

# Geographical Variation of *Astilbe* (Saxifragaceae) Species Distributed in Fossa Magna and the Adjacent Regions in Japan

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**Abstract.** The distribution pattern of *Astilbe* species distributed in Fossa Magna and the adjacent regions in Japan is discussed in relation to the differentiation. A new taxonomic treatment of *Astilbe* in this region is attempted, and a new combination, *A. odontophylla* Miq. var. *okuyamae* S. Akiyama is proposed.

**Key words:** *Astilbe*, distribution, Fossa Magna region, geographical variation, new combination.

## Introduction

The genus *Astilbe* (Saxifragaceae) is distributed disjunctively in East Asia and North America and diversified in former. In Japan endemic species and varieties are known and its taxonomic treatment has been proposed by several researchers (Hara 1939; Ohwi 1953, 1975, 1982; Kitamura and Murata, 1961; Ohba 1982, 2001).

Fossa Magna region (Maekawa 1949) is known as a floristic region in Japan, which is rich in the endemic species especially neoendemic. In Fossa Magna and the adjacent regions nine taxa of *Astilbe* are distributed: these are *A. simplicifolia* Makino, *A. japonica* (C. Morren & Decne.) A.

Gray, *A. microphylla* Knoll, *A. thunbergii* (Siebold & Zucc.) Miq. (var. *thunbergii*), *A. hachijoensis* Nakai (*A. thunbergii* var. *hachijoensis* (Nakai) Ohwi), *A. okuyamae* H. Hara (*A. thunbergii* var. *okuyamae* (H. Hara) Ohwi), *A. formosa* (Nakai) Nakai (*A. thunbergii* var. *formosa* (Nakai) Ohwi), *A. fujisanensis* Nakai (*A. thunbergii* var. *fujisanensis* (Nakai) Ohwi), and *A. odontophylla* Miq. (*A. thunbergii* var. *congesta* H. Boissieu). Among them five taxa, *A. simplicifolia*, *A. hachijoensis*, *A. okuyamae*, *A. formosa*, and *A. fujisanensis*, are endemic to Fossa Magna and the adjacent regions. The taxonomic treatment of these five taxa have been diverse (Table 1). Their opinions can be summarized into the following two:

Table 1. Treatment of the species of *Astilbe* in Fossa Magna and the adjacent regions

Hara (1939)	Ohwi (1953)	Kitamura and Murata (1961)	Ohba (1982)	Ohba (2001)
<i>A. simplicifolia</i>	<i>A. simplicifolia</i>	<i>A. simplicifolia</i>	<i>A. simplicifolia</i>	<i>A. simplicifolia</i>
<i>A. hachijoensis</i>	<i>A. thunbergii</i> var. <i>hachijoensis</i>	<i>A. hachijoensis</i>	<i>A. thunbergii</i> var. <i>hachijoensis</i>	<i>A. hachijoensis</i>
<i>A. okuyamae</i>	<i>A. thunbergii</i> var. <i>okuyamae</i>	<i>A. thunbergii</i> var. <i>okuyamae</i>	<i>A. thunbergii</i> var. <i>okuyamae</i>	<i>A. okuyamae</i>
<i>A. formosa</i>	<i>A. thunbergii</i> var. <i>formosa</i>	<i>A. formosa</i>	<i>A. thunbergii</i> var. <i>formosa</i>	<i>A. formosa</i>
<i>A. fujisanensis</i>	<i>A. thunbergii</i> var. <i>fujisanensis</i>	<i>A. thunbergii</i> var. <i>fujisanensis</i>	<i>A. thunbergii</i> var. <i>fujisanensis</i>	<i>A. thunbergii</i> var. <i>fujisanensis</i>

one is that local variations are recognized as differences of species; the other is that some of these are treated as infraspecific taxa of *A. thunbergii*. Hara (1939) recognized all of the taxa concerned as distinct species. On the other hand except *A. simplicifolia* Ohwi (1953) treated four taxa, *A. hachijoensis*, *A. okuyamae*, *A. formosa*, and *A. fujisanensis*, as the varieties of *A. thunbergii*. Kitamura and Murata (1961) treated *A. simplicifolia*, *A. hachijoensis*, and *A. formosa* as distinct species but regarded *A. okuyamae* and *A. fujisanensis* as varieties of *A. thunbergii*, i.e. *A. thunbergii* var. *okuyamae* and *A. thunbergii* var. *fujisanensis*. Ohba (1982) principally followed Ohwi's treatment, but later he treated *A. hachijoensis*, *A. okuyamae*, and *A. formosa* as distinct species (Ohba 2001).

To clarify the entity of these five taxa, this paper aims to discuss the distribution pattern along with the morphological characters.

### Materials and Methods

To collect the data of the geographical distribution in Fossa Magna and the adjacent regions field surveys were made from 2006 to 2009. The data were also obtained from the herbarium specimens deposited in KPM, KYO, TI, TNS. All materials obtained were dotted on the maps. Morphological features proper to each taxon were compared.

### Results and Discussion

#### *Astilbe simplicifolia* Makino

This species is described by Makino (1893) on the collection from Mts. Tanzawa (Okuyama 1952). This species is distributed in Fuji-Hakone region, south side of Mt. Fuji, Mts. Hakone, and Mts. Tanzawa (Fig. 1a) and characterized by the unique simple (not compound) leaves (Fig. 2). The simple leaves with roughly incised double serration are sometimes slightly 3-lobed in larger ones (Fig. 3a & b) or not lobed (Fig. 3c). Takahashi and Hasegawa (2001) wrote that this simple leaf is considered to be a kind of neoteny and this

species still has an ancient character. In *Astilbe* other species have leaves (1--2--3(--4)) times ternately divided, but in juvenile stage leaves are more simple. In *A. thunbergii* var. *thunbergii* collected in Mts. Tanzawa, an adult plant with flowers has ternate leaves 3--4 times (Fig. 3d), while juvenile plants have simply ternate leaves (Fig. 3e). The simple leaf of *A. simplicifolia* is considered to be neotenus derivation as pointed by Takahashi and Hasegawa (2001). Takahashi and Hasegawa considered *A. simplicifolia* to be primitive, however the species with derived character through neotenus change should be regarded as derivative. At present it is difficult to give more strict detection to the species whether primitive or derivative, but it is reasonable to recognize this as a distinct species in having unique and consistent morphological characters.

#### *Astilbe fujisanensis* Nakai

*Astilbe fujisanensis* is described by Nakai (1926) based on the specimens from Mt. Fuji. Later the species is confirmed to occur also several other sites in Fuji-Hakone region (Figs. 1b, 4) and grows in higher elevations than *A. thunbergii* var. *thunbergii*. *Astilbe fujisanensis* characterized by the lustrous biternate to triternate leaves with roughly incised double serrations (Fig. 3f). The shape of leaflet with roughly incised double serration is similar to the simple leaf of *A. simplicifolia*. Though phylogenetic relationship is not yet clear, the morphological characters of leaves of this species is similar to those of *A. simplicifolia*. The distribution range of *A. fujisanensis* includes that of *A. simplicifolia*, but these two species are not found in the same places owing to their different preference of habitat: *Astilbe fujisanensis* grows on soils in open situations while *A. simplicifolia* on rocks in semishaded situations. This species is sometimes treated as the variety of *A. thunbergii* (e.g. Ohba 2001), but no evidence clearly supporting their relationship is found.

