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The type of *Wisteria japonica* (*Fabaceae*): research into material for new names published in the first section of Siebold and Zuccarini's Flora Japonica

Abstract

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The history of the name *Wisteria japonica* is discussed and an assessment is made of the availability of prospective original material from Siebold and Bürger's collections at Leiden (L) and Munich (M). The lectotype chosen in 1912 from among the Siebold collections at Leiden (L) is confirmed as such.

Additional key words: *Millettia*, Dunn, Bürger, lectotype

1. Introduction

Philipp Franz Baltazar von Siebold (1796–1866) introduced the species *Wisteria japonica* Siebold & Zucc. as a living plant when he arrived at Antwerp from Japan on board the ship "De Java" on 8 July 1830 (MacLean 1978: 50). The plant was cultivated at the Hortus Gandiensis (University of Ghent Botanic Garden) according to the legend within a seedlist of Siebold's plants introduced into The Netherlands from Japan (Siebold & Blume 1844: 39). No extant specimen exists from this living collection and it is very likely that none was ever taken from it.

The taxonomist Joseph Gerhard Zuccarini (1797–1848), Professor of agronomy and forest botany at the University of München (Munich), started his collaboration with Siebold in early 1833 for a book on the plants of Japan with coloured illustrations by the Munich artist Sebastian Minsinger (Sadakazu & Miyazaki 2012: 198). Zuccarini used the Japanese collections of Siebold and Siebold's assistant Heinrich Bürger as the basis for the names of all new taxa within the first Section of Flora Japonica (Siebold & Zuccarini 1835–1841). Siebold and his co–author Zuccarini were the first workers to have recognized that three different species of *Wisteria* occurred in Japan (Siebold & Zuccarini 1839: 88–93). The typification of the names of two of these species, *W. floribunda* (Willd.) DC. and *W. brachybotrys* Siebold & Zucc., has been discussed and proposed elsewhere (Compton 2012: 882; Compton & Lack 2012: 233). However, the typification of *W. japonica*, the name of the remaining Japanese species, needs clarification.

Dunn placed *Wisteria japonica* in the genus *Millettia* in his revision of that genus (Dunn 1912: 154). His segregation of *Wisteria* from *Millettia* was based on the terminal racemes in *Wisteria* as opposed to lateral racemes in *Millettia*. *Wisteria japonica* does indeed possess lateral racemes but in most other respects it fits well within the circumscription of *Wisteria*. In some recent works, e.g. Ohwi (1965: 572; 1984: 572), the absence of a pair of thickened callosities at the base of the standard petal

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Fig. 1. Lectotype of *Wisteria japonica* – Japan, 1829, *Siebold* (L 0059625). – Leiden, National Herbarium of The Netherlands.

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in *W. japonica* has added to its exclusion from *Wisteria*, callosities being present in other species of *Wisteria*. Recent studies based on both chloroplast and nuclear DNA sequence data have shown that the genus *Callerya* Endl. is the nearest relative to *Wisteria* (Hu & al. 2000: 419; Hu & al. 2002: 726). However, *W. japonica* has never been placed into that genus. The genus *Wisteria* differs from *Millettia* by having deciduous rather than evergreen leaves and by the production of racemes as opposed to pseudoracemes (Hu & al. 2002: 729). *Wisteria japonica* can be considered as a species that shares one or two characters with other genera but in all other respects belongs within *Wisteria*. The most recent treatment of the Flora of Japan has placed *Millettia japonica* back within *Wisteria* (Iwatsuki & al. 2001: 235).

2. Material used for the Flora Japonica

Siebold arrived back in Europe in 1830 bringing with him the collections that he had made during his last year in Japan. These collections included his 1829–1830 herbarium that he had made under confinement by the Japanese authorities resulting from his having broken strict rules imposed on the Dutch concerning the possession of certain items. Although from Rhineland, Siebold had passed himself off as a Dutch physician but was discovered to have in his possession maps of Japan. This was a move intensely prohibited by the Japanese shogunate and led to his expulsion from Japan in 1830 (Binsbergen 2002: 1).

