

Twelve new records of pteridophytes from Bolaven Plateau, southern Laos

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ABSTRACT

Twelve pteridophytes from six families are reported from the Bolaven Plateau, southern Laos, as new records to the flora of Laos. For each species, voucher specimens, photographs and additional information including geographical distribution, ecology and taxonomic notes are provided.

KEYWORDS: Dong Hua Sao National Protected Area, ferns, flora, taxonomy.

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INTRODUCTION

The flora of Laos is considered as one of more poorly known due to its low accumulation of plant specimens among the countries in South-East Asia (Middleton *et al.*, 2019). The most active and latest information for the flora of Laos is represented in a checklist of the vascular plants of Lao PDR by Newman *et al.* (2017–, continuously updated), and the ferns of Thailand, Laos and Cambodia by Lindsay & Middleton (2012–, continuously updated); the latter records 215 species of lycophytes and ferns in the country. More recently, a new species of *Hymenasplenium* Hayata (Aspleniaceae), *H. wusugongii* Li Bing Zhang, W.B.Liao & K.W.Xu, and 15 new records of pteridophytes were added to the fern flora of Laos (Hwang *et al.*, 2015; Xu *et al.*, 2019). In addition, six species in five families of pteridophytes were recorded from our recent field surveys in the Bolaven Plateau, southern Laos from 2018 to 2020 (Tagane *et al.*, 2020; Tagane *et al.*, 2021). Consequently, the total number of species of pteridophytes in Laos is raised to 237 species.

A progress on the identification of our voucher specimens led us to discover additional twelve species of pteridophytes as new to the country and we here report them: *Asplenium perakense* C.G.Matthew & Christ, *A. simonsianum* Hook. (Aspleniaceae); *Histiopteris incisa* (Thunb.) J.Sm. (Dennstaedtiaceae); *Arachniodes pseudoassamica* Ching, *Polystichum attenuatum* Tagawa & K.Iwats. (Dryopteridaceae); *Crepidomanes christii* (Copel.) Copel. (Hymenophyllaceae); *Leucostegia truncata* (D.Don) Fraser-Jenk. (Hypodematiaceae); *Grammitis barathrophylla* (Baker) Christenh., *Lepisorus henryi* (Hieron. ex C.Chr.) Li Wang, *L. spicatus* (L.f.) Li Wang, *Selliguea oxyloba* (Wall. ex Kunze) Fraser-Jenk. and *Tricholepidium normale* (D.Don) Ching (Polypodiaceae).

MATERIALS AND METHODS

Species identification

Taxonomic identification was undertaken at The Herbarium of Faculty of Forest Science, National

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University of Laos, Vientiane (FOF) and The Kagoshima University Museum (KAG), with the help of existing volumes of regional Floras such as Flora of Thailand (Tagawa & Iwatsuki, 1979, 1985, 1988, 1989) and Flora of China (Wu *et al.*, 2013), as well as the website of Ferns of Thailand, Laos and Cambodia (Lindsay & Middleton, 2012–, continuously updated) and a checklist of the vascular plants of Lao PDR (Newman *et al.*, 2017–, continuously updated). We also consulted herbarium specimens at FOF, KAG, The Herbarium of Kyushu University, Fukuoka (FU) and National Herbarium of Laos (HNL). We also examined specimen images available online (e.g., JSTOR Global Plants, <https://plants.jstor.org/>; Royal Botanic Garden Edinburgh (E), <https://data.rbge.org.uk/search/herbarium/>; Muséum national d'Histoire naturelle (P), <https://science.mnhn.fr>; Naturalis (L), <http://bioportal.naturalis.nl>). Voucher specimens were deposited at the herbaria of FOF and KAG, and partly at Forest Herbarium, Bangkok (BKF) and National Museum of Nature and Science, Tsukuba (TNS).

SPECIES NEWLY RECORDED IN LAOS

Aspleniaceae

Asplenium perakense C.G. Matthew & Christ, J. Linn. Soc., Bot. 39: 214. 1909; Holttum, Rev. Fl. Malaya ed. 1, 2: 429, f. 248. 1955; Tagawa & K. Iwats., South E. Asian Stud. 5: 88. 1967; Tagawa & K. Iwats., Fl. Thailand 3: 286. 1985; Boonkerd & Pollawatn, Pterid. Thailand: 144. 2000. Type: Malaysia, Malay Peninsula, Perak, Taiping, 6 Feb. 1908, *C. G. Matthew 36* (holotype **P** [P00622795, digital image!]; isotype **K** [K000429185, digital image!]). Fig. 1A–C.

