

Updated Checklist Of The Orchids Of Vietnam

13/11/2013

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Published By:

Institute of Ecology & Biological
Resources National Center for
Natural Sciences & Technology
Vietnam

Komarov Botanical Institute
Russian Academy of Sciences

Missouri Botanical
Garden USA.

VIETNAM NATIONAL UNIVERSITY PUBLISHING HOUSE, HANOI - 2003

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UPDATED CHECKLIST OF THE ORCHIDS OF VIETNAM

Summary: The paper summarizes all hitherto reported data on the orchids of Vietnam and provides brief information on valid names, distribution (inside and outside the country), living forms, ecology, frequency and conservation status of the species. Two monotype genera - *Vietorchris* Aver. & Averyanova and *Zeuxinella* Aver., as well as ten species - *Bulbophyllum arrosangirinerun* Aver., *B. furcarum* Aver., *Cheirostylis filipetala* Aver., *Liparis flava* (Aver) Aver., *L. mamillata* Aver., *L. pumila* Aver., *L. sparsiflora* Aver., *Pristiglottis saprophytica* Aver., *Vietorchis aurea* Aver. & Averyanova and *Zeuxinella Vietnamica* (Aver.) Aver. are described as new for science. A list of the most recent nomenclature changes for the orchids of Vietnam is compiled as a separate part of the paper.

Since the publication of major landmark taxonomic accounts of the orchid family in the flora of Vietnam (Gagnepain and Guillaumin, 1932-1934; Averyanov, 1990, 1994; Seidenfaden, 1992) a lot of new important data appeared in the course of recent botanical explorations in the country. Numerous recent field investigations brought many orchid novelties, which placed Vietnam as a very important center of orchid diversity and endemism in Southeast Asia. The present paper compiled and summarized as much as possible all available data on the orchid family hitherto recorded for Vietnam based on modern literature and documented by recently collected specimens deposited mainly in the Herbarium of the Institute of Ecology and Biological Resources of the National Center for Natural Science and Technology of Vietnam (HN).

According to the present updated checklist, 897 orchid species in 152 genera are now known for Vietnam. They represent approximately 75-80% of orchids probably occurring in this country. The total number of orchid species in the flora of Vietnam according to our preliminary estimate may be about 1000-1100 species. The most interesting and important additions to the orchid flora of Vietnam certainly should be expected from new botanical explorations in the mountainous regions of the country, particularly along the western and northern border areas of Vietnam. These exciting works, that promise a lot of new discoveries, provide the impetus for further botanical exploration of the country.

The brief updated data on orchids of Vietnam are compiled in the form of a Table presented below.

Explanations for the table

Table 1 presents the following information:

Orchid Name

In the first column are listed valid names of genera and species. Numbers after each orchid species name indicate literature source of information that represent available reliable data for the species. The numbered list of these literature sources is displayed (in chronological order) immediately following the table. Asterisks after the names mean that unpublished original data were used for the information on the species. Taxa of infra-species level (such as subspecies, varieties and forms), as well as binomial names of natural hybrids are not included in the checklist.

Distribution in Vietnam

Filled cells indicate occurrence of the species in any of the following regions: **1-** Sikang-Yunnan floristic province (in part of Vietnamese territory only); **2-** South Chinese floristic province (in part of Vietnamese territory only); **3-** North Indochinese floristic province (in part of Vietnamese territory only); **4-** Central Annamese floristic province (in part of Vietnamese territory only); **5-** South Annamese floristic province; **6-** South Indochinese floristic province (in part of Vietnamese territory only). The above mentioned floristic provinces within the limits of Vietnam are outlined in Figure 1.

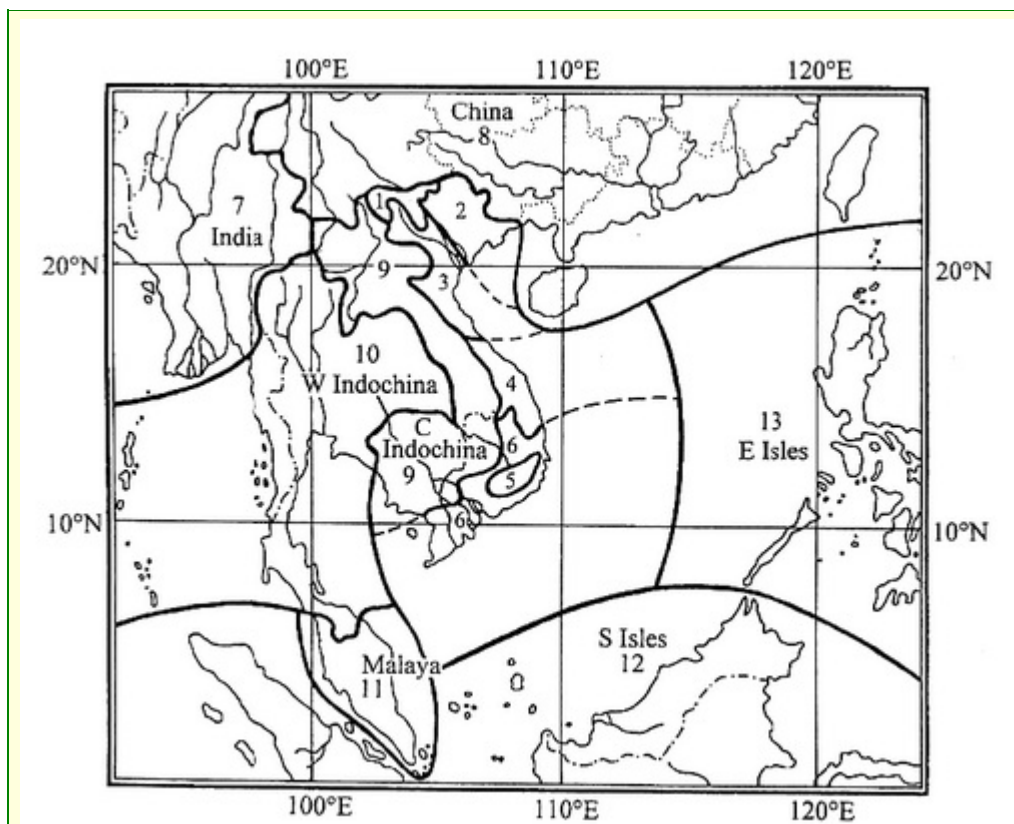


Figure 1. Floristic regions accepted for description of Orchid distribution in the Checklist Table

- 1-** Sikang-Yunnan floristic province (in the limits of Vietnamese territory); **2-** South Chinese floristic province (in the limits of Vietnamese territory); **3-** North Indochinese floristic province (in the limits of Vietnamese territory); **4-** Central Annamese floristic province (in the limits of Vietnamese territory); **5-** South Annamese floristic province; **6-** South Indochinese floristic province (in the limits of Vietnamese territory); **7-** "India region" (including India, Sri Lanka, Nepal, Bhutan, Bangladesh and Myanmar excluding its southern peninsular part); **8-** "China region" (including southern areas of continental China, Hainan and Taiwan); **9-** "Central Indochina region" (including Laos and Cambodia); **10-** "West Indochina region" (including Thailand and peninsular Myanmar); **11-** "Malaya region" (including peninsular Malaysia and Singapore); **12-** "Southern Isles region" (including Sunda Isles, New Guinea, Australia and other Pacific islands south of the Equator); **13-** "East Isles region" (including the Philippines and other Pacific islands to the east and north of the equator).

Distribution Outside of Vietnam

Filled cells indicate occurrence of the species in any of the following regions: **7-** "India region" (includes India, Sri Lanka, Nepal, Bhutan, Bangladesh and Myanmar excluding its southern peninsular part); **8-** "China region" (includes southern areas of continental China, Hainan and Taiwan); **9-** "Central Indochina region" (includes territories of Laos and Cambodia); **10-** "West Indochina region" (includes territory of Thailand and southern peninsular Myanmar); **11-** "Malaya region" (includes territory of peninsular Malaysia and Singapore); **12-** "Southern Isles region" (includes Sunda Isles, New Guinea, Australia and other Pacific islands south of the equator); **13-** "East Isles region" (includes the Philippines and other Pacific islands to the east and north of the equator). The above mentioned floristic regions are outlined in figure 1.

Living form

Filled cells indicate that orchid species has any of the following living forms: **e-** epiphyte; **l-** lithophyte; **t-** terrestrial; **s-** mycotrophic (saprophytic) achlorophyllous leafless terrestrial herb.

Ecology

Filled cells indicate substrates on which orchid species are observed mainly growing in areas where soils are developed on different parent rocks:

Si- silicate (commonly acidic) basement rocks (granite, gneiss, rhyolite, dacite, quartzite, quartzite sandstone, basalt, silicate schist and shale, etc.); **Ca-** limestone basements (marble, crystalline hard limestone, stratified soft limestone mainly of late Paleozoic or early Mesozoic age, calcium containing schist and shale as well as other rocks with high percentage of calcium minerals).

Numbers in this set of columns indicate elevation preference of the species: **1-** 0-800 m; **2-** 800-1500 m; **3-** 1500-2500 (up to 3143) m above sea level.

Frequency of species occurrence and their threat status in the wild

The first column of this column set indicates frequency of species occurrence: **VR-** very rare; **R-** rare; **O-** occasional; **C-** common; **VC-** very common.

The second column of this column set indicates approximate conservation status of species according to the following IUCN (1994) categories: **EX-** Extinct; **EW-** Extinct in the wild; **CR-** Critically endangered; **EN-** Endangered; **VU-** Vulnerable; **LR-** Lower risk; **DD-** Deficit data; **NE-** Not evaluated.

Data for these columns were obtained from most recent field explorations. However, this preliminary information needs additional data from numerous regions of the country, which remains yet to be explored by botanists.

The most recent nomenclature changes that are necessary for understanding of modern taxonomy of the species as well as description of newly discovered taxa are listed as the final part of the paper.

<i>Arachnis, Geodorum, Panisea, Renanthera, Spathoglottis, Trichotosia, Zeuxine</i>	5
<i>Acampe, Acanthephippium, Appendicula, Hetaeria, Holcoglossum, Mischobulbum, Neuwiedia, Otochilus, Pecteilis, Pelatantheria, Phreatia, Pleione, Potamocalpa, Ptemceras, Sunipia, Trichoglottis, Vanilla</i>	4
<i>Agrostophyllum, Aphyllorchis, Apostasia, Ascocentmm, Chiloschista, Collabium, Malleola, Micropera, Papilionanthe, Podochilus, Porpax, Rhynchostylis, Robiquetia, Thelasis</i>	3
<i>Acriopsis, Amitostigma, Arundina, Biermannia, Brachycorythis, Bromheadia, Cephalanthopsis, Cyrtosia, Didymoplexis, Doritis, Kingidium, Monomeria, Nephelaphyllum, Omithochilus, Plocoglottis, Pristiglottis, Rhomboda, Sarcoglyptis, Smitmandia, Thunia, Trias, Tropidia</i>	2
<i>Adenoncos, Anthogonium, Ascolabium, Bletilla, Brachypeza, Callostylis, Chamaegastrodia, Christensonia, Chrysoglossum, Clersoscentron, Cleisomeria, Collabiopsis, Corymborchis, Cremastra, Cryptochilus, Cryptopylos, Cryptostylis, Didymoplexiella, Didymoplexiopsis, Diglyphora, Diplomeris, Diplopropa, Diplodium, Eparmatostigma, Epipactis, Epipogium, Eriodes, Erythmdes, Erythorchis, Galeola, Gastrodia, Grossourdy, Hancockia, Hemipilia, Herminium, Helpysma, Hygmchilus, Lecanorchis, Listera, Ludisia, Microsaccus, Pachystoma, Paraptmceras, Pennilabium, Platanthera, Polystachya, Rhynchogyna, Spiranthes, Staurochilus, Steneochilus, Stereosandra, Thecopus, Thecostele, Tubemlabium, Uncifera, Vandopsis, Vitorchis, Vrydagzynea, Yoania, Zeuxinefla</i>	1

The ten largest genera are *Dendrobium, Bulbophyllum, Eria, Liparis, Habenania, Oberonia, Coelogyne, Cymbidium, Calanthe*, and *Cleisostoma*. Each of them includes in the order of decreasing diversity from 107 to 20 species (Tables 1, 2). These genera represent 49.9% of all known orchid species of Vietnam. There are 29 small genera comprised of 18 to 5 species and they represent 26.2% of the total known species. There are 17 genera comprised of 4 species each (7.6% of species), 14 genera with 3 species each (4.7% of species), 22 genera with 2 species each (4.9% of species) and 60 genera with only 1 species each (6.7% of species).

