

# Flora of Koh Chang.

Contributions to the knowledge of the vegetation in the  
Gulf of Siam.

By  
**Johs. Schmidt.**

## Part I.

(Johs. Schmidt: Introductory. — F. Kränzlin: Orchidaceae, Apostasiaceae.)

With Map (plate I).

## Introductory

by **Johs. Schmidt.**

With the present contribution I am beginning the publication of a systematic list containing the plants collected by me during the stay of the Danish Expedition in Siam (1899—1900).

These contributions will be published gradually as the material will be examined and named by various specialists, who have kindly undertaken to work up my collections<sup>1)</sup>.

The collections have all been made in the island Koh Chang (see Map) and adjacent smaller islands, thus originating in a small, fairly accessible area, of which the natural bounds are given by its position in the sea. On account of this and as catalogues of the plants growing in a certain locality have not hitherto been published from anywhere in Siam, as far as I am aware, I

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<sup>1)</sup> The authors in question are alone responsible for the content of their papers with the exception of the words that I have to insert about the occurrence of the plants in their natural localities.

hope this list will be of some interest, although it cannot claim to be complete as it is only the results of my collections during my stay in the island in three winter-months.

These contributions to which the present is an introduction only will deal with the systematic relations of the concerning plants and their geographic distribution. As I intend to publish later on a more detailed description of the vegetation of Koh Chang from a biological and ecological point of view where particulars will be given about the general climatic and geographic facts, I here confine myself to the most necessary informations.

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The expenses of the Expedition were paid by the Danish Government and the „Carlsbergfondet“ and we undertook our voyage under the auspices and with the sanction of the Botanical and Zoological Museums of the University of Copenhagen both of which contributed to our outfit and supplied the funds on which we travelled.

On October 1<sup>st</sup> 1899 we started from Copenhagen onboard the Danish steamer „Siam“ bound for China. During the sea-voyages out- and homeward the time was occupied by collecting and studying the zoo- and phytoplankton of the seas, we passed through. After a short stay in Singapore, Bangkok was reached in the middle of December. About a week later we left that city onboard H. S. M. „Chamroen“ for our destination, the inner part of the east-coast of the Gulf of Siam. By the kindness of the Royal Siamese Government and our excellent countryman Admiral A. de Richelieu some very valuable support was granted us from the Siamese Navy. Thus we got residence on the Naval Stations at Lem Dan (Koh Chang) and Lem Ngob (Siamese mainland), and also men to assist us during our dredgings or inland trips. Until the end of March I lived at Lem Dan and spent the time collecting plants and studying the flora of Koh Chang, for which purpose I undertook numerous excursions by land to the hills or visited by boat the different coasts of the island.

At the end of March we left Siam in the Danish steamer „Cathay“ for Copenhagen, where we arrived on June 1<sup>st</sup> 1900. Our collections have all been placed in the Botanical and Zoological Museums of the University of Copenhagen.

The island Koh Chang (Elephant Island) is situated in the northeasterly part of the Gulf of Siam about 80 miles from the boundary between Siam and Cambodia<sup>1)</sup>. A strait, 2½ — 10 miles broad, separates the island from the Siamese mainland. The area of Koh Chang is about 70 square miles and it is the largest Siamese island in the Bay. Consequent to its position in 12° lat. N. the climate of Koh Chang is entirely tropical, the year being divided in a rainy and a dry season, the former during the blowing of the damp south-west monsoon (generally from May to August) the latter in the other months where the dry north-easterly winds are prevalent. The heat is most extreme in spring, in March, April and May before the south-west monsoon sets in and after the cessation of the north-east. The coolest season is the autumn- and winter-months. At Bangkok<sup>2)</sup> the annual average temperature is 26,7° C. (80,1° F.), Decembers 24° C. (75,2° F.) and Aprils 28,5° C. (83,3° F.). The annual rainfall amounts to 1670<sup>mm</sup> (65,7 inches) of which about ¼ during the months from May to October.