Distribution.— Thailand, Laos, Malaysia.

Ecology.— Lithophytic on semi-shaded mossy moist rocks in wet evergreen forest on the plateau; alt. ca 1,250 m.

Note.— *Asplenium perakense* is close to *A. yoshinagae* Makino, but differs in polished black to dark brown-purple stipe and rachis, densely scaly, scales bearing a few projections near base (Fig. 1C) and larger pinnae more than 4 cm long.

Specimens examined.— Champasak Province [Paksong District, near Nong Luang Village, on the

way to Tad Seua Waterfall, 15°04'24.8"N, 106°12'22.5"E, 1,260 m, 16 Sept. 2020, *Souladeth et al. L3856* (**FOF, KAG**)].

Asplenium simonsianum Hook., Icon. Pl. 10: t. 925. 1854; Tagawa & K. Iwats., Acta Phytotax. Geobot. 24: 61. 1969; Holttum, Gard. Bull. Singapore 27: 152. 1974; Tagawa & K. Iwats., Fl. Thailand 3: 269. 1985; Boonkerd & Pollawatn, Pterid. Thailand: 178. 2000.— *Thamnopteris simonsiana* (Hook.) T. Moore, Index Filic.: L. 1857; Bedd., Handb. Ferns Brit. India: 141. 1883.— *Neottopteris simonsiana* (Hook.) J. Sm., Hist. Fil. 330. 1875. Type: India, *Simons s.n.* (holotype **GH** [GH00135559, digital image!]; isotypes **K** [K001092518, digital image!], **NY** [NY00329440, digital image!]). Fig. 1D–G.

Distribution.— India, China, Thailand, Laos.

Ecology.— Epiphytic on moss-covered tree trunks in wet evergreen forest; alt. ca 1,300 m.

Note.— *Asplenium simonsianum* is similar to *A. phyllitidis* D. Don, but differs in the narrower lamina up to 5 cm wide, margin gradually narrowing towards the acuminate apex (Fig. 1E) and long attenuate at base, abaxially flat midrib, obscure veins on both surfaces, and the sori usually located on upper half of lamina.

Specimens examined.— Champasak Province [Paksong District, near Nong Luang Village, 15°03'37.7"N, 106°12'31.9"E, 1,277 m, 17 Sept. 2020, *Souladeth et al. L3973* (**FOF, KAG**)].

Dennstaedtiaceae

Histiopteris incisa (Thunb.) J. Sm., Hist. Fil.: 295. 1875; Tardieu & C. Chr., Fl. Indo-Chine 7(2): 139, f. 17.2 & 17.3. 1939; Holttum, Rev. Fl. Malaya ed. 1, 2: 391, f. 227. 1955 [‘1954’]; Holttum, Dansk Bot. Ark. 23: 237. 1965; Tagawa & K. Iwats., South E. Asian Stud. 5: 79. 1967; Tagawa & K. Iwats., Fl. Thailand 3: 127, f. 9.8–9.10. 1979; Boonkerd & Pollawatn, Pterid. Thailand: 38, 86. 2000.— *Pteris incisa* Thunb., Prod. Fl. Cap.: 171. 1800.— *Lithobrochia incisa* (Thunb.) C. Presl, Tent. Pterid.: 149. 1836; Bedd., Handb. Ferns Brit. India: 120, f. 62. 1883. Type: South Africa, Cap. b. Spei, 1774, *Thunberg s.n.* (isotype **S** [S-P-7759, digital image!]). Fig. 1H–J.

Distribution.— Pantropical, Laos.

Ecology.— Terrestrial on exposed and humus-rich slopes in wet evergreen forest; alt. ca 1,250 m.

Note.— *Histiopteris incisa*, or the Bat Wing Fern, can be easily recognized by the combination of the following characters: the distinctly glaucous fronds, sessile pinnae, reticulate venation, the two lowermost lobes of each pinnae having a bat's wing like appearance, and the continuous marginal sori which are protected by reflexed membranous lamina margin without indusia. This species is widely distributed in pantropical which extending to Japan in the north but has not been collected from Laos. Our collection of *H. incisa* from Bolaven is not surprising and filled the gap of its distribution in Indochina.

Specimens examined.— Champasak Province [Paksong District, near Nong Luang Village, on the way to Tad Seua Waterfall, 15°04'24.8"N, 106°12'22.5"E, 1,260 m, 16 Sept. 2020, *Souladeth et al. L3942 (FOF, KAG)*].

