

A contribution toward clarifying the nomenclature of *Veronica* L. (*Plantaginaceae*)

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Abstract During a taxonomic revision of the genus *Veronica* L. for the *Flora iberica* project, an attempt was made to fix the correct status of the names cited in the study area. With this aim, here we have designated lectotypes, neotypes and epitypes for 18 previously untypified names, mainly belonging to annual species, some of them widely distributed such as *V. persica* and *V. praecox*. These newly proposed types support the current use of the names concerned and therefore contribute to establishing the correct nomenclature of the genus.

Keywords nomenclature; *Plantaginaceae*; *Scrophulariaceae*; *Veronica*; taxonomy; typification

■ INTRODUCTION

The genus *Veronica* (*Plantaginaceae* sensu APG, 1998; formerly *Scrophulariaceae*) is the largest genus within the tribe *Veroniceae*. It includes 12 subgenera (Albach & al., 2009) with ca. 450 species (including the *Hebe* complex, Albach & al., 2004a, 2009) worldwide, although most of them are only present in the floras of temperate regions of the Northern Hemisphere, specifically in the Mediterranean region.

The taxonomy of this genus is still far from being completely resolved, especially in certain complex groups, which has frequently led not only to misidentifications but also nomenclatural mistakes. The present contribution forms part of the revision of *Veronica* for the *Flora iberica* project. Thus, we developed a detailed study of all the names that have been cited in the literature for the Mediterranean region with a view enhancing their nomenclatural stability.

We found that some of these names have been applied in different senses and have therefore been used with somewhat doubtful applications. Typification is needed in order to fix the correct use of such names in accordance with the *ICBN* (McNeill & al., 2006). In this work we have designated lectotypes, neotypes and, in some cases epitypes, for ten currently used names and eight synonyms of *Veronica*, none of them yet typified. Owing to the complexity of some of the choices, we found that this work would be appropriate for publication here separately from the more synthetic treatment of a flora such as *Flora iberica*.

■ MATERIALS AND METHODS

Protologues and other relevant taxonomic literature were searched for existing effective typifications. We carefully examined the 18 names involved and a list of the relevant original material that should be examined in order to establish the choices of the types. We took special care to ensure that all

newly proposed types would support the current use of the valid names studied. We always chose to typify by the most complete specimen whenever a choice was possible between specimens and illustrations, except in cases where the extant specimens might disrupt current use of the name. When this was not possible owing to the ambiguity of the original material or lack thereof, an epitype or neotype, as appropriate, was designated.

Our decisions were based on our taxonomic knowledge of the genus, as well as on a careful study of herbarium materials deposited in the following herbaria: B, BP, CGE, CL, G, GOET, H, HAL, LINN, LOU, MA, MAF, NAP, OXF, P, P-JU, PO, SALA, TO, UPS, W, WU.

The species are listed below in alphabetical order with their currently accepted names in bold type. The following data are included: taxon name, type locality indications, type material and/or statement of provenance according to the protologue, selected lectotype (according to Art. 9.2 of *ICBN*, McNeill & al., 2006), neotype (Art. 9.6 *ICBN*) or epitype (Art. 9.7 *ICBN*). Finally, notes on taxonomic and/or nomenclatural aspects have been included whenever considered appropriate.

Photographs were taken of all relevant material traced and are available from the corresponding author upon request.

■ NEW TYPIFICATIONS

Veronica anagalloides Guss., Pl. Rar.: 5, t. 3. 1826 – Type citation: “In stagnis depressis Calabriae orientalis, prope Catanzaro al fiume Magliacane” – **Lectotype (designated here)**: Calabria, Catanzaro al fiume Magliacane, Herb. Gussone (upper right specimen) (NAP!).

Note. – As lectotype for this name we select the specimen placed on the upper right part of the sheet. The label corresponding to this specimen reads as follows: “*Veronica anagalloides* Nob. / Calabria / Catanzaro al fiume Magliacane” (in Gussone’s handwriting). Later, Tenore added: “Guss.”

