

Sinske HATTORI:* **Asian taxa of the *Frullania dilatata* complex**服部新佐*: アジア産 *Frullania dilatata* 群の研究

Up to the present time two Asian taxa have been known for the *Frullania dilatata* complex (here the complex is limited to those species with tuberculate perianths). One is the Chinese *Frullania subdilatata* Massal., which I reduced to a subspecies of European *F. dilatata* (L.) Dum. when I gave a detailed illustration on the base of the type specimen of *F. subdilatata* (Hattori 1974).

Four years after the above treatment Hattori & Thaithong (1978, 1978a) recorded *F. dilatata* from India. They (1978a) wrote: "The Indian plants are slightly different from the European ones; the stem-underleaves are slightly wide and more often without lateral teeth or angles;.... Thus Indian plants may be regarded as a geographical race which probably merits a varietal rank."

Recently I examined several specimens of European *F. dilatata* in order to compare it with *F. cranialis* (Hook. f. et T. Tayl.) T. Tayl. described from King George Sound, Southwest Division of Australia, because Bibby (1955) had reduced *F. cranialis* under the synonymy of *F. dilatata*, mentioning "A critical examination of this type (of *F. cranialis*) has revealed, surprisingly enough, that it does not agree with any accepted Australian species of *Frullania* at all, but rather with the European *F. dilatata* (L.) Dum. One can only assume that, somehow, the specimens he (=T. Taylor) handled from Australia had become mixed with a European collection, and that the type specimens of *F. cranialis*.... actually came from some place in Europe."

My comparison of the above two species supported Bibby's treatment. I found both species to possess a very long stylus: 15-16 cells (or 0.33-0.37 mm) long and 5 cells (or 0.33-0.35 mm) wide at or near the base in *F. cranialis*, and 10-15 cells long and 3-5(-8) cells wide in European *F. dilatata*¹⁾.

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1) The details of *F. cranialis* and *F. dilatata* will be published in my paper "A revision of the Australasian species of the genus *Frullania*, Hepaticae, III" (J. Hattori Bot. Lab. 54).

I re-examined the Indian specimens identified by Hattori and Thaithong as *F. dilatata* and found the stylus in these Indian plants to be minute, composed of a row of about 4-5 uniseriate cells (or often 2 cells wide at the very base), measuring up to $40-65 \times 15-30 \mu\text{m}$. Taking this difference into consideration, I think the following treatment may be suitable for the Indian race.

***Frullania dilatata* (L.) Dum. subsp. *asiatica* Hatt., subsp. nov.**

F. dilatata auct. non (L.) Dum.: Hatt. & Thaith., Bull. Natn. Sci. Mus., Ser. B (Bot.) 4: 65 (1978); J. Hattori Bot. Lab. 44: 178, f. 1 (1978).

A typo recedit stylis foliorum multo minoribus (4-5 cellulis uniseriatis).

Type: India. West Bengal: near Sandakphu, Darjeeling area, 11600-11900 ft, on branches of shrub, Apr. 26, Z. Iwatsuki, A. J. & Evelyn Sharp B-745/a (NICH). Other specimens examined are cited under *F. dilatata* in Hattori & Thaithong (1978).

As for Chinese *F. subdilatata* Massal., as mentioned above, I treated it as a subspecies of *F. dilatata*. But after the recognition of long and large styli in true *F. dilatata*, I consider it reasonable to treat *F. subdilatata* as a proper species, as it was regarded by Massalongo (in Lévier 1906). The stylus of *F. subdilatata* is small and filiform, similar to that of the Indian subspecies of *F. dilatata*.

***Frullania subdilatata* Massal. in Lévier, Nuov. Giorn. Bot. Ital. n. ser. 13: 349 (1906).**

F. aeolatis β *aberrans* Massal., Mem. Accad. Agr. Art. Comm. Verona ser. 3, 73(2): 39 (1897)—*F. dilatata* (L.) Dum. subsp. *subdilatata* (Massal.) Hatt., J. Hattori Bot. Lab. 38: 219, f. 105 (1974).

