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New and Interesting Taxa of Vascular Plants from Suzaki, Shimoda City, Central Japan

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Abstract Several new and interesting taxa from a taxonomic viewpoint have been found during the course of a floristic investigation of vascular plants of Suzaki , Shimoda City, in Izu Peninsula. In this paper, one new species, *Allium litorale* Konta; one variety, *Zanthoxylum piperitum* (L.) DC. var. *hispidum* (Hayashi) Konta stat nov.; six new forms, *Dianthus japonicus* Thunb. forma *albiflorus* Konta & S. Matsumoto, *Paederia scandens* (Lour.) Merrill var. *maritima* (Koidz.) H. Hara forma *rubrae-stellaris* Konta & S. Matsumoto, *Solanum lyratum* Thunb. forma *purpuratum* Konta & Katsuyama, *Hydrangea macrophylla* (Thunb. ex Murray) Ser. forma *nuda* Konta & S. Matsumoto, *Farfugium japonicum* (L.fil.) Kitam. forma *aligulatum* Konta, and *Angelica keiskei* (Miq.) Koidz. forma *foliose* Konta & S. Matsumoto; and one interesting forma, *Ranunculus silerifolius* H. Lév. forma *pleniflorus* (Ohtani & Shig. Suzuki) Konta & Katsuyama comb. nov. are described in addition to taxonomical discussion on an interesting species, *Clerodendron izuinsulare* K. Inoue, M. Hasegawa & S. Kobayashi.

Key words : Suzaki, vascular plants, new and interesting taxa.

Introduction

Several new and interesting taxa from a taxonomic viewpoint have been found during the course of a floristic investigation of vascular plants of Suzaki , Shimoda City, in Izu Peninsula. The investigation has been conducted since 2000 as a project study of the National Science Museum, Tokyo, under the title of the Study on Environmental Changes in Sagami Sea and Adjacent Coastal Areas by Continuous Comparison of Fauna and Flora. Suzaki is a marine terrace located on the southeastern shore of Izu Peninsula and called Suzaki Peninsula. This peninsula extends approximately 3 km from east to west and 2.5 km north and south. Topographically, the peninsula is featured by hilly regions and seashores including rocky coasts and sandy beaches. There are several hill tops in the hilly regions, approximately 60–70 m above the sea level and many gorges run from there to the sea. It has a mild oceanic climate. Its main vegetation is secondary natural forests of evergreen broad-leaved trees and coastal herbaceous plants. These natural forests cover hills except the flat areas where cultivated fields and residential districts have been developed.

Suzaki is a very interesting place from the viewpoint of floristic study. Plentiful taxa of vascular plants distributed in warm temperate and seashore areas within Japan are recognized in this area. Emperor Hirohito (1980) listed 597 species in his book ‘Flora Suzakiensis’. Among these species, some are closely related to their counterparts in the Izu Islands where many endemic taxa are distributed (Ohba & Akiyama, 2002). It was expected that new and interesting

taxa would be found in Suzaki.

In this paper, one new species, *Allium litorale* Konta; one variety, *Zanthoxylum piperitum* (L.) DC. var. *hispidum* (Hayashi) Konta stat nov.; six new forms, *Dianthus japonicus* Thunb. forma *albiflorus* Konta & S. Matsumoto, *Paederia scandens* (Lour.) Merrill var. *maritima* (Koidz.) H. Hara forma *rubrae-stellaris* Konta & S. Matsumoto, *Solanum lyratum* Thunb. forma *purpuratum* Konta & Katsuyama, *Hydrangea macrophylla* (Thunb. ex Murray) Ser. forma *nuda* Konta & S. Matsumoto, *Farfugium japonicum* (L. fil.) Kitam. forma *aligulatum* Konta, and *Angelica keiskei* (Miq.) Koidz. forma *foliose* Konta & S. Matsumoto; and one interesting forma, *Ranunculus silerifolius* H. Lév. forma *pleniflorus* (Ohtani & Shig. Suzuki) Konta & Katsuyama comb. nov. are described in addition to taxonomic discussion on an interesting species, *Clerodendron izuinsulare* K. Inoue, M. Hasegawa & S. Kobayashi.

