Shunsuke SERIZAWA*: On some species of *Microlepia*

芹沢俊介*: フモトシダ属数種の検討

Microlepia is one of the genera of Dennstaedtioid ferns chiefly distributed in South-East Asia. The genus includes some 70 species (Ching, 1959), most of which are remained without critical considerations. In the present paper, I discuss on four confused or little understood species. Specimens on which this study is based are deposited in the following herbaria:

KYO: Herbarium of Kyoto University, Kyoto.

TI: Herbarium of Botanical Institute, Tokyo University, Tokyo.

TNS: Herbarium of National Science Museum, Tokyo.

TOFO: Herbarium of Institute of Forest Botany, Tokyo University, Tokyo.

US: United States National Herbarium, Smithsonian Institution, Washington.

I wish to express my deep gratitudes to the directors and curators of the above herbaria. I would like to acknowledge the kind guidance of Prof. H. Ito.

1. **Microlepia sino-strigosa** Ching in Chien et Chun, Fl. Reip. Popul. Sin. 2: 360 (1959).

Microlepia izu-peninsulae Kurata, Journ. Geobot. 11: 4 (1962).

Distr. Japan (Izu-peninsula of Honshu and Kyushu) and South-China.

The Japanese materials called *M. izu-peninsulae* are somewhat variable in the form of indusia. A form with half-circular or kidney-shaped indusia is, as a whole, well agree with Ching's description and Chinese specimens of *M. sino-strigosa*. Although Ching described that indusia are kidney-shaped and glabrous, they are not always kidney-shaped and generally with 1-2 hairs even in the Chinese specimens. On the other hand, a form mostly with broadly half-cup-shaped indusia makes us imagine of an intermediate form between *M. pseudo-strigosa* and *M. strigosa*, as Kurata noted in the original description of *M. izu-peninsulae*. The holotype specimen of *M.*

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izu-peninsulae is such a form. These two forms are impossible to separate from each other because of the presence of successive transitional forms. *M. izu-peninsulae* is, therefore, identical with *M. sino-strigosa*.

Ching distinguished the present species from *M. strigosa* as "indusiis nec semicupuliformibus sed reniformibus, pallidis, basi lata solum affixis, cetera liberis, lamina infra praeter costas nervosque pilis brevibus, potius crassis perparce conspersas glabra". Among the characters he cited, the hairiness is not so significant if the present species is compared with a sparsely hairy form of *M. strigosa*. The form of indusia is, as noted above, not always kidney-shaped, but broader than those of *M. strigosa* and a good diagnostic character. Moreover, *M. sino-strigosa* differs from *M. strigosa* in intramarginal sori and generally shallowly dissected and somewhat large pinnulae. The upper margin of indusia of *M. strigosa* is generally reached to the margin of the segments, and this is one of the most characteristic features of that species. The intramarginal sori are common to those of *M. substrigosa*, which is easily distinguishable from *M. sino-strigosa* in half-cup-shaped indusia, broader pinnae and deeply dissected pinnulae.

According to Ching, *M. sino-strigosa* is widely distributed in the inner parts of the mainland of China, and *M. strigosa* is chiefly distributed in Chekiang and Fukien, the south-east margin of the continent. In Kyushu, *M. strigosa* is frequently found in the seaside districts, but *M. sino-strigosa* is not so.

Specimens examined are:

Japan. Honshu: Ônabe, Kawazu-machi, Pref. Shizuoka (K. Satake, Jan. 1957, TOFO—holotype of *M. izu-peninsulae*; T. Umehara, Jan. 1958, TNS); Nagatsuro, Minamiizu-machi (K. Satake, Nov. 1957, TOFO); Ugusu, Kamo-mura (H. Ohba no. 8020, Aug. 1961, TOFO); Arari, Kamo-mura (T. Ohmura, March 1954, TOFO). Kyushu: Hachinosu, Taku-shi, Pref. Saga (Y. Inoue, Jan. 1966, TOFO); Kôsa-dake, Kôsa-machi, Pref. Kumamoto (S. Tsutsui no. 2528, June 1966, TOFO); Kônose (K. Mayebara, Aug. 1918, KYO); Kami-matsukuma (K. Mayebara no. 5975, Aug. 1939, TOFO); Kuma-mura (M. Kido no. 5978, March 1964, TOFO); Kuzuwatase, Minamata-shi (S. Kurata, July 1960, TOFO); Hirogawara, Kitagô-machi, Pref. Miyazaki (T. Minami-tani, Aug. 1967, TOFO); between Fukuyama and Minô, Saito-shi (S. Kurata, Aug. 1962, TOFO); Zyônodan, Izumi-shi, Pref. Kagoshima (H. Ohba no.

