

新雑種ゴシヨモミジイチゴ

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Hisashi MASAKI* and Naohiro NARUHASHI** :
A New Natural Hybrid *Rubus* $\times$ *calopalmatus*
(Rosaceae) from Japan

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Abstract

A new *Rubus* hybrid discovered in Yamaguchi Pref., Japan, is compared with its putative parents, *R. palmatus* and *R. chingii*. The plant possesses several morphological features intermediate between the parents. The plant named *R. $\times$ calopalmatus* is described.

Key Words: Description—Hybrid—*Rubus*

The present new plant was discovered at Notani, Tokuji-cho, in Yamaguchi Pref. by Mr. Atsushi MINAMI in 1983. The authors have observed the plant from 1985 at the original place, at other places discovered by us, and at the Botanic Garden of Toyama University where the plant was planted in 1986. At all places where this new plant was growing, *Rubus palmatus* and *R. chingii* also occur. These three plants grow in mixtures, or side by side, and flower at the same time. Natural interspecific hybrids occur frequently in these Japanese *Rubus* species.

The new plant may be suspected to be a natural hybrid between *R. palmatus* and *R. chingii*, because the gross morphology is intermediate between the two species. In this study, the morphology of the 3 taxa are critically compared.

The plant is elegant and beautiful because stems are reddish brown and the young palmate leaves are reddish like the famous Japanese red maple. Therefore the new plant is temporarily named *Rubus $\times$ calopalmatus*.

Materials and Methods

Measurements of stems were made at the respective growing places on 4th of November, 1990 and 14th of April, 1992. Leaves of floricanes were collected on 25th of June, 1989 in 3 places in

Tokuji-cho. Flowers were collected on 16th of April, 1989 in 4 places in Tokuji-cho.

Leaf measurements: length of blade, length of terminal lobe, length from apex to the widest part of terminal lobe, width of blade, width of the widest part of terminal lobe, width of the basal part of terminal lobe, are shown in Fig. 2. Flower measurements included diameter of flower, length and width of petal, length and width of sepal, number of stamens, and number of pistils.

Results and Discussion

The heights and diameters of stems are shown in Table 1. Stems of *R. $\times$ calopalmatus* were intermediate between those of *R. palmatus* and *R. chingii*.

The leaves of all three taxa are palmate with 3 to 7 lobes. The number of lobes on florican leaves is 3 to 5 for *R. palmatus*, 5 for *R. $\times$ calopalmatus* and 5 to 7 for *R. chingii*. On primocane leaves, *R. palmatus* has 5 lobes, *R. $\times$ calopalmatus* 5 to 7 lobes and *R. chingii* 7, rarely 9 lobes. It is concluded that the leaf shape of *R. $\times$ calopalmatus* is intermediate between that of *R. palmatus* and *R. chingii* (Fig. 1).

Figure 2 designates the parameters measured in florican leaves and Fig. 3 and Table 2 present the results. The leaf shape in the three taxa are

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Table 1. Measurements of stems.

	<i>R. palmatus</i>	<i>R. × calopalmatus</i>	<i>R. chingii</i>
Height (cm)	165.0±34.6*	212.9±52.4	277.0±56.1
(range)	107-248	131-327	165-349
N**	23	16	21
Diameter(mm)	8.2±2.2	9.6±2.8	14.3±4.8
(range)	5-15	6-15.5	8-27
N	23	16	21

*Mean±SD

**Number of samples

Table 2. Measurements of leaves. (N: 30)

