

A REVIEW ON ELEVEN ENDEMIC ORCHIDS OF INDIA CONFINED ONLY TO THE STATE OF ODISHA WITH CRITICAL NOMENCLATURE NOTES ON SOME SPECIES

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Abstract

Amongst the endemic orchids of India, 25 taxa have their distribution in Odisha. Out of these, 11 taxa are confined to Odisha. Enumeration of these taxa is provided in this paper. Status of two taxa has been raised from variety to subspecies.

Introduction

INDIA IS a vast region with varied physiographic and climatic conditions. The family Orchidaceae constitutes one of the largest plant families in India distributed throughout the country. But it is the Eastern Himalayas where the family predominates. The greater number of orchids in India comprises of tropical epiphytes and quite a large number (465) of them are endemics, out of the total 1484 taxa in 191 genera (Misra, 1989). India, however, is poor in endemic genera and species than many other countries like China, Australia, and South Africa.

Odisha, the Eastern coastal state of India, has a varied physiography and an average annual rainfall of ca. 1500 mm in 72 rainy days. The state is a climatic border between the North and South of India, in the sense that it is located on the Inter-Tropical Climatic Zone (ITCZ). This is magnificently reflected in the diversity of the floral wealth of Odisha, including orchids. The floristic study of this family carried out by the author in Odisha, between 1968-2022 revealed the presence of 137 species in 50 genera (Misra, 2014). This included importantly 12 new findings and also 2 new records, i.e. *Goodyera thailandica* Seidenf. and *Pomatocalpa decipiens* (Lindl.) J.J.Sm. to the flora of India. Thirteen endemic orchids of India were earlier known to occur in Odisha. The state thus now has a total of 25 endemic taxa (both terrestrial and epiphytic) which are as follows:

Terrestrial Species

Habenaria crassifolia A. Rich., *H. gibsoni* var. *gibsoni* Hook.f., *H. gibsoni* var. *foetida* Blatt. & McCann., *H. grandifloriformis* Blatt. & McCann., *H. longicorniculata* J. Graham., *H. panigrahiana* ssp. *panigrahiana* S. Misra, *H. panigrahiana* ssp. *parviloba* S. Misra, *H. roxburghii* Nicolson, *Liparis udaii* S. Misra, *Nervilia*

falcata (King & Pantl.) Schltr., *N. scottii* (Rchb.f.) Schltr., *Odisha cleistantha* S. Misra ssp. *cleistantha* S. Misra, *O. cleistantha* ssp. *flabellata* S. Misra, *Pereistylus lawii* Wight, and *Zeuxine mooneyi* S. Misra.

Epiphytic Species

Aerides maculosa Lindl., *Cirrhopetalum panigrahianum* (S. Misra) S. Misra, *Dendrobium herbaceum* ssp. *singarajana* S. Misra, *D. prasannae* S. Misra, *D. regium* Prain, *Eria meghasaniensis* (S. Misra) S. Misra, *Liparis espeevijee* S. Misra, *Oberonia proudlockii* King & Pantl., and *O. similipalensis* S. Misra.

One species namely *Mastigion ornatissimum* (Rchb.f.) Garay, Hamer & Siegerist could not be traced now from the reported locality. From the above 25 taxa, 4 terrestrial and 4 epiphytic taxa as shown in the enumeration, are known to occur from a single locality. These taxa may therefore, be considered as rare and threatened in the state. Amongst the endemics mentioned above, the ones confined only to Odisha are dealt here with and are enumerated. The enumeration provides correct names of the taxon and synonyms, if any. It is followed by the diagnostic character specific to the taxon, the flowering period and the locality of occurrence. A key to these taxa is provided preceding the enumeration.

Critical Nomenclatural Notes

Considering the distinct floral morphology, especially in the anther, pollinia, and the stigma, between the type variety and the variety *parviloba*, it is here proposed to raise the status of the later to the rank of a subspecies. Accordingly, the new combination in the two taxa will be as follows:

***Habenaria panigrahiana* S. Misra ssp. *panigrahiana* S. Misra stat. nov.** *Habenaria panigrahiana* S. Misra

Blumea 27: 213. fig. 1 A-L, 15 May 1998; Misra 2004: 189; Misra 2007: 302; Misra 2014: 216; Misra 2019: 513.

Habenaria panigrahiana S. Misra ssp. **parviloba** S. Misra **stat. nov.** *Habenaria panigrahiana* var. *parviloba* S. Misra Blumea 27: 213, fig. 1 I-R, 15 May 1981; Misra 2004: 194; Misra 2007: 302; Misra 2014: 218; Misra 2019: 513.