The most endangered Orchid Species in the flora of Vietnam belong to the following genera: *Aerides, Anoectochilus, Arachnis, Ascocentrum, Ascolabium, Christensonia, Clersoscentron, Coelogyne, Cymbidium, Dendrobium, Dorilis, Holcoglossum, Hygrochilus, Paphiopedilum, Papilionanthe, Phalaenopsis, Pleione, Renanthera, Rhynchostylis, Schoenorchis, Staurochilus, Stereochilus, Thunia, Vanda* and *Vandopsis*. Many of these orchids are widely collected as ornamental plants for sale in domestic market and for export. A number of local endemic and sub-endemic species, deserves the highest level of protection as a unique national treasure. Without special conservation and protection measures, these plant species may become extinct from the Vietnamese and world floras in the very near future. For the first time from among the many endangered species should be mentioned the following Orchids, namely:

<i>Aerides rubescens,</i>	<i>P. gratixianum,</i>
<i>Arachnis annamensis,</i>	<i>P. hangianum,</i>
<i>A. cannaeformis,</i>	<i>P. helenae,</i>

Ascocentrum christensonianum, *P. hemyanum*,
Ascolabium pusiiium, *P. malipoense*,
Bulbophyium frostii, *P. micranthum*,
B. hiepii, *P. purpuratum*,
B. orectopetaium, *P. tranlienianum*,
B. smitinandii, *P. vietnamense*,
Christensonia vietnamica, *Papilionanthe pedunculata*,
Cieisocentron kioisii, *Pham longicomu*,
Coelogyne dichroantha, *Phalaenopsis braceana*,
C. eberhardtii, *P. chibae*,
Coelogyne filipeda, *Phalaenopsis comucervi*,
C. lawrenceana, *P. gibbosa*,
C. lockii, *P. honghensis*,
C. mooreana, *P. lobbii*,
C. quadratioba, *P. manni*,
Cymbidium banaense, *P. wilsoni*,
C. erythrostyium, *Pleione grandiflora*,
C. sanderae, *P. maculate*,
C. schroederi, *P. praecox*,
C. Wilsonii, *P. vietnamensis*,
Dendrobium amabile, *Pteroceras semiteretifolium*,
D. bellatuium, *Renanthera annamensis*,
D. cariniferum, *R. citrine*,
Dendrobium christyanum, *R. coccinea*,
D. cruentum, *R. imschootiana*,
D. hancockii, *R. vietnamensis*,
D. harveyanum, *Rhynchostylis coelestis*,
D. ochraceum, *R. gigantea*,
D. unicum, *R. retusa*,
D. virgineum, *Schoenorehis eberhardtii*,
D. wardianum, *S. seidenfadenii*,
D. williamsonii, *S. tixien*,
Doritis puichenima, *Stereochilus dalatensis*,
Holcoglossum amesianum, *Thunia alba*,
H. iingulatum, *Vanda bidupensis*,
H. subulifolium, *V. concolor*,
H. wangii, *V. denisoniana*,
Hygrochilus parishii, *V. fuscoviridis*,
Paphiopedilum barbigerum, *V. liouvillei*,

P. delenatii,
P. dianthum,
P. emersonii,

V. lilacina,
Vandopsis gigantea

Orchid species that are used in traditional Chinese medicine form another large group of endangered Orchids in the flora of Vietnam. Many of these common plants have become increasingly rare due to wide collection for export as medicinal drugs. Uncontrolled exploitation of natural resources in Vietnam may lead to extinction of such species in many areas of the country. The species of economic importance that need protection belong to the following genera:

<i>Anoectochilus</i> ,	<i>Eulophia</i> ,	<i>Ludisia</i> ,
<i>Bletilla</i> ,	<i>Flickingeria</i> ,	<i>Nervilia</i> ,
<i>Cymbidium</i> ,	<i>Goodyera</i> ,	<i>Peristylus</i> ,
<i>Dendrobium</i> ,	<i>Habenaria</i> ,	<i>Rhomboda</i> .

Special attention to conservation and protection of Vietnamese orchids should be focused in monitoring of populations of endemic and monotypic genera distributed in very limited areas of the country. Among them are such orchid genera as *Christensonia*, *Eparmatostigma*, *Hancockia*, *Vietorchis* and *Zeuxinella*.

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Taxonomic Remarks and Notes

Bulbophyllum atosanguineum Aver., sp. nov. (B. Section *Reptantia*J.J.Vermeulen).

TYPE: Northern Vietnam, Lao Cai Prov., Van Ban Distr., to the west of Nam Xay village (21°58'42"N, 104°00'37"E). Primary evergreen wet broad-leaved mountain forest at elev. 1700 m a.s.l. Creeping epiphyte on high mossy trees along stream. Flowers deep purple-brown. Rare. 4 III 2002, *L.Averyanov, P.K.Loc, D.T.Doan, HAL 2019*(holotype - HN, isotype - LE). Figure 2.

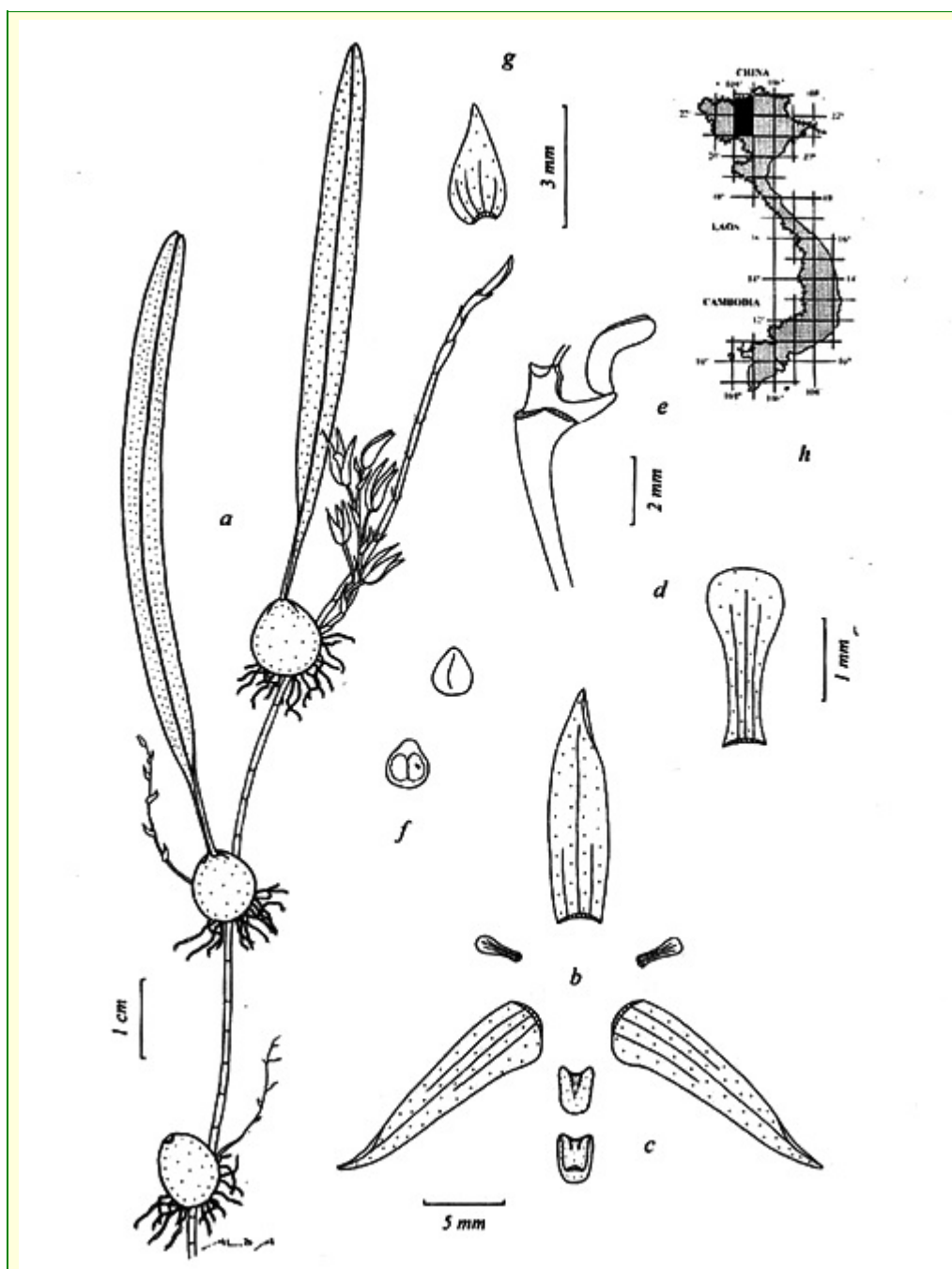


Figure 2. *Bulbophyllum atosanguineum* Aver.

- a.** Flowering plant. **b.** Flattened sepals end view & **c.** Lip, front and back views. **d.** Flattened petals. **e.** Column and lip, side view: **f.** Amber cap, from above and below. **g.** Floral bract. **h.** Map of mainland Vietnam indicating area of known and probable distribution of the species (all drawn by L. Averyanov & Averyanova from the type sample Averyanov, Loc & Doan HAL-2019).

A specie proxima Bulbophyllo reptante (Lindl.) Lindl. planta nostra floribus atosanguineis et petala spathulata, apice rotundata differt.

Epiphytic herb with 1-leaved pseudobulbs distant on thin creeping plagiotropic rhizome. **Rhizome** slender, wiry, 1.5-2 mm thick, at the apex covered with green, grassy, early decaying sheath Scales. **Roots** numerous, narrow, wiry, from pseudobulb base. **Pseudobulbs** broadly ovoid to subglobose, green, 7-11 mm tall, 6-9 mm broad, distant on rhizome with intervals 5-10 cm. **Leaf** 1, narrowly lanceolate to oblong narrowly lanceolate, 8-10 cm long, 0.7-0.9 cm wide, obliquely notched or slightly unequally bilobed at apex, narrowing to the base into petiole 0.7-1.1 cm long. **Inflorescence** 1, laxly 4-6-flowered spike, developing from the base of pseudobulb, shorter than half of leaf length, inflorescence stalk filiform, glabrous, 0.8-1.2 cm long, decurved, ascendant, with 2-3 small bracts at the base; rachis filiform, glabrous, 1.5-2 cm long; floral bracts triangular, narrowly ovate, with broad base, subacute at the apex, 2-4 mm long, about 1 mm wide at the base. **Flowers** 9-11 mm long, never widely opening, tepals including the lip deep brown-purple, column deep brown-purple, anther cup dull yellow. **Pedicel and ovary** glabrous, 5-6 mm long. **Sepals** subsimilar, triangular lanceolate, 9-11 mm long, narrowing from the base 1.5-2 mm wide to the acute apex, with indistinct veins; lateral sepals adnate to column foot with unequally broadening base. **Petals** spatulate, 3-veined, about 2.5 mm long, broadening from oblong narrow basal portion 0.3 mm wide to broad subcircular apex 0.8-0.9 mm wide. **Lip** simple, broadly oblong, with broad base, deflexed centrally, apex broad, subtruncate to slightly retuse, 2.5 mm long, about 1.5 mm wide. **Column** broad and short, about 1 mm tall and 1 mm wide, at front with 2 small narrow lateral wings, at the apex with long filiform stelidia 0.8 mm long; column foot centrally carved, about 1.2 mm long; anther cup hemispherical, about 0.5 mm across. **Fruit** unknown.