	<i>R. palmatus</i>	<i>R. × calopalmatus</i>	<i>R. chingii</i>
L1 (mm)	69.56±8.51	86.28±13.71	88.47±12.62
(range)	56.95-89.55	62.05-110.65	67.25-120.30
L2 (mm)	51.13±7.97	66.12±10.54	64.88±9.38
(range)	36.55-70.85	47.60-88.30	51.10-88.85
L3 (mm)	43.76±7.01	48.69±9.52	44.24±6.73
(range)	28.80-63.20	34.40-68.85	32.70-62.75
W1 (mm)	44.14±7.41	73.99±15.59	89.78±16.33
(range)	28.75-59.10	55.20-114.60	64.25-135.10
W2 (mm)	23.52±3.11	24.10±5.10	38.60±7.81
(range)	19.65-34.80	17.85-37.70	24.30-55.20
W3 (mm)	21.16±2.91	14.59±3.20	22.93±4.90
(range)	17.05-31.45	10.70-24.25	13.90-31.25
L1/W1	1.61±0.25	1.18±0.12	1.00±0.09
(range)	1.12-2.31	0.96-1.43	0.88-1.29
L2/L1	0.74±0.09	0.77±0.02	0.73±0.04
(range)	0.57-0.87	0.72-0.80	0.67-0.81
L2/W2	2.18±0.24	2.78±0.24	1.71±0.24
(range)	1.58-2.58	2.09-3.15	1.35-2.43
L3/L2	0.86±0.04	0.73±0.04	0.68±0.04
(range)	0.73-0.92	0.66-0.83	0.58-0.75
W1/W3	2.10±0.32	5.12±0.70	4.00±0.63
(range)	1.49-2.68	4.00-6.55	2.84-5.05

distinctly different, as demonstrated polygraphs (Fig. 3). However, all measurements of *R. × calopalmatus* are not always intermediate (e.g., L3, w3, L2/L1, L2/W2 and W1/W3). Thus, the terminal lobe in *R. × calopalmatus* has a unique shape, regardless of almost the same ratio of a terminal lobe length to total blade length (L2/L1). The terminal lobe of *R. palmatus* is narrowly ovate-triangular, that of *R. × calopalmatus* is narrowly ovate, and that of *chingii* is rhombic-ovate (L2/W2 and W1/W3).

Flower measurements are given in Table 3. *Rubus × calopalmatus* is intermediate in 6 parameters, but exceeds the other 2 species in petal

Table 3. Measurements of flowers.

	<i>R. palmatus</i>	<i>R. × calopalmatus</i>	<i>R. chingii</i>
Flower diameter (mm)	35.6±2.9	39.5±2.8	47.5±2.8
(range)	32-40	32-44	42-52
N	20	20	20
Petal length (mm)	13.1±1.3	15.1±1.4	16.8±1.1
(range)	10.8-16.8	11.9-17.4	14.0-20.1
N	99	108	81
Petal width (mm)	8.9±1.4	12.8±1.4	11.7±0.8
(range)	5.4-12.1	9.1-15.4	9.6-13.7
N	99	108	81
Sepal length (mm)	8.2±1.0	9.3±1.3	9.6±1.0
(range)	6.1-10.9	6.1-11.15	7.4-10.9
N	33	31	31
Sepal width (mm)	3.1±0.4	4.1±0.5	5.1±0.4
(range)	2.3-3.8	3.1-5.0	4.4-5.9
N	33	31	31
Stamen number	66.4±9.6	109.5±11.5	132.6±14.3
(range)	41-82	90-137	99-156
N	33	31	31
Pistil number	83.2±17.9	92.5±13.5	248.0±46.8
(range)	50-116	71-118	156-385
N	33	31	31

width.

This new plant, *R. × calopalmatus*, possesses several other morphological features which are intermediate between those of its putative parents.

Rubus palmatus has 99% good stainable pollen grains and *R. chingii* 96% whereas the putative hybrid has only 1% stainable (Fig. 4, F). In our several years' observation, no fruit has been observed on this plant. The plant propagates by vegetative means with elongated underground rhizomes as do the putative parents.

As a result of critical comparisons morphological traits such as color of stems, texture of leaves, phenological traits of this new plant with those of the putative parental species, we reached the conclusion that the plant no doubt represent a new natural hybrid between *R. palmatus* and *R. chingii*.

