Studia Orchidacearum Japonicarum IV*

Orchidaceae Formosanae Novae Atque Criticae

auctore

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Received January 8, 1935

32) **Orchis taiwanensis** FUKUYAMA, sp. nov.

Terrestris, gracilis, erecta vel stricta, glaberrima, 7–18 cm. alta, tuberculis pilosiusculis globosis vel ovoideis ellipsoideisve. Caulis plerumque remote bifolius interdum trifolius, basi 1–2-vaginatus, vaginis membranaceis apice acutis obtusisve caulem arcte amplexantibus.

Folia erecto-patentia, linearia vel lanceolato-linearia lanceolatae, in exsiccatto chartacea, apice acuta vel acuminata, basi foliis superioribus abrupte contracta vel gradatim attenuata et caulibus articulata, basi foliis inferioribus in vaginam decurrentia et amplexantia, c. 3.5–9 cm. longa, medio 4–15 mm. lata, utrinque glabra, trinervata.

Racemus terminalis, suberectus, secundus, 2–5 cm. longus, laxiuscule 3–11-floratus, bracteis lanceolatis apice acuminatis basi contractis utrinque glabris c. 1–1.5 cm. longis superioribus sensim brevioribus.

Flores rosei, apertientes, pedicellis rectis glabris bracteis subaequilongis raro duplo longioribus. Sepalum intermedium ellipticum, apice obtusiusculum, ad basin angustatum, concavum, dorso medio costa prominens, membranaceum, c. 5 mm. longum, medio 2.5 mm. latum, utrinque glabrum, uninervatum. Sepala lateralia posteriore valde reflexa, oblique oblonga vel ovato-oblonga, latere superiore lente truncata, apice obtusiuscula, basi paullo contracta, margine superiore leviter revoluta, dorso medio costis prominentia, c. 5–6 mm. longa, infra medium 3–3.5 mm. lata, utrinque glabra, uninervata. Petala cum sepalo intermedio in galeam conniventia, oblique oblonga, apice obtusa, basi contracta, margine lente irregulariter undulata, membranacea, sepalis paullo minora, medio c. 2.5 mm. lata, utrinque glabra, uninervata.

Labellum sessile, erecto-patens, circuitu semi-orbiculatum vel ovato-orbiculatum, c. 1 cm. longum, inter apices loborum lateralium c. 1.1 cm. latum, supra minutissime pilosiusculum, basi truncatum vel obtusum, medio leviter vel manifeste trilobatum, lobis lateralibus oblique oblongis vel

* Continued from Bot. Mag. (Tokyo). 48 (1935), p. 442.

semiorbiculatis obtusis, lobo intermedia lateralibus majore antica semiorbiculato vel quadrato margine leviter irregulari c. 7 mm. lato, calcare recto pedicello paullo longiore c. 1.2 cm. longo medio 1.5 mm. in diametro apice obtuso. Columna c. 2 mm. longa.

Nom. Jap. Ane-chidori (nov.)

Hab. Formosa; praef. Karenkoo, in herbidis alpinis monte Gookanzan, (N. FUKUYAMA! Jul. 1929. no. 4526. Typus in Herb. Arch. Fuk.); Kenkai-shichoo, prope Karapao, (K. SEGAWA! Aug. 17, 1934. no. 4528, 4531, 4532); praef. Taichuu, in monte Niitaka-yama inter Tonpo et Hattukan, (M. TAGAWA! Aug. 1934, no. 4529, 4530).

33) **Listera nankomontana** FUKUYAMA, sp. nov.

Terrestris, erecta, gracillima, c. 20 cm. alta, medio foliifera, infra folia glabra, supra puberula.

Folia 2, opposita, erecto-patentia, late ovata, apice acuta, basi truncato-rotundata, margine integra, c. 2 cm. longa, supra basin 1.5–2.5 cm. lata, crassiuscule membranacea, utrinque glabra, subtus pallidiora.

Scapus terminalis, simplex, subfiliformis, strictus, c. 10 cm. longus, inferiore remote 3–4-squamatus, squamis lanceolatis acutiusculis 3–5 mm. longis sensim in bracteas decrescentibus.

