

Studies on Orchid flora of Imphal Valley, Manipur

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ABSTRACT

The present paper deals with the survey conducted on Orchid flora in the Imphal Valley, Manipur. During the survey a total of 52 orchid species belonging to 20 genera were recorded. These comprise of 17 *Dendrobium* species, 4 *Vanda* species, 3 of *Aerides*, 3 species of *Bulbophyllum*, 3 species of *Cymbidium*, 3 species of *Pholidata*, 2 species of *Acampe*, 2 species of *Ascocentron*, 2 species of *Coelogyne* and 1 species each in the genera *Brachycorythis obcordata*, *Cleisocentron pallens*, *Cleisostoma brevipes*, *Eria flava*, *Nervilia aragoana*, *Paphiopedilum hirsutissimum*, *Phaius wallichii*, *Phalaenopsis parishii*, *Pleione praecox*, *Renanthera imschootiana*, *Rhynchostylis retusa* and *Thunia marshalliana*.

Key words: Orchidaceae, Imphal valley, Manipur.

Manipur is one of the states in Northeastern -India with its capital in Imphal and geographically it comes under the Southeast Asia region. The climate of Manipur is largely influenced by the topography of the hilly region which defines the geography of Manipur. Manipur had diverse flora and fauna and one of the diverse floras which had been present abundantly is the Orchidaceae *i.e* the orchid family. Around 269 orchid species have been reported from Manipur.

Orchids are the second largest group of flowering plants comprising about 788 genera and 18,500 species⁶. They are distributed throughout the world, except the hot desert and Antarctica. In India, they are represented by 186 genera and 1,141 species⁵. Due to their range of diversity in shape, size and colour of flowers and comprised of herbaceous plants, characterized by distinct floral morphology, Pollination mechanism, association with unique fungal partners (mycorrhizae) and miniscule

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seeds they are considered to be the highly advanced family in monocots. Orchids are classified into saprophytic, terrestrial, epiphytic and lithophytic. They are usually perennial herb with sympodial stems, simple leaves and racemose inflorescence^{1,3}. Their seeds are very small and light, and with the help of wind they disperse and if fall into some new environmental condition, they either die or try to bring some genotypic change to adapt to the new environment. The largest genera are *Bulbophyllum* (2,000 sps.), *Epidendrum* (1,500 sps), *Dendrobium* (1,400 sps.) and *Pleurothallis* (1,000 sps).

In India, about 1300 species are known to occur in North East, North West Himalayas, Western Ghats, Southern Hills and Andaman & Nicobar Island⁴. North East region of India is also considered as one of the mega biodiversity spot in terms of richness of flora and fauna diversity. In this region it is estimated about 876 orchid species in 151 genera are available.

Among the highly threatened species of orchids specified in Schedule-VI of the Wildlife (Protection) Act, 1972, three species namely, Blue vanda (*Vanda coerulea*) (Kwaklei), Red vanda (*Renanthera imschootiana*) (Kwaklei Angangba) and Lady's Slipper (*Paphiopedilum* spp.) (Khongup Lei) are also found in Manipur. There are also three other orchid species endemic to Manipur, viz. *Ascocentrum ampullaceum* var. *auranticum* (Nachom Lei), *Schoenorchis manipurensis* and *Kalimpongia narjitii*⁷. About 249 species belonging to 69 genera of the family orchidaceae have been reported from this state.

Extensive survey works were carried out in the hills of Manipur valley particularly in the selected study sites viz., Langol, Nongmaijing, Thangjing Hills and Khongamphat Orchidarium during the tenure of October 2011 to December 2012. The study was carried out by following the Chase's method of Orchidaceae classification². The study sites *i.e.* the Imphal valley comprises of four districts namely Imphal East, Imphal West, Thoubal and Bishnupur District. This valley covers an area of about 2067 km², which constituting nearly 9.2 % of the total geographical area of the state⁷. Nongmaijing Range and Jirimukh Range were selected for survey work in Imphal East whereas Langol range for Imphal West, Sadu Chiru Hills & Laimaton Hills for Bishenpur and Gwarok Hills for Thoubal were surveyed.

For correct identification all the collected specimens were critically examined with the help of Manuals of Orchid, Flora of Arunachal Pradesh, Flora of Manipur, Orchids of India, BSI, Eastern Shillong.

From the survey conducted, 52 Orchid species belonging to 21 genera were found from the Imphal Valley (Table-1). During the survey it was found that the same orchids and different orchids are found in all the four districts. Maximum distribution occurs in Sadu Chiru and Laimaton hills in Bishnupur district. Imphal East, Nongmaiching and Jirimukh also have good distribution of orchids, whereas least distribution of orchids is seen in Langol and Gwarok range falling under Imphal West and Thoubal respectively.