The times of tides in the Gulf of Siam are very irregular and the rise also varies along the shores from 4 to 9 feet. In the Inner Gulf the principal of the two tides occurs in the south-west monsoon at night, but in the north-east this gradually alters and the high tide will be found in the daytime.

Koh Chang is a mountainous island and ranges of peaks separated by valleys occupy its whole area especially running in the direction from NW to SE and growing in height and importance as they go south. The highest point is found in the southern

<sup>1)</sup> The more exact position is given by the following indications: Northernmost point in 12° 10' lat. N., southernmost in 11° 57' lat. N., westmost in 102° 14' long. E., eastmost in 102° 25' long. E.

<sup>2)</sup> Bangkok (13° 88' lat. N., 100° 34' long. E.) is the nearest place, from where some meteorological facts are present. During my stay in Koh Chang I made some measurements of temperatures and the degree of moisture, which later will be published.

part of the island (*Table Peak*), north of *Klong Sarlakpet*, and rises nearly to 2450 feet.

The hills of Koh Chang consist of a rather small-grained eruptive rock, most commonly light-brown or red in colour, more seldom greenish.

A narrow strip of plain surrounds the hills of Koh Chang; its soil is a very compact, reddish clay the presence of which is due to the denudation of the hills.

Whereas no lakes or ponds of any importance are found in Koh Chang, a great number of small rivers and rivulets intersect the island taking their rise from the hills in the interior. Their water usually streams very quickly and they are often broken by waterfalls. Most commonly these waterfalls are small; some more important ones are found near the east-coast in *Klong Munsé* and a little more southward in *Klong Majum*, near the west-coast in *Klong Prao*. In the dry season the rivers contain but little water; but during the south-west monsoon they swell and fill up their stony beds. When the rivers have reached the plains near the coast, their course becomes more quiet, their breadth increases and some of them are navigable for small crafts for some distance from the sea (*Klong Prao*, *Klong Sarlakpet*, the latter debouching in the great bay at the south-end of the island).

Especially in the more exposed west-coast of Koh Chang the steep rocks go right down to the sea, but in most other places the shores are low and flat, their soil consisting of coral-sand<sup>1)</sup> or stony gravel. Where rivers debouch and assume the proportions of more important estuaries, the ground is covered with a black mud and occupied by a luxuriant mangrove-vegetation.

The hills of Koh Chang are all covered with the densest jungle from the feet to their highest top. As the vegetation on the whole, this jungle has been but little influenced by the scarce Siamese and Chinese population scattered along the coasts, where *klongs* debouch.

Villages of some importance are situated at the mouths of *Klong Munsé* (east-coast) and *Klong Sarlakpet* (south-end); besides which some few people live at *Klong Son* (north-end), *Klong Prao* (west-coast), *Ao Savan* (south-end) and a few other places.

