

Hiroshi INOUE*: *Studies on Plagiochila shangaica*
Steph. from Japan**

井上 浩*: 日本新産の *Plagiochila shangaica* Steph. について

Phytogeographically the hepatic flora of Japan (especially of central and western Honshu and Kyushu) has a close affinity with that of the eastern part of China; for example, Chen & Wu (1965) in reporting the bryophyte flora of Mt. Hwangshan, the highest mountain in eastern China, included 68 species of hepatics of which 63 (92.6%) are also found in the Japanese flora.

Among the recent collections made by Dr. T. Shiomi in western Honshu, I identified one interesting species of *Plagiochila*, *P. shangaica* Steph., previously known only from the type collected in Shanghai, China. As *P. shangaica* Steph. has been very poorly known, I am providing the detailed description and illustration of this species based on the Japanese plants.

Plagiochila shangaica Steph., Spec. Hepat. 6: 216 (1921).

Plants medium in size, 4–6 cm long and 2.5–3 mm wide, pale green or pale yellowish green, not rigid (rather soft-textured), erectly or obliquely arising from short, strongly interwoven rhizomatous bases, forming rather compact tufts on substrata. Stem deep or sometimes blackish brown in the lower portion, becoming gradually bright brown to pale brownish or yellowish in the upper portion, 200–250 μ thick, about 13–15 cells thick in cross-section, the cortical cells in 3–4 layers, with bright brown, extremely thickened walls (5–10 μ), the medullary cells thin-walled, 20–25 \times 16–20 μ ; branches not frequent, predominantly of the lateral intercalary type on lower portion of shoot, and of the terminal and *Frullania*-type on middle to upper portion; shoots often ceasing to grow at the apex and producing frequent dichotomous, intercalary innovations. Rhizoids absent from aerial shoots. Leaves more or less caducous (thus the shoot often denuded and wiry especially in basal to middle portion), obliquely spreading, moderately remote to loosely imbricate, moderately to long

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** The present paper was supported by a Grant-in-Aid of Scientific Research (No. 56481006) from the Ministry of Education, Science and Culture, Japan.

decurent along dorsal stem-midline, moderately exposing the dorsal surface of stem, dorsal margin weakly revolute, ventral margin rather strongly recurved at the base, moderately decurrent, the base not extending to the median line, leaving a narrow ventral merophyte (usually of 1-3 cells wide); the flattened leaves ovate or ovate-oblong, 0.8-1 mm wide \times 1.2-1.3 mm long to 1.1-1.5 mm wide \times 1.5-2 mm long, 1.2-1.5 times as long as wide, dorsal margin nearly straight or weakly arched, apex broadly rounded, ventral margin nearly parallel with the dorsal or weakly arched, not dilated at the base, whole margin entire or sometimes with a few, small angulations at apex. Cells of leaf-apex 12-20 \times 15-22 μ , those of leaf-middle 20-30 \times 17-25 μ , those of leaf-base 25-28 \times 30-38 μ , walls thin, trigones small to medium in size, acute, cuticle smooth; oil-bodies (3-)5-8 per leaf-cell, globose and 3-5 μ or subglobose or oblong and 3-4(-5) \times 5-10 μ , containing small, rather indistinct granules, grayish, surface weakly papillose. Underleaves vestigial, often deciduous, filiform, 2-4(-7)-celled. Asexual reproduction not frequent, by means of caducous leaves and propagules on ventral leaf-surface.

Male plants not seen. Gynoecia terminal on shoot, with a single innovation; bracts similar to the leaves, a little larger, margin entire; perianth obdeltoid, 1.3-1.5 mm long and ca 1.5 mm wide, dorsal keel nearly the same as the ventral in length, with a narrow wing (at least on dorsal half), mouth arched, margin minutely spinose, teeth of margin composed of uniseriate 2-7 cells. Sporophytes not seen.

Type. China: Shanghai, leg. Courtoris, s. n. (G, no. 13268).

Specimens examined. Japan: Mt. Arataki, Asa-gun, Yamaguchi Pref., leg. T. Shiomi 27576 & 27688 (TNS).