Material and method

Materials were collected throughout Suzaki Peninsula, Shimoda City, Shizuoka, including the Suzaki Imperial Villa, which is situated on the eastern coast of Suzaki Peninsula. Most herbarium specimens of flowering plants were collected in their blooming or fruiting seasons. All these specimens are preserved in TNS.

Description

1. *Allium litorale* Konta sp. nov.

Affinis Allium thunbergii, sed lamina valde lata et perianthio majoriore diversus.

Habit. Bulbs 2–5 cm long, 1–2.5 cm in diameter, narrowly conical to narrowly ovoid (Fig. 1–1); outer tunics white, slightly reddish in color at the upper part. Stem erect, 30–40 cm long, 2.5–4 mm in diameter, elliptic in transverse section, independently grows from leaves. Leaves tuft, 2–5, up to 46 cm long, 5–6 mm in wide, 0.7–0.9 mm thick, linear, tapering to round apex, flat, keeled beneath, both sides dark green (Fig. 1–2). Flowering Nov. to Dec., umbel 3–4 cm in diameter, spherical to hemispherical, pedicels 20–60, 1.1–1.3 cm long; perianth cup shaped, 8–10 mm in diameter, pale purple; outer perianth segment ovate, 6 mm long, 3 mm wide, with a green vertical belt on the abaxial side, inner perianth segment elliptic, 7 mm long, 3 mm wide, a slender green line on the abaxial side, apex of both segments round; stamens 6, protruding from perianth (Fig. 1–3); filaments 5–7 mm long, without small protuberance at the base (Fig. 1–4); anther ca. 1.3 mm long, dark brown when dehisced (Fig. 1–3); pollen pale yellow; pistil 1, ca. 5 mm long, pale purple; ovary triangular pillar, 4 mm long, 3 mm wide, pale green, three nectar pockets at the basal part, trilocular (Fig. 1–5); two anatropous ovules in each locules (Fig. 1–6). Whole plant with strong smell.

Habitat. Open grassy areas on hilltops or slopes near the seashore, ca. 20 m above the sea level.

Type. Japan. Honshu. Shizuoka: Suzaki, Shimoda City, Suzaki Peninsula; Tsumeki-zaki, *F. Konta*, *24040* (Holotype; TNS, Fig. 2). *F. Konta, 24041* (Paratype; TNS).

Japanese name. Hamarakkyo.

Notes. Allium litorale is similar in habit with *Allium thunbergii*, but differs from the latter mainly in beltlike leaves with 5 to 6 mm wide instead of needle ones with triangular transverse section of the latter, and larger perianth, about 10% larger than the latter. The former is also characterized by larger bulbs, later blooming from Nov. to Dec., and paler color of perianths (Fig. 3–1). The former seems to be the seashore type of the latter.

2. *Zanthoxylum piperitum* (L.) DC. var. *hispidum* (Hayashi) Konta, stat. nov.

Zanthoxylum piperitum (L.) DC. form. *hisipidum* Hayashi in Bull. Gov. For. Exp. Sta. 107: 28.

Type. Japan. Honshu. Miyagi: Kinkazan (*Yasaka Hayashi*, *Oct. 24*, *1955*, Holotype in Herb. Gov. For. Exp. Sta., Isotype in TNS).

Specimens examined. Japan. Honshu. Shizuoka: Suzaki, Shimoda City, Suzaki Peninsula;

Fig. 1. *Allium litorale* (holotype). 1. Bulbs. 2. Transverse section of leaf. 3. Flower showing green stripe at center of each perianth segment and brown anthers. 4. Flower showing smooth base of anthers without small protuberance. 5. Vertical section of ovary showing anatropous ovule. 6. Transverse section of ovary showing trilocules and two ovules in each locule.

Fig. 2. Holotype of *Allium litorale*.

Suzaki-goyotei, *F. Konta*, *T. Katsuyama*, *H. Noguchi & I. Sasamoto 23061*; Sotoura, *F. Konta*, *23252*, *22685*.