Veronica buxbaumii Ten., Fl. Napol. 1: 7, t. 1. 1811, nom. illeg. [non F.W. Schmidt in Samml. Phys. Aufsätze Böhm. Naturgesch. 1: 187. 1791] = *V. persica* Poir. in Lamarck, Encycl. 8: 542. 1808 – Type citation: “Nasce nei margini de’ campi, e lungo i fossi delle strade di campagne; nel resto conviene colla precedente” – **Lectotype (designated here)**: Ne margini de campi. Herb. Tenore (NAP!).

Veronica carnosula Lam., Tabl. Encycl. 1: 47. 1791 [= *V. peregrina* L., Sp. Pl.: 14. 1753] – Type citation: “Ex Europa & America septentr. in arvis” – **Lectotype (designated here)**: envoyé de l’amerique Septentrionale, Herb. Lamarck (P-LA!).

Veronica chamaepithyoides Lam., Tabl. Encycl. 1: 47. 1791 – Type citation: “Ex Hispania” – **Lectotype (designated here)**: Herb. Lamarck (P-LA!).

Note. – This rare species, endemic to Spain, was described by Vahl (1790) in his *Symbolae Botanicae* under the name *V. digitata*. This name is illegitimate (Art. 53.1 of the ICBN, McNeill & al., 2006), since Lamarck (1779) had already used it a few years previously for *V. tryphyllos* L. Later, Lamarck (1791) proposed the name *V. chamaepithyoides* for this Spanish taxon. No reference to previous synonyms is made by Lamarck in the protologue and although his phrase-name (*V. floribus solitariis sessilibus, foliis digitato-partitis, caule erecto*) is very similar to Vahl’s (*Veronica floribus solitariis sessilibus, foliis omnibus digitato-partitis*), there is no other evidence that Lamarck was proposing *V. chamaepithyoides* as a new name for *V. digitata*. Moreover the dates of publication of the two names (*V. digitata* in August–October 1790 and *V. chamaepithyoides* on 3 March 1791) are sufficiently close that it is possible that Lamarck was unaware of Vahl’s *V. digitata*. In the circumstances we must treat Lamarck’s *V. chamaepithyoides* as a new species and so the material (two sheets belonging to a single gathering) at the Lamarck herbarium in Paris (P-LA) is relevant for this typification. This gathering at P-LA is selected as lectotype for *V. chamaepithyoides*.

Veronica cymbalaria Bodard, Mém. Véronique Cymb.: 3. 1798 – Type citation: “... dans une exposition fraîche mais non humide, au haut d’une vielle mâsure, aux environs de Pise, entrelacée avec la Cymbalaire” – **Lectotype (designated here)**: [icon] “*Veronica Chia, Cymbalariae folio, verna, flore albo, umbilico virescente*” in Buxbaum, Pl. Min. Cogn. Cent. 1: 25, t. 39, f. 2. 1728 – **Epitype (designated here)**: Spain, Málaga, Antequera, El Torcal, 30SUF6291, 1200 m, bajo matas de Crataegus, 6 abr 1999, *E. Rico ER6809* (SALA 109296!) (isoeotype: MA 855279!).

Note. – In spite of an intensive search in the literature (e.g., Stafleu & Mennega, 1993), no indications about the location of the herbarium and types of Pierre H.H. Bodard have been found. In light of this, we searched through the protologue of this species for references that might provide us with some clue for detecting relevant material.

After the description of the species by Bodard in the first paragraph of the protologue, the second one contains a

polynomial synonym coming from the second edition of the *Species Plantarum* of Linnaeus (1763), who did not distinguish the species to which the name is currently applied from his *V. hederifolia* L.