From the survey conducted 52 species were found *i.e.*, 17 *Dendrobium* species, 5

Vanda species, 3 *Aerides*, 3 *Bulbophyllum*, 3 *Cymbidium*, 3 *Pholidata*, 2 *Acampe*, 2 *Ascocentrum*, 2 *Coelogyne* and 1 species each in the genera *Brachycorythis obcordata*, *Cleisocentrum pallens*, *Cleisostoma brevipes*, *Eria flava*, *Nervilia aragoana*, *Paphiopedilum hirsutissimum*, *Phaius wallichii*, *Phalaenopsis parishii*, *Pleione praecox*, *Renanthera imschootiana*, *Rhynchostylis retusa* and *Thunia marshalliana*.

Enumeration of species:

Acampe longifolia Lindley :

Hardy monopodial orchid, leaves fleshy and thick, plant look stout, strong and grow up to 120 cm tall. Inflorescence short, flower 2cm. across, half open, yellow colour with orange brown marking. Labellum cream with some purple spots at base.

Acampe papillosa Lindley (Fig.1.A)

Single-stemmed, warm growing epiphyte. Stout erect to a stout curved stem carrying narrowly oblong, strap-shaped, leathery leaves. Leaves are slightly notched into 2 unequal lobes. Flowers lobes. Flower arise in the fall on a short, 1 inch long, many (10-12) flowered umbel with miniature, *Vanda*-like flowers which are fragrant, which are fragrant held close in to the leaf axils.

Aerides fieldingii Lodd ex E. Morren :

A medium to large sized, hot growing, monopodial epiphyte with clumping pendulous stems carrying several ligulate leaves that blooms on a racemose, densely many (20 to 25) flowered inflorescence with fragrant, waxy

flowers.

Aerides multiflorum Roxb. (Fig.1.B):

Stems are semi erect, leafy towards apex. Leaves thick, and frequently flushed with reddish tinge. The leaves are curved, Inflorescence upto 30cm. long, pendulous. Flowers light rose pink, upto 3.2cm. across. Lip triangular and may be spotted.

Aerides odoratum Lour. (Fig.1.C) :

Stem, stout, may curve. Leaves incurved, oblong strap-like apex lobed. Inflorescence raceme, pendulous. Flower many, fragrant and about 4cm across. Flower mauve or white with numerous pink spots, tips are purple. The spur curved forward and apex is greenish yellow.

Ascocentrum ampullaceum (Roxb.) Schltr:

Short, simple, several leafed stems carrying suberect, distichous, ligulate, acutely bifid or truncate and apically toothed leaves that are keeled on the underside and grooved on the top that is bloom on axillary, shorter than the leaves, compact inflorescence having many small flowers.

Ascocentrum ampullaceum var. *auranticum* Roxb. & Schltr (Fig.1.D):

Locally known as “*Nachom lei*” and this species is endemic to Manipur. Stems are densely leafy, leafy, less than 20 cm. high. Leaves are bifid or truncate, falling off with age. Inflorescence erect, densely flowered, showy, facing in all directions. Flowers are orange- red in colour, sepals and petals are similar.

Brachycorythis obcordata (Lindley) M.R. Almeida:

Heart shaped *Brachycorythis* is a small sized terrestrial orchid with a round to oblong tube. Stem is slender, usually stained with purple. Leaves are oblong, lance shaped to elliptical, stalkless, blunt to pointed. The plant blooms in the summer on a 2-6 inches long, lax 12-15 flowered, raceme like inflorescence. Flowers are pink with a prominent inverted – heart – shaped lip.

Bulbophyllum affine Lindley (Fig.1.E):

Pseudobulbs elongate on a creeping rhizome. Leaves apical from pseudobulbs, linear lanceolate. Inflorescence basal from pseudobulb. Flower solitary veined red to purple. Labellum yellow to orange.

Bulbophyllum griffithii Rchb.f.

Pseudobulbs ovoid, leaves broad, lanceolate, sessile. Scape very short, loose bract. Flowers greenish yellowish with reddish brown spots; petals oblong- obtuse, 3- nerve, shorter than the ovate-obtuse, 5- nerved subequal sepals. Lip stipitate, oblong – obtuse.

Bulbophyllum wallichii Rchb.f.

Pseudobulbs *ca* 1 cm in diameter, subglobose or ovoid. Leaves elliptic – oblong, obtuse or acute. Scape slender; umbels few flowered; bracts subulate. Flower red-brown; lateral sepals linear – lanceolate, acuminate. Lip subacute; column teeth very short.

Cleisocentron pallens (Cathcart ex Lindley) N. Pearce & P.J. Cribb (Fig.1.F):

An epiphyte with branched stem enveloped by fibrous, leafless and leaf-bearing sheaths and carrying narrowly oblong, slightly tapering, obliquely bifid apically, sessile, jointed leaves that blooms in the summer on a divergent, second, few flowered inflorescence with broad, obtuse floral bracts.

Cleisostoma brevipes Hook.f.

An epiphyte with a pendulous, monopodial erect, stem carrying many, linear, basally constricted and attenuate to the stem, acute leaves that blooms on axillary, few flowered, thickened, angled inflorescence.