Japanese name. Arage-zanshō.

Notes. Our specimens are deciduous trees ca. 1–3.5 m in height and have the following characteristics; hornotinous branch hispid with small brown bristles, ca. 0.1 mm long (Fig. 3–2), rachis with hairs on both surfaces, base of leaflets on the abaxial surface hairy. They grow in thickets of mixed secondary forests of evergreen and deciduous trees approximately 2–4 m in height or in evergreen forests of 10 to 12 m in height, which are distributed on hills near the seashore, ca. 5–40 m above the sea level.

For the infraspecific taxa of *Zanthoxylum piperitum*, four forms, f. *brevipinosum* Makino, f. *inerme* Makino, f. *ovalifolium* (Nakai) Makino, and f. *hishidum* Hayashi, have been hitherto reported. The first three forms are recognized based on the following characteristics; presence or absence of spines on branches, density of spines on branches, shape of leaves, and size of fruits. The bristles on hornotinous branches and leaves of the last forma, f. *hispidulum*, however, show more distinctive taxonomic characteristic than former three forms.

3. *Dianthus japonicus* Thunb. forma *albiflorus* Konta & S. Matsumoto, forma nov.

Affinis Dianthus japonicus forma japonicus, sed corolla alba diversus.

Habit. Stems upright ca. 50–70 cm in height, leaves on lower stems oblong 5–6 cm long, 1.4–2 cm wide, 15–25 white flowers with purple anthers on the top of each stem, flowers 12–14 mm in diameter (Fig. 3–3).

Habitat. Several plants with white flowers grow on dry and steep rocky slope by the road with *Miscanthus sinensis*, *Artemisia princeps*, etc., ca. 30 m above the sea level and ca. 500 m from the seashore.

Type. Japan. Honshu. Shizuoka: Suzaki, Shimoda City, Suzaki Peninsula, *F. Konta*, *S. Matsumoto & K. Hashiba*, *23847-a* (Holotype; TNS, Fig. 4), *23847-b*, *23847-c* (Iotype; TNS).

Japanese name. Shirobana-hamanadeshiko.

Notes. This new forma is distinctive by white flowers from red purple ones of the typical one.

4. *Paederia scandens* (Lour.) Merrill var. *maritima* (Koidz.) H. Hara forma *rubrae-stellaris* Konta & S. Matsumoto, forma nov.

Affinis Paederiae scandenti var. maritimae forma maritimae sed corolla rubram-stellari diversus.

Habit. A red line present at the center of each corolla lobe. Five lines on five star shaped corolla lobes forming a star-shaped red part (Fig. 3–4).

Type. Japan. Honshu. Shizuoka: along trail of Tsumeki-zaki, Suzaki, Shimoda City, Suzaki Peninsula; *F. Konta*, *S. Matsumoto*, *I. Sasamoto & A. Utano*, *1249* (Holotype; TNS, Fig. 5), Goyotei, Suzaki, Shimoda City, Suzaki Peninsula; *F. Konta*, *S. Matsumoto & I. Sasamoto*, *23283* (Paratype; TNS).

Japanese name. Hoshizaki-hamasaotome-kazura.

5. *Solanum lyratum* Thunb. forma *purpuratum* Konta & Katsuyama, forma nov.

Affinis Solano lyrato forma lyrato sed corolla purpurato diversus.

Habit and Habitat. Corolla pale blue purple. Liana creeping on the lightly shaded ground, ca. 40 m above the sea level, on a hill near the beach.

Type. Japan. Honshu. Shizuoka: Suzaki, Shimoda City, Suzaki Peninsula; Tsumekizaki, *F. Konta*, *23381-a* (Holotype; TNS, Fig. 6), *23381-b* (Isotype; TNS).

Japanese name. Murasaki-hiyodorijogo.

6. *Hydrangea macrophylla* (Thunb. ex Murray) Ser. forma *nuda* Konta & S. Matsumoto, forma nov.

Affinis *Hydrangea macrophylla*e forma normali, sed floribis neutra nulla diversus.