On his arrival into the Kingdom of The Netherlands one of his first tasks was to help with the moving of the entire Rijksherbarium from Brussels to Leiden. The Rijksherbarium (National Herbarium) contained Siebold's Japanese collections that had been made between 1823–1828 and was potentially under threat from conflict arising from the secession of Belgium from the Kingdom of The Netherlands. Siebold had previously met Carl Ludwig Blume (1796–1862), Director of the Rijksherbarium, when Blume was also Director of the Buitenzorg Botanic Garden on Java. Blume was, however, not in Brussels during the secessionist conflict, and therefore Siebold, fearing for the safety of his collections, obtained permission from the Dutch government to safeguard his Japanese collections. Siebold, together with Blume's assistant Dr J. B. Fischer, decided to move the entire herbarium to Leiden (Kort & al. 2000).

When Siebold met Blume he realized that he was not his friend and possibly even considered him his rival because Blume was busy with his Flora Javae as stated by Siebold later in an "open brief" or public letter to the then Minister of the Interior Johan Rudolf Thorbecke (1798–1872) written in Würzburg, 15 August 1864 (Naturalis Biodiversity Centre or NBC, Leiden). It is likely that after this meeting Siebold decided to keep behind the botanical collections he had assembled during his confinement on Dejima in 1829.

Siebold's disagreement with Blume concerned the rightful ownership of some Japanese herbaria that he had received as a gift and in particular the herbarium that he had assembled in 1829. The latter he considered to be his own private property because he had prepared the material during the period that Bürger had officially been appointed as his successor. He reasoned that during the time of his confinement he was no longer an employee of the Dutch government. Blume was of the opinion that Siebold had acted unjustly in doing this and that all the collections from Japan should return to the Rijksherbarium under Blume's control because he saw them as Dutch government property. As a result, Blume prevented Siebold from sending Zuccarini all the Japanese plants housed at the Rijksherbarium needed for the preparation of the first section of their Flora Japonica.

Siebold had no free access to his material in the Rijksherbarium. In order to see his specimens on each visit he needed to have Blume's permission. He was not allowed to have large numbers of specimens on loan. Blume was of the opinion that researchers should visit the Rijksherbarium in order to examine the specimens there and that sending large collections abroad was too dangerous. Blume also believed that the results of natural history research paid for by the Dutch government should be published by Dutch workers and not by foreigners.

Nevertheless Siebold was able to send a number of plants that he was not able to identify to Zuccarini in 1833. In a letter, Siebold asked Zuccarini to take good care of the dried plants and drawings in a tin box that he had sent to him (Folder Cgm 6433, Bayerische Staatsbibliothek, München). He had labelled the tin box "Proprietas Musei japonica Sieboldiana Lugd.-Bat." [Property of the Siebold Japanese Museum in Leiden].

In March 1837 Siebold's own collections comprising two boxes of his 1829–1830 herbarium in the Rijksherbarium were placed "onder zegel" (under seal) by the Minister of the Interior, Hendrik de Kock (1779–1845) until the question over the ownership of the Japanese plants was resolved (letter de Kock to Blume 8 Mar 1837, NBC Leiden). Blume, in the same letter, was more or less ordered to support Siebold with the means to prepare for the publication of the Flora Japonica.

Siebold wrote a letter to Blume (22 Mar 1837, NBC Leiden) in which he included a list of all the Japanese plants sent to Zuccarini in 1833. This would have included those specimens in the tin box that Siebold was unable to identify. He concluded his letter by saying that he hoped Blume's wishes would be fulfilled by the sight of that list. Blume had therefore known about Siebold having sent Zuccarini specimens that he had kept under his personal control.

This list is archived (NBC Leiden) as:

Series (List) 1. Enumeratio plantarum quarum mihi dubiorum quae Cl. Prof. Zuccarini ad examinandum missa sunt. Series prima. [First series. Enumeration of the

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plants unknown to me sent to Zuccarini for his examination. First series]. At the end of the list it is mentioned that besides herbarium specimens also seeds (dried and conserved in spirit) and drawings had been sent. The original version of this list is present in the Sieboldiana Collection in Ruhr-Universität Bochum (1.177.002). The letter accompanying this list is dated 12 April 1833. The plants are part of Siebold's personal herbarium of 1829 (Schmidt 1989: 167).