Dryopteridaceae

Arachniodes pseudoassamica Ching, Bull. Bot. Res., Harbin 6(3): 16. 1986. Type: China, Yunnan, 30 June 1965, *s.coll. 7780* (holotype **PE** [PE00044391, digital image!]). Fig. 1K–M.

Distribution.— China, Laos.

Ecology.— Terrestrial in semi-shaded understorey in wet evergreen forest; alt. ca 1,100 m.

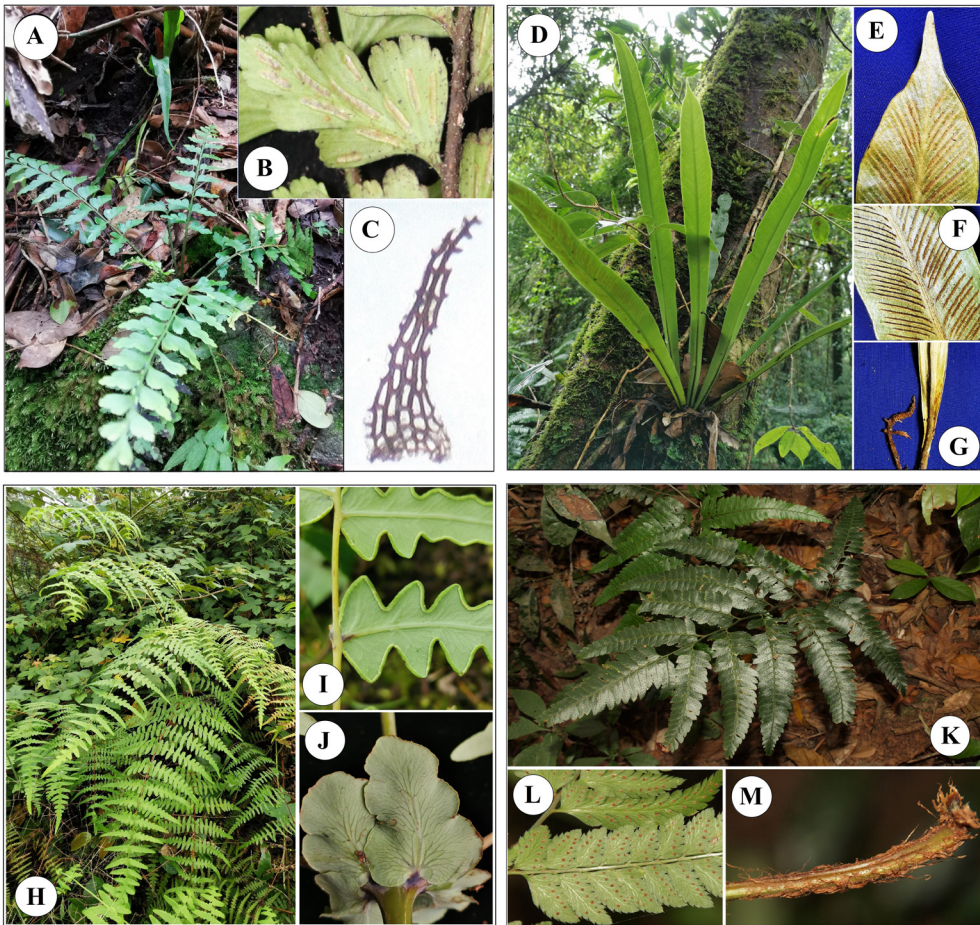


Figure 1. *Asplenium perakense* Matthew & Christ.: A. habit, B. portion of lower pinna surface, C. rhizome scale; *Asplenium simonsianum* Hook.: D. habit, E. lower surface of frond apex, F. lower surface of middle part of frond, G. lower surface of frond base; *Histiopteris incisa* (Thunb.) J.Sm.: H. habit, I. portion of lower pinnules surface, J. reduced stipule-like pinnules; *Arachniodes pseudoassamica* Ching: K. habit, L. portion of lower pinna surface, M. stipe base. Photographs A–J by T. Vongthavone; K–M by S. Tagane.

Note.— The genus *Arachniodes* Blume comprises ca 84 species, distributed in tropical and subtropical regions worldwide, but mainly in East and SE Asia (Lu *et al.*, 2019a, b). While many species are recorded in the countries surrounding Laos: 41 spp. in China (He *et al.*, 2013, Lu *et al.*, 2019a), eight spp. in Thailand, 15 spp. in Vietnam (Lu, 2018; Linh *et al.*, 2020), no species has been recorded in Laos (Lindsay & Middleton, 2012—continuously updated; Newman *et al.*, 2017—continuously updated) and Cambodia (Lindsay & Middleton, 2012—continuously updated; Cho *et al.*, 2016); this is the first record of the genus *Arachniodes* with voucher specimens in the country. *Arachniodes pseudoassamica* has been known to endemic to Yunnan of China (He *et al.*, 2013) and is characterized by pale brown scales, lamina 2-pinnate, brownish green when dried, and abruptly narrowed toward apex, with a distinct caudate terminal pinna, and sori 1–4 pairs per ultimate segment, located on medial between costule and margin.