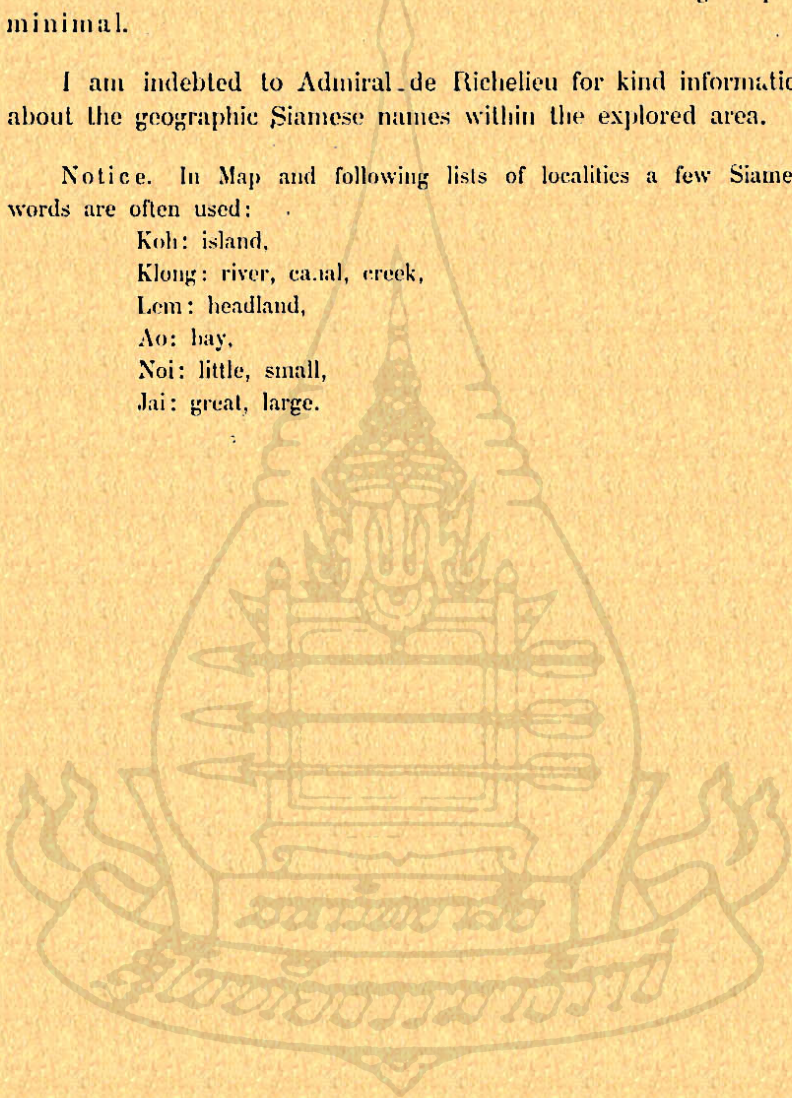
<sup>1)</sup> The sand here is often much more large-grained than on our northern shores consisting of big coral-fragments. In some places however common quartz small-grained sand can be found.

In the rains a little rice is cultivated in the plains; further some few vegetables, pine-apples, bananas, mangos and other fruit-trees; and here and there one finds a small pepper plantation, but on the whole the cultivated area of Koh Chang is quite minimal.

I am indebted to Admiral de Richelieu for kind information about the geographic Siamese names within the explored area.

Notice. In Map and following lists of localities a few Siamese words are often used:

- Koh: island,
- Klong: river, canal, creek,
- Lem: headland,
- Ao: bay,
- Noi: little, small,
- Jai: great, large.



## Orchidaceae and Apostasiaceae

by F. Kränzlin — Gross Lichterfelde.

### Orchidaceae.

#### **Oberonia** Lindl.

1. ***O. iridifolia*** Lindl. G. & Sp. Orch. & Fol. Orch. Oberonia I. 1.  
var. *brevifolia* Hook. f. Fl. Brit. Ind. V. 675.

The specimens bear ripe capsules without any trace of flowers, but the whole habit agrees exactly with *O. iridifolia* Lindl.

Klong Munsé and Koh Kahdat, epiphytic near the sea.

Area: From the Northern Himalaya to the Tavoy-district and Moulmein.

#### **Liparis** L. C. Rich.

2. ***L. disticha*** Lindl. in Bot. Reg. sub. t. 882. *L. gregaria* Lindl. G. & Sp. Orch. 33; *Malaxis disticha* Thouars Orch. II. Afr. t. 89; *Malaxis mucronata* Bl. Bijdr. 391.

Klong Majun, 700 ft. above the sea, epiphytic in the jungle.

Area: Widely distributed from the Mascarene Islds. to Ceylon and farther to Malacca, Malay- and Sunda Islds.