#### *Astilbe hachijoensis* Nakai

This species, described by Nakai (1919) on the collection from Hachijo-jima Island, is confirmed

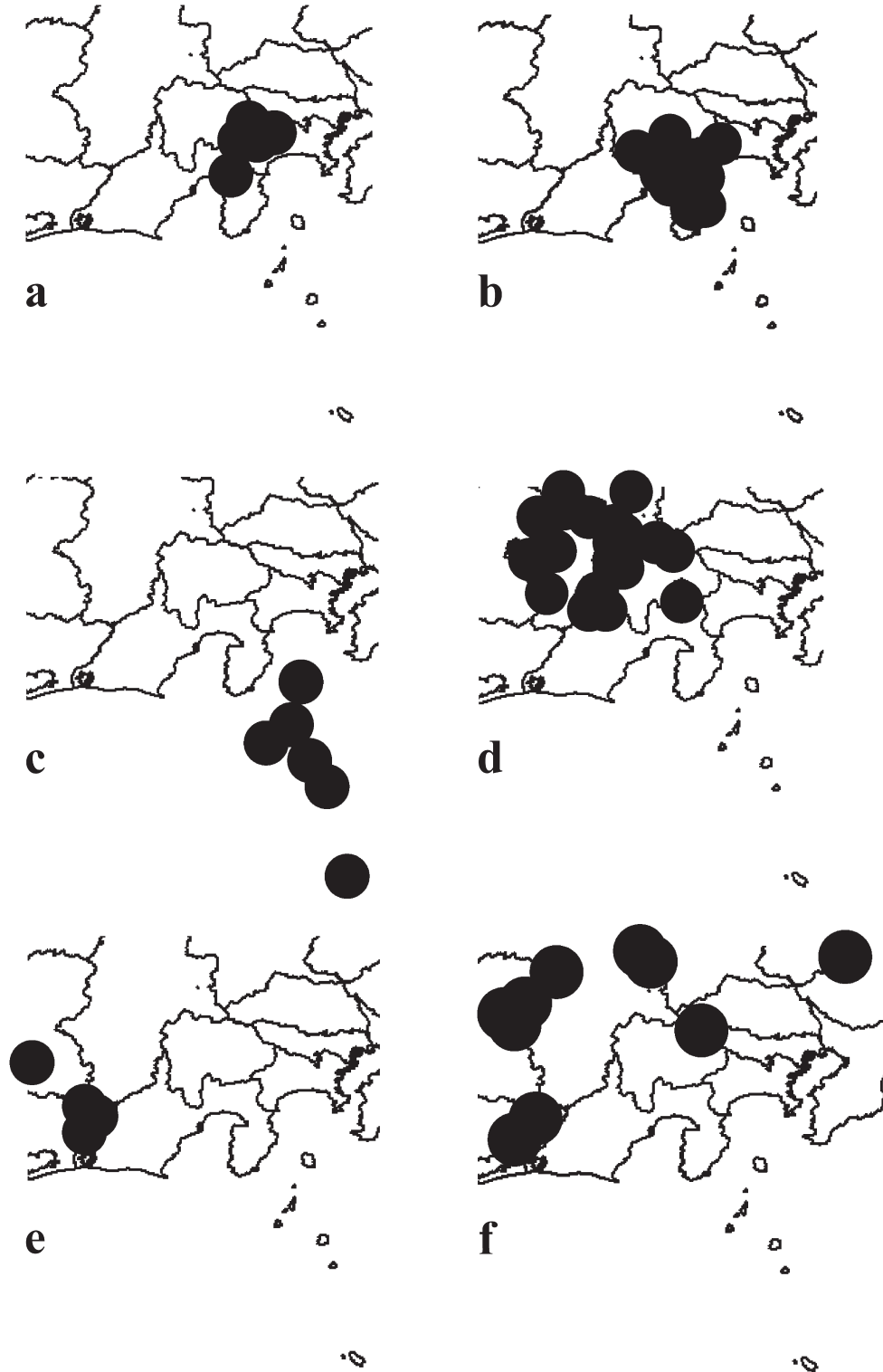


Fig. 1. Distribution of *Astilbe* in Fossa Magna and the adjacent regions. a, *A. simplicifolia*; b, *A. fujisanensis*; c, *A. hachijoensis*; d, *A. formosa*; e, *A. okuyamae*; f, *A. odontophylla*.



Fig. 2. *Astilbe simplicifolia* Makino. Kanagawa Pref., Mt. Tanzawa (T. Ikeda, Aug. 1951, TNS).