Specimens examined.— Champasak Province [Dong Hua Sao National Protected Area, Paksong District, near Nong Luang Village, 15°04'13.49"N, 106°12'19.68"E, 1,108 m, 18 Dec. 2019, *Souladeth et al.* L3448 (FOF, KAG)].

Polystichum attenuatum Tagawa & K.Iwats., *Acta Phytotax. Geobot.* 23(3–4): 113, f.9.1968; Chang *et al.*, *Taiwan Journal of Biodiversity* 16: 268. 2014. Type: Thailand, Loei, Mt Phu Luang, north-eastern ridge, 1,300–1,567 m, 5 Dec. 1965, *Tagawa et al.* T1487 (holotype KYO; isotypes L [L0051987, digital image!], US [US00048774, digital image!]). Fig. 2A–D.

Distribution.— India, Myanmar, China, Taiwan, Thailand, Laos, Vietnam.

Ecology.— Terrestrial on humus-rich ground in wet evergreen forest; alt. ca 1,200 m.

Note.— Two species of the genus *Polystichum* Roth, *P. biaristatum* (Blume) T.Moore (from southern) and *P. lindsaeifolium* Scort. ex Ridl. (from northern) have been known from Laos (Hwang *et al.*, 2015), and this is now the third species for the country. *Polystichum attenuatum* can be distinguished from the other two species by having one proliferous bulbil (Fig. 2D) on the rachis near the tip of frond (vs never producing bulbils on the rachis) and sori close to midrib of pinnules (vs sori submarginal or

medial part of pinnules in *P. biaristatum*, sori marginal in *P. lindsaeifolium*).

Specimens examined.— Champasak Province [Dong Hua Sao National Protected Area, near Ban Nong Luang, 15°04'36.61"N, 106°12'31.69"E, 1,221 m, 11 Dec. 2018, *Tagane et al.* L2098 (FOF, FU, KAG)].

Hymenophyllaceae

Crepidomanes christii (Copel.) Copel., *Philipp. J. Sci.* 67: 60. 1938; Tagawa & K.Iwats., *Acta Phytotax. Geobot.* 23: 52. 1968; Tagawa & K.Iwats., *Fl. Thailand* 3: 88. 1979; Tagawa & K.Iwats., *Fl. Thailand* 3: 613. 1989; Boonkerd & Pollawatn, *Pterid. Thailand*: 69. 2000.— *Trichomanes christii* Copel., *Philipp. J. Sci.* 1(Suppl. 4): 251. 1906; Copel., *Philipp. J. Sci.* 51: 185, pl. 21. 1933; Holttum, *Rev. Fl. Malaya* ed. 1, 2: 100, f. 37. 1955. Types: Philippines, Mindoro, Baco River, Apr. 1903, *Merrill 1819* (isotype GH [GH00022216, digital image!], MICH [MICH1191062, digital image!], P [P00624435, P00624436, digital image!], UC [UC1515518, digital image!], US [US00134594, digital image!]). Fig. 2E & F.

Distribution.— India, Thailand, Laos, Malaysia, Indonesia, Philippines.

Ecology.— Epiphytic on tree trunks in lowland evergreen forest; alt. ca 200 m.

Note.— *Crepidomanes christii* is recognized by the presence of marginal false veinlets with two rows of marginal cells, the sori one to a segment, usually in the apical part of fronds and the tubular involucre with distinctly dilated mouth and extruded receptacle (Fig. 2F). This species has been known to be distributed in South-Western and Peninsular Thailand (Lindsay & Middleton, 2012—present), and our new record of *C. christii* extends the distribution of the species to Indochina.

Specimens examined.— Attapeu Province [Sanamxai District, 14°48'19"N, 106°26'39"E, 223 m, 6 July 2019, *Souladeth et al.* L3082 (FOF, KAG)].