Under pressure from de Kock and Blume, Siebold finally decided to donate the specimens comprising two boxes of his 1829–1830 herbarium to the Rijksherbarium. As a result of this decision Blume would permit Siebold to take on loan all the Japanese plants that he needed for the Flora Japonica but with the proviso that Siebold was to be responsible for the specimens sent to Zuccarini in Munich (letter de Kock to Blume 7 Aug 1837, NBC Leiden).

Further lists were made of the material that Siebold was permitted to have on loan from the Rijksherbarium (NBC Leiden):

Series (List) 2. 47 spec. Tweede lijst van gewassen welke zich ter bewerking van de Flora Japonica nogonder berusting van de ondergeteekende bevinden [Second series. 47 species. Second list of plants that are still in the hands of the undersigned [Siebold] for the preparation of the Flora Japonica]. This list deals with plants from Siebold's 1829–1830 herbarium and was written by Jacques Pierot, Blume's assistant, and dated 21 March 1837. On it *Dolichos* "*polystachyos*" (*D. polystachios* L.) and an unspecified *Dolichos* species are mentioned. Thunberg (1784: 281, 282) used the name *D. polystachios* for all species of *Wisteria* that he found in Japan (see Compton & Lack 2012: 225–227). This name appears to have been used in the same sense by Siebold and Bürger for all species of *Wisteria* on herbarium specimens and in the lists of plants they sent from Dejima to Batavia, Java from 1826 to 1830.

Series (List) 3. Selectae quaedam plantae ex Herbario clar. Dr Bürger in usum Flor. Jap. Derde lijst van gewassen welke de ondergeteekende verklaart, tot de bewerking der Flora Japonica uit 's Rijksherbarium ter leen te hebben ontvangen [Third series. Some plants selected from the herbarium of the celebrated Dr Bürger to be used for the Flora Japonica. Third list of plants which the undersigned [Siebold] declares to have received on loan from the Rijksherbarium for the preparation of the Flora Japonica]. This list was also written by Pierot and dated 23 March 1837. All plants on this list were collected by Bürger, who succeeded Siebold as Dutch official for natural history on Dejima. No *Dolichos* specimens are mentioned on this list.

Series (List) 4. Selectae quaedam plantae ex Herbario meo in usum Florae Japonicae. Vierde lijst van gewassen welke zich ter bewerking van de Flora Japonica, uit het door den ondergeteekende bijeengebracht Herbarium, nog onder deszelfs berusting bevinden (Fourth series. Some plants selected from my herbarium to be used for the Flora Japonica. Fourth list of plants from the herbarium assembled by the undersigned [Siebold] which are still in his hands for the preparation of the Flora Japonica). Written by Pierot and dated 21 March 1837. The plants on this list were collected by Siebold. Unfortunately it does not mention to which of the two Siebold herbaria these plants belong, but they probably came from his earlier 1823–1828 herbarium. There are no *Dolichos* mentioned on this list.

According to correspondence from Siebold to Blume, dated 9 July 1839, (Siebold MS in NBC, Leiden), Siebold returned to the Leiden Rijksherbarium from Munich the vast majority of the specimens that Zuccarini had used in the first ten fascicles of the Flora Japonica.

"Leyden den 9 Julij 1839
Hiernevens heb ik de eere aan UWeledelgestrenge te zenden de gedroogde gewassen en zaden, welke door mij en mijnen Heere collaborateur, Professor Zuccarini, zijn gebezigd worden tot de bewerking van de tien eerste bundels der Flora Japonica door ons in 't licht gegeven. Het grootste gedeelte dezer gewassen behoort tot mijn Herbarium in de jaren 1829–30 op Japan verzameld en althans onder zegel gedeponeerd in het Rijks Herbarium.