Ecology. The habitat data from China is not available. In the habitat in Yamaguchi Pref., western Japan, *Plagiochila shangaica* grows on rather dry rocks (diorite) along a small stream in a more or less shaded place; specimen no. 27576 was collected from the mixed forest of *Quercus glauca*, *Ilex latifolia*, *Arachniodes aristata*, etc., but no. 27688 was collected from a forest of *Cryptomeria japonica* with scattered trunks of *Quercus glauca*. *Plagiochila shangaica* was growing on rocks together with several mosses, such as *Anomodon giraldii*, *Fissidens cristatus*, *Pseudoleskeopsis zippelii*, *Trachypus bicolor*, etc., forming rather pure, small tufts.

Affinity. The Japanese plants of *P. shangaica* were all sterile and more

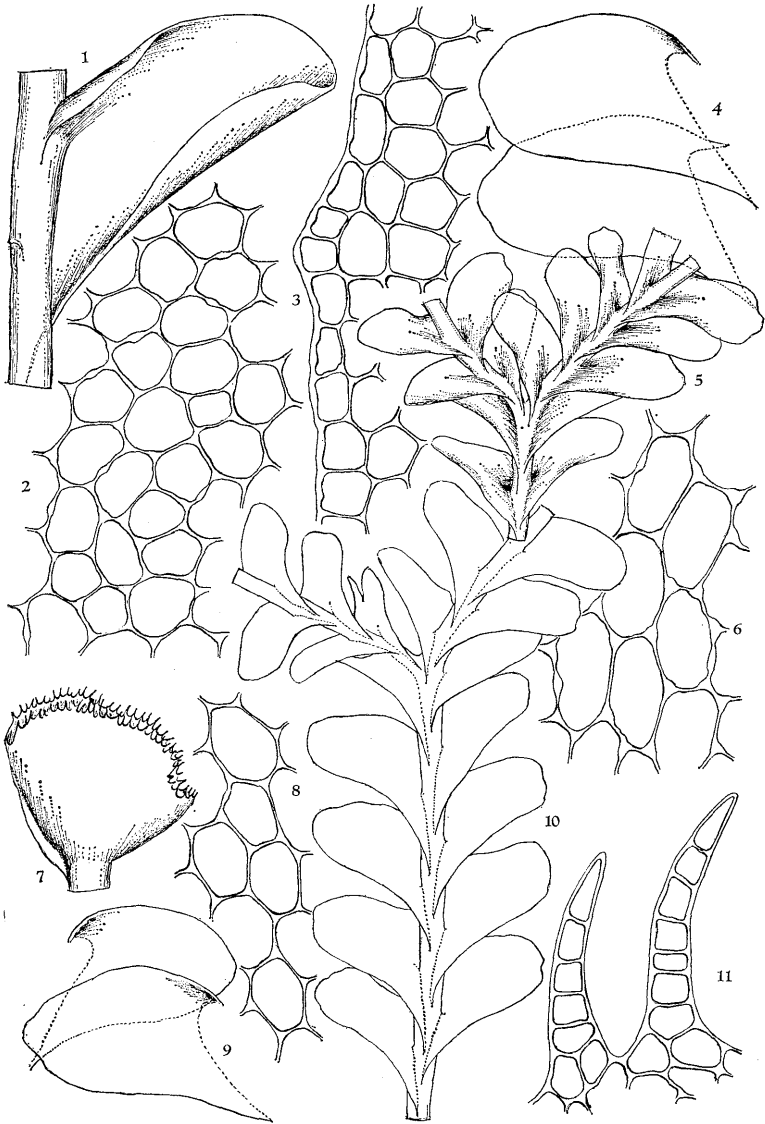


Fig. 1-11. *Plagiochila shangaica* Steph. 1. Leaf on stem, ventral view, $\times 26$. 2, 8. Cells from leaf-middle, $\times 333$. 3. Cells from leaf-apex, $\times 333$. 4, 9. Leaves, $\times 15$. 5, 10. Parts of shoot, dorsal view, $\times 9$. 6. Cells from leaf-base, $\times 333$. 7. Perianth, $\times 15$. 11. Part of perianth mouth, $\times 333$. Figs. 1-6 and 10-11 based on Shiomi no. 27576; others on type.

vigorously developed than those of the type; the description of gynoecea in the above diagnosis is based on the type. Although some minor differences were observed in size of leaves and leaf-cells between the type and the Japanese plants, all of the important features were the same for the plants of China and of Japan.

