New or Interesting Ferns from Thailand 7*

Motozi TAGAWA** and Kunio IWATSUKI**

田川基二・岩槻邦男：タイ国産シダ類新知見 7

41. **Psilotum complanatum** Sw. Syn. Fil. 188, 414. 1806, Type: Jamaica, Swartz (BM !).
   Distribution: Pantropic, but not found in Africa.

   Northern. Mae Hong Song: near Mae Hong Song, *Smitinand 4632* (BKF, K).
   Distribution: Pantropic.

   Northern-Eastern. Phetchabun: Phu Miang, on humus rich bank of new road in
   half shaded place at about 1200 m alt., *T 11698* (BKF, K, KYO).
   Distribution: Southwest China (Yunnan & Kweichow), Tonkin, India, Ceylon, and Java.

   Northern-Eastern. Phetchabun: Phu Miang, on mountain slope in evergreen forest
   at 1200–1300 m alt., *T 11373* (BKF, K, KYO, L).
   Distribution: Himalayas to northern Burma.

   Peninsular. Surat Thani: 40 km north of Chumpawn, evergreen forest, *FTP 1463* (AAU, KYO).
   Distribution: Ceylon, South India, Malaya, Philippines, New Guinea, Micronesia
to Polynesia.

** Department of Botany, Faculty of Science, Kyoto University.
September, 1971
Acta Phytotax. Geobot. 17

Ching cited this species from Thailand (Setun, E. Smith 2474), but this specimen examined in Kew was a small frond of T. polycarpa.


**Northern.** Lampang: Lampang, *Winit 996* (K). Tak: Doi Musae Agric. Exp. Station, moist evergreen forest along streamlet at about 800 m alt., *Hennipman 3062* (K, KYO, L).

**Distribution:** Himalayas.


**Northern.** Lampang: Me Ngao, 350 m alt., *Winit 998* (K). North-Eastern. Loei: Phu Luang, on mountain slope in evergreen forest at about 1000 m alt., *T 1082* (BKF, KYO), ibid., dry evergreen forest along streamlet at about 750 m alt., *Hennipman 3526* (KYO, L).

48. *Asplenium siamense* sp. nov.


Rhizomate breve ascendente ca. 1 mm in diametro paleato, stipitibus nigropurpureis lucidis glabris 1–4 cm longis, lamina pinnata apice cristata 3–8 cm longa 0.6–1.0 cm lata, pinnis sessilibus apice rotundatis basi subtruncatis 3–7 mm longis 2–3 mm latis deciduis, soris elongatis 1.0–1.5 mm longis.

Rhizome short, ascending or suberect, about 1 mm in diameter, bearing numerous stipes including old ones and appearing like brush, densely scaly; scales gradually narrowing from base towards acuminate apex, about 2.5 mm long, to 0.4 mm broad, nearly black with brown edges which becoming fimbriate or soft hairy in age. Stipes many, accumulated, persistent, older ones without pinnae, living fronds several, very dark purple to nearly black, polished, glabrous but scaly at base, to 4 cm long or in smaller fronds less than 1 cm in length; laminae simply pinnate except for the decompound apical portion, 3–8 cm long; lower half of laminae pinnate, 6–10 mm wide, nearly parallel at edges; rachis like stipes, terete or very slightly grooved above; pinnae sessile, 2–5 mm apart from each other, round at apex, a little ascending and nearly straight at basiscopic side, subtruncate at inner side, and shallowly lobed at acroscopic edge, 3–7 mm long, 2–3 mm broad, fallen off remaining minute scars on rachis, thus naked rachis remaining on rhizome for years culminating like brush; lobes round, with round sini; veins hardly visible, a few times forked, not reaching the margin of lobes; rachis bearing branches at middle or upper portion,
sometimes the apex forked a few times, each branch taking appearance of pinnate frond, the apical pinnae adnate at base ending in indistinct apical pinnae. Sori one to three in each lobe, 1.0–1.5 mm long; indusia covered under sporangia at maturity.

NORTH-EASTERN. Loei: Phu Kradung, sandstone-rockside at about 1300 m alt., TDBS (Sørensen, Larsen, & Hansen) 2279 (Typus in K, dupl. in C), 7905 (C, K).

The above materials were studied by Holttum and recorded in his list of Thai ferns as an undescribed variety of Asplenium trichomanes, though they are distinct from the latter in various features: wingless rachis, subdimidiate smaller pinnae, irregular branching or crispatation at upper portion of fronds, larger apical pinnae, and so on. In appearance the present new species is similar to A. oligophlebium of Japan, but is different from it in smaller size of fronds, less lobed pinnae, not gemmiferous but irregularly branching upper portion of rachis, thicker texture of fronds, and so on. This may be a species of a group of A. normale, but we are not sure for the specific constancy of this, for this may be a monstrous dwarf with branched apical portion of rachis.


Two collections have been made from very different habitats.

NORTH-EASTERN. Loei: Phu Kradung, on plain in hill deciduous forest, Dee 1017 (AAU, BKF, K). PENINSULAR. Surat Thani: Ban Son, near the sea coast, Hanniff & Nur 4201 (K, SING).

Distribution: Malaysia throughout to Australia, north to Indo-China and Mishmee (Griffith in K).

The American plants similar to this species are called B. serrulatum, but seems to be better united specifically with the plants from the Old World. American plants are generally different from ours in round base of pinnae, broader sterile pinnae comparatively with the fertile ones, rather suddenly acute apex of pinnae, and so on. Plants from Australia and Polynesia are quite identical with Asiatic ones including the features cited above.


NORTHERN. Chiang Rai: Chiang Rai, at 550–950 m alt., Winit 1022 (K).