Habit. Neutral ornamental flowers with enlarged petallike sepals are lacking from marginal part of inflorescence (Fig. 3–5). Shrublike small tree ca. 1.5 m in height, edge of thickets near beach, flowers blue.

Type. Japan. Honshu. Shizuoka: Suzaki, Shi-

Fig. 3. New and interesting taxa. 1. Inflorescence and flower of *Allium litorale*. 2. Young branch of *Zanthoxylum piperitum* var. *hispidum* showing small bristles. 3. Flower of *Dianthus japonicus* forma *albiflora* showing white flowers. 4. Flower of *Paederia scandens* var. *maritima* forma *rubrae-stellaris* showing stellate red part of corolla. 5. Inflorescence of *Hydrangea macrophylla* forma *nuda* showing no marginal ornamental flowers. 6. Capitulum of *Farfugium japonicum* forma *aligulatum* showing aligulate ray flowers. 7. Inflorescence of *Angelica keiskei* forma *foliose* showing small leaves growing at apices of rays of the second fork of compound umbels. 8. Flower of *Ranunculus silerifolius* forma *pleniflorus* showing 12 petaloid condition.

Fig. 4. Holotype of *Dianthus japonicus* forma *albiflora*.

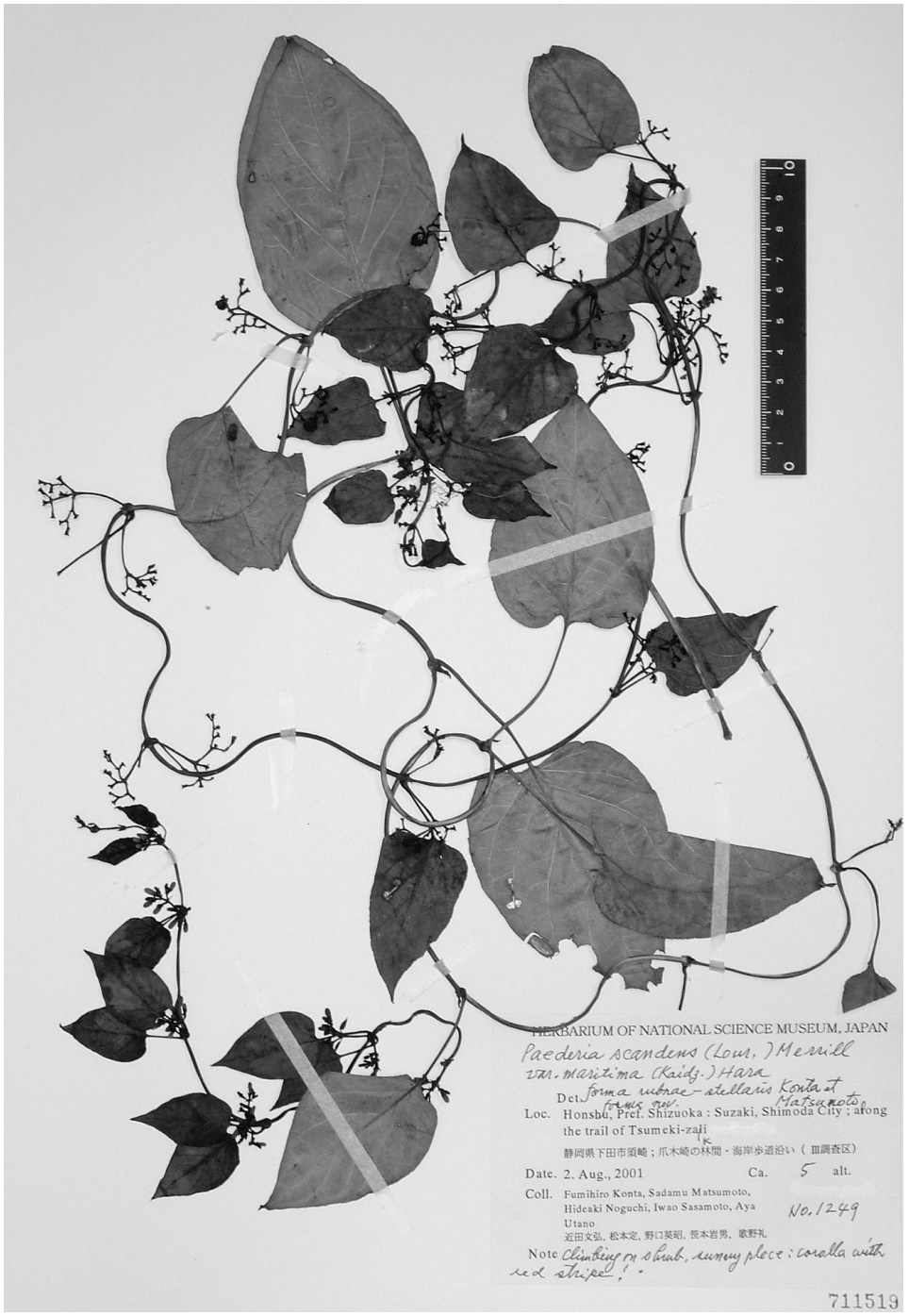

Fig. 5. Holotyoe of *Paederia scandens* var. *maritima* forma *rubrae-stellaris*.

Fig. 6. Holotype of *Solanum lyratum* forma *purpuratum*.

moda City, Suzaki Peninsula; Tsumekizaki, *F. Konta*, *23228* (Holotype; TNS, Fig. 7).

Japanese name. Fuchinashi-gakuajisai.

Notes. Hydrangea macrophylla forma *macrophylla* is characterized by inflorescence, most of which flowers are changed to ornamental, however inversely, forma *nuda* has inflorescence lacking ornamental flowers.

7. *Farfugium japonicum* (L.fil.) Kitam. forma *aligulatum* Konta, forma nov.