5660, Dec. 1960, TOFO); Ôkôchi, Izumi-shi (M. Haruta, Aug. 1959, TOFO); Aragôchi, Tashiro, Ôkuchi-shi (T. Yamanaka, April 1959, TOFO; M. Tagawa and K. Iwatsuki no. 3565, July 1960, KYO); Manbe, Tashiro, Ôkuchi-shi (T. Yamanaka, Sept. 1959, TOFO); Ômata State Forest, Tsuruda-mura (S. Kurata no. 8822, Aug. 1961, TOFO); Nakayashiki, Takaono-machi (M. Kido no. 10173, Feb. 1969, TOFO); Mizokuchi, Yoshida-mura (M. Heki no. 8658, Dec. 1969, TOFO).

China. E. Szechuan: Chen-kou (T. L. Tai no. 103697, May 1959, TOFO). Yunnan: Shweli River drainage basin to summit of Shweli-Salween watershed, east of Tengyueh (J. F. Rock no. 7857, Nov. 1922–March 1923, US).

2. **Microlepia herbacea** Ching et C. Chr. var. **trichosora** (Ching) Serizawa, stat. nov.

Microlepia trichosora Ching in Chien et Chun, Fl. Reip. Popul. Sin. 2: 358 (1959).

Microlepia trapeziformis auct. non Kuhn: Tagawa, Acta Phytotax. Geobot. 10: 200 (1941); Copel., Fern Fl. Phil. 98 (1958).

Distr. Taiwan, mainland of China (Yunnan), Philippines (Luzon) and Thailand.

The Formosan materials of the present fern have been called "*M. trapeziformis*". The true *M. trapeziformis* is, however, another fern which has been called "*M. pilosula*" by Tagawa (1939) and H. Ito (1944). *M. pilosula* is, according to Sledge (1956), a form of polymorphic *M. speluncae*. I have examined the duplicate specimen of the holotype of *M. trichosora* (J. F. Rock no. 7316, fig. 1) deposited in U. S. National Herbarium and confirmed that the Formosan materials are identical with it. J. F. Rock no. 7316 was determined as *M. strigosa* by C. Christensen, but *M. trichosora* is easily distinguishable from *M. strigosa* in less number of pinnae and pinnulae, large segments, intramarginal sori and long hairs on every parts of leaves.

As is mentioned by Ching, *M. trichosora* is very similar to *M. herbacea* described from Indo-China. The difference of these two "species" is only hairiness; *M. trichosora* has densely long-hairy leaves, but *M. herbacea* has sparsely hairy or subglabrous leaves. In Taiwan, hairiness of the present fern is rather constant, and less hairy form such as typical *M. herbacea* is not found. However, the hairiness is considerably variable in Thailand, and distinguishment of these two "species" is not clear.

Hairiness is sometimes very variable in a species of *Microlepia*. For example, subglabrous form of *M. marginata* named *M. marginata* form. *subglabra* and extremely hairy form named *M. marginata* var. *yakusimensis* look very different, but they are continuous and conspecific. *M. speluncae*, which is widely distributed in tropical or subtropical regions of both worlds, is also very variable in hairiness. *M. herbacea* and *M. trichosora* do not seem to be specifically different. The restricted geographical distribution of typical *M. herbacea* suggests that it is most suitable to treat *M. trichosora* as a variety of *M. herbacea*.

Fig. 1. An isotype of *M. trichosora*. (J. F. Rock no. 7316 in US)

Specimens examined are:

Taiwan. Chitou (Keitô), Pref. Nantou (S. Serizawa no. 913, 1092, July 1967, TNS); Bunkikiyo (U. Faurie no. 408, 409, Maio 1914, KYO); Terngjy (Fujieda), Liowguei-shiang, Pref. Kaohsiung (S. Daigobo no. 624, Aug. 1970, TNS); Bôki, Rokki-shô, Kizan-gun, Prov. Takao (S. Okamoto, Nov. 1931, KYO); Mt. Hôkô-san, Kizan-gun (S. Okamoto, Sept. 1937, KYO); between Ôgidaira and Nanhô-zan in the basin of the River Sangô-kei, Kizan-gun (M. Tagawa no. 1479, Dec. 1938, KYO); Tona, Kizan-gun (M. Tagawa no. 1945, Jan. 1939, KYO); between Kuwarusu and Masisi, Tyôshû-gun, Prov. Takao (M. Tagawa no. 2072, Jan. 1939, KYO); near Zyômcru, Taitô-gun, Prov. Taitô (M. Tagawa no. 2808, Feb. 1940, KYO).