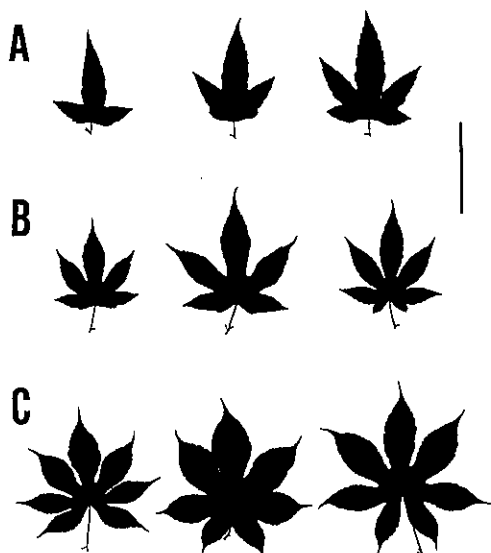


Fig. 1. Silhouette of well-developed large leaves on primocane. A: *R. palmatus*, B: *R. x calopalmatus*, C: *R. chingii* (bar represents 10 cm).

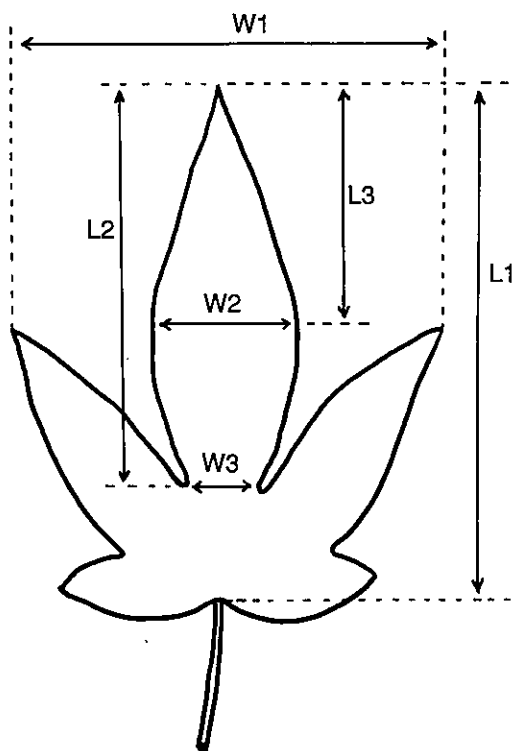


Fig. 2. Measurement parameters of leaves. L1: Length of blade (=length between apex of terminal lobe and basal attachment point); L2: Length of terminal lobe; L3: Length from apex to the widest part of terminal lobe; W1: Width of blade (=length between the apices of the first lateral lobes); W2: Width of the widest part of terminal lobe; W3: Width of the basal part of terminal lobe.

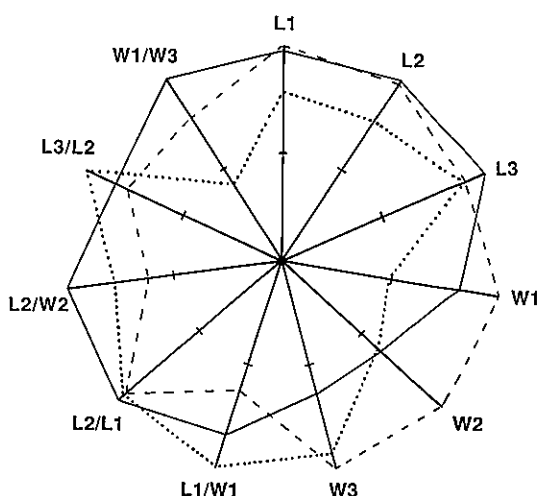


Fig. 3. Star diagrams based on the mean leaf measurements, in which the maximum value among three taxa was calculated as 1 for comparison. Dotted line: *R. palmatus*; solid line: *R. x calopalmatus*; dashed line: *R. chingii*. Symbols of each axis, see Fig. 1.

We are very grateful to Mr. Atsushi MINAMI for introducing us to the study of the new plant. We would also like to thank Dr. Tatemi SHIMIZU for the correction of Latin description and Dr. Maxine THOMPSON for critical reading of English composition.