Hypodematiaceae

Leucostegia truncata (D.Don) Fraser-Jenk., *Taxon. Revis. Indian Subcontinental Pteridophytes*: 348. 2008.— *Davallia truncata* D.Don, *Prodr. Fl. Nepal.* 10. 1825.— *Davallia immersa* Wall. ex Hook., *Sp. Fil.* 1: 156–157, t. 52 A. 1845.— *Acrophorus immersus*

T.Moore, Proc. Linn. Soc. London 2: 286. 1854.—*Humata immersa* Mett., Fil. Hort. Bot. Lips.: 102. 1856.—*Leucostegia immersa* C.Presl, Tent. Pterid.: 95. 1836. Type: Nepal, 1821, *Wallich Cat. no. 256* (**K-W** [K001109648, digital image!], **L** [L0051769, L0051770, digital image!], **P** [P00630950, digital image!]). Fig. 2G–I.

Distribution.— India, Bhutan, Nepal, Sri Lanka, China, Taiwan, Myanmar, Thailand, Laos, Vietnam, Cambodia, Malaysia, Indonesia, Philippines, New Guinea.

Ecology.— Epiphytic on moss-covered bedrock in wet evergreen forest; alt. ca 1,250 m.

Note.— *Leucostegia* C.Presl. is a small fern genus, comprising two accepted species, *Leucostegia pallida* (Mett. ex Kuhn) Copel. and *L. truncata* (Hassler, 2004–present; POWO 2021). *Leucostegia truncata* can be distinguished from *L. pallida* by having semicircular indusia narrowly attached by base only (vs oblong, fixed at the base and part of the sides in *L. pallida*). The genus *Leucostegia* had been treated as a member of Davalliaceae or Dryopteridaceae and its taxonomic placement was controversial for a long time. Recent phylogenetic analysis by Liu *et al.* (2007) demonstrated it excluded from both of the two families and now is placed in Hypodematiaceae along with the genus *Hypodematium* Kunze. (PPG I, 2016).

Specimens examined.— Champasak Province, [Paksong District, near Nong Luang Village on the way to Tad Sua Waterfall, 15°04'38.9"N, 106°12'21.9"E, 1,261 m., 16 Sept. 2020, *Souladeth et al.* L3808 (**FOF, KAG**)].

Polypodiaceae

Grammitis barathrophylla (Baker) Christenh., Global Fl. 4: 41. 2018.— *Polypodium barathrophyllum* Baker, J. Bot. 29: 107. 1891.— *Ctenopteris barathrophylla* (Baker) Parris, Fern Gaz. 12: 118. 1980.— *Prosaptia barathrophylla* (Baker) Price, Contr. Univ. Michigan Herb. 17: 276. 1990. Type: Malaysia, Sarawak, Mount Mulu, 1889, *Hose 12* (**K** [K000474084, digital image!]). Fig. 2J–M.

Distribution.— China, Thailand, Laos, Vietnam, Cambodia, Malaysia, Indonesia, Philippines, New Guinea.

Ecology.— Epiphytic on lower part of mossy tree trunks in wet evergreen forest; alt. ca 1,150 m.

Note.— *Grammitis barathrophylla* is characterized by the following characters: sori is without prominent edges and sunken in distinct round cavities, which do not show as papillae on the upper surface of the frond, and perpendicular to plane of lamina (Fig. 2K).

Specimens examined.— Champasak Province [Paksong District, near Nong Luang Village, 15°04'02.7"N, 106°12'30.0"E, 1,154 m, 16 Sept. 2020, *Souladeth et al.* L3904 (**FOF, KAG**)].

Lepisorus henryi (Hieron. ex C.Ch.) Li Wang, Bot. J. Linn. Soc. 162(1): 35. 2010.— *Hymenolepis henryi* Hieron. & C.Ch., Dansk Bot. Ark. 6(3): 67. 1929; Tardieu & C.Ch., Fl. Indo-Chine 7(2): 451. 1941.— *Belvisia henryi* (Hieron. ex C.Ch.) Tagawa in Hara, Fl. East. Himal. 490. 1966; Tagawa & K.Iwats., South E. Asian Stud. 5: 51. 1967; Tagawa & K.Iwats., Fl. Thailand 3: 520. 1989; Boonkerd & Pollawatn, Pterid. Thailand: 263. 2000.— *Macroplethus henryi* (Hieron. ex C.Ch.) Tagawa, Acta Phytotax. Geobot. 11: 234. 1942. Type: China, Yunnan, 1900, *Henry 11461A* (holotype **B** [B 20 0029756, digital image!], isotypes **E** [E00429079, digital image!], **US, W**). Fig. 3A–C.

Distribution.— India, Bhutan, Nepal, China, Thailand, Laos, Vietnam.

Ecology.— Epiphytic on tree trunks in wet evergreen forests; alt. ca 1,250 m.