Artificial Key to the Species

Terrestrial Species

- 1a. Leaves perennial; stem rhizomatous, slender; lateral sepals connate at their inner edges; lip sessile; hypochile saccate, having an emergent slender gland with a peltate head on each side at the base of the sac ***Zeuxine mooneyi***
- 1b. Leaves deciduous, mostly shedding annually; with underground stems; other features not as above
- 2a. Underground stem a corm; inflorescence short with a very few flowers; lip entire, quadrate-suborbicular; with short auricles at the base ***Liparis udaii***
- 2b. Underground stem root-stem tuberoids; inflorescence long, with several flowers; lips lobed, without basal auricles
- 3a. Perianth of flowers well-opening; petals bipartite, with slender, filiform lobes; lower segment longer, forming a narrow angle with the upper one and aristate; lip tripartite, the segments filiform; with a distinctly long spur; rostellum dome-shaped, 3-lobed, its slender arms with pouches at apices to hold the viscidium of the pollinia; anther locules entire, with basal canals; pollinia 2, caudicle long ending in a viscidium; leaves not margined ***Habenaria panigrahiana* ssp. *parviloba***
- 3b. Perianth of flowers not opening; petals entire, oblong-lanceolate, acute; lip saccate or with a laterally compressed short, truncate spur; rostellum petaloid, erect, apex expanded, with 3 short triangular lobes; each of the anther locule divided by a longitudinal septum; pollinia 4 in 2 close pairs, with a minute caudicle, without viscidia; leaves with colourless margins
- 4a. Labellum narrowly ovate in outline, its lateral lobes obliquely ovate-lanceolate, margins entire

..... ***Odisha cleistantha* ssp. *cleistantha***

- 4b. Labellum flabelliform in outline, its lateral lobes obliquely flabellate, outer margins crenulate; spur elongate, apex rounded..... ***Odisha cleistantha* ssp. *flabellata***

Epiphytic Species

- 5a. Plants without a distinct leafy stem; leaves ensiform, equitant, compressed, with sharp edges, fleshy, sessile; inflorescence borne in axil of the uppermost leaf; flowers minute; lip undivided, margin irregularly laciniate ***Oberonia similipalensis***
- 5b. Plants with distinct leafy, usually variously swollen stems; leaves normal; inflorescence and flowers not as above
- 6a. Stem drooping, uniformly slender, sturdy, polished; inflorescence 1-few leaf-opposed short fascicles of 1-3 flowers; lip simple, entire, elliptic-oblong, rounded, apex with an obtuse mucro, base abruptly narrowed to a short claw ***Dendrobium prasannae***
- 6b. Stem erect, variously thickened; other features not as above
- 7a. Stem elongate, with 3-4 short lateral branches; inflorescence sub terminal to lateral short fascicles, with 2-3 small greenish white flowers; lip obscurely 3-lobed; disc with 2-slender ridged callosities..... ***Dendrobium herbaceum* ssp. *singarajana***
- 7b. Stem not elongate; inflorescence terminal or lateral
- 8a. Inflorescence a terminal raceme, flowers many, small to minute; leaves on top of the pseudobulb
- 9a. Pseudobulb clavate-fusiform, compressed; leaves 2-4; inflorescence sub terminal, 1-3 per plant; perianth not wide opening; ovary and sepals sparsely and shortly hairy; lateral sepals ovate-triangular; terminal lobe ovate-truncate, shortly bilobulate, with an orbicular patch below apex ***Eria meghasaniensis***
- 9b. Pseudobulb cylindric, swollen at base; leaves 2, terminal, inflorescence terminal, single; perianth well opening, glabrous, lip sub-entire, ovate, apex truncate, deeply emarginate, without callosity ***Liparis espeejee***

- 8b. Inflorescence lateral from base of an ovoid-conical pseudobulb, sub-racemose with a few flowers; lateral sepals connate with their distal inner edges forming a flat, ovate-lanceolate emarginate blade; lip recurved from base, narrow lanceolate, emarginate, upper surface papillar; lower face with a prominent ridge gradually reducing towards lip
.....***Cirrhopetalum panigrahianum***

Description of Species

1. ***Zeuxine mooneyi*** S. Misra

Nelumbo 54: 17. fig. 1. 2012. *Zeuxine* species, S. Misra, Orch. Orissa 325; Misra 2014: 146-147; Misra 2019: 530; Singh *et al.* 2019: 517.

The fused lateral sepals and the peltate-headed glands inside hypochile of lip at once separate this species from others (Fig. 1).

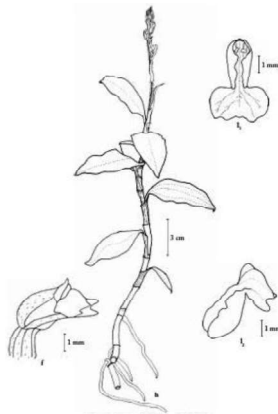


Fig. 1. *Zeuxine mooneyi* S. Misra

Flowering

January-February

Occurrence

Kendujhar district, Rebana forest at Panasapani; rare, reported only from the type locality.