Affinis Farfugio japonio, sed capitulo aligulato diversus.

Habit. Most capitulums lacking ligulate ray flowers.

Habitat. More than ten individuals, most of which lack ligulate ray flowers (fig. 3–6), are mixied with those sharing ligulate flowers at open hilltop near the seashore, ca. 20 m above the sea level.

Type. Japan. Honshu. Shizuoka: Suzaki, Shimoda City, Suzaki Peninsula; Tsumekizaki, *F. Konta*, *24043-a* (Holotype; TNS, Fig. 8), *24043-b* (Isotype; TNS).

Japanese name. Kawari-tsuwabuki.

8. *Angelica keiskei* (Miq.) Koidz. forma *foliosa* Konta & S. Matsumoto forma nov.

Affinis Angelicae keiskei. forma keiskei sed umbella foliosa diversus.

Habit. Trilobed small leaves with inflated sheath grow at apices of rays of the second fork of compound umbels. Flowers bloom at the end of May (fig. 3–7).

Type. Japan. Honshu. Shizuoka: Suzaki, Shimoda City, Suzaki Peninsula; Goyotei, *F. Konta*, *S. Matsumoto & K. Hashiba*, *28866-a* (Holotype; TNS, Fig. 9), *28866-b*, *28866-c* (Isotype; TNS).

Japanese name. Hazuki-ashitaba

9. *Ranunculus silerifolius* H. Lev. forma *pleniflorus* (Ohtani & Shig. Suzuki) Konta & Katsuyama comb. nov.

Ranuculus querpaertensis Nakai forma *pleniflorus* Ohtani & Shig. Suzuki, Sci. Rep. Yokos. City Mus. 7: 42.1962.

Habit and Habitat. Our specimens are characterized by flowers with 6–12 petals mixing with 5 petaloid ones (Fig. 3–8). More than 10 plants with pluriflowers grow on a lightly shaded moist and weedy area, near beach ca. 40 m above the sea.

Specimens. Japan. Honshu. Kanagawa: Kikoba, Hayama Cho, *S. Ohtani*, *1961*, *5*, *3* (Holotype; YCM); Shizuoka: Kakizaki, Shimoda City, Suzaki Peninsula, *F. Konta*, *23498*.

