

# Lectotypification of Ruiz and Pavón's names in *Solanum* (Solanaceae)

by

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## Abstract

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Lectotypes or neotypes are confirmed or designated here for the 41 names coined by Hipólito Ruiz and José Pavón in the *Flora peruviana et chilensis* that were either described, or today recognised as, members of the large genus *Solanum* (Solanaceae): *Solanum acuminatum*, *S. acutifolium*, *S. anceps*, *S. angulatum*, *S. angustifolium*, *S. asperolanatum*, *S. biformifolium*, *S. calygnaphalum*, *S. conicum*, *S. crispum*, *S. cymosum*, *S. dichotomum*, *S. diffusum*, *S. filiforme*, *S. foetidum*, *S. glandulosum*, *S. grandiflorum*, *S. incanum*, *S. incarceratum*, *S. incurvum*, *S. laciniatum*, *S. lanceolatum*, *S. lineatum*, *S. mite*, *S. multifidum*, *S. nitidum*, *S. nutans*, *S. obliquum*, *S. oblongum*, *S. oppositifolium*, *S. pendulum*, *S. pinnatifidum*, *S. pubescens*, *S. runcinatum*, *S. scabrum*, *S. sericeum*, *S. sessile*, *S. stellatum*, *S. ternatum*, *S. variegatum* and *S. viridiflorum*. A introduction assesses the importance of Ruiz and Pavón to the botany of their time, and identifies difficulties in lectotypifying names coined by them. The currently accepted name for each taxon is given. Each typification is accompanied by a discussion of the reasoning behind the choice of specimen, and all types are illustrated.

**Key words:** typification, historic collections, America, exploration, Peru, Chile.

## Introduction

The Real Expedición Botánica a Perú (better known as the Ruiz & Pavón expedition, carried out from 1777 to 1788 to Peru and Chile) was one of the great 18<sup>th</sup> century botanical expeditions to the Americas. Hipólito Ruiz and José Pavón traversed lands previously not visited by collectors, and brought back to Spain many new herbarium specimens representing the first biodiversity survey of one of the megadiverse regions of the world.

## Resumen

Knapp, S. 2008. Lectotipificación de los *Solanum* (Solanaceae) descritos por Ruiz y Pavón. *Anales Jard. Bot. Madrid* 65(2): 307-329 (en inglés).

Se confirman o designan los lectotipos o neotipos de 41 nombres acuñados por Hipólito Ruiz y José Pavón en la *Flora peruviana et chilensis* que fueron descritos dentro del género *Solanum* (Solanaceae) o son actualmente reconocidos como parte del mismo): *Solanum acuminatum*, *S. acutifolium*, *S. anceps*, *S. angulatum*, *S. angustifolium*, *S. asperolanatum*, *S. biformifolium*, *S. calygnaphalum*, *S. conicum*, *S. crispum*, *S. cymosum*, *S. dichotomum*, *S. diffusum*, *S. filiforme*, *S. foetidum*, *S. glandulosum*, *S. grandiflorum*, *S. incanum*, *S. incarceratum*, *S. incurvum*, *S. laciniatum*, *S. lanceolatum*, *S. lineatum*, *S. mite*, *S. multifidum*, *S. nitidum*, *S. nutans*, *S. obliquum*, *S. oblongum*, *S. oppositifolium*, *S. pendulum*, *S. pinnatifidum*, *S. pubescens*, *S. runcinatum*, *S. scabrum*, *S. sericeum*, *S. sessile*, *S. stellatum*, *S. ternatum*, *S. variegatum* y *S. viridiflorum*. Se incluye una introducción explicando la importancia de Ruiz y Pavón para la botánica de su tiempo, así como las dificultades que entraña lectotipificar los nombres de estos autores. Para cada especie se incluye el nombre aceptado actualmente. Cada tipificación se acompaña de una discusión explicando la elección de los especímenes. Todos los tipos están ilustrados.

**Palabras clave:** tipificación, colecciones históricas, América, exploración, Perú, Chile.

Solanaceae featured prominently in these novelties not only because the Americas are the centre of diversity at both the generic and specific ranks in the family (see Knapp, 2007a), but also because many Solanaceae are relatively weedy and easy to cultivate. *Solanum* L., with ca. 1500 species, is the largest genus in the Solanaceae and one of the ten most species-rich genera of flowering plants (Frodin, 2004). As part of the collaborative project "PBI *Solanum*: a world-wide treatment" (see Knapp et al., 2004; <http://www.nhm.ac.uk/solanaceaesource>),

descriptions of all species of *Solanum* together with details of types and nomenclature are being provided via an on-line taxonomic resource, Solanaceae Source. One of the goals of the PBI Solanum project is to designate lectotypes for all *Solanum* names, helping to stabilise nomenclature and facilitate further taxonomic research. This paper is the third of a series (see Knapp, 2007b, 2008) on the nomenclature of *Solanum* in which lectotypes or neotypes for the epithets coined by a particular author or authors (rather than for a taxonomic section of *Solanum*) are designated.

The expedition to Peru, although financed by the Spanish Crown, was instigated by the French controller general to Louis XVI, Anne Robert Jacques Turgot. In 1777 he requested permission to send a botanist to Peru, ostensibly to recover the notes and information left behind in Peru by Joseph de Jussieu, brother of the influential French botanist Bernard de Jussieu, who had travelled to South America to explore the botany of the region in the late 1730s (Steele, 1964). Joseph de Jussieu had abandoned botany in the Americas, left his manuscripts and specimens there, and returned to France a broken man. Turgot proposed that the botanist Joseph Dombey mount an expedition to Peru in order to retrieve these materials, and the Spanish agreed, provided two Spanish professors were included in the team. Casimiro Gómez Ortega of the Jardín Botánico in Madrid selected two young men who had caught his attention in botany classes, Hipólito Ruiz and José Pavón. Gómez Ortega also appointed two artists to accompany the expedition, so that the plants be painted *in situ* in order “to copy nature exactly, without presuming to correct or embellish it” (Steele, 1964). All expenses for the Spanish participants in the venture were paid by Spain, while Dombey’s expenses were paid by France. The governments agreed that the specimens would be shared at the end of the expedition, with the first set going to Spain.

The expedition arrived in Lima in early 1778, to a city already disposed to scientific study and whose scientific community supported the visitors throughout their stay in the country. The botanists travelled in coastal and central Peru, in today’s Departments of Lima, Pasco, Huánuco and Junín. They also went south to Chile in 1782, where they spent almost a year. Over the course of the years in the field considerable tension built up between the three botanists on the expedition. Dombey was more than once accused of being a spy, and as with all enforced companionships, disagreements were rife. Dombey returned to Europe in 1784, taking with him boxes of specimens that were impounded upon return to Cadiz but were ultimately sent on to Paris, as the specimen division had already been made in Peru. The set of specimens and paintings belonging to Spain, five years worth of collecting in Peru and Chile, had been sent at the same time on the ill-fated ship *San Pedro de Alcántara*, that suffered storms in which all the living plants were

lost, and foundered off the Portuguese coast, resulting in the loss of all Ruiz and Pavón’s remittances. The length of time the expedition spent in Peru, the tensions resulting from the international nature of the group, and the vagaries of collecting and shipping specimens across the oceans, meant that many of the plants collected by the group never arrived in Europe. Most material collected in Chile was lost in the *San Pedro de Alcantara*, and much material collected in the Huánuco area and Ruiz’s diary for the Chilean portion of the voyage was lost in a fire in the hacienda of Macora (in the upper Río Huallaga drainage) in 1785 (Steele, 1964). That as much material was returned to Europe as can be found now is testament to not only the hard work and dedication of the botanists, but also to their persistence in returning to regions again once they knew their specimens had been lost (see Schultes & Jaramillo Arango, 1998).

Ruiz’s journal documents the travels of the group, and is a rich source of information about not only the daily activities of the expedition, but is also full of information about the uses and common names of plants (published in Spanish as Ruiz, 1952; in an English translation as Schultes & Jaramillo Arango, 1998). In the journal, Ruiz used the names he and Pavón were later to give to the plants in the *Flora peruviana et chilensis*, but some plants are listed that were never described, and some plants that were described in the flora are not mentioned by those names in the journal.

