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The Orchidaceae of Ruiz & Pavón's "Flora Peruviana et Chilensis". A taxonomic study. I

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Abstract

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Inspired by King Carlos III in the second half of 18th Century, the Spanish government demonstrated a serious interest in the study of the rich floras of the colonies of the New World. The Royal expedition to Peru and Chile, led by Ruiz and Pavón, continued for 11 years in the two colonies and was followed by the activities of Tafalla and Manzanilla, who botanized in Peru and Ecuador. Two preliminary accounts of the flora of Peru were published in 1794 and 1798, but only three of the planned eleven volumes and five supplements of the *Flora Peruviana et Chilensis* were eventually published. The seventh volume, devoted to the Orchids, never saw the light of day. Due to the short descriptions published in 1798, and the dispersal of large parts of Ruiz and Pavón's herbarium, the concepts of several of their orchid species remained obscure to modern botanists. These species can now be identified for the first time through the critical study of the unpublished illustrations and manuscripts of the expedition, kept at the Royal Botanical Garden of Madrid (RJB). The results in orchidology of the expedition, with a discussion of the new findings and interpretations, made possible by the study of Ruiz and Pavón's orchid iconography, are presented in two contributions. In this first part – an introduction – notes on the illustrators and their work, as well as on the orchid manuscripts and collections, are given. Orchid taxa are presented alphabetically, from *Acianthera* to *Maxillariella*. For each taxon references to the nomenclatural types, synonymy, illustrations and exsiccata prepared during the expedition, as well as to Ruiz's diaries and the unpublished manuscripts of the expedition's botanists, are provided. In the absence of any actual specimens referable to the type collections and associated with the protologues, *Bletia repanda, Epidendrum cordatum, E. viride, Fernandezia laxa, Maxillaria longipetala, M. ramosa,* and *M. triphylla* are formally lectotypified with the type illustrations conserved in MA. New combinations are proposed for the basionyms *Bletia parviflora, Fernandezia punctata, Humboldtia polystachya, Maxillaria ramosa,* and *M. triphylla*.

Keywords: scientific expeditions, botanical illustrations, Hipólito Ruiz and José Pavón, Orchidaceae, Peru, Ecuador, typification.

Resumen

Pupulin, F. 2012. Las Orchidaceae de la "Flora Peruviana et Chilensis" de Ruiz y Pavón. Estudio taxonómico. I. *Anales Jard. Bot. Madrid* 69(1): 21-79 (en inglés).

Bajo el impulso del rey Carlos III, el gobierno español demostró en la segunda mitad del siglo XVIII un serio interés en el estudio de las ricas floras de sus colonias en el Nuevo Mundo. La Real Expedición al Perú y Chile, liderada por Ruiz y Pavón, trabajó por 11 años en las dos colonias y fue continuada posteriormente por Tafalla y Manzanilla, quienes botanizaron en el Perú y en el Ecuador. En 1794 y 1798 se publicaron dos trabajos preliminares sobre la flora del Perú, pero solamente tres de los 11 volúmenes y cinco suplementos de la *Flora Peruviana et Chilensis* vieron finalmente la luz. El séptimo volumen, dedicado a las Orquídeas, nunca se publicó. Debido a las descripciones sintéticas publicadas en 1798 y a la dispersión de una parte cuantiosa del herbario de Ruiz y Pavón, muchos conceptos de sus especies de orquídeas quedaron obscuros para los botánicos modernos. El estudio crítico de las ilustraciones y manuscritos inéditos de la expedición, conservados en el Real Jardín Botánico de Madrid (RJB), permiten ahora identificar por primera vez muchas de estas especies. Los resultados orquideológicos de la expedición, con una discusión de los nuevos hallazgos e interpretaciones hechos posibles por el estudio de la iconografía de orquídeas de Ruiz y Pavón, se presentan en dos contribuciones. En esta primera parte se proporcionan una introducción, notas sobres los ilustradores y su obra, así como sobre los manuscritos y colecciones de orquídeas. Los táxones de orquídeas se presentan alfabéticamente, de *Acianthera* a *Maxillariella*. Para cada uno de los táxones se proveen referencias a los tipos nomenclaturales, sinonimia, ilustraciones y exsiccata preparados durante la expedición, así como a los diarios de Ruiz y a los manuscritos inéditos de los botánicos de la expedición. En ausencia de especímenes de material original o de alguna manera asociable a los protólogos, se lectotipifican *Bletia repanda, Epidendrum cordatum, E. viride, Fernandezia laxa, Maxillaria longipetala, M. ramosa* y *M. triphylla* con las ilustraciones de los tipos conservadas en MA. Se proponen nuevas combinaciones para los basiónimos *Bletia parviflora, Fernandezia punctata, Humboldtia polystachya, Maxillaria ramosa* y *M. triphylla*.

Palabras clave: expediciones científicas, ilustración botánica, Hipólito Ruiz y José Pavón, Orchidaceae, Perú, Ecuador, tipificación.

INTRODUCTION

The botanical expeditions to tropical America carried out during the second half of the eighteenth century form part of the Spanish crown's keen interest in the improvement of "useful knowledge", which was typical of the enlightened atmosphere of the European courts at that time. Encouraged by King Carlos III (1716-1788), explorative missions were sent out to the Orinoco, Peru and Chile, New Granada, the Pacific, Mexico and Guatemala, Cuba, and Ecuador (Bleichmar, 2008). Through the almost thirty scientific ex-

peditions to its colonies sponsored by Spain in the XVIII century – eight of which were specifically focused on natural history – an impressive corpus of ten thousands images was produced. The "visible" information represented by the pictorial images was central to the remit of every naturalistic expedition carried out under the reign of the Borbóns.

"Instructions" to the draughtsmen

It was in this atmosphere that the expeditions to the Spanish possessions were conceived and planned. The expedition to Peru and Chile lead by Ruiz and Pavón – the first of the great official Spanish explorations commissioned by Carlos III to study the natural history of the New World – is also the first in which concerns about the illustration of the flora assume the shape of detailed instructions given to the artists. These instructions were prepared by Casimiro Gómez Ortega (1741-1818), first Professor of the Royal Botanic Garden in Madrid and a Fellow of the Royal society, and were approved in April 1777 under the title "Instrucciones que deberán observar los Dibujantes que pasen al Perú de orden de S.M. para servir con el ejercicio de su profesión en la Expedición Botánica" (Instructions to be obeyed by the draughtsmen who will travel to Peru by order of H.M. to serve with the exercise of their profession in the Botanical Expedition) (Alcalá Archives L.2525, now at the Museum of Natural Sciences of Madrid, reproduced in Barreiro, 1931). The "Instructions" emphasize three main points. The first is the subordination of art to botany: for the scientific aims of the Expedition, the purpose of the illustrations was to capture the characteristic essence of the plants, their unique sets of features, rather than to portray their beauty. The second point is the subordination of the illustrators to the botanists. Thirdly, the "Instructions" give a set of technical rules, concerning the parts of the plants to be illustrated, their coloring and arrangement, as well as the "model" for the final plate, to which all the illustrations had to conform in style and dimensions. Finally, a special paragraph of the Instructions describes the "spirit" that would drive the relationships between draughtsmen and botanists, always imbued with mutual cooperation and brotherhood. This was not always the case once the Expedition began working in Peru.

The artists of the Peruvian Expedition

The Instructions were finally entrusted to two painters selected from the students of the Real Academia de Nobles Artes de San Fernando: José (Joseph) Brunete Casto Dubua (1746-1787) and Isidro Gálvez Gallo (1754-1809). On April 8th, Charles III appointed Brunete, who had been a disciple of the great Bohemian painter Anthony Raphael Mengs (1728-1779), as the "first draughtsman" to the expedition, and Gálvez as the "second draughtsman". Both were, at that time, residents of Madrid.

At thirty-one years old, José Brunete was the oldest Spaniard of the expedition, and the only member of the original group who would not come back home. He died in Pasco, Peru, in May, 1787. Brunete painted sixteen of the 98 orchid plates of the Expedition currently conserved in Madrid.

Isidro Gálvez was only twenty-three years old when he left for Peru. He painted at least 23 plates of orchids, now in the Archives of the Real Jardín Botánico, CSIC. Ruiz and Pavón dedicated the genus *Isidrogalvia* in the Tofieldiaceae to him. He later worked at the Oficina Botánica for more than twenty years until his death.

The Toledan painter Francisco Pulgar, at the time seconded to the Spanish Army's Soria infantry regiment, stationed in Lima, joined the Expedition in 1784. Trained by I. Gálvez in the illustration of plants, he was the most prolific orchid painter of the Expedition, preparing almost half of the plates of Orchidaceae still conserved in Madrid.

A Native of Huánuco, José Gabriel Rivera (?-1815) joined the Expedition in 1796, after F. Pulgar became ill with stomach trouble and intermittent spells of malaria. In 1799, he accompanied Tafalla and Juan Agustín Manzanilla (?-*post* 1816) on their expedition to Guayaquil, and remained in service until 1811, when he petitioned for a different job because of his failing eyesight. His last dispatch of 19 drawings to Madrid was made in 1815. He painted twelve orchid illustrations, mostly from Ecuadorean plants, now conserved at the RJB.

In 1800, when the "*agregados*" were in Guayaquil, a fifth artist joined the party, the Ecuadorian Francisco Xavier Cortés Alcocer (1770-1841) of Quito. Son of the painter José Cortés Alcocer, he had worked as a botanical illustrator for the Mutís expedition, from 1790 to 1798, painting 21 plates (González Bueno, 2008, 2009). He moved back to Lima with the other expeditionaries in 1810, and, at least from 1816, he was employed by the Medical College of San Fernando in Lima, where Tafalla and Manzanilla had been appointed professors. Three very detailed drawings, including five species of orchids, that he made in Ecuador are conserved among the illustrations of the Expedition in Madrid.

The illustrations

How important and valuable were the illustrations as a tangible evidence of the Expedition's progress is demonstrated by the efforts made to send them back to the king. In March 1779, Ruiz and Pavón dispatched 242 colored drawings; they sent another 200 in 1780, 1,013 illustrations in 1784, 600 in 1787, and they took with them 589 more plates in April, 1788, on their return to Spain. After this date, the "*attachés*" continued to send back drawings and rendered plates from Lima and from the Audiencia of Quito. Sixty-four illustrations were dispatched in March 1789 and seven more in August of the same year, five drawings in November 1790, 18 drawings in May 1791 and a large parcel of 165 drawings in March 1793. The last documented shipment by Manzanilla from Lima, with 19 drawings, is dated 1815. If one takes in account the tragic losses in the Macora fire (some 300 drawings burnt), the wreck of the *San Pedro de Alcántara* in 1786 (more than one thousand illustrations lost), as well as the number of plates that disappeared from the Oficina Botánica in Madrid (Colmeiro, 1875), and the 400 drawings "executed in a very superior style" that Andrew Mathews observed in Lima in 1832 (Mathews, 1832a, b), it is evident that the artists of the Expedition produced the astonishing figure

of some 4,500 illustrations. Of these, 2,230 botanical illustrations and 24 zoological plates are still conserved at the Archives of the RJB (Puig-Samper Mulero & Pelayo López, 2009). Under Pavón's management of the Oficina Botánica, some of the original plates of the Expedition were probably sold; comparing the inventories for 1823 and 1831, 712 drawings are missing in the last recount (Colmeiro, 1875).

The Archives of the RJB conserve 98 illustrations of Orchidaceae, corresponding to 88 species, intended for the *Flora Peruviana et Chilensis* and Tafalla's own *Flora Huayaquilensis*. Sixteen of the plates are signed by J. Brunete, 23 by I. Gálvez, 44 by F. Pulgar, 12 by J.G. Rivera, and 3 by X. Cortés. While most of the species are illustrated on a single sheet, the drawings of *Sudamerlycaste ciliata* (RP1238, 1239), *Odontoglossum crocidipterum* (RP1232, 1233) and *Sobralia rosea* (RP1301, 1302) are spread over two sheets, the second with analyses of the flower and other details of the fructification. In the cases of *Epistephium duckei* (RP1295, 1296, 1297) and *Sobralia dichotoma* (RP1298, 1299, 1300), an additional third sheet was used to paint the roots and the base of the stems. *Cischweinfia suarezii* and *Psygmorchis pumilio* are illustrated on the same plate (RP1268), as well as *Elleanthus* aff. *killipii* and *Dichaea angustisegmenta* (RP1267), both the plates having been painted by J.G. Rivera. Finally, both *Bletia catenulata* and *Xylobium undulatum* were illustrated twice under different names (RP1274 and RP277; RP1241 and RP1242, respectively).

According to the technical and stylistic indications provided by the "Instructions", all the plates are rendered in black ink and tempera on heavy paper, the *folio* leaves measuring 37.0 by 26.5 cm. A thin black line, in tempera or ink, and another inner, broader, gray line frame the plates. They are signed by the artists on the bottom left of the painted frame. Most of the plates bear the name of the species, originally assigned by the botanist who supervised their execution, as well as the original numeration and one or more numbers (usually in the upper right corner) assigned to the illustrations in Madrid. They are mostly in Ruiz's handwriting and are in keeping with the order of the *Flora Peruviana et Chilensis* as well as new generic and specific determinations. It is evident that Ruiz followed a systematic order in assigning numbers to the illustrations. Thus, for example, numbers 141 to 149 identify species of *Maxillaria*, 154 to 156 are *Sobralia*, 157 to 165 species of *Humboldtia*, 166 is *Masdevallia* (the other genus of the Pleurothallidinae created by Ruiz and Pavón), 168 to 173 are species of *Fernandezia*, and numbers from 175 to 187 were used for species of the genus *Epidendrum*. The plates of the Orchidaceae are included between numbers 140 (*Rodriguezia ensiformis*) and 187 (*Epidendrum equitans*). The numbers of the *icones* are recorded by Ruiz on his manuscript descriptions, where the taxa without ilustrations are annotated as «s. ic.» or «s. icone» (*sine icone*, without figure). In the few cases, when Ruiz and Pavón published species that were originally described by Tafalla (i.e., *Bletia parviflora, B. uniflora, B. repanda*), Ruiz annotated the manuscript and the respective *icona* with his proposed name, but he did not re-number the plates in accordance with his system. Apparently, some of the orchid illustrations to which Ruiz refers in the manuscripts were lost or sold after his death. Missing are *iconae* 147 (*Maxillaria hastata*), 149 (*Maxillaria paniculata*), 165 (*Humboldtia lanceolata*), 166 (*Masdevallia uniflora*), 167 (*Humboldtia spiralis*), 170 (*Fernandezia denticulata*), 171 (*Fernandezia subbiflora*), 172 (*Fernandezia haematodes*), 173 (*Fernandezia graminifolia*), 174 (*Fernandezia conferta*), 183 (*Epidendrum corymbosum*), and 184 (*Epidendrum acuminatum*). At least two of the illustrations prepared in Ecuador by the expedition led by Tafalla are also missing from the collections. In the specimen of *Houlletia odoratissima* (MA 810741), Tafalla refers to a plate, «L. 647», which is not conserved among the materials of the Expedition. The same happens with plate «L. 649», corresponding to an Ecuadorean specimen of *Epidendrum tridens* (MA 810703) (the actual plate of *E. tridens*, as «Epidendro affine», painted by F. Pulgar and annotated by Ruiz, is from Peru).

Origin and fate of the collections

The vicissitudes of the American collections during the long years of activity of the Oficina Botánica, and in particular after the death of Ruiz in 1816, have been dealt with extensively by, among others, Steele (1964), Miller (1970), Rodríguez Nozal (1994) and García Guillén and Muñoz Paz (2003), and it is out of the scope of this paper to review them in detail. There are, however, a few points that deserve consideration for a better understanding of the materials taken into account in the present study and the typification of some early names.

The collections conserved in Madrid, as well as some of the specimens, manuscripts (and drawings?) kept in other European and North American herbaria, were formed from different sources and proceed from three modern countries. Their origin was not always well documented and, in several cases, it was misinterpreted by subsequent students of Ruiz and Pavón's legacy, at least since the mid-nineteenth century. Surely it does not help that in 1798 Ruiz and Pavón themselves described not only their own plants, but also new species that resulted from ten years of herborization by Tafalla and his associate Manzanilla in Peru and Ecuador. The use of these materials may have been, for Ruiz and Pavón, simply an extension of their own field activity, prematurely interrupted by a royal order that obliged them to go home in 1788 (the reason the *agregados* were actually hired). Nevertheless the result has been an enduring confusion concerning the origin of the specimens and the locations of their discovery.

Even though there is no convincing evidence on this point, it seems logical to assume that Ruiz and Pavón packed all their collections before leaving Peru on April the 1st, 1788. The detailed account by Ruiz (2007: 307-310; Ms: 60-62) about the preparations for shipping the materials brought back from Huánuco, including the last plants collected on the way back to Lima, suggests that the botanists packed all their belongings on the *Dragón* and the *Jason*. Three years before, when the expeditionaries thought that their return to Spain was imminent, they also sold all their botanical tools, and had to acquire them anew a few weeks later (Ruiz, 2007: 244-245; Ms: 40).

Any other material received in Spain and abroad after 1788 was likely collected by the "associates", first in Peru and then in the Audiencia of Quito from 1788 until 1808. Tafalla made his first four shipments to Madrid in late 1788 (including descriptions, drawings, and seeds), eight more in 1789, and he continued sending plants from Peru over the next ten years. From December 1799, *exsiccata*, drawings and descriptions were sent to Madrid from the Audiencia of Quito, and a flow of new materials gathered in Ecuador was maintained until 1808, when Manzanilla made the last two consignments from Cañar. Other materials from Guayaquil, Quito, Cuenca, Jaén and Loja, transported by the expeditionaries to Peru, were packed in Lima and sent to Spain at the beginning of 1809. In March 1815, four years after the death of Tafalla, Manzanilla made his last shipment of the Royal Expedition, probably mostly plants from Peru and Chile.

From at least 1793, Tafalla began preparing descriptions and drawings for his own *Flora Peruana* («F.P.»), which would be followed at the turn of the century by the new ambitiuos projectof the *Flora Huayaquilensis* («F.H.») (Estrella, 1989, 1995; Estrella & al., 1991). A large part of these materials, together with copies of the drawings and descriptions sent to Madrid – and perhaps other illustrations and manuscripts – were still in Lima 20 years after the Expedition had been wound up and all the protagonists (with the exception of the aged Pavón) had already died. What the British plant-hunter Andrew Mathews (1801-1841) found in Lima in 1832 and believed to be "an herbarium by Ruiz and Pavón" (Mathews 1832a, 1832b), including manuscripts and drawings, was probably the material left behind by Tafalla and Manzanilla after the deaths of the botanists in 1811 and 1816 respectively. The fate of this legacy is still largely unknown, but at least some copies of the drawings prepared by Mathews and a few dried specimens were eventually sent to William Jason Hooker at the Royal Botanic Gardens, Kew, where they were studied by Lindley (1833, 1838, 1840, 1841, 1845a, 1845b).

Heinrich Gustav Reichenbach had on loan in Hamburg, from the Herbarium of Boissier, more than 50 Peruvian orchid specimens from the Expedition. On the basis of this material, in his *Orchideae Ruizianae et Pavonianae Musaei Boisseriani* (Reichenbach, 1856), he described 17 new species in 11 genera. Among the plants owned by Boissier there were both specimens originally collected by Ruiz and Pavón (i.e., *Epidendrum raniferum* and *Xylobium foveatum* from Pozuzo, *Stenoptera viscosa* from Chichao, or *Spiranthes pavonii* from Cuchero), and plants that Tafalla gathered from 1794 until 1808 (i.e. *Dichaea graminoides, Evelyna capitata, Maxillaria splendens, Ornithidium tafallae, Pleurothallis succosa, Vanilla ruiziana* from Chicoplaya, *Maxillaria laevilabris* from Vitoc, *Odontoglossum festatum* from Palca). At least one specimen of *Telipogon* was collected by Dombey (Reichenbach, 1856). Eventually, Reichenbach obtained from Boissier the permission to separate parts of the specimens for his own herbarium, which, much later, was bequeathed to the Hof Imperial Museum of Vienna (now Naturhistorisches Museum).

A large set of specimens from the Oficina Botánica was acquired by Johann Centurius Hoffmannsegg (1766-1849) and found its way into the herbarium of Berlin through an acquisition by Carl Ludwig Willdenow (1765-1812), Director of the Berlin Botanical Garden from 1801 until his death (Hiepko, 1987; Lack, 1979). These materials served as the basis for the description by Johann Friedrich Klotzsch (1805-1860), a German botanist and mycologist based in Berlin (Stafleu & Cowan, 1979), of *Vanilla hamata* and *V. ruiziana* in his account on the species of the genus *Vanilla* (Klotzsch, 1846).

A short note on the orchid manuscripts

Only three volumes of the planned series of the *Flora Peruviana et Chilensis,* together with the set of illustrations intended for the fourth volume and some of the plates for volume V, were published while Ruiz and Pavón were still alive. The first volume of the *Flora* appeared in 1798, the second in 1799 and the third in 1802. The plates for the fourth volume were engraved between 1802 and 1804, and the texts were completely ready for the printer in 1807, but the volume was not published until 1954-1958. The incomplete texts and illustrations of volume V (the latter engraved between 1805 and 1807) were published in 1959. The remaining parts of the *Flora*, including six more volumes (VI-XI) and five supplements, among them the texts and illustration of the orchids, were never published.

The manuscripts dealing with the Orchidaceae by the Expedition's botanists, both those eventually published (Ruiz & Pavón, 1798) and those remained unpublished, are still conserved in the Archives of the RJB. At present, they are gathered into a single bundle that groups all the descriptions intended for volume VIII of the *Flora Peruviana et Chilensis*, devoted to Gynandria, which should have contained 105 colored illustrations (Barreiro, 1931: 499-506; Steele, 1964: 290, note). This is the twentieth class of plants according to the sexual system of Linné (1753), characterized by having the stamens and pistils consolidated in a single structure: the gynostemium or column. In turn, the Class is divided into seven orders, derived from the numbers of the stamina, or fertile anthers. Neotropical orchids fall within the first two orders, Gynandria monandria (containing plants with a single anther), and Gynandria diandria (with two anthers). Even though the only true orchid genus with two anthers recorded by the botanists of the Expedition was *Cypripedium* (= *Phragmipedium*), in their manuscripts Ruiz, Tafalla and Manzanilla erroneously assigned all their orchidaceous plants to the Gynandria diandria.