Of the other polynomial synonyms cited by Bodard in the protologue, reference was made to illustrations only in the case of Buxbaum (1728) and Theodorus [“Tabernaemontanus”] (1588). The illustration in the latter work is too schematic and hence its ascription to *V. cymbalaria* would be somewhat risky. However, the description by Buxbaum (1728) is somewhat better and therefore we consider it adequate to select it as the lectotype of *V. cymbalaria*. Unfortunately, we also found that this illustration is inadequate (ambiguous) for distinguishing this species from other related taxa since some important characters, such the pubescence of the capsule, are not represented in the illustration. We further designated an epitype referable to the species currently known as *V. cymbalaria* to enable the precise taxonomic interpretation of the lectotype.

Veronica demissa Samp. in Ann. Sci. Nat. (Oporto) 7: 117. 1901 [= *V. arvensis* L., Sp. Pl.: 13. 1753] – Type citation: “Habitat in arenosis maritimis, prope «Villa do Conde»” – **Lectotype (designated here)**: Vila do Conde, areas maritimos 5°-1901, *G. Sampaio* (PO 6935G.S.!) (isoelectype: MA 111988!).

Veronica dillenii Crantz, Stirp. Austr. Fasc., ed. 2: 352. 1769 – Type citation: “In summis montibus Durrenstein locis aridis apricis, & pascuis frequentissima” – **Neotype (designated here)**: [Flora exs. Austr. Hung. ad 2623] Austria inf., In decl. apricis montis “Dürrenstein”, ad flumen Danubium (locus classicus), ca. 300 m, *Fritsch, Ja*, (W!) (isoneotype: B!).

Note. – *Veronica dillenii* Crantz is closely related to *V. verna* L. and *V. brevistyla* Moris, although it is well characterized by its longer style, larger corolla and by the shape of its capsule. These three species are included in *V.* subsect. *Microspermoides* Albach, within the monophyletic *V.* subg. *Chamaedrys* (W.D.J. Koch) M.M. Mart. Ort. & al. (Albach & al., 2004b, 2009).

According to Stafleu & Cowan (1976), Crantz’s herbarium is mainly located at BP but we have not found any relevant material, neither in BP or in W, B nor GOET, which are other herbaria that might contain sheets related to Heinrich Crantz.

Following Crantz’s phrase-name, “*Veronica foliis digitato-partitis; floribus solitariis spicatis, sessilibus*”, the protologue includes the polynomial synonym: “*Veronica humilis erecta montana, flore parvo caeruleo. DILL. append. 38*”, from Dillenius (1719). This synonym is also included by Linnaeus under *V. verna* in the first edition of *Species Plantarum* (Linnaeus, 1753).

A sheet lodged at LINN bearing number 26.59 contains three small specimens of *V. arvensis*; they are interesting because they are accompanied by a label handwritten by Linnaeus: “*An Veronica humilis erecta montana, flore parvo caeruleo Dill.?*”, referring to the above-mentioned synonym of Dillenius. The question mark suggests that Linnaeus was not

sure about the taxonomic assignment of the synonym. There are no relevant illustrations in Dillenius (1719), and according to Stafleu & Cowan (1976) his collection might be lodged at B, CGE, H, HAL, OXF and P-JU. We have only found material with this polynomial in Oxford. This material is included in the Herbarium Sherardianum and is a sheet containing only one plant with two labels. In one of them, Dillenius wrote: “*Veronica humilis, erecta montana flore parvo caeruleo*”. It is plausible that Sherard could have used Dillenius to classify his herbarium, and part of this material could have been used as the basis for some of Dillenius’s descriptions (Marner, pers. comm.). We studied the specimens mentioned that undoubtedly belong to *V. verna*, owing to its short style and the shape of the capsule.

