epipogium africanus	OHT
Epigenium chapaense	OHT
Esmeralda cathcarthii	OHT
Gastrochilus intermedius	OHT
G. dasypogon	OHT
G. calceolaris	OHT
Galeola nudifolia	OHT
Liparis elliptica	OHT
L. delicatula	OHT
L. bistriata	OHT
Oberonia acaulis	OHT
O. prainiana	OHT
Otochilus albus	OHT
Podochilus khasiana	OHT
Pinalia carinata	OHT
Phalaenopsis lobii	OHT
Vanda alpina	OHT

Chayangtajo

Chayangtajo is one of the sub-divisional offices of the district. The geographical location of Chayangtajo is N 27°40'54.1344" and E 93°8'12.984" at an altitudinal range of 900 to 1700 m amsl.

Temperate Forest

Temperate forests are diverse ecosystems composed of mixtures of conifers, broad-leaved evergreen and broad-leaved deciduous trees. The orchid species found in this forest zone of East Kameng district are *Bulbophyllum retusiusculum*[L], *Tainia hookeriana*[L], *Zeuxine clandestine*[L].

Orchids of Upper Subansiri District

Tropical Forest

The forest in higher ridges is of tropical evergreen type with a few subtropical elements like *Arundina graminifolia*[L] *Coelogyne occultata*[L], *Cymbidium iridioides*[L], *C. longifolium*[L], *Dendrobium hookerianum*[L], *D. vexabile*[L], *Pennilabium struthio*[L] *Phaius tankervilleae*[L], *Pomatocalpa undulatum*[L], *Tropidia curculigoides*[L].

Tamen

The geographical location of Tamen is N 27°45'32.1" and E 94°00'32.2" at an altitudinal of 271 m amsl.

Daporijo

The geographical location of daporijo is N 27°59'01.3" and E 94°13'07.0" at an altitudinal of 247 m amsl. *Acampe longifolia*[L], *Arundina graminifolia*[L], and *Thelasis longifolia*[L] are found here.

Raga

The geographical location of Tamen is N 27°47'31.5" and E 094°04'32.2" at an altitudinal of 1073 m amsl. *Agrostophyllum callosum*[L], *Calanthe brevicornu*[L], *C. pachystalix*[L], *Dendrobium hookerianum*[L], *Eulophia zollingeri*[L], *Liparis plantaginea*[L] *L. resupinata*[L], *Vanda bicolor*[L] are found here.

Temperate Forest

Cephalantheropsis longipes[L]

Orchids of Anjaw District

Tropical Forest

The orchid species found here include *Acampe ochranae*[L], *A. papillosa*[L], *Aerides odorata*[L] *A. rosea*[L], *Arundina graminifolia*[S], *Chiloschita usnoides*[L],

Cleisostoma paniculatum[L], *C. sagittiforme*[S], *C. simondii*[S], *Cymbidium aloifolium*[L], *C. giganteum*[L], *C. pendulum*[L], *Dendrobium nobile*[S], *Flickingera fugax*[L], *Goodyera procera*[S], *Liparis cordifolia*[L] *L. viridiflora*[S], *Luisia trichorhiza*[S], *Pinalia paniculata*[L], *Rhynchostylis retusa*[L], *Thelasis longifolia*[S] and *Vanda cristata*[L].

Subtropical Forest

Hawai

The geographical location of Hawai is N 28°05'.337" and E 96°27'.212" at an altitude of 1200 m amsl. *Anoectochilus roxburghii*[L], *Bulbopyllum reptans*[S], *Calanthe mannii*[L], *C. masuca*[L], *Cleisostoma appendiculata*[S], *Coelogyne flavida*[L], *Cymbidium lancifolium*[L], *Otochilus fuscus*[L] *O. porrectus*[S], *Phreatia elegans*[S], *Pholidota articulata*[L], *Pinalia amica*[L], *P. ferruginea*[S], *Spiranthes sinensis*[L] are found here.

Temperate Forest

Cephalanthera ensifolia[S], *Cymbidium dayanum*[S], *Hetaeria rubens*[S], *Liparis kwangtungensis*[S], *Tainia hookeriana*[S] are found here.