The bundle in the Archives includes 109 leaves with plant descriptions, mostly only written on the *recto*, and 35 both on *recto* and *verso*. Of these, 59 are in the characteristic handwriting by Ruiz (Fig. 1A, B), 17 were written by Tafalla (Fig. 1C, D; 2A, B), two are signed by Manzanilla (Fig. 2C, D); the remaining 31 are clean copies, probably made by the artists of the expedition, some of them probably prepared by F. Pulgar. Ruiz's manuscripts on the Orchidaceae are numbered consecutively from «156» to «215». Tafalla mostly referred his manuscripts to the number of the corresponding *lamina* (plate): numbers from «L. 89» to «L. 418» (non-consecutive) are mostly in his handwriting, but some are also signed by Manzanilla while a few are clean copies. The author classified his orchids in the genera *Arethusa, Cypripedium, Epidendrum, Ophrys*, and *Orchys* [sic]. Yet

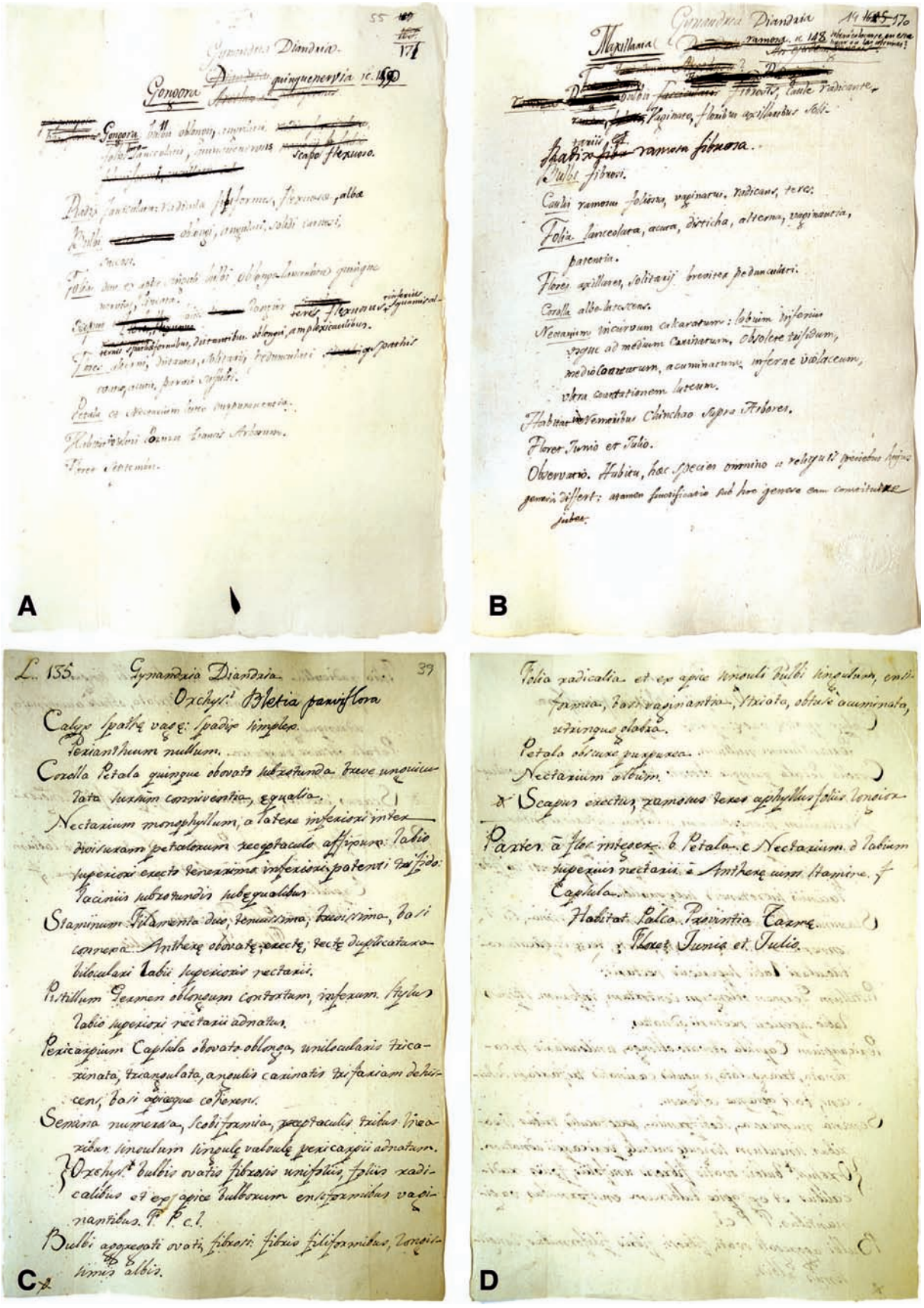

Fig. 1. A, Handwritten manuscript by H. Ruiz, with the description of *Gongora quinquenervis* (*recto*); **B,** Ruiz' manuscript with the description of *Maxillaria ramosa;* **C,** Handwritten manuscript by J.J. Tafalla, with the description of *Cyrtochilum parviflorum*. «L.135 / Orchys?», annotated in Ruiz' handwritng, «Bletia parviflora» (*recto*); **D,** *idem* (*verso*). AJB, Div. IV, 4, 3.

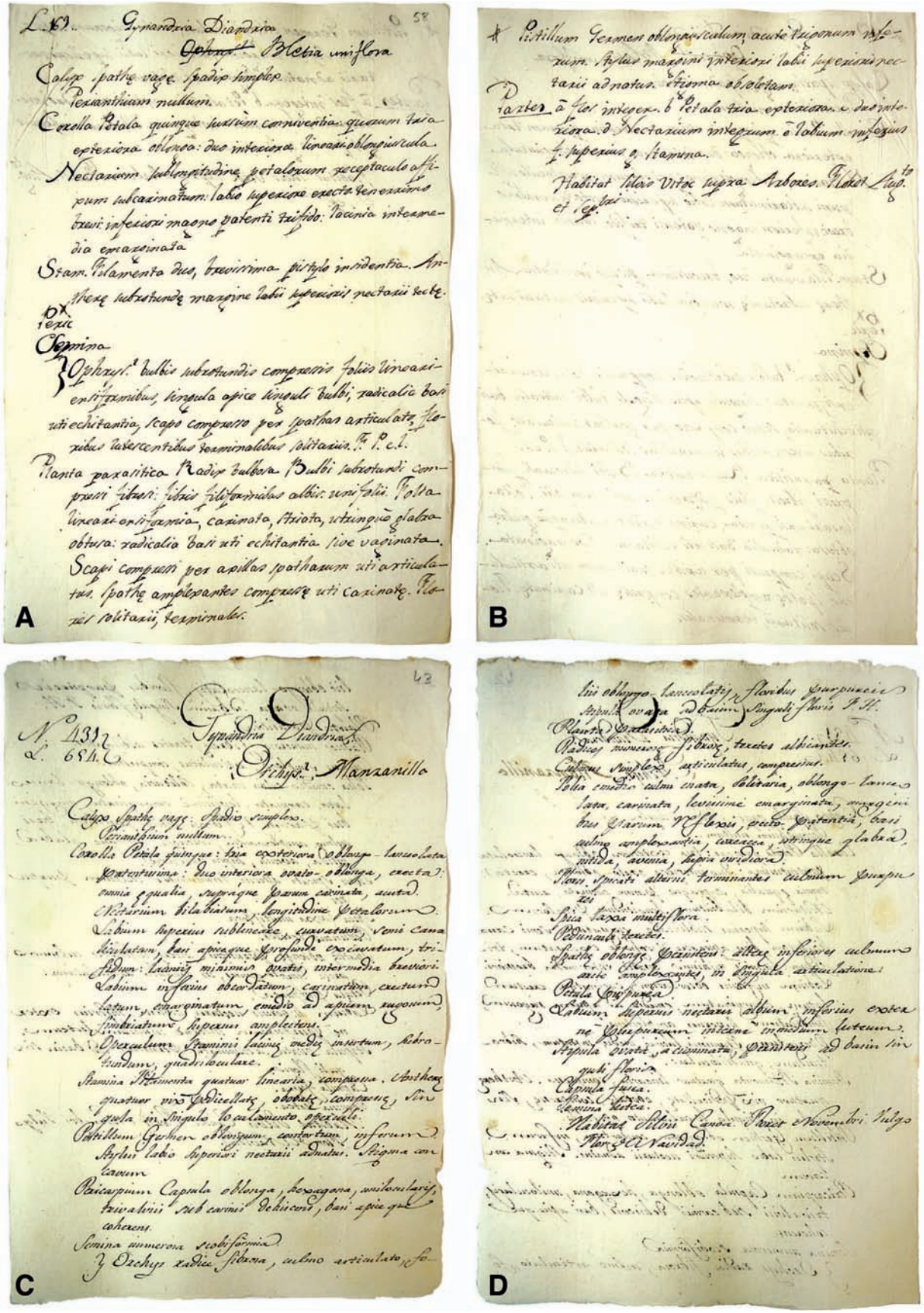

Fig. 2. A, Handwritten manuscript by J.J. Tafalla, with the description of *Sauvetrea uniflora*. «L.169 / Ophrys?», annotated in Ruiz' handwritng, «Bletia uniflora» (*recto*); **B,** *idem* (*verso*); **C,** Handwritten manuscript by J. A. Manzanilla, with the description of *Cattleya maxima*. «N. 431 / L. 694 / Gynandria Diandria / Orchys?» (*recto*); **D,** *idem* (*verso*). AJB, Div. IV, 4, 3.

another series of manuscripts, mostly clean copies or signed by Manzanilla, are prefixed by «N.º» or «N.» (number). They include non-consecutive numbers between «8» and «474», and the illustrations are assigned to the genera *Ophrys* and/or *Orchys* [sic] (12), *Epidendrum* (8), and *Arethusa* (2).

The vague plant descriptions, as found in the manuscripts (particularly in those by Ruiz) and as published in 1798, and the dispersal of large part of Ruiz and Pavón's herbarium, traditionally hampered a correct interpretation of their orchid species, several of which remained obscure to modern botanists. The critical study of the unpublished orchid illustrations of the expedition, and the additional information they provide on the characteristics of the plants, now allows many of these species to be identified for the first time.

ICONES

1. Acianthera polystachya (Ruiz & Pav.) Pupulin, **comb. nov.** Fig. 3A

Basionym: *Humboldtia polystachya* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil 1: 234. 1798, *non* (A. Rich. & Galeotti) Kuntze, Revis. Gen. Pl. 2: 668. 1891, based on *Pleurothallis polystachya* A. Rich. & Galeotti, 1845 = *Acianthera pubescens* (Lindl.) Pridgeon & M.W. Chase. Synonym: *Stelis polystachya* (Ruiz & Pav.) Willd., Sp. Pl., ed. 4 [Willdenow] 4(1): 139. 1805.

Type: Peru. "Habitat in montibus Chinchao supra arbores", *H. Ruiz & J. Pavón s.n.* (holotype, MA!).

Icones: AJB, Div. IV, 1328, drawing of type, tempera on paper by I. Gálvez; habit with flowers, details of a flower, the column and lip. «158 / 125. / Galvez. [signature] / 15 [45?]. g / Humboldtia polystachya».

Herbarium: MA 810767, HOLOTYPUS, sterile. «Gynandria / Humboltia/ / Humboldtia Polystachia» [Ruiz]; «Herbarium Peruvianum / Ruiz et Pavon / 4/54».

Humboldtia polystachya is one of several species described by Ruiz and Pavón which remained in a taxonomic limbo. The insufficiency of the original diagnosis and the sterile condition of the type specimen combined to prevented its correct determination. Both the International Plant Name Index and the database *Tropicos* of the Missouri Botanical Garden (consulted on July 2010) treat the name as unplaced. However, the plate painted by Isidro Gálvez clearly shows a plant habit referable to *Acianthera*. Even though the flowers are pollinated, their color and position suggest that *A. polystachya* should be the first available name for *A. casapensis* (Lindl.) Pridgeon & M.W. Chase, a frequent and widely distributed species ranging along the Andes from Venezuela to Peru. The type specimen of *Pleurothallis casapensis* was collected by Andrew Mathews at Cassapi, not far from the *locus typicus* of *Humboldtia polystachya* while he was tracing Ruiz and Pavón's collecting sites. According to the systematic treatment by Luer (2004), *A. casapensis* is very variable vegetatively, but the flowers are morphologically constant. The species can be recognized by the short creeping rhizome, triquetrous ramicauls, broadly elliptic leaves with the margins shortly decurrent on the ramicaul, and the yellow-green to orange flowers with petals serrate-fimbriate over the lower third, and a oblong-subtrilobed lip minutely serrulate at apex.

In Peru, the species is known in the provinces of Amazonas, Cajamarca, Huánuco and Junín, where populations are found between 1100 and 3000 m. According to Ruiz's journal, the expeditionaries collected around Chinchao (*locus typicus* of *H. polystachya*) in August-September 1780 (Ruiz 2007: 164-168; Ms. 21a). The original description of *H. polystachya* was lost during the fire in Macora in August, 1785; Ruiz prepared a new description during the stay of the Expedition in Huánuco in 1785-86 (Ruiz 2007: 281; Ms. 53).

2. Altensteinia fimbriata Kunth, Nov. Gen. Sp. (quarto ed.) 1: 333. 1815[1816]. Fig. 4

Type: [Ecuador. Quito:] "Crescit in umbrosis humidis, ad fluvium Guallamba, alt. 1030 hexap.", *Poeppig s.n.* (holotype, W!).

Icones: AJB, Div. IV, 1265, tempera on paper by F. Pulgar. «Fran.co Pulgar [signature] / 136 / Satyrium».

Herbarium: No material of this taxon is conserved in MA.

The Archives of the RJB keep a manuscript description by Tafalla of the plant illustrated by Pulgar, with the title «L. 136. / Gynadria Diandria / Orchys? / […]» (AJB, Div. IV, 4, 3). According to the description, the species was found in the cool, rocky mountains of Tarma («Habitat lapidosis Tarmae altis frigidiusculis»).

Originally described as from Ecuador, *A. fimbriata* is a common species along the Andes, from Venezuela to Peru and Bolivia up to almost 4000 m. In Peru, it is frequently found growing as a terrestrial on steep grassy slopes in wet, cloud montane forests. The plant´s cauline leaves and relatively large flowers, with elliptic-ovate to suborbicular lip, almost flat and erose-fimbriate along the margins, distinguish this species.

3. Anguloa uniflora Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 228. 1798. Fig. 5

Type: Peru. «Habitat in Muña et Chinchao runcationibus, vernacule Carpales dictis, et profuse in tarmae nemoribus ad Huayabal, Chanchamayo et Siusa tractus», *H. Ruiz & J. Pavón s.n.* (lectotype, MA).

Icones: AJB, Div. IV, 1271, drawing of type, tempera on paper by I. Gálvez, habit and flowers, details of lip and column in ventral views. «151 / Galvez [signature] / 51 / 122 / Anguloa uniflora».

Herbarium: MA 810731, HOLOTYPUS. Flower on the bottom. «Arethusa [crossed] Flor del Espiritu Santo. / Anguloa».

Prodromus: Ic. 26, ANGULOA. The flowers and the adaxial view of the lip were presumably engraved from the original illustration.

The interpretation of the true *A. uniflora* has been problematic since its original description, and it is probable that Ruiz and Pavón themselves, at least in part, overalpped their concept of *A. uniflora* with that of the other *Anguloa* species they collected and illustrated form central Peru,

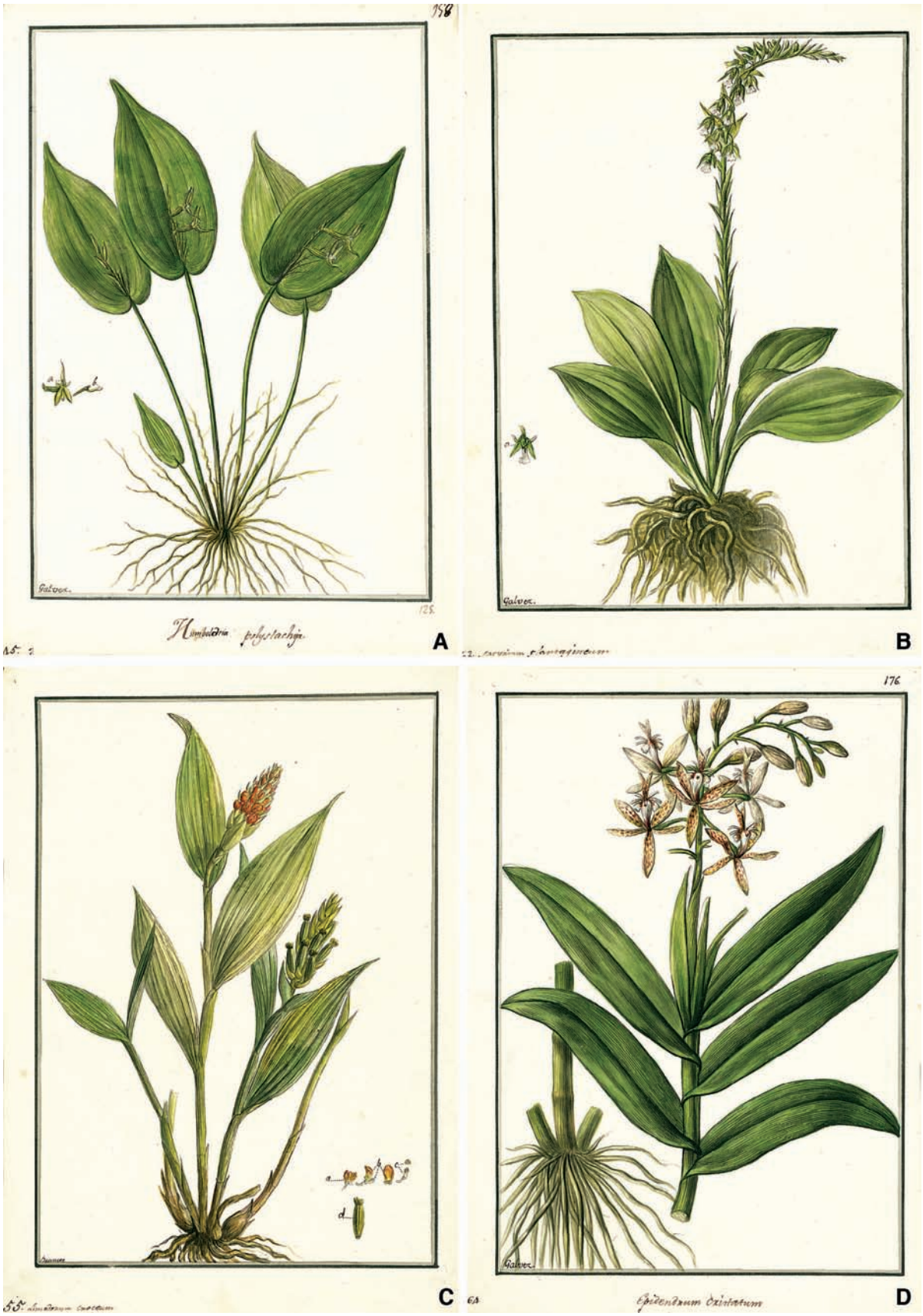

Fig. 3. A, *Acianthera polystachya*. AJB, Div. IV, 1328, drawing of type, tempera on paper by I. Gálvez; **B,** *Cyclopogon plantagineus*. AJB, Div. IV, 1263, tempera on paper by I. Gálvez; **C,** *Elleanthus discolor*. AJB, Div. IV, 1321, tempera on paper by J. Brunete; **D,** *Epidendrum cristatum*. AJB, Div. IV, 1284, drawing of type, tempera on paper by I. Gálvez.

Fig. 4. *Altensteinia fimbriata*. AJB, Div. IV, 1265, tempera on paper by F. Pulgar.

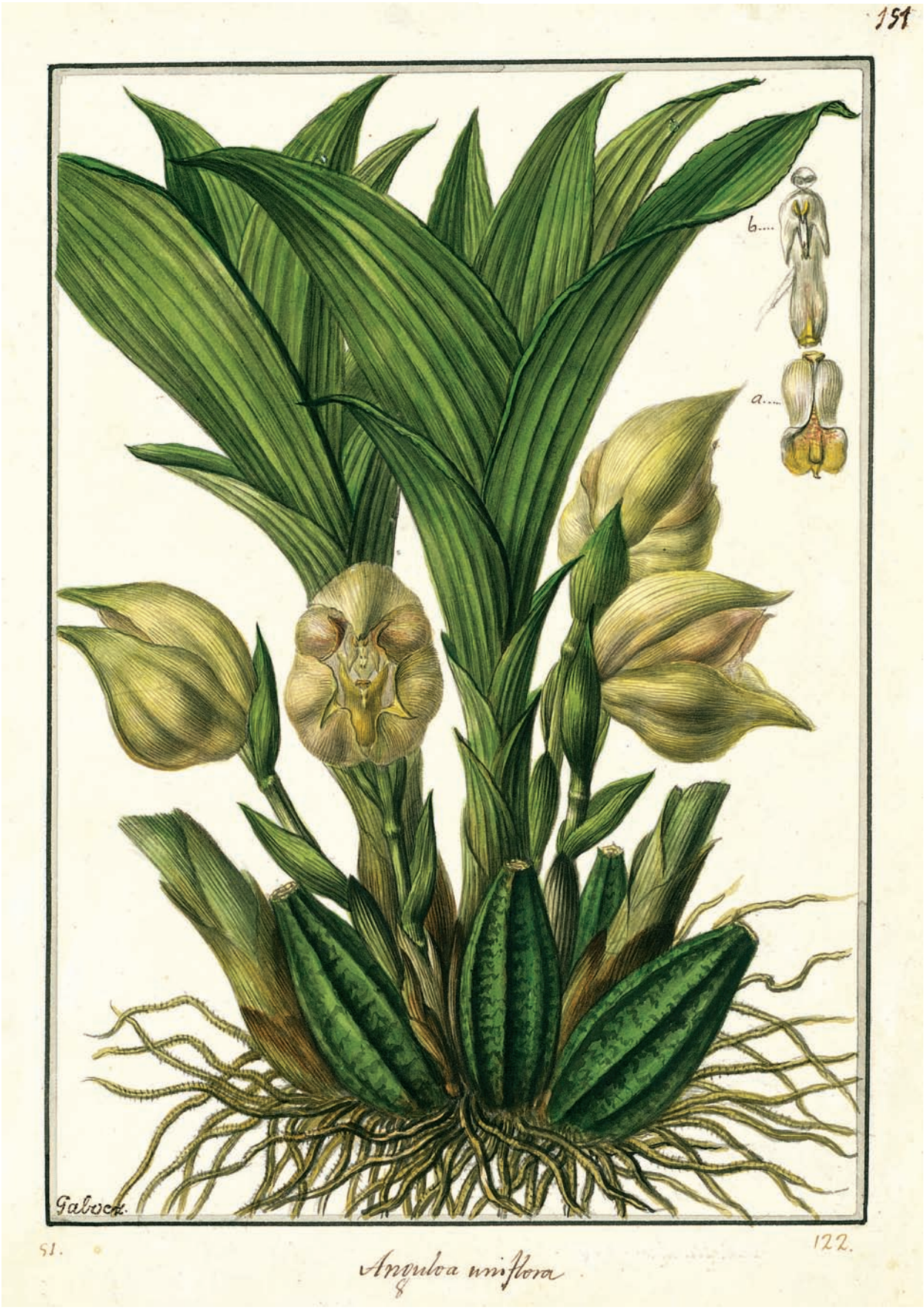

Fig. 5. *Anguloa uniflora*. AJB, Div. IV, 1271, drawing of type, tempera on paper by I. Gálvez.

A. virginalis. In his account of the stay in Muna, in August –September of 1786, Ruiz recorded the vernacular name "*Flor de Espíritu Santu*" (Holy-Spirit flower) used by natives to refer to *A. uniflora* (Ruiz, 2007: 287; Ms: 54); the same vernacular name, used in Ecuador, is also recorded by Tafalla for *Oncidium planilabre*. According to the enlightening monograph by Oakeley (2008), however, this name is still popularly used today in Peru for the more common species we know today as *A. virginalis*. The name "*Carpales*", recorded by Ruiz and Pavón (1798), is referred by Oakeley (2008) to the actual Quechua word *carpilla*, meaning "with many points" and locally used to refer to *A. virginalis.*

Ruiz (2007: 136; Ms: 12) first mentions *A. uniflora* in his report on the plants discovered in the mountains of the Tarma province, where he noted "this family is so abundant in the Quebradas of Huassahuassi and Palca… that it seemed as though nature had designated those lands for them since the creation of the world". He suggested that "this family would deserve a Monograph in those sites and probably would ascend the number of species to more than 500". In the protologue, however, Ruiz and Pavón gave the localities of *A. uniflora* as "*Muña et Chinchao runcationibus, vernaculé Carpales dictis, et profuse in Tarmae nemoribus ad Huayabal, Chanchamayo et Siusa tractus*" ("grows among weeds in Muña and Chinchao, commonly known as Carpales, and profusely in the forests of Tarma, in the region of Huayabal, Chanchamayo and Siusa"). The actual distribution of *A. uniflora* seems restricted to the provinces of Huánuco and Junín in central Peru, where it grows along the Cordillera Central and Cordillera Azul on road enmbankments and among grasses and scrubs at 1400 to about 2500 m (Oakeley 2008). It is therefore quite probable that the plants from Muña and Chinchao cited in the protologue were not of the same species, but of *A. virginalis*.

