

New orchid species (*Orchidaceae*) in the flora of Laos

Новые виды орхидных (*Orchidaceae*) во флоре Лаоса

L. V. Averyanov^{1*}, Khang Sinh Nguyen²,
N. L. Orlov³, T. V. Maisak¹, L. I. Krupkina¹,
Pankaj Kumar⁴

¹ Komarov Botanical Institute of the Russian Academy of Sciences
Herbarium of Higher Plants

Professora Popova Str., 2, St. Petersburg, 197022, Russia
av_leonid@binran.ru; tmaisak@mail.ru; krupkina@binran.ru

² Institute of Ecology and Biological Resources of the Vietnam
Academy of Science and Technology
18, Hoang Quoc Viet Road, Nghia Do, Cau Giay District, Hanoi,
Vietnam
nskhang@gmail.com

³ Zoological Institute of the Russian Academy of Sciences
Universitetskaya Emb., 1, St. Petersburg, 199034, Russia
orlov52@gmail.com

⁴ Kadoorie Farm and Botanic Garden
Lam Kam Road, Lam Tsuen, Tai Po, New Territories, Hong Kong,
S.A.R., P.R. China
sahanipankaj@gmail.com

*Corresponding author

Л. В. Аверьянов^{1*}, Кхан Синь Нгуен²,
Н. Л. Орлов³, Т. В. Майсак¹, Л. И. Крупкина¹,
Панкай Кумар⁴

¹ Ботанический институт им. В. Л. Комарова РАН
Гербарий высших растений

ул. Профессора Попова, 2, Санкт-Петербург, 197022, Россия
av_leonid@binran.ru; tmaisak@mail.ru; krupkina@binran.ru

² Институт экологии и биологических ресурсов Академии наук
и технологии Вьетнама
18, Хон Куок Вьет Род, Ни До, Кай Зяу, Ханой, Вьетнам
nskhang@gmail.com

³ Зоологический институт РАН
Университетская наб., 1, Санкт-Петербург, 199034, Россия
orlov52@gmail.com

⁴ Ферма Кадури и ботанический сад
Лам Кам Род, Лам Тсуен, Тай По, Новые Территории, Гонконг,
China
sahanipankaj@gmail.com

*Автор для переписки

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Abstract. This paper continues the publication of new data obtained during field studies in remote and poorly studied regions of Laos in 2017–2022. It provides descriptions of one species and one variety new for science (*Oberonia sinuata* Aver. and *Cleisostoma fuerstenbergianum* Kraenzl. var. *minutiflorum* Aver.) and reports five species newly recorded in the flora of Laos (*Liparis balansae* Gagnep., *Oberonia trochopetala* Gagnep., *Paphiopedilum coccineum* Perner et R. Herrm., *P. sukhakulii* Schoser et Senghas, and *Uncifera dalatensis* (Guillaumin) Seidenf. et Smitinand). Appropriate citations of regional literature, color illustrations, data on types and distribution, descriptions and etymology (for new taxa), as well as notes on taxonomy and related species are provided for the studied taxa.

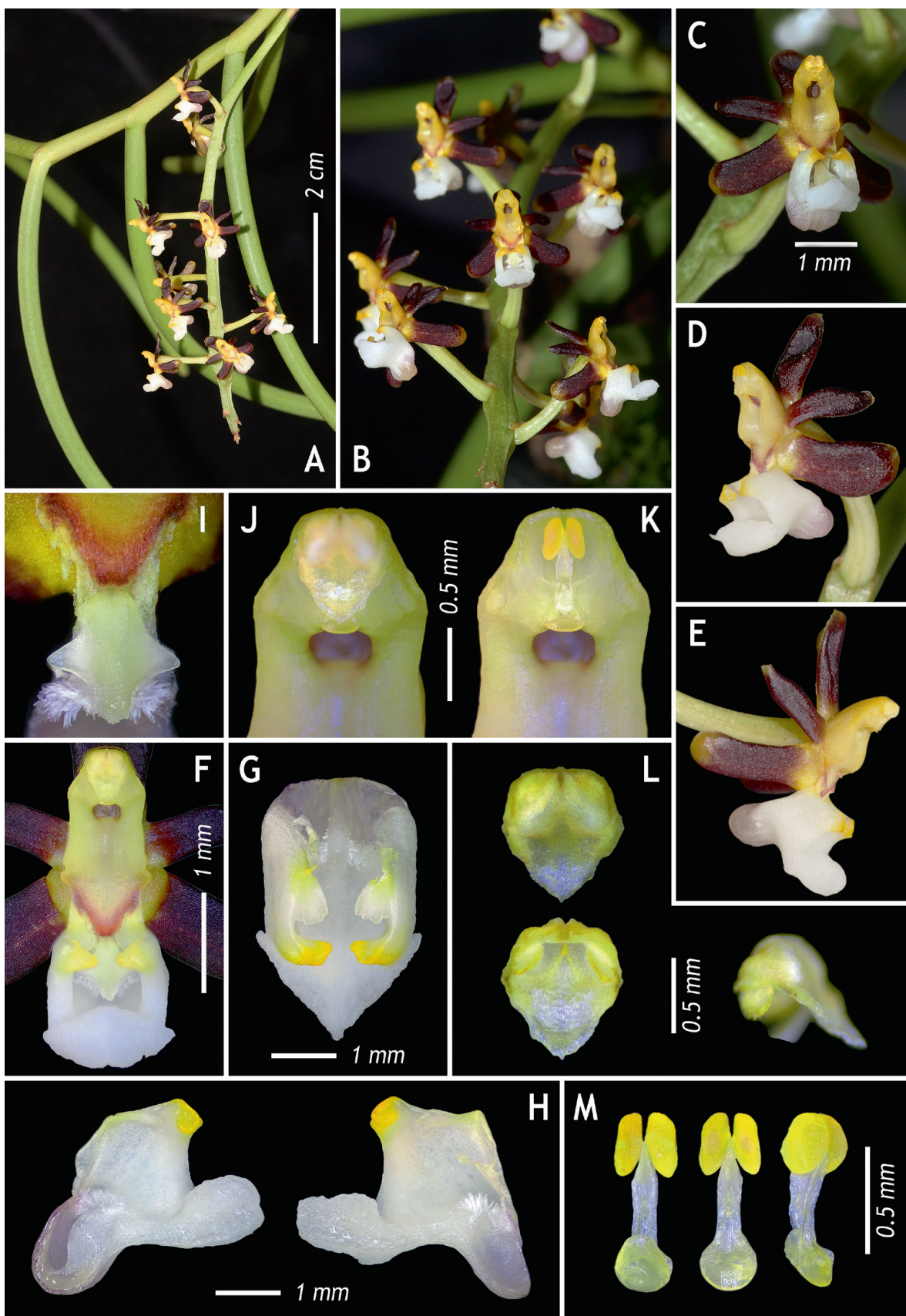
Keywords: *Orchidaceae*, Laos, flora, plant diversity, new records, new taxa.