Rubus x calopalmatus NARUHASHI et MASA-KI, hybr. nov. (Fig. 1: B; Fig. 4: A, B, Ca & b, Db, Eb, Fb)

Rubus palmatus THUNBERG ex MURRAY × *Rubus chingii* HU

Ab anteriore differt: foliis floricanorum quinquepalmatis, petalis corrugatis. A posteriore differt: caulibus, ramis et petiolis rufescentibus.

Frutex deciduus erectus ramosus, 1.5–3 m altus 6–13 (–15) mm diametro ad basin caule aculeatus rufescens ramis hornotinis 3–5 foliatis. Petioli rufescens tomentosi recurvato-aculeolati. Folia simplicia 5–7-nato-palmati petiolatarufescento-viridia duplicato-serrata, stipulis linearibus tomentosis 5–8 mm longis. Foliaprimocani 5–7-nato-palmata, petiolo 2–4 cm longo, laminis apice acutis vel acuminatis basicordatis, lobis terminalibus anguste ovatis 4–9 cm longis 1.5–3.5 cm latis. Folia floricani 5-nato-palmata; petiolis 1–4 cm longis, laminis apice attenuato-acuminatis basi cordatis, lobis terminalibus anguste ovatis. Flores 1 rarissime 2 nutantes ramulos hornotos terminantes 3–4.5 cm diametro, pedicellis 8–13

