Plagiochila subtropica (Plagiochilaceae, Marchantiophyta) new to Taiwan

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Abstract: Schäfer-Verwimp, A., Winter, G., Yao, K.-Y., Yang, J.-D. (2022): *Plagiochila subtropica* (Plagiochilaceae, Marchantiophyta) new to Taiwan. *Frahmia* 28:1-5. *
Plagiochila subtropica is reported for the first time for the bryophyte flora of Taiwan. A morphological description and figures based on Taiwanese plants are provided.

Keywords: bryophytes, liverworts, new record, Taiwan

Fig. 1. *Plagiochila subtropica*, branch seen from dorsal (left) and ventral (right)

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1. Introduction

A second field trip in Taiwan in October 2018 in cooperation with the Endemic Species Research Institute in Jiji Township (TESRI, herb. TAIE) yielded another bryophyte species new to Taiwan. The original specimen will be deposited in TAIE, duplicates in JE and FR.

2. Taxonomic treatment

Plagiochila subtropica Steph.
Bull. Soc. Roy. Bot. Belgique (1899) 38, Mém.: 46. 1900. **Figs. 1-4**
Plants olive-green to brownish, in diffuse patches, shoots 4,5-6 cm long and 3,5-4,5 mm wide, arising from a creeping rhizome, terminal branches occasional to frequent. Leaves closely imbricate, very fragile, distal part often broken off, dorsal margin long decurrent, nearly completely covering dorsal stem surface, ventral stem surface entirely hidden (fig. 1); flattened leaves triangular-ovate, falcate, widest at the base, up to 2.8-3.0 mm long and 2.2 (-2.8) mm wide at base, 0.5-0.8(-0.9) mm wide at apex (fig. 2); branch leaves similar to stem leaves; dorsal margin strongly arched, irregularly toothed from base to apex, teeth short to long ciliate and falcate in distal half, sometimes upper part of teeth broken off; apex usually truncate, with (3-)4-5 long-ciliate teeth (fig. 3); ventral margin nearly straight, strongly ampliate at base, closely overlapping opposite leaf bases, spinose-dentate to ciliate with up to 18 teeth, mostly long-ciliate and falcate, (4-)6-8(-9) cells long, 2-4 cells wide at base, ending in an uniseriate series of 3-6 differently elongated cells, terminal cell from 10 x 44 µm in short teeth up to 8 x 68 µm in long-ciliate teeth (fig. 3). Subapical and median cells 20-25 x 25-35(-45) µm, basal cells 20-25 x 40-45 µm, trigones conspicuous, triangular to usually nodulose, walls thin, cuticle smooth (fig. 4).

3. Specimen examined

Plagiochila subtropica Steph. Taiwan. Nantou County, Sun-Link-Sea Forest Recreation area (Shanlinxi), 23°38’12.4’’ N, 120°47’25.6’’ E; 1660 m; planted shrubs and trees along paved road, epiphyte on hardwood tree, 28 Oct 2018, leg. A. Schäfer-Verwimp 39170/A, with Kuei-Yu Yao, James R. Shevock & Gerhard Winter (TAIE, JE, FR).

Habitat
On tree bark and rotten logs by stream, 1000-2600 m (So 2001); in Taiwan found on bark of hardwood tree along road at 1660 m.

Distribution
China (Yunnan), Bhutan, Nepal, India (Eastern Himalayas and Western Ghats), and Thailand (Grolle & So 1998; So 2001; Srivastava et al. 2006); new to Taiwan.

4. Remarks

Plagiochila subtropica is well characterized by (1) long-ciliate falcate teeth with strongly elongated distal cells, (2) highly fragmenting leaves resulting in persistent leaf stubs, and (3) leaves with strongly ampliate ventral base. When Herzog (1951) described *Plagiochila diffracta* (filed under the synonyms of *P. subtropica* in So 2001), he only found plants with persistent leaf stubs.
Plagiochila durelii Schiffn., another widespread Asian species and rather frequent in Taiwan, somewhat resembles *P. subtropica* in leaf outline and strong dentition; however, *P. durelii* lacks the strongly ampliate ventral leaf base (crossing the stem by 3-4x stem width in *P. subtropica*) and has always straight teeth (long-ciliate falcate in *P. subtropica*). Further on, *P. durelii* has persistent leaves and 2-3 entire-margined or dentate lamelliform paraphyllia per dorsal leaf base in some shoot sectors (highly fragmenting leaves and paraphyllia completely lacking in *P. subtropica*). The

"paraphyllia-like" structure seen in Fig. 2 is a fragment of an incompletely removed dorsal leaf base.