Orchids of Tirap District

Tropical Forest

The orchid species found here in different localities are listed in Table 10.

Table 10. Orchids of Tirap District (Tropical forest).

Species	Remark
Arundina graminifolia	OHT
Arachnis labrosa	OHT
Bulbophyllum affine	OHT
B. andersonii	OHT
B. wallichii	OHT
Biermannia bimaculata	OHT
Ceratostylis teres	OHT
Cleisostoma racemiferum	OHT
Collabium chinense	OHT
Dendrobium kentrophyllum	OHT
D. lituiflorum	OHT
D. acinaciforme	OHT
Goodyera procera	OHT
Oberonia falcata	OHT
Spiranthes sinensis	OHT
Trichotosia pulvinata	OHT
Uncifera acutifolia	OHT

Khonsa

The geographical location of Khonsa town is N 26°59'16.3" and E 095°30'13.4" at an altitude of 784 m amsl.

Tissa

The geographical location of Tissa is N 26°54'46.5" and E 95°21'55.0" at an altitude of 285 m amsl. The orchid species are *Dendrobium aphyllum*[L], *D. nobile*[L], *Pholidota imbricata*[L].

Subtropical Forest

The orchid species found here in different localities are listed in Table 11.

Table 11. Orchids of Tirap District (Subtropical forest).

Species	Remark
Bulleyia yunnanensis	OHT
Cypripedium tibeticum	OHT
Coelogyne rigida	OHT
Cymbidium devonianum	OHT
Dendrobium chrysotoxum	OHT
D. primulinum	OHT
Erythrochis ochobiensis	OHT
Epigeneium amplum	OHT
Flickingeria ritaeana	OHT
Galeola nudifolia	OHT
Monomeria barbata	OHT
Otochilus albus	OHT
Pinalia pulchella	OHT
Pholidota convallariae	OHT
Pleione maculata	OHT
Sunipia candida	OHT
Trias disciflora	OHT

Kaimoi Village

The geographical location of Kaimoi village is N 26°48'13.0" and E 095°25'14.4" at an altitude of 1656 m amsl.

Lazu

The geographical location of Lazu is N 26°53'48.2" and E 95°34'44.5" at an altitude of 1568 m amsl. Orchid species are, *Bulbophyllum hirtum*[L], *Cymbidium grandiflorum*[L] , *Dendrobium hookerianum*[L], *Otochilus fuscus*[L], *Thelasis longifolia*[L].

Temperate Forest

The orchid species namely *Galearis stracheyi*[L], *Herminium kumaunensis*[L] were found here.

Orchids of Siang District

Tropical Forest

Pasighat

The geographical location of Pasighat is N 28°3'42.8364" and E 95°19'33.3696" at an altitude of 152 m amsl.

D' Ering Wildlife Sanctuary

The geographical location of D' Ering Wildlife sanctuary is N 28°00'24.8" and E 095°27'38.0" at an altitude of 126 m amsl. The orchid species found in the area are *Aerides odoratum*[S], *Dendrobium aduncum*[S], *Dendrobium nobile*[S], *Luisia trichorhiza*[S], *Pinalia ferruginea*[S], and *Smitinandia micrantha*[S].

Subtropical Forest

The orchid species, *Gastrochilus acutifolius*[S] was found here.

Orchids of Longding District

Tropical Forest

The geographical location of Longding town is N 26°53'01.5" and E 95°19'01.8" at an altitude of 877 m amsl. *Bulbophyllum affine*[S], *B. careyanum*[S], *Dendrobium fimbriatum*[S], *Liparis manni*[S] were found here. Localities are Tissing, Nisa, 6 km from Lumding (Longding)

Subtropical Forest

Wakka

The geographical location of Wakka is N 26°48'21.4" and E 95°24'16.4" at an altitude of 1403 m amsl.