#### **Dendrobium** Sw.

3. ***D. anceps*** Sw. in Act. Holm. 1800. 246. Hook. f. Fl. Brit. Ind. V. 724. *Aporum anceps* Lindl. G. & Sp. Orch. 71.

Without flowers, leaves and flower-buds showing the characteristic forms of *D. anceps* Sw.

Klong Munsé, epiphytic in the jungle.

Area: From Sikkim to the Sunda Islds.

4. ?***D. Serra*** Lindl. in Journ. Linn. Soc. III, 3. Hook. f. Fl. Brit. Ind. V. 722. *Aporum Serra* Lindl. in Wall. Cat. 2021 & G. & Sp. Orch. 71. *D. aloefolium* Rehb f.

Without flowers. The stem and leaves are quite different from those of the last number. I am not quite sure if it may be *D. Serra* Lindl. certainly it is not identical with *D. anceps* Sw.

Klong Munsé, epiphytic in the jungle.

5. **D. dixanthum** Rehb. f. in Gard. Chron. 1865. 674. Hook. f. Fl. Brit. Ind. V. 746.

I have seen no stem and leaves, but the flowers are almost identical with the flowers of the plant Bot. Mag. t. 5564.

Klong Son, epiphytic in the jungle.

Area: Moulmein, Tenasserim.

6. **D. Palpebrae** Lindl. in Journ. Hort. Soc. V. 33; Hook. f. Fl. Brit. Ind. V. 750.

Klong Munsé, epiphytic in the jungle. Flowers white, labellum yellow.

Area: From Sikkim to Burma.

7. **D. suavissimum** Rehb. f. in Gard. Chron. 1874, 406 & Xen. Orch. III, 2, t. 202. *D. chrysotoxum* Lindl. in Bot. Reg. 1847 and t. 19 & 36; Hook. f. Fl. Brit. Ind. V. 750.

The splendid specimens I had at hand agree in every respect with Reichenbachs plate.

Klong Sarlakpet, epiphytic in the jungle.

Area: Arracan and Burma.

8. **D. Schmidtianum** Krzl. n. sp. (Virgatae).

Caulibus approximatis curvulis ad 20 cm. altis e basi tenui in quarta parte inferiore fusiformibus supra attenuatis foliosisque, quo crassissimi 8—10 mm. diam., foliis oblongis lanceolatisve acutis basi laxè vaginantibus lamina 8—10 ca. longa, 1—1,5 cm. lata scapo gracili subflexuoso, floribus succedaneis sat magnis e bracteis glomeratis griseis scariosis orientibus quam ovarium tenue 1,5 m. longum multo brevioribus. Sepalo dorsali petalisque lanceolatis acutis, sepalis lateralibus antice oblongis postice in pseudocalcaraequilonum omnino apertum rectum conicum v. extintoriiforae elongatis, labello e basi angusta dilatato cuneato antice reluso margine leviter crenulato (si mavis lobis lateralibus obtriangulis antice crenulatis), lobo intermedio minuto angusto triangulo acuminato, disco omnino nudo; gynostemio brevissimo. — Flores pulchri nivei, siccis diaphani, a sepalorum apicibus ad illum pseudocalcaris 3,2—3,5 cm. longi, labellum 2,5 cm. longum inter lobos laterales expansum 1,3 cm. latum.

In beauty and size the flowers of this plant are much like those of *D. crumenatum* Sw. but they differ by the lip, the middle-lobe of which is reduced to a very small triangle. In size and foliage the plant agrees very well with a big specimen of *D. podagraria* Hook. f. (*D. angulatum* Wall.) a plant widely spread over all the Indo-Malayan islands.

Lem Dan and Koh Kahdat, epiphytic, near the sea.

**D. sp.**

There is another species of aporoid Dendrobiums without flowers collected in the jungle and labelled N. 467 that I am quite unable to determine.

**Bolbophyllum** Thouars.

9. **B. tridentatum** Krzl. n. sp.