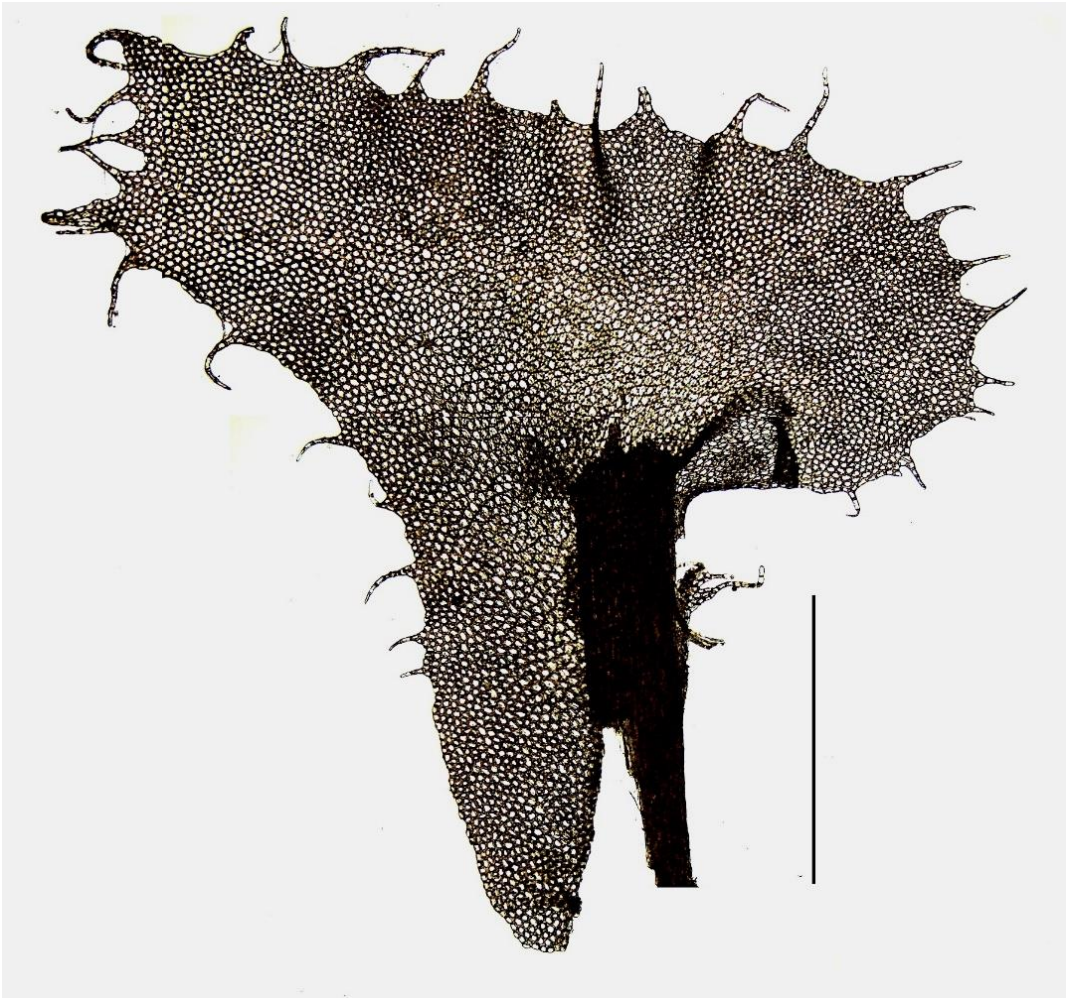

Fig. 2. Stem leaf –flattened - scale 1 mm

The plants from Taiwan may represent a luxuriant phase of the species as those from Thailand described as *P. kitagawae* by Inoue (1974) and synonymized under *P. subtropica* by Grolle & So (1998).

Carl (1931) instated the section *Subtropicae* for *Plagiochila subtropica* and *P. "determesii"* (= *P. determii*, actually considered as synonym of *P. subtropica*). This placement was also accepted by many other authors as for example Inoue (1984), Grolle & So (1998) and So (2001). However, in recent phylogenetic studies (Groth et al. 2004; Jamy et al. 2016), a specimen of *P. subtropica* from Nepal was placed within the pantropical sect. *Vagae* Lindenb., and consequently, sect. *Subtropicae* was synonymized under sect. *Vagae* which is with about 100 species possibly the largest section of *Plagiochila*.