Ruiz and Pavón returned to Spain in 1788, with 3000 plant descriptions and more than 2000 drawings, the solid foundations upon which to write a flora of Peru. The sheer scale and cost of such an enterprise meant that its publication suffered setback upon setback; only the first three of a projected dozen or more volumes were actually taken to completion by Ruiz and Pavón. Among these was the volume containing the Solanaceae, as part of the Linnaean class “Pentandria Monogynia” (Ruiz & Pavón, 1799). The botanists arrived in a Spain where the botanical world was fractured, competitive and divided; they were associated with Casimiro Gómez Ortega (Ruiz ultimately married his niece) whose relationship with the rising star of Spanish botany Antonio José Cavanilles was completely dysfunctional (González Bueno, 2002). Ruiz in particular sided with Gómez Ortega, and a series of anonymous letters critical of Cavanilles (see Steele, 1964) completely destroyed any chance that the botanical community of Spain could work together on describing the plant riches of Peru. Specimens and drawings from the Peruvian expedition were housed in the Botanical Office of Peru owned by the Ministry of the Indies, where Ruiz and Pavón worked to publish their flora.

The advent of the Napoleonic wars in the early 19<sup>th</sup> century completely cut off funding for publication of the botanical results, and although the king wanted its publication, he was unwilling to commit funds to the faltering project (Steele, 1964). Charles IV’s abdication in

1808 and the French occupation of Spain put a stop to the publishing process, but Ruiz and Pavón continued to work with their materials (Steele, 1964). In 1816, Ruiz died, leaving Pavón to carry on the work, which ultimately had great impact on those today studying the species described in the *Flora peruviana et chilensis*. In 1814, Pavón began to sell material from the Botanical Office to foreign botanists in order to pay off debts and keep himself and the Office in business. He corresponded with the British botanist Aylmer Bourke Lambert, who had offered to buy duplicate plant specimens. Over the next ten years, Pavón sold thousands of plant specimens, many not duplicates, minerals, shells and drawings to Lambert, but disagreements over payment put an end to the relationship by 1825 (Steele, 1964). These specimens are today to be found in the herbaria of the Natural History Museum in London (BM), and in Oxford (OXF), and in other institutions to whom Lambert had sent material, who bought Lambert's collections at auction when he died or with whom duplicates were exchanged subsequently (see Miller, 1970). Ruiz and Pavón material "ex herb. Lambert" can be found in BM, OXF, G, MO, NY, and US, and a few specimens in CGE, LE and GH; the material in B of which photographs were taken by J.F. MacBride in the 1930s was destroyed in the Second World War (Miller, 1970). De Candolle's access to the Lambert collection meant that Peruvian plants were being described from Ruiz and Pavón's collections, but not by Pavón. Pavón also sold plant specimens to Philip Barker Webb, another British botanist – Webb bought more than 4000 plants from all over the Spanish dominions, including material from Peru, Mexico, the Caribbean and the Philippines (Steele, 1964). Webb's herbarium was bequeathed to the Grand Duke of Tuscany, today it is housed in the Istituto Botanico della Università di Firenze (FI). José Pavón died in 1840, aged 86, accused of stealing state property and destroying the enterprise for the publication of the Peruvian flora (Steele, 1964).

Ruiz and Pavón included 51 species in their treatment of *Solanum* (Ruiz & Pavón, 1799), of which 41 were newly described by them. These were among the first descriptions of *Solanum* species from the Americas, and most of these are still accepted names today (see below). Christian Hendrik Persoon published replacement names for several of Ruiz and Pavón's *Solanum* species in his *Synopsis plantarum* (Persoon, 1805). It appears that he usually coined these names for species named by Ruiz and Pavón using epithets already in use (e.g., *S. luteoalbum* Pers. for *S. pubescens* Ruiz & Pav.; *S. riparium* Pers. for *S. dichotomum* Ruiz & Pav.), but occasionally he coined new names for perfectly acceptable species such as *S. oppositifolium* (for which he coined the replacement name *S. urceolatum* Pers.) where he felt the name used by Ruiz and Pavón did not accurately reflect the characteristics of the plant described – in coining *S. urceolatum* he

said "Dantur plures species ubi flores sunt fol. oppositi, hinc nomen minus congruum mutavi" [In many species the flowers are opposite the leaves; this name that does not apply must be changed] (Persoon, 1805). Complete synonymy of all Ruiz and Pavón's names can be found on the *Solanaceae Source* website (<http://www.nhm.ac.uk/solanaceaesource>).

Many monographers in *Solanum* have stated that holotypes or lectotypes for Ruiz and Pavón names were in the Madrid herbarium (MA), but without specifying a particular sheet. In a few cases, only one sheet exists thus making lectotypification relatively straightforward, but in others multiple sheets in the Ruiz & Pavón herbarium at MA means that these type designations are not sufficiently precise. It is unlikely that any of this material is actually holotype material, as the dispersal of specimens both between Dombey and the Spanish at the time of the expedition and subsequently through sale and loss means lectotypification is essential even if only a single sheet is present at MA. The existence of potential type material in other herbaria due to the sale of specimens by Pavón further complicates matters, but allows lectotypification of names not represented by material in MA. Specimen collection in the 18<sup>th</sup> century did not follow the same relatively strict set of criteria that we apply today, and unless it is very clear that sheets have come from the same gathering, true isotype material is unlikely to be widely distributed for these names.

I have designated material in MA as lectotypes for these Ruiz and Pavón *Solanum* names wherever possible, recognising that duplicates and additional material will certainly be found elsewhere. In general, I have selected the sheet best matching the illustration in *Flora peruviana et chilensis* (Ruiz & Pavón, 1799), although the link between the illustrations and the herbarium sheets is at best tenuous. Where monographers of groups of *Solanum* (e.g., S. Knapp for sections *Holophylla*, *Pteroida* and *Geminata*, M. Nee for section *Acanthophora* and K.E. Roe for section *Brevantherum*, see below) have annotated particular sheets as lectotypes or types, I have followed their decisions for lectotype designation. For names where material has not been found at MA, I have looked for material that could be directly associated with the given name in the herbaria where Pavón's distributed "duplicates" have ultimately ended up, but the search has not been exhaustive. Lambert's herbarium, in particular, has been widely scattered (Miller, 1970).

## Typifications

***Solanum acuminatum*** Ruiz & Pav., Fl. Peruv. 2: 34, tab. 159. 1799

Ind. loc.: "Habitat in *Peruviae* nemoribus ad *Chinchao* vicum" [Peru: Huánuco, Chinchao, 9°38'S, 76°04'W].

Lectotype (designated here) MA 747083 (Fig. 1A); isotypes MA 747084 (see Fig. 4C), MA 747085, MA 747086.

Current accepted name: *Solanum acuminatum* Ruiz & Pav.

Knapp (2002) did not designate a specific sheet at MA when lectotypifying this species, but did annotate MA 747083 as “lectotype” (see Fig. 1A) in 1985. This sheet is that best matching the illustration, with terminal, large inflorescences and short anthers typical of *S. acuminatum*. The other sheets of this species are very similar, and seem to be from the same gathering. One of these matches the description of *S. foetidum* for which a specimen has never been found, and is selected the neotype of that species (see below).

***Solanum acutifolium*** Ruiz & Pav., Fl. Peruv. 2: 33, tab. 162 fig. b. 1799

Ind. loc.: “Habitat in *Muña* calidis” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated here), MA 747069 (Fig. 1B); isotype MA 747068.

Current accepted name: *Lycianthes acutifolia* (Ruiz & Pav.) Bitter

Of the two sheets of this species in the Ruiz and Pavón herbarium at MA I have chosen that with more stems and flowers and that was labelled “lectotypus” by an unknown previous worker. A sheet at OXF is also probably isotype material.

***Solanum anceps*** Ruiz & Pav., Fl. Peruv. 2: 36, tab. 169 fig. a. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Cuchero* tractus” [Peru: Huánuco, Cuchero, 9°31’S, 75°56’W, locality not on modern maps].

Lectotype (designated here), MA 747092 (F neg. 29722, Fig. 1C).

Current accepted name: *Solanum anceps* Ruiz & Pav.

Knapp & Helgason (1997) stated that the “holotype” of *S. anceps* was at MA, but without specifying a sheet number. Although a single specimen of *S. anceps* has been found at MA and that sheet is annotated “Exemplar unico dividido”, the possibility of yet more additional sheets being found in other herbaria means that the designation of a lectotype here is necessary.

***Solanum angulatum*** Ruiz & Pav., Fl. Peruv. 2: 36, tab. 170 fig. a. 1799

Ind. loc.: “Habitat in *Peruviae* hortis”.

Lectotype (designated by Whalen et al., 1981: 106), *Solanum amplissimo ... maximo*, Feuillée, J. Obs. 3: tab. 65. 1725.

Current accepted name: *Solanum quitoense* Lam.

Whalen & al. (1981) lectotypified *S. angulatum* with the illustration in Feuillée (1725) cited by Ruiz and Pavón, rather than with one of the three sheets in the Ruiz and Pavón herbarium at MA (MA 747177, MA 747178, MA 747179). *Solanum quitoense* is the commonly cultivated “naranjilla”. Although not epitype material, as it is not the specimen on which the lectotype was based, MA 747178 is illustrated here as authentic herbarium material for this name (Fig. 1D) collected by Ruiz and Pavón.

