Kazuo SUZUKI*: A contribution to the taxonomy of the genus *Epimedium* (Berberidaceae) in Japan

鈴木和雄*: 日本産イカリソウ属の分類についての1報告

Results of the biosystematic studies in *Epimedium* reported earlier (Suzuki 1978, 1981) necessitate the formal description of a new subspecies of *E. trifoliatobinatum* and the transfer of plants generally called *E. kitamuranum* to a subspecies of *E. diphyllum*.

Epimedium trifoliatobinatum (Koidz.) Koidz. subsp. **maritimum** K. Suzuki, subsp. nov. (Fig. 1)

Differt a subsp. *trifoliatobinato* foliis saepius biennibus bifoliolatis, foliolis pergamentaceis majoribus marginibus paucisetosis.

Plant in flower 15-30 cm high. Rhizome valid ascending, 3-4 mm thick. Leaves basal and cauline, often biennial, bifoliate or trifoliatobinate; petiole sparsely pilose; leaflets ovate, the tip acute, the margin sparsely spinous-serrate, the base deep cordate with rounded or acute lobes, those of the lateral leaflets very unequal, membranous but firm in texture, above green glabrous, beneath light-green pubescent with short hairs, 3-10 cm long, 2-5 cm broad. Flowering stem bearing one 2-(4)-6 foliolate leaf; inflorescence raceme or narrow panicle, almost glabrous, 4-7-(10) flowered. Pedicels 1-2 cm long. Flowers white or mauve, 2.5-3 cm across. Inner sepals narrowly ovate, horizontally spreading, 8 mm long, 4 mm broad. Petals short-spurred, with distinct petaloid rounded laminae 5 mm deep and slender tapering subulate spurs 10 mm long. Stamens included, 5 mm long; anthers 4 mm long. Capsule 10 mm long.

Type: K. Suzuki 7569-30, Isl. Shimanoura, Nobeoka City, Miyazaki Pref., Kyushu, Japan (MAK).

Distribution: Shikoku (Kochi Pref.), Kyushu (Oita and Miyazaki Prefs.).

Habitat: On rocks or on margins of copse facing the sea in islands.

Nom. Jap.: Shiomi-ikarisō (nom. nov.)

Representative specimens. Shikoku. Kochi Pref.: Okinoshima, Sukumo City

* Makino Herbarium, Faculty of Science, Tokyo Metropolitan University. 東京都立大学 理学部牧野標本館.