De onderwerpelijke bezending bestaat in 50 soorten planten nauwkeurig bepaald en gerangschikt volgens onze Flora Japonica, en in 27 soorten gedroogde zaden en vruchten in glazen bewaard. De exempl[aren] van gedroogde gewassen, die mij door UWeledelgestrenge zijn medegedeeld geworden uit mijn Herbarium (van 1823–1828) en het Herbarium van den Heere Bürger, bevinden zich telkens bij de genera bijgelegd"

[Leiden 9 July 1839

Herewith I have the honour to send you the dried plants and seeds that were used by my collaborator Prof. Zuccarini and myself for the production of the first ten fascicles of the Flora Japonica that was published by us. The majority of these plants belong to my herbarium made in Japan in 1829–30, now deposited under seal in the Rijksherbarium [L].

This shipment consists of 50 species, accurately identified and arranged according to our Flora Japonica, and 27 kinds of dried seeds and fruits in glass containers. The specimens of dried plants that you [Blume] had sent to me from my herbarium (of 1823–1828) and the herbarium of Mr Bürger have been added to the genera.]

With respect to the lists outlined above we can draw certain conclusions:

The letter from Siebold to Blume on 9 July 1839 stated (translated): "This shipment consists of 50 species, accurately identified and arranged according to our Flora Japonica, and 27 kinds of dried seeds and fruits in glass containers." These must be the specimens mentioned on List 2, although the number of specimens (50) is slightly higher than is mentioned on the list (47).

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The letter of 9 July 1839 also stated: "The specimens of dried plants that you [Blume] had sent to me from my herbarium (of 1823–1828) and the herbarium of Mr Bürger have been added to the genera." The Bürger specimens that Siebold referred to here will be those on List 3. The specimens returned from Siebold's 1823–1828 herbarium are probably those from List 4, although the year of collection is not mentioned. With the exception of those plants on List 1, all plants used by Zuccarini for the preparation of the first part of the Flora Japonica should have been returned but it is known that Zuccarini retained some collections (H.-J. Esser pers. comm.).

From correspondence between Siebold and Johann Andreas Wagner, Professor of zoology at Munich and the guardian of Zuccarini's children, we know that Siebold, without Blume's knowledge, had sent specimens collected by Bürger to Zuccarini from his own private herbarium (letters Siebold to Wagner, Boppard 6 Aug 1848; Boppard 31 Aug 1848; Boppard 23 Feb 1849, Bayerische Staatsbibliothek, München). In 1838, Bürger had sent to Siebold in Leiden a large collection of plants that he had collected in Japan. The Bürger specimens that Siebold sent to Zuccarini may have been part of that collection. Siebold sent the Bürger specimens to Zuccarini (probably as a gift) but under the condition that new species or species that were not yet present in the Rijksherbarium had to be returned (to the Rijksherbarium). Many Bürger collections now present at M may have been the property of Zuccarini and were therefore eligible to be legally sold by Wagner on behalf of Zuccarini's children.

After the death of Zuccarini, Siebold repeatedly asked Wagner for the return to Leiden of all Japanese collections still in his possession. According to Siebold, Zuccarini had not returned all the Japanese collections that were on loan from the Rijksherbarium or those on loan from Siebold's own herbarium of 1829. Siebold also wrote to Wagner to say that Zuccarini had not returned the Bürger specimens from Japan that he had received in 1838.

In Aug 1848, Siebold received one crate with Japanese plants from Munich but this only contained plants that Zuccarini had borrowed from the Rijksherbarium during his visit to The Netherlands in 1842. This loan was not complete (further lists exist for that loan in Leiden NBC and Sieboldiana Collection Bochum). Wagner did not return the Bürger specimens or the many hundreds of specimens from Siebold's own herbarium of 1829.