Аннотация. Статья продолжает серию публикаций новых данных, полученных в ходе полевых исследований в отдаленных и малоизученных районах Лаоса в 2017–2022 гг. Впервые для науки описан один вид и одна разновидность: *Oberonia sinuata* Aver. и *Cleisostoma fuerstenbergianum* Kraenzl. var. *minutiflorum* Aver. Пять видов впервые обнаружены во флоре Лаоса (*Liparis balansae* Gagnep., *Oberonia trochopetala* Gagnep., *Paphiopedilum coccineum* Perner et R. Herrm., *P. sukhakulii* Schoser et Senghas и *Uncifera dalatensis* (Guillaumin) Seidenf. et Smitinand). Для всех таксонов приводятся ссылки на протологи и региональные сводки, цветные иллюстрации, данные о типах, распространении, этимологии (для вновь обнаруживаемых названий), а также примечания о систематике и родственных таксонах.

Ключевые слова: *Orchidaceae*, Лаос, флора, разнообразие растений, новые находки, новые таксоны.

The orchid flora of Laos (Lao People's Democratic Republic) is one of the richest in Indochina. Meanwhile, despite a series of general orchid assessments (Seidenfaden, 1992; Svengsuksa, Lamxay, 2005; Newman et al., 2007; Schuiteman et al., 2008) and many additional publications (Schuiteman, Bonnet, 2009, 2014; Averyanov, 2013b;

Gruss et al., 2014; Averyanov et al., 2016a, b, 2018a, b, 2019; Gale et al., 2016, 2018; Kumar et al., 2016, 2018; Gale, Phaxaysombath, 2017; George et al., 2017; Schuiteman et al., 2018; Souvannakhommane et al., 2018, 2021, 2022; Kumar, Gale, 2020; Vo et al., 2022) it remains poorly studied. Here we continue the publication (Averyanov,



2013b; Averyanov et al., 2016a, 2018a, b, 2019) of new data on Laos orchid diversity obtained during field studies in remote and poorly studied regions of the country during 2017–2022. The paper provides descriptions of one species and one variety new for science (*Oberonia sinuata* Aver. and *Cleisostoma fuerstenbergianum* Kraenzl. var. *minutiflorum* Aver.) and reports five species newly recorded in the flora of Laos (*Liparis balansae* Gagnep., *Oberonia trochopetala* Gagnep., *Paphiopedilum coccineum* Perner et R. Herrm., *Paphiopedilum sukhakulii* Schoser et Senghas, and *Uncifera dalatensis* (Guillaumin) Seidenf. et Smitinand). Appropriate citations of regional literature, color illustrations, data on types and distribution, descriptions and etymology (for new taxa), as well as notes on taxonomy and related species are provided for the studied taxa. The images of the cited specimens stored at LE Herbarium are available on the website (Vascular Plants Herbarium of the Komarov Botanical Institute RAS – Herbarium LE, 2022).

***Cleisostoma fuerstenbergianum* Kraenzl. var. *minutiflorum* Aver., var. nova.** — Fig. 1.

Stems slender, pendulous, (25)30–40(45) cm long, simple or rarely branching near the base, with few distant secund leaves in apical half; internodes 3–4 cm long. Leaves terete, (10)15–25 cm long, 2–2.5 mm diam., fleshy, obtuse, straight to arcuate. Inflorescence lateral, pendulous, lax raceme, 6–12 cm long, with many flowers; peduncle 3–4 cm long; rachis 3–8 cm long, slightly zigzag; floral bracts triangular, acute 1.5–2 mm long. Pedicel and ovary light green, 4–5 mm long. Flowers broadly opening, 7–8 mm across; sepals and petals back curved, uniform chestnut brown, lip white, with yellow side-lobes, column and anther cap light greenish, pollinia bright yellow. Sepals and petals oblong narrowly ovate, obtuse, with revolute margins, 3–3.5 mm long, petals smaller and narrower. Lip spurred, trilobed, 3–3.5 mm long from apex of spur to apex of medial lip lobe; lateral lobes fleshy, triangular, incurved; median lobe fleshy, broadly triangular, forward directed; spur globose, concave, 1.5–1.8 mm long, with incomplete, half-circular septum; back wall callus rhomboid, with shortly attenuate angles, with dense white hairs laterally. Column shortly cylindrical, 1.2–1.6 mm tall; anther cap helmet-shaped, shortly beaked, 0.6–0.7 mm diam. Pollinarium with oblong stipe, circular viscidium and two half-notched pollinaria.

Type: “Laos, Attapeu Prov. [Ban San Xai], 24 III 2020, E. Konstantinov, A. Chulisov, T. Vongsa, K-424” (holotype — [LE 01076998](#); analytical photos: [LE 01088752](#) and [LE 01088893](#)).

Paratypes: Plants originated from Dak Lak Province, without precise locality, collected on 19 X 2017, L. Averyanov, T. Maisak, N. Duy, herbarium specimen and photos prepared on 1 IX 2022 by L. Averyanov, T. Maisak, AL 346.1 (herbarium specimen — [LE 01169531](#), photos — [LE 01123539](#)), and on 18 VIII 2020 by L. Averyanov, T. Maisak, AL 346.2 (herbarium specimen — [LE 01076937](#), photos — [LE 01087400](#)).

Etymology. The variety epithet refers to the small size of its flowers in comparison to the type variety.

Distribution. SE Laos (Attapeu Province), S Vietnam (Dak Lak Province). Lowland areas in southern part of the eastern Indochina.