Note.— *Lepisorus henryi* appears similar to *L. annamensis* (C.Ch.) Li Wang in appearance, but differs in the very short to almost absent stipe (vs 3–5 cm long in *L. annamensis*), the fertile tip 2–3 mm wide (vs 5–10 mm wide), and sori entirely covering the abaxial surface of the fertile tip when mature (vs sori separated from midrib by a narrow sterile zone).

Specimens examined.— Champasak Province, [Paksong District, near Nong Luang Village on the way to Tad Sua Waterfall, 15°04'24.8"N, 106°12'22.5"E, 1,260 m, 16 Sept. 2020, *Souladeth et al.* L3866 (**FOF, KAG**)].

Lepisorus spicatus (L.f.) Li Wang, Bot. J. Linn. Soc. 162(1): 35. 2010.— *Acrostichum spicatum* L.f., Suppl. Pl.: 444. 1782.— *Belvisia spicata* (L.f.) Mirb. ex Saff., Contr. U.S. Natl. Herb. 9: 273. 1905.— *Hymenolepis spicata* (L.f.) C.Presl, Epimel. Bot.: 159. 1851. Type: Mauritius, *Commerçon s.n.* (P [P00482674, digital image!]). Fig. 3D–F.

Distribution.— Tropical Asia, Laos.

Ecology.— Epiphytic on tree trunks in wet evergreen forests; alt. ca 1,150 m.

Note.— Morphologically, *Lepisorus spicatus* is similar to *L. mucronatus* (Fée) Li Wang. The main difference is found in the rhizome scales, which are concolorous, clathrate and toothed at the margin in

L. mucronatus (vs bi-coloured with a dark central portion, and entire and hyaline near the margin in *L. spicatus*) (Fig. 3F).

Specimens examined.— Champasak Province, [Paksong District, near Nong Luang Village, 15°04'02.7"N, 106°12'30.0"E, 1,154 m, 16 Sept. 2020, *Souladeth et al. L3912* (FOF, KAG)].

Selliguea oxyloba (Wall. ex Kunze) Fraser-Jenk., Taxon. Revis. Indian Subcontinental Pteridophytes 44. 2008.— *Polypodium oxylobum* Wall. ex Kunze, Linnaea 24: 255. 1851; C.Chr., Contr. U.S. Natl. Herb. 26: 334. 1931.— *Phymatodes oxyloba* (Wall. ex Kunze) C.Presl ex Ching, Contr. Inst. Bot. Natl.