3. Availability of type material

There are seven specimens of *Wisteria japonica* at L, which could have been studied by Zuccarini for the Flora Japonica account (Yamaguchi & al. 2003: 422). These consist of three specimens made by Siebold and four by Bürger. According to his letter to Blume, Siebold mentions that the returned specimens had come mainly from his own collections made between 1829 and 1830. This was a time in which Siebold was under house arrest by the Japanese authorities on spying charges and was confined to Dejima. He certainly prepared specimens from the Botanic Garden plants growing on Dejima. Siebold was permitted to keep a goat on Dejima and his loyal and trusted Japanese colleagues presented him with "fodder" for the animal. Some of the "fodder" was material that was good enough to make specimens. Siebold stated that the returned specimens also included some from his earlier herbarium collected between 1823–1828, as well as specimens collected by Bürger who had collected with him from the time of his arrival on Dejima in 1825. When the Dutch colonial government under Governor-General Godert van der Caplellen had agreed to give Siebold assistance on Dejima, Bürger had specifically asked to be appointed as assistant to the physician. Siebold had been given the services of Bürger with the mandate that he could decide what tasks Bürger might perform (letter to Siebold 14 June 1825 from J. Bousquet, Secretary-General in Batavia, photocopy of unsigned transcript at NBC Leiden). After Siebold's expulsion from Japan in 1830, Bürger had remained behind and had carried on collecting specimens in the area around Nagasaki, preparing specimens from the Botanic Garden until 1832 (Thijsse 2005: 8). He had also returned to Japan for a few months in 1834 so it is possible that these sheets may have been collected at any point over those years. Which sheets then are to be considered as original material?

On List 2 mentioned above, written by Jacques Pierot and dated 21 March 1837, is added another list of the species returned in July 1839. On this additional list there are included the following sheets for the genus *Wisteria*, but without mentioning any collectors' names: one specimen of *W. brachybotrys*, three of *W. sinensis* (i.e. *W. floribunda*) and three of *W. japonica*.

One of the three sheets of *Wisteria japonica*, collected by Siebold, numbered Herb. Lugd.-Bat. 908.120-33 and recorded under Rijksherbarium Leiden barcode L 0059625, was annotated by Dunn as the holotype. Dunn in fact referred to the specimen as "Type" (Dunn 1912: 154) despite having written "Holotype" on the sheet. It is the published statement of "type" however, that amounts to effective lectotypification. As was frequently the case with Siebold's collections and Zuccarini's descriptions, there is no indication in the protologue of *W. japonica* that provides evidence that this specimen is the holotype. The only specific information provided by Siebold in Flora Japonica (Siebold & Zuccarini 1839: 89) is the statement: "Crescit frequens in dumetis et ad sepes, caule volubili arbores fruticesque scandens. In hortis decori colitur. Floret Julio, Augusto." [Frequently found growing in thickets and hedges, with stems twining over trees and shrubs. In gardens its beauty is appreciated. Flowering in July and August.] [Saturn symbol, i.e. perennial]. The specimen consists of two leafy and flowering

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branches, a portion of leaf and a branch with a single fruit pod. It is annotated in Siebold's hand: "Kofusi, Sarufusi, Julio – Augusto florens, leguminibus glabris" and on another label also by his hand "*Wisteria japonica* Fl. Jap. t. 43. Herb. de Siebold 1829". The text at the bottom of the label reads: "specimina authentica, nunc ad floram japonicam componendam inservierunt". [An authentic specimen that is now included as a component of Flora Japonica]. This part was added later and was probably written by Julianus Hendrik Molkenboer. Molkenboer was a young physician who had graduated on a botanical thesis at Leiden in 1840. From that year until 1846 he worked on the vascular plant collections in the Rijksherbarium (L) and assisted Blume in the preparation of a catalogue of the Dutch East Indies and Japanese plants (Touw 1979: 93).

The name Kofusi was used by the Japanese for *Wisteria japonica* and is listed by Siebold and Zuccarini in their treatment of that species in Flora Japonica (1839: 88) as meaning "little fuji" or little *Wisteria*. The word "Sarufusi" is another Japanese name for the species mentioned in Flora Japonica (Siebold & Zuccarini 1839: 88) as meaning Fudsi simiarum or Monkey *Wisteria*.

This specimen (L 0059625) is part of Siebold's own 1829 herbarium and bears a label written in his own hand accurately identifying it and giving a reference in the Flora Japonica. It is completely in agreement with what Siebold had written in his letter to Blume in July 1839 concerning the returned collections and will certainly be one of the three mentioned as having been returned from Munich in the list attached after July 1839.

