

Studia Orchidacearum Japonicarum. X.^{1,2}

Orchidaceae Formosanae Novae vel Minus Cognitae.

Auctore

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With 1 Text-figures.

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84) *Cephalanthera alpicola* FUKUYAMA, sp. nov.

Terrestris, erecta, 20–40 cm. alta, radicibus filiformibus rigidulis flexuosis, caule stricto vel substricto glabro basi vaginæ paucis amplectentibus instructo ceterum sublaxe (5–8)-foliato.

Folia erecto-patentia vel suberecta, elliptico-lanceolata vel lanceolata, apice acuta vel acuminata, basi contracta, c. 4–10 cm. longa, 6–20 mm. lata, in exsiccato membranacea, utrinque glabra, multi-nervata.

Racemus erectus, glaber, laxe vel subdense (3–12)-floratus, bracteis plerumque minutis deltoideis acutis sed interdum inferioribus lineari-lanceolatis et pedicellos paulo superantibus, pedicellis cum ovariiis 5–10 mm. longis rectis glabratiss.

Flores subclausi, albidi, erecto-patentes vel suberecti. Sepala aequilonga et subaequiformia, anguste oblonga, e medio apicem versus sensim angustata, ad summam acuta, basi paullo contracta, c. 1 cm. longa, medio 3 mm. lata, membranacea, glabra, 5-nervata. Petala elliptica, apice acuta, basi contracta, quam sepala breviora, c. 8 mm. longa, medio 4 mm. lata, membranacea, glabra, 5-nervata.

Labellum quam sepala bene brevius, c. 6–7 mm. longum, medio trilobum; hypochilium obtuse saccato-concavum et extra basin sepalorum lateralium plus minusve prominens, intus medio rugoso-carinatum, lobis lateralibus late et oblique triangulato-ovatis apice rotundato-obtusis margine integris, lobo intermedio (epichilio) lobis lateralibus bene majore ovato-semiorbiculato apice obtuso et recurvo c. 3 mm. longo medio 5 mm. lato lamellis 3–5 subparallelis e basi usque ad medium instructo infra apicem papillis minutissimis dense consperso. Columna erecta, glabra, semiteres, cum anthera vix 7 mm. alta. Capsula erecta, elongato-cylindrica.

Nom. Jap. Hatunatu-ginran (nov.).

1) Continued from Bot. Mag. (Tokyo), 51 (1937), 906.

2) The expense of the study has been partly defrayed from the subsidy granted by the Japan Society for the Promotion of Scientific Research.

Hab. Formosa: Praef. Kwarenkô; in herbis alpinis monte Gôkwanzan, (K. SEGAWA! Jun. 16, 1935. no. 5915. Typus in Herb. Univ. Imp. Taihokensis): Praef. Taihoku; in herbis alpinis monte Nanko-taizan, inter Kirittori et Bunakke, (J. OHWI! Jun. 1, 1935. no. 2584): Praef. Taityû, in herbis alpinis monte Niitaka, inter Tâtaka et Niitaka-sita, (N. FUKUYAMA! Jul. 1, 1929. no. 5998).

The present species is found in the dry and rather sunny slopes at high altitudes throughout Formosa either in the alpine meadows or in the open *Pinetum* of alpine type. It seems to be allied to *C. longibracteata* BL., but it is distinguished from it by the broader and more obtuse side lobes of the lip and the shorter spurs. In some respects it also resembles *C. elegans* SCHLTR., from which it differs especially in the proportion of the length of the floral organs.

85) *Tipularia odorata* FUKUYAMA, sp. nov.

Terrestris, erecta, gracilis, 15–20 cm. alta; radices paucae, filiformes vel vermiformes, villosulae; rhizoma abbreviatum; pseudobulbi approximati, oblique ovoidei vel oblongo-ovoidi, (1–2)-nodosi, carnosi, c. 1–1.5 cm. alti.

Folia solitaria, ovata, apice acuta, basi rotundata, abrupte in petiolum 1.5–4.5 cm. longum abeuntia, lamina 3–6 cm. longa, supra basin 1.5–2.5 cm. lata, margine integra vel plus minusve crispata, utrinque glabra, supra fusco-viridia vel atro-viridia et violaceo-notata, subtus violacea, membranacea, tri-nervata, inter nervos multi-venulosa, petiolis gracilibus pallide violaceis.

