

Hiroshi HARA\*: **Critical notes on some type specimens of  
East-Asiatic plants in foreign herbaria (5)**

原 寛\*: 欧米にある東亞植物基準標本の検討 (5)

15) **Hydrangea serrata** and **H. macrophylla**. The so-called 'Hortensia' group is a common wild shrub throughout Japan, and is also one of the most popular garden plant in Japan as well as in Europe and N. America. It is growing wild from the coast up to the mountain about 1500 m high, and is very variable especially in the size, shape, texture, and hairiness of leaves, and the size, shape, and colour of sterile flowers. Also a large number of its cultivated forms have been known for centuries in the Japanese garden.

The nomenclature of this group is confusing, and various names have hitherto been used by different authors. However, since the critical study by E. H. Wilson in 1923, it has been an accepted opinion by such experienced taxonomists as T. Makino, A. Rehder, T. Nakai and G. Koidzumi that the group can be divided into two major races: *Hydrangea serrata* and *H. macrophylla*, or a single species with two subspecies. In 1950, Haworth-Booth who intended to clarify the confusion of the group was apparently dazzled by its great variability, and unfortunately separated it into several species and hybrids.

*Hydr. serrata* in its commonly accepted sense is a low shrub widespread in the open woodland from northern Hokkaido south to southern Kyushu and southern Korea. As compared with *H. macrophylla*, *H. serrata* is generally a more slender shrub with smaller thinner, dull and more pointed leaves, more hairy axes of inflorescences, smaller flowers, and smaller capsules about 3-5 mm long including styles. *H. macrophylla*, a littoral shrub of middle Honshu, is more vigorous in all respects having large thick shining leaves with the short acuminate tip and obtuse serration, less hairy inflorescences, larger flowers, and capsules 6-8 mm long. These differences are clear in their typical forms and are easily recognizable in most of the living plant. However, the distinction between the two major races is not clear in some cases particularly in dried specimens as already pointed out by Wilson. The plants which show intermediate characters between the two are often met with in Japan, and none of these distinguishing characters is decisive to separate the two. After studying for years ample materials, living and dried, including historical

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specimens examined by Thunberg, Siebold, and others, I came to the same conclusion as Makino's in treating all of 'Hortensias' under a single variable species with two subspecies.

To fix the specific epithet of the group, we have to interpret correctly the three binomials, *macrophyllum*, *serratum*, and *cuspidatum* which were given by Thunberg in his *Flora Japonica* (1784) under the genus *Viburnum*. In the Thunberg herbarium at Uppsala, there are 4 sheets of specimens of *Viburnum macrophyllum*.

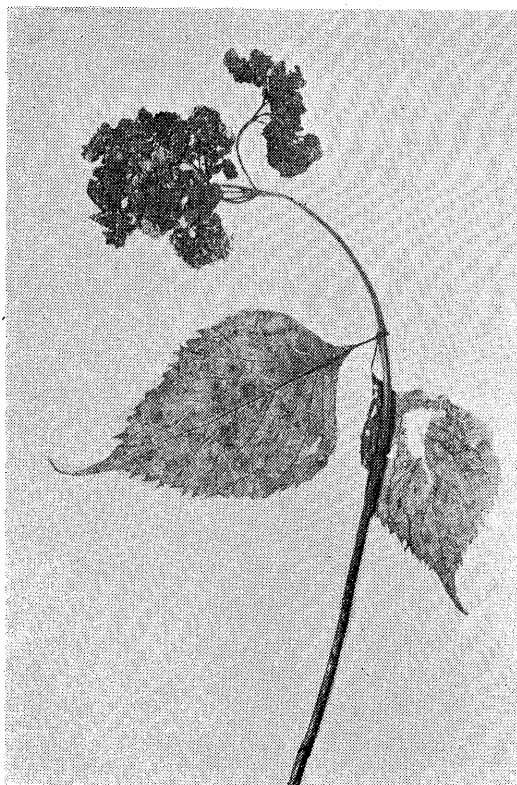


Fig. 3. *Viburnum cuspidatum* Thunberg. Holotype in the Thunberg herbarium at Uppsala.