Coelogyne graminifolia C.S.P. Parish & Rchb.f :

Pseudobulbs close, ovoid, ribbed. Leaves two number borne from the apex of pseudobulbs, linear. Inflorescence short 2-4 flowered. Flowers white, fragrant, lip orange-yellow side lobes rounded; midlobe smaller.

Coelogyne suaveolens Hook.f.

A medium sized epiphyte with obtuse pseudobulb enveloped basally by a few sheaths, apical, elliptic-lanceolate, acute to acuminate, plicate, coriaceous, margins undulate, gradually narrowing below in to the elongate, grooved petiolate base leaves, fractiflex rachis, many flowered inflorescence arising on a newly emerging pseudobulb with deciduous floral bracts and successive opening.

Cymbidium aloifolium Sw.

Stem short and stout, sheathed, leaves linear-oblong, not attenuated towards the notch

tip. Scape and raceme, long, erect below decurved above. Flowers yellowish red to brownish red. Lip oblong with two lamellae notched at the middle; end lobe ovate-oblong with a white patch at its base otherwise purple with darker lines.

Cymbidium bicolor Lindley :

Large sized epiphyte with ellipsoid, laterally compressed pseudobulbs carrying ligulate, thick, coriaceous, oblique to unequally bilobed apically leaves, basal, racemose scape that can be arched or pendant with up to 26 fragrant flowers that have brown scarious basal sheaths.

Cymbidium giganteum Wall. :

Pseudobulbs clustered, rather ovoid, clothed with broad leaves. Leaves oblanceolate, linear- ligulate, acute, scape very robust, 6 to 12 flowered, decurved or suberect. Flowers large, long lasting, faintly fragrant, light yellow-green in colour with longitudinal red strips. Lip trilobed, side lobes erect, mid- lobe ovate-oblong.

Dendrobium aduncum Lindley :

Stem slender, pendulous. Leaves linear- lanceolate, acute or obtuse. Flowers on the leafless stem in short racemes; bracts obtuse. flowers pale purple, translucent; sepals broadly oblong, subequal, sub- obtuse; petals broadly ovate, not longer than the sepals. Lip broad elliptic, apex abruptly acuminate, upper surface pubescent.

Dendrobium aggregatum Kunth :

A dwarf evergreen plant with single –

leafed, clustered pseudobulbs, longitudinally wrinkled. Inflorescence slender, drooping with 8-14 flowers. Flowers yellow, sometimes orange-yellow with a deep orange- yellow lip. Lasting for about a week.

Dendrobium aphyllum Roxb.

Long slender plant. Pendulous pseudobulbs, leaves are deciduous. Fragrant, fragile flowers are borne in two or three along the length of the old stems, white to rosy mauve with a mostly primrose yellow lip.

Dendrobium bellatulum Rolfe :

Pseudobulbs are clustered and cylindrical with black haired sheaths. Leaves in pairs on top pseudobulbs. Flower 1-2, creamy white with fragrant and last more than two weeks. Lip deep purple at apex with white border and orange-red throat.

Dendrobium bicameratum Lindley :

Medium sized, slender plants with stem up to 10-30 cm long. Floral bracts elliptic, subacuminate, shorter than or equaling the ovary and pedicel, sepals and petals yellowish green with red dots along the veins; mid- vein of lower half of lateral sepals not dotted. Lip with narrow, acute red side lobes.

Dendrobium chrysanthum Wall.(Fig.G):

Locally known as “*Mera Leikham*” as its flowering take place at the fag end of the Mera month of the Manipur calendar. It has semi hardly pseudobulbs with dark green deciduous leaves. Inflorescence racemose, nodding, carrying 4-6 rich yellow flowers.

The lip have fimbriate margin with two red-purple blotches.

Dendrobium chrysotoxum Lindley :

Locally known as “*Khongumelei*”. This is one of the most common orchid in Manipur. It is highly colourful golden yellow flowering orchid. Pseudobulbs clustered, hard and tapered toward base and top, *ca* 30 cm. long. Inflorescence are long bearing more than ten flowers of bright golden yellow. Flowers are 5 cm. across, lip roundish nicely fringed with orange-yellow colour.

Dendrobium dantaniense Guillaumin :

Robust plants with stems 31-45cm long. Floral bracts ovate, obtuse, longer than the ovary and pedicel. Sepals and petals yellow with maroon to red dots along the veins; mid-vein of lower half of lateral sepals dotted. Lip with broad, obtuse red side lobes.

Dendrobium falconeri Hook. :

It is known as “*Tingthou-Lei*”. It is a branched orchid, pendulous stem with small thin leaves like grass. Flowers solitary from the nodes, sepals and petals white with purple tip. Lip broadly ovate, having a broad orange colour disc on each side and broad white band in front with apex purple colour.