China. Yunnan: Between Tengyueh and the Burmese border, en route to Sadon (J. F. Rock no. 7315, 7316, Nov. 1922, US no. 7316: isotype).

Philippines. Luzon: Mt. Data (E. B. Copeland no. 1891, Oct. 1905, KYO).

Thailand. Phu Rom Rot, Phitsanulok (T. Shimizu et al. no. T. 11436, Oct. 1967, KYO); one of the highest peaks of Phu Miang, Phitsanulok (T. Shimizu et al. no. T. 11602, Oct. 1967, KYO); middle elevation of Doi Inthanon, Payap. Chiangmai (M. Tagawa, K. Iwatsuki and N. Fukuoka no. T. 2646, Dec. 1965, KYO).

3. **Microlepia intramarginalis** (Tagawa) Serizawa, stat. nov.

Microlepia strigosa var. *intramarginalis* Tagawa, Acta Phytotax. Geobot. 10: 202 (1941).

Microlepia marginata var. *bipinnata* auct. non Makino: Tagawa, Acta Phytotax. Geobot. 10: 202 (1941).

Distr. Endemic to Taiwan.

The present fern has intermediate characters between *M. calvescens* and *M. strigosa*, and it seems to be better to treat as a distinct species instead of a variety of *M. strigosa*, as in *M. pseudo-strigosa* which is intermediate between *M. marginata* and *M. strigosa*.

Tagawa distinguished the present fern from *M. strigosa* as "soris intramarginalibus, lamina bipinnata, pinnulis superioribus saepe late adnatis contiguisque," and noted that it differs from the shallowly dissected form of *M. strigosa* only in intramarginal sori. In addition to this character, the present fern differs from *M. strigosa* in not so enlarged or somewhat reduced basal acroscopic pinnulae, slightly hairy upper side of costae, and long-caudate apex of laminae. All of these characters are approached to those of *M. calvescens*, and the difference between *M. calvescens* and *M. intramarginalis* is not so clear except the dissection which is discontinuous. The pinnulae of the lower parts of pinnae of *M. calvescens* are broadly adnate to the costae even in bipinnate cases, but those of *M. intramarginalis* are hardly or only slightly adnate. In the dissection, *M. intramarginalis* is also similar to *M. pseudo-strigosa* or *M. marginata* var. *bipinnata*, but the differences of these ferns are essentially identical with the difference between *M. calvescens* and *M. marginata* which was already discussed by Tagawa (1941).

Specimens examined are:

Taiwan. Sirin, Taihoku-syu (K. Odashima no. 17768, March 1934, KYO, TI); Jihyuen-tan (Jitsugetsutan), Pref. Nantou (S. Serizawa no. 1436, 1463, July 1967, TNS); Lake Suisya (S. Sasaki, Sept. 1929, TNS); Raisha (U. Faurie no. 335, Martio 1914, KYO); between Ôgidaira and Nanhô-zan in the basin of the River Sangô-kei, Kizan-gun, Prov. Takao (M. Tagawa no. 1482, Dec. 1938, KYO—holotype); Mt. Nanhô-zan, Kizan-gun (S. Okamoto, Sept. 1937, KYO); Bankinsing (U. Faurie no. 327, Feb. 1914, KYO).

4. **Microlepia obtusiloba** Hayata, Bot. Mag. Tokyo **23**: 27 (1909); Tagawa, Acta Phytotax. Geobot. **5**: 101 (1936), **8**: 166 (1939); Ching in Chien et Chun, Fl. Reip. Popul. Sin. **2**: 225 (1959).

Microlepia subpinnata Hayata, Ic. Pl. Formos. **4**: 209, fig. 141 b–e et fig. 142 a (1914); Tagawa, Acta Phytotax. Geobot. **5**: 101 (1936); H. Ito, Bot. Mag. Tokyo **52**: 645 (1938); Ching in Chien et Chun, Fl. Reip. Popul. Sin. **2**: 217 (1959), 'bipinnata.'

Microlepia hirsutissima Hayata, Ic. Pl. Formos. **5**: 301, fig. 121 (1915).