Orchids of Lohit District

Tropical Forest

Lohit River Bridge

The geographical location of Lohit River Bridge is N 27°41.723' and E 95°53.641' at an altitude of 322 m amsl. *Dendrobium cathcartii*[S], *D. lituiflorum*[S], *Goodyera procera*[S], *Luisia inconspicua*[S], *Oberonia kamlangensis*[S], *Pinalia acervata*[S], *P. kamlangensis*[S], *P. lohitensis*[S], *Stereochilus hirtus*[S], *Thelasis longifolia*[S], *Thunia alba*[S] were found here. The collection localities are Wakro, Tezu, Kamlang, Kamlang wildlife sanctuary, Maitliang, Kamlang, RF, on way to Chamba-Glow lake area, and Kamlang, RF.

Subtropical Forest

The species namely *Cleisostoma paniculatum*[S], *Dendrobium devonianum*[S], *Liparis plantaginea*[S], *Oberonia arunachalensis*[S], *Pinalia arunachalensis*[S], *Vanda bicolor*[S] were found here.

Orchids of Namsai District

Tropical Forest

Namsai

The geographical location of Namsai is N 27°42'50.5116" and E 96°57.4956". *Cleisostoma filiforme*[S], *Luisia inconspicua*[S], *L. zeylanica*[S], *Oberonia longilabris*[S], *Pomatocalpa spicatum*[S], *Pteroceras teres*[S], *Schoenorchis gemmata*[S], *Thrixspermum centipede*[S], *Tylostylis discolor*[S] were found here. The collection localities are Namsai, Madhuban, Madhuban, near Namsai.

Subtropical Forest

The orchid species, *Phalaenopsis lobii*[S] is found here.

Orchids of West Siang District

Tropical Forest

Along

The geographical location of Along is N 28°08'55.1" and E 94°48'09.6" at an altitude of 317 m amsl. The collection localities are Liromoba, Kaying, Tribin (Basar-Along). *Bulbophyllum guttulatum*[L], *Coelogyne prolifera*[L], *Dendrobium aduncum*[S], *D. densiflorum*[L], *D. nobile*[L], *Goodyera procera*[L] were found here.

Subtropical Forest

The orchid species, *Malaxis acuminata*[S] and *Pinalia arunachalensis*[S] were found here.

Orchids of Papum Pare District

Tropical Forest

Zoological Park, Itanagar

The geographical location of the Zoological Park, Itanagar is 27°4'12" N and 93°35'3" E at an altitude of 200-234 m amsl.

Rajiv Gandhi University, Doimukh

The geographical location of the Rajiv Gandhi University, Doimukh is 27°8'55.482" N and 93°46'5.7324" E at an altitude of 550-600 m amsl. The species available are *Aerides odorata*[L], *Cleisocentrum tricallosum*[L], *Cymbidium aloifolium*[L], *C. pendulum*[L], *Dendrobium aphyllum*[L], *D. fimbriatum*[L], *D. lituiflorum*[L], *D. moschatum*[S], *Liparis cordifolia*[S], *L. paradoxa*[S], *Luisia*

trichorhiza[L] , *Micropera mannii*[S], *Pholidota imbricata*[L], *Pinalia flavescens*[L], *Pomatocalpa wendlandorum*[S], *Rhynchostylis retusa*[L], *Spathoglottis pubescens*[S], *Spiranthes sinensis*[S], *Tainia latifolia*[S]. The collection localities are Itanagar, Chessa, Banderdewa to Itanagar, Ganga, Tarajuli.

Subtropical Forest

Dendrobium stupodum[S], *Phreatia elegans*[S].

Temperate Forest

Listera pinetorum[S], *Zeuxine affinis*[S], *Z. strateumatica*[S].

Orchids of Shi-Yomi District

Tropical Forest

South West Corner (Ddbr Starting Point)

The geographical location of South West corner (DDBR starting point) is N 28°32'37.2" and E 94°38'03.0" at an altitude of 687 m amsl. *Arundina graminifolia*[L] and *Goodyera procera*[L] are found here.

Subtropical Forest

Tato

The geographical location of Tato is N 28°31'49.7" and E 94°22'31.3" at an altitude of 1426 m amsl. *Liparis ellipticum*[L] grows here.