Dendrobium fimbriatum Lindley :

Long, hard stem, highly floriferous orchid. The stem is thick at base and tapering towards tips. Inflorescence arise from leafy stem, drooping, bearing 10 or more flowers. Flowers are brilliant orange yellow in colour

and delicate in texture. Lip roundish, undulated, having a beautiful fringed margin and a round patch of rich reddish brown colour.

Dendrobium lituiflorum Lindley :

Pseudobulbs is knoblike at base, pendulous. Flowers are attractive, borne in fascicles of 3 or more from the nodes. Sepals and petals purple, lip white with purple stripes and broad disc, deep violet purple surrounded by a yellow velvety band.

Dendrobium moschatum Sw. :

Locally known as “*Engalei*”. It is very robust, sturdy plant, with spreading pseudobulbs, darkish brown in colour. Flowers pale apricot, *ca* 10cm. across with musky scent, labellum creamy yellow with two red-brown botches. Inflorescence arise from apex with a dozen or more flowers. The flower last for about a week.

Dendrobium nobile Lindley(Fig.1.H) :

Pseudobulbs clustered, terete, somewhat compressed, leaves deciduous, oblong, slightly emarginated, *ca* 10 cm. long. Flowers borne from the nodes in short racemes. Flower are large, mauve to rose purple, lip is downy white with a big red purple or crimson area inside throat. The flowers last for about a month.

Dendrobium ochreatum Lindley :

Pseudobulbs are cylindrical, pendulous or curved, stout. Long with swollen nodes. Leaves ovate, lanceolate, acute and deciduous. Flowers borne in pairs on young stem at nodes. Flower rich golden yellow, velvety appearing

lip, golden yellow with maroon blotch. The flower last more than a week.

Dendrobium primulinum Lindley (Fig.1.I):

Pseudobulbs slightly pendulous, flowers borne in node in 1 to 2 numbers, 5-6 cm. scented like the primrose flowers. Sepals and petals, pale lilac-mauve, tip with pink. Lip broad, roundish, pale primrose-yellow with basal purple veins. The flowers are produced in two rows.

Dendrobium transparens Wall.

Pseudobulbs slender, smooth and erect about 50cm. long. Flowers white flushed with pink about 4cm. across, borne in pairs from the nodes of leafless stem. Lip with a purple blotch at the centre and purple marking near base.

Dendrobium wardianum R. Warner

Locally known as “*Yerum lei Tangjaobi*”. The pseudobulbs are pendulous with bulging nodes and leaves deciduous. Flowers are produced from the node in two or three waxy, glistening white with magenta or purple spots on the tip of sepals and petals. The flower is *ca* 10 cm across. Lip is white with a yellow golden disc, and two dark maroon blotches at the base and purple magenta tips.

Eria flava Ldl.

Woody rhizome, laterally compressed, furrowed pseudobulbs enveloped basally by membraneous sheaths, lanceolate-oblong, acute to acuminate, grooved petiolate base leaves that blooms on a lateral, basal, erect,

racemose, subdesely 7 to 12 flowered, pubescent inflorescence with imbricate, ovate, acute sheaths and lanceolate, persistent, acute floral bracts.

Nervilia aragoana Commons ex Gaudich.

Terrestrial with 1" tubers each producing a single, long petiole, widely plicate, kidney-shaped, light green leaf with radiating veins and a concentric semi-circle of brown blotches around the middle of the leaf, and blooms on an erect, *ca* 30 cm long, few flowered inflorescence that arises in the spring with the flowers appearing before the leaf emerges.

Paphiopedilum hirsutissimum Pfitzer (Fig.1.J):

A terrestrial often found in epiphytic or lithophytic habitats. Leaves are linear, oblong, keeled, acute. Solitary flower *ca* 15 cm. across. Flower blend of green and purple pink, speckled with dark purple and tiny black warts. Lips orange brown with red veins. The flower stalk is densely hairy.

Phaius wallichii Lindley :

A large sized terrestrial with fusiform to cylindric-ovoid pseudobulbs carrying about 4, green, oblong-elliptic, plicate, glabroue, acuminate leaves that blooms in the later spring on an erect, glabrous, *ca* 100 cm long, to more than 10 flowered inflorescence arising from the lower nodes on the pseudobulb and has caducous, ovate-lanceolate, glabrous floral bracts and carrying widely opening flowers.

Phalaenopsis parishii Rchb.f. :

Found on moss covered trees overhanging

streams with elliptic to obovate, fleshy, pendant, leaves and blooms on an arching, lightly fractiflex, racemose or rarely paniculate, densely flowered inflorescence with small floral bracts and 5 to 6 flowers that opens.

Pholidota articulata Lindley :

Pseudobulbs jointed, 2-leaves, cylindric slender *ca* 10 cm. long. Leaves thickly membranous, many nerved, elliptic, acute, short-stalked, long petiolate. Inflorescence about 15 cm. long slender, drooping and many flowered. Flowers often not opening well, musk scented yellowish-white, bracts yellow shaded with green. Lip long as sepal, hollow basal part of lip with 5 low longitudinal yellow ridges.