Scapus gracilis, strictus, pallide violaceus, subteres, glaber, cum racemo c. 12–20 cm. longus, (1–2)-vaginatus, racemo florifero c. 2.5–7 cm. longo sublaxe florato, bracteis obsoletis.

Flores apertientes, parvi, glabri, odorati, pedicellis cum ovariis subpatulis paulo curvatis glabris viridi-purpurascensibus c. 5–7 mm. longis. Sepalum intermedium lineari-oblongum vel anguste ligulatum, apice obtusum, basi paulo contractum, integrum, glabrum, fusco-violaceum sed ad marginem viridescens, c. 4–5 mm. longum, tri-nervatum; sepala lateralia intermedio similia; petala lanceolata vel lanceolato-oblonga, apice obtusa vel acutiuscula, basi contracta, integra, glabra, sepalis subaequilonga et angustiora, (1–3)-nervia.

Labellum longi-calcaratum, supra basin tri-lobatum, calcare excepto c. 3 mm. longum; lobus intermedius quam laterales multo longior, linearis, apicem versus non attenuatus, ad summum acutiusculus, basi ad orem calcaris appendicula transversa instructus; lobi laterales breves, rotundati, margine paulo irregulares; calcar dependens, tenue, subrectum vel recur-

vulum, apice obtusum, glabrum, 8-11 mm. longum. Columna dimidium petalorum, paullo superans, erecta, semiteres, basi paulo contracta; anthera convexa; pollinia 4, ovoidea.

Nom. Jap. Nioi-hitotubokuro (nov.).

Hab. Formosa: Praef. Taihoku; in *Tsugetis* monte Nanko-taizan, inter Bunakke et Kiritto, in altitudine c. 2400 m. s. m., (N. FUKUYAMA! no. 6114. Typus in Herb. Univ. Imp. Taihokensis).

The present species is rarely found in the lauri-aciculisilvae of north Formosa. It resembles to *T. japonica* MATSUM., but clearly distinguishable from it by its much larger flowers.

86) **Pogonia minor** MAKINO, in Bot. Mag. (Tokyo) XXIII. (1909) p. 137; MORI, Enum. Pl. Cor. (1922) p. 106; MAK. et NEM. Fl. Jap. ed. 2. (1931) p. 1673; MIYABE et KUDO, Fl. Hokkaido & Saghalien III. (1932) p. 372.

Pogonia japonica REICHB. f. var. *minor* MAKINO, in ibidem XII. (1898) p. 103; YABE, in ibidem XVII. (1903) p. 143; MATSUMURA, Ind. Pl. Jap. II. 1. (1905) p. 262; SCHLECHTER, Orch. Sino-Jap. Prodr. (1919) p. 144; MASAMUNE, Prel. Rep. Veg. Yak. (1929) p. 62, Florist. and Geobot. Stud. Yak. (1934) p. 576.

Pogonia ophioglossoides A. GRAY var. *minor* MAKINO, in ibidem XII. (1898) p. 103.

Nom. Jap. Yama-tokisô.

Hab. Formosa: Praef. Takao; in herbis siccis subalpinis Minao-pâran prope cacumen montis Kanzan, inter Nakanoseki et Hinokitani, in altitudine c. 2300 m. s. m., (N. FUKUYAMA! Jul. 27, 1935. no. 5731).

Distrib. Formosa, Kyûsyû, Sikoku, Honsyû, Hokkaidô.

In Formosa, the plant only occurs in the subalpine meadows. I have now little doubt, however, that this plant is precisely conspecific with that one intended by Dr. MAKINO, because, as far as my materials are concerned, there exists a slight difference in the floral colour.

87) **Yoania japonica** MAXIM. Mém. Biol. VIII. (1873) p. 647.

var. **squamipes** FUKUYAMA, var. nov.

Differt a forma typica caule e basi apicem versus dense squamato, floribus in apice caulis conferte subcapitatim dispositis.

Nom. Jap. Hanabi-syôkiran (nov.).

Hab. Formosa: Praef. Tainan; in laurisilvis ad infimum montem Arisan, prope Nyautina, in altitudine 1500 m. s. m., (K. SEGAWA! Mai. 8, 1937. n. 6400. Typus in Herb. Univ. Imp. Taihokensis).

Only two individuals were obtained by Mr. K. SEGAWA at one spot in the laurisilvae of central Formosa. It is allied to *Yoania japonica* MAX.,