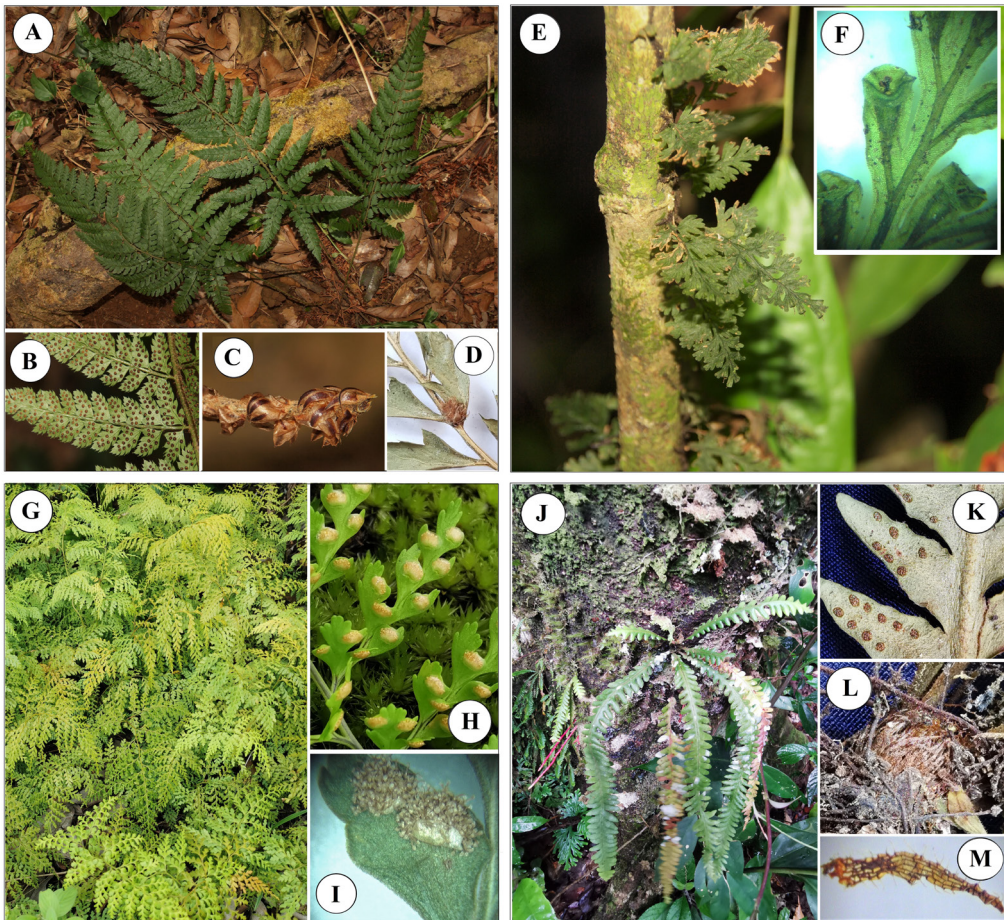


Figure 2. *Polystichum attenuatum* Tagawa & K.Iwats.: A. habit, B. portion of lower pinna surface, C. scales on stipe, D. proliferous bulbil on rachis; *Crepidomanes christii* (Copel.) Copel.: E. habit, F. tubular involucre; *Leucostegia truncata* (D.Don) Fraser-Jenk.: G. habit, H. portion of lower pinnules surface, I. sori with semicircular indusium; *Grammitis barathrophylla* (Baker) Christenh.: J. habit, K. portion of lower frond surface, L. rhizome, M. rhizome scale. Photographs A–C & E by S. Tagane; D & F–M by T. Vongthavone.

Acad. Peiping 2: 67. 1933; Tardieu & C.Chr., Fl. Indo-Chine 7(2): 474. 1941.— *Crypsinus oxylobus* (Wall. ex Kunze) Sledge, Bull. Brit. Mus. (Nat. Hist.) Bot. 2: 145. 1960; Tagawa & K.Iwats., South E. Asian Stud. 5: 60. 1967; Tagawa & K.Iwats., Fl. Thailand 3: 559, f. 56.6. 1989; Boonkerd & Pollawatt, Pterid. Thailand: 248, 267. 2000. Type: India, 1827, R.B. [*Blinkworth*] s.n. (Numer. List no. 294) (lectotype K-W [K001109734, digital image!]; isolectotypes K-W [K000575678, K000575679, designated by Morton (1973), digital image!]). Fig. 3G–I.

Distribution.— India, Nepal, Myanmar, China, Thailand, Laos, Vietnam.

Ecology.— Lithophytic on exposed bedrocks beside open grassland or epiphytic on moss-covered tree trunks; alt. ca 1,250 m.

Note.— *Selliguea oxyloba* is characterized by following characters: fronds monomorphic, glabrous, deeply lobed with two or more pairs, lateral lobes usually longest at base with more than 12 cm long, entire at margin, wings of rachis more than 5mm wide, main veins distinct on both surfaces and sori rounded, placed between adjacent main veins in a single row along both sides of the midrib. Morton (1973) documented the specimen “Nepal, Wallich 294” as a syntype, but the label on the original material shows “Kumaon, R.B. 1827”, which is a part of not Nepal but India.