Pholidota imbricata Lindley :

Pseudobulbs tuffed, broadly conical not angled, bearing a single leaf, slender-conical with ovoid base, leaves acute, broadly elliptic lanceolate. Inflorescence drooping, densely flowered, to 25 cm long. Flowers small, insignificant *ca* 7 mm. long, musk-scented or odourless, pale pink lip with two hatched shaped side lobes, a rectangular middle part; mid lobe spreading downwards, deeply two-lobed, often with yellow spots.

Pholidota recurva Lindley :

Stem thin, jointed internodes. Leaves two, membranous, elliptic or linear, lanceolate. Inflorescence Racemes recurved; bracts overlapping persistent, on one side of the raceme imbricating truncate, flowers covering the opposite side of the raceme. Flowers very small, *ca* 4 mm. long, creamy white. Lip with five lamellate basal nerves, broadly cymbiform.

Pleione maculate D. Don :

Pseudobulbs highly variable, lightly clustered, bottle-shaped, strongly depressed at the apex, to 4cm. tall, pale mottled brownish purple. Leaves 1-2, lanceolate membrane of scape. Scape from the side of pseudobulbs, one flowered, sheathed. Flower scented, rose-purple with a pale rose or white lip, throat yellow.

Renanthera imschootiana Rolfe (Fig.1.K):

Stem growing upto 2 m. the old stem become almost woody with age. Leaves lobed at apex. Inflorescence is axillary in the upper leaves, branches loosely arranged with many flowers. Flowers red colour lasting more than a month. Dorsant sepals and petals narrow, orange red in colour with scarlet spot, lateral sepal large scarlet. Lip small with yellow keel.

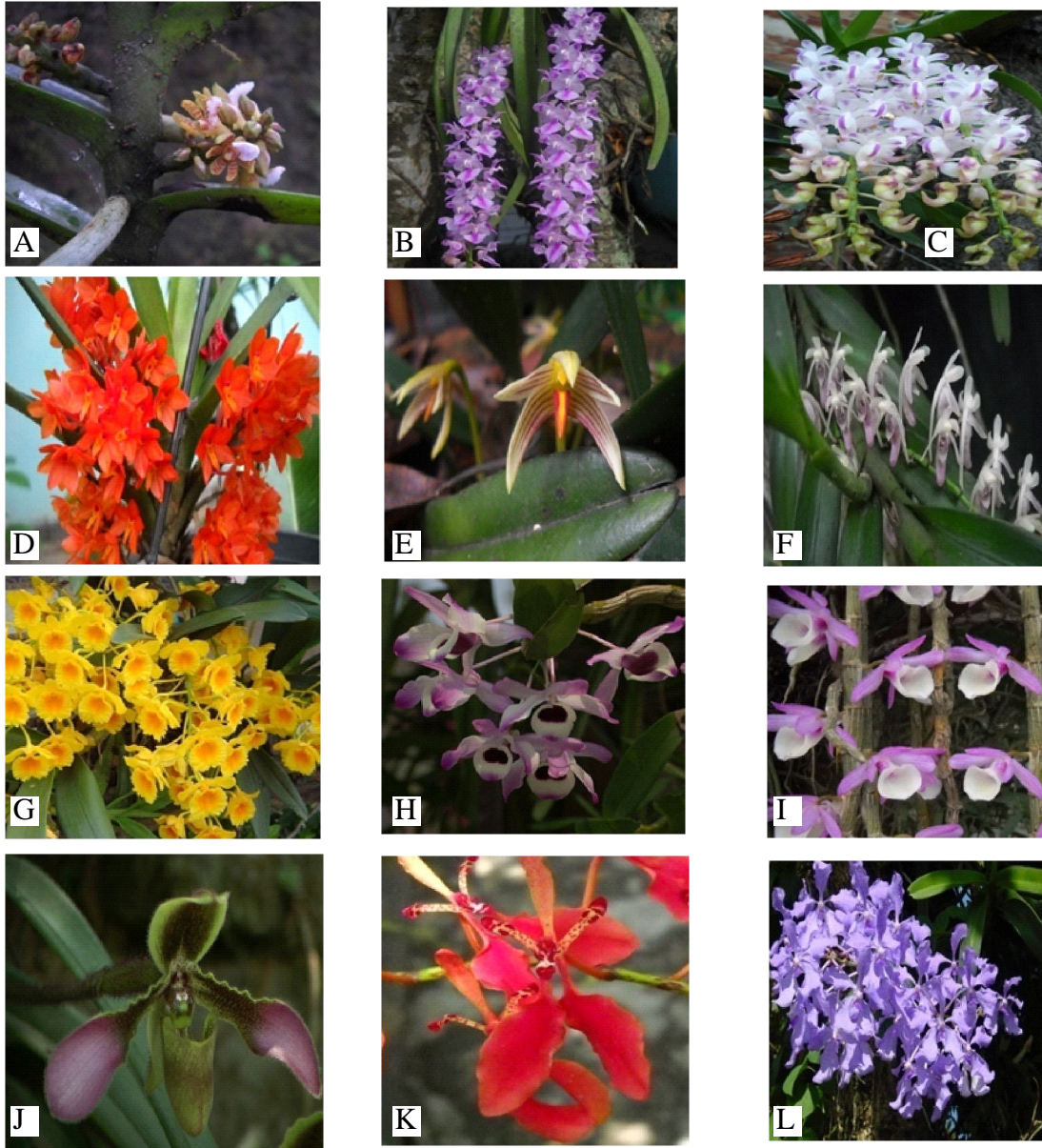
Rhynchostylis retusa Blume.