Flores a medio scapi sursum apicem laxe racemosi, patentes, bracteis squamis aequiformibus apice acutis basi contractis c. 3 mm. longis sursum sensim brevioribus, pedicellis cum ovariis subrectis glabris bracteis duplo vel triplo longioribus.

Sepala membranacea, glabra, uninervata, sepalo intermedio ligulato sursum sensim angustato apice obtuso c. 2.5 mm. longo 1 mm. lato, sepalis lateralibus intermedio subsimilibus sed majoribus falcatisque c. 3 mm. longis. Petala linearia, apice obtusa, ad basin plus minusve dilatata, sepalo intermedio aequilonga, membranacea, glabra, uninervata.

Labellum erecto-patens, longe cuneatum, c. 7 mm. longum, infra apicem c. 3.5 mm. latum, utrinque glabrum, membranaceum, medio plus minusve carnosum, supra medium divaricato-bilobatum, lobis sursum sensim attenuatis apice acutis latere interiore c. 2 mm. longis. Columna subrecta, c. 2.5 mm. longa, rostello anteriore truncato.

Nom. Jap. Tsubame-futabaran (nov.)

Hab. Formosa; praef. Taihoku, in silvis monte Nanko-taizan inter Kiritto et Bunakkei, (Jul. 1933. no. 4139. Typus in Herb. Orch. Fuk.); praef. Taichu, inter Matsumine at Hakka, (S. SUZUKI! Jul. 12, 1930. no. 5600.)

34) **Lecanorchis cerina** FUKUYAMA, sp. nov.

Terrestris, erecta, aphylla, 40–50 cm. alta, rhizomate adscendente rigido ad nodos squamulato, squamulis inter se remotis brevibus rigidiusculis rhizomatem circumdantibus.

Caulis e rhizomate assurgens, strictus, gracilis, teres, glaber, ochraceus, simplex vel ad infimam ramosus, in exsiccato medio 1.5–2 mm. diametiens, remotissime pauce squamatus, squamis in exsiccato nigricantibus inferioribus vaginiformibus superioribus minoribus et sensim in bracteas decrescentibus.

Racemus florifer 3–7 cm. longus, erectus, laxiuscule 4–7-floratus, bracteis quam pedicellis multo brevioribus deltoideis acutis 3–5 mm. longis glabris.

Flores apertientes vel subclausi, cerini, pedicellis cum ovariis erecto-patentibus gracilibus fere 2–3 cm. longis glabris apice margine irregulariter eroso-denticulatis. Sepalum intermedium lineari-oblongeolatum, apice acutiusculum, deorsum gradatim attenuatum, membranaceum, utrinque glabrum, c. 2.5 cm. longum, supra medium 4 mm. latum, 5-nervatum, sepalis lateralibus intermedio similibus sed vix brevioribus angustioribusque. Petala sepalo intermedio subaequiformia, sed paullo falcato-obliqua, utrinque glabra, c. 2.5 cm. longa, supra medium 5 mm. lata, 5-nervata.

Labellum petalis brevius, c. 2 cm. longum, dimidio inferiore columnae margini adnatum, parte superiore dilatatum et obsolete trilobatum, inter apices loborum lateralium explanatorum c. 8 mm. latum, lobis lateralibus inconspicuis latere interiore 1.5 mm. longis apice obtusis columnam vix superantibus, lobo intermedio margine eroso-crenulato apice emarginato 7–8 mm. lato infra apicem supra pilis longis barbato. Columna gracilis, semiteres, glabra, labello brevior, c. 1.4 cm. longa, infra apicem subito membranaceo-dilatata. Anthera subquadrangularis.

Nom. Jap. Roobai-sukerokuran (nov.)

Hab. Formosa; praef. Taihoku, in laurisilvis monte Daitoo-zan, prope Shinten, (N. FUKUYAMA! Apr. 11, 1934. no. 4534. Typus in Herb. Orch. Fuk.)

35) **Zeuxine rupicola** FUKUYAMA, sp. nov.