Japanese name. Yaezaki-kitsunenobotan.

10. *Clerodendron izuinsulare* K. Inoue, M. Hasegawa & S. Kobayashi in J. Jap. Bot. **72**: 119 (1997).

Clerodendron trichotomum Thunb. var. *izuinsulare* (K. Inoue *et al.*) H. Ohba & S. Akiyama in Mem. Natn. Sci. Mus., Tokyo. 32: 129 (2002).

Type. Japan. Honshu. Tokyo. Izu Island. Hachijojima: on the foot of Mt. Higashiyama, Boei Road (*K. Inoue*, *96003*, Holotype in SHIN, Isotypes in CPM, KYO, & TI).

Japanese name. Shima-kusagi (Inoue *et al.*, 1997).

Notes. H. Ohba & S. Akiyama (2002) considered that *Clerodendron izuinsulare* is a regional variety of the widely distributed *C. trichotomum* with a wide range of variations. They evaluated the differences between *C. izuinsulare* and *C. trichotomum* in the length of the petals and filaments, breadth of calyx lobes, color of calyx, and presence or absence of reflex petals to confirm the regional variety of taxonomical characteristics.

C. izuinsulare (Fig. 10–1, 3; Fig. 11–1) is distinct from *C. trichotomum* (Fig. 10–2, 4 Fig. 11–2) in the following characteristics: triangular leaves with distinct marginal serration and truncate base instead of indistinct marginal serration and cordate base of the latter, bright green leaves with lesser hairs on both sides than the latter, almost inodorous leaves instead of strong peanut-like one of the latter, green sparse hairs of young branch instead of brown dense hairs of the latter, circular leaf scar instead of notched imperfect circle of the latter, later blooming season than the

Fig. 7. Holotype of *Hydrangea macrophylla* forma *nuda*.