Rhizomate longe prorepente 2 mm. crasso, bulbis 5—8 cm. inter se distantibus obtuse tetragonis conicis 1,5—2 cm. altis basi fere 1,5 cm. crassis monophyllis, foliis oblongis lanceolatisve ad 8 cm. longis 1—2 cm. latis acutis coriaceis apice vix v. non biapiculatis, scapis nutantibus quam folia bene brevioribus basi vaginatis ceterum nudis, racemis subcapitatis pauci—plurifloris nutantibus, bracteis parvis oblongis acutis quam flores bene brevioribus 2—3 mm. longis. Sepalo dorsali oblongo obtuso concavo, sepalis lateralibus ovato-oblongis plus duplo longioribus basi connatis subobliquis acuminatis apice ipso obtusis, petalis minutis subquadratis v. brevissime ovatis supra triapiculatis v. tridentatis, apiculis brevibus subulatis, mediano vix longiore, labelli lobis lateralibus falcatis acutis pellucidis incurvis, labello ipso crasso carnosio ovato medio sulcato supra et infra dense papilloso; gynostemii dentibus lateralibus latiusculis denticulo 1 laterali instructis integrisve. — Flores rufinuli, sepala lateralia 6 mm. longa, dorsale 3 mm., labellum 1,5—2 mm. longum.

The plant belongs to the group of mostly very indifferent looking species which are more or less similar to *B. neilgherrense* Wight and *B. Careyannum* Spreng. All have long creeping rhizomes, rather distant monophyllous bulbs, nodding more or less capitate spikes and most of them or all reddish flowers. The chief-character of this species consists in the three-pointed petals, a peculiarity not observed in any other species of the group. The lip in its shape does not differ very much from that of the allied species, but here the side-lobes are reduced to a thin transparent border whilst the middle-lobe consists of the strong fleshy body so common in *Bolbophyllum*.

Jungle near Klong Majum alt. 200 ft., epiphytic.

**Eria** Lindl.

10. **E. semiconnata** Krzl. n. sp.

Bulbis nummiformibus applanatis orbicularibus 8—10 mm. diam. margine subrepandis supra retinerviis, foliis sub anthesi nullis, mihi non visis, floribus semper unicis brevi-pedicellatis, bractea ovata cucullata acuta quam ovarium longiore, flore nutante. Sepalo dorsali obovato-oblongo brevi-acutato, sepalis lateralibus in unum basi gibbosum connatis apicem versus liberis acutis cum dorsali conglutinatis non connatis, petalis obovatis obtusis, tota superficie minute crystallino-glandulosa, labello simplice ovato acuto basi plicato ibique umbonato; gynostemio perbrevis. — Flores extus et intus glabri, intense rubri, sepala 5—6 mm. longa, labellum 2 mm. longum.

This curious little thing is the sixth species of the Porpax-group and is closely allied to *E. ustulata* Par. & Rehb. f. The differences are however considerable enough to keep the plant distinct from *E. ustulata*. The flowers of the latter are pubescent on the outside, those of our species are quite glabrous, the upper sepal is triangular and acuminate in *E. ustulata*.



*lata*, in *E. semiconnata* oblong or obovate, the petals of this species are broadly obovate, those of *E. ustulata* according to Reichenbach lanceolate. At last the colour is somewhat different though not much.

On rocks in the jungle throughout the island, ascending to 2000 ft.

11. *E. Nummularia* Krzl. n. sp.

Bulbis crebris approximatis sese tangentibus orbicularibus margine repandis depressis radiatim jugosis 8—10 mm. diam., floribus plerumque solitariis, bracteis ovatis acutis ovarium subglobosum semiaequantibus. Sepalis per duas tertias longitudinis in tubum connatis, lateralibus basi bullatis omnibus antice longe oblongis acutis apice reflexis, petalis aequilongis obovati-oblongis antice rotundatis utrinque hyalini-papillois, labello brevi oblongo obtuso, linea elevata per totum discum decurrente. — Flores inversi extus et intus glaberrimi rubri, sepala circ. 4 mm. longa, petala aequilonga antice 2 mm. lata, labellum 1,5 mm. longum. — Januario.