Rupestris, humilis, erecta, 2–7 cm. alta, tota glabra, rhizomate repente brevissimo vix radicante. Caulis ascendens, simplex, teres, carnosus, basi vaginis vel foliis rudimentariis ornatus, ceterum totus foliatus, apice racemosus.

Folia erecta, alterna, linearia, apice acuminata, basi non contracta et tubuloso-vaginantia, in exsiccato membranacea, utrinque glabra, c. 1–3 cm. longa, medio c. 3 mm. lata, uninervata, nervis supra impressa et subtus elevata, partibus vaginiformibus brevibus 2–3 mm. longis caulem complete

amplectentibus.

Flores glabri, albescentes, 3–10 in apice caulis dense racemosi, racemo erecto subsecundo, bracteis ovato-lanceolatis apice acuminatis basi paullo contractis membranaceis utrinque glabris margine integris vel plus minusve irregulariter dentatis pedicellos paullo superantibus, pedicellis ellipsoideis c. 5 mm. longis glaberrimis.

Sepalum intermedium oblongo-lanceolatum, concavum, apice obtusiusculum, basi paullo contractum, utrinque glabrum, membranaceum, c. 5.5 mm. longum, supra basin 2–2.5 mm. latum, trinervatum. Sepala lateralialia sub labello patentia, intermedio paullo minora, oblique ovato-oblonga, sursum sensim angustata, apice obtusiuscula, basi leviter contracta, utrinque glabra, c. 4 mm. longa, supra basin 1.5 mm. lata, trinervata. Petala sepalis lateralibus simililia, sed plus minusve majora, cum sepalis intermedio in galeam conniventia, utrinque glabra, membranacea, subhyalina, trinervata.

Labellum sessile, integrum, elobatum, ovato-oblongum, 4 mm. longum, supra basin 2 mm. latum, sursum gradatim angustatum, anteriore cymbiforme sulcatum, apice acutiusculum, posteriore paullo ventricosum, membranaceum, utrinque glaberrimum, basi intus non tuberculatum, trinervatum. Columna brevis, crassa. Anthera cordata.

Nom. Jap. Chikushi-kinuran (nov.)

Hab. Formosa; praef. Taihoku, in saxis inter Chikushiko et Shirin, (N. FUKUYAMA! Mart. 1934. no. 4600. Typus in Herb. Orch. Fuk.)

The present species is nearly related to *Zeuxine strateumatica* SCHLECHTER. It is, however, to be distinguished from it chiefly by the form of lips. Moreover, these two species show very different mode of oecological adaptation. The present species has been found only on the surface of andesite in the mountainous region, while *Zeuxine strateumatica* SCHLECHTER is a common and widely distributed species growing in the secondary grass-land in Formos at lower altitude.

36) *Tainia elliptica* FUKUYAMA, sp. nov.

Terrestris, erecta, 20–35 cm. alta, rhizomate repente brevissimo, radicibus rigidis elongatis teretibus brevissime lanuginosis in exsiccatu 2–2.5 mm. diametentibus. Pseudobulbus elongato-ovoideus, sursum sensim rostrato-angustatus, carnosus, glaberrimus, 3.5–5 cm. longus, medio 5–10 mm. in diametro, interdum basi squamatus, squamis pseudobulbum superantibus scariosis nervosis.

Folia solitaria, erecta, ex apice pseudobulbi oriunda, petiolata, lamina elliptica vel oblongo-elliptica, c. 16–17 cm. longa, medio 5–6 cm. lata, apice acuta, basi abrupte angustata et ad petiolum gracilem 5 cm. longum abeuntia, margine integra, chartacea, utrinque glabra, vivo supra subnitida,

trinervata, nervis subtus prominente elevatis, inter nervos multivenulosa.

Scapus erectus, strictus, folium paullo superans, cum racemo 20–35 cm. longus, glaberrimus, remote 2–3-vaginatus, vaginis 3–4 cm. longis alte vaginantibus tubiformibus apice breve acutis. Racemus florifer 5–9 cm. longus, sublaxe floratus, bracteis lanceolatis acuminatis quam pedicellis paullo brevioribus.