Bulbophyllum clipeibulbum J.J. Vermeulen, *sp. nov.*, in print.

Bulbophyllum flabelloveneris (Koenig) Seidenf. & Ormerod ex Aver., *comb. Nov.* - *Epidendrum flabellum veneris* Koenig, 1791 in Retz. Obs. 6:57.

Bulbophyllum fascinator (Rolfe) Rolfe (= *Bulbophyllum pulidumauct.* non (Teijsm. & Binn.) J.J. Smith; *B. ornatissimum* auct. non (Rchb.f.) J.J. Smith).

Bulbophyllum furcatum Aver., *sp. nov.* (*B.* section *Micromonnanthe* Schltr.).

TYPE: Southern Vietnam, Kon Tum Province, Kon Plong District, Hieu Municipality, Mang La forest enterprise station (14°40'37"N, 108°23'52"E). Collections along trail in forest enterprise at elev. 1057-1220 m a.s.l. On tree trunk. Young fruit green. Occasional. 2 III 2000, *D.K. Harder*, *N.T. Hiep*, *DKH 4693* (holotype - HN; isotypes - LE, MO). Figure 3.

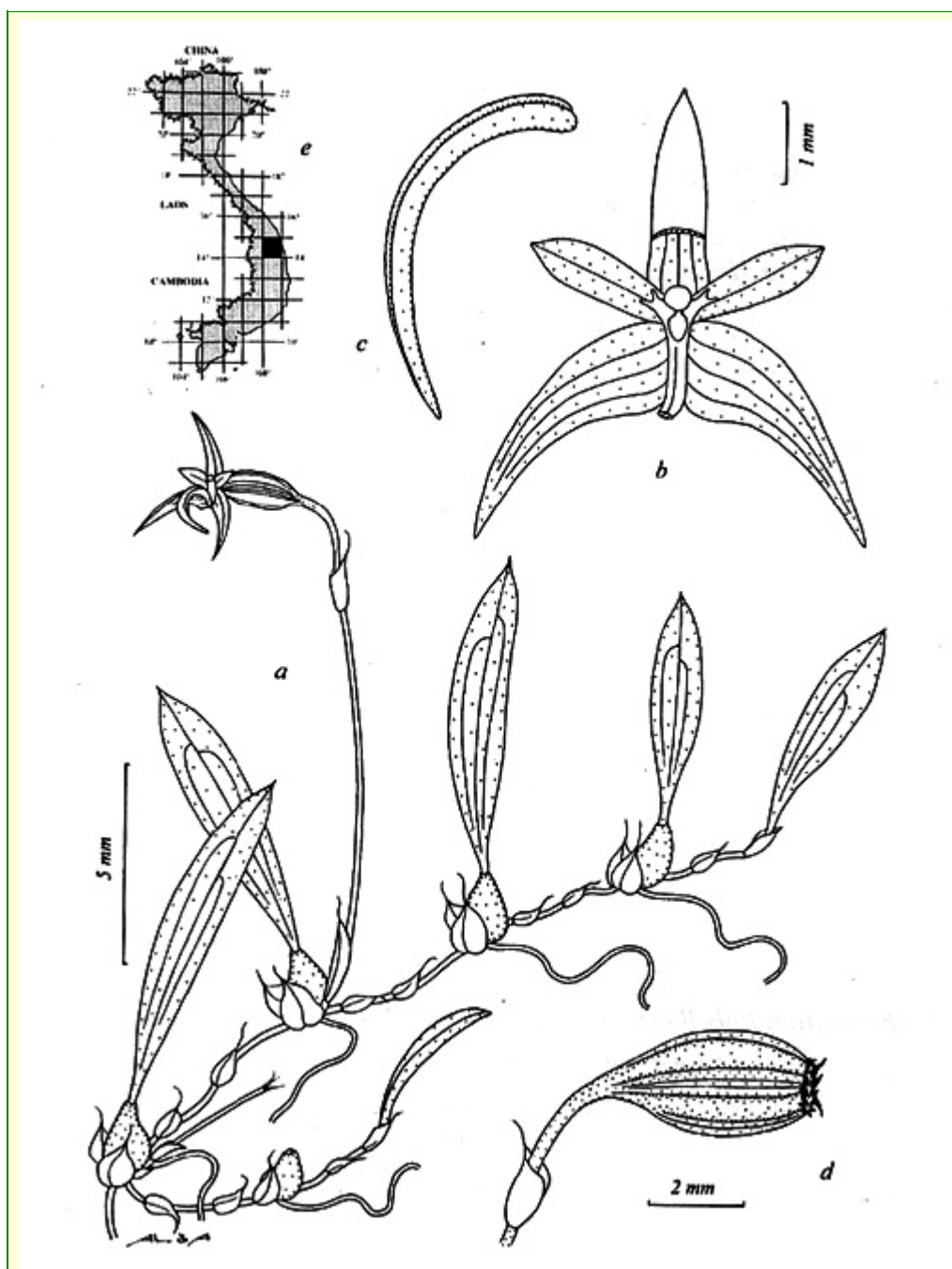


Figure 3. *Bulbophyllum furcatum* Aver.

a. Flowering plant. **B.** Flower with flattened sepals and petals (apical portion of galea lost). **c.** Lip, side view. **d.** Fruit. **e.** Map of mainland Vietnam indicating area of known and probable distribution of the species (all drawn by L.Averyanov & A.Averyanova from the type sample *Harder & Hiep DKH-4693*).

A speciebus omnibus sectionis Micromonanthe Schlechter planta nostra steliidiis furcatis et squamis magnis geminatis oppositis prope basin pseudobulboruml dispositis valde difert.

Epiphytic herb with 1-leaved pseudobulbs distant on branched creeping filiform plagiotropic rhizome. **Rhizome** 0.2-0.3 mm thick, with sparsely distant small tubular hyaline whitish acuminate scales. Single root at the base of pseudobulb, 0.2-0.3 mm thick. **Pseudobulbs** narrowly ovoid, obliquely attached to rhizome, green, 1.5-2.5 mm tall, 1-1.5 mm broad, distant on rhizome at 4-7 mm intervals; basally with 2 prominent opposite broadly triangular or broadly ovate hyaline scales 1.5-2 mm long, about 1 mm wide, attenuate at the apex to long seta 0.6-0.9 mm long. Leaf 1, broadly lanceolate to narrowly elliptic, 3-veined, 7-9 mm long, 1-2.5 mm wide, acute to acuminate at the apex, narrowing to the base, sessile. **Inflorescence** 1-flowered, developing from the base of pseudobulb, very rare from the nodes along rhizome; inflorescence stalk filiform, glabrous, 6-8 mm long, ascendant, with 2-3 small hyaline sheath scales at the base, scales tubular, acuminate, 1-1.5 mm long, 0.2-0.3 mm wide, enveloping peduncle: floral bract triangular, acute to acuminate at the apex, 1-1.5 mm long, about 0.6 mm wide. **Flowers** 3-4 mm across. **Pedicel and ovary** slender, about 2 mm long. **Sepals and petals** spreading, yellowish (?). **Dorsal sepal** narrowly elliptic, 3-veined, 2.5-3 mm long, 0.7-0.9 mm wide near the base; **lateral sepals** obliquely triangular, weakly falcate, with 1 distinct and 2 indistinct veins, 2.5-3 mm long, narrowing from broad base about 1 mm wide to attenuate apex, broadly adnate to column foot. Petals narrowly obovate or narrowly elliptic, acute, 1-veined, 1.5-1.8 mm long, 0.5 mm wide. **Lip** simple, narrowly lanceolate to linear, 3-3.5 mm long, 0.2-0.3 mm wide, with truncate base, deflexed below the center, narrowing toward acute apex. **Column** broad and short, about 0.8 mm tall, 0.8-1 mm wide, at front with 2 small lateral, hardly visible wings, at the apex with large prominent furcate stelidia 0.2-0.3 mm long; column foot centrally curved, about 0.8 mm long. **Fruit** narrowly ovoid to shortly cylindrical, longitudinally ribbed, 3-3.5 mm long, 1.8-2 mm wide.

Bulbophyllum longibrachiatum Tsi (= *Bulbophyllum purpureifolium* Aver.).

Bulbophyllum longiflorum Thouars (= *Bulbophyllum eberhardtii* (Gagnep.) Seidenf.; *B. picturatum* auct. non (Lodd.) Rchb.f.).

Bulbophyllum monanthum (Kuntze) J.J. Smith (= *Bulbophyllum uniflorum* Griff.; *B. devangiriense* Balakrishnan; *B. tiagtii* Chauhan).

Bulbophyllum clandestinum Lindl. (= *Bulbophyllum sessile* (Koenig) J.J. Smith).

Bulbophyllum striatum (Griff.) Rchb.f. (= *Bulbophyllum striatitopalum* Seidenf.).

Calanthe mannii Hook.f. (= *Calanthe brachychila* Gagnep.).

Calanthe sylvatica (Thouars) Lindl. (= *Calanthe masuca* (D. Don) Lindl.).

Cephalantheropsis longipes (Hook.f.) Ormerod (= *Cephalantheropsis lateriscapa* Guillaum.).

Cephalantheropsis obcordata (Lindl.) Ormerod (= *Cephalantheropsis gracilis* (Lindl.) Hu).

Chamaegastrodia poilanei (Gagnep.) Seidenf. & Rao (= *Evrardia poilanei* Gagnep.; *Evrardianthe poilanei* (Gagnep.) Rau-Schert; *Evrardiana poilanei* (Gagnep.) Aver.).

Cheirostylis filipetala Aver., *sp. nov.*

TYPE: Southern Vietnam, Kon Tum Prov., Sa Thay Dist., Municipality Sa Son, Chu Mom Ray mountain, 14°27'28"N, 107°43'13"E, 1000 m a.s.l., south slope, granite, deep soil. Primary closed evergreen tropical seasonal broad-leaved submontane forest. Epiphyte on leaf sheaths of *Arenga pinnata* in accumulations of humus. 17 1 2000, P.K.Loc, H.Khan, V.V.Duc, D.S.Dao, P-8498 (holotype - HN, isotype - LE). Figure 4.