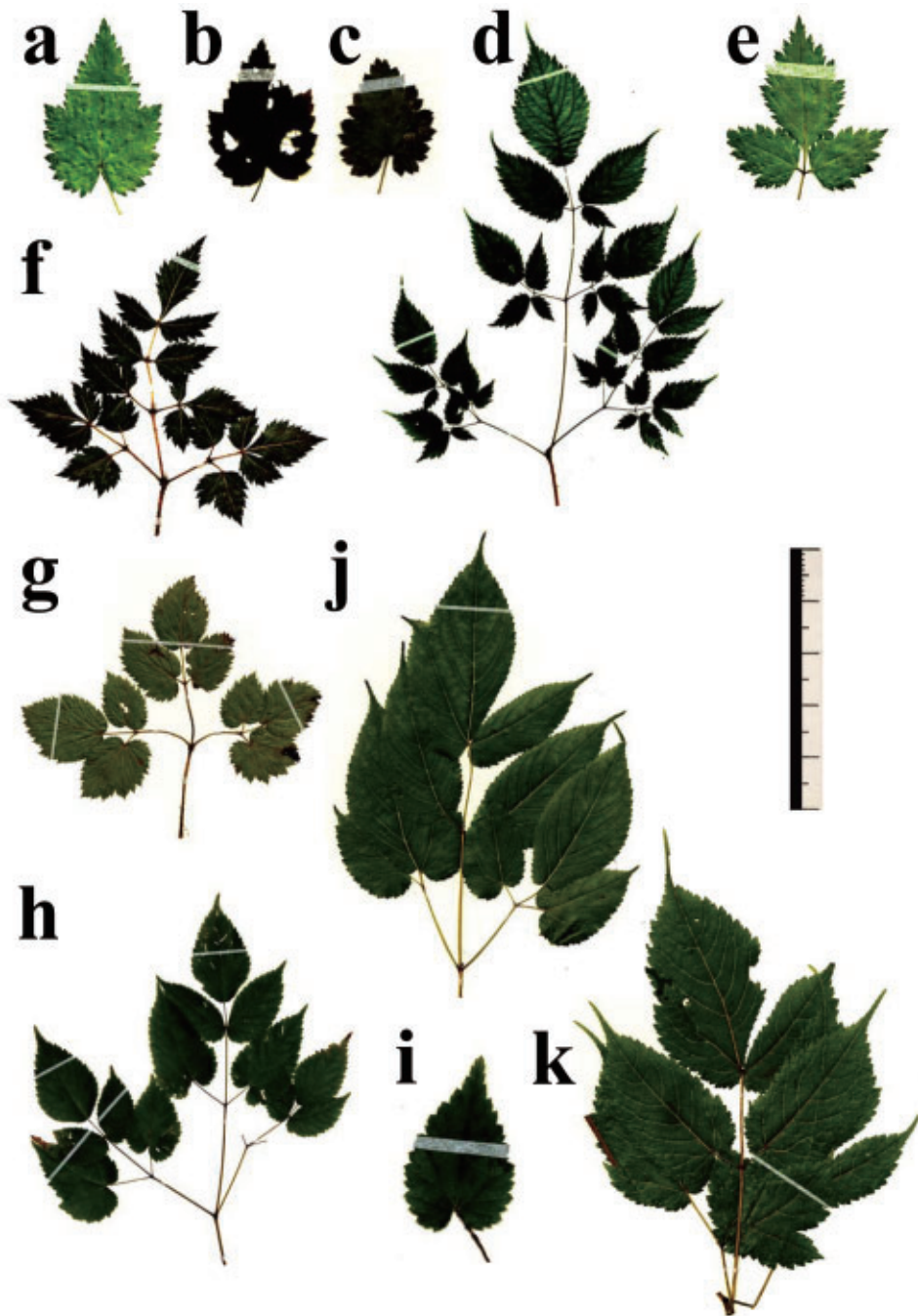


Fig. 3. Leaves and terminal leaflets of *Astilbe*. a, Adult leaf of *A. simplicifolia*; b and c, juvenile leaves of *A. simplicifolia*; d, adult leaf of *A. thunbergii* (var. *thunbergii*); e, juvenile leaf of *A. thunbergii* (var. *thunbergii*); f, adult leaf of *A. fujisanensis*; g, adult leaf of *A. hachijoensis*; h, adult leaf of *A. okuyamae*; i, juvenile leaf of *A. okuyamae*; j, adult terminal leaflet of *A. okuyamae*; k, adult terminal leaflet of *A. odontophylla*. Scale indicates 5 cm for b, c, e and i, 10 cm for a and f, and 20 cm for d, g, h and k.



Fig. 4. *Astilbe fujsanensis* Nakai. Mt. Fuji, Sambanse (B. Hayata, July 1924, TI-lecto).

to be endemic to the Izu islands, i.e. Hachijo-jima Island, Izu-oshima Island, Miyake-jima Island, Mikura-jima Island, and Kodzu-jima Island (Figs. 1c, 5). The species is well characterized by the thick, lustrous ternate to biternate (in larger ones) leaves with rough incised double serrations (Fig. 3g). The ternate to biternate leaves are also considered to be a kind of neoteny as in *A. simplicifolia*. There is also a possibility that the ternate to biternate leaves are a derived character and this species is also a derived one. The morphological characters of leaves of this species is similar to those of *A. simplicifolia* and the distribution area is near to that of *A. simplicifolia*. Though the phylogenetic relationship in the genus *Astilbe* is not yet clear, this species seems to be close to the latter. This species has distinct distribution area not overlapped with other species including *A. thunbergii* and the morphological character of leaves support its distinctness.

#### *Astilbe formosa* (Nakai) Nakai

This species, described by Nakai (1919) based on the collection from Mt. Yatsugatake as a variety of *A. microphylla* at first then recognized as a distinct species (Nakai 1922), is distributed in Shizuoka, Yamanashi, and Nagano prefectures (Figs. 1d, 6). It grows in grasslands in temperate to subalpine regions and characterized by the rather showy white flowers. It has sometimes intervening rhizomes as *A. shikokiana* Nakai var. *surculosa* S. Akiyama & Kadota. *Astilbe microphylla* Knoll, growing in grasslands in lowlands of Honshu, Shikoku, and Kyushu, has also intervening rhizomes. But there is no characters to show the close relationship among these three species. This species is also similar to *A. thunbergii* var. *thunbergii* in having biternate to triternate leaves. *Astilbe formosa* grows in higher places than *A. thunbergii*.

#### *Astilbe okuyamae* H. Hara

This species, described by Hara (1939) on the collection from Mt. Horaiji-san, Aichi Pref., is distributed in Aichi and Gifu prefectures and characterized by the biternate leaves with double

serrations (Hara 1939) (Figs. 1e, 7). This biternate leaf (Fig. 3h) is also considered to be a kind of neoteny as in *A. simplicifolia* and *A. hachijoensis*. Most juvenile leaves of this species are simple (Fig. 3i) as leaves of *A. simplicifolia*. There is also a possibility that the ternate to biternate leaf is a derived character and this species is possibly a derived one. In Gifu Prefecture, plants with biternate to triternate leaves (Fig. 3j) were collected. The ternation of leaves is variable from biternate to triternate. Plants with triternate leaves approach to *A. odontophylla* var. *odontophylla* distributed in same locality (Fig. 3k). The phylogenetic relationship is not yet clear, but the morphological characters of leaves of this species is similar to those of *A. odontophylla* (var. *odontophylla*) and the distribution is a part of the distribution range of *A. odontophylla* (s. str.). This species grows in wet places, such as on wet rocks or soils by streams. This species is considered to be derived from *A. odontophylla* and is better to treat as a variety.

#### Taxonomic treatments of *Astilbe* in Fossa Magna and the adjacent regions

*Astilbe simplicifolia* Makino in Bot. Mag. Tokyo 7: 103 (1893). Hara in Nakai and Honda, Nova Fl. Jap. 3: 10 (1939). Ohwi, Fl. Jap.: 594 (1953); Fl. Jap., rev. enlarg. ed.: 696 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan* 2: 148, pl. 35 302 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. 2: 165 (1982); in Iwatsuki et al., Fl. Jap. 2b: 42 (2001). Takahashi and Hasegawa in *Flora of Kanagawa 2001*: 790 (2001).

Type. Japan. Kanagawa Pref. Tanzawa (Y. Yamamoto s.n., not found) (Okuyama 1952).

Distribution. Japan. Honshu. Kanagawa and Shizuoka prefectures.

*Astilbe fujisanensis* Nakai in Bot. Mag. Tokyo 40: 464 (1926). Hara in Nakai and Honda, Nova Fl. Jap. 3: 16 (1939).

*A. thunbergii* (Siebold & Zucc.) Miq. var. *fujisanensis* (Nakai) Ohwi in Bull. Natl. Sci. Mus. To-



Fig. 5. *Astilbe hachijoensis* Nakai. Tokyo Pref., Is. Hachijo, Mt. Hachijofuji (H. Hattori, 7 July 1905, TI-holo).





Fig. 6. *Astilbe formosa* (Nakai) Nakai. Nagano Pref., Mt. Yatsugatake (Y. Yabe, 21 Aug. 1902, TI-holo).



Fig. 7. *Astilbe okuyamae* H. Hara. Aichi Pref., Mt. Horaiji-san (S. Okuyama 6000, 22 July 1930, TNS-holo).

kyo, no. 33, 73 (1953); Fl. Jap.: 595 (1953); Fl. Jap., rev. enlarg. ed.: 697 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan 2*: 149 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 167 (1982); in Iwatsuki et al., Fl. Jap. **2b**: 45 (2001). Takahashi and Hasegawa in *Flora of Kanagawa 2001*: 791 (2001).

Type. Japan. Honshu. Mt. Fuji, Sanbanse, 1900 m (B. Hayata, 23 July 1924, TI-lecto); Mt. Fuji, Asagidukasen, 1520 m (B. Hayata, 17 July 1924, TI-syn).

Distribution. Japan. Central Honshu. Kanagawa, Shizuoka, and Yamanashi prefectures.

***Astilbe hachijoensis*** Nakai in Bot. Mag. Tokyo **33**: 55 (1919). Hara in Nakai and Honda, Nova Fl. Jap. **3**: 20 (1939). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan 2*: 150 (1961). Ohba in Iwatsuki et al., Fl. Jap. **2b**: 44 (2001).