***Solanum angustifolium*** Ruiz & Pav., Fl. Peruv. 2: 33, tab. 163 fig. b. 1799, nom. illeg., non Mill.

Ind. loc.: “Habitat in nemoribus *Huanuci* ad *Acomayo* tractus” [Peru: Huánuco, Acomayo, 9°46’S, 76°05’W].

Lectotype (designated here), MA 747093 (Fig. 2A); isotypes MA 747094, MA 747095.

Current accepted name: *Solanum cutervanum* Zahlbr.

Persoon (1805) coined the replacement name of *S. pulverulentum* for this species, but that name is a homonym of *S. pulverulentum* L., a synonym of the African species *S. tomentosum* L. (Knapp, 1989). The sheet selected here as the lectotype (MA 747093, Fig. 2A), is that best matching the illustration in *Flora peruviana et chilensis*.

***Solanum asperolanatum*** Ruiz & Pav., Fl. Peruv. 2: 39, tab. 174 fig. b. 1799

Ind. loc.: “Habitat in *Peruviae* praeruptis, ad *Huasabhuassi* arcem” [Peru: Junín, Huasahuasi, 11°19’S, 75°37’W].

Lectotype (designated here), MA 747126 (Fig. 2B); isotype MA 747175.

Current accepted name: *Solanum asperolanatum* Ruiz & Pav.

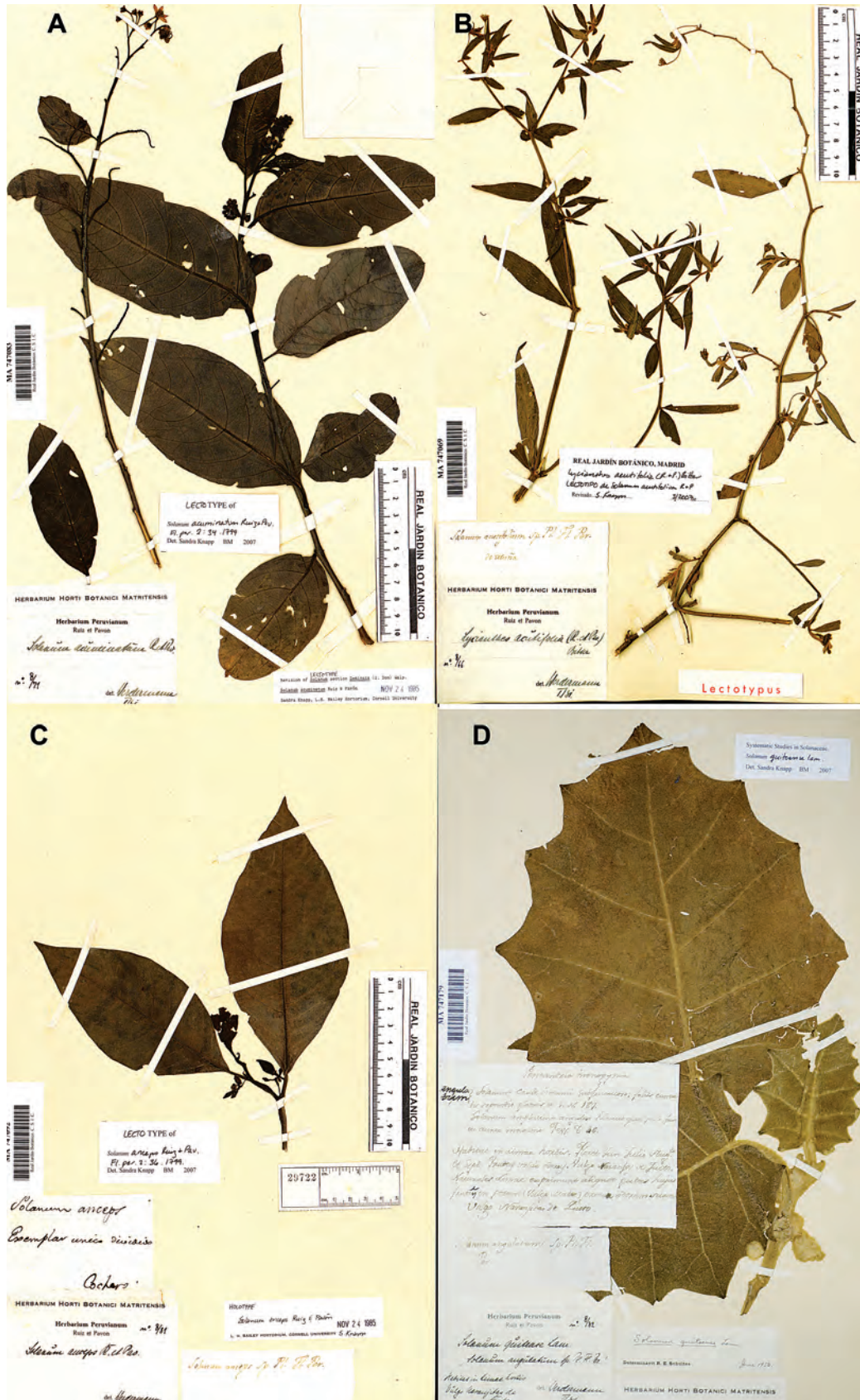
Two sheets of *S. asperolanatum* are in the Ruiz and Pavón herbarium at MA. The lectotype (MA 747126) is of a fruiting plant with entire leaves, and the other (MA 747175) is very similar and could be considered an isotype. *Solanum asperolanatum* is very variable as to leaf shape, with some individuals with entire leaves while others (often more juvenile individuals) have lobed leaves (see *S. stellatum* below). M. Nee (pers. comm.) has suggested that all these belong to a single, highly variable species for which the oldest name is *S. asperolanatum*.

***Solanum biformifolium*** Ruiz & Pav., Fl. Peruv. 2: 32, tab. 162. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Chinchao* runcationes” [Peru: Huánuco, Chinchao, 9°38’S, 76°04’W].

Lectotype (designated here), MA 747071 (Fig. 2C); isotype MA 747070.





**Fig. 1.** **A**, lectotype of *Solanum acuminatum* Ruiz & Pav. (MA 747083); **B**, lectotype of *Solanum acutifolium* Ruiz & Pav. (MA 747069) (= *Lycianthes acutifolia* (Ruiz & Pav.) Bitter); **C**, lectotype of *Solanum anceps* Ruiz & Pav. (MA 747092); **D**, original material of *Solanum angulatum* Ruiz & Pav. (MA 747178) (= *S.quitoense* Lam.).

Current accepted name: *Lycianthes biformifolia* (Ruiz & Pav.) Bitter

The sheet I have selected as the lectotype (MA 747071, Fig. 2B) has both flowers and fruits and has been annotated “lectotypus” by a previous unknown worker.

***Solanum calygnaphalum*** Ruiz & Pav., Fl. Peruv. 2: 31. 1799

Ind. loc.: “Habitat in *Peruviae* umbrosis et calidis *Tarmae* oppidum, et in *Acobamba* sepibus” [Peru: Junín, Tarma, 11°25’S, 75°41’W, and Huánuco, Acobamba, 8°57’S, 77°01’W].

Neotype (designated here), MA 747146 (Fig. 2D).

Current accepted name: *Solanum nitidum* Ruiz & Pav.

No specimens labelled as *S. calygnaphalum* were found at MA, OXF or FI, but the common name given in the original description (Ruiz & Pavón, 1799), “ñuñunya”, is commonly applied to *S. nitidum* in central and southern Peru (Knapp, 1989). In order to stabilise usage, I have selected the sheet of *S. nitidum* not labelled as “rapace” in Ruiz’s hand (see below) as the neotype for this name. These two sheets of *S. nitidum* in the Ruiz & Pavón herbarium at MA are very similar and appear to be duplicates.

***Solanum conicum*** Ruiz & Pav., Fl. Peruv. 2: 38, tab. 172 fig. b. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Chinchao* et *Cuchero* tractus” [Peru: Huánuco, Chinchao, 9°38’S, 76°04’W and Cuchero, 9°31’S, 75°56’W, locality not on modern maps].

Lectotype (designated here), MA 747097 (Fig. 3A); isotypes MA 747096, MA 747098.

Current accepted name: *Solanum conicum* Ruiz & Pav.

Three sheets of *S. conicum* were found in the Ruiz and Pavón herbarium at MA, all very similar and clearly from the same gathering. Knapp & Helgason (1997) stated only “lectotype MA” without specifying a particular sheet and did not annotate MA material. The sheet chosen here as the lectotype (MA 747097, Fig. 3A) is that bearing both an original label in Pavón’s hand (see Fig. 3A) and several inflorescences, one of which has the distinctive conical berries of this species that differentiate it from the very similar *S. mite* (see Knapp & Helgason, 1997).