Flores apertientes vel subclausi, glabri, pedicellis gracilibus c. 8 mm. longis glabris. Sepala membranacea, 3–5-nervia, utrinque glabra, sepalo intermedio lineari apice acuto c. 13.5 mm. longo 2 mm. lato, lateralibus intermedio similibus sed paullo brevioribus falcatisque. Petala sepalo intermedio aequilonga, sed latiora, c. 3 mm. lata, lineari-oblonga, paullo obliqua, apice acuta, basi haud contracta, utrinque glabra, membranacea, 3–5-nervata.

Labellum leviter recurvum, explanato obovato-cuneatum, c. 10 mm. longum, superiore trilobatum, inter apices loborum lateralium c. 7 mm. latum, inferiore unguiculato-attenuatum et cum pede columnae articulatam, utrinque glaberrimum, lobo intermedio latissimo c. 2.5 mm. longo 6 mm. lato apice truncato ad centrum brevissime acuto, lobis lateralibus minoribus apice acutiusculis, sinibus inter lobos c. 1.5 mm. longis, lamellis 3 parallelis medio ampliatis e basi usque infra apicem decurrentibus, lamella intermedia tenuiore vix longiore interjecta. Columna erecta, semiteres, c. 7 mm. longa, basi ad pedem brevem producta, margine e basi sursum apicem alata. Anthera postice bicornuta.

Nom. Jap. Hiroha-no-aoiran (nov.)

Hab. Formosa; praef. Shinchiku, in silvis Nanga prope Chikutoo, (N. FUKUYAMA! Jan. 7, 1932. no. 4540. Typus in Herb. Orch. Fuk.)

37) **Tainia piyananensis** FUKUYAMA, sp. nov.

Terrestris, erecta, humilis, c. 20 cm. alta, rhizomate repente abbreviato, radicibus gracilibus filiformibus flexuosis brevissime pilosis. Pseudobulbus teres, gracilis, carnosus, glaber, sursum rostrato-angustatus, in exsiccato c. 1.5 cm. longus, medio 1–1.5 mm. diametens, juniore squamis alte amplexentibus ornatus.

Folia in apice pseudobulbi solitaria, erecto-patentia, parva, petiolata, lamina oblonga, c. 6 cm. longa, medio 1.5–1.8 cm. lata, basi ad petiolum gracilem 1.5–2.5 cm. longum abeuntia, margine integra, in exsiccato membranacea, utrinque glabra, vivo viridia, trinervata, nervis subtus prominente elevatis, inter nervos venulosa.

Scapus erectus, strictus, gracillimus, folium valde superans, glaberrimus, cum racemo 20 cm. longus, remotissime 1–3-vaginatus, vaginis inferioribus 1.5–2 cm. longis alte vaginantibus superioribus brevioribus.

Flores subapertientes, glabri, pedicellis 1–2 cm. longis glabris. Sepala linearia, apice acuta, basi non contracta, c. 1 cm. longa, 1.5 mm. lata, membranacea, utrinque glabra, trinervata, sepalis lateralibus intermedio similibus sed paullo falcatis. Petala sepalis paullo breviora et latiora, c. 1.1 cm. longa, medio 2 mm. lata, membranacea, utrinque glabra, trinervata.

Labellum rectiusculum, explanato orbiculato-obovato-cuneatum, c. 8 mm. longum, superiore trilobatum, inter apices loborum lateralium explanatorum c. 6 mm. latum, inferiore unguiculatum et cum pede columnae articulatum, utrinque glaberrimum, lobo intermedio latissimo c. 2.5 mm. longo 5 mm. lato apice truncato ad centrum obsolete acuto, lobis lateralibus minoribus auriculatis acutiusculis, lamellis 3 parallelis aequalibus e basi usque infra apicem decurrentibus. Columna erecta, semiteres, c. 5 mm. longa, basi ad pedem brevem producta.

Nom. Jap. Ruridama-aoiran (nov.)

Hab. Formosa; praef. Taihoku, Piyanan-anbu, (N. FUKUYAMA! no. 4148. Typus in Herb. Orch. Fuk.)