*A. thunbergii* (Siebold & Zucc.) Miq. var. *hachijoensis* (Nakai) Ohwi in Bull. Natl. Sci. Mus. Tokyo, no. 33, 73 (1953); Fl. Jap.: 595 (1953); Fl. Jap., rev. enlarg. ed.: 697 (1975). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 166 (1982).

Type. Japan. Honshu. Tokyo Pref. In monte Hachijôfuji insulae Hachijô (H. Hattori, 7 July 1905, TI-holo).

Distribution. Japan. Izu islands.

***Astilbe formosa*** (Nakai) Nakai in Bot. Mag. Tokyo **36**: 121 (1922). Hara in Nakai and Honda, Nova Fl. Jap. **3**: 24 (1939). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan 2*: 150 (1961). Ohba in Iwatsuki et al., Fl. Jap. **2b**: 44 (2001).

*A. chinensis* (Maxim.) Maxim. ex Franch. & Sav. var. *formosa* Nakai in Bot. Mag. Tokyo **33**: 54 (1919). Type: Japan. Honshu. Nagano Pref. (Prov. Shinano), circa Honzawa montium Yatsugatake (Y. Yabe, 21 Aug. 1902, TI-holo).

*A. thunbergii* (Siebold & Zucc.) Miq. var. *formosa* (Nakai) Ohwi in Bull. Natl. Sci. Mus. Tokyo, no. 33, 73 (1953); Fl. Jap.: 595 (1953); Fl.

Jap., rev. enlarg. ed.: 697 (1975). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 166 (1982). Distribution. Japan. Central Honshu. Yamanashi, Nagano, and Shizuoka prefectures.

***Astilbe odontophylla*** Miq., Ann. Mus. Bot. Lugd.-Bat. **3**: 96 (1867).

var. ***odontophylla***

*A. thunbergii* (Siebold & Zucc.) Miq. var. *congesta* H. Boissieu in Bull. Herb. Boissier **5**: 683 (1897), [new name for *A. odontophylla* Miq.] Ohwi, Fl. Jap.: 595 (1953); Fl. Jap., rev. enlarg. ed.: 697 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan 2*: 149 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 166 (1982); in Iwatsuki et al., Fl. Jap. **2b**: 45 (2001). Takahashi and Hasegawa in *Flora of Kanagawa 2001*: 790 (2001).

*A. congesta* (H. Boissieu) Nakai in Bot. Mag. Tokyo **36**: 121 (1922).

*A. odontophylla* Miq. var. *congesta* (H. Boissieu) H. Hara in Nakai and Honda, Nova Fl. Jap. **3**: 22 (1939).

Type. Japan. (Bot. Jap. s.n., L 004336-holo). Distribution. Japan. Honshu.

var. ***okuyamae*** (H. Hara) S. Akiyama, comb. nov.

*A. okuyamae* H. Hara in Nakai and Honda, Nova Fl. Jap. **3**: 21 (1939). Type: Japan. Honshu. Aichi Pref. (Prov. Mikawa), in monte Hôraiisan (S. Okuyama no. 60000, 22 July 1930, TNS-holo).

*A. thunbergii* (Siebold & Zucc.) Miq. var. *okuyamae* (H. Hara) Ohwi in Bull. Natl. Sci. Mus. Tokyo, no. 33, 73 (1953); Fl. Jap.: 595 (1953); Fl. Jap., rev. enlarg. ed.: 697 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan 2*: 149 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 166 (1982).

Distribution. Japan. Central Honshu. Shizuoka, Aichi, and Gifu prefectures.

***Astilbe thunbergii*** (Siebold & Zucc.) Miq., Ann. Mus. Bot. Lugd.-Bat. **3**: 96 (1867). Hara in Nakai and Honda, Nova Fl. Jap. **3**: 17 (1939).

*Hoteia thunbergii* Siebold & Zucc. in Abh. Math. Phys. Königl. Bayer. Akad. Wiss. **4**(2): 191 (1845).

var. **thunbergii**: Ohwi, Fl. Jap.: 595 (1983); Fl. Jap., rev. enlarg. ed.: 697 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan* **2**: 149, pl. 36 305 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 166 (1982); in Iwatsuki et al., Fl. Jap. **2b**: 44 (2001). Takahashi and Hasegawa in *Flora of Kanagawa 2001*: 790 (2001).

Distribution. Japan. Honshu

**Astilbe microphylla** Knoll. in Bull. Herb. Boissier ser. 2, **7**: 131 (1907). Hara in Nakai and Honda, Nova Fl. Jap. **3**: 11 (1939). Ohwi, Fl. Jap.: 595 (1953); Fl. Jap., rev. enlarg. ed.: 696 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan* **2**: 148, pl. 36 303 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 165 (1982); in Iwatsuki et al., Fl. Jap. **2b**: 43 (2001). Takahashi and Hasegawa in *Flora of Kanagawa 2001*: 790 (2001).

Distribution. Japan. Honshu, Shikoku, and Kyushu.

**Astilbe japonica** (C. Morren & Decne.) A. Gray in London J. Bot. **2**: 124 (1843). Hara in Nakai and Honda, Nova Fl. Jap. **3**: 14 (1939). Ohwi, Fl. Jap.: 595 (1953); Fl. Jap., rev. enlarg. ed.: 697 (1975). Kitamura and Murata in *Colored Illustrations of Herbaceous Plants of Japan* **2**: 148, pl. 36 304 (1961). Ohba in Satake et al., Wild Fl. Jap. Herb. Pl. **2**: 165 (1982); in Iwatsuki et al., Fl. Jap. **2b**: 42 (2001).

*Hoteia japonica* C. Morren & Decne. in Ann. Sci. Nat. Bot. ser. 2, **2**: 317 (1834).

Distribution. Japan. Honshu (westward from Shizuoka Pref.), Shikoku, and Kyushu.

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ral History, Odawara. (In Japanese.)

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## フォッサマグナおよび近隣地域におけるチダケサシ属植物の地理的多様性

秋山 忍

フォッサマグナおよび近隣地域におけるチダケサシ属植物の地理的および形態的多様性について調べた。この地域には、ヒトツバシヨウマ、フジアカシヨウマ、ハチジョウシヨウマ、ハナチダケサシ、ミカワシヨウマの5分類群が固有種または固有変種として知られている。これらの分類群は、分類学的取り扱いに異論があった。葉の形態および地理分布を調べた結果、ヒトツバシヨウマ、フジアカシヨウマ、ハチジョウシヨウマ、ハナチダケサシの4分類群は独立種、ミカワシヨウマはトリアシシヨウマの変種とするのが適切であると考えられる。ミカワシヨウマをトリアシシヨウマの変種とする新組合 *Astilbe odontophylla* Miq. var. *okuyamae* (H. Hara) S. Akiyama を発表した。