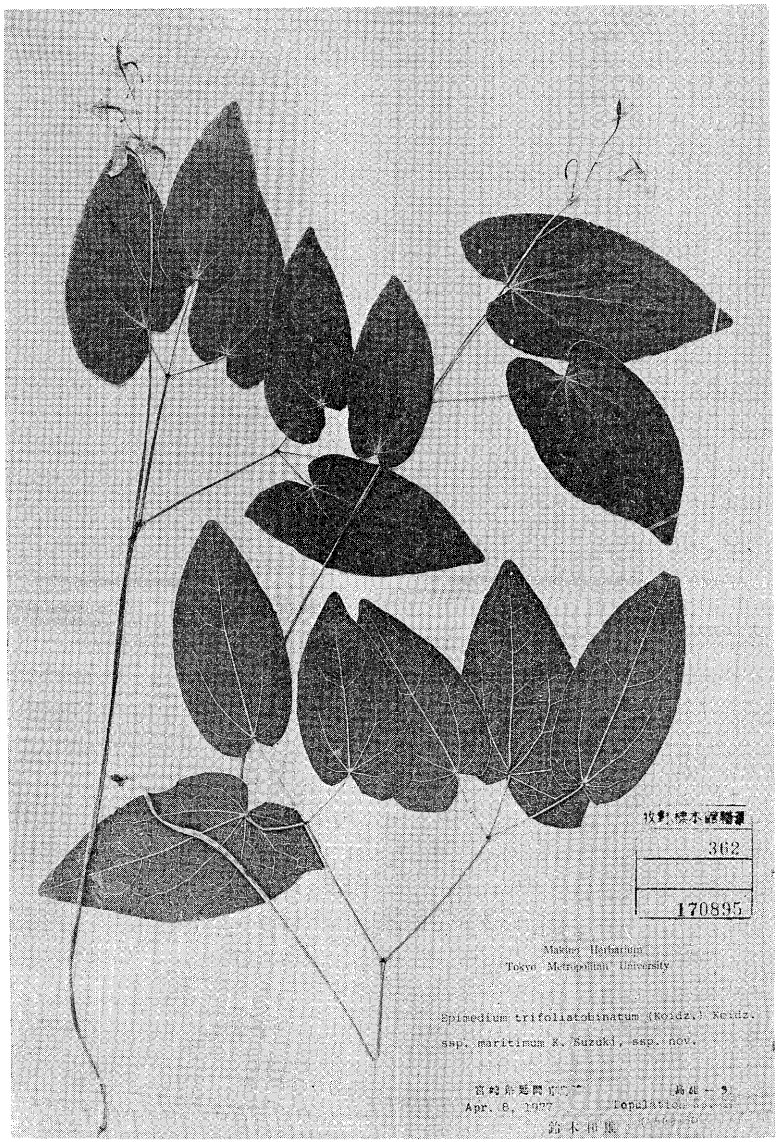

Fig. 1. *Epimedium trifoliatobinatum* subsp. *maritimum* (type, K. Suzuki 7569-30).

(cult. in Makino Botanic Garden, Kochi Pref.), K. Suzuki 7574 1-2 (MAK); ibid. (cult. in a garden of Mr. Abe, Tokushima Pref.), K. Suzuki 7595 1-3 (MAK); Isl. Kashiwajima, Sukumo City, K. Suzuki 11618-11620 (MAK). Kyushu. Oita Pref.: Isl. Oshima, Minamiamabe-gun, K. Suzuki 8693 1-28 (MAK); ibid., Z. Kiyohara in 1932 (KYO); ibid., S. Sadayuki in 1927 (KYO); ibid., Z. Tashiro in 1932 (TNS). Miyazaki Pref.: Isl. Shimanoura, Nobeoka City, K. Suzuki 7569 1-30 (MAK); ibid., Samejima in 1938 (KYO, TNS); ibid. Z., Tashiro in 1922 (TNS).

Epimedium trifoliatobinatum is easily discernible from other *Epimedium* species by short spurred flowers and trifoliatobinate leaves (Suzuki 1978, 1981). It is not a hybrid type but a morphologically and ecologically distinct species, though the fact that *E. trifoliatobinatum* has some morphological features intermediate between *E. diphyllum* and *E. grandiflorum* suggests the hybrid origin of *E. trifoliatobinatum* (Maekawa 1955; Suzuki 1978). Two subspecies should be recognized in this species by the following reasons. Subspecies *maritimum*, which is here described, is different from subsp. *trifoliatobinatum* in having bifoliate ramification, scanty serrations of leaf-margin and usually biennial and hardened leaves. These two taxa are, however, similar in floral characters, spur length and others, that should be regarded as significant components of the mechanism which externally assures reproductive isolation. The habitat of subsp. *trifoliatobinatum* is localized exclusively in serpentine regions, while subsp. *maritimum* is located on the slopes facing the sea. The difference of ecological preference between the two taxa is quite significant for diagnosis. The above ecological difference suggests that they may represent ecotypic variants of one species (Suzuki 1981). Bienniality and hardening of the leaf as found in subsp. *maritimum* might be related to the habitat which is on sunny and dry maritime regions. In addition, the two subspecies are allopatrically distributed: subsp. *trifoliatobinatum* in inland regions of Shikoku; subsp. *maritimum* in islands of Shikoku and Kyushu. Consequently, their separation at the subspecies level seems to be warranted.

Individuals in Misaki, Ehime Pref. approach subsp. *maritimum* morphologically and ecologically (Suzuki 1978), but are closer to subsp. *trifoliatobinatum* in several morphological features; serration number, ramification of leaves and others.

Epimedium diphyllum (Morr. et Decne.) Lodd. subsp. **kitamuranum** (Ya-

manaka) K. Suzuki, stat. nov.

Epimedium kitamuranum Yamanaka, Acta Phytotax. Geobot. 15: 26, 1953.

Type: Yamanaka s.n., May 5, 1951, Sanuki-fuji (Mt. Iino), Prov. Sanuki (Kagawa Pref.) (KYO).

Distribution: Northeastern Shikoku (Kagawa and Tokushima Prefs.).

Habitat: By the edge of the evergreen oak and/or pine forest.

Representative specimens. Kagawa Pref.: Mt. Iino, Sakaide City, K. Suzuki 6772 1-5 (MAK). Tokushima Pref.: Kirihata, Awa-gun, K. Suzuki 7597 1-29 (MAK); Nishikata, Anan City, K. Suzuki 7601 1-20 (MAK).