The only specimen in Madrid that could be referred to *A. uniflora* is MA 810731, which consists of a plant without inflorescence, and two flowers. The upper one, according to a correction label by H. Oakeley (2009), corresponds to *Anguloa virginalis*, while the flower at the bottom is still attached to a short inflorescence (ca. 10 cm long) provided with congested bracts. The flower is severely damaged, but I consider that it corresponds morphologically to *A. uniflora,* and it can be regarded as the type specimen for this species. This would make unnecessary the designation of a lectotype, as informally proposed by Oakeley (2008).

A fertile specimen from the collections originally conserved at the Oficina Botánica in Madrid was acquired by E. Boissier from Pavón, and it is now conserved in G (G00168564, digital image!). It is annotated in Pavón's handwriting as «Anguloa del Peru» and was determinded as *Anguloa uniflora* by Reichenbach. The long peduncles, however (more than 20 cm long), and the remote bracts of the inflorescence, make this determination unlikely, and the specimen should probably be referred to *A. virginalis*.

4. Anguloa virginalis Linden ex B.S. Williams, Orch.-Grow. Manual (ed. 4) 4: 90. 1862. Figs. 6A, B

Anguloa virginalis Lindl., Gard. Chron. 392. 1851, *nom. nud.*

Type: Colombia, *sine loco* [holotype, not located; lectotype, proposed, but formally not designated, by Oakeley (2000, 2008), *Schlim 43*, K].

Icones: AJB, Div. IV, 1269, plant with flower, tempera on paper by F. Pulgar. «Fran.co Pulgar [signature] / Anguloa / 81». AJB, Div. IV, 1270, flower and floral dissections, by F. Pulgar. «Fran.co Pulgar / Anguloa / 81».

Herbarium: MA 810732. Plant, sterile. According to H. Oakeley (correction label 2009), a flower of *A. virginalis* is preserved on the upper right side of the type sheet of *A. uniflora* (MA 810731).

The long inflorescences of the specimen mounted on MA 810732 seem to correspond to Pulgar's illustration of *A. virginalis's* habit (AJB, Div. IV, 1269). John Lindley first published *A. virginalis* as a *nomen nudum* in the *Gardener's Chronicle* for 1851. The name was validated by Benjamin Samuel Williams in the fourth edition of his *Orchid-Growers Manual*, published in London in 1871 (Williams, 1871).

The fleshy, strongly fragrant flowers, laterally flattened, ivory-white to pink and speckled with pale rose on an inflorescence to 30 cm tall, are diagnostic of *A. virginalis*.

In the area of Tarma, the species is ofen found growing together with *Anguloa uniflora*, where they flower in the same period, from August to November (Oakeley, 2008). The species is known in the Andean chain, ranging from Venezuela to Bolivia and Peru. In the latter country, it is found in shaded spots in lower montane and montane wet forests, at 1100-2000 m.

5. Beloglottis boliviensis Schltr., Repert. Spec. Nov. Regni Veg. Beih. 10: 38. 1922. Fig. 6C

Type: Bolivia. La Paz: Guanai River, 914 m, 12 Aug 1902, *R.S. Williams 1620* (holotype, B†; isotypes, NY 8588, digital image!; AMES 82310).

Icones: AJB, Div. IV, 1260, tempera on paper by F. Pulgar, plant with flower and detail of a flower. «Fran.co Pulgar [signature] / 13 Satyrium purpureum [Ruiz]».

Herbarium: MA 810737. Plant, fertile. «Orchys / ¿an Satyrium? [alia manu] / Pillao 1787»; « Herbarium Peruvianum / Ruiz et Pavón / 25/23».

The terrestrial habit, with thick, succulent roots and elliptic-ovate leaves, provided with a long petiole, and the flowers tinged with purple, provided with a rhombic lip, distinguish the species. According to Foster (1958) and Schweinfurth (1958), the name is a synonym of *Spiranthes costaricensis* Rchb.f. (1855) [= *Beloglottis costaricensis* (Rchb. f.) Schltr.]. However, the flowers of Costa Rican populations (type of *S. costaricensis*) are regularly white. If accepted in its broadest circumscription, *B. costaricensis* ranges from Mexico to Venezuela and Peru and to the West Indies.

6. Bletia catenulata Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 229. 1798. Figs. 7, 8

Type: Peru. "Habitat in montibus et runcationubus Pozuzo et Chaclla versus S. Domingo et Llamapañaui tractus", *H. Ruiz & J. Pavón s.n.* (holotype, MA!; isotypes, MA!).

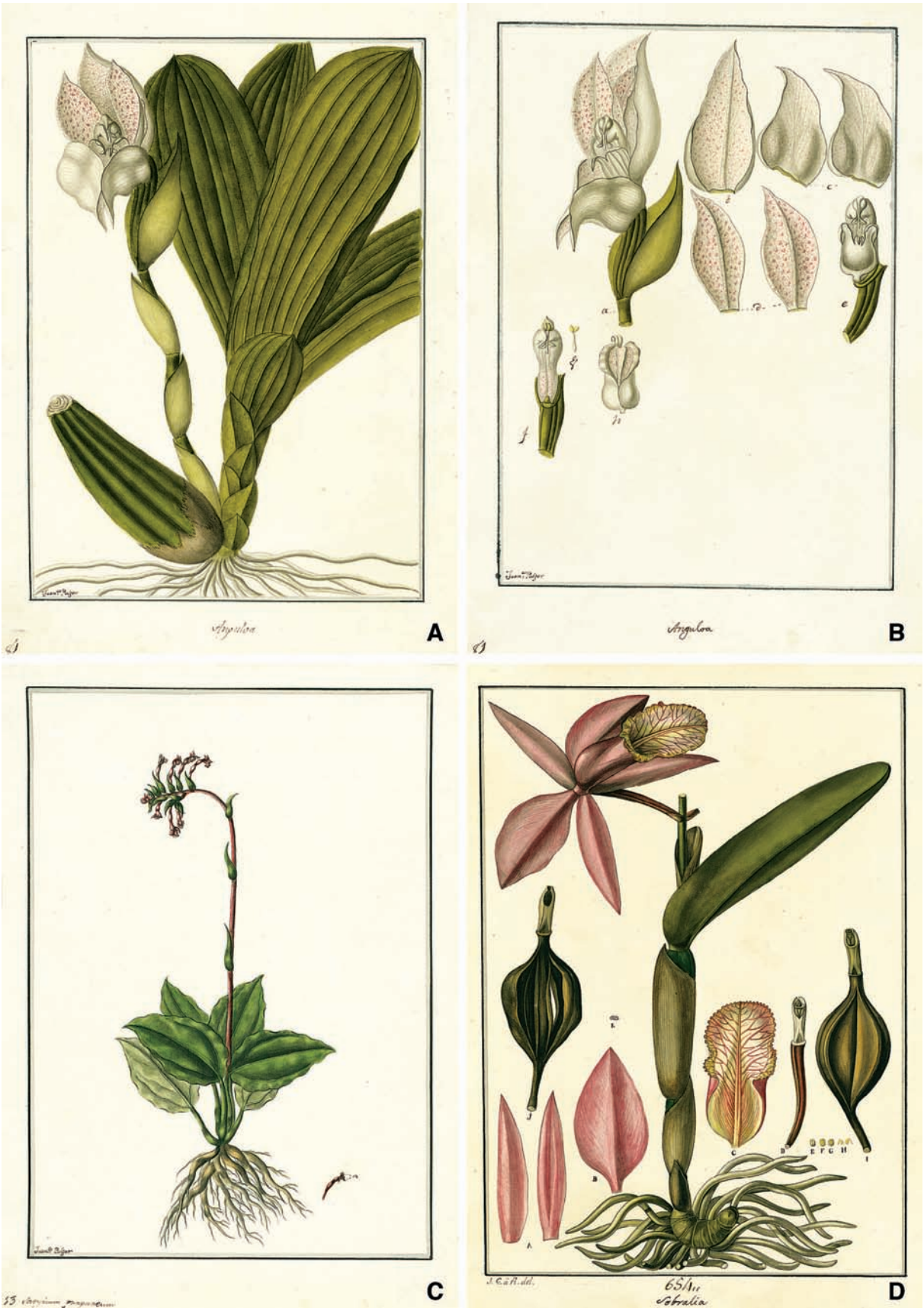

Fig. 6. A, *Anguloa virginalis*, plant with flower. AJB, Div. IV, 1269, tempera on paper by F. Pulgar; **B,** *Anguloa virginalis*, flower and floral dissections. AJB, Div. IV, 1270, tempera on paper by F. Pulgar; **C,** *Beloglottis boliviensis*. AJB, Div. IV, 1260, tempera on paper by F. Pulgar; **D,** *Cattleya maxima*. AJB, Div. IV, 1308, drawing of type, tempera on paper by J.G. Rivera.

Fig. 7. *Bletia catenulata*. AJB, Div. IV, 1274, drawing of type, tempera on paper by J. Brunete.

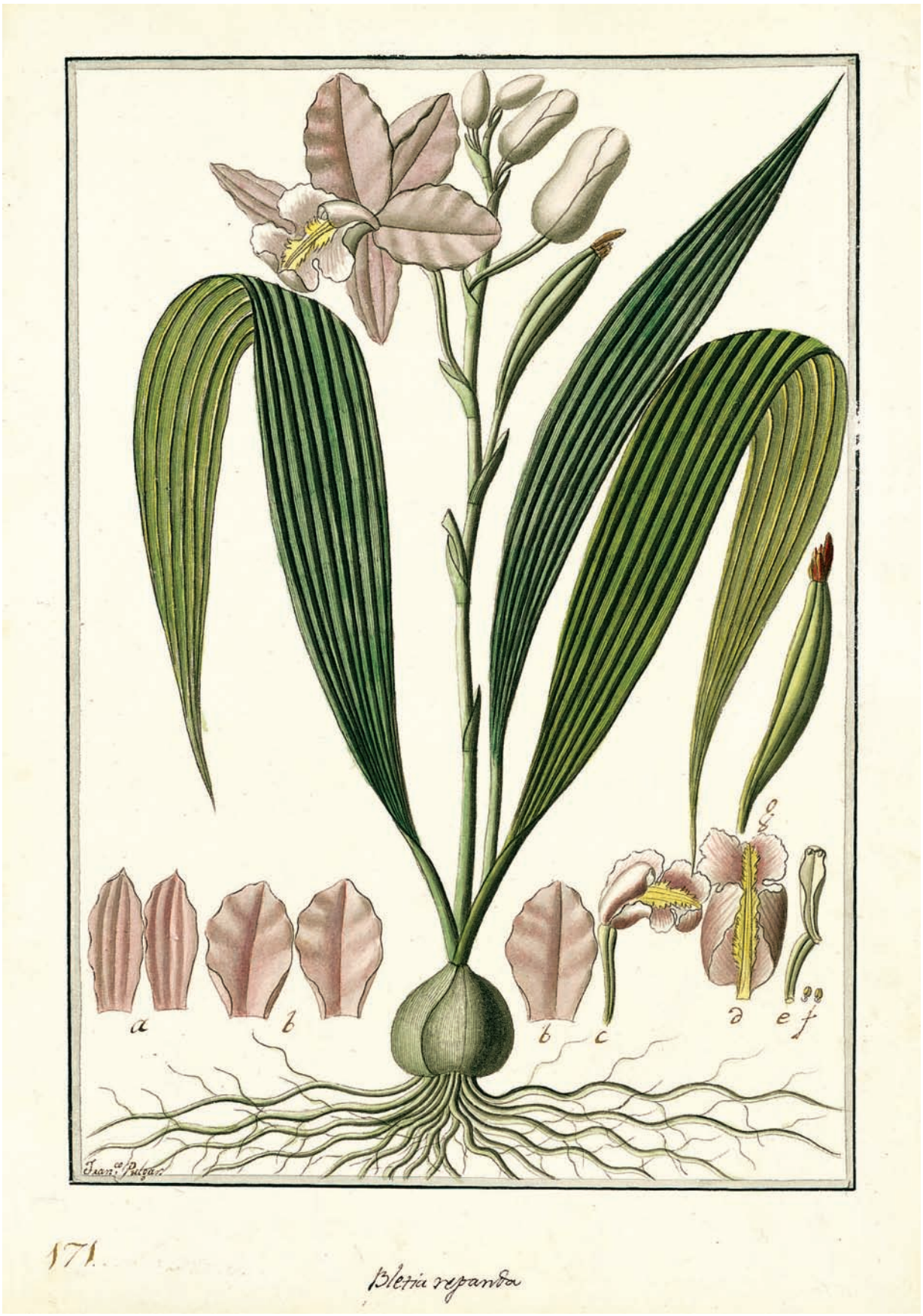

Fig. 8. *Bletia catenulata*. AJB, Div. IV, 1277, drawing of type of *Bletia repanda*, tempera on paper by F. Pulgar.

Icones: AJB, Div. IV, 1274, drawing of type, tempera on paper by J. Brunete. «152 / Brunete [signature] / 60 / 123 / Bletia catenulata». AJB, Div. IV, 1277, drawing of type of *Bletia repanda*, tempera on paper by F. Pulgar. «Fran.co Pulgar [signature] / 171 / Bletia repanda».

Herbarium: MA 810733, HOLOTYPUS. Inflorescences, fertile and with fruits. «Gynandria Diandria Catenulata / vease la descripcion Generica y especi / fica en mi Flora peruana la qual / principia. Bulbi plures ex eadem radice / horizontaliter contra terzam inversi / Bletia» [Ruiz]. «Gynandria Diandria / Bulbi plures aggregati ovati oc- / tangulares extra terzam / vease la descripcion Generica y di- / finicion en mi Flora o princi- / pia como queda dicho. / Bletia catenulata» [Ruiz]. Annotated as Typus by G. Carnevali and I. Ramírez, 1988. On a label of the «Herbarium Peruvianum / Ruiz et Pavón», the sheet is identified with the number «4/88». MA 810735, ISOTYPUS. Inflorescences, fertile and with fruits. «Herbarium Peruvianum / Ruiz et Pavón / 4/88». MA 810736, ISOTYPUS. Inflorescences, fertile and with fruits. Herbarium Peruvianum / Ruiz et Pavón / 4/88». MA 810734. Inflorescence with flower and fruits; the vegetative parts, with conduplicate leaves, are not part of the same specimen and do not pertain to the genus *Bletia*. «de 182 / Bletia catenulata / Fl. Peruv. / Ex herb. Fl. Peruv. / anno 1824». The specimen is annotated as Typus by Carnevali and Ramírez, but according to the herbarium label it was incorporated into the collections much later than the publication of the species.

Prodromus: Ic. 26, BLETIA. The flowers and floral dissections were engraved from the original illustration.

Synonyms: *Bletia ecuadorensis* Schltr., Repert. Sp. Nov. Regni. Veg. Beih. 8: 393. 1921.

Type: Ecuador. Chimborazo: Portalanza, Dec. 1871, *A. Sodiro 76B* [holotype, B†; lectotype (according to Dodson & Luer, 2005), QPLS].

Bletia repanda Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 229. 1798, **syn. nov.**

Type: Peru. "Habitat in arenosis petrosisque locis Tarmae Provinciae prope Vitoc vicum ad ora fluvii Maraynioc ubi cl. Tafalla eam delineavit et descripsit", *J.J. Tafalla s.n.* (no type specimens surely attributable to this taxon are conserved in MA; LECTOTYPUS, designated here, Icones Ruizianae et Pavonianae 1277, MA).

Ruiz and Pavón mainly distinguished *B. catenulata* and *B. repanda* on the basis of the presence or absence of remnants of the leaves' abscission at the top of the pseudobulb internodes ("anulis concentricis coronatis"), a quite trivial character, and the apical position of the inflorescence in *B. repanda*. Apparently, the illustration of *B. catenulata* was prepared from a specimen in early vegetative stage, while the drawing of *B. repanda* illustrates a plant in full vegetation, with the basal cataphylls completely covering the pesudobulb. The plate by Isidro Pulgar shows the inflorescence emerging from the apex of the pseudobulbs, but this characteristic is unlikely. The same interpretation was followed by Pulgar in depicting *Zygopetalum maculatum* (Kunth) Garay (Icones AJB, Div. IV, 1304), where the inflorescence seems to emerge from the upper part of the vegetative growth. In the absence of original specimens, annotated by the Spanish botanists as *B. repanda*, and unaware of Brunete and Pulgar's illustrations of the types, Schweinfurth (1960) considered the name an obscure species, probably not referrable to *Bletia* because of the terminal inflorescence. The illustration of the flower and the floral dissections, however, leave no doubt about the identity of this species, which in my opinion is inseparable from the concept of *B. catenulata*. Ruiz described *B. catenulata* during his stay in Pozuzo from July to September 1784 (Ruiz, 2007: 253; Ms. 43).

The species is known from Brazil, Ecuador, Bolivia and Peru. Here it inhabits grassy, exposed slopes in premontane wet forests at 400-1700 m. The broad petals and the callus of the lip, composed by 3-5 keels, distinguish this species.

7. Catasetum saccatum Lindl., Edwards's Bot. Reg., Misc. 76. 1840. Fig. 9

Type: [Guyana]. "Messrs. Loddiges obtained it from Guayana" ["British Guyana" in *Sertum Orchidaceum*, sub pl. 41. 1838 (post 1840)] (holotype, K).

Icones: AJB, Div. IV, 1247, plant with flower, a single flower and floral dissections, tempera on paper by J.G. Rivera. «José Gab. Rivera del. [signature] / 335 / Maxillaria?».

Herbarium: MA 810799. Plant, sterile. «Gynand. Diand. / Orchys. / F.P.c.l. Nº 335, / Ex Chicoplaya. Aº 97».

The watercolor by Rivera bears the same number as the specimen on the sheet. It unequivocally illustrates *C. saccatum*, a variable species that ranges from Guyana, Venezuela and Brazil, to the Andean chain from Colombia to Peru. The MA specimen comes from the tropical montane forests of Chicoplaya, where it was collected in 1897. In Peru, it is relatively common in premontane wet forests at 600-1000 m.

The species can be recognized by the 3-lobed, flat lip of the staminate flowers, with fimbriate margins and the lateral lobes reflexed. For a list of possible synonyms of *C. saccatum*, see Bennett & Christenson, 1995.

8. Cattleya maxima Lindl., Gen, Sp. Orch. Pl. 116. 1831. Fig. 6D

Type: [Ecuador.] "Habitat in Hayaquil; Ruiz et Pavon. (exam. s. sp. in Herb. Lambert.)" (holotype, BM).

Icones: AJB, Div. IV, 1308, drawing of type, tempera on paper by J.G. Rivera. Plant with flower, immature and dehiscent fruits, floral dissections «I. G. ā R. del. [signature] / 654 / Sobralia».

Herbarium: MA 810743, ISOTYPUS. A leaf and flowers. «Gynandria Diandria / ¿Orchys? / V. Flor de Navidad / F.H. Nº 431. L. 694. / Año de 803» [forests of Canoa, according to Tafalla, 1989]; «Herbarium Peruvianum / Ruiz et Pavon / No. 25/27»; MA 810744, ISOTYPUS. A leaf and flowers [no original label]; «Herbarium Peruvianum / Ruiz et Pavon / No. 25/27».

John Lindley described *C. maxima* on the basis of a specimen from the herbarium of Aylmer B. Lambert, who acquired it from J. Pavón (Miller 1970). Even though Lindley

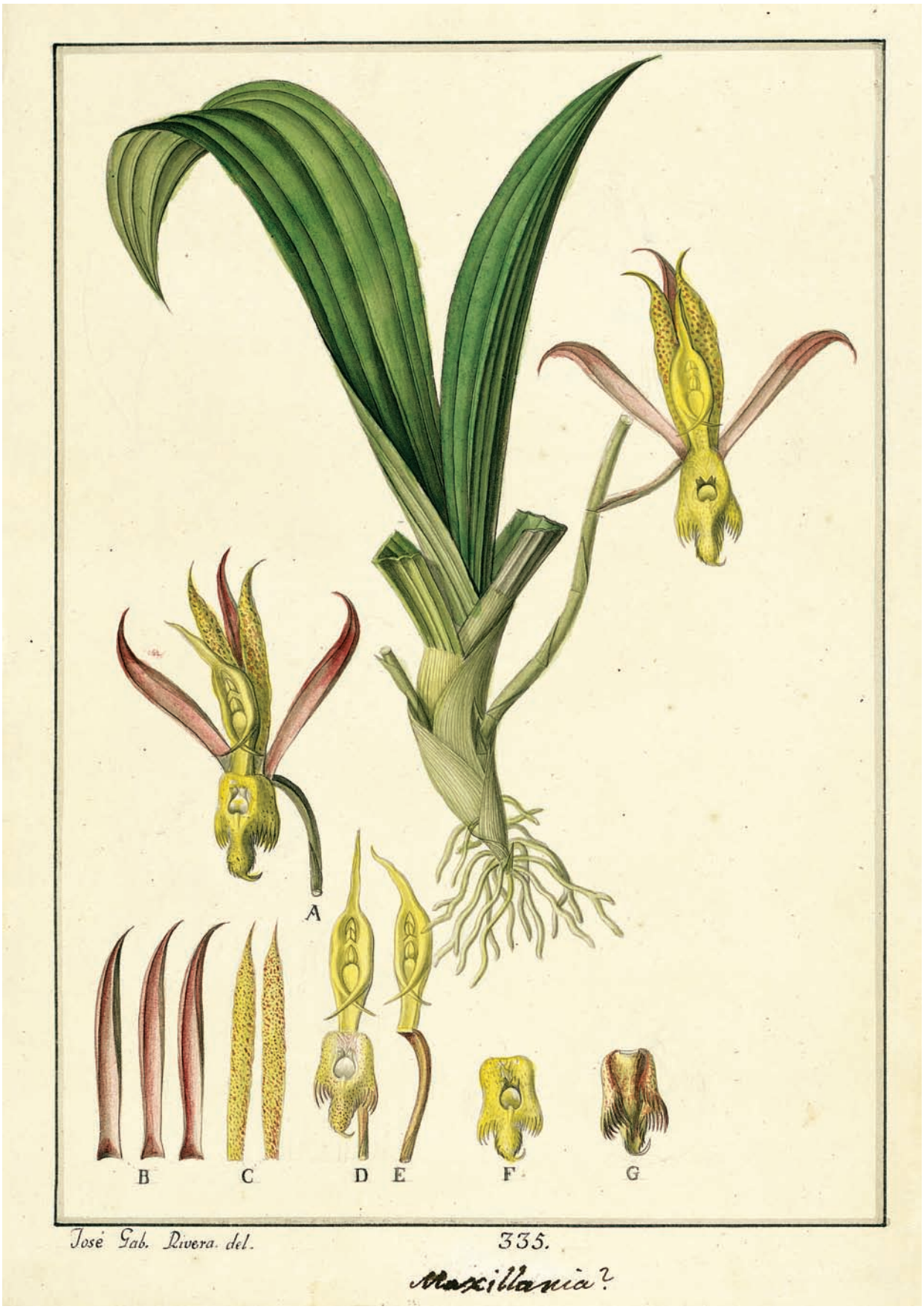

Fig. 9. *Catasetum saccatum.* AJB, Div. IV, 1247, tempera on paper by J.G. Rivera.

considered it a collection by Ruiz and Pavón, the type specimen was collected in 1803 on the coast of Ecuador by Juan José Tafalla, who, following Ruiz and Pavon's footsteps, collected plant material and sent it to Spain from 1785 until his death in 1811. As indicated by the «F.H.» annotation on the label, the illustration was intended as part of the *Flora Huayaquilensis*. Another isotype of *C. maxima* is kept in G (G00169074, digital image!). Dodson and Luer (2005) cited the type of *C. maxima* at P-Lambert, but I can not located this specimen. The species ranges from Colombia to Peru.