## Appendix

### Selected specimens examined

#### *Astilbe simplicifolia*

**Japan. Honshu. Kanagawa Pref.** Miyagase (T. Saito, 3 Aug. 1958, TNS). Mt. Ihai-dake (Sawada, 25 Aug. 1926, TI). Mts. Tanzawa, Sanjin pass–Shoshidaira (H. Kanai, 31 May 1953, TI). Nishitanzawa, Hoki-zawa (S. Asano 28 July 1962, TNS). Nishi-tanzawa, Nakagawa (J. Sato, 22 July 1975, TI). Ashigarakami-gun, Yamakita-cho, Yushin (T. Ikeda, Aug. 1951, TNS; Y. Hayashi, 16 Oct. 1956, TNS); Mt. Tanzawa, Kurokura-gawa, 800 m (T. Yamazaki 7427, TI); Kurokura (H. Takeda, 24 Sept. 1905, TI; Y. Hayashi, 19 Oct. 1956, TNS; J. Sugimoto, 7 Aug. 1965, TNS); Mt. Tanzawa-yama (S. Shimazu, 2 Sept. 1914, TI; T. Tuyama, 18 Oct. 1952, TI; S. Suzuki, 7 Aug. 1965, TNS); Yamamototanigawa (S. Okuyama, 27 May 1934, TNS); Mizunashi-gawa, 800 m (H. Matsuda, 23 Sept. 1954, TI); Midzunashigawa, 700 m (M. Togashi 61802, TI, TNS); Ameyama (S. Yoneda, 24 July 1963, TNS); Omote-one, Kuzuhamotozawa (H. Kanai 3672, TI). Tsukui-gun, Kami-no-kawa (S. Tamaki, 6 Aug. 1912, TI). **Shizuoka Pref.** Sunto-gun, Suyama-mura, Suyama (J. Sugimoto, 21 July 1951, TI, TNS; H. Uematsu, 10 Aug. 1959, TNS); Tomioka-mura, Kuzuyama (H. Muramatu, 9 Oct. 1925, TI). Mt. Ashitaka-yama (T. Sugino, 24 Aug. 1931; K. Hisauchi, 25 Aug. 1933, TI; Y. Jotani, 19 Oct. 1947, TNS); Ike-no-taira–Momozawa (H. Kanai 6558, TI); Mt. Nokogiri-dake (H. Kanai 6559, TI); Osawa, 800 m (H. Kanai 6560, TI).

#### *Astilbe fujisanensis*

**Japan. Honshu. Kanagawa Pref.** Mt. Tanzawa (S. Okuyama, 23 July 1951, TNS). Tsukui-gun, Inugoeji–Hinokiboramaru (H. Ohba 758111, 758112, TI). Hakone (Y. Narita, 5 Oct. 1926, TI; M. Togasi, 8 Oct. 1951, TNS); Futago-yama (M. Togasi 8 Oct. 1951, TI); Mt. Kami-yama (H. Yamamoto 3369, TNS; T. Yamazaki, 24 Sept. 1946, TI; J. Sugimoto, 12 Aug. 1958, TNS); Mt. Kamiyama–Mt. Koma-ga-take (M. Mizushima, 28

Nov. 1950, TI); Mt. Kanmuri-dake (H. Muramatsu, 27 Aug. 1927, TI); Mt. Kintoki-yama (T. Sawada, 10 July 1928, TI; S. Okuyama 4405, 4408, TNS; Y. Momiyama, 7 Sept. 1951, TNS); Mt. Koma-ga-take (H. Yamamoto 3172, TNS); Sengokuhara (T. Kuri, 30 Sept. 1933, TI); Sengoku-ueyu (Y. Momiyama, 6 Sept. 1951, TI). **Kanagawa Pref.–Shizuoka Pref.** Hakone Skyline (J. Sugimoto, 23 July 1967, TNS). **Yamanashi Pref.** Mitsu-toge (K. Hisauchi, 23 Aug. 1930, TI; Y. Momiyama, Aug. 1930, TI). Nishiyatsushiro-gun, Narusawa-mura, Mt. Fuji, right side of Osawa, Ochudo–Otaki, 2100 m (F. Konta & J. Kitagawa 16917, TNS); Shimobe-cho, Yunooku–Mt. Kenashiyama, 1500 m (Y. Kadota 2234, TI); 1940 m (Y. Kadota 2209, 2216, TI); Kamikuishiki-mura, western slope of Mt. Omuro, NW foot of Mt. Fuji (F. Konta et al. 156, TNS). **Shizuoka Pref.** Mt. Fuji (K. Watanabe, 31 July 1891, TNS); Subashi (M. Takeuchi, 23 Aug. 1948, TI); 1500 m (B. Hayata, 9–10 July 1924, TI); Aozawa, 1700 m (B. Hayata, 24 July 1924, TI); Asagidukasan, 1600 m (B. Hayata, 13 July 1924, TI); Sanbanse, 1900 m (B. Hayata, 23 July 1924, TI); Fuji-shi, Sekotsuji, Akaguchi-gawa, riverside, 650 m (Y. Nakayama, 17 July 1983, TNS); southern slope of Mt. Fuji from Omoteguchi-5-gome (2300 m alt.) to the toll-gate (1450 m) (F. Konta et al. 1366, TNS). Fujinomiya-shi, Mt. Fuji (F. Konta et al. 16458, TNS). Sunto-gun, Oyama-cho, Higashiguchi mountaineering way, 2100 m (K. Murata 1426, TNS). Fujiyoshida-shi, Fujisusono, along the Omotehuji-Shuyu Rd., south slope of Mt. Fuji (T. Shimizu et al. 164, 1900, TNS). Mts. Ashitaka, Hakamagoe–Babadaira (H. Kanai 6562, 6563, TI). Sutsu-gawa, near Ootana-no-taki Fall (H. Kanai 6566, TI); Osawa (H. Kanai 6567, TI); Mt. Ashitaka-yama ENE, 900 m (H. Kanai 6561, TI); Mt. Kuro-dake S, 950 m (H. Kanai 6565, TI); Susono-shi, Jurigi, Mts. Ashitakayama, Mt. Echizendake (J. Makino, 5 Aug. 2006, TNS); Mt. Echizen-dake–Mt. Yobuko-dake (H. Kanai 7410, TI); Wariishi-toge (H. Kanai 6564, TI). Mt. Amagi-san (S. Saito, 7 Sept. 1924, TI; T. Nakai, 22 July 1931, TI; T. Sawada, 22 July 1931, TI; T. Sawada, 23 July 1931, TI; S. Okuyama 9933,

9934, TNS; F. Konta & M. Wakabayashi 201, TNS); Amagi pass–Hatcho pond (H. Kanai, 22 Oct. 1953, TI); en route from Amagi-pass to Katase (via Haccho-ike) (F. Konta & M. Wakabayashi 60, TNS; S. Nagano 104, TNS); around Haccho-ike (J. Sugimoto, 5 Sept. 1950, TNS). Tagata-gun, Amagi-yugashima-cho, en route from Nekko pass to Kyu-amagi pass in the Amagi mountains (M. Ichikawa et al. 1348, TNS); near Kyu-amagi pass (A. Yamamoto, 30 Aug. 1971, TNS). Shikata-gun, Toda-mura, Toda pass–Mt. Daruma-yama, 750 m (H. Kanai, 28 Oct. 1957, TI). Higashi-izu-cho, Mt. Hoki-yama (T. Sato 1824, TNS).

### *Astilbe hachijoensis*

**Japan. Honshu. Tokyo Pref. Oshima Island** (Y. Jotani, 4 July 1943, TNS). **Nii-jima Island**. Mt. Miyatsuka-yama (Y. Jotani 7936, TNS). **Kodzu-jima Island** (H. Takahashi 36535, 36556, 38381, 38382, 38384, KPM); Mt. Tenjo-san (Y. Jotani, 20 Aug. 1932, TNS). **Miyake-jima Island**. Mt. Oyama, sumit (Y. Satake, 24 Aug. 1951, TNS). **Mikura-jima Island**. Mt. Oyama (Y. Jotani 5276, 10458, TNS). **Hachijo-jima Island**. (M. Sato, June 1932, TNS; Y. Jotani, Aug. 1932, TNS; T. Ohba 220710, KPM; Y. Sekine, 2 July 1955, TNS); Mt. Mihara-yama (Mt. Higashi-yama) (Hayashi, 9 Aug. 1934, TNS; J. Ohwi & N. Maruyama, 25 May 1949, TNS; Y. Momiyama, 5 Aug. 1955, TNS); Mt. Hachijo-fuji (Mt. Nishiyama) (Y. Naoe, 24 Aug. 1967, TNS; M. Kato & E. Miki 41, KYO, TNS). Kamitsuki-mura (Hayashi, 29 July 1934, TNS).