Microlepia yakusimensis Tagawa, Acta Phytotax. Geobot. **11**: 238 (1942), Col. Ill. Jap. Pter. 51, 232 (1959); Ohwi, Fl. Jap. Pter. 33 (1957).

Microlepia majuscula auct. non Moore: Nakai et Momose, Cytologia Fujii Jub. Vol. 361 (1937); H. Ito, Bot. Mag. Tokyo **52**: 645 (1938), Fil. Jap. Ill. tab. 3 (1944).

Distr. Japan (Ôsumi-peninsula of Kyushu and Isl. Yakushima), Ryukyu and Taiwan. Ching reported the present species from the mainland of

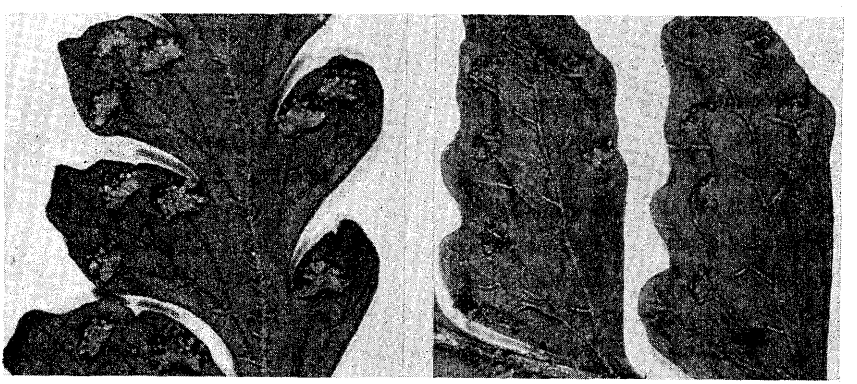

Fig. 2. Under surface of pinnulae of *M. obtusiloba*. (left, var. *obtusiloba*; right, var. *angustata*)

China (Yunnan), but his description is not coincident with our fern.

The identity of *M. obtusiloba*, *M. subpinnata* and *M. hirsutissima* was already discussed by Tagawa. In fact, *M. hirsutissima* is a small and only partly bipinnate form, *M. obtusiloba* is a well-grown tripinnatifid form, and *M. subpinnata* is an intermediate form. There are, as a matter of course, successive transitional forms among these three "species."

In addition to them, *M. yakusimensis* seems to be also identical with *M. obtusiloba*. Although *M. yakusimensis* was distinguished from *M. obtusiloba* in oval or ovate-deltoid laminae and related characters such as hardly shortened lowest pinnae, hardly auriculate pinnulae with acute or acuminate apex, etc., recent numerous collections of this complex from Isl. Yakushima show that the outline of laminae is considerably variable and not so important to separate the species. The typical *M. yakusimensis* with oval or ovate-deltoid laminae is an extreme form, and it can be included within the variation range of *M. obtusiloba*. Auriculation and apical form of pinnulae are closely related to the outline of laminae in the variation.

The plants collected from Isl. Yakushima and recently called "*M. obtusiloba*" are, however, not identical with true *M. obtusiloba*. In true *M. obtusiloba*, the indusia are mostly half-circular or kidney-shaped and veins on the under surface of pinnulae have dense, rather short hairs, but in those plants, the indusia are broadly half-cup-shaped and veins have rather sparse, white and long hairs. The difference is shown in fig. 2. This form is described as a new variety below. The collection from Ôsumi-peninsula of Kyushu is also different from true *M. obtusiloba* in tetrapinnatifid laminae, less hairy fronds, and smaller indusia.

Specimens examined are:

Japan. Kyushu: Uchinomaki State Forest, Tashiro-mura, Kimotsuki-gun, Pref. Kagoshima (M. Tagawa and K. Iwatsuki no. 4371, Dec. 1960, KYO); Isl. Yakushima (Y. Nakano, Sept. 1909, KYO); along the River Miyanoura-gawa, Isl. Yakushima (Z. Tashiro, Aug. 1917, KYO—holotype of *M. yakusimensis*; S. Kurata no. 156, 161, Aug. 1956, TOFO); Issô (M. Kawabata no. 2075, Aug. 1968, etc., TOFO); Shidoko (M. Kawabata no. 2274, Sept. 1969, etc., TOFO); near Anbô (M. Kawabata July 1969, TNS); Harumaki (M. Kawabata no. 2254, April 1969, etc., TOFO); Hirano (M. Kawabata no. 2267, May 1969, etc., TOFO); Tachû (M. Kawabata no. 2086, July

1968, etc., TOFO).