Locally known as “*Samjirei*”. Stem robust and grow upward. Leaves strap shaped, long, thick and curved. Inflorescence pendulous, *ca* 60 cm. long with densely arranged flowers. Flowers fragrant, waxy, sepals and petals white with copious amenthyst-purple spots. Lip entirely purple.

Thunia marshalliana Rchb.f.

The pseudobulbs *ca* 90 cm. tall and look like cane when leaves dry off. The new growth is leafy throughout. Inflorescence apical, drooping 3-5 flowered. The flower fragrant, lasting, about 12 cm. wide, half opened. Sepals and petals pure white. Lip tubular white yellow and purple streaks; mid-lobe

Fig. 1. The orchid species of Imphal Valley, Manipur



A. *Acampe papillosa* Lindley B. *Aerides multiforum* Roxb. C. *Aerides odoratum* Lour. D. *Ascocentrum ampullaceum* var. *auranticum* (Roxb.) & Schltr E. *Bulbophyllum affine* Lindley F. *Cleisocentron pallens* (Cathcart ex Lindley) N. Pearce & P.J. Cribb G. *Dendrobium chrysotoxum* Lindley H. *Dendrobium nobile* Lindley I. *Dendrobium primulinum* Lindley J. *Paphiopedilum hirsutissimum* Pfitzer K. *Renanthera imschootiana* Rolfe L. *Vanda coerulea* Griff. ex Lindley

Table-1. Orchid diversity of Imphal valley in alphabetical order with scientific name, habitat, host plant and flowering season

Scientific name	Habitat	Host plant	Flowering and Initiation fruiting seasons
<i>Acampe longifolia</i> Lindley	Epiphyte	<i>Bauhinia purpurea</i> , <i>Castanopsis</i> sps	July – August
<i>Acampe papillosa</i> Lindley	Epiphyte	<i>Castanopsis</i> sps, <i>Schima wallichii</i>	August – September
<i>Aerides fieldingii</i> Lodd ex E. Morren	Epiphyte	<i>Mangifera indica</i> , <i>Terminalia tomentosa</i>	May – June
<i>Aerides multiflorum</i> Roxb.	Epiphyte	<i>Artocarpus integrifolia</i>	June – July
<i>Aerides odoratum</i> Lour	Epiphyte	<i>Schima wallichii</i> , <i>Cedrella toona</i> , <i>Dalbergia sissoo</i>	May – June
<i>Ascocentrum ampullaceum</i> (Roxb.) & Schltr.	Epiphyte	<i>Castanopsis</i> sps., <i>Terminalia belerica</i> , <i>Syzygium cumini</i>	Mar – May
<i>Ascocentrum ampullaceum</i> var. <i>auranticum</i> (Roxb.) & Schltr.	Epiphyte	<i>Phoeba hainesiana</i> , <i>Gmelina arborea</i>	April – May
<i>Brachycorythis obcordata</i> (Lindley) M.R. Almeida	Terrestrial		May- July
<i>Bulbophyllum affine</i> Lindley	Epiphyte	<i>Terminalia tomentosa</i> , <i>Michelia champaca</i> , <i>Lagerstroemia speciosa</i>	March-April
<i>Bulbophyllum grifithii</i> Rchb.f	Epiphyte	<i>Artocarpus chaplasha</i> , <i>Castanopsis</i> sps., <i>Albizia lebbek</i>	August- Sept
<i>Bulbophyllum wallichii</i> Rchb.f	Epiphyte	<i>Bauhinia acuminata</i> , <i>Schima wallichii</i> , <i>Mangifera indica</i>	March – April
<i>Cleisocentron pallens</i> (Cathcart ex Lindley) N. Pearce & P.J. Cribb	Epiphyte	<i>Quercus serreta</i> , <i>Litsea polyantha</i> , <i>Terminalia</i> sps.	September - October
<i>Cleisostoma brevipes</i> Hook.f.	Epiphyte	<i>Castanopsis</i> sps., <i>Bauhinia variegata</i> , <i>Mangifera indica</i>	August- Sept