The specimens  $\alpha$  and  $\beta$  were collected by him in Japan, but  $\gamma$  and  $\delta$  with whitish flowers are cultivated ones in his garden at Uppsala. All these belong to a garden form with heads of almost sterile flowers. This form is called 'Ajisai' in Japanese (but not *Hydr. Azisai* Sieb. et Zucc.), and is identical with *Hydrangea Otaksa* by Siebold and Zuccarini. It is the most widely cultivated form among 'Hortensias,' and is also the oldest garden form in Japan known for 1200 years. Its sterile flowers are generally whitish in the beginning and turn purplish and blue later, but rarely white or rosy. This form is not a hybrid as treated by Haworth-Booth, but is merely a sport derived from its wild prototype, *Hydr. macrophylla* var. *normalis* Wilson, which is explained below, in the similar way to the 'Snow-ball' derived from *Viburnum Opulus* and the 'Peegee' from *Hydrangea paniculata*.

The Thunberg's specimen of *Viburnum serratum* consists of 5 sheets. The

specimen  $\alpha$  is a rare garden form called 'Shichidanka' in Japanese with double sterile flowers, the specimen  $\beta$  is 'Ajisai' which is the same as Thunberg's *Viburnum macrophyllum*, and the specimen  $\gamma$  is a somewhat doubtful form with thickish minutely serrated leaves. But the specimens  $\delta$  and  $\varepsilon$  represent clearly a common wild form in Japan, to which the name *Hydr. serrata* based on Thunberg's epithet has been applied by various authors since Wilson so defined it. So Thunberg's specimen  $\delta$  is here chosen as the lectotype of his *Viburnum serratum*. This specimen exactly coincides with a wild plant in central to western Japan, and I totally disagree with Haworth-Booth's opinion that *H. serrata* is a hybrid.

*Viburnum cuspidatum* Thunberg had been misidentified or overlooked until Koidzumi correctly interpreted it in 1925 as *Hydr. cuspidata*. Thunberg's type specimen (Fig. 3) is a part of the flowering branch with only two leaves and a head of sterile flowers only. This is another garden form with heads of sterile flowers derived from the northern race of subsp. *serrata* explained below, and is now rather rare in the Japanese garden. It differs from *V. macrophyllum* in having thinner paler dull leaves which are long-caudate at the apex, coarsely serrated with acute teeth, and patent-hairy on nerves beneath, and axes of inflorescences densely covered with appressed strigose hairs.

To select one epithet among these three names published simultaneously in 1784 by Thunberg, we have to follow the opinion of the first author who united these names according to the present code of botanical nomenclature. Koidzumi (1925) is the first author who united Thunberg's *Viburnum cuspidatum* and *V. serratum*, adopting the name *Hydrangea cuspidata* (Thunb.) Miquel. When Miquel published *Hydr. cuspidata*, he cited *Viburnum cuspidatum* Thunb. with a question mark, but he seems to base his *Hydr. cuspidata* on Thunberg's epithet because the only specimen at Leiden bearing the name *Hydrangea cuspidata* in Miquel's own handwriting is the one which was sent from Thunberg under the name *Viburnum cuspidatum* and is quite the same form as the type specimen at Uppsala. Then Makino in 1929 adopted *Hydr. macrophylla* (Thunb.) treating *Hydr. serrata* (Thunb.) as its subspecies. Ohwi in 1953 used *Hydr. macrophylla* for a combined specific epithet citing Thunberg's three names as synonyms. Thus when all 'Hortensias' are treated as a single species, the correct name seems to be *Hydr. macrophylla* (Thunb.) Seringe ex DC. But if the two major races are regarded as two separate species, their names should be *Hydr. macrophylla* and *Hydr. cuspidata* (incl. *H. serrata*) as Koidzumi has selected.

Later Siebold paid special attention to various 'Hortensias' cultivated in the Japanese garden in those days, and he collected many specimens and described several new species in 1829 & 1840 mostly based on garden forms. Some of them were again misinterpreted by Haworth-Booth in 1950. *Hydr. japonica* and *Hydr. Thunbergii* Sieb. et Zucc. which were considered by him as wild Japanese species are both garden forms, while *Hydr. acuminata* and *Hydr. Buergerii* are known in the wild state. Many specimens of *Hydrangea* at Leiden identified by Siebold are often very confusing being mixtures of different forms, but Schultes carefully designated the authentic specimens of Siebold's species there and I regard them as the lectotypes of those species.

It is not my object here to enumerate numerable horticultural forms of 'Hortensias,' and I just explained above some historical forms named by Thunberg and Siebold. Now I will mention main variations observed in wild Japanese plants adding short notes on related garden forms. Although the group has been reported also from China<sup>1)</sup>, the further confirmation seems to be still needed whether it is truly wild there.