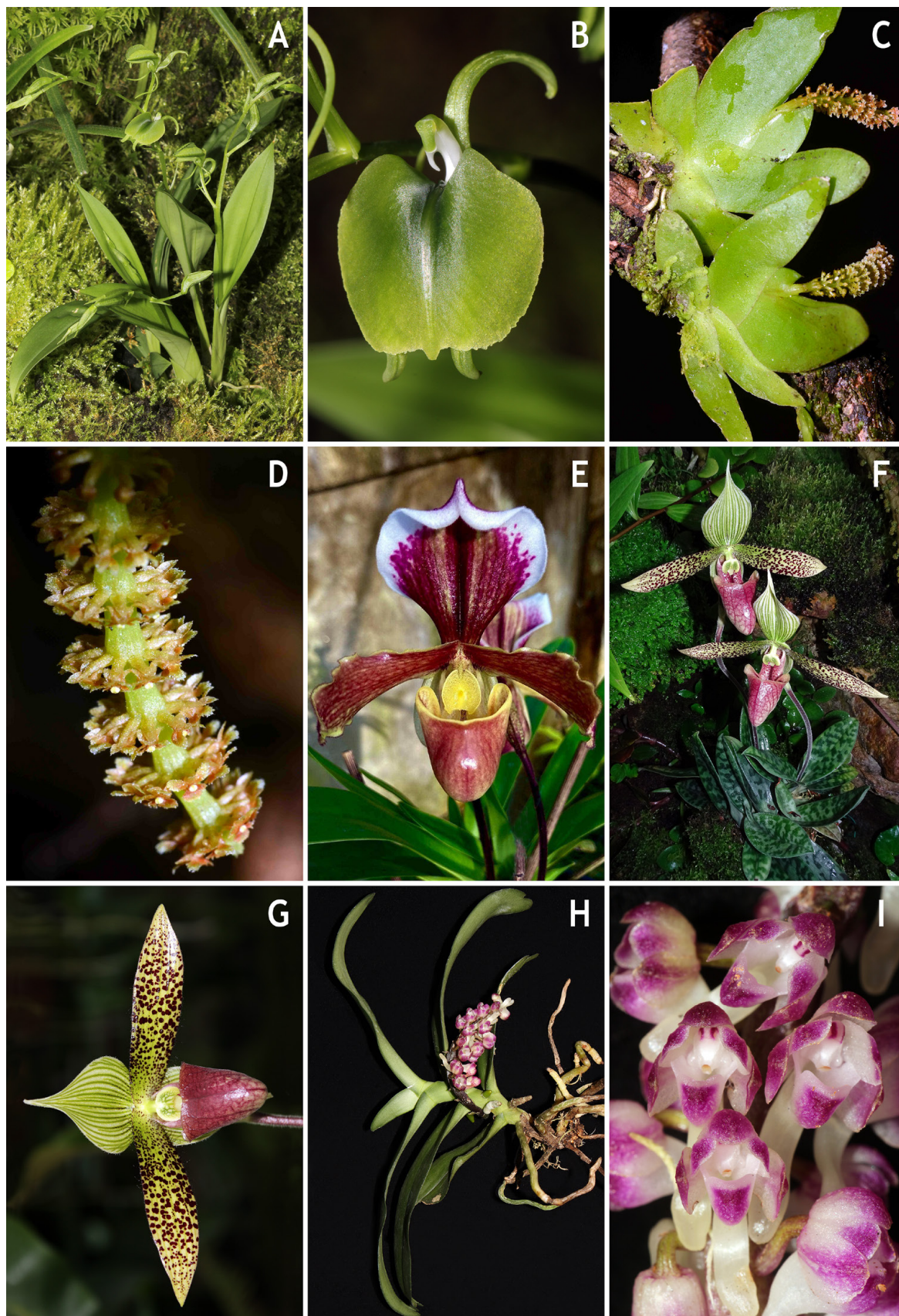
Ecology and phenology. Branch epiphyte with pendulous shoots. Primary and old secondary dry semideciduous broad-leaved lowland forests and woodlands. Occasionally. Fl. III–IX.

Estimated IUCN status. This variety cannot be easily differentiated from the type variety which is rather widespread, hence, its real distribution range may be much larger than currently presented. With lack of data on population size, threat and ecology, this species can be assessed as Data Deficient (DD).

Note. *Cleisostoma fuerstenbergianum* Kraenzl. belonging to *Cleisostoma* sect. *Pilearia* (Lindl.) Seidenf. is a widespread species distributed in Myanmar, S China, Thailand, Laos, Cambodia, and Vietnam (Seidenfaden, 1975; Chen et al., 2009; Averyanov et al., 2015). This epiphytic species is well recognized by its long pendulous stems to 1 m long, terete drooping leaves and inflorescences with widely opening flowers 8–10 mm across. It is rather common species in some humid areas of E Indochina and sometimes may be observed as a common epiphyte on old trees even in large cities such as Hanoi and Ha Giang in N Vietnam and along the avenue trees in Laos. Meanwhile, in south-eastern part of its distribution on the territory of Laos and Vietnam this species becomes rare and is presented by the race with stems usually not longer than 45 cm bearing distinctly smaller flowers. This plant surely represents separate geographical race typical for dry semideciduous forests common in S Indochina. In floral morphology, the new and type varieties look similar. However, described plants differ in distinctly smaller flowers with pedicel and ovary 4–5 mm long (vs. about 10 mm long), sepals and petals 3–3.5 mm long (vs. 4.5–5 mm long), lip 3–3.5 mm long from apex of spur to apex of medial lip lobe (vs. lip 5.5–6.5 mm long), spur 1.5–1.8 mm long (vs. 2–3 mm long), and column 1.2–

Fig. 1. New orchids in the flora of Laos: *Cleisostoma fuerstenbergianum* var. *minutiflorum* (K-424).

A — part of flowering shoot; B — part of inflorescence; C — intact flower, frontal view; D — intact flower, half side view; E — intact flower, side view; F — column and lip, frontal view; G — lip, top view; H — sagittal lip section; I — back wall callus, frontal view; J, K — column with anther cap and with anther cap removed; L — anther cap, views from different sides; M — pollinarium, views from different sides. Photos, correction and design by L. Averyanov and T. Maisak.



1.6 mm tall (vs. 2.5–3 mm tall). Noticeably, some other orchids also form similar “small-flowered” geographical races in dry areas of SE Indochina, particularly in Laos (Averyanov, 2012).

Liparis balansae Gagnep. 1932, Bull. Soc. Bot. France, 79: 165; Seidenf. 1976, Dansk Bot. Ark. 31, 1: 49, fig. 27; id. 1992, Opera Bot. 114: 138, pl. IXc; Aver. 1994, Identification guide Viet. Orch.: 146; id. 2013, Turczaniowia, 16, 1: 117, fig. 60c, d; Aver. a. Averyanova, 2003, Updated checklist Orch. Viet.: 41. — Fig. 2: A, B.

L e c t o t y p e (Seidenfaden, 1976: 49): N Vietnam, “Bavi, Balansa 2022” (P00328023).

= *Liparis hainanensis* Tang et F. T. Wang, 1974, Acta Phytotax. Sin. 12: 38. — **T y p e**: “Hainan: Pao-T’ing Hsien, 29 VIII 1935, leg. F. C. How 73533” (PE 00341889; isotypes — IBK00191803, PE 00341691).

D i s t r i b u t i o n. Laos (Khammouane Province, Boualapha District), S China, Thailand, Vietnam.

E c o l o g y a n d p h e n o l o g y. Clustering epiphyte and lithophyte. Primary evergreen mixed and coniferous dense wind-formed forests on sandstone mountain tops at elevation 1000–1400 m a. s. l. Occasional. Fl. VI–VII.

E s t i m a t e d I U C N s t a t u s. Nationally Least Concern (LC).