The distinguishing characteristics of *P. shangaica* include 1) the terminal *Frullania*-type branches together with frequent vegetative innovations in a dichotomous system (when the shoot-apex ceased to grow), 2) the rather soft-textured leaves, with the moderately to long decurrent dorsal margin and the rather strongly recurved ventral base, 3) the ovate or ovate-oblong leaf-shape, 4) the entire leaf-margin (sometimes with a few, small angulations), and 5) the small, obdeltoid perianth, with a narrow wing on the dorsal keel.

Although the entire-margined leaves with rounded apex is a very unique feature of *P. shangaica*, this species has apparently close affinity with the *P. massalongoana*—*P. hattorii* complex and seems to belong to sect. *Contiguae*. The leaf-margin of *P. shangaica* is almost completely entire, but sometimes it has a few (up to 4), small angulations on the apical leaf-margin; these angulations may be considered as greatly reduced “teeth”, as illustrated in Fig. 3. I have studied many living plants of *P. shangaica* from western Japan (cited above), none of the leaves was found to produce “teeth” on margin. I have studied some gynoecea of the type specimen of this species from China and found that even the gynoeceal bracts has no teeth. Thus, by the entire-margined leaves, *P. shangaica* is immediately separated from all other species of sect. *Contiguae*. Among other species of sect. *Contiguae*, *P. gollanii* Steph. may sometimes produce nearly entire-margined leaves (especially when not well developed), but even in this case, the leaves have at least two distinct teeth on the apical region.

The asexual reproduction by means of propagules in *P. shangaica* was not frequent; the propagules were developed on the ventral leaf-surface, especially the middle to apical portion of leaves, where they are easily broken loose. This mode of asexual reproduction is also observed in other species of the *P. massalongoana*—*P. hattorii* complex.

I am much indebted to Dr. T. Shiomi for his generous supply of collections and to Dr. A. J. Sharp for his kind suggestions in the original manuscript.

Literature cited

P. C. Chen & P. C. Wu (1965). Preliminary study of the bryophytes of Mt. Hwangshan. *Observ. Fl. Hwangshanica*: 1-59.

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最近、塩見隆行氏によって山口県厚狭郡楠町の荒滝山で採集されたハネゴケ属苔類の 1 種は、これまで中国の上海附近からだけ記録されていた *Plagiochila shangaica* Steph. であった。ジュネーブ (G) に保管されているタイプと比較したが、日本のものは植物体や葉がやや大形になり、すべてステリルである以外は、重要な形質がすべて中国産のタイプに一致する。中国東部のコケ類フロラは西日本のフロラと極めてよく似ているが、このハネゴケ属のものも共通種の一つに数えられる。なお、本種に対して、ジャンハイハネゴケなる和名が塩見・鈴岡両氏によってつけられている (山口県立山口博物館編：山口県のコケとシダ, 1982)。

○高等植物分布資料 (105) Materials for the distribution of vascular plants in Japan (105)

○ナツツバキ *Stewartia pseudocamellia* Maxim. ナツツバキは従来、福島県磐城、会津地方および新潟県以南の本州、四国および九州に生育するとされている。しかし、宮城県本吉郡志津川町には自生するという記録があり (宮城県動植物分布状況調査報告書 1973)、確認する必要がある。最近、気仙沼市農林課の須藤哲男氏から、気仙沼市鹿折字白石の平貝沢と白石国有林黒沢山 (両地は北緯 38° 59' 30" に位置する) に、ナツツバキが多数生育しているとの連絡をうけ、昭和 57 年 7 月 13 日に現地調査を行ない、自生を確認した。平貝沢の生育地は西向き斜面で、傾斜角は 42° と急峻であり、昭和 55 年にコナラ林を伐採し、ヒノキの植林がされている。黒沢山の生育地は北東向き斜面で、傾斜角度は 25° であり、イヌブナ、アズサ、クリ、カスミザクラ、ヒトツバカエデなどの落葉広葉樹林である。両地区で合計 12 株の生育を認めたが、そのうちの最大のは樹高 12 m、胸高直径 17.9 cm であった。この地域の周辺には、さらに多数の生育が期待される。また、この地の沢向いの尾根上が宮城県と岩手県の県境であることから、岩手県陸前高田市域にもナツツバキの生育する可能性がある。なお、証拠標本 (T. Naito 8271301) は、東北大学理学部生物学教室標本室 (TUS) および同附属植物園標本室 (TUSG) とに入れておく。

(東北大学理学部附属植物園 内藤 俊彦 Toshihiko NAITO)