<i>Coelogyne graminifolia</i> C.S.P. Parish & Rchb.f	Epiphyte	<i>Schima wallichii</i> , <i>Terminalia castanopsis</i>	January – Feb
<i>Coelogyne suaveolens</i> Hook.f.	Epiphyte	<i>Syzygium cumini</i> , <i>Mangifera indica</i> , <i>Bauhinia tenuiflora</i>	May-June
<i>Cymbidium aloifolium</i> Wall.	Epiphyte	<i>Schima wallichii</i> , <i>Albizia procera</i> , <i>Dalbergia sissoo</i>	April – May
<i>Cymbidium bicolor</i> Lindley	Epiphyte	<i>Castanopsis</i> sps., <i>Artocarpus chaplasha</i> , <i>Schima wallichii</i>	April – May
<i>Cymbidium giganteum</i> Sw.	Epiphyte	<i>Lagerstroemia speciosa</i> , <i>Gmelina arborea</i> , <i>Mangifera indica</i>	October – December
<i>Dendrobium aduncum</i> Lindley	Epiphyte	<i>Litsea polyantha</i> , <i>Terminalia myricarpa</i>	June – July
<i>Dendrobium aggregatum</i> Kunth	Epiphyte	<i>Cedrella toona</i> , <i>Albizia</i> <i>procera</i> , <i>Castanopsis</i> sps.	March – April
<i>Dendrobium aphyllum</i> Roxb. Syn <i>D. pierardii</i> Roxb. Ex Hook.	Epiphyte	<i>Quercus serreta</i> , <i>Terminalia tomentosa</i> , <i>Michelia champaca</i>	April – May
<i>Dendrobium bellatulum</i> Rolfe.	Epiphyte	<i>Phoebe hainesiana</i> , <i>Bauhinia acuminata</i> , <i>Mangifera indica</i>	April – May
<i>Dendrobium bicameratum</i> Lindley	Epiphyte	<i>Schima wallichii</i> , <i>Castanopsis</i> sps.	August- Sept
<i>Dendrobium chrysanthum</i> Wall.	Epiphyte	<i>Mangifera indica</i> , <i>Bauhinia purpurea</i> , <i>Lagerstroemia speciosa</i>	September – October
<i>Dendrobium chrysotoxum</i> Lindley	Epiphyte	<i>Castanopsis</i> sps., <i>Cedrella toona</i> , <i>Michelia champaca</i> , <i>Mangifera indica</i> , <i>Schima wallichii</i>	March – April
<i>Dendrobium dentaniense</i> Guillaumin	Epiphyte	<i>Cedrella toona</i> , <i>Quercus serreta</i> , <i>Lagerstroemia speciosa</i>	June-July

<i>Dendrobium falconerii</i> Hook.	Epiphyte	<i>Albizia lebbeck</i> , <i>Schima wallichii</i>	Mar – April
<i>Dendrobium fimbriatum</i> Lindley	Epiphyte	<i>Mangifera indica</i> , <i>Lagerstroemia speciosa</i> , <i>Quercus serrata</i>	June- July
<i>Dendrobium lituiflorum</i> Lindley	Epiphyte	<i>Bauhainia variegata</i> , <i>Dalbergia sissoo</i> , <i>Syzygium cumini</i>	March – April
<i>Dendrobium moschatum</i> Wall. Ex D.Don	Epiphyte	<i>Albizia procera</i> , <i>Castanopsis</i> sps., <i>Terminalia tomentosa</i>	May – June
<i>Dendrobium nobile</i> Lindley	Epiphyte	<i>Artocarpus intergrifolia</i> , <i>Castanopsis</i> sps., <i>Mangifera indica</i>	April – May
<i>Dendrobium ochreatum</i> Lindley	Epiphyte	<i>Michelia champaca</i> , <i>Cedrella toona</i> , <i>Terminalia tomentosa</i>	April – May
<i>Dendrobium primulinum</i> Lindley	Epiphyte	<i>Castanopsis</i> sps., <i>Mangifera indica</i> , <i>Schima wallichii</i>	April – May
<i>Dendrobium transparens</i> Wall.	Epiphyte	<i>Michelia champaca</i> , <i>Phoebe hainesiana</i> , <i>Terminalia</i> sps.	April- May
<i>Dendrobium wardianum</i> R. Warner	Epiphyte	<i>Mangifera indica</i> , <i>Schima wallichii</i> , <i>Dalbergia sissoo</i>	April – May
<i>Eria flava</i> Griff.	Epiphyte	<i>Lagerstroemia speciosa</i> , <i>Quercus serrata</i> , <i>Litsea polyanthea</i>	January – February
<i>Nervilia aragoana</i> Gaudich.	Terrestrial		March- April
<i>Paphiopedilum hirsutissimum</i> Pfitzer	Lithophyte		April-May
<i>Phaius wallichii</i> Lindley	Terrestrial		March – April
<i>Phalaenopsis parishii</i> Rchb.f.	Epiphyte	<i>Mangifera indica</i> , <i>Artocarpus chaplasha</i> , <i>Gmelina arborea</i> , <i>Litsea polyanthea</i>	March – April