### *Astilbe formosa*

**Japan. Honshu. Saitama Pref.** Karisaka (K. Hisauchi, 26 July 1933, TI). **Yamanashi Pref.** Mt. Kaikoma-ga-take (Y. Satake 3260, TI); 5-gome (S. Okuyama 4190, 4191, TNS). Mt. Kita-dake, Shimakochi, 1300 m (H. Uematu, 3 Aug. 1949, TI); near Ryomata-goya, 2100 m (T. Yamazaki, 4 Aug. 1949, TI). Mt. Yatsu-ga-take (C. Okawa, 3 Aug. 1955, TNS); Oizumi–Maegashira (S. Okuyama 12849, TNS); Akadake-kosen-do (H. Hara, 7 July 1938, TI); Inako-Shibu-no-yu (H.

Hara, 9 July 1938, TI). Higashiyamanashi-gun, Higasiokuyamakubo, 1600 m (Y. Fujita, 10 Oct. 1954, TI). Minamikoma-gun, Ashiyasu-mura, Yashajin-toge (H. Matsuda, 12 Aug. 1954); Hayakawa-cho, en route from Nohtori-dake (3026 m alt.) to Narata, eastern part of Minami Alps National Park (F. Konta & H. Takahashi 429, TNS); Sanri-mura, Uchikochi, 1900 m (H. Matsuda, 22 June 1954, TI). Kitakoma-gun, Masutomi-mura, Mt. Kinpu-sen (H. Kanai, 25 Sept. 1957, TI; C. Okawa, 23 July 1971, TNS); Masutomi, Mt. Mizugaki-yama, ca. 1700 m (H. Hara, 23 Sept. 1957, TI). Minamitsuru-gun, Kawaguchi-mura, Mitsutoge (H. Shinohara, 5 Aug. 1955, TNS; H. Kanai, 21 July 1957, TI). **Nagano Pref.** Mt. Hachibuse (S. Momose, 18 July 1930, TI). Kakuma-toge (C. Okawa, 4 Aug. 1964, TNS). alps Komaga-take, inter 1- et 8-gome (T. Ito, 5 Aug. 1891, TNS). Kamikochi (Z. Tashiro, 29 July 1937, TNS; H. Hara, 7 Aug. 1930, TI). Kirigamine (S. Momose, 29 July 1931, TI; H. Hida, 23 July 1932, TNS). Mt. Kiso-koma, 1-gome (H. Kurokawa, 16 July, 1953, TNS). Mt. Kiso-ontake-san (Y. Satake, 18 July 1933, TNS); Ninode-taki–San-no-ike, ca. 1060–2800 m (M. Mizushima, 21 July 1952, TI); near Miura damsite, ca. 1300 m (M. Mizushima 10790, TI). Mt. Nabekanmuri-yama–Kue-goya (S. Monose, 30 Aug. 1934, TI); At the foot of Mt. Nabekanmuri-yama, Kurosawa (S. Momose, 30 July 1935, TI). Mt. Otaki-yama (S. Momose, 9 July 1938, TI). Osawa-goya–Hachi-no-ki-toge (S. Okuyama 115539, TNS). Takamine-rindo, 1900 m (H. Hara & S. Kurosawa, 7 Aug. 1976, TI). Mt. Senjo, Todai-gawa, Shiraiwa (T. Yamazaki, 25 July 1951, TI); Akagawara (T. Yamazaki, 3 Aug. 1949, TI). Mt. Yatsu-ga-take (S. Majima, Aug. 1927, TNS; S. Okuyama 12442, 19157, TNS). Shirabone (T. Satow 8377, TNS). Shimashima (S. Momose, 20 July 1935, TI). Sugadaira (S. Okuyama 24332, TNS). Utsukushi-daira (R. Ichihoshi 104272, TNS). Tokumoto-toge (Y. Ogura, 29 July 1917, TI). Kami-ina-gun, Hase-mura, vicinity of the Takei-sanso, interior of the Todai river, 1500 m (F. Konta 9980, TNS); en route from Todai to Akagawara (Tamkei-goya) (K. Iwatsuki et al. 33, TNS); en route from Yoshi-ga-daira to 1900 m

alt. of Mt. Shiraiwa-dake, along limestone valley, Shiraiwa-dani (M. Wakabayashi et al. 11, TNS). Kita-azumi-gun, Mt. Norikura-dake (K. Hisauchi 1797, TI); Shirouma-cho, Happo-one (H. Kanai, 19 Sept. 1959, TI). Kitasaku-gun, Tateshina-mura, Mt. Tateshina-yama (T. Omura 16260, TNS). Matsumoto-shi, Utsukushi-ga-hara, O-ga-hana (F. Yokouchi, 13 July 1980, TNS). Minamiazumi-gun, Kamikochi, Konashidaira (H. Yamamoto, 19 July 1931, TNS); Hotaka-machi, Ariake-Nakabusa-onsen, 1700 m (J. Murata 8046, 8054, TI). Minamisaku-gun, Jumonji-toge (K. Sato 1309, TI); Kita-aiki-mura, Mt. Goza-yama (H. Hara, 12 Aug. 1958, TI; K. Sato 592, TI). Shimoina-gun, Kisawa-mura, Hijiri-daira (G. Hashimoto, 6 Aug. 1932, TNS); Chisato-mura, Mt. Ena-san, 2000 m (H. Kanai, 29 July 1957, TI). Oshika-mura, Mt. Toyoguchi-yama (M. Muramatsu 1834, 2895, TNS); Shiokawa (I. Hurusawa, 26 July 1947, TI). Okawara, Aoki-tani-minami-matasawa (K. Katsumata 41, TNS). Shimosuwa-cho, Wada-toge (T. Asakawa, 19 July 1972, TNS). **Shizuoka Pref.** Mts. Akaishi, Mt. Akaishi-dake (Akaishi-san), (J. Sugimoto 20855, TI); 1700 m (Y. Fujita, 14 Aug. 1954, TI); Mt. Hijiri-dake, 2300 m (Yamazaki et al., 5 Aug. 1954, TI). Higashimata, upper of Owi River, 1600 m (H. Matsuda, 9 July 1954, 23 July 1954, TI). Sanpuku-toge (K. Asano, 6 Aug. 1964, TI). Mt. Senmai-dake (J. Sugimoto, 8 Aug. 1953, TNS). Haibara-gun, Honkawane-cho, O-oma, on the bara grabelle slope by the side of Tekari-dake lodge (S. Kusaka 473, TNS). Shizuoka-shi, along the upper stream of Higashimata valley, interior of the Ikenosawa-lodge, upper stream of the Ohwi River, 2000 m (F. Konta 9537, TNS). **Gifu Pref.** Mt. Norikura-dake (T. Ito, 18 Aug. 1891, TNS; M. Mizushima 1096, TI).