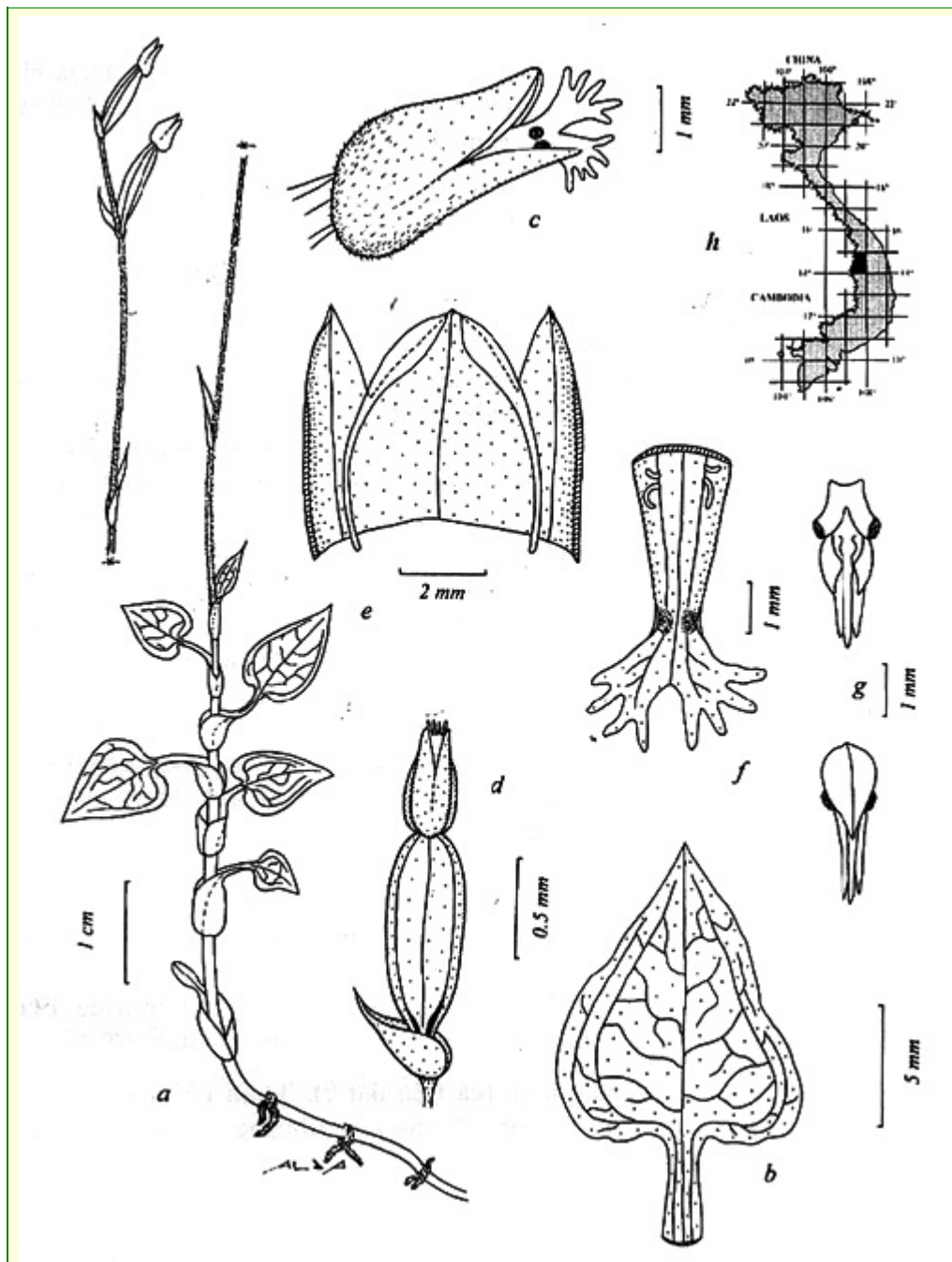


Figure 4. *Cheirostylis filipetaia* Aver.

a. Fruiting plant. **b.** Leaf. **c.** Flower, side view. **d.** Fruit with lasting flower. **e.** Flattened sepals and petals. **f.** Flattened lip. **g.** Column, from below and from above. **h.** Map of mainland Vietnam indicating area of known and probable distribution of the species (all drawn by L.Averyanov & A.Averyarlova from the type sample *Loc, Tuan, Duc & Dao, P-8498*).

Species nova Cheirostylide chinensi probabilititer appropinquata a qua inflorescentia 1-2-flora et petatis filiformibus differ.

Epiphytic (and terrestrial?) **herb.** **Stem** with the thick creeping piagiotropic basal part of the stem divided into nodes 6-8.5 mm long, about 1.5 mm in diam. with fleshy roots, covered with numerous root hairs; orthotropic leafy part of stem ascending, up to 4 cm high with 3-5 normally developed leaves. **Leaf** petiolate; petiole wide, 3-5 mm long, 1-2 mm wide, at the base broadening into broadly inflated sheath enveloping stem, sheaths 2-5 mm long, 2-3 mm wide; leaf blade triangular ovate or cordate, with distinct veins, acute, up to 1.1 cm long, 0.8 cm wide. **Inflorescence** 1- to 2- flowered, stalk and rachis densely pubescent with short gray hairs, 5-9 cm long, with 2-3 yellowish bracts; inflorescence bracts narrowly ovate to lanceolate, acuminate, 4-10 mm long, 2-3 mm wide; floral bracts triangular, 3-5 mm long, 1-1.5 mm wide, much shorter than ovary. **Pedicel and ovary** 8-10 mm long, glabrous. **Flowers** hardly opening. **Sepals** yellowish-white, outside sparsely hairy at the base, shortly acute at the apex, concave, connate for their lower two-thirds forming a wide tube; dorsal sepal broadly ovate, 4 mm long, 4 mm wide; lateral sepals narrowly ovate with broad base, 4 mm long, 2 mm wide. **Petals** white, free, glabrous, falcate, acute at the apex, 4 mm long, spatulate, broadening from filiform basal portion to wide apical part 0.4-0.5 mm wide. **Lip** white, with 2 light green callosities at the base of epichile, about 6 mm long, hypochile concave, narrowing from broad base toward the epichile, at the base with 2 finger-like glands on each side, epichile bilobed, lobes fringed, with 4 finger-like teeth on each lobe. **Column** narrow, 3 mm long, with 2 stigmas, 2 broad wings and long appendages; anther cup narrowly ovate acute, 1.5 mm long, 1 mm wide. **Fruit** dull yellowish-brown, narrowly elliptic, 8-11 mm long, 2-3 mm wide.

Cheirostylis takeoi (Hayate) Schltr. (= *Cheirostylis eglandulosa* Aver.).

Cheirostylis thanmoiensis (Gagnep.) Ormerod ex Aver., comb. nov. – *Zeuxine thanmoiensis* Gagnep., 1931, Bull. MuS. Hist. Nat. (Paris) 2 ser. 3, 3: 327.

Coelogyne dichroantan Gagnep. (= *Coetalogyne cycnochesauct.* non Par. & Rchb.f.).

Collabiopsis formosanum (Hayana) Ying (= *Collabium forinosamum* Hayata).

Dendrobium quangxiense S.J.Cheng & C.Z.Tang (= *Dendrobium mitratum* Aver.).

Dendrobium henryi Schltr. (= *Dendrobium daoense* Gagnep.).

Dendrobium macrostachyum Lindl. (= *Dendrobium tetrodon* Rchb.f. ex Lindl.; *D. stuartii* Bailey; *D. viridicatum* Ridl.; *D. whiteanum* P.F.Hunt).

Dendrobium palpebrae Lindl. (= *Dendrobium farmeriauct.* non Paxt.).

Erin lasiopetala (Willd.) Ormerod (= *Eria albidotomentosa* (Blume) Lindl.; *E. pubescens* (Hook.) Lindl. ex Loud).

Erin pachyphylla Aver., nom. nov. (= *Eria crassifolia* Tsi & S.C.Chen, 1994, Acta Phytotax. Sin. 32, 6: 561, non Ridl., 1915).

Eulophia spectabilis (Dennst.) Suresh (= *Eulophia nuda* Lindl.).

Gastrochilus hainanensis Tsi (= *Gastrochilus patinatus* auct. non (Ridl.) Schltr.).

Gastrochilus obliquus (Lindl.) Kuntze (= *Gastrochilus bigibbus* (Hook.f.) Kamm).

Gastrochilus yunnanensis Schltr. (= *Gastrochilus monticola* (Rolfe ex Downie) Seidenf. & Smitin.).

Habenaria pantlingiana Kraenzl. (= *Habenaria stenopetalavar. polytricha* Hook.f.; *H. polytricha* (Hook.f.) Pradhan; *H. seshagiriana* A.N.Rao; *H. polytrichoides* Aver.).

Hetaeria biloba (Ridl.) Seidenf. & J.J.Wood (= *Hetaeria rotundiloba* J.J.Smith).

Liparis flava (Aver.) Aver., stat. et comb. nov. - *L. nigra* Seidenf. var. *flava* Aver., 1999, Bot. J. (St.-Petersburg) 84, 10: 128.

TYPE: Southern Vietnam, Lam Dong Prov., Lac Duong Distr., Da Chay Municipality, 40 km to NE from Dalat City. Closed primary evergreen broad-leaved wet montane forest on SW

macroslope of Hon Giao ridge at elevation 1500-1650 m a.s.l. (12°11'N, 108°43'E). Terrestrial herb on shady slopes of river valley. Flowers pure pale yellowish-green. Rare, but occasionally abundant. 26 IV 1997, L.Averyanov, N.T.Hiep, N.Q.Binh, VH 4426(holotype - LE, isotypes - AAU, HN, MO, P). Figure 5.