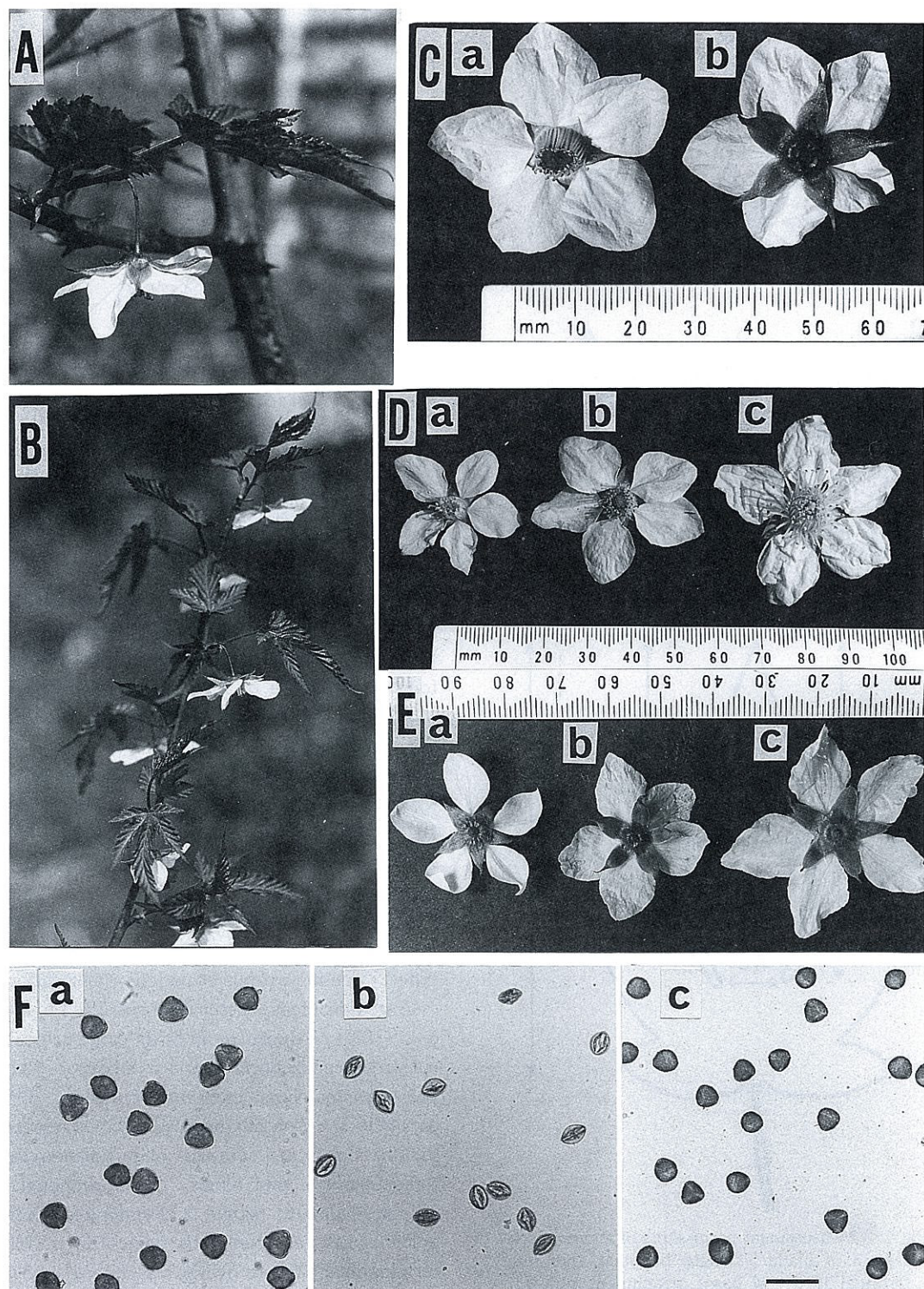


Fig. 4. A & B: Flowering branch of *R. ×calopalmatus*. C: Flower of *R. ×calopalmatus*. a: Front view, b: back view. D: Front view of flowers. a: *R. palmatus*, b: *R. ×calopalmatus*, c: *R. chingii*. E: Back view of flowers. a: *R. palmatus*, b: *R. ×calopalmatus*, c: *R. chingii*. F: Pollen grains (bar represents 50 μm). a: *R. palmatus*, b: *R. ×calopalmatus* with no good stainable pollen grains, c: *R. chingii*.