*Astilbe odontophylla* var. *odontophylla*

**Japan. Honshu. Ibaraki Pref.** Mt. Gozen-yama (S. Okuyama 20722, TNS). **Tochigi Pref.** Mt. Torinoko-yama (H. Hara, 20 Oct. 1981, TI). **Saitama Pref.** Mt. Mitsumine-san (H. Sakurai, July 1892, TNS). **Gifu Pref.** Ono-gun, Asahi-mura, Kurumishima, Akigami-onsen (S. Onogi 5, TNS). Seki-shi, Itadori, Kaore valley, ca. 500 m (S. Aki-

yama & H. Takahashi 20774, TNS). **Aichi Pref.** Shinshiro-shi, Nagara, ca. 100 m (S. Akiyama 20706, TNS); Nagoshi, ca. 120 m (S. Akiyama 20710, TNS).

*Astilbe odontophylla* var. *okuyamae*

**Japan. Honshu. Shizuoka Pref.** Inasa-gun, Inasa-cho, Ohira (Y. Kurosawa 17, TNS). **Aichi Pref.** Shinshiro-shi (Kitashitara-gun), Mt. Horaiji-san (S. Okamoto, 5 July 1951, KYO; S. Okuyama & Y. Asai 19537, TNS). (Horai-cho) Kawai (K. Torii, 12 July 1959, KYO; K. Torii 4350, TNS); (S. Akiyama 20720, TNS); Chichiiwagawa (Y. Momiyama, 21 June 1951, TI; K. Torii, 12 July 1959, KYO; TNS); Miwa-mura (K. Inami, 21 Aug. 1941, TNS); Kamebuchi-iwa (G. Murata 6603, KYO). Mt. Dando-san (Y. Kato, 23 Aug. 1934, TNS). **Gifu Pref.** Seki-shi, Itadori (Mugi-gun, Itadori-mura), Kaore-dani, en route from Sugihara to Mt. Heike-dake, 400 m (M. Hotta & Y. Inamasu, 16 Aug. 1964, KYO, TI, TNS); 450 m (Y. Inamasu & M. Hotta 61, KYO, TNS); ca. 500 m (S. Akiyama & H. Takahashi 20775, TNS).

*Astilbe thunbergii* var. *thunbergii*

**Japan. Honshu. Ibaraki Pref.** Mt. Buccho-san (C. Okawa, 13 July 1952, TNS). Mt. Tsukuba-san (M. Furuse 24, TNS). **Tochigi Pref.** Utsunomiya-shi, Mt. Kogashi-yama (H. Ohashi et al., 28 May 1982, TI). **Gunma Pref.** Mt. Haruna-san (S. Okuyama, 11 July 1937, TNS); (T. Sakai 1609, TI). Hoshi-onsen (H. Hara, 19 June 1959, TI); Adzuma-gun, Adzuma-cho, Haramachi (K. Masuda 904, TNS). Gunma-gun, Kurabuchi-mura, Gonda, ca. 450 m (T. Yahara et al. 6856, TI). **Saitama Pref.** Chichibu-gun, Yokoze-mura, Mt. Buko-san, 900 m (M. Kato & N. Fujita 177, TNS). **Tokyo Pref.** Kobotoke-toge (T. Yamazaki, 12 July 1942, TI). Ome-shi, Nagabuchi (T. Kawahara & H.T. Im 1250, TI). Nishitama-gun, Hikawa-Nippara (T. Tuyama, 16 June 1935, TI). **Chiba Pref.** Chosei-gun, Torami-mura (Y. Tamura, 10 Aug. 1938, TI). Kimitsu-shi, Nagasaki (M. Sakakibara, 13 June 1972, TNS); Mt. Kiyosumi-yama, Godai, Gobo-sawa, 200 m (T. Nakaike, 15 June 1972). **Tokyo Pref.** Ongata-mura, Motoha-



chioji, Shiroyama (T. Satow 3485, TNS). **Kanagawa Pref.** Hakone, Sengoku-ueyu (Y. Momiyama, 6 Sept. 1951, TI). Nishitanzawa, Inukoeji (K. Nishio, 24 Sept. 1960, TNS). Odawara (Unknown collector, May 1880, TNS). Oiso, Mt. Koma-yama (I. Henmi 2168, TNS). Mt. O-yama (W. Harada, 1 June 1970, TI). Aiko-gun, Susugatani-mura, Monomi-toge (H. Kanai, 10 Nov. 1957, TI). Ashigarakami-gun, Mt. Takamatsu-yama (S. Saito, 25 June 1952, TNS). Ashigarashimo-gun, Hakone, Miyanosita (C. Okawa, 31 May 1952, TNS). Kawasaki-shi, Inada, Noborito (C. Okawa, 31 May 1953, TNS). Zushi-shi, Zushi (H. Hara, 3 June 1928, TI). Tsukui-gun, Yose (H. Kanai, 5 July 1949, TI). **Yamanashi Pref.** Mt. Mitsu-toge (S. Okuyama 24084, TNS). Mt. Torii-toge (S. Okuyama 9513, 9579, TNS). Minamitsuru-gun, Kawaguchi-mura, Abatabashi (H. Kanai, 21 July 1957, TI). Nishiyatsushiro-gun, Kamikuishiki-mura, vicinity of Motosu, 900 m (M. Tsuji 129, TNS). **Yamanashi-Shizuoka prefs.** Abe-toge (K. Nakai, 8 July 1964, TNS). **Nagano Pref.** Kirigamine (S. Momose, 29 July 1931, TI). Mt. Komagatake (S. Shimizu, 5 Aug. 1903, TI). Yamabukimura (K. Shimodaira 57, TNS). Kami-ina-gun, Hase-mura, Todai-gawa (F. Yokouchi, 6 July 1980, TNS). Karuizawa-cho, Kyukaruizawa (K. Sato, 9 July 1964, TI). Kisokaida-mura, Nishinotoge (M. Mizushima, 11 Sept. 1953, TI). Kiso-gun, Nagiso-cho, Tsumago (T. Yahara et al. 6814, TI). Kitasaku-gun, Karuizawa-machi, Kose-onsen (J. Ohwi & K. Okamoto, 15 July 1958, TNS). Shimoina-gun, Minamishinano-mura, Yaegochi, around Aokuzure Pass, 900–1000 m (T. Shimizu et al. 42340, TNS). Oshika-mura, Nakane (M. Muramatsu 4819, TNS). **Shizuoka Pref.** Abe River, Yaezawa (J. Sato, 12 June 1974, TI). Abe-toge (T. Suzuki 62, TNS). Ikawa, Kamikochi-sawa (Y. Saiki et al. 3103, TNS). Mt. Ryuso-zan, 1000 m (T. Miyazawa 135, TNS). Abe-gun, Okochi-mura, Yokoyama-o-taki (J. Sugimoto, 13 June 1953, TNS); Ikawa-mura, en route from Hatanagi-dam to Yokokubo-lodge (F. Konta et al. 6220, TNS). Fujinomiya-chi, Motomurayama, Monomurayama Sengen-jinjya Shinto Shrine, southern foot of Mt. Fuji, 500 m (T. Shinkai et al.