In the edition of the *Flora Huayaquilensis* edited by E. Estrella (Tafalla, 1989, Vol. 1: 229-230), the description of «¿Orchys?» by J.A. Manzanilla (AJB, Div. IV, 4, 3) is reproduced, together with Rivera's original illustration (*idem*, Vol. 2, pl. 162).

Once fairly common in the dry forests of Ecuador and Peru, the species has been subject to selective collection for commercial purposes and it is now scarce in its native habitats. According to the a manuscript note by Tafalla, *C. maxima* was locally known as "Flor de Navidad", a vernacular name also recorded for *Encyclia aspera*.

9. Chloraea pavonii Lindl., Gen. Sp. Orchid. Pl. 404. 1840. Fig. 10A

Basionym: *Asarca speciosa* Lindl., Quart. J. Sci. Lit. Arts 23: 52. 1827.

Type: "Habitat in Chili, Pavón (olim v. s. sp.)"; "Serapias Gavilú. Pavón in herb. Lambert", *Pavón s.n.* (holotype, G).

Synonyms: *Chloraea undulata* Raimondi ex Colunga, Lecciones de Botanica 2: 187. 1878.

Type: Peru. Mountains between San Cristóbal de Amancaes and San Bartolomé, *A. Raimondi 471* (holotype, W).

Chloraea peruviana Kraenzl., Bot. Jahrb. Syst. 37: 528. 1906.

Type: Peru. Amancaes near Lima, *A. Weberbauer s.n.* (holotype: B†; photograph of the type, AMES!).

Icones: AJB, Div. IV, 1318, tempera on paper by J. Brunete, upper part of the stem with inflorescence and flowers. «Jph. Brunete [signature] / 4 Serapias latifolia od. Gavilú Tessell.».

Herbarium: MA 810745, plant, fertile. «Gynandria Diandria / latifolia / Serapias foliis ovato-lanceolatis amplexi- / caulibus. Floribus pendulis lineatis. Flos P. / cum L. / Habitat in Provinciae Limae ad Amancaes et Chancay ad Jequar collibus altis inter saxa».

The members of the expedition observed *C. pavonii* at the same location where the type specimens of *C. undulata* and *C. peruviana* were to be collected by Raimondi and Weberbauer a century later, in the low mountains of Amançaes to the north of Lima, at about 500 m. Locally known as the "Lima orchid", *C. pavonii* was once quite common on the hills of Pampa de Amancaes, in the District of Rímac and the Cerro El Augustino, surrounding the capital city of Peru. However, according to Collantes (2006) it is now scarce in these places, mainly due to urban sprawl and the abundance of goat pastures.

In his diary, Ruiz probably refers to this species as *Serapias flava*. It was collected and described in July-August 1781, from the "Mountains, Hills and Vallies of Chancay, Pasamayo, Jequar, Retes and Laral" (Ruiz, 2007: 183; Ms. 22). The local name, "Gavilú", recorded by Pavón (Lindley, 1840) and written on the plate by Brunete, is also used by Ruiz for his *Serapias plicata*, "V. Gavilu and Margaritas [daisies]" (Ruiz, 2007: 211; Ms. 30), collected and described between May and December 1782 from near La Concepción, in Chile, which is cospecific. It is likely that some Peruvian and Chilean specimens were sold by Pavón to Lambert, one of them eventually serving as the holotype for Lindley's description of *Asarca speciosa*. When Lindley transferred his taxon to *Chloraea*, the specific epythet, *speciosa*, was blocked by *C. speciosa* Poepp. (Fragm. Syn. Pl. 14. 1833), and he had to create a *nomen novum* for Ruiz and Pavón's "Gavilu". With the dispersal of the Lambert Herbarium, *C. pavoni* was acquired by the Delessert Herbarium (now in Geneva).

In their excellent account on the identity of *Chloraea pavonii*, Garay and Romero-González (1998) point toward a Peruvian origin of the type specimen; nevertheless, Pavón's original label affixed to the type, «Serapias Gavilu etc.», is the same as Ruiz used for the material originally collected in Chile under the intended name of *Serapias plicata*. A correction label by Carnevali & Ramírez (1988) determined the specimen in MA as *C. reticulata* Schltr., but the flowers of this species are green and white (while the illustration by Brunete shows them distinctly yellow), and populations grow at much higher elevations (3000 to 3500 m).

10. Cischweinfia suarezii Dodson, Icon. Pl. Trop., ser. 2, 5: sub pl. 420. 1989, *vel affinis*. Fig. 11

Type: Ecuador. Napo: Río Napo, La Cruz, 500 m, *G.A. Suárez 104* (holotype, SEL!).

Icones: AJB, Div. IV, 1268, tempera on paper by J. G. Rivera, center and lower left: plant habit with flowers, detail of the flowers and floral dissection. «J. G. R. del [signature] 371 […] / Ophrys? […]».

Herbarium: MA 810800, sterile. «Gynand. Diand. / Ophrys / F. P. c. l. N.º 371. / Ex Chicop. A.º 97.»; «Herbarium Peruvianum / Ruiz et Pavón / 25/32».

After Ruiz, Pavón and Gálvez sailed for Spain in 1788, the two *agregados* Juan José Tafalla and Juan Agustín Manzanilla and the drafstman Juan José Rivera traveled extensively in the region of Huánuco, botanizing in San Antonio de Playa Grande, the Monzón mountains, and Chicoplaya, along the Monzón River. The trio spent almost two years in the mountains, and as a result they came back to Lima at the beginning of 1799 with over 90 illustrations of plants (Tafalla, 1989). Among these, Rivera painted a small orchid collected at Chicoplaya, belonging to the genus *Cischweinfia* Dressler & N.H. Williams. A complete manuscript description of this plant is kept in the Archives of the RJB, with the title «N.º 371. / Gynadria Diandria / Ophrys / […]» (AJB, Div. IV, 4, 3).

Cischweinfia suarezii, the species closest to the plant illustrated by Rivera, was described from the low Amazonian plains of Ecuador, but it has also been recorded in Amazonas and Huánuco provinces in Peru, at elevations of 250 to over 800 m.

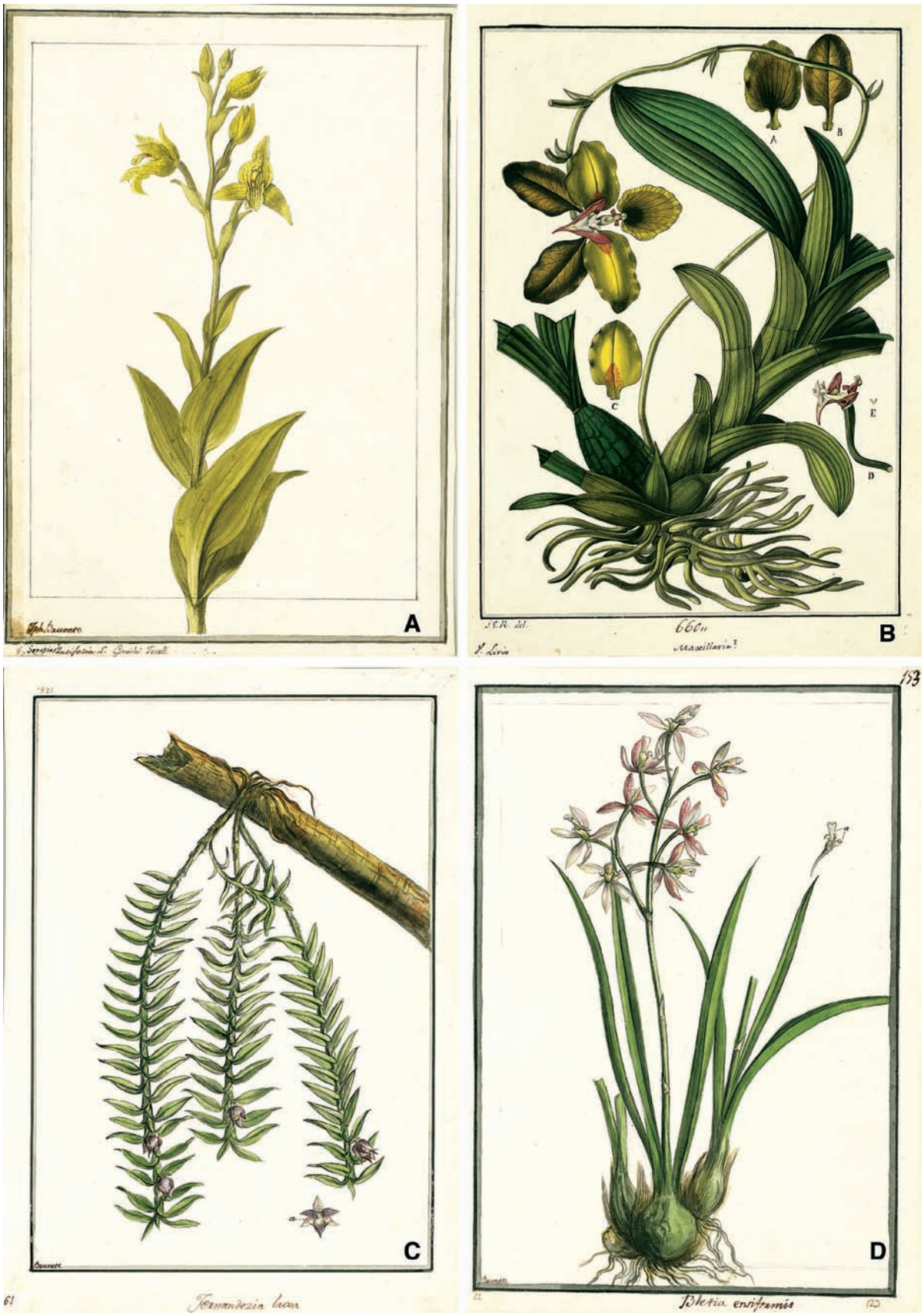

Fig. 10. A, *Chloraea pavonii*. AJB, Div. IV, 1318, tempera on paper by J. Brunete; **B,** *Cyrtochilum macranthum*. AJB, Div. IV, 1249, drawing of type, tempera on paper by J.G. Rivera; **C,** Lectotype of *Fernandezia laxa* (= *Dichaea laxa)*. Pl. 2: 4. 1838. AJB, Div. IV, 1251, tempera on paper by J. Brunete; **D,** *Encyclia cyperifolia*. AJB, Div. IV, 1275, drawing of type of *Bletia ensiformis*, tempera on paper by J. Brunete.

Fig. 11. Left, center and bottom: *Cischweinfia suarezii*, plant habit with flowers, detail of the flowers and floral dissection. Right, center and bottom: *Psygmorchis pumilio*, plant habit with flowers, detail of the flowers and floral dissection. AJB, Div. IV, 1268, tempera on paper by J.G. Rivera.

The species collected at Chicoplaya, however, differs in some details from *C. suarezii*. Sepals and petals are illustrated as white (or slightly tinged with green only toward the apices), the sepals are lanceolate (vs. oblong-obovate), the lip is sessile (vs. shortly unguiculate), narrowly obovate (vs. ovate), straight (vs. deflexed at midpoint), and with a prominent callus that occupies half the length of the lamina (vs. ecallose). Further collections in the region of Chicoplaya may reveal that the *Cischweinfia* of Tafalla deserves specific recognition.

11. Cyclopogon plantagineus Schltr., Beih. Bot. Centralbl., Abt. 2, 37(2, Heft 3): 393. 1920. Fig. 3B

Type: Bolivia. La Paz, *G. Mandon s.n.* (holotype, B?).
Synonyms: *Spiranthes plantaginea* Lindl., Gen. Sp. Orchid. Pl. 468. 1840, *nom. illeg., non* Spreng., Syst. Veg. 3: 708. 1826, replacing *Neottia plantaginea* D. Don, Prodr. Fl. Nepal. 27. 1825, *nom. illeg.*, *non* Raf., Amer. Monthly Mag. & Crit. Rev. 2(3): 206. 1818; *nec Spiranthes plantaginea* (Raf.) Raf., Herb. Raf. 44. 1833, *nom. illeg.*
Beadlea plantaginea Garay, Fl. Ecuador 9: 272. 1978.
Type: Peru. Lima: "Hab. in Peruvia, ad Obrajillo, *A. Mathews 676* (hab. s. sp.)", (holotype, K).
Icones: AJB, Div. IV, 1263, tempera on paper by I. Gálvez, plant habit with flowers and detail of a flower. «Galvez [signature] / 62. Satyrium plantagineum».
Herbarium: No specimens of this taxon are found in MA.

Schlechter originally pubslihed *Cyclopogon plantagineus* as a new combination, which might made it an illegitimate name, as it is based on *Spiranthes plantaginea* Lindl., *nomen illegitimum homonymum*. However, his quote of the Bolivian collection by Mandon could be interpreted as the designation of a new type, which validates the species.

Schweinfurth (1958) treated *C. plantagineus* as one of the several synonyms of the widespread *C. elatus* (Sw.) Schltr., supposedly recorded in southern Florida, through Central America and the West Indies, to Argentina and Uruguay in South America, while both Brako and Zarucchi (1993), and Jørgensen and León-Yánez (1999) accepted it as a valid taxon in their regional checklists for Peru and Ecuador. The large size of the plant illustrated by I. Gálvez, G. Salazar (pers. comm. 2010) also suggests the possibility of identifying it as *C. millei* (Schltr.) Schltr. (Ecuador, Pichincha, the type).

Cyclopogon plantagineus is found in Ecuador, Peru, and Bolivia, where it grows as a terrestrial plant on the floor of premontane to montane wet forests at 1000 to almost 3000 m.

The plate in MA was surely painted from a Peruvian specimen, as Isidro Gálvez sailed back to Spain in 1788 and never visited Ecuador.

12. Cyrtochilum aureum (Lindl.) Senghas, Orchideen 76: 2205. 1997 Fig. 12

Basionym: *Oncidium aureum* Lindl., Sert. Orchid. sub t. 25, no. 5. 1838.
Synonyms: *Odontoglossum aureum* (Lindl.) Rchb.f., Gard. Chron., n.s. 26: 70. 1886. *Odontoglossum aureum* (Lindl.) Garay, Taxon 19: 458. 1970, *nom. illeg.*
Type: Peru. "In montes altos prope Andimarcam", *Mathews 1068* (holotype, K, digital photo!; isotypes, BM!, K).
Odontoglossum bicolor Lindl., Edward's Bot. Reg. 31, Misc. 59, no. 38. 1845.
Type: Peru. "Only known from a drawing by Mathews" [a tracing of plate 112 by F. Pulgar] (K!).
Odontoglossum festatum Rchb.f., Bonplandia 2: 100. 1854.
Type: Peru. "Ruiz & Pavon 112" (holotype, W?; isotype, MA).
Icones: AJB, Div. IV, 1343, tempera on paper by F. Pulgar. Plant with flowers and fruits, single flower, mature fruit and floral dissections. «Fran.co Pulgar [signature] / 112 / Genus novum? [Ruiz]».
Herbarium: MA 810786, inflorescence and flowers. «Cl. 20. oxn. 1ª / 112 / Gynandria Diandria / ¿Ophrys? / F.P.c.l. Nº 112, / ex Palca. Ano 94».

Lindley described *Odontoglossum bicolor* in 1845, noting it was only known from a drawing by Mathews kept in the herbarium of Sir William Jackson Hooker. Around 1832, in Lima, Andrew Mathews had found a duplicate collection of plants of Ruiz and Pavón, along with drawings and manuscripts, which were eventually sent to Hooker at Kew. The colletion included 400 drawings «executed in a very superior style», which Mathews copied in Peru (Mathews, 1832a, 1832b). I was unable to find the final repository of the original plates apparently bought by Mathews. In Lindley's herbarium is kept the ink drawing prepared by Mathews with Lindley's indication «Ruiz & Pav. Mss», it is ostensibly a tracing from plate "112" by Pulgar or from some preliminary sketch of the same plate. On the lower margin, the sheet bears another manuscript note by Lindley, «Od. bicolor», which has been sometimes erroneously interpreted as the type of *Oncidium bicolor* Lindl. (Edwards's Bot. Reg. 29: 66. 1843) and reduced in synonym under *O. aureum*. The type specimen of *O. bicolor*, however, was imported from Colombia by Messrs. Loddiges; Lindley noted its affinty with *O. bifolium*, which is unrelated to *O. aureum*. *Oncidium bicolor* (Lindl.) Beer (1854), based on *Odontoglossum bicolor*, is a later homonym and an illegitimate name. In 1854 Reichenbach *filius* described *Odontoglossum festatum*, once more using *Ruiz & Pavon 112* from Peru as the type. I was unable to locate the actual type specimen, but it should be conserved in W.

The flowers of the typical form of *C. aureum* are like those illustrated by Pulgar, with purplish sepals and the lip yellow, but a concolorous yellow form also exists. The clawed, entire lip, rounded to subtruncate at apex, the fleshy, sulcate callus, and the column provided with porrect, dentate or lacerate wings are diagnostic of the species. *Cyrtochilum aureum* ranges from Ecuador to Peru and Bolivia, where it is found in montane forests at 2000 to 4700 m. In Peru, it is usually restricted to seasonally dry exposed slopes, where it grows terrestrially in clay or gravely soils (Dodson & Bennett, 1989).

Fig. 12. *Cyrtochilum aureum*. AJB, Div. IV, 1343, tempera on paper by F. Pulgar.

13. Cyrtochilum ligulatum (Ruiz & Pav.) Mansf. ex Dalström, Lindleyana 16(2): 67. 2001. Fig. 13

Basionym: *Maxillaria ligulata* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 222. 1798.

Dendrobium ligulatum (Ruiz & Pav.) Pers., Syn. Pl. 2: 524. 1807.

Odontoglossum ligulatum (Ruiz & Pav.) Garay, Caldasia 8(40): 528. 1962.

Type: Peru. "Habitat in Pillao et Acomayo nemoribus", *H. Ruiz & J. Pavón s.n.* (MA!).

Heterotypic synonyms: *Odontoglossum depauperatum* Kraenzl., Bot. Jahrb. Syst. 37: 391. 1906.

Dasyglossum depauperatum (Kraenzl.) Königer & Schildhauer, Arcula 1: 6. 1994.

Trigonochilum depauperatum (Kraenzl.) Senghas, J. Orchidées 10: 284. 2003.

Type: Peru. *A. Weberbauer 4443* (B†, photo of holotype, AMES!).

Icones: AJB, Div. IV, 1245, illustration of type, tempera on paper by I. Gálvez. Habit, inflorescence with flowers, detail of he column and lip. «146 / Galvez [signature] / Maxillaria ligulata [Ruiz]».

Herbarium: MA 810793 TYPUS. Plant and inflorescence with immature buds. «Arethusa [crossed] / Maxillaria / volubilis [crossed] ligulata [Ruiz] / Pillao 1787»; «Herbarium Peruvianum / Ruiz et Pavon / 5/12». MA 810794 TYPUS. Plant and inflorescence with immature buds. «Herbarium Peruvianum / Ruiz et Pavon / 5/12». MA 810795 TYPUS. Plant, sterile. «Herbarium Peruvianum / Ruiz et Pavon / 5/12».

The type specimens of *Maxillaria ligulata* were collected "during our excursions in the mountains of Pillao and Chacahuasi", from August to October 1787 (Ruiz 2007: 301; Ms. 58), and the original descrption of the species was prepared in Chacahuasi in October 1787 (idem: 303; Ms. 59).

The species is seemingly restricted to the provinces of Amazonas and Cusco in Peru, at elevations of 2700-3100 m.

14. Cyrtochilum macranthum (Lindl.) Kraenzl., Notizbl. Bot. Gart. Berlin-Dahlem 7: 95. 1917. Fig. 10B

Basionym: *Oncidium macranthum* Lindl., Gen. Sp. Orchid. Pl. 205. 1833.

Type: [Ecuador]. "Hab. In Guayaquil, Ruiz et Pavon (exam. florem unicum s. in herb. Lambert)" (not located).

Icones: AJB, Div. IV, 1249, drawing of type, tempera on paper by J. G. Rivera, habit with flower and floral dissections. «J. G. R. del. [signature] / 660 / Maxillaria? / V. Lirio».

Herbarium: MA 810746, ISOTYPUS. Leaves, inflorescence and flowers. «Indet. Ex Gynan / N. 439. ignota / L. 660.»; «Herbarium Peruvianum / Ruiz et Pavon / 25/37»; "Forests of San Antonio, near Huaranda in the Andean region" (Tafalla, 1989, Vol. 1: 235).

The number of the specimen kept in MA corresponds to the plate painted by José Gabriel Rivera and sent to Madrid on February 21, 1804 (Tafalla, 1989). A full description of the species by J.A. Manzanilla (AJB, Div. IV, 4, 3), under the "*Gynandria indeterminata*" and originally intended for the *Flora Quitensis*, is reproduced in Tafalla (1989, Vol. 1: 234-235) together with the original illustration (*idem*, Vol. 2: pl. 166).

A tall epiphyte with long inflorescences (to over 3.5 m long) and unmistakable flowers, *C. macranthum* is restricted in distribution to the tropical regions of the Andes, from Colombia to Peru, where it inhabits montane cloud forests up to 3000 m. On the illustration by Rivera, Tafalla recorded the vernacular name of the species as "Lirio" (*lily*).

15. Cyrtochilum parviflorum (Ruiz & Pav.) Pupulin, **comb. nov.** Fig. 14

Basionym: *Bletia parviflora* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 231. 1798, non Rchb.f., Ann. Bot. Syst. 6: 439. 1862, *nom. illeg. homon*.

Type: Peru. "Habitat in Peruviae montibus ad Palca arcem, unde cl. Tafalla iconem misit", *J.J. Tafalla s.n.* (holotype, MA!).

Synonyms: *Odontoglossum fractum* Rchb.f. Linnaea 41: 26. 1877, **syn. nov**.

Dasyglossum fractum (Rchb. f.) Königer & Schildhauer, Arcula 1: 6. 1994, **syn. nov**.

Trigonochilum fractum (Rchb.f.) Senghas, J. Orchidées 10: 284. 2003, **syn. nov**.

Type: "N. Granada?", *Roezl s.n.* (holotype, W; photo, AMES!).

Odontoglossum microthyrsus Kraenzl., Bot. Jahrb. Syst. 37: 390. 1906, **syn. nov**.

Type: Peru. Junín: Berge östlich von Palea [Palca]. Steppe mit eingestreuten Sträuchern. Gräser zahlreich, aber klein, in 2700-3000 m, *Weberbauer 2447* (holotype, B†; photo, AMES!).

Icones: AJB, Div. IV, 1273, drawing of type, tempera on paper by F. Pulgar. Plant with flowers and fruits, single fruit, flower and floral dissections. «Fran.co Pulgar [signature] / 135 / Bletia parviflora [Ruiz]».

Herbarium: MA 810787, HOLOTYPUS. Leaf and inflorescence with flowers. «Cla. 20 oxn 1ª / Gynandria Diandria / Orchys? / F.P.c.l.d.N.º 135. / Ex Palca… Año 94» [Tafalla]; «Herbarium Peruvianum / Ruiz et Pavón / 25/16».

Due to the very short and generalized diagnosis of *Bletia parviflora*, and the lack of any indication on the type sheet of the name eventually published by Ruiz and Pavón in their *Systema*, this species remained until now an obscure concept. Schweinfurth (1960) maintained it in the genus *Bletia*, quoting Ruiz and Pavón's type locality, but also considered it an obscure species. However, the finding of the original illustration of *B. parviflora* clearly allows this concept to be assigned to the genus *Cyrtochilum*. The botanical plate by Francisco Pulgar clearly illustrates the small-sized plants, the paniculate inflorescence and the details of the flower. The number of the plate corresponds to that written by Tafalla on the original label of MA 810787, which served as the voucher for the illustration. The Archives of the RJB also

Fig. 13. *Cyrtochilum ligulatum*. AJB, Div. IV, 1245, illustration of type, tempera on paper by I. Gálvez.