2. ***Liparis udaii*** S. Misra

J. Orch. Soc. India 23(1-2): 87, fig. 1. 2009; Misra 2014: 114-115; Misra 2019: 516.

Resembles *L. odorata* (Willd.) Lindl.; but the plant is of a short stature; the scape is shorter, bearing a very few small flowers; the lip is quadrate-sub orbicular, two-auricled at base (Fig. 2).

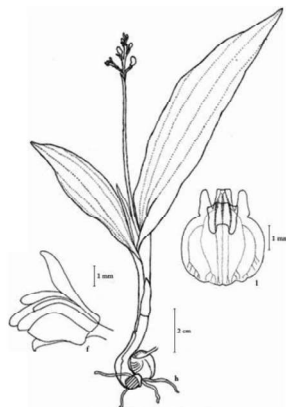


Fig. 2. *Liparis udaii* S. Misra

Flowering

August

Occurrence

Sundargada district, Khajuridihi forest block; rare, known only from the type locality.

3. ***Habenaria panigrahiana*** ssp. ***parviloba*** S. Misra

Blumea 27: 214. Fig. 1. 1981; S. Misra 2004: 194; S. Misra 2007: 302; S. Misra 2014: 218-219; S. Misra 2019: 513.

Separated from the typical variety by smaller flowers; lower segment of petal forming a narrow angle with the upper one, aristate not resembling the lower segment of the lip; stigmatic lobes erose at apices (Fig. 3).



Fig. 3. *Habenaria panigrahiana* var. *parviloba* S. Misra

Flowering

December

Occurrence

Ganjam district, Bhanjanagar, on edge of the reservoir by side of the Highway leading to Phulbani; rare.

4. ***Odisha cleistantha*** ssp. ***cleistantha*** S. Misra

Orch. India 2007: 252; Misra 2014: 238-239; Misra 2019: 513; Singh *et al.*: 394. *Habenaria pelorioides* sensu Misra 2004, non Reichb. f. 1874.

This species is characterized by the lip narrowly ovate in outline, margin of the lateral lobes entire; spur produced below, short, and broad, with a truncate apex (Fig. 4).



Fig. 4. *Odisha cleistantha* ssp. *cleistantha* S. Misra

Flowering

October

Occurrence

Gajapati district; Adaba; Chandipur; Chandragiri; Mahendragiri hills; Mohana; scarce. Kandhamal district; Gadapur; Dangamala; scarce. Kendujhar district; Rebana at Badajhara; Bhatodihi; scarce. Koraput district; Dharamagada; Laxmipur; Govindapali; scarce. Mayurbhanj district; Similipal, Bamanghati; Gudugudia; Kabataghai; scarce.

5. *Odisha cleistantha* ssp. *flabellata* S. Misra

Nelumbo 60(2): 99-103. 2018; Misra 2019: 520.

Differs from the typical subspecies by a longer raceme; a flabelliform labellum, outer margins of lateral lobes crenulate; spur distinctly elongate, stretched backward, apex rounded (Fig. 5).

Flowering

October-November

Occurrence

Koraput district, Barigam (near Laxmipur); rare
Kandhamal district: Daringbadi, Dangamala; rare.



Fig. 5. *Odisha cleistantha* ssp. *flabellata* S. Misra

6. *Oberonia similipalensis* S. Misra

Nelumbo 62: 1-4. 2021; Misra 2022: 182-183. *Oberonia gammiei* auct. non King & Pantl.; Misra 2004: 340; Misra 2014: 248-249; Misra 2019: 519.

This species is recognized by its falcate slender and pointed leaves; the dense spike longer than the leaves; the lip is undivided, ovate, apex minutely obtuse, margin deeply lacinate (Fig. 6).

Flowering

August

Occurrence

Mayurbhanj district, Similipal forest, Bada Makabadi, Baniapada, Bhanjabasa, Chakunda nala, Garandia nala, Jenabila, Khairiburu, Matughara,



Fig. 6. *Oberonia similipalensis* S. Misra

Pakaladiha nala (near origin), Tarinibila, U. Barhakamuda, Udiabasa; occasional.

7. *Dendrobium prasannae* S. Misra

Similipal For. Hndr. Orch.: 208-209. 2022; replaced synonym *D. haemoglossum* Thw. ssp. *nayaki* S. Misra, J. Orchid Soc. India 35: 141-145. 2021.