11145, TNS); Mt. Tenshigatake, 600 m (F. Konta 7728, 7738, TNS). Gotenba-shi, Komakado, along the gully of the Zunazawa-gawa, southeastern foot of Mt. Fuji, 400 m (A. Takahashi & F. Konta 11092, TNS); Midono, eastern foot of Mt. Fuji, 650 m (F. Konta 11252, TNS). Haibara-gun, Honkawane-cho, eastern mountain-side of Senzusan, in the valley of the source of the Sumata River, 1250 m (S. Kusaka 586, TNS); Rinchouzawa, the source of the Sumata River (F. Konta et al. 227, TNS). Iwata-gun, Misakubo-cho, Hyogoshi-toge (Unknown collector, 16 June 1974, TNS). Shida-gun, Misawa (K. Shimizu, 28 June 1930, TI). Shizuoka-shi, Chiyo (J. Sugimoto, 28 May 1961, TNS); Ikawa, Mt. Sasa-yama-Ushikubi-toge-Mt. Yamabushi-dake (F. Konta 15487, TNS); Ooya-kuzure, interior of Abe-river (F. Konta 7808, TNS). Shuchi-gun, Haruno-cho, Miyakozawa of Kadoketa, 1000 m (Y. Yokoe, 1 June 1969, TNS). **Gifu Pref.** Masuda-gun, Kosakacho, Nigorigawa-onsen, Mt. Ontake-san, 1600 m (G., Murata et al. 383, TNS).

#### *Astilbe microphylla*

**Japan. Honshu. Ibaraki Pref.** near Inada station of Mito line (C. Okawa, 13 July 1952, TNS). Makabe-gun, Makabe-machi, Mt. Tsukuba-san (F. Konta & Y. Momose 196, TNS). **Tochigi Pref.** Kawachi-gun, Toyosato-mura (M. Nakamura, 18 May 1924, TNS). **Gunma Pref.** Mt. Hakken-san, beside Nozori-ko (C. Okawa, 28 July 1974). Shinkazawa (C. Okawa, 24 July 1967, TNS). Adzuma-gun, Naganohara-machi, Takakuwa (H. Yamamoto 4260, TNS); Adzuma-cho, Haramachi (K. Masuda 902, TNS). **Saitama Pref.** Chichibu-gun, Mt. Buko-san (M. Furuse 157, TNS). Urawa-shi, Shimonoda (T. Kawasaki 3268, TNS); Okubo, Suwaki (T. Kawasaki 3267, TNS). **Chiba Pref.** Kashiwa (S. Okuyama 19839, TNS). **Tokyo Pref.** Near Itabashi station (T. Ito, 22 July 1920, TNS). Ongata-mura, Shiroyama (T. Satow 2374, TNS). **Kanagawa Pref.** Hakone, Gora (H. Yamamoto 2462, TNS); Mt. Futago-yama (M. Togashi, 8 Oct. 1951, TNS); Mt. Kintoki-yama (S. Okuyama 4362, TNS); Ashigarashimo-gun, Hakone, Sengoku-hara (N. Kurosaki 3437, TNS); Yu-

gawara-machi, Oku-yugawara (M. Sakakibara, 20 July 1972, TNS). Fujisawa-shi (S. Takada, 6 July 1964, TNS). **Yamanashi Pref.** Mt. Minobu-san (Unknown collector s.n., TNS). Torii-toge (S. Okuyama 9533, TNS). Mts. Yatsu-ga-dake, Mt. Aka-dake (C. Okawa, 24 July 1976, 5 July 1977, TNS). Kitakoma-gun, Kiyosato, foot of Utsukushinomori (M. Mizushima et al., 19 July 1964, TNS). Nishiyatsushiro-gun, Kamikuishiki-mura, Aokigahara, northern foot of Mt. Fuji, 1000 m (F. Konta & H. Takahashi 535, TNS). **Nagano Pref.** Kirigamine (S. Okuyama, 1 Aug. 1935, TNS). Kisasi-ko-Iyari-shitsugen (S. Okuyama & H. Uchiumi 15443, 15444, TNS). Kiyosato (K. Shirai, 19 July 1936, TNS). Oiwake (C. Okawa, 7 Sept. 1975, TNS). Shinkazawa (C. Okawa, 24 July 1967, TNS). Sugadaira (C. Okawa, 24 July 1978, TNS). Takamine-shitsugen (C. Okawa, 29 July 1965, TNS). Chiisagata-gun, Wada-mura, Kirigamine-kogen (H. Idzumi, 28 July 1979, TNS). Kitasaku-gun, Higashinagakura-mura, Karuizawa (H. Yamamoto 4275, TNS). Komagane-shi, eastern foot of Mt. Kisokomagadake, 1500 m (H. Koyama & E. Miki 2577, TNS). Minamisaku-gun, Yachiho-mura, Yachiho-kogen, 1000–1400 m (S. Mimoro & S. Tsugaru 1085, TNS); In the place being located about 4 km east of Mt. Shimagare-yama, 1600–1700 m (H. Takahashi 3927, TNS); Minami-aiki-mura, Kurio, Kamikurio, 1300 m (H. Takahashi 6444, TNS). Shimoina-gun, Miho-mura, Izuki (M. Muramatsu 2115, TNS); Tateishi (M. Muramatshu 2165, TNS). Suwa-shi, Kirigamine, Sawatari, 1700 m (Y. Tateishi 329, TNS). **Shizuoka Pref.** Kodzu (A. Iwamoto, 6 Aug. 1933, TNS). Mt. Ma-

fuji-dake (T. Suzuki, Aug. 1964, TNS). Fujinomiya-shi, Kami-ide (J. Fukui 1182, TNS); Motomuraya, SW foot of Mt. Fuji, 500 m (K. Murata 1318, TNS); Fumoto, Mt. Kenashi-yama (A. Takahashi 38, TNS); 1900 m (S. Horii et al. 706, TNS); Shinosaka, SW foot of Mt. Fuji, 600 m (M. Tsuji & K. Fukuda 341, TNS); The Asagiri Plateau, Kami-ide, western foot of Mt. Fuji, 800 m (F. Konta 7867, 7914, TNS); Saori, Mt. Chojadake, at the foot (T. Sato 9724, TNS). Higashizu-cho, Okawa, Mt. Togasa-yama, south side (T. Sato 2047, TNS). Inasa-gun, Inasa-cho, Terano, 300 m (Y. Kurosawa 16, TNS). Iwata-gun, Sakuma-cho, Asaka, upper part (Y. Kurisawa, 6 Aug. 1972, TNS); Hanba (J. Mead, 11 July 1973, TNS). Matsuzaki-cho, Mt. Ushihara-yama, 130 m (T. Sato 1897, TNS). Shizuoka-shi (H. Terada 23, TNS); Ikawa, Ikawa-kougen, eastern mountain slope of Ikawa-dam, 1000 m (F. Konta 1676, TNS). Sunto-gun, Nasuyama-mura, Asakitsuka, 1440 m (Y. Satake, 14 Aug. 1953). Tagata-gun, Amagiyugashima-cho, Namezawa, interior of Kayano in Mts. Amagi (M. Ichikawa et al. 1239, TNS). **Gifu Pref.** In mountains ad Jikkyoku-toge, Nakasendo (T. Ito, 3 Aug. 1891, TNS). Takayama-shi, Mt. Kikagedaira (H. Takahashi 5582, TNS). Yoshiki-gun, Kamioka-cho, Ogasa (Y. Kadota, 23 Aug. 1983, TNS).

*Astilbe japonica*

**Japan. Honshu. Shizuoka Pref.** Shizuoka-shi, along the valley of the Sesso-kyo, interior of the Ohwi river (from the Okuizumi dam to the meeting place of Kuriozawa) (F. Konta 9825, TNS).