Lectotypification of Ruiz and Pavón’s names in Solanum (Solanaceae)

by

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Abstract

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. aniceps, 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. incarcaratum, 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 18th 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. 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),...
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 Alcántara, 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 19th 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

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
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 *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 Botanico della Universita de Firenze (FI). José Pavón died in 1840, aged 86, accused of stealing state property, and unless it is very clear that sheets have come from the same relatively strict set of criteria that we apply today, 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 18th century did not follow the same relatively strict set of criteria that we apply today, and the search has not been exhaustive. Lambert’s herbarium, in particular, has been widely scattered (Miller, 1970).

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 best tenuous. Where monographers of groups of *Solanum* (e.g., S. Knapp for sections *Holophylla*, *Pteroidea* 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 Chinchoa vicum” [Peru: Huánuco, Chinchao, 9°38’S, 76°04’W].

Ruiz & Pavón *Solanum* lectotypes 309
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 *Muña calidis*” [Peru: Huánuco, Acomayo, 9°46’S, 76°05’W].

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

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”.


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 *Huauucu 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 chilenis*.

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

Ind. loc.: “Habitat in *Peruviae praeruptis, ad Huasahuassi 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 *Peruiae* umbrosis et calidis *Tar-mae* 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), “ñununya”, 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 *Peruiae* 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 747101, MA 747102.

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* ruderatis, copiose in *Concepcionis* 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.


Ind. loc.: “Habitat in *Peruiae* cultis, versuris et sub-humidis locis per *Lima* et Chancay 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 “cymo-sum” 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 *Huancui* Provincia ad torrentium margins” [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 *Peruiae* nemoribus ad Huancui 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. 3. A, lectotype of *Solanum conicum* Ruiz & Pav. (MA 747097); B, lectotype of *Solanum crispum* Ruiz & Pav. (MA 747012); C, lectotype of *Solanum cymosum* Ruiz & Pav. (MA 747100) (=*S. corymbosum* Jacq.); D, lectotype of *Solanum dichotomum* Ruiz & Pav. (MA 747183) (=*S. riparium* Pers.).
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 lectotypified 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 specimena 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 a common name “yurahuacta” with a collecting locality designated here. Some copies of the photographs of this specimen (MA 747088, Fig. 5B). “Yurahuacta” is one of the several common names attributed to this species by Ruiz & Pavón (1799).


Ind. loc.: “Habitat in Peruviae collibus 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: *Solanum foetidum* (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*.


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: *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


Lectotype (designated here), MA 747088 (Fig. 5B); isotypes, MA 747089, MA 747090, MA 747091, MA 747092.

Current accepted name: *Solanum incanum* (Dunal, 1813), which is a homonym of *S. incanum* L., a plant of the Middle East and a relative of the aubergine.

*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. 3B). “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. 164 fig. a. 1799

Ind. loc.: “Habitat in Peruviae nemoribus, ad Chinchoa runcationes” [Peru: Huánuco, Chinchao, 9°38’S, 75°49’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 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 Muña 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 Chinchoa 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 Muña 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. nigruin L. of section Solanum).

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

Ind. loc.: “Habitat in Peruviae nemoribus ad Muña 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 Panatabaurum Provinciae nemoribus, ad Pozozo et Chinchoa vicos in locis humidis, et umbrosis” [Peru: Pasco, Pozozo, 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. nemorese* Dunal); B, lectotype of *Solanum lanceolatum* Ruiz & Pav. (MA 747163) (= *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 nutans Ruiz & Pav., Fl. Peruv. 2: 34, tab. 166.

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. an- gulatum 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 nemoris ad Tarmae Provinciam” [Peru: Junín, Tarma, 11º25’S, 75º41’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 formally indicated. The sheet annotated by me as “lectotype” in 1985 is here designated the lectotype (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 nemoris, ad Chin- chao vicum” [Peru: Huánuco, Chinchao, 9º38’S, 76º04’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 nemoris ad Pillao tractus” [Peru: Huánuco, Pillao, 9º40’S, 75º58’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 nemoris ad Vitoc vicum, unde Tafalla iconem nobisum communicavit” [Peru: Junín, Río Vitoc, 11º10’S, 75º15’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).
Provincias, copiose in *Solanum pinnatifidum* nate leaves and appear to come from the same gathering. All the sheets of this species (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 ruderalis 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 ruderalis, ad Muña et Chincha tractus*” [Peru: Huánuco, Muña, 9°40’S, 75°49’W, and Chincha, 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 seiricum** Ruiz & Pav., Fl. Peruv. 2: 33, tab. 161 fig. b. 1799

Ind. loc.: “Habitat in *Muñana 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 seiricum* Ruiz & Pav.).

The single sheet of *S. seiricum* 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.).
Solanum sesile 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 747140, MA 747141, MA 747142, MA 747143.

Current accepted name: Solanum asperolanatum 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 sesile 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 Ca-mucassa 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”).
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 chilenensis* 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. *Cypandra 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 chilenensis*.

Acknowledgements

Thanks are due to Prof. Santiago Castroviejo and the staff of the Real Jardín Botánico de Madrid for hospitality during my stay in Madrid, I learned so much, and realised I knew so little, about the history of botany in Spain; photographs of the lectotypes were taken by staff of the RJB; Eva Sagona (BM) searched for material at FI; staff at USM, especially Asunción Cano and María Isabel de la Torre, facilitated my stay in Lima; Charlie Jarvis (BM) helped with all sorts of queries about lectotypification; my stay in Madrid was funded from the SYNTHESYS Project (http://www.synthesys.info/) which is financed by European Community Research Infrastructure Action under the FP6 “Structuring the European Research Area” Programme and the National Science Foundation Planetary Biodiversity Inventory (award DEB-0316614 ‘PBI Solanum – a worldwide treatment’ – http://www.solanaceasource.org). Comments by anonymous reviewers much improved the manuscript.

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Associate Editor: C. Aedo
Received: 30-VI-2008
Accepted: 5-IX-2008