38) **Oberonia gigantea** FUKUYAMA, sp. nov.

Epiphytica, pendula, acaulis, c. 20 mm. longa, radicibus gracilibus filiformibus flexuosis glabris. Folia 7–8, approximativim et alternativim disticha, equitantia, crassiuscula, flabelliforme erecto-patentia, laminis ensiformibus apice acuminatis ad basin gradativim dilatatis basilaribus brevioribus c. 5–8 cm. longis medio c. 8 mm. latis apicalibus longioribus 15–20 cm. longis medio c. 1.5 cm. latis utrinque concoloribus glabrisque.

Racemus breviter pedunculatus, pendulus, gracilis, dense multi-floratus, pedunculo c. 5 cm. longo multi-squamato, racemo ipso usque ad 15 cm. longo per anthesin c. 8 mm. diametiente, bracteis squamis conformibus triangulato-linearibus apice acuminatis basi paullo dilatatis margine vix denticulatis c. 2.5 mm. longis glabris.

Flores subverticillato-congesti, apertientes, 2–3 mm. diametientes. fusciscentes, pedicellis cum ovariis erecto-patentibus bracteis subaequi longis. Sepala patentia, aequilonga, c. 1 mm. longa, sepalo intermedio ligulato apice obtuso basi non contracto 0.5 mm. lato, sepalis lateralibus late ovatis apice acutis basi vix contractis medio c. 1 mm. latis. Petala elliptica vel ovata, apice obtusa, sepalo aequilonga, c. 0.5 mm. lata.

Labellum erecto-patens, c. 1.5 mm. longum, totiusque latum, infra medium trilobatum, lobis lateralibus auriformibus margine erosio vel irregulariter denticulatis c. 0.5 mm. longis, lobo intermedio subrectangulato c. 1 mm. longo infra apicem bilobulato, lobulis triangulatis obtusiusculis. Columna brevissima.

Nom. Jap. Tsurishaga-yoorakuran (nov.)

Hab. Formosa; praef. Haihoku, in laurisilvis monte Shooagyoku-san, (N. FUKUYAMA! Aug. 1933, no. 4543. Typus in Herb. Orch. Fuk.)

This species was collected on the leafless branch of *Ficus Harlandi* BENTH. near Agyoku in the northern part of Formosa and was brought back to the Taihoku Botanical Garden where it flowered, in Dec. 1933.

39) **Oreorchis Ohwii** FUKUYAMA, sp. nov.

Terrestris, erecta, gracillima, c. 30 cm. alta, pseudobulbis globoso-ovoideis basi rotundatis c. 1–1.5 cm. altis carnosus, radicibus elongatis filiformibus flexuosis seriseo-pilosis.

Folia in apice pseudobulbi sita, solitaria vel duo, linearia, apice acuminata, basi in petiolum angustissimum abeuntia, c. 30 cm. longa, medio c. 7 mm. lata, in exsiccato membranacea, utrinque glabra, multinervata.

Scapi e nodis superioribus pseudobulborum oriundi, simplices, stricti, teretes, glabri, quam folia paullo breviores, cum racemo c. 20–28 cm. longi, supra basin c. 2 mm. in diametro, remote 2-vaginati, vaginis 2–5 cm. longis caulem complete amplexantibus apice breve acutis glabris, racemo florifero usque ad 5 cm. longo dense multiflorato, bracteis minutis ovato-lanceolatis acuminatis c. 3 mm. longis utrinque glabris.

Flores patentes, pedicellis cum ovariis c. 8 mm. longis rectis gracillimis. Sepala aequilonga, utrinque glabra, 5-nervata, sepalo intermedio oblongo vel oblongo-lanceolato apice acuto basi attenuato c. 5 mm. longo infra medium 2 mm. lato, sepalis lateralibus oblongis leviter falcato-obliquis apice acutis basi paullo contractis media c. 2 mm. latis. Petala oblanceolata, apice acuta, ad basin sensim attenuata, sepalis aequilonga, sed angustiora, supra medium c. 1.5 mm. lata, utrinque glabra, 3–5-nervata.

