

# Orchids of Joypur

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## The Jewel of the forest

Khyanjeet Gogoi

Daisa Bordoloi Nagar, Talap, Tinsukia, Assam, 786156.

E-mail: khyanjeetgogoi@gmail.com

Orchidaceae, one of the largest families of flowering plants and comprise an unique assemblage of highly advanced monocotyledonous plants. They exhibit amazing diversity in size, shape, structure, number, density, colour and fragrance of flower. Among the most beautiful flowers of the world orchids are dominating ones. They are characterized by distinct floral morphology, pollination, mechanism, association with unique fungal partners (mycorrhizae) and miniscule seeds. They lend beauty and charm of its own to the landscape due to their bewildering variety of flowers. So orchids have been occupying an important role in horticulture and floriculture for their exquisite beauty, scent and their long lasting quality.

Orchid was known to the human civilization as a useful plant for a considerable length of time. In ancient time, orchids were known as plants for ornamental and some were used as medicine. The first orchid to be mentioned in writing, by a Greek philosopher named Theophrastus in about 300 Bc, who referred a group of plants called "Orchis" in his book "Enquiry in to plants", appears to be orchis, a terrestrial genus. This name was used because the plants have tuberous roots that resemble a pair of testicles-orchis from the Greek orkhis meaning testicle. In the Chinese Materia Medica of 28<sup>th</sup> century there is mention of 'lan'- the orchid. In India the earliest reference on orchids dates back to Vedic period. The people of ancient India well aware of medicinal properties of orchids. The Indian ancient literature and Indian system of medicines used several orchids, both terrestrial like 'Ridhi', 'Vridhi', 'Jeevak' and epiphytic like 'Vandak' 'Jeevanti' etc. In India, there are legends wound around the beautiful inflorescence of *Rhyncostylis retusa* as 'Seeta Pushpa' and that of *Aerides* species as 'Draupati Pushpa'. It is believed that both of the princesses- Seeta, wife of Rama and Draupati wife of Pandaves- who accompanied their husbands while in exile, especially adorned these sweet scented pretty flowers and wore it on their head. Since these ladies symbolized Indian womanhood and purity, the flowers adorned by them are believed to be the symbol of purity and worn by the Indian woman with utmost reverence.

The jewel of forest Orchids are becoming a rarity, losing out to human greed. They are not only important for their aesthetic value but also they work as ecological indicator.

Disappearance of orchids indicates a change in the quality of soil and air of the region. The ubiquitous “Blue vanda” of cheerapunjee has disappeared due to the degradation of the environment. Orchids are mainly shade loving therefore they have no chance of survival, once forest are cleared. While clearing forest for cultivation, many trees bearing orchids die.

Orchids are mostly perennial plants and occur on variety of substrata as epiphytes, lithophytes or rupicolour, terrestrials and saprophytes. While growing as epiphytes orchids do not derive their nutrition from host plant, instead, they absorb moisture from atmosphere for the survival of plants through a “velamen” tissue developed in the arial roots which hang in air or creep on the tree trunks. The nutrient is usually absorbed from humus by normal roots and food is prepared through the process of photosynthesis in the leaves.

Orchids are mysterious in many ways. These are increasingly being cultivated throughout the world. The incredible shapes and colour of their flowers and their long vase-life have attracted many generations of mankind. According to Dressler (2006) there are 24,500 species of orchids in the world under 788 genera. They are very widely distributed over the globe except in the extreme hot or cold region. This is the second largest family of the flowering plants in the world. Depending on the mode of distribution, orchids can be categorized as temperate and tropical. Northern hemisphere comprising Europe, Northern Asia and North America constitutes the home land of temperate orchid. These orchids are mostly terrestrial. These regions are characterized by very low temperature, low rainfall and great seasonal variation. Tropical region covers the entire south and also up to 23½° North to the Equator. The Tropical orchids are comprised of both terrestrial as well as epiphytic constituting the major share. In the tropical belt concentration of different orchids is largely influenced by the climatic variation. Three major orchid growing regions of the world fall in the tropical belt. These are:

- 1) Tropical American Zone.
- 2) Tropical Africa.
- 3) Indo- Burmese and South East Asiatic Region.

In India orchids are represented by 1331 species under 184 genera and show maximum diversity in the Eastern Himalaya, including the North-Eastern region, Western Ghats, Eastern Himalaya and Eastern part of Western Himalaya (Kumaon Himalaya). North-East India constitutes an orchid hotspot, nearly 70 percent of the total orchids found in India in this region.

The Indian state, Assam is the gate way of North East region, bears a separate identity phytogeographically and represents a number of types of plant communities. Its unique ecosystem favors the luxuriant growth of plants considered a Natures reservoir of plants

resources-unparalleled compare to any place in the world regards to its richness of floristic composition. Almost all varieties of plants relating to different climatic conditions are found in the state where orchids are a major component of vegetation. Assam orchids show all the types of habits and growth forms as are found in orchidaceous plants.

Assam is the second largest state of North-East India and is a rich store house of Indian orchids. The forests of Assam possess a large number of beautiful important orchids. The total number of orchid species may be around 193 under 71 genera out of which 27 are endemics (Rao 1995, Hegde 2000). Some orchids are associated with the culture of Assamese people from past. There is a tradition of using orchids by different tribes of Assam in the culture. Specially the Tai people and Deoris carried the tradition of using the orchids in their culture. Assamese people use *Rhynchostylis retusa*, *Rhynchostylis albiflora*, *Papilionanthe teres*, *Vanda roxburghii*, *Aerides roesa*, *Aerides multiflora* and *Aerides odoratam* in their cultural festivals. Many orchids are used as medicine by the Tai and Assamese ethnics, besides ornamental purposes. Due to ornamental, cultural, religious and medicinal uses some of the orchids are cultivated in the household gardens.