The following key should clarify the differences among three taxa of the *F. dilatata* complex:

- 1) Stem-underleaves larger and longer than wide (0.4 mm long and 0.35 mm wide), 1/10-1/8-bifid, with smooth shoulders; lobes of stem-leaves cordate at base with semirobund appendages; styli small, filiform; known only from the type collection made in Shensi, China *F. subdilatata*
- 1) Stem-underleaves usually smaller and nearly as long as wide (less than 0.3-0.4 mm long and wide), more than 1/5-bifid, frequently toothed or angular at the shoulder; lobes of stem-leaves \pm cordate but lacking distinct appendages; styli small or large 2
- 2) Styli large (10-16 cells or ca 330 μm long and 3-5 cells wide); stem-under-

- leaves ca 1.5 times as wide as the stem, ca 1/3-bifid, usually with a tooth or angle at the shoulder; innermost female bracteole ca 1/3-bifid, with distinct lateral teeth as on the free margin of bract-lobule; distributed in middle to western Europe, along the Mediterranean Sea (incl. northern Africa), Asia Minor, Canary Is., Madeira.....*F. dilatata*
- 2) Styli small (4-5 cells or 40-65 μm long and 1-2 cells or 15-30 μm wide at base); stem-underleaves 2-3 times as wide as the stem (0.3-0.4 mm long and wide), 1/4-1/5-bifid, angular or obtuse (rarely bluntly toothed or rounded) at the shoulder; innermost female bracteole ca 1/5-bifid (or less), with blunt lateral teeth but the bract-lobule 1-2-toothed on free margin; known in Kashmir and Darjeeling area, India.....
.....*F. dilatata* subsp. *asiatica*

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References

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中国から記載されていた *Frullania subdilatata* はヨーロッパ産の *F. dilatata* の亜種として処理して来たが、小形で線形のステルスをもつことから独立種として扱うのがよいと考えられる。また、インドから *F. dilatata* として報告したものはステルスの構造などから *F. dilatata* の亜種として区別出来るので *F. dilatata* subsp. *asiatica*

Hatt. として記載した。したがってアジアには *F. dilatata* 群に *F. subdilatata* ならびに *F. dilatata* subsp. *asiatica* が認められる。

□Romans, R. C.(ed.): **Geobotany II**, pp. 263. 1980, Bowling Green State Univ. Ohio. 植物学, 化石学, 花粉学, 地理学などの研究者が, 植物地理について行なった研究会での報告をまとめたもので, 11の論文と4つの抄録が現在から古生代への順に並べて載せられている。色々の内容のものがあるが, 主に化石植物や花粉をとうして北アメリカの植物の変遷をとらえようと試みたものである。ミンガン周辺での花粉分析から *Fagus grandiflora* や *Pinus strobus* が過去一万年の間にどのようなルートを経て移動が行なわれたかといったことや, オレゴン州で過去一万年の間にどのような植生の変遷があったかなどが報告されている。興味深いのは北アメリカの100地点の花粉分析をもとに過去4万年, 2.5万年, 1.8万年, 1.4万年, 1万年, 5千年, 200年前の北アメリカの植生図を画いていることである。このような仕事は膨大な資料とその細心な解析が必要だと思うが, 面白い試みである。古い時代のものでは, デボン紀から下部石炭紀に現われ, 原裸子植物として最近注目されている *Archaeosperma* や *Gnetopsis* などの cupule が枝からどのように分かれるかを調べて3つの型があることを報告している。cupule 自体の構造を述べたものではないが, この植物群の構造も次第に明らかにされつつあることがわかる。

(山崎 敬)

□Johansen, H. W.: **Coralline algae, a first synthesis**. 239 pp. 1981. CRC Press Inc., Florida. ¥26,330. 紅藻サンゴモの研究の一大総説である。サンゴモ科植物は体に多量の石灰を沈着する特異な性状をもつことで古くから植物学者の興味をひいたが, また化石として産出すること, サンゴ礁構築に主要な役割を果たすことなどから, 地質学者や海洋学者の興味もひいた。さらにいわゆる磯焼けの原因生物であろうとも考えられ, この点からしばしば水産学者の研究の対象ともなった。著者は異なる学問分野で挙げられた研究成果をよく読破し, 形態と構造, 石灰化, 地理的分布, 生育と環境, 生産力, サンゴ礁の構築, 化石, 分類など, 12章にそれらの成果を要領よく纏めた。巻末には1979年までの500に及ぶ引用文献が掲載され, さらにサンゴモ科の43属についてそれぞれ基準種, 主要形質および主要文献が抄録される。海におけるサンゴモの役割の重要性の認識が高まっている折柄, 時宜を得た労作である。

(千原光雄)