E x a m i n e d s p e c i m e n. Laos, Khammouane Province, Boualapha District, Nong Seng Village, southern sandstone slopes at summit of Phou Chuang (Poujeuang) Mountain around point 17°35′00.3″ N, 105°47′35.6″ E, primary evergreen mixed and coniferous dense wind-formed forest at elevation of 1000–1400 m a. s. l., clustering epiphyte and lithophyte on mountain top, occasional, 4 V 2018, L. Averyanov, Khang Sinh Nguyen, T. Maisak, Littideth Xaiyavongsa, Siphanom Keovankham, herbarium voucher specimen prepared on 9 VII 2020, by L. Averyanov, T. Maisak, AL 646.1 (herbarium specimen — LE 01076850, analytical photos — LE 01087090).

N o t e. This is not surprising discovery filling disjunction of this rather common species recorded earlier in Thailand and Vietnam (Seidenfaden, 1976, 1992; Averyanov, 1994, 2013a; Averyanov, Averyanova, 2003). According to our observations, it is not rare in high mountains of Laos allied to the Vietnamese border.

Oberonia sinuata Aver., sp. nova. — Fig. 3, 4.

Clustering sympodial epiphyte (4)5–9(10) cm tall. Stems abbreviate, very short, 0.5–1 cm long, completely covered by (3)4–5(6) imbricate leaves, with many thin, flexuose, dull yellowish grey roots at the base. Leaves fleshy, without distinct articulation at the base, oblong narrowly triangular, slightly oblique, obtuse to acute,

strongly laterally compressed, (1.8)2–7(8) cm long, (6)7–10(11) mm wide, dull green with purple tint. Inflorescence subterminal, straight to arching, spike-like raceme, (5)6–11(12) cm long, (4.5)5(5.5) mm diam.; scape suberect, straight, (1.6)2(2.2) cm long, naked or with few distant, narrowly triangular sterile bracts; rachis straight to arching, dull green to dull purple, rather slender, longitudinally ribbed, (4)6–8(10) cm long, (0.6)0.7(0.8) mm diam.; flowers verticillate, with shortly distant whorls, each whorl with (5)7–8(10) flowers. Floral bracts triangular narrowly ovate, cymbiform, 1.2–1.6 mm long, 0.5–0.6 mm wide, acute, with entire margin, during anthesis perpendicular to the rachis. Pedicel and ovary shortly cylindrical, (1)1.2(1.4) mm long, (0.2)0.3(0.4) mm wide, ascending or almost perpendicular to the rachis. Flowers (1.4)1.6–1.8(2) mm diam., uniformly dark red to red brownish. Sepals ovate, (0.8)0.9(1) mm long, (0.6)0.7(0.8) mm wide, somewhat fleshy, concave, obtuse, often slightly cucullate, entire along the margin. Petals as long as sepals, broadly obovate, almost round at apex, finely erose to almost entire along the margin. Lip fleshy, rectangular in outline, 1.2–1.4 mm long, (1.4)1.5(1.6) mm wide, slightly erose on finely irregularly denticulate along the margin, 3-lobed; side-lobes obtriangular to subquadrate, truncate, spreading horizontally or slightly uprising, (0.35)0.4(0.45) mm long and wide; median lobe obcordate, bilobulate, 0.7–0.9 mm long, 1.1–1.2 mm wide, lobules spreading, half-circular, divided by deep almost round sinus; fovea at the lip base covered by sinuate membrane forming small peculiar pocket opening adaxially. Column simple, shortly cylindrical, (0.25)0.3(0.35) mm tall and wide, anther cap hemispheric, with short triangular beak at front. Fruits obovoid, 2.8–3.2 mm long, longitudinally ribbed, on short stalk, (0.8)1(1.2) mm long.

T y p e: “Laos, Champasak Prov., 15°04′21.1″ N, 106°12′19.2″ E, elevation 1150 m a. s. l., 28 XI 2019, N. L. Orlov, L. K. Ioganssen, AL 1247” (holotype — LE 01067244; analytical photos — LE 01123555; analytical drawings — LE 01087351).

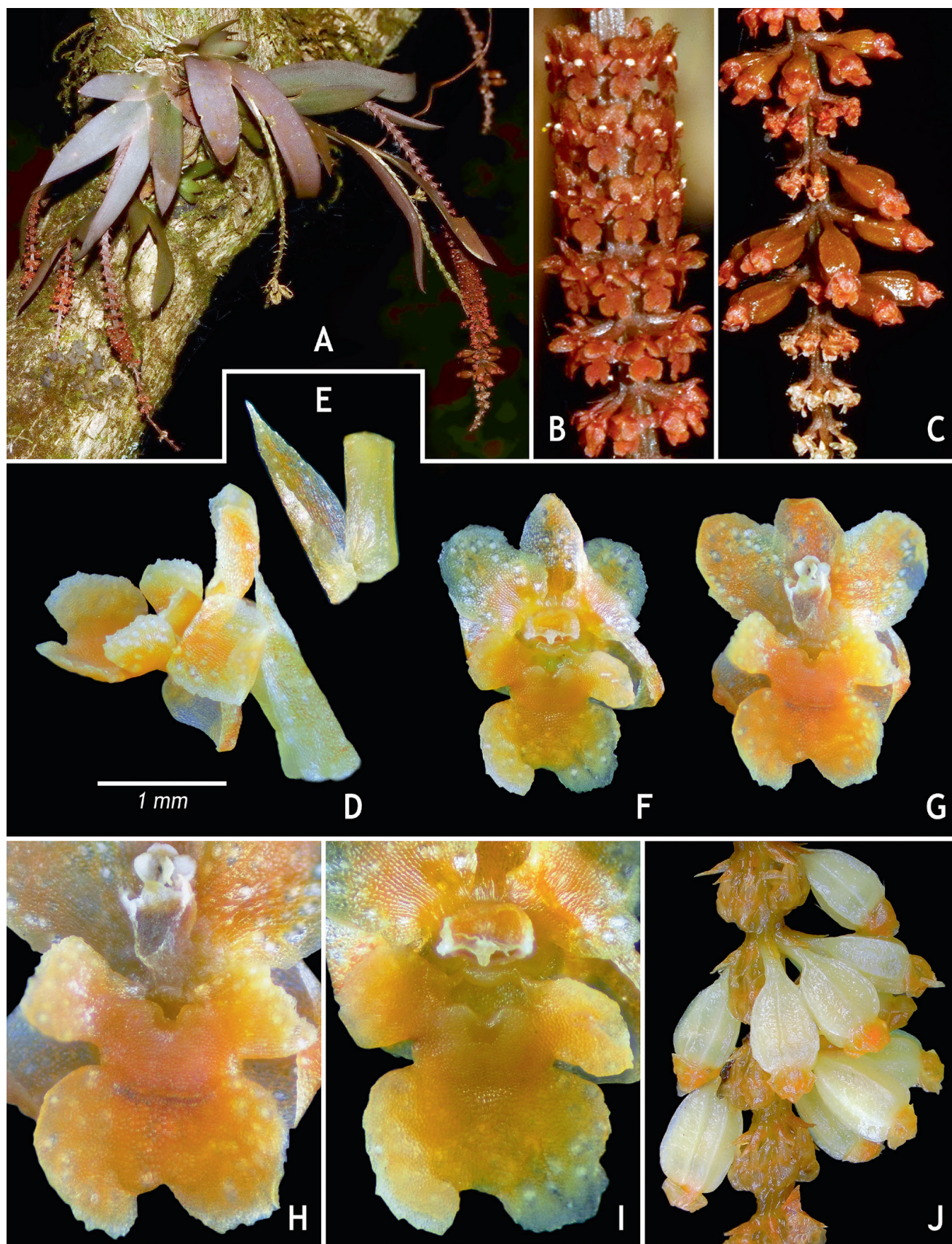
E t y m o l o g y. The species epithet refers to the fovea covered by sinuate membrane forming small peculiar pocket on the lip base.