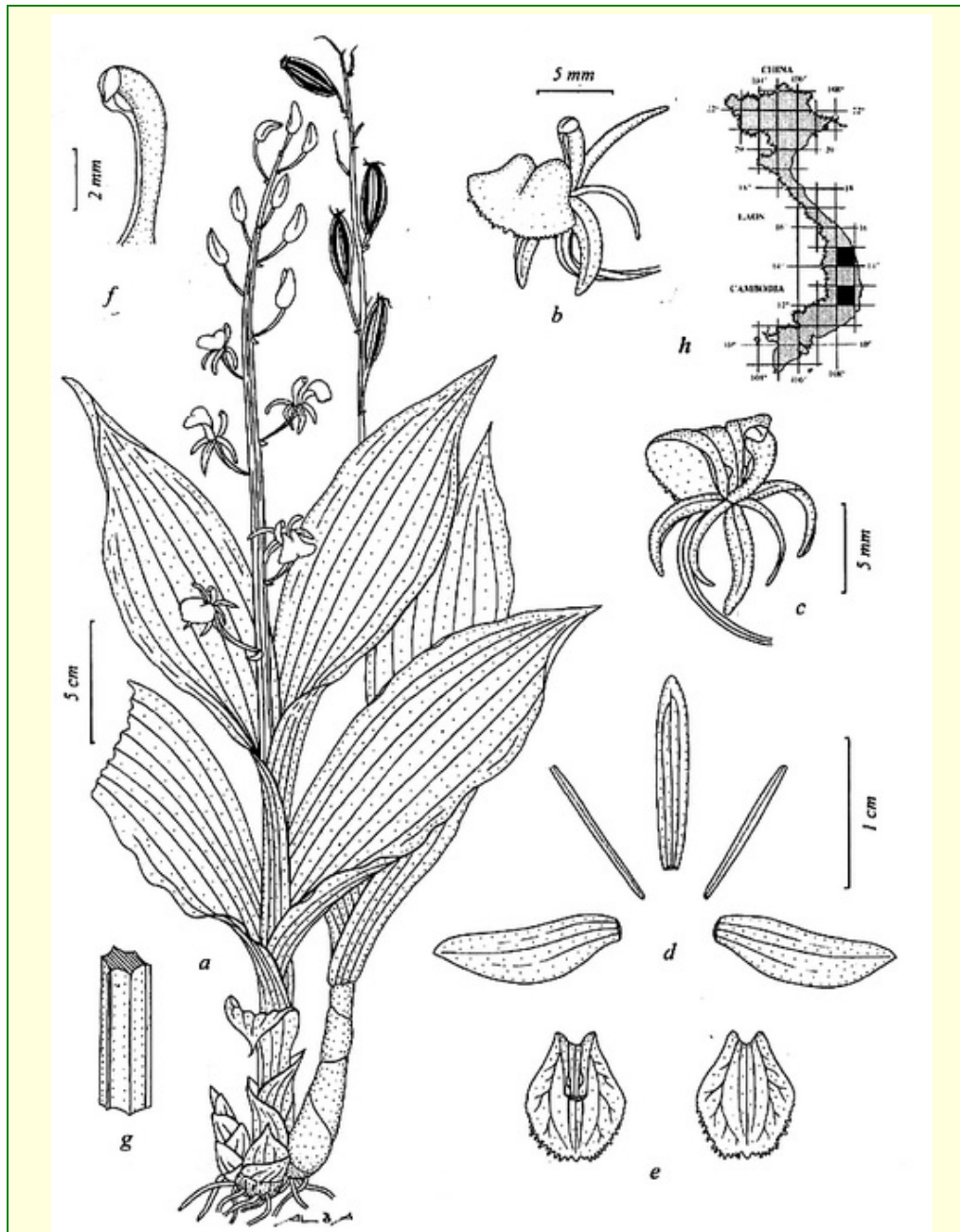


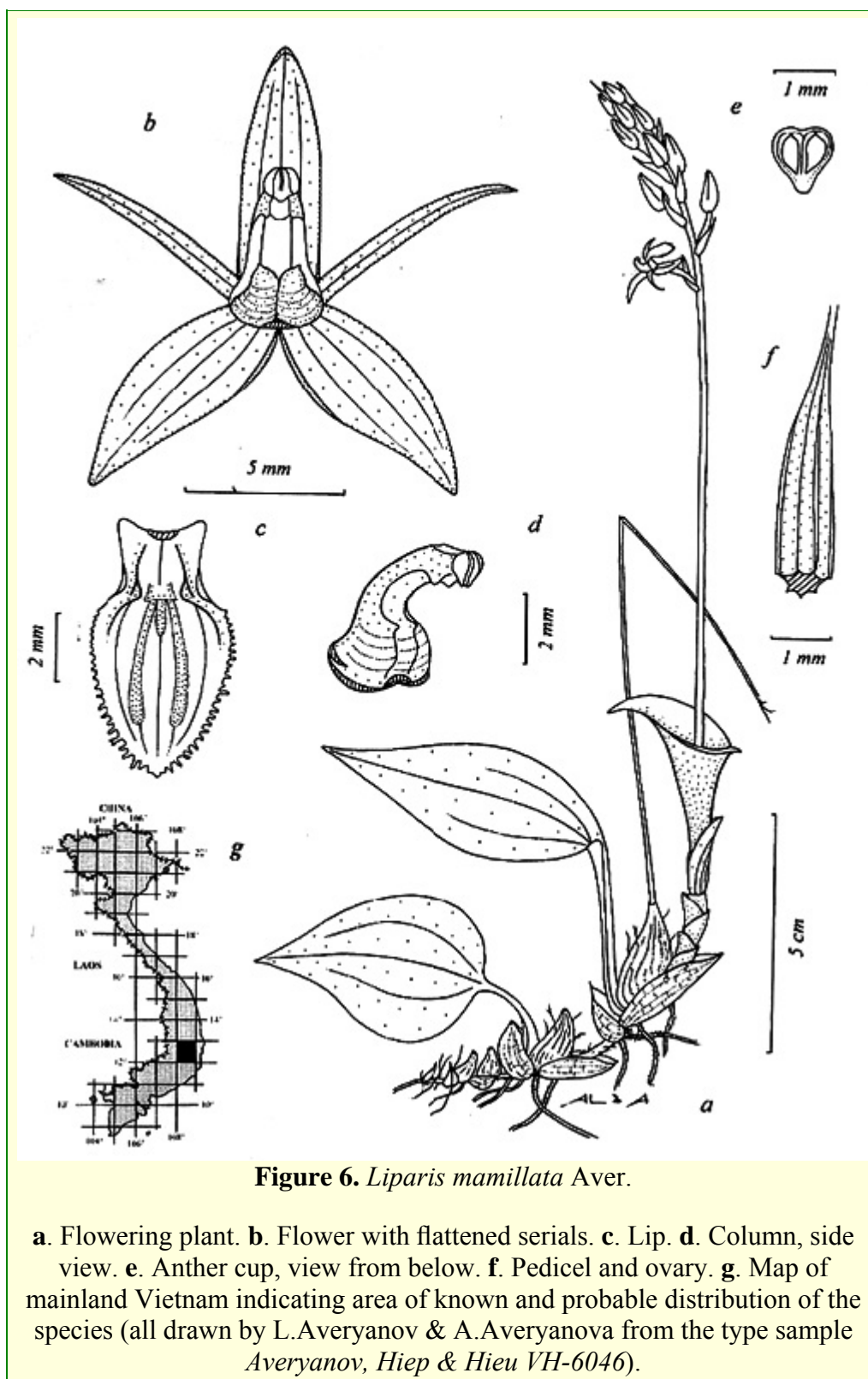
Figure 5. *Liparis flava*(Aver.) Aver.

a. Flowering and fruiting plant. **b, c.** Flower, front and side views. **d.** Flattened sepals and petals. **e.** Lip, front and back views. **f.** Column, side view. **g.** Portion of inflorescence stalk. **h.** Map of mainland Vietnam indicating area of known and probable distribution of the species (all drawn by L.Averyanov & A.Averyanova from the type sample Averyanov, Hiep & Binh VH-4426).

Terrestrial herb, 25-60 cm tall. **Pseudobulbs** narrowly cylindrical to narrowly conical, 8-15 cm tall, 1-1.5 cm wide, enveloped in leaf sheaths 5-10 cm long, at the base with 4-7 thin, broad, grassy scales 2-10 cm long, 1-1.5 cm wide. **Stem** erect, with 3-6 leaves and terminal inflorescence. **Leaves** thin, plicate, narrowly to broadly ovate or ovate elliptic, 20-35 cm long, 5-10 cm wide, subacute to acute, narrowing toward the base into broad sheath enveloping stem. **Inflorescence** a lax spike, 15-25 cm long, usually with 5-20 flowers; inflorescence stalk ebracteate, distinctly angular in section and narrowly winged along ribs, 10-15 cm long, 3-5 mm wide; rachis 10-18 cm long; floral bracts ovate to triangular, acute to acuminate, directed perpendicularly to the rachis, 2-3 mm long, 1-2 mm wide near the base. **Flowers** large, robust, opening in succession or all together, lip and other tepals uniformly light pale yellow-green, rarely with light purple or violet tinge; column yellowish-white. **Pedicel and ovary** cylindrical to slightly angular, 15-18 mm long, 1-1.6 mm wide. **Sepals** subsimilar, reflexed, with revolute edges; dorsal sepal oblong-lanceolate, obtuse, 3-5-veined, 12-15 mm long, 2.5-3 mm wide; lateral sepals falcate narrowly ovate, subacute, 3-veined, 10-13 mm long, 3-4 mm wide. **Petals** reflexed, linear, obtuse or indistinctly unequally bilobed at the apex, 1-veined, 11-15 mm long, 0.4-0.5 mm wide. **Lip** obscurely rhomboid, often indistinctly bilobed or emarginate with small apical dent, strongly recurved, 5-veined, with 2 low obtuse calluses along veins at the base, denticulate or fimbriate along apical margin, 10-15 mm long, 8-10 mm wide. **Column** slender, curved, narrowing toward the base, 5-6 mm long, 0.8-1 mm wide at the apex, thin-narrowly winged in front. **Fruit** erect, shortly stalked, narrowly cylindrical, longitudinally ribbed, about 3 cm long, 0.6-0.8 cm wide.

Liparis mamillata Aver., *sp. nov.*

TYPE: Southern Vietnam, Dak Lac Prov., Krong Bong Distr., Cu Pai Municipality, elevation from Dak Tour village (12°30'N, 108°30'E) to main peak of Chu Yang Sinh mountain system (12°24'N, 108°26'E) along Dak Tour river on N slope. Primary wet closed montane broad-leaved and mixed forest on granites along very steep shady slopes of river Canyon at elev. 1500-1700 m a.s.l. Lithophyte on wet shady waterfall mossy cliffs along river canyon. Tepals green, lip deep violet. Not common. 11 V 2000, *L.Averyanov, N.T.Hiep, N.Q.Hieu et al., VH 6046* (holotype - HN, isotypeS - LE, MO). Figure 6.



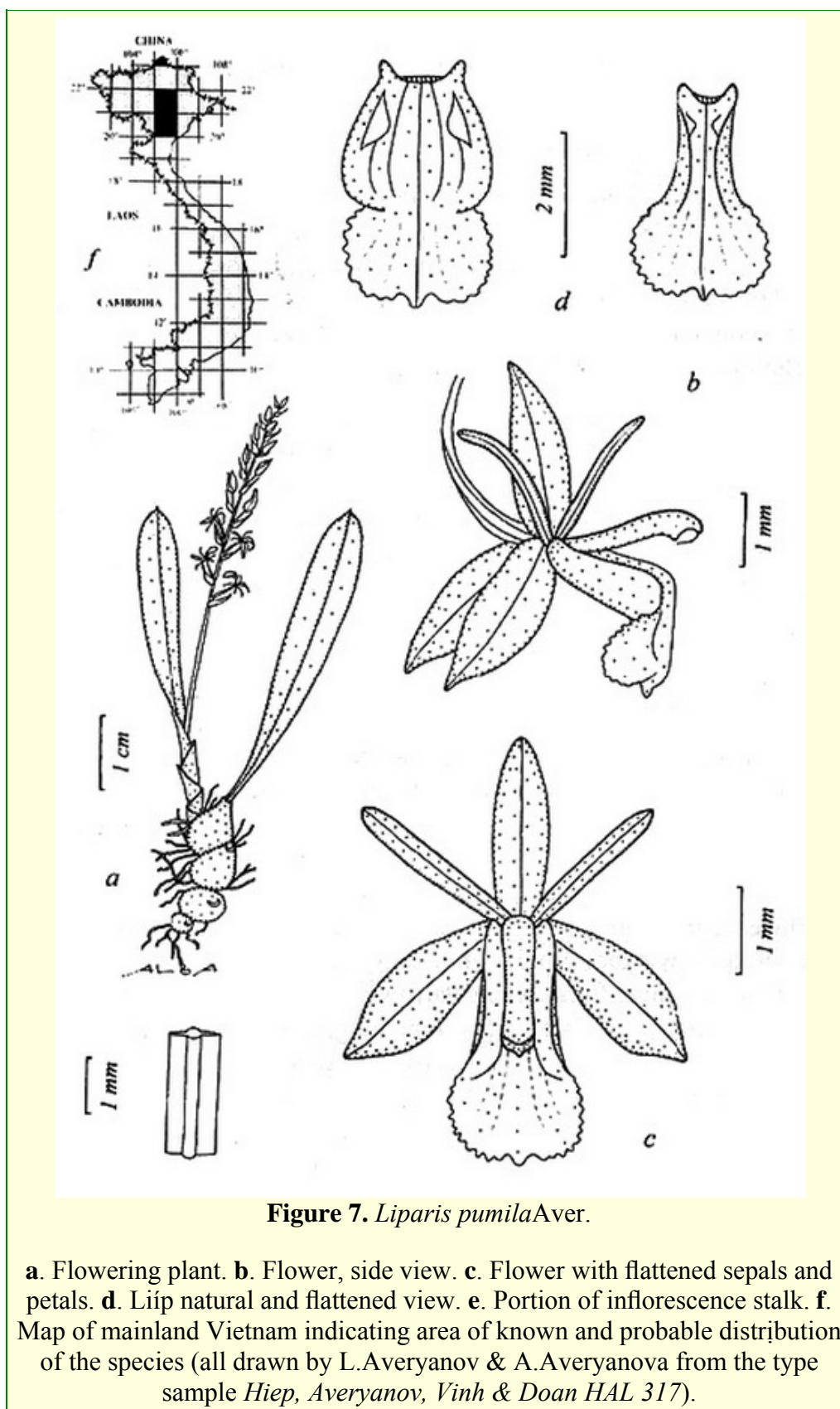
A speciebus omnibus monophylli sectionis typicae planta: nostra callis duobus mamilliformibus prope basin gynostemii didpoditis et labelli forma wide diflert.

Lithophytic and terrestrial herb 6-16 cm tall. **Pseudobulbs** narrowly ovoid, 1.2-2 cm tall, 4-7 mm broad, spaced on thin plagiotropic rhizome, ribbed with narrow irregular longitudinal ribs, covered at the base with broad white papyraceous Scales. **Leaf** 1, developing from the base of pseudobulb, with broad sheath, distinctly petiolate, with petiole 1.5,-2.5 cm long, leaf blade narrowly ovate to cordate, acuminate, distinctly veined, deep green, relatively rigid, 3-6 cm long, 1.8-3.2 cm wide. Inflorescence synanthous, ebracteate, subdensely 6-16 flowered spike, erected from the apex of pseudobulb; inflorescence stalk erect, 6-12 cm long, rachis 2-4 cm long; floral bracts erect, triangular ovate, with broad base and acute to attenuate apex, about 4 mm long, 1.5 mm wide. **Flowers** 1-1.4 cm across, sepals and petals green, sometimes with purple tint, lip deep violet. **Pedicel and ovary** straight, linear, 3-3.5 mm long. **Sepals** subsimilar, spreading, triangular to narrowly ovate, narrowing from broad base to slightly attenuate obtuse apex, 3-veined, 6.5-8 mm long, and 2-2.2 mm wide; lateral sepals slightly falcate, with ulnequally curved edges. **Petals** narrowly lanceolate to linear, narrowing to the apex from broad base, 1-veined, 6.5-8 mm long, 1 mm wide at the base. **Lip** ovate, 5-veined, 6.5-8 mm long, 3-3.5 mm wide, with small auricles, at basal part strongly curved, with 2 prominent calluses continuing on epichile into 2 parallel low callosities; epichile ovate, flat, erose to ciliolate along the margin, with small median dent at the apex. **Column** conical, 4-4.5 mm long, 2-2.5 mm broad at the base, narrowing to the curved apical part from broad massive base, with hardly pronounced narrow lateral wings and 2 large mamilla-like bosses at front of basal part. **Amber cup** hemispheric, about 1 mm across, with attenuate to obtuse dent in front. **Fruits** unknown.