***Solanum crispum*** Ruiz & Pav., Fl. Peruv. 2: 31, tab. 158 fig. a. 1799

Ind. loc.: “Habitat in *Chile* rudertis, copiose in *Conceptionis* urbis sepibus, et ad *Carcamo* et *Palomares* tractus” [Chile: Concepción, 36°45’S, 75°03’W].

Lectotype (designated here), MA 747012 (Fig. 3B); isotype MA 747101.

Current accepted name: *Solanum crispum* Ruiz & Pav.

The sheet selected as the lectotype (MA 747102) has a label with a description matching that of the flora including the common name of “natri”, and “crispum” written in Ruiz’s hand over another, illegible epithet (see Fig. 3B). Knapp (1989) did not specify a particular sheet in MA as a lectotype, but did annotate MA 747102 as “lectotype” in 1985.

***Solanum cymosum*** Ruiz & Pav., Fl. Peruv. 2: 31, tab. 160. 1799

Ind. loc.: “Habitat in *Peruviae* cultis, versuris et subhumidis locis per *Limae* et *Chanca* Provincias” [Peru. Lima, Lima, 12°03’S, 77°03’W, and Chancay, 11°33’S, 77°16’W].

Lectotype (designated here), MA 747100 (Fig. 3C); isotype, MA 747099.

Current accepted name: *Solanum corymbosum* Jacq.

The sheet chosen as lectotype (MA 747100, Fig. 3C) has a label in Pavón’s hand with a description matching that in *Flora peruviana et chilensis* and the name “cymosum” written over (in what is probably Ruiz’s hand) another epithet, which appears to be “corymbosum”. They may have first equated their plant with Jacquin’s *S. corymbosum*, but later decided it was different and coined the new epithet.

***Solanum dichotomum*** Ruiz & Pav., Fl. Peruv. 2: 34, tab. 166 fig. b. 1799. nom. illeg., non Vand., 1771

Ind. loc.: “Habitat in *Huanuci* Provincia ad torrentium margines” [Peru: Huánuco, Huánuco, 9°30’S, 75°50’W].

Lectotype (designated here), MA 747183 (Fig. 3D); isotypes, MA 747181, MA 747182, MA 747184.

Current accepted name: *Solanum riparium* Pers.

The sheet I have selected here as the lectotype of *S. dichotomum* and *S. riparium*, Persoon’s replacement name, is that annotated by K.E. Roe, monographer of this group as “type” (see Fig. 3D). Other sheets at MA were annotated “isotype” by Roe. In his monograph of this group, Roe (1972) did not designate a specific sheet as the type for this species, thus necessitating its lectotypification here. The lectotype specimen has both flowers and fruit.

***Solanum diffusum*** Ruiz & Pav., Fl. Peruv. 2: 37, tab. 171 fig. b. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Huanuci* Provinciam” [Peru: Huánuco, Huánuco, 9°30’S, 75°50’W].

Lectotype (designated here), MA 747103 (F neg. 12996, Fig. 4A).



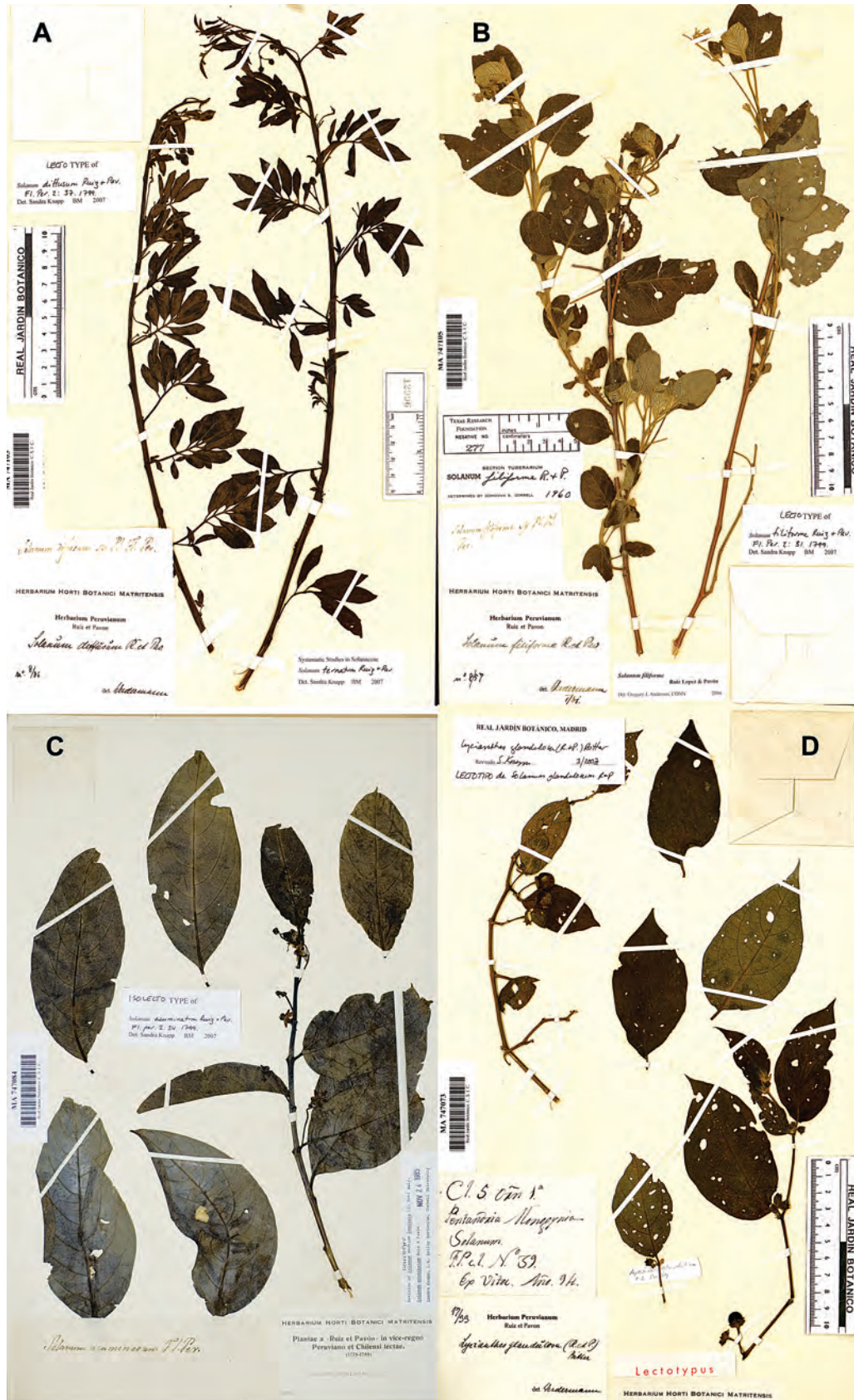


**Fig. 2.** **A**, lectotype of *Solanum angustifolium* Ruiz & Pav. (MA 747093) (= *S. cutervanum* Zahlbr.); **B**, lectotype of *Solanum asperolanatum* Ruiz & Pav. (MA 747126); **C**, lectotype of *Solanum biformifolium* Ruiz & Pav. (MA 747071) (= *Lycianthes biformifolia* (Ruiz & Pav.) Bitter); **D**, lectotype of *Solanum calygnaphalum* Ruiz & Pav. (MA 747146) (= *S. nitidum* Ruiz & Pav.).









**Fig. 4.** **A**, lectotype of *Solanum diffusum* Ruiz & Pav. (MA 747103) (= *S. ternatum* Ruiz & Pav.); **B**, lectotype of *Solanum filiforme* Ruiz & Pav. (MA 747106); **C**, lectotype of *Solanum foetidum* Ruiz & Pav. (MA 747084) (= *S. acuminatum* Ruiz & Pav.); **D**, lectotype of *Solanum glandulosum* Ruiz & Pav. (MA 747073) (= *Lycianthes glandulosa* (Ruiz & Pav.) Bitter).

Current accepted name: *Solanum ternatum* Ruiz & Pav.

Knapp & Helgason (1997) cited the single sheet at MA as “holotype”, but the possible existence of duplicates elsewhere (although none have been encountered at BM, OXF or FI) means this species must be lectotyped here. Some copies of the photographs of this specimen (F neg. 12996) distributed by the Field Museum indicate on labels (photographs at F, MO & NY) that the sheet is at B, but both these photographs and those distributed without a negative number (photographs at F, GH & US) are of the sheet at MA here designated as the lectotype of *S. diffusum*.