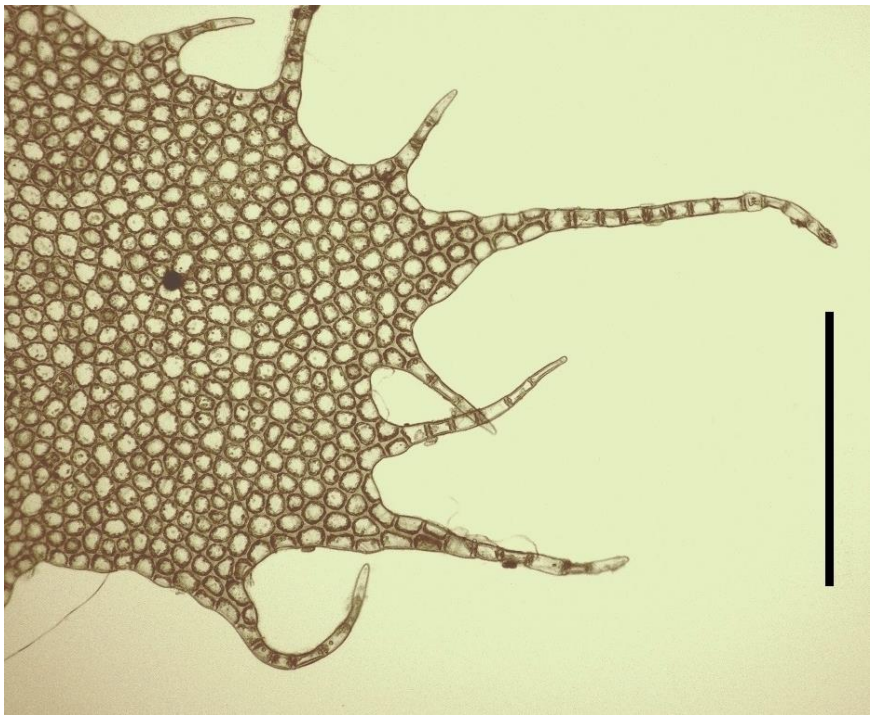

Fig.3. Leaf tip - scale 300 µm

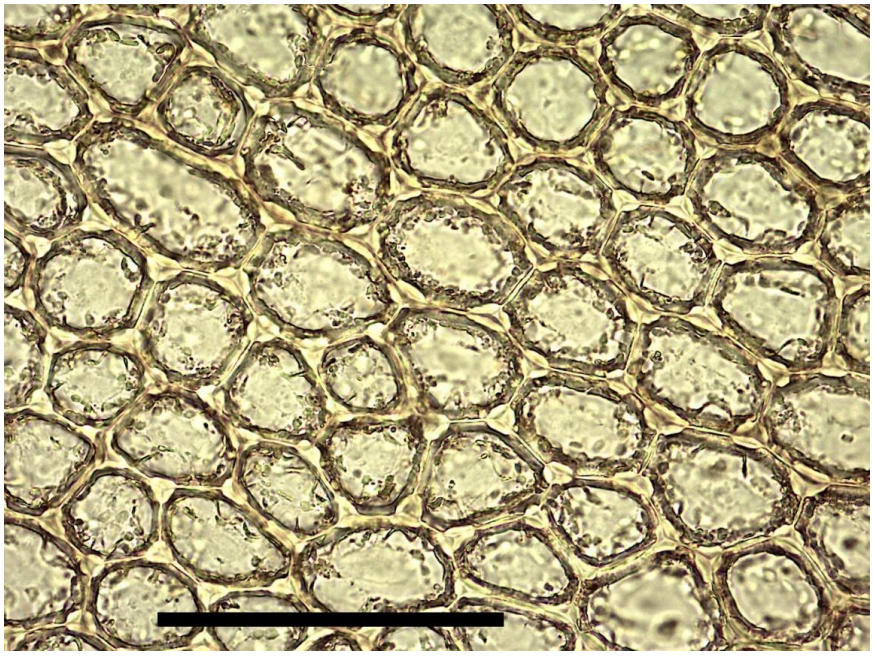

Fig. 4. Median cells - scale 100 µm

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