Liparis mamma (Thunb.) Lindl. (= *Liparis paradoxa* auct. non (Lindl.) Rchb.f.).

Liparis pumua Aver., *sp. nov.*

TYPE: Northern Vietnam, Hoa Binh Prov., Da Bac Distr., to the SW of Doan Ket village, 20°54'01"N, 105°04'19"E. Primary broad-leaved evergreen forest with *Calocedrus macrolepis* along tops of remnant highly eroded limestone ridge at elev. 900- 1000 m a.s.l. Epiphyte on Messy trees in shady wet Cliff. Flowers light green. Not common. 29 III 2001, *N.T.Hiep, L.Averyanov, N.T.Vinh, D.T.Doan, HAL 317* (holotype - HN, isotype - LE). Figure 7.



A specie proxima Liparide chapaensi Gagnep. planta nostra floribus minoribus et labelli forma differt.

Epiphytic herb 5-7 cm tall. **Pseudobulbs** closely clustered, subglobose to broadly ovate, 5-7 mm tall, 4-5 mm wide. Each new shoot bears 1 leaf and covered at the base with 3-4 overlapping green herbaceous scales. **Leaf** 1, developing from the apex of pseudobulb, articulated at the base, oblanceolate to oblong lanceolate, acuminate, narrowed to sessile or shortly petiolate base, 5-6 cm long, 6-8 mm wide. **Inflorescence** subaxillary, 7- to 20-flowered spike; inflorescence stalk ebracteate, broadly winged, 1.5-3.5 mm long; rachis 1.5-3.5 cm long, narrowly winged or without wings; floral bracts narrowly ovate to triangular lanceolate with broad base and acuminate apex, 3.5-4 mm long, about 1 mm wide at the base. **Flowers** light dull green, about 4 mm across. **Pedicel and ovary** 2-2.5 mm long, 0.25 mm wide. **Sepals** subsimilar, with revolute edges, narrowly ovate to elliptic, narrowing and slightly attenuate at the apex, 1-veined, 2.5 mm long, 1 mm wide. **Petals** linear, with revolute edges, obtuse, 2.5 mm long, 0.25 mm wide. **Lip** obovate, 3 mm long, indistinctly 5-veined, 2 mm wide, strongly curved, at the base with 2 small auricles and round calluses along lateral veins; epichile broad, hemicircular, at the apex truncate or slightly emarginate with small central dent, finely irregular crenulate along edge. **Column** carved at the apical portion, about 2 mm long, with hardly visible narrow wings in front along lateral sides. **Fruit** unknown.

Liparis pygmaea King & Fami. (= *Liparis nana* Rolfe).

Liparis sparsiflora Aver., *sp. nov.*

TYPE: Southern Vietnam, Kon Tum Prov., Dac Glei Distr. Open dry forest with *Lithocarpus* and *Pinus kesiya* on S slope of Ngoc Linh mountain system at elev. 1000 m a.s.l. on elevation from Muong Hoong village. Epiphyte. Occasional. 31 III 1995, L. Averyanov, N.T. Hiep, P.K. LOC et al., *VH 10646a* (holotype - HN. isotype - LE). Figure 8.

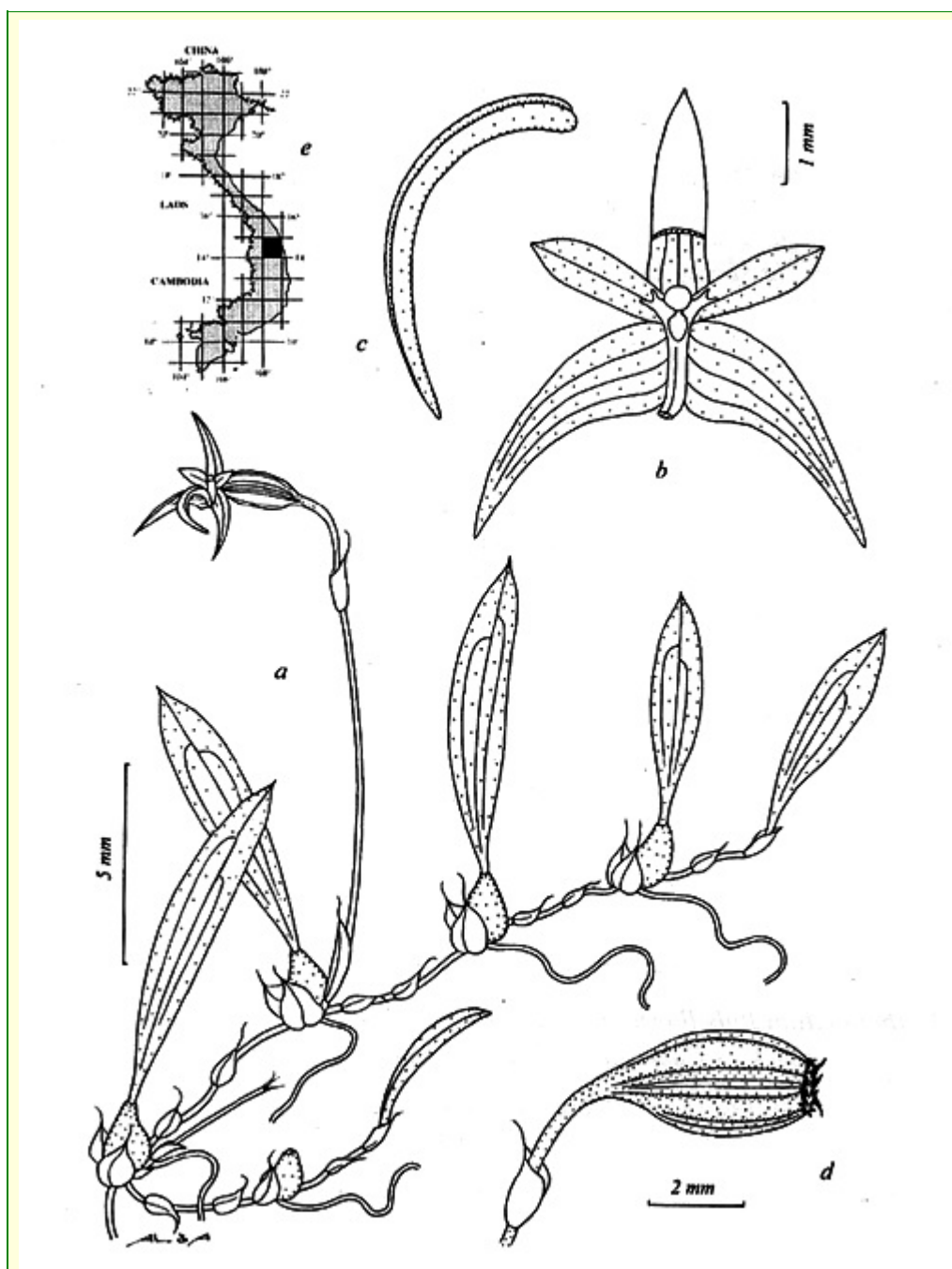


Figure 8. *Liparis sparsiflora* Aver.

a. Flowering plant. **b.** Flower, side view. **c.** Sepal, view from below. **d.** Ovary, view from above. **e.** Lip, front and back views. **f.** Map of mainland Vietnam indicating area of known and probable distribution of the species (all drawn by L. Averyanov & A. Averyanova from the type sample Hiep, Averyanov, Vinh & Doan HAL-746/1).

A specie proxima Liparide luteola Lindl. planta nostra pseudobulbis late lobatis, monovel diphyllis, inflorescentia secunda et labelli forma differt.

Epiphytic herb 5-12 cm tall. **Pseudobulbs** densely clustered, ovoid to subglobose, broadly lobed on section, 8-12 mm tall and across, at the base with 2-3 broad papyraceous whitish scales, apically with 1-2 leaves having articulation at the base. **Leaves** 1-2, conduplicate, keeled, developing from the apex of pseudobulb, oblong, broadly lanceolate to oblong narrowly obovate, acute or shortly apiculate, narrowed to sessile or shortly petiolate base, 4-9 cm long, 0.9-1.6 cm wide. **Inflorescence** laxly, 4- to 8-flowered secund spike, 8-12 cm long; inflorescence stalk distinctly winged, 4-6 cm long, ebracteate or with single narrowly ovate, apiculate bract; rachis slightly curved, zigzag, narrowly winged, 2-6 cm long; floral bracts broadly triangular ovate, acuminate, hyaline with prominent median green vein. **Flowers** about 10 mm across, uniformly light pale greenish or white with green tinge; lip with deep green median longitudinal stripe. **Pedicel and ovary** angular or narrowly winged, 6-8 mm long, 0.5 mm wide. **Sepals** subsimilar, obtuse, with revolute edges, strongly reflexed, linear lanceolate to broadly lanceolate, 1-veined, 5-6 mm long, 1.75-2.25 mm wide. **Petals** linear, obtuse, with revolute edges, strongly reflexed, without distinct veins, 5-6 mm long, 0.5-0.7 mm wide. **Lip** oblong rectangular, 6-7 mm long, 2.5-3 mm wide, strongly recurved at the middle, strongly concave, deep green and fat along median line, at the base with 2 small erect hemispheric or tooth-like calluses, apex broadly truncate, with small acute median tooth. **Column** curved, 4.5-5 mm long, 1-1.2 mm wide, narrowing toward the base, with 2 short narrow wings at apex. **Fruit** obovoid, stalked, 4-5 mm long, about 3 mm wide, on stalk about 3.5 mm long.

Malaxis ophrydis (Koenig) Ormerod (= *Malaxis latifolia* J.E. Smith).

Mischobulbum ovlifoliumum (Tsi & S.C. Chen) Aver., comb. nov. (= *Tainia ovlifoliumum* Tsi & S.C. Chen, 1994, Acta Phytotax. Sin. 32, 6: 558; *Mischobulbum longiscapum* Seidenf., 1995, Opera Bot. 124: 15).

Nervilia crociformis (Zoll. & Moritz) Seidenf. (= *Nervilia prainiana* King & Palm.) Seidenf.).

Oberonia cavaleriei Finet (= *Oberonia myosurus* Lindl., nom. invalid.).

Oberonia lysopodioides (Koenig) Ormerod (= *Oberonia caniceps* Lindl.).

Oberonia mucronata (D. Don) Ormerod & Seidenf. (= *Oberonia iridifolia* (Roxb.) Lindl.).

Phaius indochinensis Seidenf. & Ormerod (= *Phaius indigoferus* auct. non Hassk.).

Phalaenopsis sumatrana Korth. & Rchb.f. (= *Phalaenopsis fuscalta* auct. non Rchb.f.).

Phreatia plantaginifolia (Koenig) Ormerod (= *Phreatia secunda* (Blume) Lindl.).

Podochilus khasianus Hook.f. (= *P. intermedius* Aver.).

Pomatocalpa spicata Breda (= *P. manii* (Rchb.f.) J.J. Smith).

Pristiglottis saprophytica Aver., sp. nov. - *Evrardianthe poilaneia* auct. non Rauschert: Aver., 2000, Bot. J. (St.-Petersburg) 85, 4: 140.