*Papilionanthe teres* commonly grown by the Assamese people in their house hold garden as ornamental and also as medicinal plant. The flower is used as offering to lord Buddha and spirit by the Khamtis and other Tai ethnics of Assam.

*Vanda roxburghii* flowers are used to adorn hair of girls in Assam and also used as medicine.

*Rhynchostylis retusa* commonly known as Kopoupahul, *Rhynchostylis albiflora* commonly known as Boga Kopou, *Aerides roesa* commonly known as Jathuwa Kopou, *Aerides multiflora*, *Aerides odoratum* are profusely used in the spring festival Bihu. They are popular among the young folks who use them as a symbol of love and affection. During the spring festival, young boys collected the flowers and presented to be loved ones as a sign of love. Young ladies wear it on head to decorate their hairs and dance in Bihu festival. It also acts as the symbol of fertility and merriment. The spike is also used for decorating the head gear of bride in marriage ceremony.

The Joypur Reserve Forest is one of the most important forest of Assam. It forms a part of the world Heritage of tropical/ Sub-tropical wet evergreen forest, multistoried in structure and rich in biodiversity, more popularly known as Rain Forest. A Characteristic feature of the forest is the stratification of floristic elements in to three distinct storeys. The forest has been natural dwelling home of a wide variety of orchids, 101 species of orchids within 45 genera orchid have been recorded from this forest. Out of these 79 are epiphytic and 21 are terrestrial and *Didymoplexis pallens* is a saprophytic. Among them 8 species are critically endangered, 15

species are endangered, 5 species are near threatened, 28 species vulnerable, 11 species data deficient and 44 species available. Depending on the requirement of the sunlight and temperature and some other climatic factor like rain water, nutritional requirements etc. orchids are growing at different storeys. Some orchids grow well at the top storey upto 20-30 meter height due to presence of direct sunlight and high temperature, like *Acampe papillosa*, *A. rigida*, *Dendrobium acinaciforme*, *D. terminale*, *D. fimbriatum*, *D. moschatum*, *Eria pannea*, *E. pubescens*, *E. tomentosa* etc. Orchids like *Aerides odoratum*, *A. roesa*, *Bulbophyllum affine*, *B. spathulatum*, *Cleisostoma appendiculatum*, *C. simondii*, *Coelogyne ovalis*, *Cymbidium aloifolium*, *Dendrobium Ituiflorum*, *D. transparens*, *Eria acervata*, *E. pudica* etc. grow at the middle story and *Bulbophyllum delitescens*, *B. careyanum*, *Cymbidium bicolor*, *C. dayanum*, *Dendrobium aduncum*, *D. aphyllum*, *D. sulcatum*, *Gastrochilus calceolaris*, *G. dasypogon*, *Kingidium deliciosum*, *Liparis Longipes*, *L. mannii* etc. grow well at lower story. In diffused sunlight in dense forest floor terrestrial orchids are found with scattered distribution.

The orchids with attractive flowers in this area are worth mentioning for their beauty and long lasting qualities like *Aerides odoratum*, *A. roesa*, *Calanthe masuca*, *Cymbidium bicolor*, *C. dayanum*, *Dendrobium aphyllum*, *D. fimbriatum*, *D. lituiflorum*, *D. moschatum*, *D. nobile*, *D. sulcatum*, *D. transparens*, *Papilionanthe teres* etc. Some species of orchids like *Acanthephippium striatum*, *Anoectochilus brevilabris*, *Bulbophyllum spathulatum*, *Cymbidium bicolour*, *C. dayanum*, *Dendrobium nobile*, *Eria paniculatum*, *Gastrochilus calceolaris*, *Phalanopsis manni*, *P. parishii*, *Zeuxine clandestine* are very rare in Joypur and need to be conserved.

*Thrixspermum acuminatissimum* (Blume) Reichb. f. is new record to India; *Bulbophyllum ebulbum*, *Chrysoglossum erraticum*, *C. robinsonii*, *Eria connate*, *E. pudica*, *Hetaeria affinis*, *Thelasis pygmaea*, *Taeniophyllum crepidiforme* and *Zeuxine clandestine* are new record from Assam and *Anoectochilus brevilabris*, *Bulbophyllum protractum*, *B. spathulatum*, *Calanthe lyroglossa*, *Ceratostylis sabulata*, *Cleisostoma discolor*, *Podochilus khasianus*, *Tainia minor*, *T. waryana*, *Thelasis longifolia*, *Trichotosia velutina*, and *Tylostylis discolour* are new record from Upper Assam.

The growing interests for orchid export, 'biopiracy' and destruction of forest have cumulatively led to a condition of near extinction of many orchid species of this region. Most of epiphytic orchids are lost due to mass clearance of forests for other developmental activities. Besides, the problem of grazing, some unplanned human activities and interference through collection for ornamental, medicinal and commercial purposes, many terrestrial and saprophytic orchids are now on the verge of extinction. Therefore it is our duty to conserve all these valuable orchids for next generation. So there is a serious and immediate need to establish sanctuaries with a view for protecting the orchids.