<i>Pholidota articulata</i> Lindley	Epiphyte	<i>Syzygium cumini</i> , <i>Terminalia</i> sps.	August- September
<i>Pholidota imbricata</i> Lindley	Epiphyte	<i>Bauhinia</i> sps., <i>Cedrella toona</i>	May – July
<i>Pholidota recurva</i> Lindley	Epiphyte	<i>Michelia champaca</i> , <i>Schima wallichii</i> , <i>Syzygium cumini</i>	August – September
<i>Pleione praecox</i> D.Don	Lithophytes		November – December
<i>Renanthera imschootiana</i> Rolfe	Epiphytes	<i>Phoebe hainesiana</i> , <i>Lagerstroemia speciosa</i> , <i>Mangifera indica</i> , <i>Castanopsis</i> sps., <i>Terminalia</i> sps., <i>Schima wallichii</i>	April – June
<i>Rhynchostylis retusa</i> Blume	Epiphytes	<i>Schima wallichii</i> , <i>Phoebe hainesiana</i> , <i>Lagerstroemia speciosa</i> , <i>Mangifera indica</i> , <i>Castanopsis</i> sps., <i>Terminalia</i> sps.	May – June
<i>Thunia marshallian</i> Rehb.f.	Terrestrial		May – June
<i>Vanda coerulea</i> Griff. ex Lindley	Epiphytes	<i>Artocarpus chaplasha</i> , <i>Phoebe hainesiana</i> , <i>Lagerstroemia speciosa</i> , <i>Mangifera indica</i> , <i>Castanopsis</i> sps., <i>Terminalia</i> sps., <i>Schima wallichii</i>	September- December
<i>Vanda coerulescens</i> Lindley	Epiphytes	<i>Terminalia</i> sps., <i>Schima wallichii</i> . <i>Phoebe hainesiana</i> , <i>Lagerstroemia speciosa</i> , <i>Mangifera indica</i> , <i>Castanopsis</i> sps., <i>Lagerstroemia speciosa</i>	February – March

<i>Vanda cristata</i> Lindley	Epiphytes	<i>Castanopsis</i> sps., <i>Lagerstroemia speciosa</i> , <i>Terminalia</i> sps., <i>Schima wallichii</i>	June – July
<i>Vanda parviflora</i> Lindley	Epiphytes	<i>Mangifera indica</i> , <i>Castanopsis</i> sps., <i>Dalbergia sissoo</i> , <i>Phoebe hainesiana</i> , <i>Lagerstroemia speciosa</i> , <i>Terminalia</i> sps., <i>Schima wallichii</i>	April- May
<i>Vanda teres</i> Lindley	Epiphytes	<i>Michelia champaca</i> , <i>Phoebe hainesiana</i> , <i>Lagerstroemia speciosa</i> , <i>Mangifera indica</i> , <i>Castanopsis</i> sps., <i>Terminalia</i> sps., <i>Schima wallichii</i>	May – June

marginally criped, golden yellow with numerous forked dark orange-red veins.

Vanda coerulea Griff. ex Lindl. (Fig.1.L):

This is one of the most common beautiful orchid growing both in the hills and valley areas of Manipur, locally called “*Kwaklei*”. Monopodial, growing upto 90cm high. Leaves coriaceous, distichous, strapelike. Inflorescence erect or suberect with 6 to 23 flowers, sepals and petals equal. Labellum is small, trilobed, with small lateral lobes, and the mid-lobe has ridges terminating in bituderculated apex, conical spur. Flower pale blue in colour.

Vanda coerulescens Lindley :

This species is locally known as

“*Kwakibi*”. It is a miniature species with tiny blue flowers. Stem erect, leaves are densely arranged, strape and ca 30 cm. long. Inflorescence ca 25 cm. long with many flowers. It has long narrow spurs sepals and petals are small and light blue in colour and labellum is dark blue in colour.

Vanda cristata Lindley :

It is a medium tall monopodial orchid, upto 30 cm high. Leaves strape, coriaceous. Flowers are waxy and fragrant. Labellum is trilobed; lateral lobes erect and deltoid shaped, mid-lobe subpandurate; spur short or conical. Flower green yellow. Labellum green underneath, tawny above spotted with deep red stripes.

Vanda parviflora Lindley :

Stem stout, leaves leathery, unequal bilobed at the apex, linear. Inflorescence upright, axillary, flowers 1.4 cm. across, yellow; lip whitish at base but pink-purple at the tip.

Vanda teres Lindley :

Stem round, leaves terete, profusely branching base and above forming a dense tangled mass, spikes appear opposite the leaves, with 3-6 flowers of graceful form and delightful colouring. Long lasting fragrant. Sepals roundish, slightly wavy, white with rose shade. Petals large and deep rose colour labellum yellow, end tip rose pink and veined.

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