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THE ORCHIDS OF VIETNAM ILLUSTRATED SURVEY
Part 2 SUBFAMILY ORCHIDOIDEAE

Summary. The article continues serial publication of illustrated critical taxonomical survey of orchids in the flora of Vietnam. This part of the monograph includes taxonomical treatment of type subfamily – *Orchidoideae* with 12 genera and 66 species, as well as some novelties that represent additions to first part of monograph. Besides keys for identifications, valid name, necessary synonyms, type material citation, short description, data on ecology and distribution, as well as list of studied voucher specimens for each species are provided. Mentioned species are illustrated with line drawings and color photographs.

Key words: Orchidaceae, flora of Vietnam, keys for identification.

Аннотация. Статья продолжает публикацию серийного издания иллюстрированного критического таксономического обзора орхидных (Orchidaceae) во флоре Вьетнама. Вторая часть монографии включает предисловие, стандартную таксономическую обработку подсемейства – *Orchidoideae*, включающего 12 род и 66 видов. Для всех признаваемых видов приводятся законное название, наиболее важные синонимы, цитирование аутентичного материала, краткое описание, данные по экологии и распространению, а также список изученных образцов. Все виды иллюстрированы черно-белыми рисунками и цветными фотографиями. Для 3 таксонов в работе приняты новые номенклатурные комбинации – Sect. *Mecosa* (Blume) Aver., *Amitostigma bidupense* (Aver.) Aver. и *Habenaria dentata* var. *parageniculata* (Tang et F.T. Wang) Aver., comb. nov. Два вида – *Habenaria calcicola* Aver. и *Paphiopedilum canhii* Aver. et O. Gruss, описаны в качестве новых для науки. Для вида *Platanthera singgalangensis* (J.J. Smith) Efimov отобран лектотип (1 VI 1918, *Bunnemeijer*, N 2871).

Ключевые слова: орхидные, флора Вьетнама, ключи определения.

PREFACE

The article continues serial publication of illustrated critical taxonomical survey of orchids in the flora of Vietnam (Averyanov, 2008). The second part of this monograph includes taxonomical treatment of type subfamily – *Orchidoideae* with 12 genera and 66 species, as well as some novelties that represent additions to first part of monograph. Illustrated survey is presented here in form of standard taxonomic treatment, which includes identification keys for all mentioned taxa and their short characterization. Correct name (with standard taxonomic reference), type, data about volume and distribution is reported for each taxonomic group. Data for each genus also include short description, total number of species and number of species in the flora of Vietnam (figures in brackets), as well as genus distribution.

Presented data for each species include:

- valid name, most significant synonyms and citation of most important recent monographs,

- all available data about type,
- short description,
- available data on ecology, elevation of observed habitats, phenology, frequency of occurrence in the nature with approximate estimation of species status according to IUCN categories for the territory of Vietnam,
- general distribution and distribution in Vietnam (in brackets are mentioned in alphabetical order provinces where species was reported from),
- list of studied verified specimens and index of their host herbaria,
- when necessary short notices on species taxonomy, biology, ecology, phenology or variation are also provided.
- line drawings or (and) color photographs accompany in the book each species reported for the flora; collecting numbers of plants used as a model for illustration are cited on drawings or in notices to photographs.

Text of labels is maximally abbreviated whenever being cited. It usually includes only province name, district name, collectors name and collector

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SUPPLEMENT

Supplement includes novelties that were discovered and described after publication of first part of this monograph and should be included logically into already published treatment. They are listed below as follow:

***Paphiopedilum canhii* Aver. et O. Gruss, sp. nov.**

“*Paphiopedilum canhii*” Aver. et O. Gruss, 2010, *Orchids, Mag. Amer. Orch. Soc.*, 79, 5: 288, nom. invalid. (Art. 8.1 & 8.2 of ICBN).

Illustrations. d-EXSICCATES OF VIETNAMESE FLORA 0170/CXC 101 (HN); HAL 12907 (LE).

Described from NW. Vietnam (“NW. Vietnam, Son La prov.”). **Holotype** (“*Chu Xuan Canh CXC 101*, 14 Nov. 2009”, in fruit) – HN; **epitype** (designated here: “*Phan Ke Loc HAL 12907 22 March 2010*”, in flower) – LE.