The typical *Hydr. macrophylla* subsp. *macrophylla* is known in a wild state only by the form called var. *normalis* by Wilson. It is growing along the coast on the Pacific side of middle Hōnshū (Bōsō, Miura and Idzū Penin., Idzū Islands south to Aogashima Is. and then to Kitaiwojima and Minami-iwojima of Volcano Islands), and also at Cape Ashizuri in southernmost Shikoku according to Nakai. This wild form is pretty uniform, but its leaves vary from elliptic to obovate; its axes of inflorescences are usually glabrescent but sometimes pubescent; its fertile flowers large and blue, its sterile flowers white; and its capsules (5) 6-8 mm long. It is undoubtedly a wild prototype of various garden forms with thick shining glabrous leaves and large flowers. The nomenclatural type, *Hydr. macrophylla* mentioned above, differs from the wild form only in having subglobose heads composed of almost sterile flowers. Another very familiar old garden form in Japan derived from this wild form is *Hydr. Azisai* Sieb. et Zucc. which is represented by the lectotype No. 903, 257-920 at Leiden. It is called 'Gakuajisai' in Japanese, and has the same type of inflorescences as the wild form, and can be distinguished from the latter only by having more showy sterile flowers. An old clone with white-variegated leaves already described by Siebold under *H. Azisai* in 1829 is f.

1) For example, Chun in Acta Phytotax. Sinica 3 (2): 127-128 (1954).

*maculata*, and it has a weaker habit and smaller inflorescences than *f. Azisai*.

Wilson considered *Hydr. Belzonii* and *Hydr. japonica* Sieb. and Zucc. also as garden forms with blue and pink sterile flowers respectively of his *Hydr. macrophylla* var. *normalis*, but they are somewhat doubtful ones. Compared with *Hydr. Azisai*, *Hydr. Belzonii* typified by the specimens No. 903, 257-930 & 931 at Leiden has cuspidate thinner leaves which are sometimes arranged in whorls of three and sparsely hairy on nerves beneath, and densely pubescent axes of inflorescences, and it shows somewhat intermediate characters between subsp. *macrophylla* and subsp. *serrata*. Another specimen No. 903, 257-929 of *H. Belzonii* at Leiden resembles *Hydr. acuminata* Sieb. et Zucc. which belongs to subsp. *serrata*.

*Hydr. japonica* var. *rosea* 'fiores rosci' represented by the specimens No. 903, 257-971 to 973 is an old garden form called 'Beni-gaku' in Japanese. It differs from cultivated forms of subsp. *macrophylla* in having thinner dark-green leaves with the caudate apex and acute serration, densely pubescent axes of inflorescences, and smaller capsules. And it is nearer to subsp. *serrata*, but is distinguishable from other forms of the race in having somewhat thicker leaves which are dark reddish-brown above when dry, and sterile flowers with obtusely serrated sepals which are white when young and turn deep crimson later. Siebold's *Hydr. japonica* 'fiores coerulei' typified by No. 903, 257-979 at Leiden matches 'Beni-gaku' in the shape, texture and colour of leaves, but sepals of sterile flowers are nearly entire and pale blue. This form is different from *Hydr. japonica*  $\beta$  *coerulea* Hooker illustrated in Curtis, Bot. Mag. t. 4253 (1846) which is near to *H. macrophylla* *f. Azisai*.

Subsp. *serrata* is very variable owing to its wide distribution from northern Hokkaido south to Kyushu, and we can recognize some geographical races in it. The northernmost race called 'Yezo-ajisai' in Japanese occurs in Hokkaido (Yezo) and northern Honshu (Tôhoku and Hokuriku) where the snowfall is very heavy during winter. Its old branches are decumbent but upright vigorous shoots come out in spring; its leaves are large often attaining 15 cm long, and are broad ovate or broad elliptic with coarse acute teeth and the abruptly long-caudate apex; its sterile flowers are generally blue and often large, (2) 2.5-4 (5) cm in diameter; and its capsules are slightly larger 4-5 (6) mm long including styles. The race was named *Hydr. yesoensis* by Koidzumi, and *Hydr. macrophylla* var. *megacarpa* Ohwi is an extreme form of this race. Although the type specimen of *H. yesoensis* has leaves patent-hairy on main nerves beneath, the hairiness of leaves is unstable in this species and is not correlated with other characters. Some individuals have almost