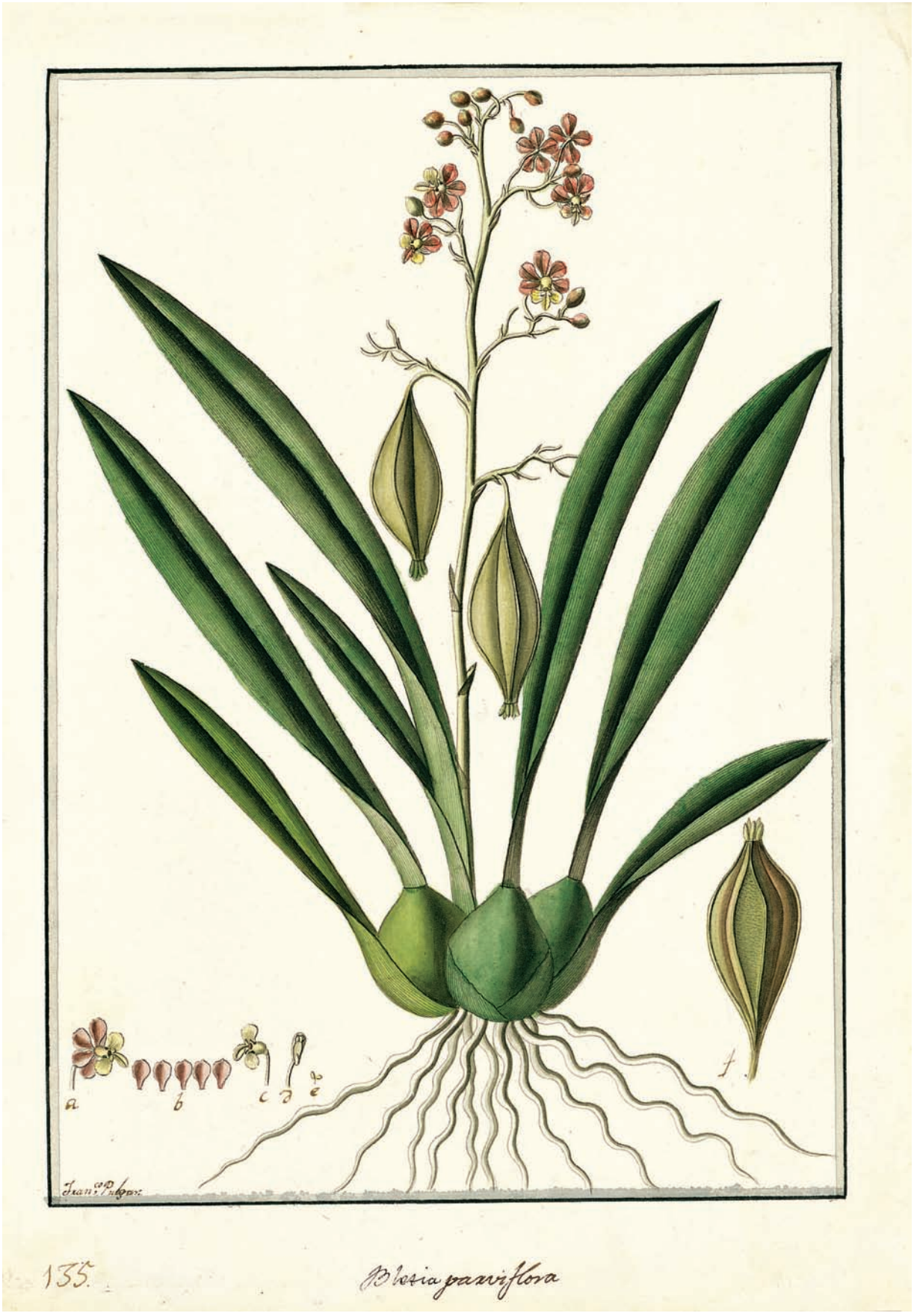

Fig. 14. *Cyrtochilum parviflorum*. AJB, Div. IV, 1273, drawing of type, tempera on paper by F. Pulgar.

conserve the original, manuscript description by Tafalla (AJB, Div. IV, 4, 3), under the title «L. 135. / Gynadria Diandria / Orchys […]». Ruiz crossed out the name written by Tafalla and added with his initial the name «Bletia parviflora».

Among the species of the genus *Cyrtochilum*, the reduced plants with ovoid, two-leaved pseudobulbs that are glossy in maturity (aging longitudinally grooved), the branched inflorescence with small (>1.5 cm), dark purple flowers with a 3-lobed, cream-white lip and the yellow callus, are diagnostic of the species. *Bletia parviflora* is the first name used for the species later described by Reichenbach as *Odontoglossum fractum* on the basis of a Colombian specimen collected by B. Roezl, and again by Mansfeld from another Peruvian type as *O. microthyrsus*, also collected from the vicinity of Palca.

Cyrtochilum parviflorum is known from Colombia to Peru, where it inhabits cool montane forests at 1600-2300 m.

16. Cyrtochilum triphyllum (Ruiz & Pav.) Pupulin, **comb. nov.** Fig. 15

Basionym: *Maxillaria triphylla* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil 1: 225. 1798.

Type: Peru. Huánuco: "Habitat in Tarmae Provinciae nemoribus versus Vitoc et Collac vicos, praesertin ad fluvii Maraynioc littora, ubi Joannes Tafalla eam delineavit", *J.J. Tafalla s.n.* (lectotype, MA).

Icones: AJB, Div. IV, 1246, drawing of type, selected here as the LECTOTYPUS; tempera on paper by F. Pulgar, plant habit with flowers, detail of a flower and floral dissections. «Fran.co Pulgar [signature] / 195 / 13 Maxillaria triphylla [Tafalla]».

Herbarium: No original material of this taxon is known to exist.

Ruiz and Pavón probably knew *Maxillaria triphylla* only through the illustration prepared by Francisco Pulgar on the basis of a plant collected in the region of Tarma, where Tafalla and Pulgar collected in Maraynioc and Vitoc between 1789 and the end of 1792, and again in 1794. The plate, chosen as the lectotype in the absence of any specimen associated with the protologue, was also sent to Madrid in the same period, when Pulgar remitted 94 drawings between 1789 and 1791, and other 165 plates on March 1793 (Steele, 1964). Pulgar's illustration clearly shows the ovate, ancipitous, ridged and grooved pseudobulbs, carrying 2-3 narrowly elliptic, erect, subacuminate, dark green leaves; the slightly fractiflex rachis of the inflorescence; the golden yellow flowers marked with brownish red in the basal half, the column and the callus purple; the distinctly unguiculate, ovate, subacuminate sepals and petals and the subsimilar lip, provided with a quadriseriate-gbberous callus, which are diagnostic of *C. triphyllum*.

Cyrtochilum triphyllum is closely related (and maybe cospecific) with *C. auropurpureum* (Rchb. f.) Dalström, a species found in wet, cloud forests in Colombia, Ecuador and Peru, where it grows as an epiphyte or terrestrial at elevations of 2500 to over 3500 m. In Peru, populations of *C. auropurpureum* have been recorded in Cuzco and Junín provinces. For other possible synonyms of *C. auropurpureum* (as *Odontoglossum*), see the treatment by Schweinfurth (1961) and the checklists by Brako and Zarucchi (1993) and Jørgensen and León-Yánez (1999).

17. Dichaea angustisegmenta Dodson, Icon. Pl. Trop. 1: sub pl. 40. 1980, *vel affinis*. Fig. 16

Type: Ecuador. Los Ríos: Río Palenque Science Center, km 56 Quevedo-Santo Domingo, 220 m, 17 Apr. 1973, *C.H. Dodson & C.A. Luer 5252* (holotype, SEL!).

Icones: AJB, Div. IV, 1267, tempera on paper by J.G. Rivera, plant habit with flowers [top, right], flower, floral dissections and fruits [bottom right]. «J. G. R. del. [signature] / […] 373.».

Herbarium: No material of this taxon was found in MA.

The illustration by J.G. Rivera depicts a species of *Dichaea* of section *Pseudodichaea* Cogn., characterized by plants with deciduous leaves and muricate ovary. Several closely related species of this group have been recorded in the Andes of Ecuador and Peru. Among them, the illustration number «373» seemingly agrees with *D. angustisegmenta* – originally described from the Pacific side of the Andean chain in Ecuador – in the very narrow floral parts and the anchoriform lip provided with acute lateral lobe and a long-acuminate apical lobe. It differs form this taxon in the color of the lip, which the protologue describes as bluish instead of white.

The Archives of RJB conserve an unpublished manuscript by Tafalla, headed «L. N° 373. / Gynadria Diandria / Ophrys / […]», which contains a detailed description of the species. According to the manuscript, the plant illustrated by J.G. Rivera was collected in the wet forest of Chicoplaya («Habitat Silvis Chicoplayae supra Arbores»).

Dichaea angustisegmenta is known in Ecuador and Peru, where it has been recorded as an epiphytic plant in tropical to premontane wet forests, at 200 to 1200 m.

18. Dichaea laxa (Ruiz & Pav.) Poepp. & Endl., Nov. Gen. Sp. Pl. 2: 4. 1838. Fig. 10C

Basionym: *Fernandezia laxa* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 240. 1798. *Epithecia laxa* (Ruiz & Pav.) Schltr., Orchis 9: 26. 1915.

Type: Peru. "Habitat in Muña supra arbores et saxa", *H. Ruiz & J. Pavón s.n.* (lectotype, MA).

Icones: AJB, Div. IV, 1251, drawing of type, selected here as the LECTOTYPUS, tempera on paper by J. Brunete. Habit with flowers on a branch and single flower. «126 [rever.] / Brunete [signature] / 61 / Fernandezia laxa [Ruiz]».

Prodromus: Ic. 27, FERNANDEZIA, Fig. 1. The flower was probably engraved from the original illustration.

Herbarium: No material of this taxon is present in MA.

The plant is slender, with compressed stems to 50 cm long, the narrow leaves articulated to caulinar sheaths, the muricate ovary (that transforms into an echinate capsule), and the campanulate, violet flowers provided with a sagittate lip with a broadly ovate, mucronate lamina and subulate basal lobes, and the column without infrastigmatic ligule,

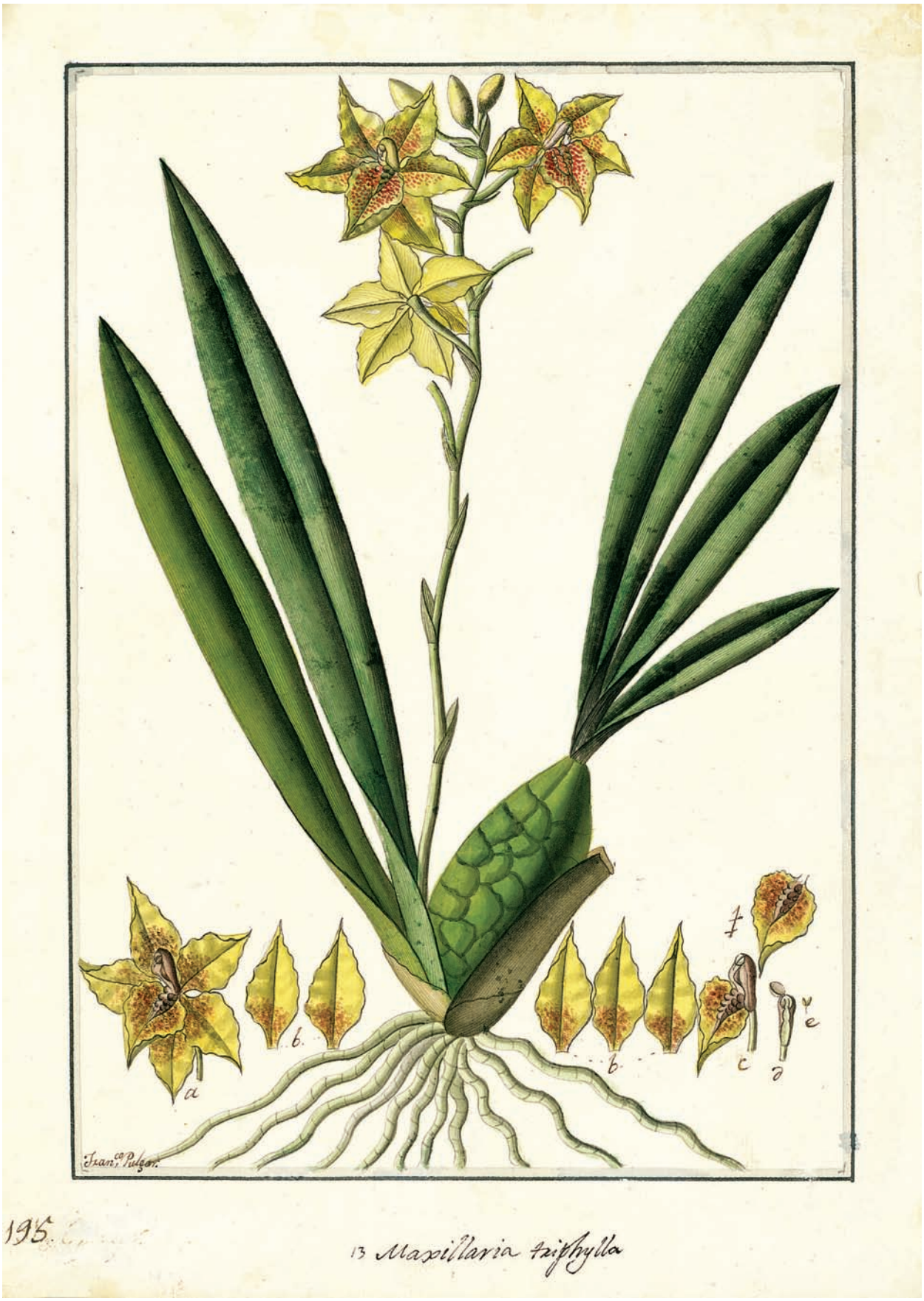

Fig. 15. Lectotype of *Maxillaria triphylla* (= *Cyrtochilum triphyllum)*. AJB, Div. IV, 1246, tempera on paper by F. Pulgar.

Fig. 16. Top, right, and bottom right: *Dichaea angustisegmenta vel affinis*. Middle, left, and bottom, left: *Elleanthus* aff. *killipii*. AJB, Div. IV, 1267, tempera on paper by J.G. Rivera.

are diagnostic of the species. According to the Journal by Ruiz, the original description and illustration of *Fernandezia laxa* were prepared during the stay of the Expedition in Muña in August-September 1786 (Ruiz, 2007, 287; Ms. 55). The illustration by Brunete, selected as the lectotype, clearly shows the habit of the plant and the characteristics of the flower.

Dichaea laxa is known from Colombia and Ecuador to Peru, where it grows in shaded spots of wet forests at 1100 to 3000 m.

19. Elleanthus discolor (Rchb. f. & Warsz.) Rchb. f., Ann. Bot. Syst. 6: 480-481. 1862. Fig. 3C

Basionym: *Evelyna discolor* Rchb. f. & Warsz., Bonplandia 2: 113. 1854.

Type: Peru. Without specific locality, *J. Warszewicz s.n.* (holotype, W).

Icones: AJB, Div. IV, 1321. Tempera on paper by J. Brunete, plant habit with flowered and fruited inflorescences, floral dissection and fruit. «Brunete [signature] / 55. Limodorum croceum [Ruiz]».

Herbarium: No material of this taxon is present in MA.

One would be tempted to identify the illustration by J. Brunete with the isotype of *Evelyna ruizii* Rchb.f. [= *Elleanthus ruizii* (Rchb.f.) Rchb.f.] conserved in MA (810753), a species originally described from a single, fruiting specimen in bad condition (Reichenbach 1854b), probably obtained from Delessert's collection in Geneva, which in turn was part of the original materials of the Expedition kept at the Oficina Botánica and sold by J. Pavón (the type, "Limodorum. In Peruviae nemoribus", *H. Ruiz s.n.*, W, G, MA). According to Reichenbach (1854b), *E. ruizii* is mainly distinguished from other similar taxa by the petals which are dilated and denticulate at apex, a feature that Garay (1978b) considered quite inconsistent. Several details in Brunete's plate, however, prevent such an identification.

The plate by J. Brunete surely depicts a species of *Elleanthus* of section *Hymenophora*, characterized by a terminal commonly elongate inflorescence, densely spicate rhachis, and with the basal calli of the lip partially hidden behind a transverse membrane. In Peru this group includes several closely allied species, amongst which are *E. curtii* Schltr., *E. discolor*, *E. hymenophorus* (Rchb. f.) Rchb. f., *E. oliganthus* (Poepp. & Endl.) Rchb.f., and *E. ruizii*, which can be distinguished on the basis of subtle morphological differences in flower details. Unfortunately, some of the critical characters are not shown in Bruenete's illustration as the floral parts were too small to be detailed with a pencil at their actual size.

Nevertheless, the sepals are apparently drawn as evenly keeled along the midvein (vs. erose, irregular keels in *E. ruizii*), and the transversal membrane that conceals the basal cavity is seemingly lunate (vs. deeply excised in *E. ruizii*), two features that better correspond to the concept of *E. discolor* (see Garay, 1978b: fig. 24B).

No manuscripts referring to this species are conserved in the Archives of the RJB. The manuscript name, «Limodorum croceum», written in Ruiz's handwriting on the illustration by Brunete, must not be confused with *Epidendrum croceum* Ruiz & Pav., a complete description of which is kept among the unpublished manuscripts of the *Flora Peruviana et Chilensis* («207 / Gynadria Diandria / Epidendrum croceum / […]», AJB, Div. IV, 4, 3), with the explicit indication of «sine icone» (without illustration). A sheet in MA (810754) is annotated in Ruiz's handwriting as «Gynandria / Limodorum / croceus», but the specimen does not correspond to the illustration by Brunete. The inflorescence, which only bears fruits, is short and capitate-hemiglobose, whereas the plant illustrated by J. Brunete has an elongate, conical inflorescence. G. Carnevali and I. Ramírez tentatively identified this specimen (correction label 1988) as *Elleanthus* aff. *sphaerocephalus* Schltr., a species of broad distribution, found from Venezuela to Peru and Bolivia.

Elleanthus discolor is known at least from Colombia to Peru, where it inahbits tropical to submontane wet forests between 500 and 1500 m.

20. Elleanthus sp., aff. *E. killipii* Garay Fig. 16

Icones: AJB, Div. IV, 1267, tempera on paper by J.G. Rivera, apex of stem with inflorescence and flowers (middle, left), single flower and floral analysis (bottom, left). «J. G. R. del. [signature] 400 / Ophrys lappacea / […]».

Herbarium: MA 810751, plant, fertile. «Gynand. Diandria / Ophrys viscosum / F. P. c. l. N.º 400. / Ex Chicoplaya. A.º 98» [Tafalla]; «Herbarium Peruvianum / Ruiz et Pavon / 25/36».

The species apparently belongs to *Elleanthus* Sect. *Cephalelyna* (Rchb.f.) Rchb.f., typified by *Evelyna casapensis* Rchb.f. This group has been reviewed by Garay (1978a), who presented a synopsis and a key to the species of the section as a contribution in preparation of the orchid flora of Colombia and Ecuador (Garay, 1978b). According to Garay (1978a), the ten species of Sect. *Cephalelyna* are characterized by the terminal, capitate inflorescence with the rachis shortened into a subglobose head, a set of features that fit well the plant illustrated by Rivera and to the correspondent *exsiccatum* (MA 810751). However, while one of the diagnostic characters of Sect. *Cephalelyna* is the presence of a prominent, infrastigmatic protuberance, forming a distinct mentum under the column, such an adaxial extension of the column is absent in the *Elleanthus* species accurately painted by Rivera. The lip of MA 810751 is distinctly ovate, somewhat resembling that of *E. killipii* Garay (the type, Colombia. El Valle, Buenaventura, *Killip 11760*, AMES), which is also resembles in the narrow, apparently one-veined petals and the pale purple flowers. It differs from *E. killipii* by the subacute lip (vs. broadly obtuse, tridenticulate) and the column without stigmatic arms.

MA 810751 has been previously determined by Mansfeld (correction label, 1934) as *E. capitatus* (Poepp. & Endl.) Rchb.f. (the type, Peru. Near Cuchero, *Poeppig s.n.,* W), but the latter species has a transversely elliptic-flabellate, lip with erose-dentate margin. G. Carnevali & I. Ramírez (correction label, 1988) determined the specimen as *E. sphaerocephalus* Schltr. (the type, Colombia. Bei Pasto, *W. Hopp 33*, B, destroyed). However, according to the pro-

tologue (Schlechter, 1924), the lip of the latter species is distinctly cuneate-subflabellate. The species is also comparable with *E. casapensis* (Rchb.f.) Rchb.f. (the type, Peru. Casapi, *A. Mathews 1891*, W), probably the most common species of the group in the Andes, ranging at least from Colombia to Peru, but the latter has orbicular lip, bilobed-excised at apex, with minutely erose-denticulate margins.

The Archives of RJB conserve a *recto et verso* manuscript by Tafalla, which includes a detailed description of the species, headed «L. Nº 400. / Gynadria Diandria / Ophrys? / […]». According to the manuscript, the species «Habitat Silvis Chicoplaya [sic] supra Arbores» (AJB, Div. IV, 4, 3).

Several other specimens of *Elleanthus* Sect. *Cephalelyna* are kept in MA, but they are not part of the same collection as the plant from Chicoplaya illustrated by J.G. Rivera. They were filed under the «Herbarium Peruvianum / Ruiz et Pavon» with number 2495, and were apparently received in Madrid at different dates: MA 810748 is from the antique general herbarium («Ex antique herbaria generali»), while MA 810749 has an original label stating «Ophrys / Chicoplaya. / Ex Herb. Fl. Pe/ruv. 1828», and MA 810750 was annotated in Ruiz's handwriting «Limodorum? an orchis?».

21. Encyclia aspera (Lindl.) Schltr., Beih. Bot. Centralbl. 36(2): 471. 1918. Fig. 17A

Basionym: *Epidendrum asperum* Lindl., J. Bot. (Hooker) 1: 6. 1834.

Type: Ecuador or Colombia. "Panama et Columbia occidentalis", *Cuming 1250* (holotype, K).

Icones: AJB, Div. IV, 1294, tempera on paper by X. Cortés, habit with inflorescence and flowers, single flower and floral dissections. «Xavier Cortes del. [signature] / 607 / Epidendrum».

Herbarium: MA 810755, fertile. Ecuador. Guayaqil, 1802 (according to Tafalla, 1989). «Ginandria Diandria / Epidendrum. / V. Flor de Navidad / F. H. D. N 373. L. 607 / Año de 1802» [the same vernacular name, "Flor de Navidad" is also recorded for *Cattleya maxima*]; «Herbarium Peruvianum / Ruiz et Pavon / 4/84». MA 810757, inflorecences with flowers. «Gynandria Diandria / N 373 L. 607 / Año 1802» [modern letter in pencil, copy of the original label]; «Epidendrum / V. Flor de Navidad. / Hayaquil. / Ex Herb. Fl. Peruv. / anno 1810». MA 810756, fertile. «Herbarium Peruvianum / Ruiz et Pavon /4/84».