Crantz seems to be sure about the morphological differences between the species described by Dillenius (and named *V. dillenii* by him) and any described by Linnaeus, since at the end of his protologue, after noting that the phrase-name of *V. verna* L. (and that of *V. triphyllos* L.) fitted his species (“*ac huic convenit*”), he wrote: “*multus dubito, DILLENII plantam a LINNAEO visam, quanquam, etiam in Suecia inveniri, scribat. Si enim vidisset faciles differentiae notas adiecisset*”; such that he doubted that Linnaeus could have seen Dillenius’s material, since if he really had done so he would have added some easy indications to distinguish between both species. As it does not appear that Crantz used any material from either Linnaeus or Dillenius to elaborate his description of *V. dillenii*, but only the latter’s description, it is necessary to propose a neotype and we selected the following material collected from the locus classicus, Dürrenstein (Austria), showing the typical characters of *V. dillenii*. This typification serves to maintain the use of the name *V. dillenii* as currently understood and formally fixes the application of the name.

Veronica filiformis Sm. in Trans. Linn. Soc. 1: 195. 1791 – Type citation: “Gathered by Tournefort in the east. Buxbaum says it grows about hedges in Bithynia” – **Lectotype (designated here)**: Ex Oriente, Herb. Smith no. 43.75 (LINN, photo!) (isolectotype: Herb. Smith no. 43.76 [LINN, photo!]).

Note. – This species was described by Smith (1791) on the basis of material coming from the Orient, i.e., the eastern Mediterranean area and southwestern Asia, but to date no selected material type has been chosen to fix its correct use. Sheet number 43.75 from the Smith herbarium contains two specimens characteristic of the species currently known as *V. filiformis* and the corresponding two labels with the following notes:

Label 1: Ex oriente – Tournefort.

Label 2: Iberia subalpina “*V. filiforme vera*” – Chev’r de Steven 1816.

We select the two individuals bearing label 1 as the lectotype.

Veronica miniana Merino, *Algunas Pl. Raras*: 24. 1895 [= *V. anagallis-aquatica* L., Sp. Pl.: 12. 1753] – Type citation: not indicated – **Lectotype (designated here)**: abundant ad ripas rivulorum, a 4° Kil. presque ad Tuy, P. Merino (LOU 00860/1!).

Veronica opaca Fr., Novit. Fl. Suec.: 64. 1819 – Type citation: “In arvis, cultis Scaniae &c. passim” – **Lectotype (designated here)**: Scania, Lund, 1818, Herb. Fries no. 193430 (UPS!).

Veronica panormitana Tineo ex Guss., Fl. Sicul. Prodr. Suppl. (1): 4. 1832 – Type citation: “In arvis: Palermo (Tineo) simul cum duabus praecedentibus” – **Lectotype (designated here)**: Herb. Gussone (NAP!).

Note. – This species has frequently been considered a variety, form or subspecies of *V. cymbalaria* because it exhibits very similar features to the latter species. However, they have also different ploidy levels and a reduced overlapping distribution since *V. panormitana* is restricted to a small and precise geographical territory instead of the widespread *V. cymbalaria*. The selection of a lectotype for this latter species, as mentioned above, makes it appropriate to use the same procedure for the also hitherto untypified *V. panormitana*.

We select the specimen in the upper half as the lectotype for this taxon. There are four labels on the sheet with the following annotations; only the first—with a handwritten note from Tineo—is in accordance with the protologue:

Label 1: *Veronica panormitana* Tin. [Tineo handwriting] / 1832 / Tineo [Gussone handwriting].

Label 2: *Veronica panormitana* Tin. in / Guss. syn. 1. p. 17, et 2 p. 775 / Febrero, Aprile / In arvis et ad muros [Gussone handwriting].

Label 3: *Veronica panormitana* / Gen. e Febb. / In la pietra calcarea delle Pedagne / Minà [Gussone handwriting].

Label 4: *Veronica panormitana* [unknown author].

Veronica persica Poir. in Lamarck, *Encycl.* 8: 542. 1808 – Type citation: “Cette plante croît dans la Perse. On la cultive au Jardin des Plantes de Paris” – **Neotype (designated here)**: Du jardin des plantes de Paris, 18 juillet 1813, Herb. Lamarck. (P-LA!).