glabrous leaves, while some have leaves with curved hairs or with long patent hairs, or with mixed hairs of the two kinds on nerves beneath. Also leaves in the lower part of branches tend to be glabrous, and those in the upper part are often patent-hairy beneath in the middle part of main nerves. Sepals of sterile flowers are rarely white or rosy, and are sometimes obtusely serrated. Thunberg's *Viburnum cuspidatum* seems to be a garden form of this race as mentioned above. *Hydr. Sitsitan* Sieb. and *Hydr. stellata* Sieb. et Zucc. may also belong here, and are the old garden form called 'Shichidanka' in Japanese with heads of star-like double sterile flowers, but are now very rare. Thunberg's specimen  $\alpha$  of *Viburnum serratum*, and *Hydr. stellata* var. *prolifera* Regel are also the same as this form.

Other race with taller slender branched stems, smaller oblong to elliptic leaves with the shortly cuspidate apex, smaller (1.5-3 (4) cm in diameter) white sterile flowers, and smaller capsules 3-4 mm long is predominant on the Pacific side of middle Honshu and also south-westwards to Kyushu. This is the typical form of subsp. *serrata* which is typified by the specimens  $\delta$  &  $\epsilon$  in the Thunberg's herbarium. These specimens have glabrescent leaves which are very sparsely patent-hairy on nerves beneath, but the hairiness is variable also in this race, and several forms have been described. *Hydr. hortensis* var. *pubescens* Franch. and Sav. based on the specimen, 'Mianoshita in tractu Hakone (Sav.)' at Paris, has leaves which are strigose-hairy above and sparsely pilose with short curved hairs on nerves beneath. *Hydr. acuminata* var. *setulifera* Koidzumi based on the specimen, 'Nagasaki (Maxim. 1863)' at Leiden has caudate-acuminate leaves with short curved hairs and long patent hairs on nerves beneath, and this form is scattered here and there in Japan and south Korea often called f. *pubescens*.

*Hydr. hortensis* var. *angustata* Franch. et Sav. is closely allied to var. *serrata*, but has narrower oblong-lanceolate leaves 4.5-10 cm long 1-3 cm wide which have often sweetish in taste. It is a local race limited on mountains of the Idzu peninsula, although some intermediate forms between this race and var. *serrata* are found in other parts of the Pacific side of middle Honshu.

Also there is a series of intergrading forms connecting between var. *megacarpa* and var. *serrata* in the mountain district of northern and middle Honshu, Shikoku and Kyushu. We often meet with specimens which have taller slenderer stems and smaller narrower leaves than var. *megacarpa*, but have larger leaves with the long caudate apex, and blue flowers as compared with var. *serrata*.

To this series belongs *Hydr. acuminata* Sieb. et Zucc. typified by the specimen

No. 903, 257-883 at Leiden which has larger leaves attaining 12 cm long 5 cm wide with the longer caudate apex than the typical form of var. *serrata*, and is said to have blue sterile flowers. *Hydr. Buergeri* Sieb. et Zucc. is typified by the specimen No. 903, 257-933 (Buerger) at Leiden, and the branch on the right side of the sheet well matches *H. acuminata*, and the one on the left side has narrower shortly acuminate leaves hairy above, and agrees with *Hydr. hortensis*  $\beta$ . *pubescens* Franch. et Sav. As explained in detail above, *Hydr. japonica* Sieb. et Zucc. is also a garden form of this series.

*Hydr. Thunbergii* Sieb. et Zucc. represented by the specimen No. 903, 268-81 (Siebold) and a coloured plate by Keiga Kawahara at Leiden is another old garden form of subsp. *serrata* with emarginate depressed-orbicular bluish sepals of sterile flowers. It is a kind of 'Amacha,' and has been cultivated for preparing from its leaves special sweet tea which is used particularly at the fête of the Buddha's birthday on April 8th. Several other clones of the species are also cultivated for 'Amacha' which means sweet tea.

**Hydrangea macrophylla** (Thunb.) Seringe in DC., Prodr. 4: 15 (1830), emend. Makino in Journ. Jap. Bot. 6 (7): 11 (1929)—Makino et Nemoto, Fl. Jap. ed. 2, 436 (1931)—Ohwi, Fl. Jap. 611 (1953).

*Viburnum macrophyllum* Thunberg, Fl. Jap. 125 (1784).

*Hydr. Hortensia* DC. emend. Maxim., Rev. Hydr. As.-Or. 11 (1867).