Temperate Forest

Mechuka

The geographical location of Mechuka is N 28°35'37.1" and E 94°07'55.4" at an altitude of 1976 m amsl. The orchid species namely, *Brachycorthis iantha*[L], *Coelogyne faccida*[L], *C. nitida*[L], *Cymbidium hookerianum*[L] and *Pleione maculata*[L] were found here.

Yarlung

The geographical location of Yarlung is N 28°40'18.0" and E 93°58'11.3" at an altitude of 2461 m amsl. *Coelogyne nitida*[L], *Cymbidium hookerianum*[L], *Dendrobium aduncum*[L], *Oberonia falcata*[L], *Phreatia elegans*[L] were found here.

Alpine Forest

Damginla

The geographical location of Damginla is N 28°41'18.7" and E 94°04'18.6" at an altitude of 3712 m amsl.

Orchids of Lower Dibang Valley District

Tropical Forest

Roing

The geographical location of Roing is N 28°25'47.3952" and E 95°52'39.3456" at an altitude of 390 m amsl. *Aerides rosea*[L], *Dendrobium aphyllum*[L] and *Rhynchostylis retusa*[L] are found here.

Subtropical Forest

Mayudia

The geographical location of Mayudia is N 28°14.438' and E 95°53.98' at an altitude of 2500 m amsl. *Pleione sexicola* grows here.

Mayudia Pass

The geographical location of Mayudia Pass is N 28°14.107' and E 095°06.604' at an altitude of 2832 m amsl.

Orchids of Kurung Khumey District

Tropical Forest

Sangram

Arundina graminfolia[L] grows here at an altitude of 950 m amsl.

Subtropical Forest

Sarli

The geographical location of Sarli is N 27°56'523" and E 93°09'302" at an altitude of 1436 m amsl. *Ceologyne oculata*[L], *Dendrobium chrysanthum*[L], *D. denudans*[L], *D. sulcatum*[L], *Galeola falconeri*[L], *Schenorchis gemmata*[L] were found here.

Mili Village

The geographical location of Mili village is N 27°57'008" and E 93°06'018" at an altitude of 1538 m amsl. *Cymbidium devonianum*[L], *Dendrobium chrysanthum*[L], *D. hookerianum*[L], *Galeola falconeri*[L], *Nepalaphyllum pulchrum*[L], *Pinalia bambusifolia*[L], *P. connata*[L] and *P. coronaria*[L] were found here.

Temperate Forest

Second Camp (Vadsay Hill)

The geographical location of Second camp is N 27°56'138" and E 93°00'068" at an altitude of 3500 m amsl. *Ponerorchis chusua* and *Spiranthis sinensis*[L] were found here.

Alpine Forest

Vadsay Hill (Top)

Vadsay Hill is at an altitude of 4300 m amsl. *Habenaria arietina, Herminium monophyllum* and *Platantera bakeriana* were found here.

Conclusion

Presently, an attempt was made so as to provide information on distribution of orchid species in different localities of 17 districts in Arunachal Pradesh. During the present study, district wise listing of species in tables and species^{S} in OHT has been provided; species^{S}, OHT, and species^{L} have been used to differentiate specimens and live plants. Amongst the districts surveyed, West Kameng district was found to have the maximum orchid collection whereas the West Siang district has the least collection. The geographical location and altitude of every district is provided. In each district, according to the forest zone, list of species is provided for easy collection and identification; most of the orchids were, however, collected from tropical and subtropical forests. The present data may be useful for future researches on diversity and taxonomy of orchids in the state of Arunachal Pradesh. Though some studies on the diversity and distribution of species have been made by a few scientists in different regions such as Indian Himalayan Region (Pandey and Bhatt, 2021), NorthWestern Himalayas (Barman *et al.,* 2021; Jaryal *et al*., 2021; Kumari and Pathak, 2020; Prakash and Pathak, 2019; Vij *et al.,* 2013), Western Himalayas (Marwah *et al.,* 2021), Karnataka (Hegde and Krishnaswamy, 2021), orchid flora of the states need to be reviewed from time to time and diversity and ethnobotanical studies have to be made, especially in the unexplored areas of the states in the country.

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