TYPE: Southern Vietnam, Lam Dong Prov., Lac Duong Distr., Da Chay Municipality, 35 km to NE from Dalat City. Closed primary broadleaved montane forest along stream canyon on W macroslope of Nui Gia Rich ridge at elevation 1500 m a.s.l. (12°09'N, 108°41'E). Terrestrial achlorophyllous brownish-pink saprophyte in shady steep slope of stream canyon. Sepals olive-brownish, petals, lip and anther white. Very rare. 15 IV 1997, L. Averyanov, P.K. Loc, N.Q. Binh, VH 3977a (holotype - HN, isotype - LE). Figure 9.

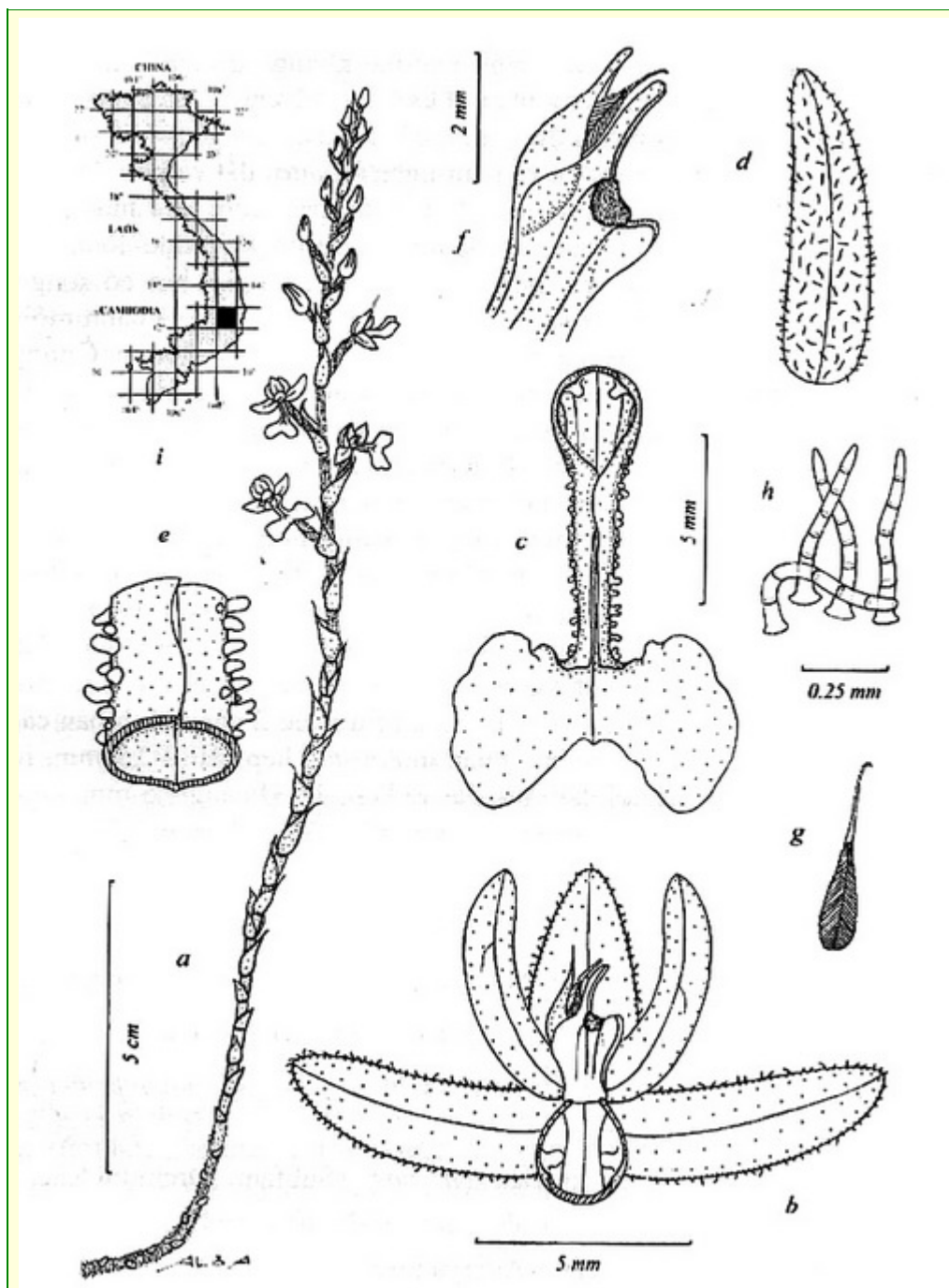


Figure 9. *Pristiglottis saprophytica* Aver.

a. Flowering plant. **b.** Flower, with flatterled sepals and petals. **c.** Lip, front view. **d.** Lateral sepal outside. **e.** Partian of the claw. **f.** Column, side view. **g.** Pollinarium, **h.** Pattern of hairirless of inflorescence stalk. pedicel and ovary.

i. Map of mainland Vietnam indicating area of known and probable distribution of the species (all drawn by L.Averyanov & A.Averyanova from the type sample Averyanov, *Loc & Binh VH 39778*).

A speciebus generis omnibus planla nostra habito achlorophyllo saprophytico et mesochilio laterali dense verrucoso-papilloso differt.

Terrestrial mycotrophic achlorophyllous pink-brown herb with leaves reduced to yellowish hyaline Scales. **Stem** about 22 cm tall, 2-3 mm thick, hairless, with many hyaline scale-like broad acuminate sheath scales 1-1.5 cm long, 0.4-0.5 cm wide, ascendant from plagiotropic underground rootless rhizome densely covered with root hairs. **Inflorescence** many-flowered spike with about 16 flowers, with shortly densely haired rachis about 10 cm long; floral bracts elliptic ovate, concave, acuminate at the apex, dorsally slightly keeled, haired outside at the base, 6-10 mm long, 2-4 mm wide. **Flowers** resupinate, about 12 mm across, with reflexed lateral sepals and lip, petals and dorsal sepal forming hood. **Pedicel and ovary** densely pubescent, 7-9 mm long, 1-2 mm wide. Sepals olive pink-brown, sparsely pubescent outside, 1-veined; dorsal sepal ovate, concave, obtuse, 5-6 mm long, 2-2.5 mm wide near the base; lateral sepals concave, obliquely oblong, obtuse, about 7 mm long, 2 mm wide. **Petals** white, hairless, 1-veined, obliquely narrowly oblong, obtuse, 5-6 mm long, 1-1.25 mm wide. **Lip** white, hairless, 2-lobed, jointed to the base of column, 9-10 mm long, 7-7.5 mm wide; hypochile saccate, with 2 large lateral simple glands; mesochile forms narrow claw 4-5 mm long, 1-1.25 wide, with numerous fat warts and papillae on flanges; epichile broadly 2-lobed, each lobe subquadrate to hemicircular, 4-4.5 mm long, 3.5-4 mm wide when spread. **Column** narrowing toward the base, 3.5-4 mm long, 2-3 mm wide, at front with two parallel hemicircular wings; anther dorsal, anther cap narrowly ovate, 2-2.5 mm long, about 1 mm wide, 2-locular; pollinia 2, with narrow long stipe hooked at the apex; rostellum long and narrow, slightly asymmetric turned, about 1.5 mm long; stigma 1, large circular, about 0.75 mm across. **Fruit** unknown.

Rhomboda pauciflora (Ridl.) Ormerod (= *Hetaeria pauciflora* Ridl.).

Rhomboda petelotii (Gagnep.) Ormerod (= *Haemaria petelotii* Gagnep.).

Tainia penangiana Hook.f. (= *Tainia hookeriana* King & Pantl.).

Thrixspermum formosanum (Hayata) Schltr. (= *Thrixspermum pricei* (Rolfe) Schltr.).

Vietorchis Aver. & Averyanova, *gen. nov.* (Subfam. Orchidoideae, Trib. Orchideae, Subtrib. Orchidinae).

TYPE: *Vietorchisaurea* Aver. & Averyanova

Planta Saprophylica (mycmmphica), alba, aphylla, apice 1-2-flora: flores aurei, tepala libera. reflexa; labellum ecalcaratum, basi callosum, apice Tripartitum: lobus meidium rigidum, incurvum; labelli calus basalis agnus, lucidus, basi cum columnae solide connatus, apice obtuse acutatus.

Achlorophyllous mycotrophic leafless **terrestrial herb**. **Stem** erect or ascendant, milky-white, glabrous, juicy, 10-20 cm tall, 2-3 mm thick, with 1 or 2 apical flowers and thin underground rhizome (rising from tuber?); at lowest half covered with 3-4 distant, acute, lanceolate white scales, 1-3 cm long, 3-5 mm wide; at the base bearing numerous approximated broadly-ovate short white scales, which in underground rhizome become distant and very small. **Flower bracts** milky-white, lanceolate, acute, 1.5-2 cm long, 3-5 mm wide. **Flowers** resupinate, odorless, brightly golden-yellow, widely spreading, lip with few broad, short orange-red stripes at the center. **Sepals** broadly-ovate, obtuse at the apex, central sepal 6-8 mm long, 6-8 mm wide, lateral sepals 9-11 mm long, 6-8 mm wide. **Petals** obscurely rhomboid, obtuse and finely irregularly denticulate along apical margin, 6-7 mm long, 4-5 mm wide. **Lip** three-lobed, 10-12 mm long, 7-9 mm wide, at the base with large glossy prominent callus. Basal lip callus narrowly ovate,

massively united with its broad base to the base of the column, narrowing and shortly attenuate at the apex. **Lip side lobes** oblong, 8-9 mm long, about 3 mm wide, obtuse at the apex, concave in apical part. **Midlobe** 6-8 mm long, 2-3 mm wide, rigid, distinctly upward incurved, broadening and truncate at the apex. **Column** short, about 2 mm long, 2 mm wide, with wide innate flat receptive surface of stigma, wide falcate lateral wings obscurely bidentate at apex, large apical anther and two large spherical auricles (staminodia) placed on both sides of anther base. **Anther** erect, basally firmly united with the column and slightly bent back from the column apex, obovate, 2 mm long, about 1.5 mm wide, with two narrowly-obovate thecae (each with one pollinarium) separated by narrow connective, at the base with two small bosses, in center of which placed separated viscidia covered by small bursiculae. **Rostellum** very small in form of insignificant narrow fold that lies at the base of anther, between basal part of thecae. **Pollinaria** clavate, two, completely separated, about 2 mm long and 0.6 mm wide, each of one pollinium, which has basal, thick caudicle attached to one discoid basal viscidium. **Ovary** milky-white, cylindrical, slightly carved, 1.5-2 cm long, 2.5-3 mm wide. Figure 10.

Vietorchis amen Aver. & Averyanova, *sp. nov.*

TYPE: Northern Vietnam, Ninh Binh Prov., Nho Quan Distr., Cuc Phuong municipality, Cuc Phuong National Park, 20°15'15"N, 105°41'40"B, at elev. about 350 m a.s.l., about 1 km to Bong locality. Logged primary evergreen closed broad-leaved forests in limestone valley. Mycotrophic achlorophyllous white herb up to 20 cm tall. Flowers golden yellow, lip with short orange-red stripes at the center. Rare. 22 May 2002, Nguyen Manh Cuong, Mai Van Xinh & Nguyen Huy Quang *NMC 1643* (holotype - CPNP!, isotypes - HN, LE!). Figure 10. Description of the species, see above under the genus name.