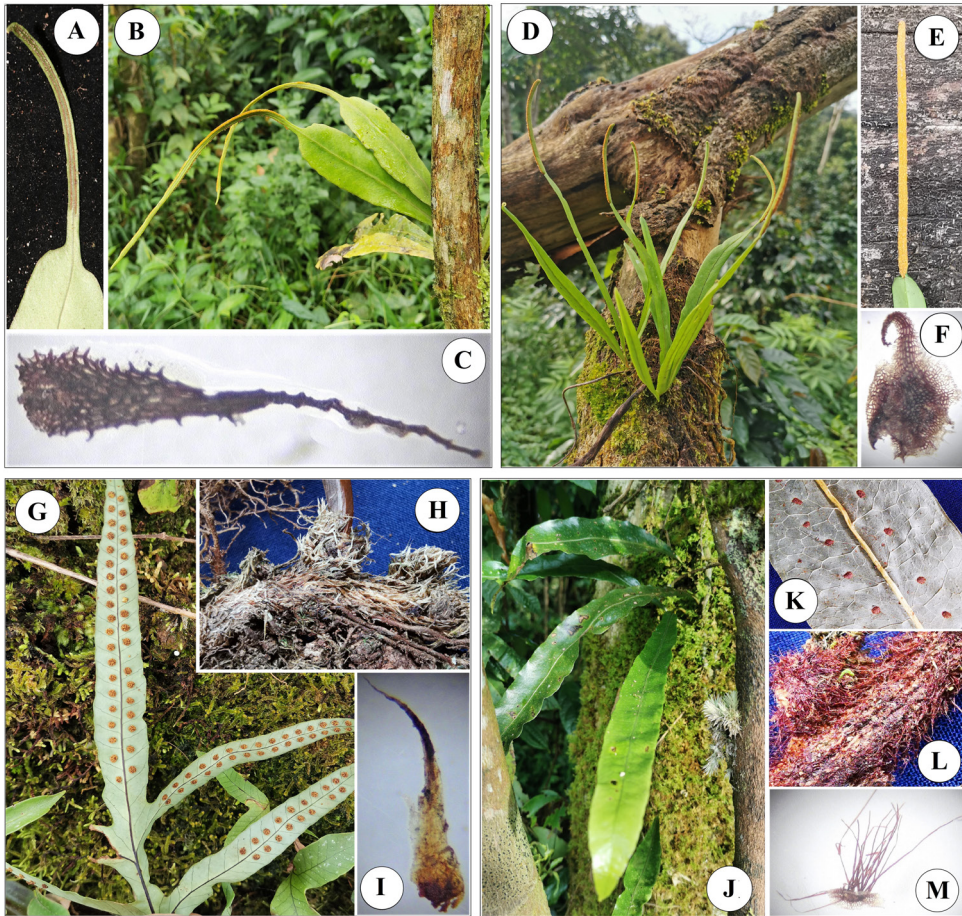


Figure 3. *Lepisorus henryi* (Hieron. ex C.Chr.) Li Wang: A. lower surface of fertile portion, B. habit, C. rhizome scale; *Lepisorus spicatus* (L.f.) Li Wang: D. habit, E. lower surface of fertile portion, F. rhizome scale; *Selliguea oxyloba* (Wall. ex Kunze) Fraser-Jenk.: G. portion of lower frond surface, H. rhizome, I. rhizome scale; *Tricholepidium normale* (Don) Ching: J. habit, K. portion of lower frond surface, L. rhizome, M. rhizome scale with a tuft of long hairs. Photographs by T. Vongthavone.

Specimens examined.—Champasak Province [Paksong District, near Nong Luang Village, 15°04'34.7"N, 106°12'21.2"E, 1,271 m, 16 Sept. 2020, *Souladeth et al. L3841 (FOF, KAG)*].

Tricholepidium normale (D.Don) Ching, *Acta Phytotax. Geobot.*: 29(1–5): 43. 1978.—*Polypodium normale* D.Don, *Prodr. Fl. Nepal.*: 1. 1825; Hosseus, *Beih. Bot. Central bl.* 28(2): 366. 1911.—*Colysis normale* (D.Don) J.Sm., *Hist. Fil.*: 100. 1875.—*Drynaria normalis* (D.Don) J.Sm., *J. Bot. (Hooker)* 4: 61. 1841.—*Microsorium normale* (D.Don) Ching, *Bull. Fan Mem. Inst. Biol.* 4: 299. 1933.—*Neocheiropteris normalis* (D.Don) Tagawa, *J. Jap. Bot.* 27: 217. 1952; Tagawa & K.Iwats., *South E. Asian Stud.* 5: 51. 1967; Tagawa & K.Iwats., *Fl. Thailand* 3: 523, f. 52.7 & 52.8. 1989; Boonkerd & Pollawatn, *Pterid. Thailand*: 255, 281. 2000.—*Phymatodes normalis* (D.Don) C.Presl, *Tent. Pterid.*: 196. 1836. Types: Myanmar, Moolmein, *Parish 176* (holotype **K** [K000959744, digital image!]; isotype **K** [K000959746, digital image!]). Fig. 3J–M.

Distribution.—India, Bhutan, Nepal, Myanmar, China, Japan, Thailand, Laos, Vietnam, Malaysia, Indonesia.

Ecology.—Epiphytic on mossy tree trunk in wet evergreen forest; alt. ca 1,150 m.

Note.—*Tricholepidium* Ching is a small genus with five species widely distributed in Asia (tropical to temperate) and Africa but, to date, has never collected in Laos. This species is characterized by its pale brown and orbicular rhizome scales with a tuft of long hairs at middle on adaxial side (Fig. 3M), and sori irregularly arranged in one row between the midrib and the margin of laminae (Fig. 3K).

Specimens examined.—Champasak Province [Paksong District, near Nong Luang Village, 15°04'02.7"N, 106°12'30.0"E, 1,154 m, 16 Sept. 2020, *Souladeth et al. L3915 (FOF, KAG)*].

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