***Solanum filiforme*** Ruiz & Pav., Fl. Peruv. 2: 31, tab. 159. 1799

Ind. loc.: “Habitat in *Peruviae* collibus ad *Lomas de Atiquipa*, unde Tafalla plantae nonnulla specimina exsiccate nobiscum communicavit” [Peru: Arequipa, Atiquipa, 15°47’S, 74°21’W].

Lectotype (designated here), MA 747106 (Correll neg. 277, Fig. 4B); isotype, MA 747105.

Current accepted name: *Solanum filiforme* Ruiz & Pav.

Correll (1962) did not specify a sheet at MA as the lectotype of *S. filiforme*, but his Figure 8 (Correll, 1962: 54), said to be of the “type collection in Munich” is in fact of the left-handmost stem of the lectotype (MA 747106, Fig. 4B).

***Solanum foetidum*** Ruiz & Pav., Fl. Peruv. 2: 39. 1799. non Rottb., 1778

Ind. loc.: “Habitat in *Tarmae* oppidi versuris et rudatis” [Peru: Junín, Tarma, 11°25’S, 75°41’W].

Neotype (designated here), MA 747084 (Fig. 4C).

Current accepted name: *Solanum acuminatum* Ruiz & Pav.

No authentically annotated specimens of this species have been found in MA, OXF, BM or FI. Knapp (2002) did not treat *S. foetidum* as a doubtful name in section *Geminata*, the group to which this surely belongs. The only markedly foetid-smelling species in that group occurring in the Tarma area is *S. acuminatum*; it may be that Ruiz & Pavón lost material of their *S. foetidum* at some point (see introduction) thus leading them to inadvertently redescribe it from other material (from Chincho). I have therefore chosen that “duplicate” of *S. acuminatum* in MA with leaf-opposed inflorescences (to coincide with the protologue) as the neotype of this name (MA 747084, Fig. 4C).

***Solanum glandulosum*** Ruiz & Pav., Fl. Peruv. 2: 35, tab. 167. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Vitoc* Provinciae *Tarmae* vicum” [Peru: Junín, Río Vitoc, 11°10’S, 75°15’W].

Lectotype (designated here), MA 747073 (Fig. 4D).

Current accepted name: *Lycianthes glandulosa* (Ruiz & Pav.) Bitter

The single sheet of *Lycianthes glandulosa* at MA (MA 747073, Fig. 4D) is labelled “ex Vitoc/Año 94” in what is possibly Tafalla’s handwriting. Although the epithet is not on the label, the locality corresponds to that of the protologue and the plant was presumably collected in 1794, before publication of Volume 2 of *Flora peruviana et chilensis*.

***Solanum grandiflorum*** Ruiz & Pav., Fl. Peruv. 2: 35, tab. 168. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus imis et calidis ad *Pozuzo*” [Peru: Pasco, Pozuzo, 10°04’S, 75°32’W].

Lectotype (designated here), MA 747229 (Fig. 5A); isotypes, MA 747108, MA 747109, MA 747110, MA 747111.

Current accepted name: *Solanum grandiflorum* Ruiz & Pav.

From amongst the five sheets of *S. grandiflorum* in the Ruiz and Pavón herbarium at MA I have selected that with two well-preserved open flowers as the lectotype (MA 747229, Fig. 5A). None of the sheets has a descriptive label, all are labelled in Pavón’s hand “*Solanum grandiflorum*” and the other four sheets (isotypes) are in bud or have flowers where details cannot be examined.

***Solanum incanum*** Ruiz & Pav., Fl. Peruv. 2: 40, tab. 175 fig. b. 1799, nom. illeg., non L., 1753

Ind. loc.: “Habitat in *Peruviae* praeruptis ad torrentium margines *Huanuci*, *Acomayo*, *Chulquillo* et *Cancham*” [Peru: Huánuco, Huánuco, 9°30’S, 75°50’W, Acomayo, 9°46’S, 76°05’W, ?Lima, Canchan, 12°47’S, 75°55’W].

Lectotype (designated here), MA 747088 (Fig. 5B); isotypes, MA 747089, MA 747090, MA 747091.

Current accepted name: *Solanum albidum* Dunal

*Solanum albidum* is a very distinctive species with markedly discolorous leaves, mentioned in Ruiz & Pavón’s protologue. I have selected the sheet with a long descriptive label in one hand and another stating the common name “yurahuacta” with a collecting locality matching the protologue (“Huánuco”) as the lectotype (MA 747088, Fig. 5B). “Yurahuacta” is one of the several common names attributed to this species by Ruiz & Pavón (1799). *Solanum albidum* is explicitly a replacement name for Ruiz & Pavón’s *S. incanum* (Dunal, 1813), which is a homonym of *S. incanum* L., a plant of the Middle East and a relative of the aubergine.





**Fig. 5.** A, lectotype of *Solanum grandiflorum* Ruiz & Pav. (MA 747229); B, lectotype of *Solanum incanum* Ruiz & Pav. (MA 747088) (= *S. albidum* Dunal); C, lectotype of *Solanum incarceratum* Ruiz & Pav. (MA 747120); D, lectotype of *Solanum incurvum* Ruiz & Pav. (MA 747233).

***Solanum incarceratum*** Ruiz & Pav., Fl. Peruv. 2: 40, tab. 176 fig. a. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus, ad *Chinchao* runcationes” [Peru: Huánuco, Chinchao, 9°38’S, 76°04’W].

Lectotype (designated here), MA 747120 (Fig. 5C); isotypes, MA 747116, MA 747117, MA 747118, MA 747119.

Current accepted name: *Solanum incarceratum* Ruiz & Pav.

Nee (1979), in his unpublished thesis on section *Acanthophora*, stated that the “holotype” of *S. incarceratum* was at MA, but that he had not seen it. From amongst the five sheets of this species at MA I have selected the sheet with good flowers and fruits and that best matches the illustration in *Flora peruviana et chilensis* as the lectotype (MA 747120, Fig. 5C).

***Solanum incurvum*** Ruiz & Pav., Fl. Peruv. 2: 34, tab. 164 fig. b. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Muñá vicum*” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated here), MA 747233 (F neg. 29716, Fig. 5D).

Current accepted name: *Solanum incurvum* Ruiz & Pav.

A single sheet of *S. incurvum* was known to Knapp & Helgason (1997) and they cited it as “holotype”. No further sheets of this species have been encountered in OXF or FI, but the possibility that another sheet is extant necessitates lectotypification here. This rare species is only known from a few localities in Peru and Ecuador and is likely to be endangered (Knapp & al., 2007); it is a vine and often only found as single stems. It may be that Ruiz & Pavón only collected a single sheet of this interesting plant.

***Solanum laciniatum*** Ruiz & Pav., Fl. Peruv. 2: 40. 1799, nom. illeg., non Aiton, 1789

Ind. loc.: “Habitat in nemoribus *Chinchao* et *Cuchero*” [Peru: Huánuco, Chinchao, 9°38’S, 76°04’W, and Cuchero, 9°31’S, 75°56’W, locality not on modern maps].

Lectotype (designated here), MA 747124 (Fig. 6A); isotypes, MA 747121, MA 747122, MA 747123.

Current accepted name: *Solanum nemorense* Dunal

The lectotype I have selected for *S. laciniatum* has a label with one of the potential type localities (“Cuchero”) on it, and a brief description that includes the epithet “laciniatum” (MA 747124, Fig. 6A). None of the other sheets has a label so specifically identifying it with the protologue.

***Solanum lanceolatum*** Ruiz & Pav., Fl. Peruv. 2: 33, tab. 164 fig. a. 1799, non Cav., 1795

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Muñá* et *Tambo nuevo*” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated here), MA 747163 (Fig. 6B); isotypes, MA 747164, MA 747165.

Current accepted name: *Solanum ruizii* S. Knapp

The sheet here designated as lectotype was annotated as such by Knapp in 1985 (see Fig. 6B) and cited as the “holotype” (Knapp, 1989), although the specific sheet was not designated. Persoon’s (1805) replacement name for *S. lanceolatum* was *S. patulum* Pers., itself previously occupied by *S. patulum* (L.) Roth (a synonym of *S. nigrum* L. of section *Solanum*).

***Solanum lineatum*** Ruiz & Pav., Fl. Peruv. 2: 31, tab. 158, fig. b. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Muñá vicum*” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated here), MA 747075 (Fig. 6C); isotype, MA 747075.

Current accepted name: *Lycianthes lineata* (Ruiz & Pav.) Bitter

The specimen designated as lectotype here (MA 747075, Fig. 6C) is that with a label in what appears to be Pavón’s hand “*Solanum lineatum* FP” and a complete stem with several fruits. The other sheet has a label in an unknown hand identifying it as a *Piper*, with the genus named crossed out and *Solanum* substituted, and is a very scrappy stem with two fruits.