Ryukyu. Mt. Yonaha-dake, Isl. Okinawa (T. Kanashiro, Dec. 1938, KYO, etc.); Mt. Ôno-yama, Isl. Miyako (S. Sakaguchi, 1922, KYO); along the River Urauchi-gawa, Isl. Iriomote (M. Suzuki, Aug. 1967, TNS; S. Serizawa no. 13333, March 1971, TNS).

Taiwan. Near Taihoku (coll. ?, TI); Raho, Prov. Taihoku (K. Miyake, Oct. 1899, TI—holotype of *M. subpinnata*); between Urai and Raga (K. Miyake, Oct. 1899, TI); Remogan (T. Ito and S. Fujii, Nov. 1914, TI—holotype of *M. hirsutissima*); Agyoku, Bunzan-gun (J. Ohwi no. 674, April 1933, KYO, etc.); Jitsugetsutan, Prov. Taichû (S. Kitamura, April 1932, KYO); Rengechi (S. Sasaki, Dec. 1925, TNS); Taiwan Experiment Forest of Tokyo Imp. Univ. (Y. Sagae, July 1940, TOFO); Chitou (Keitô), Pref. Nantou (S. Serizawa no. 907, July 1967, TNS); between Daizyurin and Sinsuiei, Tyôshû-gun, Prov. Takao (M. Tagawa no. 2154, Jan. 1939, KYO); Botanrokusha, Koshin (G. Nakahara no. 896, 908, Dec. 1906, TI—syntypes); Tyôkakurai, Taitô-gun, Prov. Taitô (M. Ogata, July 1931, KYO, etc.); near Baribugai, Taitô-gun (M. Tagawa no. 2676, 2706, Feb. 1940, KYO); near Zyômoru, Taitô-gun (M. Tagawa no. 2876, Feb. 1940, KYO).

var. **angustata** Serizawa, var. nov.

Microlepia obtusiloba auct. non Hayata: Tagawa, Journ. Jap. Bot. **33**: 92 (1958), Col. Ill. Jap. Pter. 51, 232 (1959).

A typo differt lamina angustiore, pinnulis subtus pilis longioribus subparce obtectis, indusiis lato-semicupuliformibus.

Rhizome creeping, 2.5–4 mm thick, densely clothed with about 1 mm long, reddish dark-brown, shinning and bristle-like hairs. Stipes 1–3 cm apart, 25–50 cm long 2–3 mm thick, stramineous, at length glabrescent or nearly so except basal parts. Laminae lanceolate or rarely broad-lanceolate, 40–70 cm long 17–28 cm wide, rather abruptly or gradually decrescent towards the acuminate apex, bipinnate or rarely subtripinnate, herbaceous, upper surface dark-green and more or less yellowish when dry; upper side of rachises grooved, stramineous and glabrous, under side sometimes darker and short-hairy. Pinnae lanceolate or oblong-lanceolate, 7–10 pairs in lower 2/3 of a lamina, lower ones 5–9 cm apart, the longest ones 10–17 cm long 2.3–4 or rarely to 5 cm wide, apex gradually decrescent, base not or hardly auriculate in outline, petiolate, petioles 2–3 mm long; lower 1–3 pairs of

pinnae more or less shortened; upper side of costae glabrous, under side densely strigose-hairy. Pinnulae of the longest pinnae 13–17 pairs in their lower 3/4, 5–12 mm apart, obliquely ovate-oblong, 1.2–2.6 cm long 4–13 mm wide, apex roundish, rarely obtuse or acute, base independent and sessile or more or less adnate, posterior side cuneate, anterior side broadly cuneate and generally more or less auriculate, upper surface sparsely hairy, hairs about 1 mm long, under surface rather sparsely hairy, hairs 0.7–1 mm long, white and stiff, shorter hairs inconspicuous, veinlets prominent in under surface of pinnulae. Sori intramarginal, indusia broadly half-cup-shaped and glabrous or sparsely hairy.

Hab. Along the River Hanaage-gawa, Isl. Yakushima, Pref. Kagoshima (S. Serizawa no. 7685, Aug. 1968); along the River Tainoko (S. Serizawa no. 13031, Feb. 1971); Mt. Motchomu-dake (S. Serizawa no. 12973, Feb. 1971 —holotype in TNS).