The plate painted by Xavier Cortés was sent to Madrid on March 14, 1803 (Tafalla, 1989), and it bears the same number as the specimen kept in MA. A full description of the species, manuscript by J.G. Rivera (373: AJB, Div. IV, 4, 3), as "*Epidendrum* sp." and originally intended for the *Flora Huayaquilensis*, is reproduced in Tafalla (1989, Vol. 1: 233) together with the original illustration (*idem*, Vol. 2: pl. 165). The specimens in MA were surely collected in coastal Ecuador, during the preparatory work by Tafalla and J.A. Manzanilla for the Flora of Guayaquil.

The species is known from Colombia to Peru, where it still relatively common in the semi-dry forests of the coastal range. The rough inflorescence, ovaries and lip veins (from which the specific epythet), the ocher to yellow flowers with cream lip, well spaced on a panicle and very fragrant, are diagnostic. For a list of possible sysnonyms of *E. aspera*, see Withner 2000.

22. Encyclia cyperifolia (C. Schweinf.) Carnevali & I. Ramírez, Monogr. Syst. Bot. Missouri Bot. Gard. 45: 1257. 1993. Fig. 10D

Basionym: *Epidendrum cyperifolium* C. Schweinf., Bot. Mus. Leafl. 16: 10. 1953.

Type: Peru. Loreto: upper Marañon River at the mouth of the Santiago River, 160 m, in rain forest, *Tessmann 4301* (holotype, AMES).

Synonyms: *Bletia ensiformis* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 230. 1798. *Encyclia ensiformis* (Ruiz & Pav.) Mansf. (cited in Roberts & al. 2002, without bibliographical reference; I was unable to retrieve the original publication of Mansfeld's combination) [non *Encyclia ensiformis* (Vell.) Hoehne, Arq. Bot. Estado São Paulo 2: 151. 1952 (bas. *Epidendrum ensiforme* Vell., Fl. Flumin. 9: t. 2. 1831) = *Encyclia oncidioides* (Lindl.) Schltr.].

Type: Peru. "Habitat in nemoribus Pozuzo supra arbores et saxa versus Cheniço et Tramo tractus" *H. Ruiz & J. Pavón s.n.* (holotype, MA).

Icones: AJB, Div. IV, 1275, drawing of type of *Bletia ensiformis*, tempera on paper by J. Brunete, habit with flowers, detail of the lip and column. «153 / Brunete [signature] / 61 / Bletia ensiformis [Ruiz] / 123».

Herbarium: MA 810758, TYPUS, fertile. «Gynandria Diandria. /Bulbi super terram aggregati, rugo / si, subrotundo ovati. / vease mi descripcion Generica y Difi / nicion en mi Flora peruana segun / y como se puede ver q.e sigue. / Bletia ensiformis» [Ruiz]; «Herbarium Peruvianum / Ruiz et Pavón / 4/89».

Distributed from Ecuador to Peru, Bolivia and Brazil, *E. cyperifolia* inhabits wet tropical to premontane forests from 50 to 1200 m, where it mostly occurs in warm to hot regions. The ovoid-pyriform, lightly sulcate pseudobulbs with 3-4 coriaceous, narrowly linear leaves, the paniculate inflorescence and the dark rose flowers – frequently non resupinate – with distinctly porrect petals, the lateral lobes of the lip antrorse-recurved and the strongly recurved midlobe lip, distinguish the species.

According to Ruiz's diary, the original description of *B. ensiformis* was prepared when the Expedition was in Pozuzo, from July to September 1784 (Ruiz, 2007: 253; Ms. 43).

23. Epidendrum cordatum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 244. 1798 (non Vell. 1831, *nom illeg.*). Fig. 17B

Type: Peru. "Habitat in Chinchao montibus nemorosis et runcationibus supra arbores et saxa", *H. Ruiz & J. Pavón s.n.* (lectotype, MA).

Icones: AJB, Div. IV, 1286, drawing of type, tempera on paper by I. Gálvez, selected here as the LECTOTYPUS. «Galvez [signature] / 11 / Epidendrum cordatum [Ruiz]».

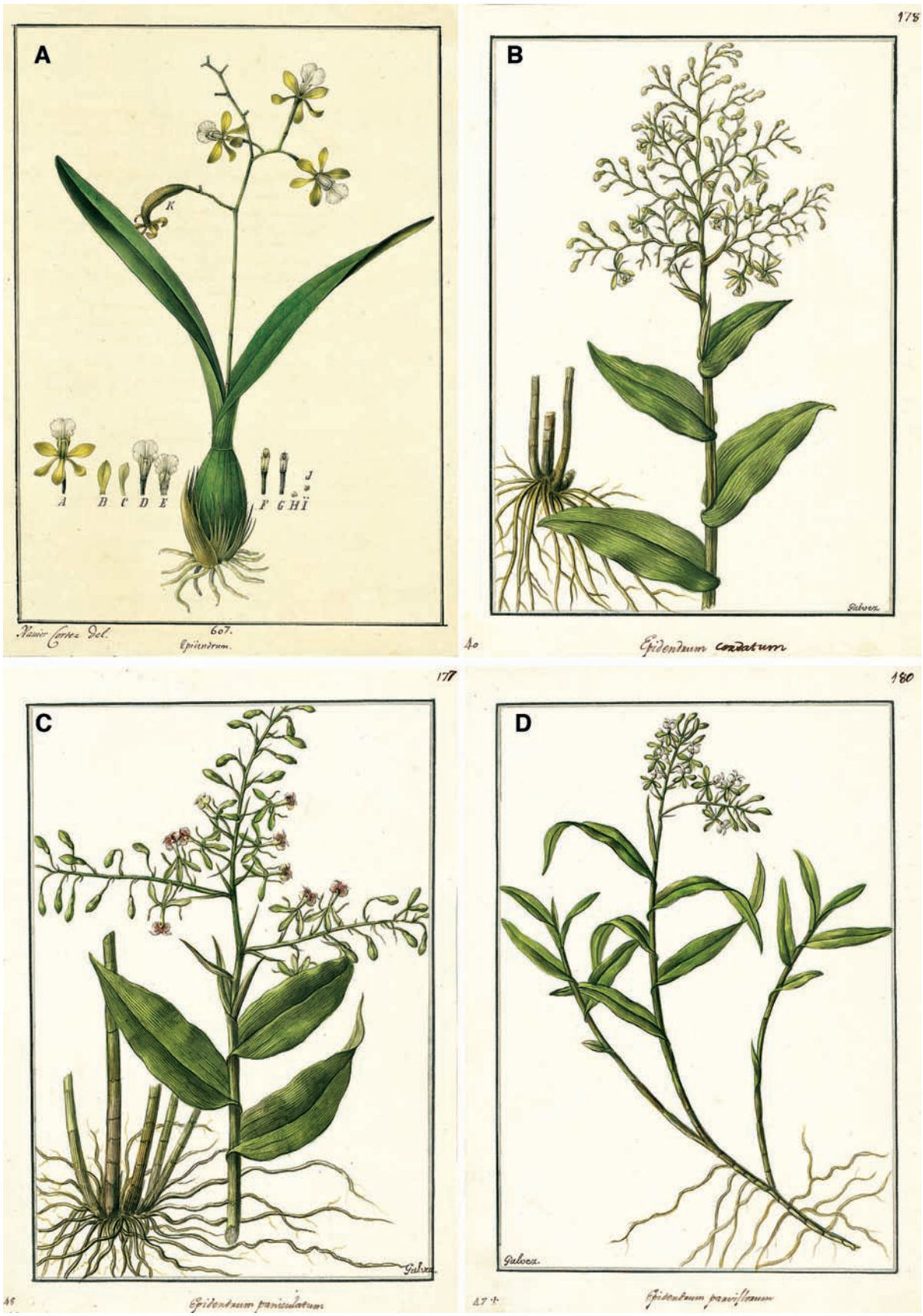

Fig. 17. A, *Encyclia aspera*. AJB, Div. IV, 1294, tempera on paper by X. Cortés; **B,** Lectotype of *Epidendrum cordatum*. AJB, Div. IV, 1286, tempera on paper by I. Gálvez; **C,** *Epidendrum paniculatum*. AJB, Div. IV, 1285, drawing of type, tempera on paper by I. Gálvez; **D,** *Epidendrum parviflorum*. AJB, Div. IV, 1288, drawing of type, tempera on paper by I. Gálvez.

Herbarium: apparently, no specimens of *E. cordatum* are preserved among the materials of the Expedition conserved in Madrid. MA 810709, sterile, is a reed stemmed *Epidendrum* species with lanceolate-cordate leaves, similar to those illustrated by Gálvez in his plate 11. From the short remnants of the inflorescence, however, it is impossible to state if it was originally paniculate.

Prodromus: Ic. 27, EPIDENDRUM, Fig. 3. In the engraved plate, probably prepared from the original illustration, the position of the petals and the lateral sepals is inverted.

This species is distinguished by an erect, reed-stem habit with laceolate to narrowly cordate leaves embracing the stem, a paniculate inflorescence and pale yellow flowers with white lip – the lamina of the lip distinctly 3-lobed, with the lateral lobes semicirculare, crenulate, and the midlobe long-bilobulate; the falcately triangular lobules are transversely divergent. The original illustration by Isidro Gálvez, annotated by Ruiz and selected here as the lectotype, clearly shows the habit, the paniculate inflorescence, and the characteristics of the flowers.

According to Ruiz's diary, the description of *E. cordatum* was prepared in Huánuco in 1785-86, after the destruction of the original manucript during the fire in Macora in August, 1785 (Ruiz, 2007: 281; Ms. 53).

Since its publication in 1798, *E. cordatum* has traditionally been a poorly known species. Schweinfurth (1959: 424) considered it an obscure entity, and Vasquez and Ibisch (2004) treated the name as a synonym of *Prosthechea fragrans* (Sw.) W.E. Higgins, which is in contrast with the protologue ("foliis cordatis amplexicaulibus, panicula flexuosa"). The species is apparently endemic to Peru.

24. Epidendrum coronatum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 242. 1798. Fig. 18

Type: Peru. Huánuco: "Habitat in Pozuzo supra arbores et saxa", *H. Ruiz & J. Pavón s.n.* (type, MA).

Synonyms: *Epidendrum sulphuroleucum* Barb. Rodr., Gen. & Sp. Orch. Nov. 1: 56. 1877.

Type: Brazil. Minas Geraes; Dans la serra da fazenda de Santa Rosa, au Carmo do Rio Claro [holotype, Herb. Barb. Rodr.†; lectotype, designated by Hágsater (2008), Icon . Orch. Brésil, tab. 380 (vol 4: t. 20), original illustr., AMES, published in S. Sprunger (ed.), Icon. Orch. Brésil 1: t. 283. 1996].

Epidendrum moyobambae Kraenzl., Repert. Spec. Nov. Regni Veg. 1(12): 185. 1905.

Type: Peru. Loreto: bei Moyobamba. Wald (ziemlich trocken, Sträucher spärlich) in 800-900 m, *Weberbauer 4563* (holotype, S†, photo, AMES!).

Epidendrum subpatens Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 40. 1922.

Type: Panama. Im Gebiete des Gatun-Sees und auch in Veraguas bei Santiago, *C. Powell 86* [holotype, B†; isotypes, AMES!, selected by Christenson (1991) as the lectotype, K, MO).

Epidendrum benignum Ames, Schedul. Orch. 2: 26. 1923.

Type: Costa Rica. Guanacaste: Forêts de Nicoya, May 1900, *A. Tonduz 13928* (holotype, US, not seen).

Epidendrum amazonicum Schltr., Bot. Centralbl. 42(2): 78. 1925.

Type: Brazil. Baixo, Rio Branco, Jan. 1913, *G. Kuhlmann 780* (holotype, B†; isotype, AMES, photo!).

Icones: AJB, Div. IV, 1283, drawing of type, tempera on paper by I. Gálvez. «Galvez [signature] / 63 / Epidendrum coronatum [Ruiz]».

Herbarium: MA 810705, TYPUS. Plant, flowers. «Epidendrum / coronatum» [Ruiz]. «Herbarium Peruvianum / Ruiz et Pavón / 4/71». MA 810706, TYPUS. Apex of stem with inflorescence and flowers, detached leaves [upper leaf probably not from the same specimen]. «Herbarium Peruvianum / Ruiz et Pavón / 4/71».

Prodromus: Ic. 27, EPIDENDRUM, Figs. 1, 2, 4. The two flowers on the left and the detail of the column and lip were likely engraved from the original illustration.

In his diary, Ruiz (2007: 256; Ms. 44) recorded that the original description of *E. coronatum* was prepared in Pozuzo between July and November of 1784. However, most of these manuscripts (among them, "180 plants of Pozuzo", *idem* 279; Ms. 52) were destroyed during the fire in Macora in August 1785.

According to Hágsater (2008), *E. coronatum* belongs lo the Coronatum Group, distinguished by the relatively large plants, stems with numerous leaves, apical inflorescence without spathaceous bracts, and large flowers with fleshy 3-lobed lip, bicallose at the base. The stout plant with elliptic leaves, the arcuate or pendent, loosely flowered inflorescence, and the large, ivory-white flowers provided with a sharply 3-lobed lip, deeply cordate at the base, with obliquely dolabriform lateral lobes and the midlobe produced into a pair of broadly oblong lobules separated by a deep sinus, are diagnostic of *Epidendrum coronatum*. The species is known from Mexico to Panama, Trinidad and Tobago, Venezuela to Brazil, and from Colombia to Bolivia along the Andes. In Peru it has been recorded in the provinces of Huánuco, Loreto, Madre de Dios, and San Martín, at elevations of 100-1000 m, where it grows as an epiphyte and occasionally as lytophyte.

After the orginal description by Ruiz and Pavón, Fritz Kränzlin described it once more from Peru in 1905 with the name *Epidendrum moyobambae*, on the basis of a collection by Weberbauer from the dry shrub forests of Moyobamba. Schweinfurth adopted the latter name for his treatment of the orchid flora of Peru, considering *E. coronatum* an obscure species, probably allied to *E. moyobambae* (Schweinfurth, 1959: 426). Schlechter (1922) and Ames (1923) described the same species from southern Central America, from the seasonal dry regions of the Province of Veraguas, Panama, and from Guanacaste in Costa Rica, where it is still relatively common. Schweinfurth (1959) first suggested that also *E. amazonicum* (Brazil, the type) was a synonym of *E. moyobambae*.

25. Epidendrum corymbosum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 245. 1798. Fig. 19

Type: Peru. Huánuco: "Habitat in Peruviae montibus nudis et campis versus Muña, Chinchao, Pozuzo, Cuchero vi-

Fig. 18. *Epidendrum coronatum*. AJB, Div. IV, 1283, drawing of type, tempera on paper by I. Gálvez.

Fig. 19. *Epidendrum corymbosum*. AJB, Div. IV, 1280, tempera on paper by F. Pulgar.

cos, et in Tarmae et Huanuci Provinciarum locis imis et calidis", *H. Ruiz & J. Pavón s.n.* (holotype, MA).

Icones: AJB, Div. IV, 1280, tempera on paper by F. Pulgar; habit with flowers, single flower and floral dissection, fruit and transversal section through the fruit. «Fran.co Pulgar [signature] / 72 / Epidendrum».

Herbarium: MA 810707, HOLOTYPUS. Plant, flowers. «Gynandria». «Ophrys [crossed] / Epidendrum / corymbosum» [Ruiz]. «Herbarium Peruvianum / Ruiz et Pavón / 4/80». MA 810714. Apex of stem with inflorescence and flowers. «Classis 20 Diandria / Orchys. d / F.P.c.l. 72. c.d. / Chinchao»; «Herbarium Peruvianum / Ruiz et Pavón / 25/13».

The number of Pulgar's plate, « 72», corresponds to the number assigned to the specimen MA 810714, collected in Chinchao. However, neither the artwork by Pulgar nor this specimen (with prolific inflorescences) are annotated with the name of *E. corymbosum* in Ruiz's handwriting, and perhaps the Spanish do not think of them as cospecific. For this reason I hesitate here in considering them as part of the type material. According to Ruiz's diary, the original description of *E. cordatum* was prepared in Muña in August-September 1786 (Ruiz, 2007: 287; Ms. 54); here the Spanish botanist also recorded the popular name of the species as "*Flor de todo el año*" (year round flower).

Schweinfurth (1959) regarded *E. corymbosum* as an uncertain concept, apparently allied to *E. dichotomum* Presl. According to Schweinfurth (1970), and Dodson and Dodson (1980), the name is a synonym of *E. secundum* Jacq. However, the latter usually presents the midlobe of the lip as deeply excised in 2 lobules, while the illustration by Pulgar shows it entire in *E. corymbosum*. The "*Epidendrum secundum* complex" (Dressler, 1989) is still a poorly understood group of taxa, probably including a number of good species together with ample floral variations in some of the taxa: under the name of *E. secundum*, the World Monocot Checklist (Govaerts, 2010) lists 28 species and 3 varieties as synonyms. As a complex, it occupies almost any possible habitat in the Neotropics at elevations between 500 and 3500 m. If considered a good species on its own (i.e. Bennett & Christenson, 1998), *E. corymbosum* is endemic to Peru.

26. Epidendrum cristatum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 243. 1798. Fig. 3D

Type: Peru. Huánuco: "Habitat supra arbores in nemoribus Pozuzo", *H. Ruiz & J. Pavón s.n.* (type, MA).

Synonyms: *Epidendrum raniferum* Lindl., Gen. & Sp. Orch. 109. 1831.

Type: Mexico. *M. Sessé & J.M. Mociño* ex Herb. Pavón [lectotype, designated by Hágster (2008), "Ophrys tigrina", BM, photo!; isolectotype, "Epidendrum racemosum", BM, photo!).

Epidendrum calliferum Lem., Jard. Fleur. 4: misc. 65. 1854.

Type: Brazil. Ins. Santa Catharina (typus, the illustration in Jard. Fleur. 4: pl. 414. 1854).

Epidendrum hexadactylum Barb. Rodr., Gen & Spec. Orch. Nov. 1: 56. 1877.

Type: Brazil. Entre-Ríos, *Rodrigues t. 348* [illustration intended for Icon. Orch. Brésil] [holotype, Herb. Barb. Rodr.†; lectotype, designated by Hágsater (2008), original illustration, AMES, published in S. Sprunger (ed.), Icon. Orch. Brésil 1: t. 286. 1996].

Epidendrum longovarium Barb. Rodr. Gen & Spec. Orch. Nov. 1: 57. 1877.

Type: Brazil. [Minas Geraes:] au Pico du Frade, serra de Caldas, *Regnell ser III 2019* [illustration intended for Icon. Orch. Brésil, published in S. Sprunger (ed.), Icon. Orch. Brésil 1: t. 286. 1996] (holotype, Herb. Barb. Rodr.†; isotype, P, not seen).

Epidendrum tigrinum Sessé & Mociño, Fl. Mex. 2: 204. 1894.

Type: Mexico. Veracruz: "Supra arbores montium calidorum Nov. Hisp. ut Cordovae vicinis", *M. Sessé & J.M. Mociño 4327* [lectotype, designated by Hágsater (2008), MA 600411!].

Epidendrum bathyschistum Schltr., Repert. Spec. Nov. Regni Veg. Beih. 6: 36. 1919.

Type: Venezuela. Federal-District: Caracas, *Moritz 629* [holotype, B†; lectotype, designated by Hágsater (2008), tracings of Schlechter's analytical drawing of the holotype, AMES!].

Epidendrum validum Schltr,. Repert. Sp. Nov. Regni Veg. Beih. 9: 95. 1921.

Type: Peru. Cajamarca: im Tal des Flusses Tabaconas, 900-1000 m, April 1912, *A. Weberbauer 6155* (holotype: B†; isotype: F; illustration of flower published in Mansfeld, Repert. Sp. Nov. Regni Veg. Beih. 57, t. 122, nr. 479, 1929).

Epidendrum alexandri Schltr., Anex. Mem. Inst. Butantan, Secc. Bot. 1 (4): 60. 1922.

Type: Brazil. Sao Paulo: Morro das Pedras, Iguape, 20 m, Dec. 1915, *A.C. Brade 781* (holotype, B†; isotypes, AMES!, I-IB, R, US).

Icones: AJB, Div. IV, 1284, drawing of type, tempera on paper by I. Gálvez, habit with flowers. «176 / Galvez [signature] / 64 / Epidendrum cristatum [Ruiz]».

Herbarium: MA 810712, TYPUS, fertile. «Epidendrum / cristatum» [Ruiz]; «Herbarium Peruvianum / Ruiz et Pavon / 4/77». MA 810710, TYPUS, fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/77». MA 810711, TYPUS, fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/77». MA 810713, probable TYPUS, fertile. «Epidendrum / cristatum / Ex Herb. Fl. Peruv. / anno 1824» [Pavón]; «Ex antiquo herbario generali [stamp] / Herbarium Horti Botanici Matritensis / Plantae in vice-regno / Peruviano et Chilensi lectae. / (1778-1788)».

Prodromus: Ic. 27, EPIDENDRUM, Fig. 5, column and lip, probably engraved from the original illustration.

The first description of *E. cristatum* was prepared during the journey of the Expedition in Pozuzo, between July and November 1784 (Ruiz, 2007: 256; Ms. 44); most of the descriptions and the drawings made in Pozuzo, however, would eventually be lost in the Macora fire in 1785 and redone in Huánuco before August 1786, when the

members of the Expedition moved to Muña (*idem*: 281; Ms. 53).

A widespread species in the Neotropics, *E. cristatum* ranges from northern Mexico through Mesoamerica to Brazil, Peru, and Bolivia. In Peru, populations are usually found growing as epiphytes, as well as lithophytes or terrestrials on brush-covered slope, in premontane and montane wet forests at elevations of 1000-1500 m. It pertains to the Cristatum Group, characterized by the many-leafed stems, apical inflorescence with large, imbricating bracts, and the production of successive racemes from the peduncle over the years (Hágsater, 2008). The large plants are over 2 m tall, with a long, nutant inflorescence, and 3-lobed lip with the margin of the lateral lobes erose-laciniate, and the midlobe bilobed and slightly dentate at apex.

Hágsater (2008) indicates as the holotype of *E. cristatum* the specimen annotated by Carnevali and Ramírez (MA 810713), but this has a label in Pavón's handwriting, while MA 810712 bears the species names written by Ruiz as in most of the sheets used as the types of the Expedition. Even though none of the four sheets of *E. cristatum* in MA have original indication as "type", MA 810712 is the best candidate for lectotypification. Another isotype, received through the Herbarium of the Real Jardín Botánico de Madrid, is conserved in the Field Museum of Natural History in Chicago (F 712439, digital image!).

27. Epidendrum densiflorum Hook., Bot. Mag. 66: t. 3791. 1840. Fig. 20

Synonym: *Epidendrum polyanthum* var. *densiflorum* (Hook.) Lindl. Fol. Orchid. 3: 60. 1853.

Type: "Native of Mexico [probably an error], whence it was sent by Mr. Parkinson to the Woburn collection, where it blossomed in great perfection in September, 1839", *Parkisnon s.n.* (holotype, K).

Icones: AJB, Div. IV, 1279, tempera on paper by F. Pulgar, apex of the stem with inflorescence and flowers, single flower and floral dissection, fruit. «Fran.co Pulgar [signature] / Epidendrum / 71».

Herbarium: No material of this taxon is conserved in MA.

Even though in the prologue Lindley stated that the type specimen was originally imported from Mexico, *E. densiflorum* is only known in South America, where it is widespread from Venezuela to Brazil and from Colombia to Peru and Bolivia along the Andes. The species is mostly found in wet tropical to premontane forests, at elevations between 400 and 2300 m. It pertains to *Epidendrum* Group Pseudepidendrum Subgroup Paniculatum, and it has been considered by some authors as a synonym of *Epidendrum paniculatum* Ruiz & Pav.

The usually large panicle, the concave lip blade with small, obtuse apical lobes, and the 3 parellel keels of the apical callus of the lip distinguish the species.