D i s t r i b u t i o n. SW Laos (Champasak Province). Endemic of SW Laos.

E c o l o g y a n d p h e n o l o g y. Miniature branch and canopy dwelling epiphyte. Primary and old secondary broad-leaved submontane forests at elevation about 1150 m a. s. l. Fl. XI–XII.

Fig. 2. New orchids in the flora of Laos.

A, B — *Liparis balansae* (AL 646.1); C, D — *Oberonia trochopetala* (C — NLO 51, D — NLO 19); E — *Paphiopedilum coccineum* (LE 01123051); F, G — *P. sukhakulii* (AL 660.2); H, I — *Uncifera dalatensis* (AL 675.2). Photos by L. Averyanov (A, B, F–I), N. Orlov (C, D), and Nguyen Phi Tam (E), correction and design by L. Averyanov.



Estimated IUCN status. Nothing is known about this species, except its occurrence at one site in Champasak Province. Hence, the species is assessed as Data Deficient (DD).

Note. Leaves of described species have no basal articulation. On the base of this character, it should be placed into *Oberonia* subgen. *Menophyllum* Schltr. The simple fovea at the lip base is usual generic feature among most *Oberonia* species. In few species, like *O. cavaleriei* Finet, *O. ensiformis* (Sm.) Lindl., and *O. vesiculifera* Aver. lip has ornamentation with vesiculate spherical cells or blister-like calli. However, the fovea covered by membrane forming peculiar pocket opening adaxially seems to be a unique character among all known *Oberonia* species. This unusual feature distinguishes described species from all its congeners.

Oberonia trochopetala Gagnep. 1929, Bull. Soc. Bot. France, 76: 327; Seidenf. 1968, Dansk Bot. Ark. 25, 3: 101, fig. 68; id. 1992, Opera Bot. 114: 157, fig. 97; Aver. 1994, Identification guide Viet. Orch.: 155; id. 2013, Turczaninowia, 16, 1: 140, figs. 68j, k, 69a; Aver. a. Averyanova, 2003, Updated checklist Orch. Viet.: 47. — Fig. 2: C, D.

Lectotype (Averyanov, designated here): S Vietnam, “Annam: Nhatrang, 18 V 1922, Poilane 3357” (P: [P00404863](#), isolectotype — [P00404864](#)).

Distribution. Laos (Louang Namtha Province, Louang Namyha District), Vietnam.

Ecology and phenology. Clustering branch epiphyte. Primary broad-leaved evergreen submontane forests at elevation about 1100 m a. s. l. Occasional. Fl. IX–X.

Estimated IUCN status. Nothing is known about this species in Laos, except its occurrence at one site in Louang Namtha Province. The species was originally described from Vietnam where it still occurs. Hence, the species is assessed as Data Deficient (DD).

Examined specimens. Laos, Louang Namtha Province, Louang Namyha District, Nam Kong Village, The Nam Ha National Biodiversity Conservation Area, around point 21°11'32" N, 101°22'52" E at elevations about 1100 m a. s. l., 26 IX – 2 X 2017, N. L. Orlov, L. K. Ioganssen, NLO 19 (photos — [LE 01122527](#)), NLO 51 (photos — [LE 01122531](#)).

Note. Discovered locality of this species in NW Laos expands its known area to more than 1100 km in north-west direction. In Laos, this species was found in rather humid evergreen cool-loving forests. It probably represents separate “northern” race of this species described originally from dry warm-loving semideciduous forests typical for lowland areas of S Vietnam faced to the sea. Our discovery changes status of

this species known earlier as a strict endemic to a species with much wider distribution.

Paphiopedilum coccineum Perner et R. Herrm. 2000, Orchidee, 51, 5: 623. = *Paphiopedilum barbigerum* Tang et F. T. Wang var. *coccineum* (Perner et R. Herrm.) Cavestro, 2001, Gen. Paphiopedilum: 200; Aver. 2008, Turczaninowia, 11, 1: 72, fig. 18: l, m; fig. 24: c. — Fig. 2: E.

Type: N Vietnam, “Vietnam, Cao Bang Prov., G. C. Thieu” (HN, missing). — **Lectotype** (Averyanov, 2008): Icons: “*Paphiopedilum coccineum* Perner & Hermann”, 2000, Orchidee, 51, 5: 622–624.

= *Paphiopedilum barbigerum* Tang et F. T. Wang var. *lockianum* Aver. 2002, Komarovia, 2: 13. — **Type:** “N Vietnam, Prov. Son La, Distr. Moc Chau, Mun. Dong Sang, vill. Ba Phach, 1000–1100 m a. s. l., 3 XI 2001, Phan Ke Loc, Nguyen Quang Hieu, Tran Tuan Anh, Nguyen Van Dinh and Nguyen Van Luyen, P-10546” (holotype — HN, isotype — [LE 01074712](#)).

Distribution: Laos (northern part of the country without exact locality), Vietnam.

Ecology and phenology. Clustering lithophyte. Primary broad-leaved evergreen limestone forests. Very rare. Fl. VIII–IX.

Estimated IUCN status. The area of occupancy of this species is estimated to be less than 10 km² and total number of mature individuals is not known; there is inferred decline in quality of habitat due to logging and limestone mining; additionally, this species is in high demand in horticultural trade and collected widely from wild; so, there is decline in number of mature individuals; accordingly, this species can be assessed as globally Critically Endangered (CR), B2ab(iii,v).

Examined specimen. Plant originated from northern Laos and cultivated in private collection in S Vietnam, 10 III 2022, Nguyen Phi Tam (analytical photos — [LE 01123051](#)).

Note. This very rare species was previously known from small area in the limits of Son La Province of NW Vietnam located very near to the Laotian border (Averyanov et al., 2003; Averyanov, 2008). Most probably, the species in Laos was found in the region allied to this area from Laotian side. This species remains in high demand in national and international markets, hence its precise locality has never been published since its discovery. The data about the type origin reported in protologue (Cao Bang Province) is wrong (Averyanov, 2008).

Fig. 3. New orchids in the flora of Laos: *Oberonia sinuata* (AL 1247).