What about the two other collections of *Wisteria japonica* by Siebold at L? The first of these is conserved under the registration number Herb. Lugd.-Bat. 908.120-13 (barcode L 0176060) and has no collecting date on it. The sheet consists of both flowering and fruiting material. It has two labels on it saying "*Dolichos* Th. Kofusi Jap" and "*W. japonica* S & Z" as well as later annotations including one by H. Wada stating "natsu fuji" (summer wisteria) in Japanese characters. The other sheet is also undated and again has both flowers and fruits. This sheet is conserved under the registration number Herb. Lugd.-Bat. 908.120-23 (barcode L 0176061) and also has two labels, "Dol. polystach. Th. Kofusi, and "*Dolichos* Kofusi. Jap". As already discussed, Siebold and Bürger used the name *D. polystachios* for all species of *Wisteria* on herbarium specimens and in the lists of plants they sent from Dejima to Batavia, Java from 1826 to 1830. The name *D. polystachios* was also included in List 2 of the plants used for the Flora Japonica, dated 21 March 1837 and prepared by Jacques Pierot, but there is nothing to suggest that it was applied to *W. japonica*. The name "Kofusi" is written on both sheets and each has a label written by Miquel: "*Millettia japonica* A. Gray". Neither sheet has any reference to Flora Japonica.

There is nothing on either of these Siebold specimens (L 0176060, L 0176061) or indeed on the four specimens of *Wisteria japonica* made by Bürger to indicate that they had been used for the description of the species in Flora Japonica. There is also nothing on any of them to indicate which had been the remaining two sheets of *W. japonica* returned from studies by Zuccarini in Munich in 1839. There is nothing on any of them to indicate that the validating description of the name was based on the specimen, therefore they are not considered to be original material (McNeill & al. 2012: Art. 9.3).

Also conserved at L are two duplicate specimens of *Wisteria japonica* collected at "Kawara Yama, Kiusiu" [Mt Kawara, Kyushu Island]. These specimens bear labels suggesting Pierot (nr. 96) as the collector. This is of interest because, although Pierot was sent out to Japan by the Dutch government to collect specimens for the Dutch Royal Society for the Encouragement of Horticulture in The Netherlands, he never arrived in that country. He left The Netherlands in September 1840 and left Java in May 1841, bound for Japan, but his ship was caught in a typhoon and was diverted to Macao. Pierot unfortunately caught a tropical desease and died without ever leaving Macao (Yamaguchi 2003: 35–36). The labels on these duplicates are also unusual because Siebold and Bürger hardly ever wrote locality information on labels. Mt Kawara is located in the northern part of Kyushu. The handwriting on the labels matches that of the amateur botanist and pharmacist G. Bisschop who collaborated with J. Pierot to acquire jointly a herbarium of Japanese plants (Yamaguchi 2003: 35). With the exception of localities in the area around Nagasaki, many other localities mentioned on the so-called "Pierot" specimens are places found along the route of the court journey to Edo [Tokyo]. It is therefore likely that the collector of those specimens would have been someone who had accompanied Siebold on the court journey to Edo in 1826. It is, however, not likely that Siebold would have permitted Bürger, who at that time was his assistant, to collect and keep such a collection for himself. It is also not likely that they were collected on the court journey in 1830 because Bürger was not permitted by the Japanese to accompany Meijlan, the Chief Merchant on that journey, in the wake of Siebold's expulsion from Japan (H. Beukers pers. comm.; Thijsse 2005: 9–10).

There is a small fishing village called Kawara in the southern area of Nagasaki bay, behind which are some mountains that collectively were called "Kawara-yama". It is possible, though less likely, that Bürger may have collected these specimens there (Yamaguchi 2003: 17). The Director of the Rijksherbarium from 1862, Friedrich Anton Wilhelm Miquel (1811–1871), attributed these Japanese specimens to Bürger in the first pages of his Prolusio Florae Japonicae in 1865 (Thijsse 2005: 9). These Bürger specimens acquired by Bisschop and Pierot (jointly) were sold by Bisschop to Blume in the Rijksherbarium, Leiden on 29 January 1844 (original MS at NBC Leiden) and therefore could not have been used by Zuccarini for the Flora Japonica.