***Solanum mite*** Ruiz & Pav., Fl. Peruv. 2: 38, tab. 173 fig. a. 1799

Ind. loc.: “Habitat in *Panatabuarum* Provinciae nemoribus, ad *Pozuzo* et *Chinchao* vicos in locis humidis, et umbrosis” [Peru: Pasco, Pozuzo, 10°04’S, 75°32’W, and Huánuco, Chinchao, 9°38’S, 76°04’W].

Lectotype (designated here), MA 747230 (Fig. 6D); isotypes, MA 747133, MA 747134, MA 747135.

Current accepted name: *Solanum mite* Ruiz & Pav.

Knapp & Helgason (1997) did not specify a sheet when citing the lectotype of *S. mite* from MA. The sheet I have designated here is that with flowers and the round fruits characteristic of this species (MA 747230, Fig. 6D).

***Solanum multifidum*** Ruiz & Pav., Fl. Peruv. 2: 37, tab. 171 fig. a. [Sept.] 1799, nom. illeg., non Lam., 1799

Ind. loc.: “Habitat in *Peruviae* collibus ad *Pongo* Provinciae *Camanae* vicum” [Peru: Arequipa, Camaná, 16°37’S, 72°42’W].





**Fig. 6.** **A**, lectotype of *Solanum laciniatum* Ruiz & Pav. (MA 747124) (= *S. nemorense* Dunal); **B**, lectotype of *Solanum lanceolatum* Ruiz & Pav. (MA 747163) (= *S. ruizii* S. Knapp); **C**, lectotype of *Solanum lineatum* Ruiz & Pav. (MA 747075) (= *Lycianthes lineata* (Ruiz & Pav.) Bitter); **D**, lectotype of *Solanum mite* Ruiz & Pav. (MA 747230).

Lectotype (designated by Bennett, 2008: 80), MA 747139 (F neg. 29742, Fig. 7A); isotypes, MA 737136, MA 747138.

Current accepted name: *Solanum multifidum* Lam.

The epithet was published by Lamarck (1794) five years prior to Ruiz and Pavón in 1799, based on a collection said to come from Dombey (see Bennett, 2008). Ruiz and Pavón were evidently not using Lamarck's name but proposing one of their own; when they did refer to other authors they did it quite explicitly (see *S. angulatum* above). The series of four sheets of this species (including the lectotype of *S. pinnatifidum* below) are all very similar, and the one selected as lectotype (Bennett, 2008) has a label "*Solanum multifidum* Sp. Pl. Fl. Per." in what is apparently Pavón's hand. It is probable that the specimen attributed to Dombey and used by Lamarck and those in the Ruiz and Pavón herbarium are duplicates, given the convoluted history of the deposition of the collections of the expedition (see Introduction above).

***Solanum nitidum*** Ruiz & Pav., Fl. Peruv. 2: 33, tab. 163. 1799

Ind. loc.: "Habitat in *Peruviae* nemoribus ad *Tarmae Provinciam*" [Peru: Junín, Tarma, 11°25'S, 75°41'W].

Lectotype (designated here), MA 747147 (Fig. 7B); isotype, MA 747146 (F neg. 29726).

Current accepted name: *Solanum nitidum* Ruiz & Pav.

The sheet (MA 747147) chosen here as the lectotype was annotated as such by me in 1985 (see Fig. 7B), but the sheet number was not specified in Knapp (1989). This sheet has a label in Ruiz's hand with the common name "Rapace" given for *S. nitidum* in the protologue (Ruiz & Pavón, 1799). This common name has not been recorded for any other collection of *S. nitidum* from Peru (see Knapp, 1989); the common name more commonly used for this species is "ñuñunya", the name associated with *S. calygnaphalum* by Ruiz & Pavón (1799; see above).

***Solanum nutans*** Ruiz & Pav., Fl. Peruv. 2: 34, tab. 166 fig. a. 1799

Ind. loc.: "Habitat in *Peruviae* ruderatis passim in *Pillao* circuitu" [Peru: Huánuco, Pillao, 9°40'S, 75°58'W].

Lectotype (designated here), MA 747157 (Fig. 7C); isotypes, MA 747150, MA 747151, MA 747152, MA 747153, MA 747154, MA 747155, MA 747156, MA 747158.

Current accepted name: *Solanum nutans* Ruiz & Pav.

Many apparent duplicates of this collection, all very similar, exist. Specimens at P and F with labels stating they were collected by Dombey (see Knapp, 2002) are also possibly isotype material. Knapp (2002) cited a "lec-

totype" closely matching the illustration in *Flora peruviana et chilensis*, but did not specify a sheet or otherwise describe the specimen. The lectotype designated here (MA 747157, Fig. 7C) is the sheet with both flowers and fruit. None of the sheets has a label closely associating it with the protologue or type locality.

***Solanum obliquum*** Ruiz & Pav., Fl. Peruv. 2: 35, tab. 165 fig. a. 1799

Ind. loc.: "Habitat in *Peruviae* nemoribus, ad *Chinchao vicum*" [Peru: Huánuco, Chinchao, 9°38'S, 76°04'W].

Lectotype (designated here), MA 747236 (F neg. 12993, Fig. 7D); isotype, MA 747235.

Current accepted name: *Solanum obliquum* Ruiz & Pav.

Bohs (1994) stated that two sheets of *S. obliquum* were to be found at MA, and designated one of them as lectotype, but did not illustrate it nor indicate how it might be identified. Only one of the sheets (the lectotype, MA 747236, Fig. 7D) has flowers, the other is of four disarticulated leaves, clearly from the same plant. Bohs (1994) states that the lectotype she has selected was the basis for the illustration in *Flora peruviana et chilensis*, but this is not a sufficiently precise designation, thus I lectotypify this species here with what I presume is the same sheet Bohs (1994) was selecting.

***Solanum oblongum*** Ruiz & Pav., Fl. Peruv. 2: 34. 1799

Ind. loc.: "Habitat in *Peruviae* nemoribus ad *Pillao tractus*" [Peru: Huánuco, Pillao, 9°40'S, 75°58'W].

Lectotype (designated here), MA 747159 (Fig. 8A); isotype, MA 747160.

Current accepted name: *Solanum oblongum* Ruiz & Pav.

Although Knapp (2002) stated that the lectotype chosen for *S. oblongum* best matched the illustration, neither of the sheets really corresponds to the plate in *Flora peruviana et chilensis*, and the sheet selected was not specifically indicated. The sheet annotated by me as "lectotype" in 1985 is here designated the lectotype (MA 747159, Fig. 8A).

***Solanum oppositifolium*** Ruiz & Pav., Fl. Peruv. 2: 35, pl. 168 fig. a. 1799

Ind. loc.: "Habitat in *Peruviae* nemoribus ad *Vitoc vicum*, unde Tafalla iconem nobisum communicavit" [Peru: Junín, Río Vitoc, 11°10'S, 75°15'W].

Lectotype (designated here), MA 747162 (Fig. 8B); isotype, MA 747161.

Current accepted name: *Solanum oppositifolium* Ruiz & Pav.

The illustration of *S. oppositifolium* in *Flora peruviana et chilensis* is of a deformed plant with oddly shaped





**Fig. 7. A**, lectotype of *Solanum multifidum* Ruiz & Pav. (MA 747139) (= *S. multifidum* Lam.); **B**, lectotype of *Solanum nitidum* Ruiz & Pav. (MA 747147); **C**, lectotype of *Solanum nutans* Ruiz & Pav. (MA 747157); **D**, lectotype of *Solanum obliquum* Ruiz & Pav. (MA 747236).

fruits and Knapp (1991) suggested that the artist had produced a rather stylized depiction of the plant. Knapp (1991) specified that the type specimen was that at MA labelled “Vitoc 94”, but although this is quite specific, it does not constitute effective lectotypification under the current Code (McNeill & al., 2006). Knapp (1991) stated that several isotypes were to be found at MA, but there is only one other specimen of *S. oppositifolium* in the Ruiz and Pavón herbarium; no duplicates were found in BM, OXF or FI.

***Solanum pendulum*** Ruiz & Pav., Fl. Peruv. 2: 39, tab. 174 fig. a. 1799

Ind. loc.: “Habitat in *Panatabuarum* Provinciae nemoribus, praesertim in *Muña* umbrosis locis” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated by Bohs, 1994: 120), MA 747166 (Fig. 8C); isotypes, MA 747167, MA 747168.

Current accepted name: *Solanum pendulum* Ruiz & Pav.

The sheet pictured as Fig. 61 by Bohs (1994) was designated by her as “lectotype”, but at that time, sheets in the historic herbaria at MA did not have herbarium numbers. All the sheets of *S. pendulum* at MA have pinnate leaves and appear to come from the same gathering.