The little plant resembles very much the latter, but 1. the flowers are not resupinate, 2. the sepals are not united except the third part below the top, 3. the petals are cuneate or obovate, 4. the lip has an elevated line running from the base to the apex but not a tubercle at the base; at last the dimensions of all these parts are still a little smaller than in *E. semiconnata*. For the other characters both species agree very much especially in the smallness of the flower. Also in this species leaves are missing.

On rocks in the jungle near Kloug Munsé alt. 700 ft.

12. *E. lanata* Griff. Notul. III, 101; Lindl. in Journ. Linn. Soc. III. 49. *Er. flava* Lindl. var. *lanata* Hook. f. Fl. Brit. Ind. V. 801.

Klong Prao, Koh Kahdat, Koh Saket. Epiphytic near the sea.

Area: From tropical Himalaya eastward to Bhotan and southward to Tenasserim.

13. *E.* sp. (sect. *Trichotosia*) aff. *E. velutinae* Loddig.

Without flowers, but surely very near to *E. velutina* Lodd. if not identical

Klong Munsé. Epiphytic in the jungle.

**Agrostophyllum** Bl.

14. *A. khasianum* Griff. in Calc. Jour. Nat. His. IV, 378, t. 19; Hook. f. Fl. Brit. Ind. V. 824. — *Agrost. planicaule* Rehb. f. — *Appendicula Hasseltii* Wight.

Lein Dan near the sea and Klong Majum alt. 700 ft., epiphytic.

Area: Khasia-hills to Moulmein and Tenasserim.

**Calanthe** R. Br.

15. **C. biloba** Lindl. Fol. Orch. Calanthe p. 3; Hook. f. Fl. Brit. Ind. V. 848.

var. *obtusata* Par. & Rehb. f.

Klong Majum, on rocks; flowers red.

Area: Temperate Himalaya. Sikkin, Nepal. — Tenasserim.

**Eulophia** R. Br.

16. **E. graminea** Lindl. in Wall. Cat. 7372 & G. & Sp. Orch. 182; Hook. f. Fl. Brit. Ind. VI, 2.

Klong Munsé (common in the plains); Koh Cllick. Terrestrial, in grassy spots.

Area: Bengal, Assam, Malacca to Singapore, Nicobar-Islands, Ceylon.

**Cymbidium** Sw.

17. **C. aloifolium** Sw. in Nov. Act. Upsal. VI, 73; Hook. f. Fl. Brit. Ind. VI, 10. *Cymb. pendulum* Sw.; *Cymb. crassifolium* Wall.

Lem Dan and Koh Kahdat, epiphytic, near the sea.

Area: Himalaya, eastward to East Nepal, southward to Tenasserim and Andaman Islands.

**C.** sp. indetermin.

Without flowers.

**Luigia** Gaudich.

18. **L. brachystachys** Bl. Rumph. IV, 50; Hook. f. Fl. Brit. Ind. VI, 23.

Without flowers but with all other characters of this species.

Klong Mrijum, epiphytic in the jungle.

Area: Western Himalaya. Silhet & Khasia-hills, Tenasserim.

**Sarcochilus** R. Br.

19. **S. hirtulus** Hook. f. Ic. Plant., t. 2121 & Fl. Brit. Ind. VI, 39.

Without flowers, but the plant resembles in every respect the plate in the Icones Plantarum especially in the roughness of the flower stalk.

Klong Prao, epiphytic, near the sea.

Area: Perak, Malacca.

**Renanthera** Lour.

20. **R. coccinea** Lour. Fl. Cochinch. II. 237; Hook. f. Fl. Brit. Ind. VI, 48.

Klong Majum, on rocks in the jungle, alt. 700 ft.