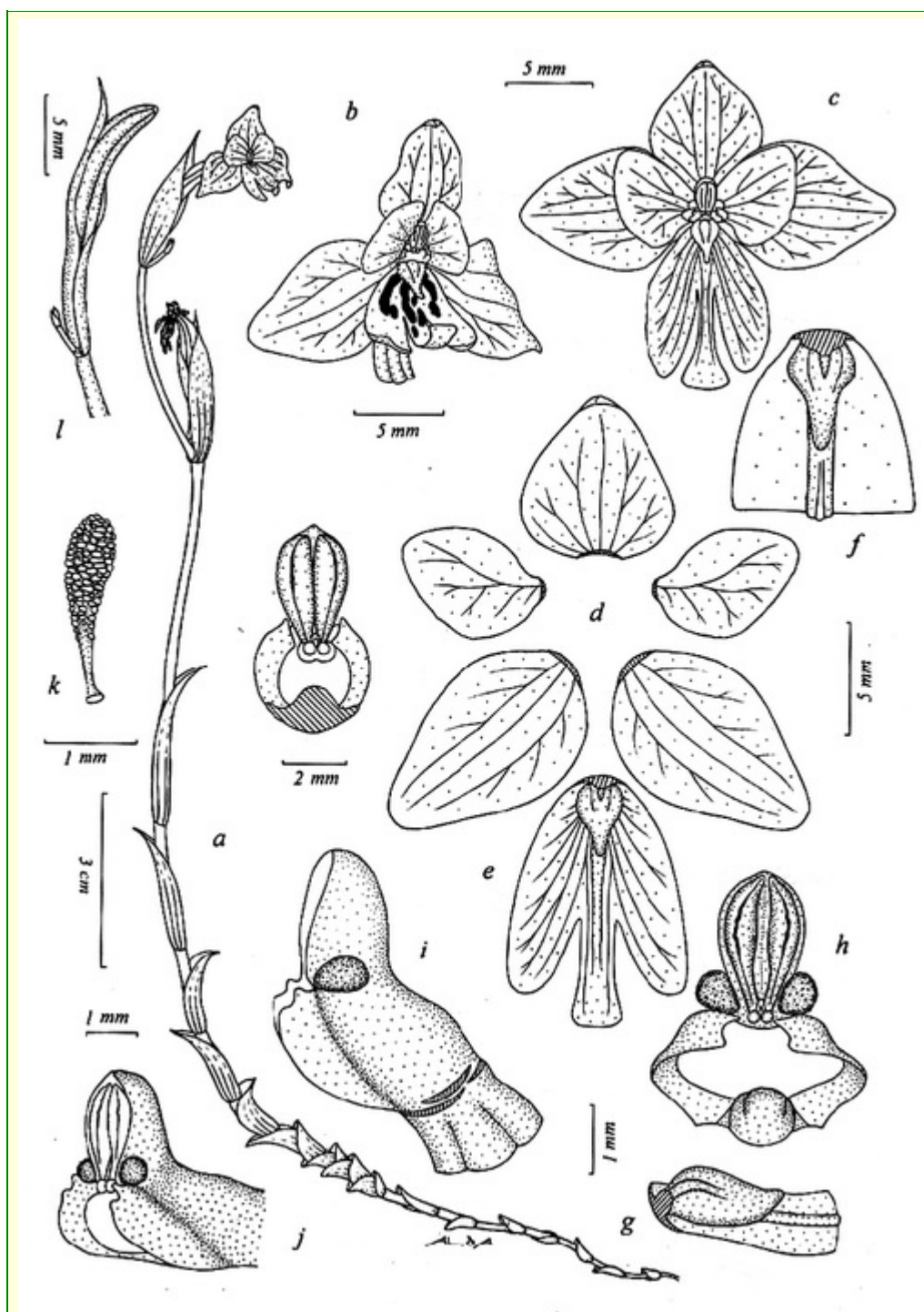


Figure 10. *Vietorchis amas* Aver. & Averyanova.

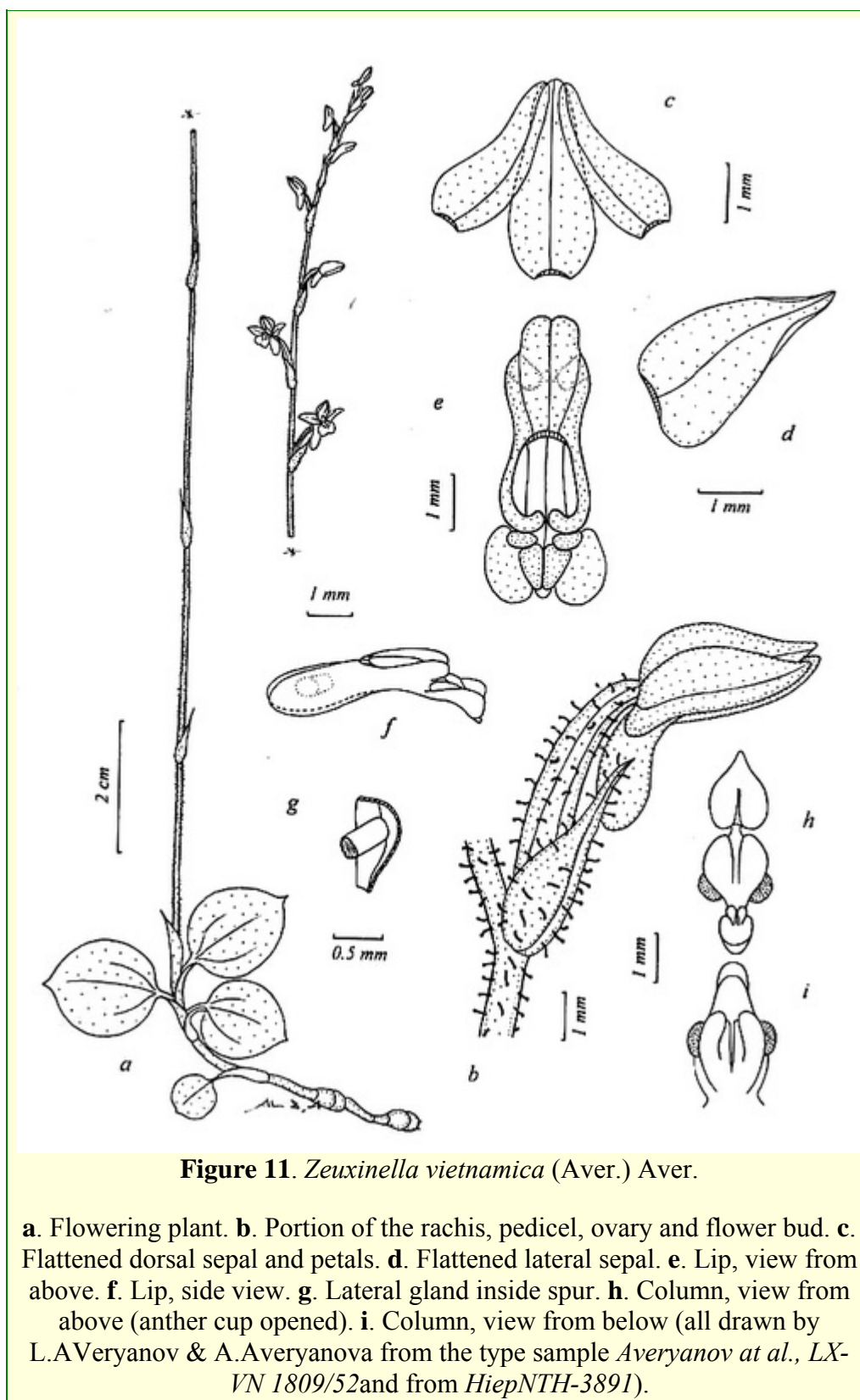
a. Flowering plant. **b.** Flower, side view. **c.** Flattened flower, front view. **d-e.** Flattened sepals, petals and lip. **f-g.** Flattened base of lip and basal callus, front and side view. **h-j.** Column, front (**h**) and side (**i-j**) views. **k.** Pollinatum. **l.** Ovary and floral brad, side view (all drawn by L.Averyanov & A.Averyanova from the type sample *NMC 1643*).

Zeuxinella Aver., *gen. nov.* (Subfam. Neottioideae Lindl., Trib. Neottieae Lindl., Subtrib. Goodyerinae Klotzsch.).

TYPE: *Zeuxinella vietnamica*(Aver.) Aver. (= *Zeuxine vietnamica* Aver.).

A genera proxima Kuhlhasseltia J.J.Sm. and Anoectochilus Blume, genus nova stigma distincte bipartito et labelli stuctura valde differt.

The genus may be related to *Kuhlhasseltia* J.J.Sm. and *Anoectochilus*Blume, from which it differs in separate stigma lobes and structure of the lip (Figure 11). It includes one species distributed in limestone areas of Bac Kan and Ninh Binh Provinces in the northern Vietnam.



Zeuxinella vietnamica (Aver.) Aver., *comb. nov.* - *Zeuxine vietnamica* Aver., 1988, *Bot. J. (Leningrad)* 73, 3: 424; id., 1988, *Prelim. List Vietnam. Orch.* 2: 117.

Acknowledgements

Field and laboratory studies, the results of which are presented in this paper, were funded in part by grants from the following sources, to which we give thanks:

U.S. National Geographic Society(grants #5094-93, 5803-96, 6383-98 "*Flora of highlands of South Vietnam*" to Prof., Dr. Sci. L. Averyanov, #6300-98 "*Limestone flora of Cao Bang province of North Vietnam*" to Dr. Nguyen Tien Hiep and # 6733-00, "*Botanical Inventory of unexplored areas in Vietnam: the North*" to Dr. D. Harder),

American Orchid Society("Exploration of endangered Vietnamese *Paphiopedilums*"; "Exploration of endangered calcium dependent orchid flora in inaccessible rocky limestone areas of the North Vietnam" and "Population Studies of endemic *Paphiopedilum* species in northern Vietnam" to Prof., Dr. Sci. L. Averyanov),

U.S. National Science Foundation(#DEB-9870231 "*Collaborative Research: A multi-taxa inventory of threatened conservation areas in Vietnam*" to Dr. B. Sterling and Dr. D. Harder),

Fauna & Flora International(100% Fund Fauna & Flora International grant "*The distribution of *Paphiopedilum vietnamense* and its current status in the wild*" and FFI, Vietnam Program "*Community-based Conservation of the Hoang Lien Mountain Ecosystem, Vietnam*"),

Basic Research Program in Natural Science of Vietnam(# 611001 "*Exploration of threatened conifers and cycads of Vietnam*" to Prof., Dr. Phan Ke Loc and Dr. Nguyen Tien Hiep),

Studies on biodiversity of Vietnam and Laos: a UIC-based ICBG Program(grant No. 1-UO1-TW01015-01, through funds from the National Institutes of Health (NIH), National Science Foundation (NSF), and the Foreign Agriculture Service of the US. Department of Agriculture (FAS/U.S.D.A.) to Principal Investigator, Prof., Dr. DD. Soejarto),

San Diego County Orchid Society Conservation Committee(grant "*Exploration of endangered calcium dependent *Paphiopedilum* Species in Northern Vietnam*" to Prof., Dr. Sci. L. Averyanov).

We would like to express our cordial thanks to authorities of the Institute of Ecology and Biological Resources of the National Center for Natural Sciences and Technology of Vietnam for kindest help in organization of our botanical studies, to authorities of Komarov Botanical Institute of the Russian Academy of Science for allowing us to complete this checklist during official hours, and to authorities of the Forest Protection Department, Ministry of Agriculture and Rural Development of Vietnam for plant collecting permits.

We thank particularly Dr. Nguyen Tien Hiep and Prof., Dr. Phan Ke Loc, who played the major role in the organization of all our botanical investigations, the results of which are presented in this paper, Dr. Alexander Sennikow for his kind correction of the Latin descriptions, Dr. Jacinto Regalado for his correction of our use of English, and Prof., Dr. Phan Ke Loc for general editing of the paper and translation into Vietnamese language.

Publication of this paper was made possible with financial support from the Vietnam Botanical Conservation Program, a joined program between Missouri Botanical Garden, U.S.A. and the Institute of Ecology and Biological Resources, Vietnam, and from the Basic Research Program in Natural Science of Vietnam.

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Responsible for publishing:

*Director:*NGUYEN VAN THOA

*Chief Editor:*NGUYEN THIEN GIAP

*Editor:*PHAN KE LOC

*Desktop publishing:*DO MANH CUONG

*Design cover by:*NGOC ANH

UPDATEDCHECKLIST OF THE ORCHIDS OF VIETNAM

Code: 01.22.DH2003

Printing 500 copies, at Vietnam National University Publishing House, Hanoi

Publication number: 100/120/CXB. Number of CVs 60 KH/XB

Printing completed and deposited Q1 2003.