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There are three further sheets of *Wisteria japonica* in the Zuccarini Herbarium at the Botanische Staatssammlung München (M) (photographs H.-J. Esser pers. comm.) that are conserved under the barcodes M-0153889, M-0153890 and M-0153891. These are all undated and were collected by Bürger. The Herbarium Regium Monacense, Herbarium Zuccarinii labels on all the specimens have "legit Bürger in Japonia, ex herbario Lugduno-Batavo, communicavit de Siebold" and "*Wisteria japonica* S & Z." in Zuccarini's hand. Some Japanese collections used by Zuccarini in the description of the *Wisteria* accounts in the Flora Japonica might have remained behind in Munich. indeed it is known that in other cases Zuccarini deliberately retained them (H.-J. Esser pers. comm.).

Zuccarini might have acquired the three Bürger collections at M after the production of the part of Flora Japonica in which *Wisteria japonica* had been included, i.e. after 1839. There is correspondence between Siebold and Zuccarini to prove that Siebold had sent to Zuccarini Bürger's collections in 1841. Bürger had arrived in Europe from Java and had given Siebold all his Japanese collections then (Folder Cgm 6433 Bayerische Staatsbibliothek München). Zuccarini paid a visit to Leiden in 1842 and Blume allowed him to select material for the production of the second section of the Flora Japonica to take with him back to Munich (1843 letter to an unknown individual, Folder Cgm 6433 Bayerische Staatsbibliothek München). The lists of plants taken by Zuccarini for the second section of Flora Japonica (at NBC Leiden and Sieboldiana Collection Bochum) do not include any *Dolichos* or *Wisteria* because these had already been dealt with in the first section. Zuccarini also bought a collection of 800 specimens of Japanese plants during his visit to The Netherlands. Bürger was known to have visited Europe from May 1840 to October 1842 and was in Amsterdam in August 1842 (P. Kernkamp pers. comm.). It is possible but improbable that these specimens of *W. japonica* may have been part of that set because the labels on the sheets state "ex herbario Lugduno-Batavo". Moreover, as the labels on the sheets also state "communicavit de Siebold", it is most likely that the sheets had been sent to Zuccarini by Siebold himself.

It is impossible to reconstruct exactly how the Bürger specimens of *Wisteria japonica* came into the hands of Zuccarini at M. The most likely source for these sheets, as discussed above, is that they were from the Rijksherbarium in L and were all correctly labelled as such even though no Bürger *Wisteria* (or *Dolichos*) specimens were mentioned in the list of specimens that Zuccarini had on loan from Leiden. This means that they were not given to Zuccarini from Siebold's own personal herbarium. These three sheets could have been used as the basis for the name *W. japonica*. Zuccarini himself wrote the name of the species on his own herbarium labels at M and they are therefore considered as original material.

4. The choice of "type" for *Wisteria japonica*

There are four possible candidates that could be considered as original material for the name *Wisteria japonica* and therefore potential types: Siebold's collection at L (L 0059625) and the three Bürger specimens at M. The specimen at L was not cited in the protologue and was not the basis for the illustration in Flora Japonica. However, it was clearly one of three sheets that were returned to Leiden before 1839 and would have been used by Zuccarini for the production of Flora Japonica including, crucially, the validating description of the name. When Dunn (1912: 154) wrote "Herb. Siebold (type)", he could mean only the specimen at L, which he therefore effectively designated as the lectotype of *W. japonica*.

Wisteria japonica Siebold & Zucc., Fl. Jap.: 88. 1839 ≡ *Millettia japonica* (Siebold & Zucc.) A. Gray in Mem. Amer. Acad. Arts, n.s., 6: 386. 1858 ≡ *Phaseoloides japonica* (Siebold & Zucc.) Kuntze, Revis. Gen. Pl. 1: 201. 1891 ["*Phaseolodes*"] ≡ *Kraunhia japonica* (Siebold & Zucc.) Taub. in Engler & Prantl, Nat. Pflanzenfam. 3(3): 271. 1894. – Lectotype (designated by Dunn 1912: 154): Japan, "*Wisteria japonica* Fl. Jap. t. 43. Hb. de Siebold 1829", *Siebold* (L 0059625 [Herb. Lugd.-Bat. No. 908.120-33]).

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