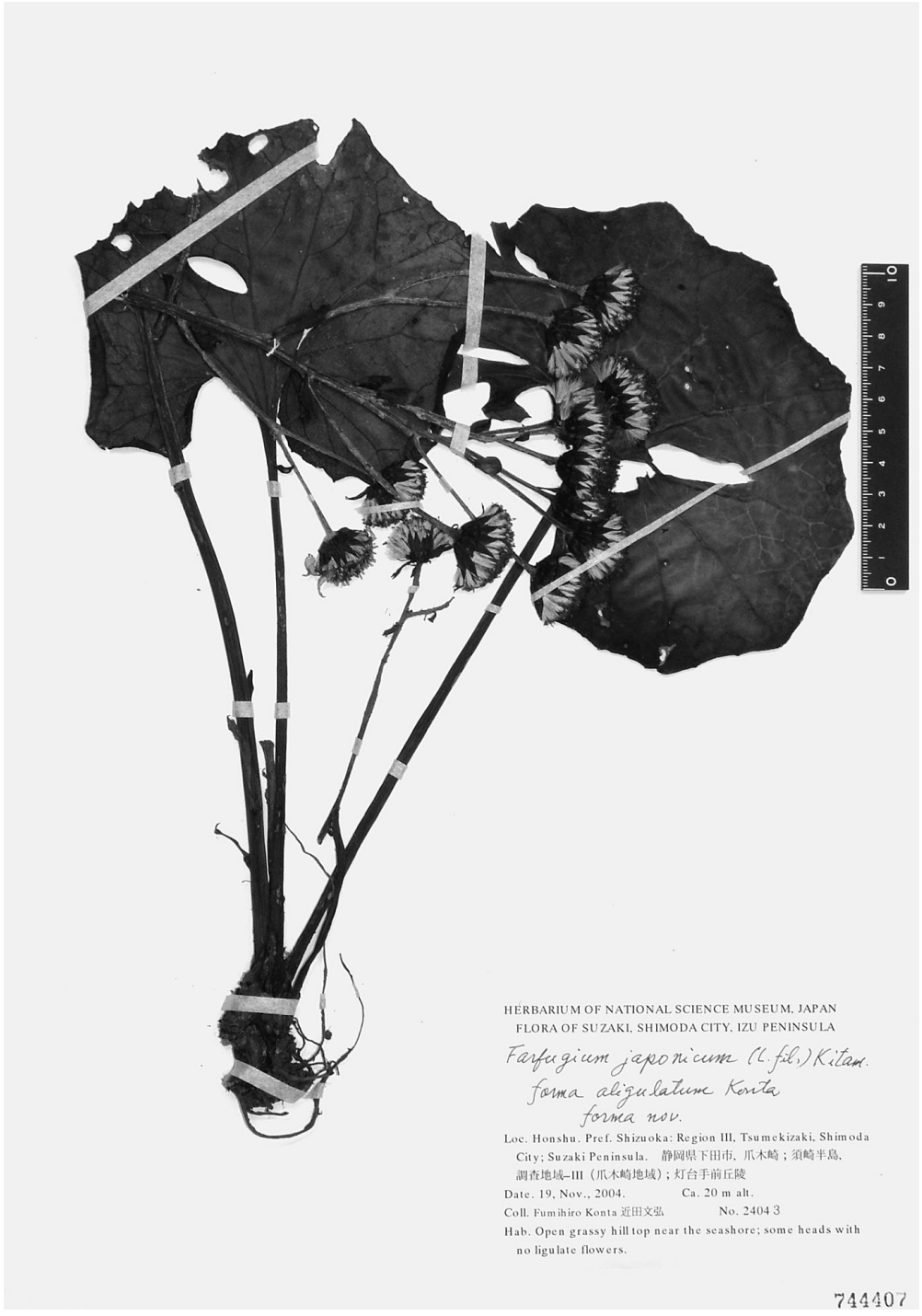

Fig. 8. Holotype of *Farfugium japonicum* forma *aligulatum*.

Fig. 9. Holotype of *Angelica keiskei* forma *foliose*.