A — flowering plant in the nature; B — portion of intact inflorescence at full anthesis; C — portion of inflorescence at later stage of anthesis; D — floral bract, pedicel, ovary, and flower, side view; E — floral bract, pedicel, and ovary; F, G — flowers with anther cap and with anther cap removed, frontal view; H, I — lip and column, frontal view; J — ripening fruits. Photos by N. Orlov (A–C, plant in the nature) and L. Averyanov (D–J, discolored material preserved in alcohol), correction and design by L. Averyanov and T. Maisak.

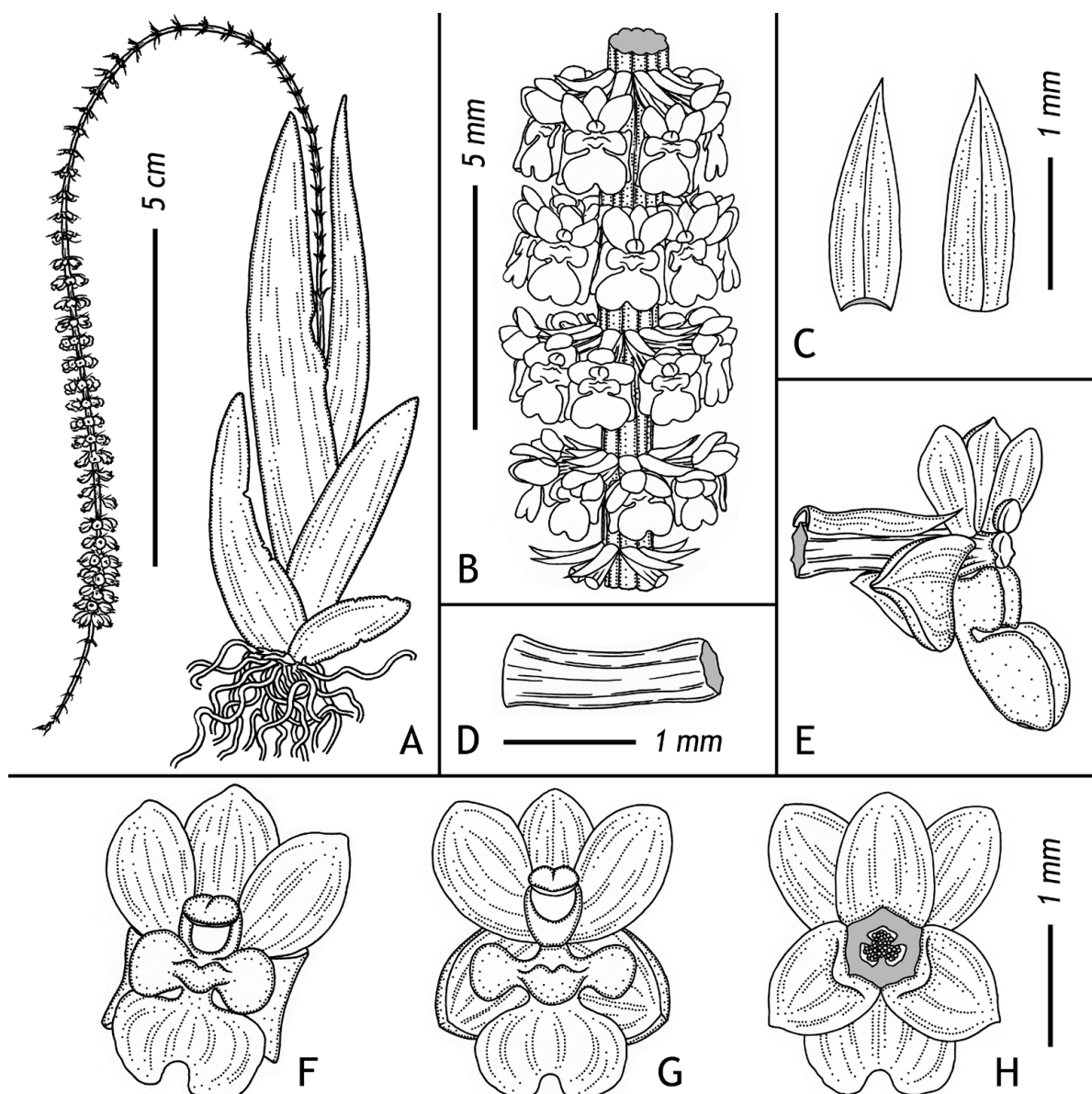


Fig. 4. New orchids in the flora of Laos: *Oberonia sinuata* (AL 1247).

A — flattened flowering plant; B — portion of inflorescence; C — floral bract, abaxial and adaxial side; D — pedicel and ovary, side view; E — floral bract, pedicel, ovary, and flower, side view; F — flower, half side view; G — flower, frontal view; H — flower, back view, ovary removed. Drawings by L. Averyanov and T. Maisak.

Paphiopedilum sukhakulii Schoser et Senghas, 1965, Orchidee, 16: 110.

Type: NE Thailand, “Thailand, Phu Lang Mountain, cult. Heidelberg B. G. Sukhakul” (holotype — HEID, isotype — K). — Fig. 2: F, G.

= *Paphiopedilum appletonianum* (Gower) Rolfe var. *leopardinum* Aver. 2019, Pl. Diversity Fl. Veg. Hin Nam No: 116. — Type: “Laos, Khammouane Province, Averyanov et al., AL 660” (holotype — [LE 01048758](#)).

Distribution. Laos (Khammouane Province, Boualapha District). NE Thailand.

Ecology and phenology. Terrestrial and lithophytic herb. Primary evergreen mixed and coniferous wind-formed forest on sandstone at elevation of 1000–1400 m a. s. l., locally common. Fl. II–VII.

Estimated IUCN status. Globally Critically Endangered (CR A2acd+3cd+4acd; B1ab(i,ii,iii,v)+2ab(i,ii,iii,v); C1+2a(i,ii); D) (Rankou, Averyanov, 2015).

Examined specimens. Laos, Khammouane Province, Boualapha District, ...primary evergreen mixed and coniferous dense wind-formed forest at elevation 1000–1400 m a. s. l., terrestrial and lithophytic rosulate herb with

tessellated leaves, common, 4 V 2018, L. Averyanov, Khang Sinh Nguyen, T. Maisak, Littideth Xaiyavongsa, Siphanom Keovankham, AL 660 (herbarium specimen and analytical photos: [LE 01048758](#)), additional herbarium specimens prepared on 15 VII 2020, L. Averyanov, AL 660.1 (herbarium specimen — [LE 01076855](#), analytical photos — [LE 01087103](#)) and on 10 II 2021, L. Averyanov, AL 660.2 (herbarium specimen — [LE 01077012](#)).