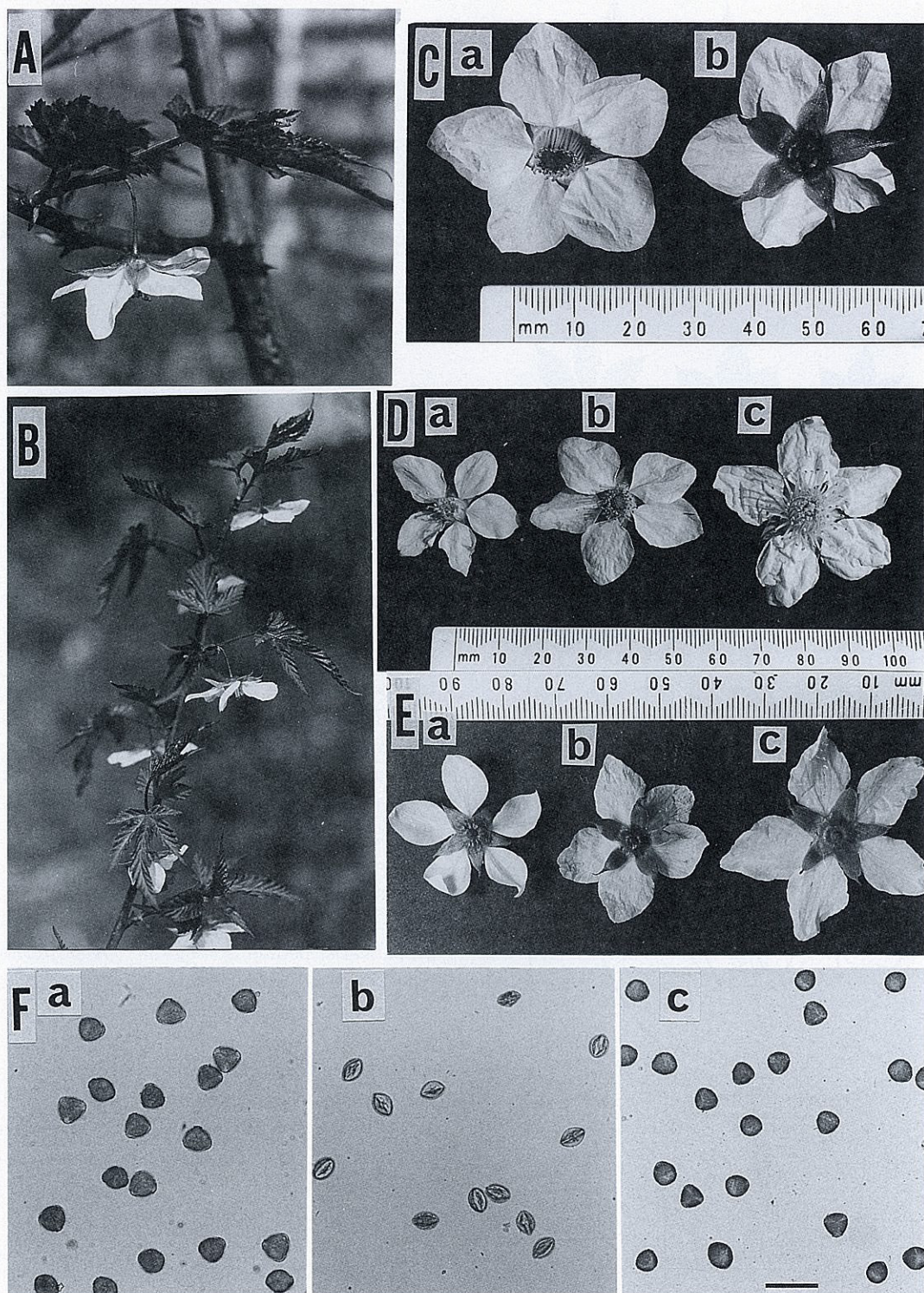


Fig. 4. A & B: Flowering branch of *R. ×calopalmatus*. C: Flower of *R. ×calopalmatus*. a: Front view, b: back view. D: Front view of flowers. a: *R. palmatus*, b: *R. ×calopalmatus*, c: *R. chingii*. E: Back view of flowers. a: *R. palmatus*, b: *R. ×calopalmatus*, c: *R. chingii*. F: Pollen grains (bar represents 50 μ m). a: *R. palmatus*, b: *R. ×calopalmatus* with no good stainable pollen grains, c: *R. chingii*.

mm longis, plerumque glabris, calycibus lanceolatis longe rostratis, utrimque tomentosis, petalis albis ovatis vel late rhombeo-ovatis horizontale patentibus corrugatis apice acutis raro obtusis vel apiculatis, ca. 15 mm longis ca. 13 mm latis. Stamina numerosa, antheris oblongis 0.7-0.9 mm longis, filamentis albis linearibus 3-6 mm longis glabris. Pistilla numerosa ca. 5 mm longa, ovariis superiore externe et stylis interiore longe pilosis, stigmatibus pallide porphyreis verrucatis. Pollina plerumque sterilia. Fructus ignotus.

Nom. Jap. Gosho-momiji-ichigo, nov.

Hab. Japonia. Honshu. Pref. Yamaguchi: Saba-gun, Tokuji-cho, Notani-shimo, H. Masaki, Jun. 4, 1985 (PF1.***); N. Naruhashi & H. Masaki, no. 86042901, Apr. 29, 1986 (Fl.) -Holotypus in Herb. Univ. Kyoto (KYO), Isotypus in A, B, E, K, KANA, MAK, OSA, PE, SHIN, TI, TNS, TUS, etc., no. 86042902, Apr. 29, 1986 (Ster.); ibidem, cult. in Bot. Gard. Toyama Univ., N. Naruhashi, Apr. 27, 1988 (Fl.), May 11, 1988 (PF1.), Apr. 12, 1989 (Fl.), May 6, 1989 (PF1.), Apr. 30, 1991 (PF1.), May 11, 1991 (PF1.), Apr. 25, 1992 (Fl.), Aug. 28, 1992 (Ster.); Saba-gun, Tokuji-cho, Notani, H. Masaki, Apr. 5, 1990 (Fl.); Saba-gun, Tokuji-cho, Notani Kami, Apr. 8, 1990 (Fl.); Saba-gun, Tokuji-cho, Notani Nakamura, H. Masaki, Apr. 14, 1992 (Fl.); Saba-gun, Tokuji-cho, Shidenokig-