Area: Cochin China. Tenasserim, Tavoy-District.

**Saccolabium Bl.**

21. *S. ochraceum* Lindl. in Bot. Reg. 1842. Misc. 2; Hook. f. Fl. Brit. Ind. VI, 62. *S. lineolatum* Thw. *Acampe dentata* Lindl. *A. Wightiana* var. *longepedunculata* Thw.

Lem Dan. Epiphytic, near the sea. Flowers orange with red spots.  
Area: Tropical Himalaya, Bhotan, Tenasserim, Ceylon.

22. *S. peperomioides* Krzl. n. sp.

Caule longe repente radicibus longissimis cortici affixo, folioso, foliis dorsiventralibus saepius paulum reflexis carnosis crassis oblongis obtuse acutatis 2—2,5 cm. inter se distantibus ad 8 cm. longis, 2,3—2,8 cm. latis, racemis brevibus 1- v. (rarius) 2-floris, bracteis minutissimis. Sepalo dorsali late obovato-oblongo apice rotundato, lateralibus oblongis infra brevi-auriculatis, labello semiaffixis, petalis minoribus subsimilibus omnibus obtusis, labello compresso basi utrinque dentato, lobulis lateralibus erectis apice recurvis, lobo intermedio elongato oblongo acuto v. acuminato, callo crasso supra sulcato inter lobulos laterales, toto disco pilosulo, calcari cum labello continuo ipsi subaequilongio extensoriiformi levissime ascendente; gynostemio brevi, rostello antice bifido; antheram et pollinia non vidi. — Flores inter minores generis, sepala petalaeque 8 mm. longa, labellum cum calcari fere 8 mm. longum.

The stem is very long and attached to the bark of trees by roots of a considerable length; the habit of the plant resembles that of some peperomioid plants, from where I borrowed the name. The species which we may consider to be the nearest to it is perhaps *Saccolabium bipunctatum* Par. & Rehb. f. (referred to *Cleisostoma* by Sir Jos. Hooker) a very imperfectly known species from Tenasserim; it has the same habit, the same manner of growth, the same very short inflorescences of 1 or rarely 2 flowers and even some very slight resemblance in the flower, but no character is identical in both species.

Klong Sarlakpet, epiphytic on *Bruguiera gymnorhiza* in the mangrove.

*Vanda?* *Aerides?* *Sarcanthus?*

There are still 2 specimens of big *Vanda*-like plants without any trace of flowers.

**Podochilus Bl.**

23. *Podochilus* sp.

Without flowers, *Pod. lucescens* Bl. similar.

Klong Munsé, on rocks and epiphytic in the jungle.

**Stereosandra Bl.**

24. *S. pendula* Krzl. n. sp.

Tuberidio 3 cm. longo, 1 cm. crasso; caule tenui fragili ad 30 cm. alto basi squamato ceterum aphylo pallide roseo, racemo

paucifloro, bracteis linearibus pedicellos superantibus, floribus pendulis. Sepalis ovatis acuminatis lateralibus basi manifeste excavatis v. gibbosis, petalis subconformibus, labello simili e basi concava late triangulo acuminato antice complicato, tuberculis basilaribus globosis; gynostemio cum anthera dimidium sepali dorsalis aequante, anthera longa complicata basi dibrachiata, pollinibus elongatis. — Flores albi violaceo-punctati, sepala 7 mm. longa, petala et label- lum vix breviora.

Differs from *Ster. javanica* Bl. by its smaller flowers and the more prominent gibbosity of the lateral sepals and the lip. The tubercles at the base of the latter are very conspicuous. The flowers are white with violet spots, whilst in *St. javanica* they are whitish with violet tips of the sepals and petals. It is a very similar species.

Klong Son, terrestrial among withered leaves. Flowers white with violet spots, ovary with violet elevated lines, stem and leaves pale reddish.