Note. This remarkable discovery of species earlier regarded as local endemic of N Thailand formally expands the species area to more than 500 km in straight east direction. Meanwhile, the species has never been found between presently known localities despite its attractive appearance and high demands on local and international market. Most probably, the locality of this species in Laos is an isolated portion of species distribution. In floral morphology discovered plants look identical with plants from Thailand. We omit here exact data on the species locality for its protection.

Uncifera dalatensis (Guillaumin) Seidenf. et Smitinand, 1965, *Orchids Thailand*: 830; Seidenf. 1988, *Opera Bot.* 95: 220; id. 1992, *Opera Bot.* 114: 418, fig. 287; Aver. 1994. Identification guide Viet. Orch.: 373; Aver. a. Averyanova, 2003, Updated checklist Orch. Viet.: 60. ≡ *Saccolabium dalatense* Guillaumin, 1960, *Bull. Mus. Natl. Hist. Nat.*, sér. 2, 31: 523. — Fig. 2: H, I.

Type: S Vietnam, “Annam: acheté au marché de Dalat, Tixier № 77, f. 279, 1958” (holotype — [P00361719](#)).

Distribution. Laos (Khammouane Province, Boualapha District), Vietnam.

Ecology, phenology and conservation status. Branch epiphyte. Primary evergreen mixed and coniferous wind-formed forest at elevation of 1000–1400 m a. s. l., locally common. Fl. VIII–IX.

Estimated IUCN status. The current report expands the species distribution range to Laos, and further discoveries of this plant between presently known localities are possible. Nothing is known about the population size and species-specific threats in Laos. Hence, this species can be assessed as nationally Data Deficient (DD), pending further studies.

Examined specimens. Laos, Khammouane Province, Boualapha District, Nong Seng village, Hin Nam No Nature Protected Area, southern sandstone slopes at summit of Phou Chuang (Poujeuang) Mt. around point 17°35'00.3" N, 105°47'35.6" E, primary evergreen mixed and coniferous dense wind-formed forest at elevation of 1000–1400 m a. s. l., epiphyte on tall trees on mountain top, common, 4 V 2018, L. Averyanov, Khang Sinh Nguyen, T. Maisak, Littideth Xaiyavongsa, Siphanom Keovankham, AL 675 (herbarium specimen and analytical photo — [LE 01048793](#)), additional herbarium prepared on 7 IX 2019, L. Averyanov, T. Maisak, AL 675.1 (herbarium specimen and analytical photos — [LE 01058755](#)) and 8 IX 2020, L. Averyanov, T. Maisak, AL 675.2 (herbarium specimen — [LE 01076926](#), analytical photos — [LE 01087550](#)).

Note. For a long time, this remarkable species was regarded a local endemic collected few times in Dalat Town Area in Lam Dong Province of the S Vietnam (Seidenfaden, 1988, 1992; Averyanov, 1994; Averyanov, Averyanova, 2003). The location reported here is distant from the “locus classicus” on more than 600 km in the NNE direction and identifies species distribution area as a much wider including territories of two countries. This rare species has certain interest for ornamental horticulture.

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References

- Averyanov L. V. 1994. Opredelitel orkhidnykh (*Orchidaceae* Juss.) Vyetnama [Identification guide to Vietnamese orchids (*Orchidaceae* Juss.)]. St. Petersburg: World and Family. 432 p. [In Russian] (Аверьянов Л. В. 1994. Определитель орхидных (*Orchidaceae* Juss.) Вьетнама. СПб.: Мир и Семья. 432 с.).
- Averyanov L. 2008. The orchids of Vietnam. Illustrated survey. Part 1. Subfamilies *Apostasioideae*, *Cypripedioideae* and *Spiranθοideae* // *Turczaninowia*. Vol. 11, № 1. P. 5–168.
- Averyanov L. V. 2012. New orchid taxa and records in the flora of Vietnam // *Taiwania*. Vol. 57, № 2. P. 127–152. [https://doi.org/10.6165/tai.2012.57\(2\).127](https://doi.org/10.6165/tai.2012.57(2).127)
- Averyanov L. V. 2013a. The orchids of Vietnam. Illustrated survey. Part 4. Subfamily *Epidendroideae* (tribes *Arethuseae* and *Malaxideae*) // *Turczaninowia*. Vol. 16, № 1. P. 5–163.
- Averyanov L. V. 2013b. New and rare orchids (*Orchidaceae*) in the flora of Cambodia and Laos // *Turczaninowia*. Vol. 16, № 4. P. 26–46. <https://doi.org/10.14258/turczaninowia.16.4.7>
- Averyanov L. V., Averyanova A. L. 2003. Updated checklist of the orchids of Vietnam. Hanoi: Vietnam National University Publishing House. 102 p.
- Averyanov L., Cribb P., Phan Ke Loc, Nguyen Tien Hiep. 2003. Slipper Orchids of Vietnam. With an Introduction to the Flora of Vietnam. Royal Botanic Gardens, Kew: Compass Press Limited. 308 p.
- Averyanov L. V., Nguyen T. T., Nguyen V. C. 2015. New species of the genus *Cleisostoma* in the flora of Vietnam // *Taiwania*. Vol. 60, № 3. P. 107–116. <https://doi.org/10.6165/tai.2015.60.107>
- Averyanov L. V., Nguyen K. S., Maisak T. V., Konstantinov E. L., Nguyen T. H., Bounphanmy Somchanh. 2016a. New and rare orchids (*Orchidaceae*) in the flora of Cambodia and Laos // *Turczaninowia*. Vol. 19, № 3. P. 5–58. <https://doi.org/10.14258/turczaninowia.19.3.1>