awa, H. Masaki, Apr. 14, 1992 (Fl.), Apr. 17, 1992 (Fl.), Aug. 17, 1992 (Ster.); Saba-gun, Tokuji-cho, Yasaka, Makata, H. Masaki, Apr. 8, 1990 (Fl.); Saba-gun, Tokuji-cho, Yasaka-kami, H. Masaki, Nov. 4, 1990 (Ster.). (***: after flowering)

摘 要

山口県佐波郡徳地町野谷にはゴショイチゴが良く見られ、その付近に一般的なモミジイチゴとの間に雑種の可能性があった。この新雑種は1983年山口県立柳井高等学校教諭南敦氏によって発見され、1985年に真崎が、1986年に真崎と鳴橋が現地で確認し、その年より富山大学で栽培、観察されて来た。春はじめの葉の展開のころから花のころは、この植物の全体が赤身を帯び、赤いモミジに似てきれいである。手の平型をした葉は、その裂片が端正でゴショイチゴよりもきれいである。そんなところから、この植物の種小名を *calopalmatus* とした。体つきや多くの形態的な特徴は、その推定される両親であるゴショイチゴとモミジイチゴの間であった。しかし、葉の形においては、独自の形態と見なされる点もあった。ゴショイチゴとは茎や葉に赤褐色の色が着くこと、モミジイチゴとは葉が5-7裂片に切れ込み、手の平型をすることで、区別される。この雑種は花粉の稔性が0.9%とほとんどなく、開花後すべての花は枯れてしまう。また、栄養繁殖の能力は強い。 (Received August 25, 1992)

○ 広島市立中央図書館 山県草木志 (複製) 平成4年3月31日発行。A4判, 300頁。非売品。

“山県草木志”は小田好道が、安永9年(1780)、広島県山県郡の草木について記述し、広島藩に差し出したもので、原本は現在、広島市立中央図書館に浅野家本として所蔵されている。他に小田家本(写本)が伝えられているが、これは前欠本で、完本はこの浅野家本のみという貴重なものである。しかし、白井光太郎先生はこの本の存在を知らなかったようで、その著“日本博物学年表”には小田好道の名も“山県草木志”の書名も記入されていない。

著者、小田好道は享保5年(1720)、代々医を業とする家に生れたが、11才で父を亡くした。気丈な母は彼を苦労して育てたことは勿論であるが、彼も亦苦労して医術を独学で学び医者となった。しかし、多才の彼は本業の他に瓶花(生花)や俳諧を好み、特に後者では其滴という名で、この地域の指導者の立場を果している。

“山県草木志”は“本草綱目”の分類に従って13類に区別し、山草之類43種、芳草之類21種、湿草之類89種、毒草之類31種、蔓草之類29種、水草之類11種、石草之類11種、苔之類10種、雑草之類5種、菜之類57種、穀之類31種、果之類32種、木之類75種、計445種が登載されていて、植物の漢名、続いてその古名・和名ならびに、特に「土俗……と云」「今……」とこの地方の呼称や当時の呼称を記し、以下それらの生育する場所、形状、品質、利用法などが述べられている。

(里見信生)

○ 愛媛県林業振興会誌 ふるさとの森—えひめの社寺林 B5判, 208頁。平成4年3月31日, 財団法人愛媛の森林基金(〒790 松山市一番町4丁目4-2, 愛媛県森林林業課内)発行。1500円+送料380円。

社寺林, それは規模の大小が様々であるけれども、多かれ少なかれその地域の原植生を残していて、貴重な存在と言うことができる。

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