The present new variety is rather common in the lowlands of Isl. Yakushima. Other specimens examined are:

Miyanoura (M. Kawabata, Oct. 1964, TNS); Funayuki (M. Kawabata, Jan. 1970, TNS); Anbô (T. Yamaguchi no. 80c, Jan. 1961, KYO); Tachû (M. Kawabata no. 2090, July 1968, TOFO); Hirano (M. Kawabata no. 2115, Aug. 1968, TOFO); Hanaage-gawa (M. Tagawa and K. Iwatsuki no. 3163, Dec. 1959, KYO, etc.); Nakase-gawa (M. Tagawa and F. Konta no. 39, Aug. 1964, KYO); Odakumi-gawa (coll. ?, April 1950, TOFO; M. Tagawa and K. Iwatsuki no. 3219, Dec. 1959, KYO); Tainoko (M. Tagawa no. 7722–24, Jan. 1957, KYO, etc.); Motchomu-dake (T. Kuramata no. 3935, Jan. 1969, TOFO); Onoaida (M. Heki no. 8275, July 1968, TOFO); en route from Onoaida to Mt. Wariishi (M. Tagawa no. 8345, Nov. 1957, KYO); Wariishi-dake (M. Hutoh no. 19037, Nov. 1957, TOFO); Suzunoko (M. Tagawa no. 8274, Nov. 1957, KYO).

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Ching, R. C., 1959: Fl. Reip. Popul. Sin. 2: 207. Ito, H., 1944: Fil. Jap. Ill. tab. 5. Sledge, W. A., 1956: Kew Bull. 523–531. Tagawa, M., 1939: Acta Phytotax. Geobot. 8: 165. ——, 1941: ditto 10: 201.

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フモトシダ属は東南アジアを中心に分布するよくまとまった属であるが，個々の種

類については充分に検討されていないものが多い。本報ではそれらのうち4種について検討し，以下のような結論を得た。

1. 本州（伊豆半島）及び九州のオドリコカグマは，中国大陸の *M. sino-strigosa* と同じである。

2. 台湾のタカサゴイシカグマは *M. trapeziformis* ではなく，雲南から記載された *M. trichosora* にあたる。この種類はインドシナやタイの *M. herbacea* の変種として扱うのがよい。

3. 台湾のニセイシカグマは独立種とする方がよい。

4. 屋久島のヤクシマカグマは，琉球や台湾のコウシュンシダと同じものである。屋久島で最近コウシュンシダと呼ばれていたものは，変種のホソバコウシュンシダ（新称）として区別される。

○ニセツキヌキサイコ（新称）について（水島正美） Masami MIZUSHIMA: *Bupleurum lancifolium*, a new casual

市販の小鳥の餌料がこぼれ，庭先に妙なセリ科植物が生えた。全体に灰白味があり，茎下部の葉から上部のものに至るまで貫生し，単葉である。よく分枝して丸い草姿になり，5月から6月にわたって細黄花を開く。これは一見ツキヌキサイコ（奥山氏が本誌 **26**: 349, 1951 に発表）を想起させるが，果実に明確な差異がある。和名ツキヌキサイコの基準となる標本は東京品川区五反田駅附近で1951年5月に採られた花期のもので，果実の形質は分らない。特異な葉状に基いて *Bupleurum rotundifolium* L. と同定され，以後今日に至るまで，各地に見つかった同様な植物には上記の学名，和名を当てゝ済ませて来たようである。つまり花期に見得る形質が調べられただけであった。若しこれらが真の *B. rotundifolium* ならば，果実は長さ 2–3 mm で表面に粒状突起がないものである。だが拙宅に生えたものは果実が約2倍大で，表面に粒状突起を満布する。これは ***B. lancifolium*** Hornemann という地中海地方産の一種で，*B. rotundifolium* のように世界各地に帰化してはいない。ツキヌキサイコが正しく後者に与えられた和名とせざるを得ない今日，前者には**ニセツキヌキサイコ**と新称しておく。両種共に1年草と諸書にあるが，拙宅のニセツキヌキサイコは昨年も今年も開花結実し，今年の方が大きく育った（主茎は単立）。6月中旬に1枝を残して標本に作ってしまったが，来年も萠芽してくれるかどうか。標本の一部を MAK 100800 として牧野標本館に納めてある。小文を草するに当り助言して下さった館岡亜緒，浅井康宏の両氏に深謝を捧げる。

（東京都立大学牧野標本館）