Distribution: Tonkin.

This is a distinct species with densely scaly stipes, rachis, and costae, and all the veinlets ending in distinct setae at margin of lobes. Comparing with Tonkin materials, the only Thai specimen differs in subsessile pinnae, even the lowest of which is stalked just less than 2 mm in length.

Species habitu delicatula, paleis linearibus ad 0.1 mm latis, stipitibus tenuibus
purpurascenitis, frondibus subdeltoidesis 2.5 cm longis 1.5 cm latis, soris minutis, indusiis 0.7 mm longis 0.5 mm latis.

Rhizome short creeping, bearing fronds closely, densely scaly; scales linear, to 3 mm long, 0.1 mm broad, bright brown. Stipes slender, about 0.2 mm in diameter, bright purplish, polished, glabrous or rarely scaly with small hair-like scales 1.5–2.5 mm long; laminae oblong subdeltoid, widest at base, acute at apex, about 2.5 cm long, 1.5 cm wide, bipinnatifid; rachis purplish, grooved on upper surface, raised below, glabrous, narrowly winged nearly to the base; pinnae patent or ascending in upper ones, opposite, adnate or decurrent at base, oblong to oblong subdeltoid, round at apex, to 1 cm long, 5 mm wide, pinnatifid to pinnatisect; segments with one to four veinlets, lobed into uninnervate lobes; veins distinct on both surfaces with darker colour; texture thin but firm, glabrous. Sori at apex of veinlets, consisting of one to four sporangia; indusial flaps moderately acute to acuminate at apex, to 0.7 mm long, 0.5 mm wide, pale.

Known by only one collection without records on habitat, probably in crevices of rocks.

Northern. Chiang Mai: Doi Nang Ka, Put 3437 (Type in BM, dupls. in BK, K).

This is a species very delicate in habit, probably related to C. duthiei, but much more delicate than the latter as described above. The specimen is collected on November 30, 1903, and is going to decay with brownish colour. In dry season, this may not be found in rock crevices of the limestone mountain.

The ultimate lobes are uninnervate, and the sori are terminal on veinlets, thus the sori are never confluent, interrupted by the sini.

56. Adiantum siamense sp. nov.

Species A. zollingeri similis sed differt: stipite rachideque tenuioribus glabris, pinnis stipitatis. Ab A. philippensi differt, frondibus hirsutis, pinnis subtriangularibus basi cuneatis.

Rhizome short, erect, bearing several fronds in tuft, scaly at apex; scales linear, to 2.5 mm long, at most 0.1 mm broad, nearly black with brownish edge when young. Stipes to 6 cm long, dark castaneous to nearly black, polished, glabrous except for the scaly base; laminae pinnate, narrowly lanceolate, to 20 cm long, 3.5 cm wide; rachis thin, like the upper portion of stipes, glabrous, sometimes prolonged and proliferous; pinnae more than a dozen in alternate pairs, stalked with stalks of 1.0–1.5 mm in length, middle ones the largest, straight or curved in dimidiate lower edges, substruncate in inner edges forming angles of 60°, rectangular to lower edge, round and lobed at apex, straight or slightly round and lobed at upper edge, 1.5 cm long, 1 cm broad, lower ones smaller and more or less deflexed, upper ones gradually smaller upwards, ascending; lobes round or quadrangular, sinus to 1/4 way to the lower edges, the middle sini sometimes to a half-way down; veins dense, distinct on upper surface; texture soft papyraceous, glaucous beneath, sparsely hairy with 2–4 celled, brown, rather setose, hairs to 1.5 mm in length. Sori to
seven for each leaflet, one for each lobe; indusia narrow, to 2 mm long, 0.5 mm broad.

On limestone cliff in light shade at lower elevation near Thung Song, known only in this locality.

**PENINSULAR.** Nakhon Si Thammarat: Thung Song, T 7890 (Type in KYO, dupl. in BKF), Rabil 126 (BK, BM, K), Put 2350 (BK, BM, K).

This is an intermediate species between the groups of *A. caudatum* and of *A. philippense*. From the former species complex, this species is decidedly different in stalked pinnae, soft texture, and glabrous axes; from the latter in hairy laminar surface. As the inner and outer edges of leaflets form acuter angles, this species is apparently similar to the species like *A. erylliae*, and the affinity may be found more closely in the group of *A. philippense*. This is known only in Thung Song, on limestone cliff there, though is found in February (Put) and July (Rabil) of 1929, and again in 1967 by the members of our research group.

57. *Antrophyum stenophyllum* Baker, Kew Bull. 1898: 233, Type: Yunnan, Henry 9607 (K!).

*Antrophyum henryi* Hieron. Hedwigia 57: 208. 1915, Type: Yunnan, Henry 11517 (Isotype in K!).


**NORTHERN.** Chiang Mai: Doi Suthep, epiphytic by a small stream in dense forest at about 1000 m alt., TDBS 3492 (C, K).

Distribution: Yunnan.

The two named species are known by us only by the type collections and are slightly different from our Thai specimens in size and form of fronds: fronds linear, attenuate towards both ends, to 15 cm long, 8 mm broad. The paraphyses are so constant and peculiar in these species that we can not separate the above two named species taxonomically.

*A. henryi* is distinguished by usually reticulate sori, dark brownish smaller rhizome scales, and hardly distinct midribs. These features are, however, somewhat variable in the plants of *Antrophyum*, and we may better treat the above two as to be identical. Our Thai specimen is more similar to the type of *A. henryi* than to that of the other species.


**CENTRAL.** Nakhon Nayok: Khao Yai National Park, T 7388 (KYO), Hennipman 3993 (L).

Endemic in Central and Northeastern Thailand.