*H. opuloides* Koch emend. Dippel, Handb. Laubh. 3: 322 (1893)—Rehder in Bailey, Stand. Cycl. Hort. 3: 1621 (1915).

subsp. **macrophylla**.

*Hydr. macrophylla* Seringe, sensu strict.—Wilson in Journ. Arn. Arb. 4: 234 (1923)—Koidzumi in Bot. Mag. Tokyo 39: 310 (1925)—Suringar in Med. Rijks Herb. Leiden 56: 37 (1928)—Makino et Nemoto, l. c. 437 (1931), subsp. *typica* Makino—Rehder, Man. Cult. Tr. ed. 2, 287 (1940); Bibl. 200 (1949)

var. **macrophylla** f. **macrophylla**.

*Viburnum macrophyllum* Thunberg, sensu strict.

*Hydr. Otaksa* Sieb. et Zucc., Fl. Jap. 1: 105, t. 52 (1840).

*H. macrophylla* f. *Otaksa* (S. et Z.) Wilson, l. c. 237 (1923).

f. **normalis** (Wilson) Hara, stat. nov.

*Hydr. macrophylla* var. *normalis* Wilson, l. c. 238 (1923).

*H. maritima* Haworth-Booth, Hydrangeas 38 (1950), sine descr. latin.

subsp. **serrata** (Thunb.) Makino in Journ. Jap. Bot. 6 (7): 11 (1929); in Makino

et Nemoto, Fl. Jap. ed. 2, 436 (1931).

*Viburnum serratum* Thunberg, Fl. Jap. 124 (1784), excl. specim.  $\beta$ .

*Hydr. serrata* (Th.) Seringe in DC., Prodr. 4: 15 & 666 (1830)—Wilson in Journ. Arn. Arb. 4: 241 (1923)—Nakai, Fl. Sylv. Korea. 15: 69 (1926)—Rehder, Man. ed. 2, 288 (1940); Bibl. 201 (1949)—Kitamura in Act. Phy. Geo. 14: 86 (1951).

*H. cuspidata* var. *japonica* Koidzumi in Bot. Mag. Tokyo 39: 311 (1925).

var. **serrata** f. **serrata**.

*Viburnum serratum* Thunberg, sensu strict.

Lectotype:  $\delta$  in Herb. Thunb. at Uppsala.

f. **belladonna** (Kitam.) Hara, comb. nov.

*H. serrata* f. *belladonna* Kitamura, l. c. 86 (1951).

f. **setulifera** (Koidz.) Hara, stat. nov.

*H. acuminata* var. *setulifera* Koidzumi in Bot. Mag. Tokyo 44: 94 (1930).

var. **angustata** (Fr. et Sav.) Hara, comb. nov.

*H. Hortensis*  $\gamma$ . *angustata* Franch. et Sav., Enum. Pl. Jap. 1: 151 (1873).

*H. serrata* subsp. *angustata* (Fr. et Sav.) Kitamura in Act. Phy. Geo. 14: 86 (1951).

var. **megacarpa** Ohwi in Bull. Sci. Mus. Tokyo 26: 10 (1949).

*H. yesoensis* Koidzumi in Bot. Mag. Tokyo 40: 347 (1926).

*H. serrata* subsp. *yesoensis* (Koidz.) Kitamura, l. c. 86 (1951).

*H. macrophylla* var. *acuminata* f. *yesoensis* (Koidz.) Ohwi, Fl. Jap. 612 (1953); in Bull. Sci. Mus. Tokyo 33: 74 (1953).

f. **cuspidata** (Thunb.) Hara, comb. nov.

*Viburnum cuspidatum* Thunberg, Fl. Jap. 125 (1784).

*Hydr. cuspidata* (Thunb.) Miquel in Ann. Mus. Lugd.-Bat. 3: 78 (1867)—Koidzumi in Bot. Mag. Tokyo 39: 311 (1925); 44: 93 (1930).

*H. serrata* f. *cuspidata* (Miq.) Nakai in Expl. Siebold Hydrang. 14 (1938).

15) アジサイとヤマアジサイ この類は非常に変化に富んでいるが、結局牧野先生の説の様に全部を一種にまとめる事に賛成である。本文では Thunberg, Siebold 等が記載した多くの形がどんなものであるかを説明し、それと自生の地方変種との関係を述べた。Haworth-Booth 著 Hydrangeas (1950) 中の分類には全然同意できない。なお異名・文献の整理は自生品の主なものだけに止め、他は日本種子植物集覧にゆずつた。