Area: The genus *Stereosandra*, as far we can judge for the moment, is confined to the islands of the indo-malayan archipelago. *Stereosandra javanica* Bl. has only been found in Java.

#### **Anoectochilus** Bl.

25. **A. Reinwardtii** Bl.? Orch. Archip. Ind. 48, t. 12 fig. 2.

Without flowers. The habit and the reticulations of the leaves agree exceedingly well with Blumes plate.

Klong Son and Nipple, alt. 2000 ft. Terrestrial.

Area: Malay Peninsula. Perak (ex. Ridley).

#### **Hetaeria** Bl.

26. **H. oblongifolia** Bl. Bijdr. 410 et Orch. Archip. Ind. 86, t. 56.

With nearly destroyed flowers, but otherwise easy to recognize.

Jungie near Klong Munsé and Koh Kahdat, terrestrial.

Area: Java.

#### **Cheirostylis** Bl.

27. **C. montana** Bl. Bijdr. 413, fig. 16.

Klong Majum, alt. 700 ft., on rocks in the jungle.

Area: Java.

#### **Didymoplexis** Griff.

28. **D. pallens** Griff. in Calc. Journ. Nat. Hist. IV, 383, t 17; Hook. f. Fl. Brit. Ind. VI, 122. *Leucorchis silvatica* Bl. Mus. Bot. Lugd. Bat. I, 31; Orch. Archip. Ind. 147; *Apetalon minutum* Wight; *Arethusa ecristata* Griff. Notul. III, 378; *Epiphanes pallens* Rehb. f. in Fl. Vitiens. 296.

Klong Son, alt. 1000 ft., terrestrial in the jungle. Flowers white, labellum yellow, stem and leaves reddish, the latter very small.

Area: Lower Bengal, from Himalaya to Calcutta. Malacca, Perak.

### **Cypripedium L.**

#### **29. C. Schmidtianum Krzl. n. sp.**

Scapo puberulo tenui, bractea lanceolata carinata acuta dimidium ovarii aequante. Sepalo dorsali latissime obovato explanato apice brevi acutato utrinque 9—11 nervio in nervis extus puberulo, sepalis lateralibus in phyllum multoties et inusitate parvum ovatum acuminatum coalitis, petalis late linearibus acutis arcissime deflexis, papillis minutis valde distantibus 3 v. 4 in margine superiore minute fimbriatis, labello petalis aequilongo marginibus ostii satis distantibus grosse papillois, sacco amplo supra utrinque in lobulum acutum aucto; gynostemio gracili, staminodio antice profunde lunato medio sulcato (fere bipartito), dente in ima parte sulci paulum prosiliente (non proprie umbonato). — Sepal. dorsale 4,5 cm. altum et latum, sep. inferius 2,2 cm. longum, 8 mm. latum, petala 5,5 cm. longa, 1,2 cm. lata, labellum 5,5 cm. longum, supra 2,5 cm. latum; de colore nihil constat.

It is not without hesitation, that I found a new species of *Cypripedium* of which I am quite unable to give any particulars about the colours. The characters which make me believe that the species must be a new one are the extreme smallness of the lower sepal and the strictly deflexed petals. The first character is never observed in such a degree and the position of the petals is in similar manner only to be seen in *Cyp. Fairieanum* and *Cyp. Dayanum* but in neither the petals are so directly deflexed as in this species and both species are out of the question by numerous other characters. My material consists in 3 flowers preserved in alcohol and I am quite sure that I have seen all parts in their natural position and not injured by pressure.

Klong Son, alt. 1000 ft.; on rocks.

### **Apostasiaceae.**

#### **Apostasia.**

30. **A. Lobbii** Rehb. f. in Flora Bd. 55 (1872) 278; Rolfe in Journ. Linn. Soc. XXV, 238; Krzl. Orch. G. & Sp. I, 9.

Nipple, alt. 2000 ft. Terrestrial.

Area: Borneo, Forests of Labuan.