Labellum glabrum, c. 4 mm. longum, basi unguiculatum, supra basin trilobatum, lobis lateralibus oblanceolatis acutis vel acutiusculis 1.5–2 mm. longis, lobo intermedio obtriangulato vel cuneato-obovato apice truncato-rotundato margine anteriore crispo c. 3 mm. longo apice 3 mm. lato e basi loborum lateralium sursum infra medium appendiculis unis lamellatis 1 mm. longis $\frac{1}{3}$ mm. altis supra unisulcatis instructo. Columna erecta, c. 2.5 mm. longa, glabra. Pollinia 4, globosa, distincta, inappendiculata.

Nom. Jap. Yasagata-kokeiran (nov.)

Hab. Formosa; praef. Taihoku, in silvis monte Nanko-taizan, (J. OHWII! Jun. 1, 1933. no. 4547. Typus in Herb. Orch. FUK.)

40) **Calanthe dolichopoda** FUKUYAMA, sp. nov.

Terrestris, caulescens, erecta, c. 40–60 cm. alta, rhizomate valde abbreviato, radicibus teretibus filiformibus leviter flexuosis puberulis rugulosis. Caulis ad apicem foliatus, elongatus, teres, viridis, carnosus, glaber, c. 40

cm. longus, medio vivo c. 6 mm. in diametro, nodosus, ad nodos vaginatus, vaginis caulem amplexantibus membranaceis scariosis nervosis.

Folia c. 5, oblongo-oblanceolata vel longe elliptica, apice acuminata, basi in petiolos vaginatos c. 5 mm. longos sensim angustata, vulgo scapos superantia, c. 20–25 cm. longa, supra medium c. 5 cm. lata, sicco leviter plicata, chartacea, utrinque glabra, subtus prominente 3–5-nervata, inter nervos multivenulosa.

Scapus a nodis caulium emergens, gracilis, strictus, teres, simplex, brevissime albo-puberulus, c. 20–30 cm. longus, remote pauci-vaginat, vaginis apice subacutis amplexantibus glabris nervosis inferioribus minoribus, racemo florifero c. 10 cm. longo laxiuscule florato, bracteis caducis mihi nondum notis.

Flores albescentes, paullo nutantes, campanulato-subapertientes, pedicellis cum ovariis paullo deflexis ad basin gracilibus apicem versus dilatatis c. 1.5–2 cm. longis brevissime puberulis. Sepalum intermedium ovato-lanceolatum, apice acuminatum, basi contractum, vix 1 cm. longum, infra medium $3\frac{1}{2}$ mm. latum, extus perbreve puberulum, intus glabrum, membranaceum, 3–5-nervatum, sepalis lateralibus intermedio similibus sed plus minusve obliquis. Petala obovato-oblonga, apice apiculata, ad basin angustata, sepalis vix breviora, supra medium c. 3.5 mm. lata, perbreve puberula, membranacea, trinervata.

Labellum glabrum, c. 7 mm. longum, ecalcaratum, ad basin concavulum, basi angustatum et columnae basi adnatum, e basi sursum prope apicem bilamellatum, infra medium trilobatum, lobis lateralibus oblique oblongis apice obtusissimis et interdum irregulariter denticulatis latere exteriori c. 3 mm. longis medio c. 1 mm. latis, lobo intermedio lateralibus longiore c. 4 mm. longo medio c. 2 mm. lato infra apicem abrupte reniforme dilatato apice retuso margine valde undulato. Columna recta, crassa, semiteres, c. 3 mm. longa. Anthera quadrangulato-ovicellata.

Nom. Jap. Seitaka-ebine (nov.)

Hab. Formosa; praef. Taihoku, in silvis laurilignosis monte Daitoozan prope Shinten, (N. Fukuyama! Nov. 10, 1933. no. 4536. Typus in Herb. Orch. Fuk.)

The present species is near to *Calanthe gracilis* LBL., *C. venusta* SCHLECHTER and *C. koochunensis* FUKUYAMA; but it does not accord with neither in the floral characters.

(To be continued)

Dec. 28, 1934

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