28. Epidendrum ferrugineum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 245. 1798. Fig. 21

Type: Huánuco: "Habitat in Chinchao montibus nemorosis supra arbores et saxa, versus Macora", *H. Ruiz & J. Pavón s.n.* (holotype, MA).

Icones: AJB, Div. IV, 1290, drawing of type, tempera on paper by I. Gálvez, habit with flowers and fruits, single flower, detail of the lip and the column, fruit. «182 / Galvez [signature] / 41 / Epidendrum ferrugineum [Ruiz]».

Herbarium: MA 810715, TYPUS. Sterile. «Gynandria»; «Gynandria / Epidendrum fer- / rugineum» [Ruiz]; «Herbarium Peruvianum / Ruiz et Pavon / 4/78». MA 810716, TYPUS. fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/78».

In his diary, Ruiz (2007: 281; Ms. 53) quotes *E. ferrugineum* among the species originally described and illustrated before the Macora fire in August, 1785; the plate by Gálvez, as well the final description by Ruiz, were probably prepared in Huánuco in late 1785 or early 1786.

The species is characterized by the shortly repent-prolific habit, ancipitous stems, apical inflorescence with ancipitous peduncle, the raceme subtended by conduplicate, papyraceous-leathery bracts, and the simultaneous flowers. Floralley, it is somewhat similar to the recently described *E. chinchaoënse* Hágsater, D. Trujillo & E. Santiago (Hágsater, 2009), which, like *E. ferrugineum*, was collected in Chinchao. It has been recorded from Colombia to Peru, at 1000-2100 m.

29. Epidendrum paniculatum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 243. 1798, non Sessé & Moc., Fl. Mexic. (ed. 2) 204. 1894, *nom. illeg. hom.*, nec (Lindl.) Rchb. f., Ann. Bot. Syst. 6: 1166. 1865 (bas. *Ionopsis paniculata* Lindl.), *nom. illeg. hom.* Fig. 17C

Type: Peru. Huánuco: "Habitat supra arbores et saxa in Muña nemoribus, et locis calidis", *H. Ruiz & J. Pavón s.n.* (MA).

Icones: AJB, Div. IV, 1285, drawing of type, tempera on paper by I. Gálvez, habit and flowers. «177 / Galvez [signature] / 45 / Epidendrum paniculatum».

Herbarium: MA 810723, LECTOTYPUS (to be selected by Santiago & Hágsater, in press), fertile. «Epidendrum / paniculatum» [Ruiz]; «Gynandria»; «Herbarium peruvianum / Ruiz et Pavon / 4/76». MA 810722, ISOLECTOTYPUS, fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/76». MA 810724, ISOLECTOTYPUS, fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/76».

The members of the Expedition collected, described and illustrated this species in Muña, in July-September 1786 (Ruiz, 2007: 287; Ms. 54). Material of *Epidendrum paniculatum* originally collected by the Expedition is kept in BM (not seen) and F (digital image). The latter was obtained through the Herbarium of the Royal Botanical Garden of Madrid, where it was received in 1824; it is most similar to MA 8108708, from Chinchao, apparently illustrated under plate Nº 91 (not located), and I consider its status as type dubious.

Epidendrum paniculatum belongs to the Pseudepidendrum Group, mostly centered in the Andes of Ecuador (al-

Fig. 20. *Epidendrum densiflorum*. AJB, Div. IV, 1279, tempera on paper by F. Pulgar.

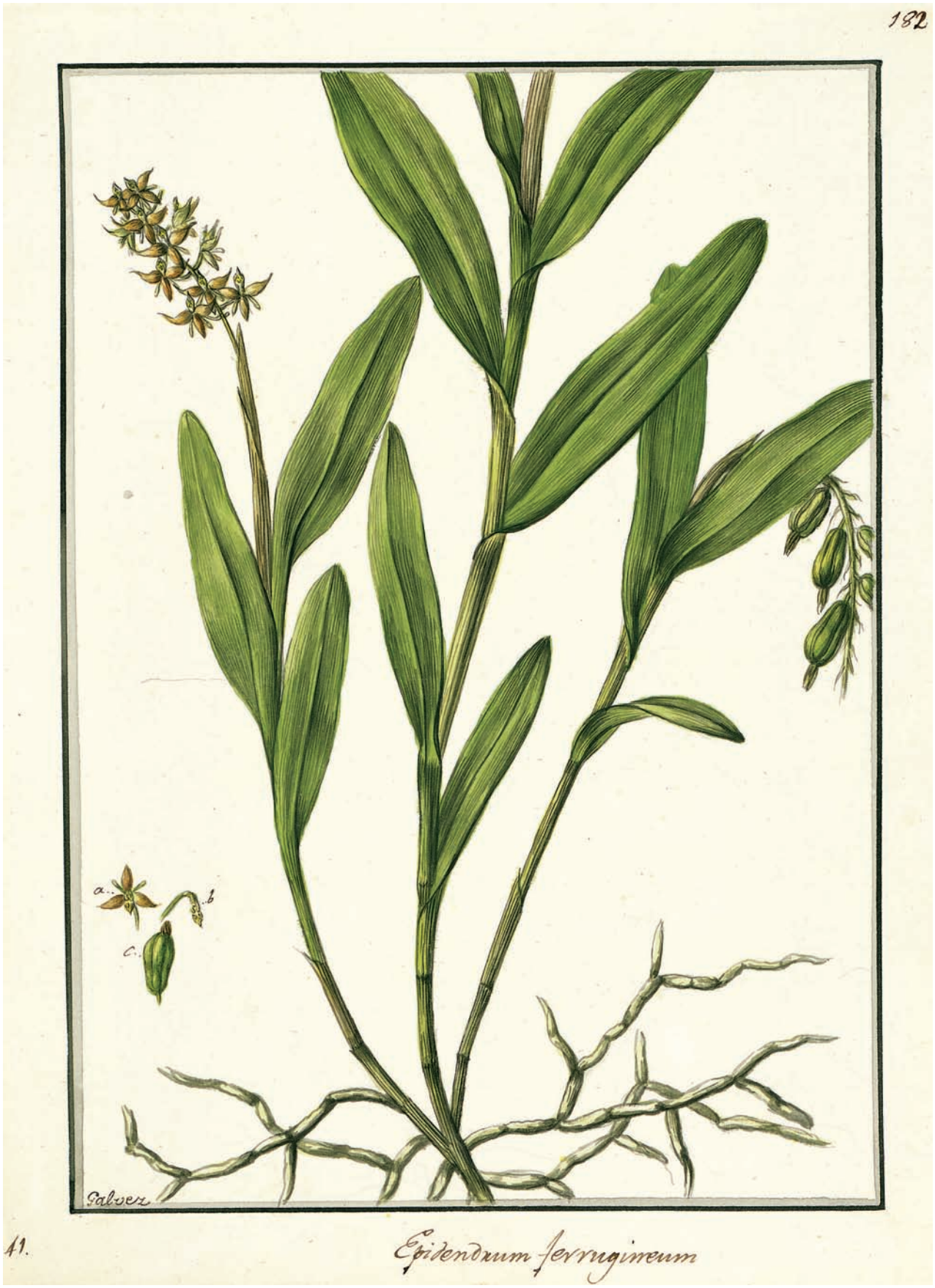

Fig. 21. *Epidendrum ferrugineum*. AJB, Div. IV, 1290, drawing of type, tempera on paper by I. Gálvez.

most 20 spp.) and Peru (10 spp.). A quite variable species, in the past it has been considered one of the most widespread *Epidendrum* in the Neotropics, ranging from Honduras to Brazil, Paraguay and Argentina, and through all the Andean countries from Venezuela to Bolivia. I am following Hágsater *et al.* (2003) and Santiago and Hágsater (in press) in limiting the distribution of *E. paniculatum* to Andean South America, where it is probably endemic to the Cordillera Oriental in Peru, and it has been recorded at elevations between 1700 and almost 3000 m.

The erect plants – intermediate in size – with the stem enclosed by grey sheaths, the leaves tinged with purple, the long, paniculate inflorescence, and the fragrant flowers, green with a white lip marked with reddish spot, and a few dots on the ribs, the bifid mid-lobe, with divaricate falcate lobes, are diagnostic of the species.

30. Epidendrum parviflorum Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 245. 1798, *non* Sessé & Moc., Fl. Mexic. (ed. 2): 206. 1894, *nom. illeg. homon*. [= *Prosthechea ochracea* (Lindl.) W.E. Higgins]. Fig. 17D

Type: Peru. Huánuco: "Habitat in Muña et Chaclla montibus et runcationibus supra arbores et saxa", *H. Ruiz & J. Pavón s.n.* (holotype, MA!; isotypes, MA!, F, digital image!).

Icones: AJB, Div. IV, 1288, drawing of type, tempera on paper by I. Gálvez, habit with flowers. «180 / Galvez [signature] / 47 † / Epidendrum parviflorum».

Herbarium: MA 810726, HOLOTYPUS, fertile. «Gin. Diandria / Epidendrum parviflo / rum / in Muña habitat» [Ruiz]. «Herbarium Peruvianum / Ruiz ey Pavon / 4/75»; MA 810725, ISOTYPUS, fertile. «Herbarium Peruvianum / Ruiz ey Pavon / 4/75».

Epidendrum parviflorum is likely endemic to Peru, where populations are found in Amazonas and Cajamarca, inhabiting wet montane forests at 1400-2300 m.

The species belongs to the subgenus *Spathium*, Group Pseudepidendrum, Subgroup Paniculatum, with the inflorescence emerging from an enlarged spathe. The erect, prolific stems enveloped by narrowly lanceolate, dark green leaves, the terminal, few-branching inflorescence and the relatively small (ca. 2 cm in diameter), green flowers with the lip white distinguish the species. Dodson & Vásquez (1989) include *Epidendrum gramineum* Lindl. and *E. patulipetalum* Schltr. among the synonyms of *E. parviflorum*, extending his distribution to most of South America.

Ruiz's diary recorded that the species was collected, described and illustrated in Muña, in July-September 1786 (Ruiz 2007: 287; Ms. 54). At the Field Museum in Chicago is kept another specimen originally collected by the expedition (F 842262) and received through the Herbarium of the Royal Botanic Garden in Madrid. This specimen was originally incorporated into the collection of MA in 1828 («Ex Herb. Fl. Peruv.»), and its label indicates the collecting site as Muña. It is likely a good isotype.

31. Epidendrum ruizianum Steud., Nomencl. Bot. (ed. 2) 1: 558. 1840. Fig. 22A

Basionym: *Epidendrum nutans* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 245. 1798, *nom. illeg*., non *Epidendrum nutans* Sw., Prodr. 121. 1788.

Type: Peru. Huánuco: "Habitat in Peruvia supra arbores et saxa ad Muña et Chaclla nemora", *H. Ruiz & J. Pavón s.n.* (holotype, MA; isotypes, MA).

Synonyms: *Epidendrum spathaceum* Lindl., Hook. J. Bot. 3: 85. 1841.

Type: Peru. "Obtained by Mr. Mathews out of the herbarium of Ruiz and Pavon, preserved at Lima (herb. Hooker)", probably *J.J. Tafalla s.n.* (holotype, K?).

Icones: AJB, Div. IV, 1289, drawing of type, tempera on paper by J. Brunete, habit with flowers. «181 / 127 / Brunete [signature] / 49 / Epidendrum nutans [Ruiz]».

Herbarium: MA 810719, HOLOTYPUS, fertile and with fruits. «Epidendrum / nutans»; «Herbarium Peruvianum / Ruiz et Pavon / 4/78». MA 810720, ISOTYPUS, fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/78». MA 810721, ISOTYPUS, inflorescence, fertile, and leaves. «Epidendrum nutans / Ex Herb. Fl. Peruv. / anno 1828».

According to Ruiz's diary, *Epidendrum nutans* was collected and described when the Expedition visited Muña in July-September 1786 (Ruiz 2007: 287; Ms. 54); Brunete prepared the illustration in the same period.

The robust, reed-stem plants provided with coriaceous leaves, the compound inflorescence consisting of several dense, arcuate or pendent, successively flowered racemes, the peduncle concealed by imbricating, elongate spathaceous sheaths, and thermal, small, white and pink, fragrant flowers are diagnostic of the species. *Epidendrum ruzianum* is distributed in Venezuela, Colombia, Ecuador, Peru, and Bolivia, where it forms large populations in cloud and wet environments, mostly on rocky slopes exposed to full sunlight, at elevations of 1200-3200 m.

32. Epidendrum tridens Poepp. & Endl., Nov. Gen. Sp. Pl. 2: 2. 1837. Fig. 22B

Epidendrum nocturnum var. *tridens* (Poepp. & Endl.) Cogn., Fl. Bras. 3(5): 136. 1898.

Type: Peru. "Crescit in rupibus et truncis vetustis montium Peruviae orientalis. Semel lectum in jugis Cassapillo dictis, a praedio Cuchero parum riemtis", *Poeppig & Endlicher s.n.* (holotype, W).

Icones: AJB, Div. IV, 1282, tempera on paper by F. Pulgar, habit with flowers. «Fran.co Pulgar [signature] / 76 / Epidendrum affine».

Herbarium: MA 810703, sterile. «Gynandria Diandria. / Epidendrum. / F.H. N. 426. L. 649. / Año de 803» [Tafalla]; «Herbarium Peruvianum / Ruiz et Pavon / 4/87».

A close relative of the widespread *E. nocturnum* Jacq., *E. tridens* is known in Ecuador, Peru, and Bolivia, where it grows in a broad range of climatic zones, included between 600 and 2500 m. The comparatively broad leaves, the sepals and petals lightly suffused with a tinge of crimson, and the deeply 3-lobed lip with narrowly triangular lateral lobes, similar in size to the midlobe, are diagnostic of the species.

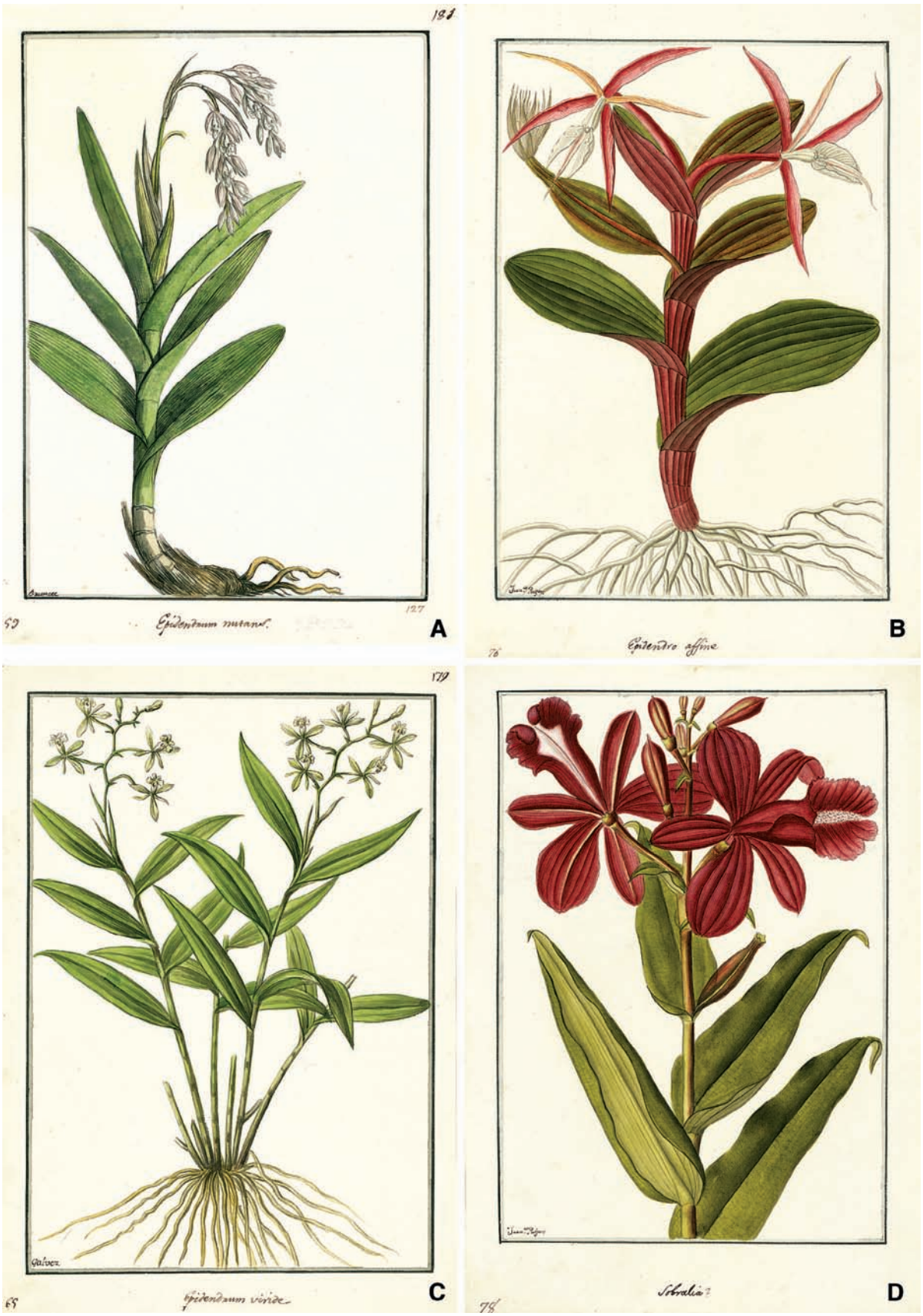

Fig. 22. A, *Epidendrum ruizianum*. AJB, Div. IV, 1289, drawing of type, tempera on paper by J. Brunete; **B,** *Epidendrum tridens*. AJB, Div. IV, 1282, tempera on paper by F. Pulgar; **C,** Lectotype of *Epidendrum viride*. AJB, Div. IV, 1287, tempera on paper by I. Gálvez; **D,** *Epistephium duckei*. AJB, Div. IV, 1296, apex of stem with inflorescence and flowers. Tempera on paper by F. Pulgar.

Schweinfurth (1959) included this species under a broad synonymy of *E. nocturnum*.

From the collection date, 1803, it is probable that the specimen in MA was collected near Guayaquil. According to the catalogue of descriptions intended for the *Flora Huayaquilensi*s (Tafalla, 1989), the manuscript description No. 426 is not among those conserved in Madrid.

33. Epidendrum viride Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 244. 1798. Fig. 22C

Type: Peru. "Habitat in Peruviae nemoribus ad Pozuzo vicum supra arbores", *H. Ruiz & J. Pavón s.n.* (lectotype, MA!).

Icones: AJB, Div. IV, 1287, drawing of type, selected here as the LECTOTYPUS, tempera on paper by I. Gálvez, Habit with flowers. «179 / Galvez [signature] / 69 / Epidendrum viride [Ruiz]».

Herbarium: Apparently, no material of this species is conserved in MA.

Epidendrum viride is another species of the Subgroup Paniculatum. In the absence of any specimen associated with the prologue, the drawing of the type prepared by Isidro Gálvez is chosen as the lectotype.

The plate shows a reed-stem *Epidendrum* with relatively short and apparently terete, few-leaved (up to 5) stems; lanceolate-elliptic, acute to subacuminate leaves; terminal, racemose, few-flowered (6-7) inflorescence produced from an elongate, acuminate spathe; bracts of the inflorescence loose, conduplicate, acuminate; floral bracts short, triangular, acute; the flowers spreading, pale ivory white to yellowish green, with the column white, slightly suffused with purple at apex; the sepals subsimilar, oblanceolate, subacute; the petals smaller and narrower, subfalcate-oblong, acute; the lip 3-lobed, with the lateral lobes dolabriform, erose at apex, and the midlobe deeply divided into two divergent, transverse, subrectangular lobes erose at apex; the callus apparently single, not reaching the apex of the lip lamina.

According to Schweinfurth, (1959) this species had not been previoulsy identified due to the lack of original material. In his diary, Ruiz (2007: 256; Ms. 44) recorded that *E. viride* was described and illustrated during the stay of the Expedition in Pozuzo, in September 1784.

34. Epidendrum sp. Fig. 23

Icones: AJB, Div. IV, 1281, tempera on paper by F. Pulgar; plant habit with flowering and fruiting inflorescences; single flower, floral dissection, fruit and fruit dissection. «Fran.co Pulgar [signature / Epidendrum / 73».

Herbarium: No specimens referable to this taxon have been found in MA.

The plant painted by F. Pulgar belongs to *Epidendrum* group Schistochilum, but I am unable to identify it at the species level due to the difficult taxonomy of this assemblage of closely related species in the "reed-stem" epidendrums. The 3- to 6-leaved stems, covered with purple-red sheaths of the distichous leaves, the red flowers laxly produced on a straight, robust inflorescence without basal spathe, and the up-curved, entire, sagittate lip with erose-dentate margins, deeply concave-conduplicate in natural position (someway similar to that of *E. flexuosum* G. Meyer), should be diagnostic of the species.

Neither herbarium materials of this taxon are found in MA, nor manuscripts of the expeditionaries that can spread some light over the original collection site. MA 810714, from Chinchao, is referred by Tafalla to plate 72, not 73. A *recto* and *verso* manuscript by Tafalla with the same number is kept at the Archives of RJB («Lamina 72. / Gynadria Diandria / Orchys / […]»; AJB, Div. IV. 4, 3). It is another *Epidendrum* species of the same group, probably *E. elongatum* Jacq. or a closely allied taxon.

35. Epistephium duckei Huber, Bol. Mus. Paraense Hist. Nat. 7: 287. 1913. Figs. 22D, 24A, B

Type: Brazil. *Ducke s.n.* (holotype, not seen).

Icones: AJB, Div. IV, 1296, tempera on paper by F. Pulgar, apex of stem with inflorescence and flowers. «Fran.co Pulgar [signature] / Sobralia? / 78». AJB, IV, 1295, tempera on paper by F. Pulgar, flower, floral dissection and fruits. «Fran.co Pulgar [signature] / Sobralia / 78». AJB, IV, 1297, tempera on paper by F. Pulgar, roots and base of the stems. «Fran.co Pulgar [signature] / Sobralia? / 78».

Herbarium: I have not found material of this taxon in MA.

Epistephium duckei is found in Venezuela, Guyana, Brazil, and from Colombia to Bolivia, as a terrestrial species in premontane and montane forests along the Andean chain, up to 2500 m. In Peru, the species inhabits wet soils and meadows in premontane wet forests in the Cuzco, Huánuco, and Junín, at 500-1600 m.

The robust plant, with sparingly branched stems to over one meter long, the large amplexicaul, unveined, stiffly coriaceous, shining leaves, the terminal, laxly many-flowered raceme, and the large, showy, campanulate, pink to purple flowers, with narrowly obovate petals distinctly broader than the sepals and an obscurely 3-lobed lip, bilobed at the apex, with the disc ornate by a band of retrorse appendages and by 3 parallel thickened lines toward the base, distinguish *E. duckei*. It differs from the closely allied *E. elatum* Kunth by the simple (vs. 4-lobed), emarginate (vs. shallowly bilobed) lip.

36. Epistephium sp., *non E. amplexicaule* Poepp. & Endl. Fig. 24C

Basionym: *Sobralia amplexicaulis* Ruiz & Pavón, Syst. Veg. Fl. Peruv. Chil. 1: 233. 1798.

Type: Peru. Huánuco. "Habitat affatim in Chinchao runcationibus et locis meridionalibus", *H. Ruiz & J. Pavón s.n.* (holotype, MA).

Icones: AJB, Div. IV, 1306, drawing of type, tempera on paper by I. Gálvez; roots and base of the stem, apex of stem with leaves, flowering and fruiting inflorescence. «156 [Ruiz] / Galvez [signature] / 46. / 124. / Sobralia amplexicaulis [Ruiz]».

Fig. 23. *Epidendrum* sp. AJB, Div. IV, 1281, tempera on paper by F. Pulgar.