Stem drooping, uniformly slender, naked, and polished unlike in other species of dendrobiums, where the stem is somewhat fusiform, fleshy, and covered with leaf bases; the lip is simple, entire, elliptic oblong, rounded, base abruptly narrowed to a short claw (Fig. 7).



Fig. 7. *Dendrobium prasannae* S. Misra

Flowering

March-April; sometimes in May-June or September

Occurrence

Mayurbhanj district: Similipal forest: Baniapada, Bhanjabasa, Dhangoji, Jamuna gada, Meghasani, Nekadanecha, Sarua, Tarinibila, U. Barhakamuda; occasional.

8. *Dendrobium herbaceum* ssp. *singarajana* S. Misra

Nelumbo 61 (2): 10-12. 2019.

It differs from the typical subspecies by its short stature; stem with only a few branches; lip having a disc with a pair of slender ridged callosities; its side lobes sparsely gland-dotted, margins crenulate (Fig. 8).

Flowering

March

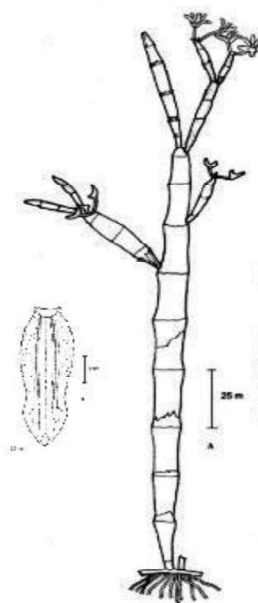


Fig. 8. *Dendrobium herbaceum* ssp. *singarajana* S. Misra

Occurrence

Gajapati district, Singaraja hills; rare, known only from the type locality.

9. *Eria meghasaniensis* (S. Misra) S. Misra

Orchid Soc. India 3(1,2): 69. 1989; Misra 2004: 398; Misra 2007: 298; Misra 2014: 274; Misra 2019: 508; Singh *et al.* 2019: 264; Rathore *et al.* 2020: 25. *Eria bilobulata* Seidenf. ssp. *meghasaniensis* S. Misra, J. Orchid Soc. Ind. 2 (1,2): 49, fig. 1,2. 1988.



Fig. 9. *Eria meghasaniensis* S. Misra

This species is identified by a fusiform flattened stem; short subterminal flowering spike, with a few not well-opening off-white flowers (Fig. 9).

Flowering

September-October

Occurrence

Mayurbhanj district; Similipal forest: Meghasani hill, nearing the peak, Khairiburu hill nearing the peak; very rare and critically endangered.

10. *Liparis espeeijee* S. Misra

Orch. Orissa: 370. 2004; Misra 2007: 305; Misra 2014: 216; Misra 2019: 515. *Liparis vestita* ssp. *seidenfadenii* S. Misra, Nord. J. Bot. 6(1): 26, fig. 2. 1986; Misra 1987: 34; 66; non *Liparis seidenfadenii* Szlach., Novon 3: 302. 1993.

This species is characterized by an ovate lip having its proximal half uniformly broad, without callosity; distal half gradually narrowing with a truncate, emarginate apex (Fig. 10).

Flowering

April-May

Occurrence

Kendujhar district; Rebana forest at Kendughata; very rare, known only from its type locality.

11. *Cirrhopetalum panigrahanun* (S. Misra) S. Misra

J. Orchid Soc. India 11(1-2): 54. 1997; Misra 2004: 457; Misra 2007: 287; Misra 2014: 306; Misra 2019: 497; Misra 2022: 228-229. *Bulbophyllum panigrahanun* S. Misra, Nord. J. Bot. 6(1):25, fig. 1. 1986.

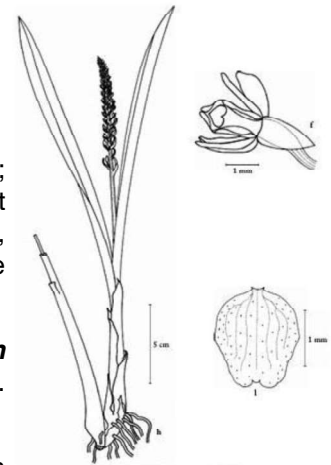


Fig. 10. *Liparis espeeijee* S. Misra



Fig. 11. *Cirrhopetalum panigrahanun* (S. Misra) S. Misra

Small waxy-white flowers in a subumbellate spike; narrow lanceolate, emarginate, fleshy, recurved from base, upper surface papillar, lower surface glabrous with a prominent ridge reducing gradually towards the tip are characteristic of this species (Fig. 11).

Flowering

June

Occurrence

Kendujhar district, Rebana forest at Gola, Rimbeda and Kendughat; rare. Mayurbhanj district, Similipal at Bhuduka; rare.

51-59.

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