***Solanum pinnatifidum*** Ruiz & Pav., Fl. Peruv. 2: 37, tab. 170 fig. b. 1799, non Lam., 1794

Ind. loc.: “Habitat in *Peruviae* arenosis ad *Limae* et *Chancay* Provincias, copiose in *Torreblanca* et *Jequan* collibus” [Peru: Lima, Torre Blanca, 11°32’S, 77°16’W, and Jequan, 11°28’S, 77°16’W].

Lectotype (designated by Bennett, 2008: 80), MA 747137 (F neg. 29725, Fig. 8D).

Current accepted name: *Solanum multifidum* Lam.

Bennett (2008) selected the sheet with a detailed descriptive label with the epithet and locality information matching the protologue (“collibus Chancay” and on another label “Limae et Chancay”) as the lectotype of this species (MA 747137, Fig. 8D). No other sheets in the Ruiz and Pavón herbarium at MA are labelled as *S. pinnatifidum*, although the specimens of *S. multifidum* are so similar as to appear to be from the same gathering.

***Solanum pubescens*** Ruiz & Pav., Fl. Peruv. 2: 36, tab. 169 fig. b. 1799, nom. illeg., non L., 1753

Ind. loc.: “Habitat in *Peruviae* nemoribus ad *Cuchero* tractus” [Peru: Huánuco, Cuchero, 9°31’S, 75°56’W, locality not on modern maps].

Lectotype (designated by Bohs, 2001: 58), MA 747127 (F neg. 29723, Fig. 9A).

Current accepted name: *Solanum luteoalbum* Pers.

Bohs (2001) effectively lectotypified this species by citing F neg. 29723 as a “photograph of the lectotype” at

MA. The single sheet at MA is in fruit (MA 747127, Fig. 9A), and corresponds well with the illustration in *Flora peruviana et chilensis*.

***Solanum runcinatum*** Ruiz & Pav., Fl. Peruv. 2: 36. 1799

Ind. loc.: “Habitat in *Peruviae* et *Chilensis Regni* rud-eratis et versuris”.

Lectotype (designated by Bennett, 2008: 102), OXF (Fig. 9B).

Current accepted name: *Solanum pinnatum* Cav.

No specimens of this species were found at MA, but a sheet in OXF originally from the Lambert herbarium labelled “*Solanum* sp. nova del Peru” in Pavón’s handwriting was designated as the lectotype by Bennett (2008).

***Solanum scabrum*** Ruiz & Pav., Fl. Peruv. 2: 39, tab. 175 fig. a. 1799, nom. illeg., non Mill., 1762

Ind. loc.: “Habitat in *Peruviae* versutis et rud-eratis, af-fatim ad *Muña* et *Chinchao* tractus” [Peru: Huánuco, Muña, 9°40’S, 75°49’W, and Chinchao, 9°38’S, 76°04’W].

Lectotype (designated here), MA 747192 (Fig. 9C); isotypes, MA 747190, MA 747191.

Current accepted name: *Solanum saponaceum* Dunal

Of the three sheets of *S. saponaceum* in the Ruiz and Pavón herbarium at MA I have selected that one with flowers and fruit as the lectotype of *S. scabrum* (MA 747192, Fig. 9C), as none of the sheets have original labels or data connecting them explicitly with the protologue. Dunal (1813) specifically coined *S. saponaceum* as a replacement name for Ruiz and Pavón’s *S. scabrum*, which was already occupied by *S. scabrum* Vahl (= *S. volubile* Sw., section *Micracantha*, sensu Nee, 1999), itself a homonym of *S. scabrum* Mill., a species of section *Solanum* widely cultivated in Africa and elsewhere (as the “garden huckleberry”).

***Solanum sericeum*** Ruiz & Pav., Fl. Peruv. 2: 33, tab. 161 fig. b. 1799

Ind. loc.: “Habitat in *Muña* nemoribus calidis” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated here), MA 747189 (F neg. 29728, Fig. 9D).

Current accepted name: *Lycianthes* sp. (*Solanum sericeum* Ruiz & Pav.).

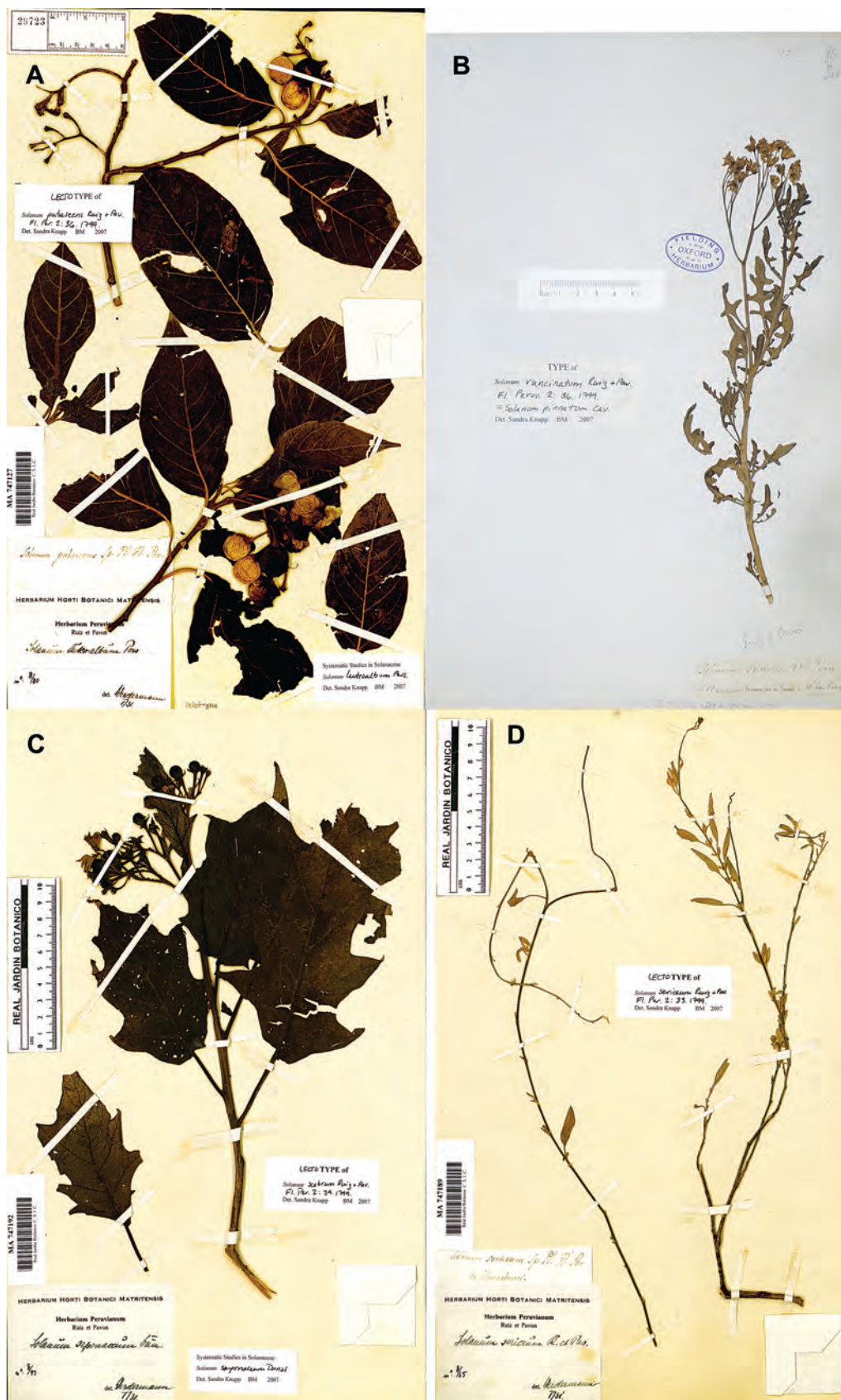
The single sheet of *S. sericeum* at MA (MA 747189, Fig. 9D) is the logical choice for a lectotype for this species even though it is rather scrappy. With its truncate calyces and axillary inflorescences, this plant is most probably a species of the genus *Lycianthes*, but the relevant combination has not yet been made (Bitter, 1919; D’Arcy, 1993). W.G. D’Arcy (1993) accepted this name as *Solanum* in the *Catalogue of the flowering plants and*





**Fig. 8. A**, lectotype of *Solanum oblongum* Ruiz & Pav. (MA 747159); **B**, lectotype of *Solanum oppositifolium* Ruiz & Pav. (MA 747162); **C**, lectotype of *Solanum pendulum* Ruiz & Pav. (MA 747166); **D**, Lectotype of *Solanum pinnatifidum* Ruiz & Pav. (MA 747137) (= *S. multifidum* Lam.).