Planta rosularis, terrestris; foliis 3–4(5) oblongis, acutis, 5–7 cm longis, 1.5–2(2.5) cm latis, supra manifeste tessellatis, subtus atroviolascens. Inflorescentia erecta, uniflora, (6)8–10 cm longa, pubescens. Flores 6–8 cm in diametro. Sepalum dorsale ovatum, acutum, album, nervis 5–7 purpureis. Petala patula, anguste cuneata, acuminata, dilute viridia ad roseola, striis 7–9 purpureis, margine ciliata. Labellum opaco-viride, intus basi dense pilosum. Columna laete viridis. Staminodium magnum, integrum, late ovatum vel ovato-ellipticum, planum, album ad dilute virescentium, nervis irregularibus virescentibus.

Terrestrial sympodial rosulate herb with 3–4(5) leaves. Leaves elliptic to oblong, 5–7 cm long, 1.5–2(2.5) cm wide, slightly emarginate and shortly apiculate at the apex, distinctly tessellated light and darker green above, pale green and heavily marked with dark dirty-violet below. Inflorescence erect, one-flowered; peduncle (6)8–10 cm long, slender, dark green, sometimes with violet tint, pubescent with dirty olive-violet hairs. Bract narrowly ovate-elliptic, acute, 1.2–1.4 cm long, 0.5 cm wide, green, olive-violet pubescent. Flowers 6–8 cm across. Dorsal sepal ovate to broadly ovate, acute; 2–3 cm long, 1.5–1.8 cm wide; white, slightly greenish at the base, in lower half veined with 5–7 purple nerves; densely hairy outside. Synsepal narrowly ovate, acute; 1.5–2 cm long, 0.6–1 cm wide; light uniformly dull green; hairy outside. Petals 3–4 cm long, 0.5–0.7 cm wide at the base; spreading, more or less horizontal; cuneate, narrowing from broad base to elongate, acuminate apex; background light

green to pinkish-green, brightly deep green toward base, dull purple-violet to the apex; with 7–9 dark purple-violet longitudinal stripes along nerves; long white ciliate along irregularly slightly undulate margin; petal base with dense tuft of long dark violet papillae at lower margin faced to lip entrance. Lip slipper-sac-like; 2–2.5 cm long, 0.8–1.4 cm wide, light dull green, with light brownish-purple tint on smooth and glossy incurved side lobes; inside at the base densely haired with long white glassy papillae, dark violet at apex. Column short and broad, 3–4 mm long, brightly green. Stamens with elongate acute filament apices; filaments green; anther spherical, yellow to orange. Stigma white to light greenish. Staminode large, 1.2–1.6 cm long, 0.6–0.8 cm wide; entire, glossy, broadly ovate to ovate-elliptic, flat, hardly indistinctly emarginate and grooved at apex; white to light greenish, with irregular washy yellowish-green or greenish veins. Pedicel and ovary 2–3 cm long, dark green, densely pubescent with dirty olive-violet hairs. Fruit dry narrowly ellipsoid, ribbed, shortly beaked capsule about 2 cm long and 4–5 mm in diameter. **Fig. 62.**

Ecology. Mixed coniferous and broad-leaved primary forests on rocky limestone at elevations about 1500 m a.s.l., shady places at the base of vertical limestone cliffs on deep soils rich in humus near tops of ridges. Fl. March - April. Very rare (CR).

Distribution. Vietnam (northwestern part). Endemic.

Note. Species known from the type locality only. Critically endangered taxon of an isolated taxonomical position morphologically intermediate between species of section *Parvisepalum* Aver. et P.J. Cribb (subgenus *Parvisepalum* Karas. et Saito) and section *Barbata* (Kraenzl.) V.A. Albert & Boerge Pett. (subgenus *Paphiopedilum*). It may deserve placement in a separate subgenus most close to subgenus *Paphiopedilum*, sect. *Barbata*.

***Hayata* Aver.,**

2009, *Taiwania*, 54, 4: 311.

Type: *Hayata tabiyahanensis* (Hayata) Aver. (= *Zeuxine tabiyahanensis* Hayata).

Terrestrial, lithophytic or epiphytic sympodial herb with erect or ascending leafy floriferous stem. Rhizome leafless, thick, short or long, creeping, at nodes with well developed or short, rudimentary roots densely covered with root hairs. Floriferous stem erect or ascending, thick, juicy, to 20 cm tall, with 2–6 leaves at the base; in upper part covered with 2–4 broad membranaceous light green to whitish cuneate, acuminate sterile bracts; stem glabrous



Fig. 62. Digital herbarium specimen of *Paphiopedilum canhii* (Chu Xuan Canh, CXC 101, holotype and Phan Ke Loc, HAL 12907, epitype).