- Averyanov L. V., Ponert J., Nguyen P. T., Duy N. V., Khang N. S., Nguyen V. C. 2016b. A survey of *Dendrobium* Sw. sect. *Formosae* (Benth. and Hook. f.) Hook. f. in Cambodia, Laos and Vietnam // *Adansonia*. Vol. 38, № 2. P. 199–217. <https://doi.org/10.5252/a2016n2a5>
- Averyanov L. V., Averyanova A. L., Sinh Khang Nguyen, Orlov N. L., Maisak T. V., Hiep Tien Nguyen. 2018a. New and rare orchid species (*Orchidaceae*) in the flora of Cambodia and Laos // *Novosti Sist. Vyssh. Rast.* Vol. 49. P. 24–41. <https://doi.org/10.31111/novitates/2018.49.24>
- Averyanov L. V., Nguyen K. S., Maisak T. V. 2018b. *Chiloschista pulchella* (*Orchidaceae: Aeridinae*) new orchid species from Lao PDR // *Taiwania*. Vol. 63, № 4. P. 389–392. <https://doi.org/10.6165/tai.2018.63.389>
- Averyanov L. V., Khang Sinh Nguyen, Maisak T. V., Hiep Tien Nguyen, Orlov N. L., Slastunov D. D., Sokolova I. V. 2019. New orchid species (*Orchidaceae*) in the flora of Laos // *Novosti Sist. Vyssh. Rast.* Vol. 50. P. 25–40. <https://doi.org/10.31111/novitates/2019.50.25>
- Chen S. C., Liu Z. J., Zhu G. H., Lang K. Y., Ji Z. H., Luo Y. B., Jin X. H., Cribb P. J., Wood J. J., Gale S. W., Ormerod P., Vermeulen J. J., Wood H. P., Clayton D., Bell A. 2009. *Orchidaceae* // C. Y. Wu, P. H. Raven, D. Y. Hong (eds.). *Flora of China*. Vol. 25. Beijing: Science Press; St. Louis: Missouri Botanical Garden Press. 506 p.
- Gale S. W., Phaxaysombath T. 2017. Studies in Asian *Nervilia* (*Orchidaceae*) VII: *Nervilia kasiensis*, a new Lao endemic // *Blumea*. Vol. 62, № 1. P. 1–5. <https://doi.org/10.3767/000651917X694732>
- Gale S., Kumar P., Phaxaysombath T. 2018. A guide to orchids of Laos. Natural History Publications, Borneo. 212 p.
- Gale S. W., Schuiteman A., Watthana S., Sando T., Souvannakhoummane K., Averyanov L. V., Suddee S. 2016. Studies in Asian *Nervilia* (*Nervilieae, Epidendroideae, Orchidaceae*) VI: *N. mekongensis*, a new species from Thailand, Cambodia, Laos and Vietnam // *Phytotaxa*. Vol. 247, № 4. P. 267–273. <https://doi.org/10.11646/phytotaxa.247.4.4>
- George E., George J.-C., Rakthai P. 2017. *Coelogyne pseudoviscosa*, a new *Coelogyne* species from Laos // *OrchideenJ.* Bd. 24. S. 3–7.
- Gruss O., Rungruang N., Chaisuriyakul Y., Dionisio I. 2014. *Paphiopedilum rungsuriyanum*, a new species discovered in Northern Laos // *OrchideenJ.* Bd. 21. S. 3–11.
- Kumar P., Gale S. W., Pedersen H. Æ., Phaxaysombath T., Bouamanivong S., Fischer G. A. 2018. Additions to the orchid flora of Laos and taxonomic notes on orchids of the Indo-Burma region // *Taiwania*. Vol. 63, № 1. P. 61–83. <https://doi.org/10.6165/tai.2018.63.61>
- Kumar P., Gale S. W. 2020. Additions to the orchid flora of Laos and taxonomic notes on orchids of the Indo-Burma region. II // *Taiwania*. Vol. 65, № 1. P. 47–60. <https://doi.org/10.6165/tai.2020.65.47>
- Kumar P., Gale S. W., Schuiteman A., Bouamanivong S., Fischer G. A. 2016. Identifying orchid hotspots for biodiversity conservation in Laos: the limestone karst vegetation of Vang Vieng District, Vientiane Province // *J. Threat. Taxa*. Vol. 8, № 12. P. 9397–9417. <https://doi.org/10.11609/jott.2826.8.12.9397-9417>
- Newman M., Ketphanh S., Svengsuksa B., Thomas P., Sengdala K., Lamxay V., Armstrong K. 2007. A checklist of the vascular plants of Lao PDR. Royal Botanic Garden Edinburgh, Edinburgh. 394 p.
- Rankou H., Averyanov L. 2015. *Paphiopedilum sukhakulii* // The IUCN Red List of Threatened Species 2015: e.T193510A2240326. <https://doi.org/10.2305/IUCN.UK.2015-2.RLTS.T193510A2240326.en>
- Schuiteman A., Bonnet P. 2009. *Holcoglossum calcicola* und *Paphiopedilum barbigerum* var. *sulivongii*: zwei attractive neue Orchideen der Kalksteinberge von Laos // *OrchideenJ.* Bd. 16. S. 1–8.
- Schuiteman A., Bonnet P. 2014. *Habenaria svengsuksae*: eine neue Art aus Laos // *OrchideenJ.* Bd. 21. S. 26–29.
- Schuiteman A., Bonnet P., Svengsuksa B., Barthelemy D. 2008. An annotated checklist of the *Orchidaceae* of Laos // *Nordic J. Bot.* Vol. 26, iss. 5–6. P. 257–316. <https://doi.org/10.1111/j.1756-1051.2008.00265.x>
- Schuiteman A., Sulivong L. A., Iio S. 2018. *Paphiopedilum papilio-laoticus* (*Orchidaceae*), a new species from Laos // *OrchideenJ.* Bd. 25. S. 3–5.
- Seidenfaden G. 1975. Orchid genera in Thailand. II. *Cleisostoma* Bl. // *Dansk Bot. Ark.* Vol. 29, № 3. P. 1–80.
- Seidenfaden G. 1976. Orchid genera in Thailand. IV. *Liparis* L. C. Rich. // *Dansk Bot. Ark.* Vol. 31, № 1. P. 1–105.
- Seidenfaden G. 1988. Orchid genera in Thailand. 14. Fifty-nine vanda genera // *Opera Bot.* Vol. 95. P. 1–398.
- Seidenfaden G. 1992. The orchids of Indochina // *Opera Bot.* Vol. 114. P. 1–502.
- Souvannakhoummane K., Kumar P., Gale S. W., Lanorsavanh S., Lamxay V. 2018. Three new additions to the orchid flora of Lao PDR // *Thai J. Bot.* Vol. 10, № 2. P. 145–151.
- Souvannakhoummane K., Kumar P., Phonpaseuth P. 2022. *Dendrobium fuscifaucium* (*Orchidaceae: Epidendroideae: Dendrobieae*), a new Laotian species only known in cultivation // *Phytotaxa*. Vol. 541, № 3. P. 285–290. <https://doi.org/10.11646/phytotaxa.541.3.8>
- Souvannakhoummane K., Lanorsavanh S., Rakthai P., Kumar P., Gale S. W. 2021. *Cymbilabia sourioudongii* (*Orchidaceae*), a new species from Lao PDR // *Rheedea*. Vol. 31, iss. 3. P. 186–190. <https://doi.org/10.22244/rheedea.2021.31.03.08>
- Svengsuksa B., Lamxay V. 2005. Field Guide to the Orchids of Lao PDR. National University of Lao PDR, Vientiane. 185 p.
- Vascular Plants Herbarium of the Komarov Botanical Institute RAS — Herbarium LE. 2022. <https://en.herbariumle.ru/> (Accessed 31.10.2022).
- Vo D. T., Averyanov L., Maisak T., Nguyen V. C., Nguyen H. C., Dang M. Q., Dang V. S., Truong Q. T., Vuong T. B. 2022. Taxonomic treatment of the genus *Campanulorchis* (*Orchidaceae*) // *Phytotaxa*. Vol. 561, № 2. P. 173–182. <https://doi.org/10.11646/phytotaxa.561.2.5>