**Fig. 9.** **A**, lectotype of *Solanum pubescens* Ruiz & Pav. (MA 747127) (= *S. luteoalbum* Pers.); **B**, lectotype of *Solanum runcinatum* Ruiz & Pav. (OXF) (= *S. pinnatum* Cav.); **C**, lectotype of *Solanum scabrum* Ruiz & Pav. (MA 747192) (= *S. saponaceum* Dunal); **D**, lectotype of *Solanum sericeum* Ruiz & Pav. (MA 747189) (= *Lycianthes* sp.).



*gymnosperms of Peru*, but stated it was not reconfirmed. The necessary combination should be made as part of monographic study in the genus *Lycianthes*.

**Solanum sessile** Ruiz & Pav., Fl. Peruv. 2: 35, tab. 167 fig. a. 1799

Ind. loc.: “Habitat in *Peruviae* ruderatis ad *Muña vicum*” [Peru: Huánuco, Muña, 9°40’S, 75°49’W].

Lectotype (designated here), MA 747185 (Fig. 10A); isotypes, MA 747186, MA 747187.

Current accepted name: *Solanum sessile* Ruiz & Pav.

Knapp (1991, 2002) did not select a specific sheet as a lectotype, but labelled MA 747185 (Fig. 10A) as “lectotype” in 1985. This sheet is the best match for the plate in *Flora peruviana et chilensis*, with a nodding congested inflorescence. *Solanum sessile* is a very variable species (Knapp, 2002), and the material from near Muña all is similar to the sheets found in MA.

**Solanum stellatum** Ruiz & Pav., Fl. Peruv. 2: 40, tab. 176 fig. b. 1799, nom. illeg., non Jacq., 1791

Ind. loc.: “Habitat in *Peruviae* ruderatis, ad *Pillao et Panao vicus*” [Peru: Huánuco, Pillao, 9°40’S, 75°58’W, and Panao, 9°54’S, 75°56’W].

Lectotype (designated here), MA 747113 (Fig. 10B); isotypes, MA 747114, MA 747115.

Current accepted name: *Solanum asperolanatum* Ruiz & Pav.

I have selected as the lectotype of *S. stellatum* the specimen with a well-developed inflorescence matching the illustration in *Flora peruviana et chilensis*, and bearing a label stating “*Solanum stellatum*/Pillao 1787/vulgo Camucassa et Huiracassa” in Ruiz’s hand (MA 737113, Fig. 10B). The other duplicates have inflorescences in bud, but larger leaves. Persoon (1805) coined the replacement name *S. hispidum* for *S. stellatum*, as *S. stellatum* Jacq. (= *Lycianthes stellata* (Jacq.) Bitter of the West Indies) already existed. The name *S. hispidum* has been used widely in the Neotropics for the member of section *Torva* with prominently long-stipitate stellate trichomes, most commonly the species from Mexico and Central American now known as *S. chrysotrichum* Schltdl. M. Nee (pers. comm.), who is monographing this group of solanums, indicates that he considers *S. hispidum* to be conspecific with the Andean *S. asperolanatum*, another Ruiz and Pavón epithet (see above). The species is very variable in pubescence density and quality, with these sheets at the end of the spectrum with long-stalked stellate trichomes.

**Solanum ternatum** Ruiz & Pav., Fl. Peruv. 2: 38, tab. 172 fig. a. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus humidis versus *Cuchero*” [Peru: Huánuco, Cuchero, 9°31’S, 75°56’W, locality not on modern maps].

Lectotype (designated here), MA 747194 (Fig. 10C); isotypes, MA 747195, MA 747196, MA 747197.

Current accepted name: *Solanum ternatum* Ruiz & Pav.

Knapp & Helgason (1997) cited a “holotype” in MA, but without further specification, and the existence of several specimens of this species at MA means that lectotypification is necessary here. The sheet selected (MA 747194, Fig. 10C) has two labels, one in Ruiz’s hand with “*Solanum ternatum*” and another in an unknown hand with the date “1780” and locality matching that of the protologue (“C[u]chero”).

**Solanum variegatum** Ruiz & Pav., Fl. Peruv. 2: 32, tab. 162 fig. a. 1799

Ind. loc.: “Habitat copiose in *Peruviae* cultis”.

Lectotype (designated here), MA 747144 (Correll neg. 630, Fig. 10D); isotypes, MA 747140, MA 747141, MA 747142, MA 747143.

Current accepted name: *Solanum muricatum* Aiton

Correll (1962) cited a sheet in MA (Ruiz & Pavón 8/64 (88)) as “probably the type”, which does not constitute effective lectotypification. The sheet selected here as the lectotype (MA 747144, Fig. 10D) has the number 8/64 on the Werdermann label (lower left-hand corner) and the number “88” on the label in Ruiz’s hand with the epithet “*variegatum*” inserted into the description. This is certainly the sheet Correll (1962) meant. This sheet has flowers and another label stating “*pepino vulgo de Lima*” and another. The pepino is commonly cultivated throughout Peru for its large, succulent fruits. None of the sheets at MA have the large fruits of *S. muricatum* that are pictured in *Flora peruviana et chilensis*.

**Solanum viridiflorum** Ruiz & Pav., Fl. Peruv. 2: 38, tab. 163 fig. b. 1799

Ind. loc.: “Habitat in *Peruviae* nemoribus, ad *Sancti Antonii de Playa grande vicum*”.

Neotype (designated here) Peru. Huánuco: provincia Huánuco, distrito Chinchao, San Pedro de Carpish, 26 Aug 2002, I. Salinas & M. Chocce 643 (USM-195196, Fig. 11).

Current accepted name: *Solanum pendulum* Ruiz & Pav.

No material assignable to *S. viridiflorum* has been located. Three sheets of *Solanum circinatum* Bohs at MA (MA 747237, MA 747238, MA 747239) cannot be equated with *S. viridiflorum* as *S. circinatum* has glabrous fruits; a specimen (MA 747234) identified by Werdermann as “*Cyphomandra hypomalaca*” (a species of coastal Ecuador, = *Solanum fallax* Bohs) has a label stating “Año de 1800”, after the publication of Volume 2 of *Flora peruviana et chilensis* eliminating it as possible type material of *S. viridiflorum*.



**Fig. 10.** **A**, lectotype of *Solanum sessile* Ruiz & Pav. (MA 747185); **B**, lectotype of *Solanum stellatum* Ruiz & Pav. (MA 747113) (= *S. asperolanatum* Ruiz & Pav.); **C**, lectotype of *Solanum ternatum* Ruiz & Pav. (MA 747194); **D**, lectotype of *Solanum variegatum* Ruiz & Pav. (MA 747144) (= *S. muricatum* Aiton).





Fig. 11. Neotype of *Solanum viridiflorum* Ruiz & Pav. (USM 195196) (= *S. pendulum* Ruiz & Pav.)

The type locality for this species has not been located, but I suspect it is on the banks of the Río Huallaga between Huánuco and Tingo María. Three localities named San Antonio are located in the Peruvian Departments of Huánuco and Junín. Bohs (1994) did not treat *S. viridiflorum* due to the absence of material, but suggested it might be related to *S. pendulum*, which has a similar shaped fruit. The illustrations of these two species in *Flora peruviana et chilensis* are very similar, differing only in the pubescence on the leaves and fruit of *S. viridiflorum* and the divided rather than simple leaves of *S. pendulum*. As Bohs (1994) pointed out, *S. pendulum* can have simple, ternate and pinnate leaves on the same plant. All the sheets of *S. pendulum* in the Ruiz and Pavón herbarium at MA have divided leaves, eliminating them as neotype candidates for *S. viridiflorum*. *Solanum viridiflorum* could also be an older name for *S. calidum* Bohs (syn. *Cyphomandra pilosa* Bohs), a species with cordate leaves and pubescent fruit from central Peru, but from slightly lower elevations than where Ruiz and Pavón travelled; Bohs, however, feels that the illustration and characters of *S. viridiflorum* do not match that species (Bohs, pers. comm.). The name *S. viridiflorum* and the locality San Antonio de Playa Grande are not mentioned in Ruiz's diaries (Schultes & Jaramillo Arango, 1998), although San Antonio de Chicoplaya is mentioned as being downriver from Cuchero. In order not to upset usage of these names with the resurrection of *S. viridiflorum*, a neotype is selected here from the region in which Ruiz and Pavón collected in the Río Huallaga basin. The neotype I have selected (Fig. 11) is from a slightly higher elevation than the putative type locality, but is in both flower and fruit and has the terminal leaves simple and cordate. The "bloom" on the young fruits could be misinterpreted as pubescence, which may have influenced the illustration in *Flora peruviana et chilensis*.

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