Note. – In the protologue there is no precise geographical indication about the origin of the type material used for the description of this species, since it is only said that the plant can be found in Persia and that it was seen alive by Poiret, cultivated in the Paris plant garden: “... croît dans la Perse. On la cultive au Jardin des Plantes de Paris (v.v.)”.

A thorough search was made of the historical Herbarium of the Muséum National d’Histoire Naturelle of Paris (P), where the collections of Poiret and Lamarck are lodged. However no relevant material could be found to lectotypify this species. The only sheet with samples belonging to the current use of *V. persica* and possibly (according Prof. G. Aimon, pers. comm.) with Lamarck’s handwriting is dated 1813, five years after the publication of the protologue.

Thus, in absence of relevant material, the above mentioned specimen is proposed as the neotype of *V. persica* since it was collected in the same garden indicated in the protologue and because it shows the typical characters of this species, which also match Poiret’s original description.

Veronica pinnatifida Lam., Tabl. Encycl. 1: 47. 1791 [= *V. verna* L., Sp. Pl.: 14. 1753] – Type citation: “E Gallia, in sylvis” – **Lectotype (designated here):** Herb. Lamarck (P-LA!).

Veronica polygonoides Lam., Tabl. Encycl. 1: 47. 1791. [= *V. arvensis* L., Sp. Pl.: 13. 1753] – Type citation: “Ex Gallia, Italia; in pascuis” – **Lectotype (designated here):** A Rome et aux environs sur les murs, *D. Vahl*, Herb. Lamarck (P-LA!).

Veronica praecox All., Auct. Fl. Pedem.: 5, t. 1, f. 1. 1789 – Type citation: “Mense martio floret in agris circa Augustam Taurinorum” – **Lectotype (designated here):** (TO, photo!) (isolectotype: TO, photo!).

Note. – There are three sheets in the Allioni herbarium (TO) labelled with the name *V. praecox*. One of them contains two samples of *V. dillenii* Crantz, but the plants of the remaining sheets are undoubtedly identifiable as *V. praecox*. From these latter, we chose the sheet with three plants as the lectotype

Veronica racemifoliata Pérez Lara in Anales Soc. Esp. Hist. Nat. 11: 401. 1882 [= *V. arvensis* L. Sp. Pl.: 13. 1753] – Type citation: “In arenosis graminosis prope Jerez” – **Lectotype (designated here):** In arenosis, in locus “Callejón del Albadalejo prope Jerez”, 26 Mart. 1879 (MAF 23230!).

Veronica reyesana Pau & Merino in Merino, Fl. Galicia 2: 113. 1906 [= *V. anagallis-aquatica* L., Sp. Pl.: 12. 1753] – Type citation: “Copiosa in parajes acuosos del interior, como en los contornos de Mellid (aquí las corolas son rosáceas), Coruña; y cerca de Villanueva de Cervantes (corolas azuladas), Lugo” – **Lectotype (designated here):** Mellid (LOU 00861/2!).

Veronica sibthorpioides Debeaux ex Degen & Hervier in Bull. Acad. Int. Géogr. Bot. 15: 116. 1905 – Type citation: “Habitat in Hispania meridionali. In saxosis umbrosis calcareis Montis Sierra de Cazorla, alt. cca. 1600 m.s.m. (prov. Jaën.); rarissimam mense junio 1901 detexit cel. E. Reverchon (exsicc. a. 1901, n° 129 sub nom, erron. Sibthorpieae Europaeae); dein in Monte Sierra del Cuarto regni granatensis relegit anno 1902. (Exsicc. n° 1302)” – **Lectotype (designated here):** [no. 129, exsiccata 1302, sub. nom. *Sibthorpiea europaea*] Sierra de Cazorla, les roches ombragés sur le calcaire, 1600 m, rare, 6-1901, *E. Reverchon* (CL 20428!).

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