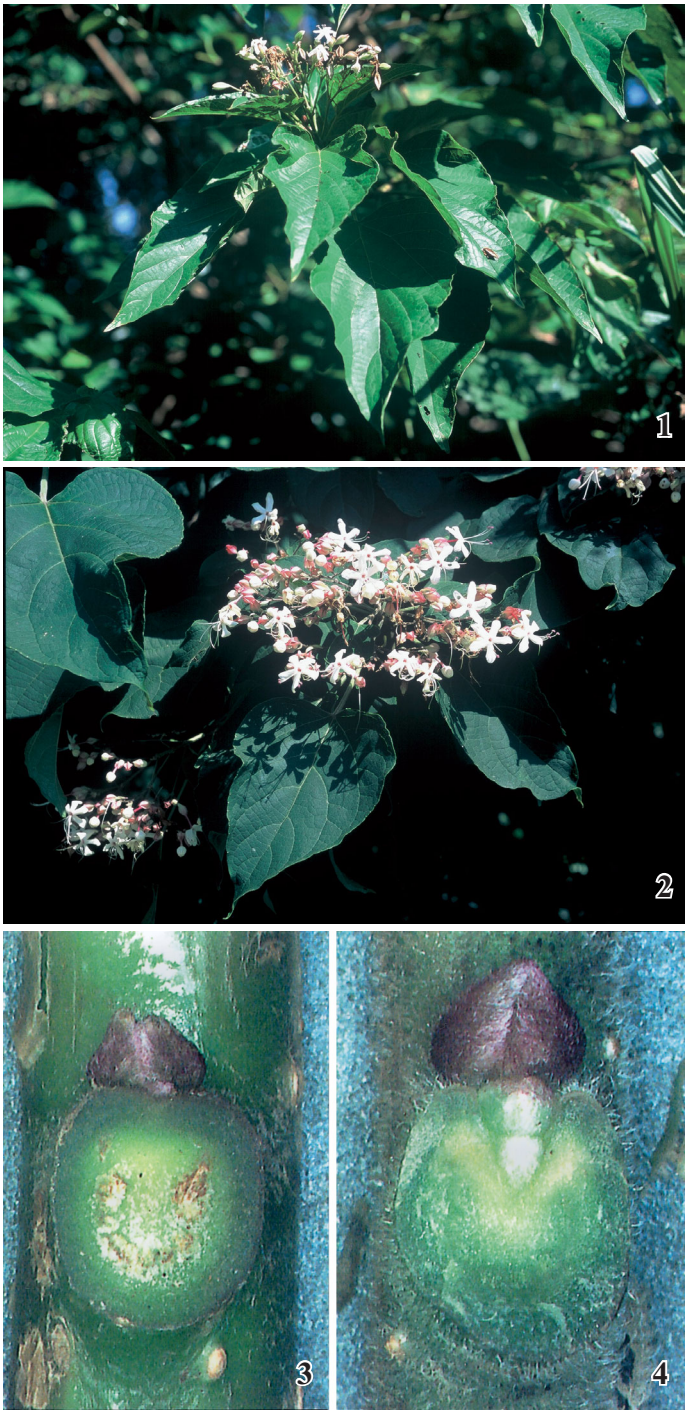

Fig. 10. Comparision of two species of *Clerodendron*. 1. Habit of *C. izuinsulare* showing bright green leaves, reflex petal, and pale brown calyx. 2. Habit of *C. trichotomum* showing dark green leaves, straight petal, and reddish calyx. 3. Circular leaf scar and less hairs around it in *C. izuinsulare*. 4. Leaf scar is notched imperfect circle and dense hairs around it in *C. trichotomum*.

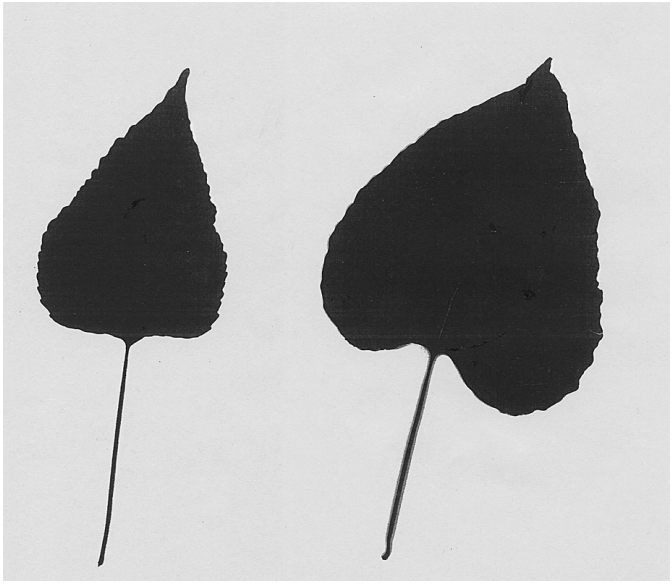

Fig. 11. Comparision of leaves of two species of *Clerodendron*. 1. *C. izuensulare* showing triangular leaf with distict marginal serration and truncate base. 2. *C. trichotomum* showing indistinct marginal serration and cordate base.

latter. In addition, the green calyx and strongly reflex petal of *C. izuinsulare* are distinct flower characteristics from the reddish calyx and straight petal of *C. trichotomum*. It is, therefore, concluded that *C. izuesulare* is independent species of *C. trichotomum.*

H. Ohba & S. Akiyama (2002) described *C. izuinsulare* is endemic to the Izu Islands (Toshima to Aogashima). Several specimens have been collected from the seashore of Miura Peninsula, Kanagawa Prefecture. And the first record in Izu Peninsula, Shizuoka Prefecture is reported in this paper from Suzaki, Shimoda City as cited below.

Specimens examined. Japan. Honshu. Tokyo: Nakanogo, Hachijo Machi, Isl. Hachijojima, *F. Konta*, *S. Matsumoro & T. Katsuyama*, *24070*; Kanagawa: Moroiso, Miura City, *S. Nishiyama*, *YCM3324*; Isohama, Miura City, *T. Katsuyama*, *et al.*, *KPM-NA119310*. Shizuoka: Suzaki, Ebisujima, *F. Konta*, 24027.

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