Plants referred to subsp. *kitamuranum* are restrictedly distributed in northeastern Shikoku which corresponds to the easternmost area of the distributional range of subsp. *diphyllum*. Only three localities as indicated in the above enumeration of the representative specimens are known (cf. Suzuki 1978). The habitat of subsp. *kitamuranum* is similar to that of subsp. *diphyllum*, though the former prefers somewhat drier places which are in the evergreen oak and/or pine forest. Subspecies *kitamuranum* is morphologically related to the northern type of subsp. *diphyllum* but is different in the hairy upper surface of leaves, constant trifoliatobinate ramification and almost acute leaflet apices (Suzuki 1978, 1981). These two taxa are almost identical in floral features, and their close relationship in pollination system is evident. Further, these two taxa are identical in having the first leaf (that appearing just above the cotyledon) with bifoliate ramification, while the first leaf is simple in the other species of *Epimedium*. Considering these similarity, plants referred to subsp. *kitamuranum* and those to subsp. *diphyllum* may not be so greatly differentiated as can be treated as independent species, and may be treated to be different at the subspecies level. As described in a previous paper (Suzuki 1978), hybridization between *E. diphyllum* and *E. grandiflorum* might be related to the origin of subsp. *kitamuranum*. *E. trifoliatobinatum* is different from subsp. *kitamuranum* by having short spurred petals and no hair on the upper surface of leaves, though they are similar in leaf ramification and leaflet apex shape.

I am greatful to Assoc. Prof. M. Ono of Tokyo Metropolitan University, for his kind guidance and encouragement, and to Dr. T. Tateoka of Laboratory of Biosystematics, Department of Botany, National Science Museum, Ibaraki, who gave me valuable suggestions and critically read the manuscript.

References

Maekawa, F. 1955. Species problem and phylogenetic appreciation for diagnostic characters—A case of *Epimedium*. Journ. Jap. Bot. **30**: 353-358. Suzuki, K. 1978. Biosystematic studies of Japanese *Epimedium* (Berberidaceae) (1) Variation of the populations in Shikoku. Journ. Jap. Bot. **53**: 203-212, 225-231. ——1981. Biosystematic studies of Japanese *Epimedium* (Berberidaceace) (2) Variation of the populations in Kyushu. Journ. Jap. Bot. **56**: 9-16, 33-40.

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先に鈴木（1978, 1981）が報告した四国・九州におけるイカリソウ属集団の変異解析の結果から，ヒメイカリソウ（*E. trifoliatobinatum*）に1新亜種（シオミイカリソウ，新称），*E. trifoliatobinatum* subsp. *maritimum* K. Suzuki）を認め，またサイコクイカリソウ（*E. kitamuranum*）をバイカイカリソウ（*E. diphyllum*）の亜種とするのがよいという結論に達した。新亜種を記載し，2亜種の分類学的な扱いの論拠を記した。

□ Dassanayake, M. D. & F. R. Fosberg (ed.): **A Revised Handbook to the Flora of Ceylon. Vol. II.** 24×15 cm. 511 pp. 1981. Ameind Publ. Co., New Delhi. ¥7,500。1980年に出版された第1巻につづく第2巻である。これには10科の植物が載せられている。順に上げると，ヤクシマラン科，ラン科，ノウゼンカズラ科，ウキクサ科，フトモモ科，トベラ科，サクラソウ科，ヤマモガシ科，ヒルギ科，ジンチョウゲ科である。10科といってもラン科以外は種類数が少なく，殆んど図がないので専門家以外はあまり興味を引きそうにないが，ラン科は380頁を占め，1種類ごとにきれいな全形図とくわしい解剖図がつけられていて，東アジアのラン科を調べるのには貴重な資料を呈供している。コクランやカクラン，キンギンソウ，ネジバナなど広分布種を除いて日本との共通種は殆んどないが，日本との共通属が多数あるのは意外である。クモラン属，オニノヤガラ属，オサラン属，イモネヤガラ属，ヨウラクラン属，クモキリソウ属，シュスラン属などセイロンから64属知られているうち29属は共通である。ランの好きな人には非常に参考になる本である。ラン科は野生種のみを扱っているが，他の科では栽培種も同格に載せている。したがってセイロンに野生しないユーカリ属も多数の種類が記述されている。産業上からはこれも大切なことであるが，種名の活字体を変えるとかして扱ってくれると使用上便利であろう。（山崎 敬）