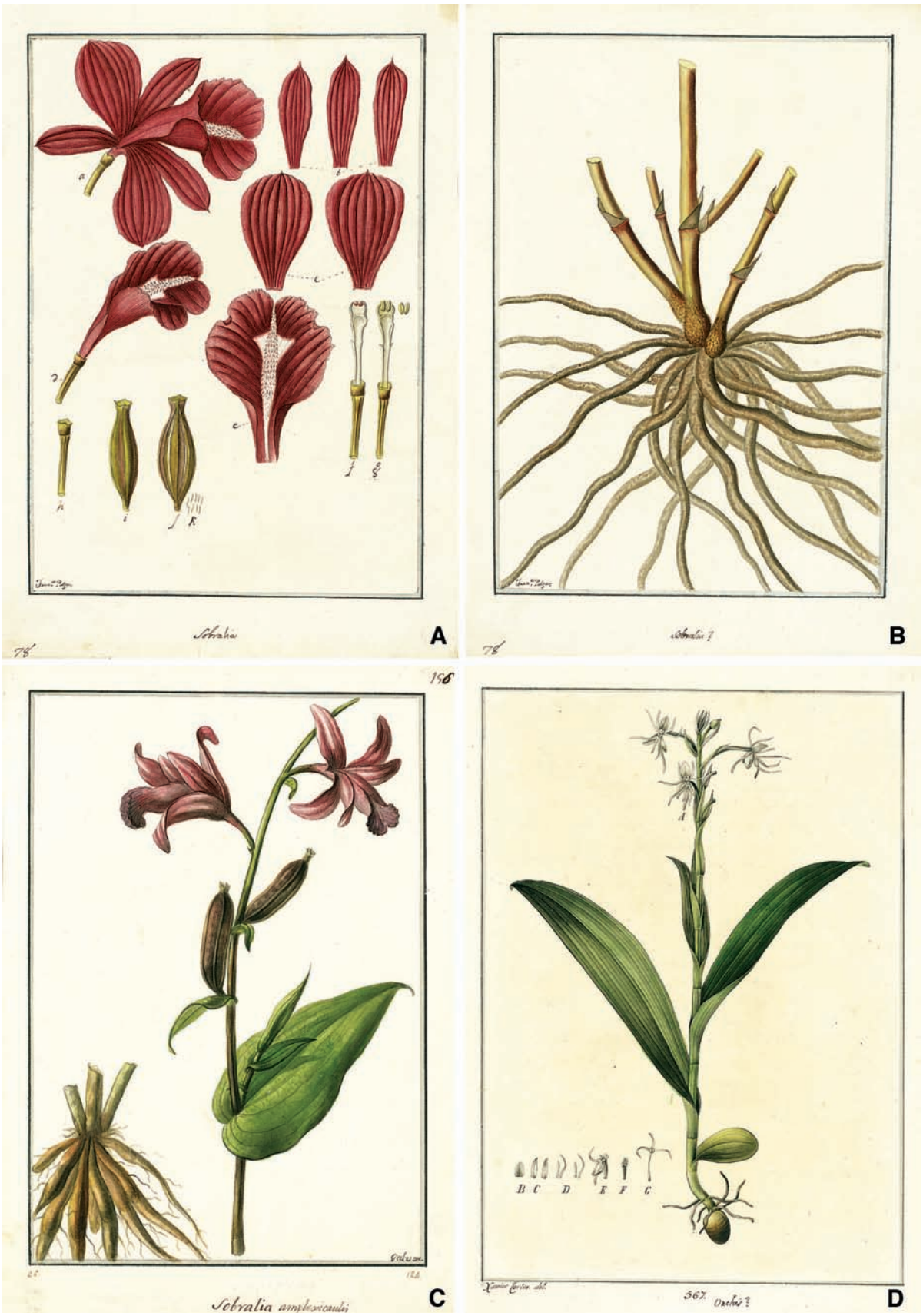

Fig. 24. A, *Epistephium duckei*. AJB, Div. IV, 1295, flower, floral dissection and fruits; **B,** *Epistephium duckei*. AJB, Div. IV, 1297, roots and base of the stems. Tempera on paper by F. Pulgar; **C,** *Epistephium* sp. AJB, Div. IV, 1306, tempera on paper by F. Pulgar; **D,** *Habenaria trifida*. AJB, Div. IV, 1258, tempera on paper by X. Cortés.

Herbarium: MA 810759, HOLOTYPUS, fertile and with fruit. «Sobralia amplexicaulis» Ruiz; «Herbarium Peruvianum / Ruiz et Pavon / 4/69».

Prodromus: Icona XXVI, Sobralia, fig. 1-5. The flower on the left was engraved from the original illustration by Gálvez.

When Ruiz and Pavón published their *Prodromus* in 1794, they described the genus *Sobralia,* dedicating it to Don Francisco Martínez de Sobral, royal physician of King Carlos IV, who in 1785 experimented in Royal Hospitals with cinchona extract sent from Peru by Ruiz. At that time, no species of *Sobralia* were described, but on plate 26, under figures 1-6, the authors presented a flower of *Sobralia*, a lateral view of the column and the lip, the column in adaxial view, the anther cap and the pollinarium, an almost mature fruit and its seeds (Ruiz & Pavón 1794). In 1798, the *Systema* appeared, and here Ruiz and Pavón formally described three species of *Sobralia*: *S. dichotoma, S. biflora,* and *S. amplexicaulis* (in that order), without designating a type (Ruiz & Pavón 1798). Because of the usually generalized shape of the flowers of *Sobralia*, nobody apparently tried to identify the flower and the floral dissection originally published in the Prodromus, until eventually Joao Angely (1973: 1268) lectotypified the genus with the species appearing first on page 232 of Ruiz and Pavón's *Systema*, *S. dichotoma*. However, a proposal to conserve the name *Sobralia* with a conserved type is pending (Dressler & al., 2011).

Among the unpublished illustrations of the Expedition kept at the Archives of RJB, there is a painting by I. Gálvez that is identified in Ruiz`s handwriting as «Sobralia amplexicaulis»; it also has, on the upper right corner, the number «156 » assigned by Ruiz to the illustration of his *Sobralia amplexicaulis* according to the unpublished manuscript. It is evident, from this plate, that the final engraving of "Sobralia", prepared for the *Prodromus* (Ruiz & Pavón, 1794, pl. 26), precisely illustrates *S. amplexicaulis*, giving further details about the floral morphology of this species that are not depicted in the tempera by Gálvez, and were probably obtained from preparatory sketches. These include a lateral view of the pedicel, the lip and the column, a ventral view of the column, the anther and the pollinarium.

Iin 1837, Poeppig and Endlicher described *Epistephium amplexicaule* from Peru [Nova Genera ac Species Plantarum 1: 52], based on a plant collected near Cuchero ("Crescit in Peruviae versuris et fruticetis calidis, versus Chihuamccala, in viciniis Cuchero"; the type, *Poeppig s.*n., W), suggesting it was perhaps co-specific with Ruiz and Pavón's *Sobralia amplexicaulis*. The indication of a possible identity with *S. amplexicaulis* by Poeppig and Endlicher is expressed uncertainly (i.e., with interrogative mark), so it does not affect the validity of the name according to art. 11.5 of the ICBN (McNeill et al. 2006). *Epistephium amplexicaule sensu* Poepp. & Endl. was illustrated by the authors, on plate 91 of the first volume of their *Nova Genera ac Species Plantarum*, in a composite plate showing portions of the stem with leaves, the flowered inflorescence, and details of column (lateral and ventral views), the lip (adaxial and lateral views), the anther and the pollinarium.

The original protologue by Ruiz and Pavón gives enough information about the characteristics of the species ("*S*[obralia] *bulbis fasciculatis, foliis cordatis amplexicaulibus, racemo terminali*", Ruiz & Pavón 1898: 233). Subsequent authors substantially followed Poeppig and Endlicher's suggestion, reducing *Sobralia amplexicaulis* under the synonymy of *Epistephium amplexicaule* (i.e. Schweinfurth 1958, Brako & Zarucchi 1993, Jørgensen et al. 2010, among others). However, the Archives of RJB conserve the unpublished manuscript by Ruiz, which was intended for the volume 7 of the *Flora Peruviana et Chilensis* («Sobralia amplexicaulis. ic. 156», AJB, Div. IV, 4, 3) and includes a detailed description of *Sobralia amplexicaulis*. According to the manuscript, the lip (*nectarius*) of this species has a «*disco squamatum, squami linaearibus, apice dilaceratis*» (disc furnished with scales, the scales linear, lacerate at apex), which do not correspond to that of *Epistephium amplexicaule* Poepp. & Endl., the disc of which is provided with a keel "*e squamulis subulatis, carnosis, albis conflata*" (sprinkled with little, fleshy, white, subulate scales) (Poeppig & Endlicher 1845: 53). These small, awl-shaped scales, are well illustrated in the plate accompanying the prologue of *E. amplexicaule* (Poeppig & Endlicher 1837: Tab. 91). The scales of the lip of *Sobralia amplexicaulis* are, in this sense, more similar to those of *Epistephium lamprophyllum* Schltr. (the type, Colombia. Cundinamarca, *A. Schultze 32*, B, destroyed), or to the basal, retrorse scales of *E. brevicristatum* R.E. Schultes (the type: Colombia. Vaupés, *R. E. Schultes & I. Cabrera 14269*, AMES) and *E. laxiflorum* Barb. Rodr. (the type: Brazil. Sao Paulo, *Regnell III, 1156*).

The specific epythet, *amplexicaule*, is occupied in *Epistephium* by *E. amplexicaule* Poepp. & Endl., so the transfer of Ruiz and Pavón's *Sobralia* to that genus would require the creation of a *nomen novum* for this species.

According to the Journal by Ruiz, *S. amplexicaulis* was collected in Chinchao in August of 1779 (Ruiz 2007: 274; Ms. 21a). Ruiz also refers to the species among those newly described in June-July 1786, after the original description was destroyed in the Macora fire; here he noted that "its flowers are very fragrant and beautiful for their great size and color" (idem 274; Ms. 51).

37. Gongora quinquenervis Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 227. 1798. Fig. 25

Type: Peru: Huánuco, "Habitat in silvis Pozuzo supra arbores", *H. Ruiz & J. Pavón s.n.* (holotype, MA; isotypes, MA, G?).

Icones: AJB, Div. IV, 1272, drawing of type, tempera on paper by I. Gálvez; plant habit with inflorescence, flowers and fruits, lateral view of the column and lip, dissected fruit. «150 [Ruiz] / Galvez [signature] / 67. / 125. / Gongora quinquenervia [sic, Ruiz] / 116.CL.».

Herbarium: MA 810760, HOLOTYPUS, plant with inflorescence and fruits. «Gonogra [sic, Ruiz]»; «Herbarium Peruvianum / Ruiz et Pavon / 4/ 90». MA 810761, ISOTYPUS, pseudobulb with base of inflorescence, leaves.

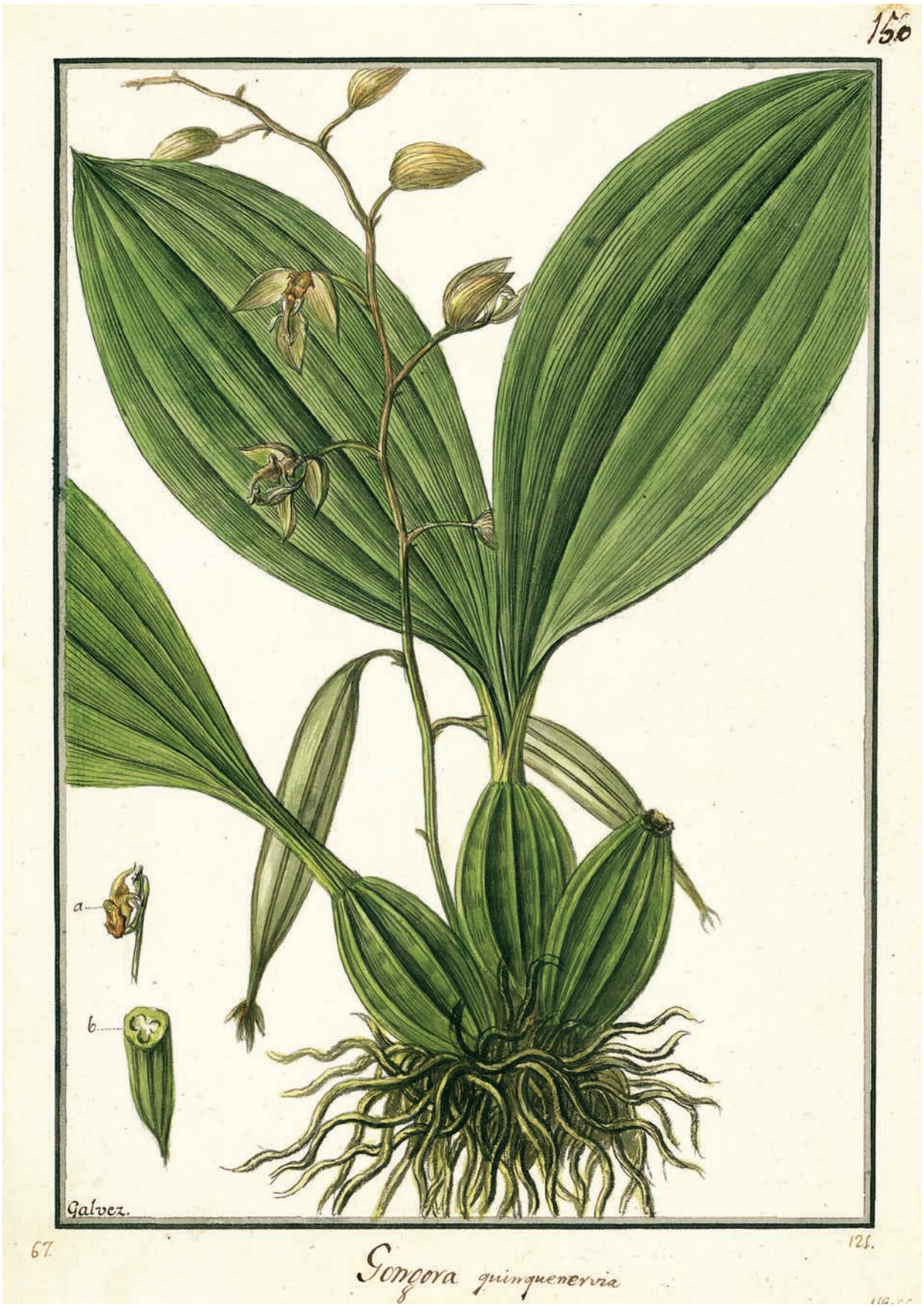

Fig. 25. *Gongora quinquenervis*. AJB, Div. IV, 1272, drawing of type, tempera on paper by I. Gálvez.

«Herbarium Peruvianum / Ruiz et Pavon / 4/ 90». MA 810762, ISOTYPUS, pseudobulb with base of inflorescence and a leaf, detached leaves. «Herbarium Peruvianum / Ruiz et Pavon / 4/ 90».

Prodromus: Icona XXV, GONGORA: flower, floral dissection, dissected fruit, seeds. The engraving was prepared from the original illustration in MA.

L.A. Garay and G. Romero-González (1999) made an argument to show that the actual holotype of *G. quinquenervis* is not any of the sheets in MA, but a specimen in Geneva, annotated by Pavón, of which a fertile fragment can be found in Reichenbach's herbarium at W (photo in Garay & Romero-González, 1999). The authors argue that, while in the protologue the leaves of *G. quinquenervis* are described as lanceolate, the plant mounted on MA 810760 has broadly elliptic leaves. The latter shape, however, is exactly the same illustrated by I. Gálvez in his drawing of the type of *G. quinquenervis*, from which the details engraved for the *Prodromus* (Ruiz & Pavón 1794) were eventually taken. The leaves are elliptic to oblanceolate in MA 810761, and elliptic to narrowly elliptic in MA 810762, which are both part of the same collection («Herbarium Peruvianum / Ruiz et Pavon / 4/ 90»). In the unpublished manuscript by Ruiz kept at the RJB, which includes a more detailed description of *G. quinquenervis* (AJB, Div. IV, 4, 3), the leaves of the species are described as «oblongo-lanceolata», and Ruiz makes explicit reference to plate 150 (the same number handwritten in Ruiz calligraphy on top right of Gálvez's plate), which in fact bears an extraordinary similarity to the MA specimen number 810760.

It is not sure if the specimen in G was part of the collections kept at the Oficina Botánica in Madrid, which M.E. Moricand purchased from J. Pavón, probably through A.P. de Candolle as intermediary, and which was later incorporated in the Delessert Herbarium (eventually bequeathed to the city of Geneva in 1869), or if it was acquired directly by J.P.B. Delessert from the Lambert Herbarium when it was put up for sale in 1842, Alternatively, it may have come from the personal herbarium by J. Pavón, which E. Boissier acquired from Pavón's heirs in August 1841, the year following the death of the Spanish botanist,before eventually becoming part of the collections hosted in Geneva. Even though it is probable that the plant in G labelled by Pavón «Gongora / novum genus / Fl. Peruv. / Peru» was part of the original collection, its status as isotype is somewhat dubious. In his updated checklist of the genus *Gongora*, Jenny (2003) followed Garay and Romero-González (1999) in accepting Pavón's specimen in Geneva as the holotype, and the flower from the same specimen, now in W, as an isotype. However, on the basis of the unpublished illustration of the type in MA, I consider that the actual holotype of *G. quinquenervis*, and two isotypes are conserved in MA.

The true taxonomic identity of *G. quinquenervis* and its real geographic distribution have still to be ascertained, and the name has been largely used in the past as a catchall name for any *Gongora* that doesn't clearly fit into another species. Garay y Romero-González (1999) made the first sound step toward a clarification of the complex of species close to the concept of *G. quinquenervis*, presenting accurate measurements of the flower taken from original material and quoting a Colombian specimen that can be positively compared with it. This would extend the possible distribution of *G. quinquenervis* north up to Colombia. However, previous records from Mexico, Guatemala, Belize, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, Venezuela, Brazil, and Trinidad and Tobago in the West Indies, are almost certainly based on misidentifications. D'Arcy (1987) offers a broad synonymy of *G. quinquenervis*, but the correct application of these names largely depends on accurate circumscription of *G. quinquenervis*, the type species for the genus.

According to Garay y Romero-González (1999), *G. quinquenervis* and its closely related species (namely *G. histrionica* Rchb.f., *G. nigrita* Lindl., *G. pleiochroma* Rchb.f., *G. retrorsa* Rchb.f.) are small-flowered plants, with the base of the lip distinctly clawed. As it is clearly shown in the colored plate by Gálvez, the flowers of *G. quinquenervis* are greenish brown, unspotted and unblotched, with the lip flushed brownish red.

38. Habenaria guentheriana Kraenzl., Repert. Spec. Nov. Regni Veg. 25: 18. 1928. Fig. 26

Type: Bolivia. Mapiri, 600 m, 30 Jan, 1927, *O. Buchtien 465* (holotype, HBG; isotypes, AMES, G, HBG, K, NY, Z).

Icones: AJB, Div. IV, 1253, tempera on paper by F. Pulgar; plant habit with inflorescence and flowers, flower detail and floral dissection. «Fran.co Pulgar [signature] / 208. Orchys? [Tafalla]».

Herbarium: No specimens found in MA.

Originally described from Bolivia (Kränzlin 1928), *H. guentheriana* has been recorded also from Venezuela, Ecuador, Colombia, and Peru. According to Schweinfurth (1958), populations of this species have been found in Peru in the Cuzco province, at elevations of 900 to 2200 m. Peruvian specimens have shorter and fewer flowered inflorescences than typical material from Bolivia (*idem*). According to the unedited manuscript by Tafalla (AJB, Div. IV, 4, 3: «L. 208»), the plant illustrated by F. Pulgar was collected in the mountains of Chinchao («Habitat Carpalibus Chinchao / Floret Mayo et Junio»).

The plant to over 50 cm tall, with leafy stems and elliptic-lanceolate, acute to acuminate leaves, the inflorescence loosely many-flowered, the bipartite petals with the posterior lobe similar to the the dorsal sepal and the anterior lobe narrowly linear, the 3-lobed lip, with the three lobes linear, the mid-lobe slightly broader and shorter than the lateral lobes, distinguish *H. guentheriana*.

39. Habenaria trifida Kunth, Nov. Gen. Sp. (quarto ed.) 1: 330. 1816, *vel affinis*. Fig. 24D

Type: [Colombia]. "Crescit locis temperatis, opacatis Regni Novogranatensis inter villam San Miguel et convallem Guachicon prope Almaguer, alt. 810 hex.", *A.J.A. Bonpland & F.W.H.A. von Humboldt 2051* (holotype, P, not seeen).

Fig. 26. *Habenaria guentheriana*. AJB, Div. IV, 1253, tempera on paper by F. Pulgar.

Icones: AJB, Div. IV, 1258, tempera on paper by X. Cortés, plant habit, flower and floral dissection. «Xavier Cortes del. [signature] / 567. / Orchis?».
Herbarium: No specimens of this species are kept in MA.

The plate was almost certainly painted from a specimen collected in Ecuador after January, 1800. It was in then, in fact, that Xavier Cortés was hired to join José Rivera as a new artist, with the job of illustrating the plants described by the two botanists Tafalla and J. A. Manzanilla. According to Estrella (1995), the plate was sent to Madrid on March 14, 1803.

In the herbarium of the Royal Botanic Garden in Madrid are kept two collections of *Habenaria* from the Expedition. The first [MA 810765, probably *H. monorhiza* (Sw.) Rchb.f.)] was collected at Chinchao in Peru in 1798 («F.P.c.l. n.º 95»), while the second (MA 810763 and 810764), intended for the *Flora Huayaquilensis*, was collected in Ecuador in 1801(«F.H. D335») and determined by Mansfeld as *H. leptantha* Schltr. I am unable to confirm his identification, but the plant, with several long, elliptic leaves, and dense, small-flowered inflorescence, does not correspond to the plate by Cortés.

Habenaria trifida has been recorded in Ecuador in the provinces of Loja, Napo, and Pichincha at 800-1500 m.

40. Houlletia odoratissima Linden ex Lindl. & Paxton, Paxt. Fl. Gard. 3: 172. 1853. Fig. 27

Type: [Colombia]. "New Grenada, province of Ocaña, on the borders of rivulets", May 1851, *Schlim s.n.* (holotype, K).
Icones: AJB, Div. IV, 1278, tempera on paper by J.G. Rivera, habit with flowers and floral dissections. «José Gabriel Rivera del. [signature] / 383 / Ophrys petiolata / Bletiae affine».
Herbarium: MA 810741, sterile. «Gynandria Diandria / Cypripedium / F.H. N. 424. L. 647. / Año de 803»; «Herbarium Peruvianum / Ruiz et Pavon / 4/68». MA 810742, sterile. «Herbarium Peruvianum / Ruiz et Pavon / 4/68».

Both the specimens in MA were previously determined as species of *Catasetum*, *Stanhopea*, or *Ida* [*Sudamerlycaste*], but the combination of long-petiolate leaves and long, erect inflorescence do not fit well either of these genera. Even though the number of Rivera's plate does not correspond to the original label on one of the sheets, the collection year (1803) and the indication of the specimens as part of the *Flora Huayaquilensis* agree with time when Rivera worked for the Expedition; the available evidence strongly suggests they belong to *Houlletia*. *Houlletia odoratissima* ranges from Panama to Venezuela and Brazil, and from Colombia to Peru and Bolivia along the Andean slopes, at elevations of 1000 to 1500 m. The angled, monophyllous pseudobulbs, almost completely enclosed by a basal sheath, the large, plicate leaf provided with a long petiole, the robust, erect, racemose, several- to many-flowered inflorescence, and the brick-red flowers, with the lip and the column white, are diagnostic of the species.

41. Isochilus linearis (Jacq.) R. Br., Hort. Kew. (ed. 2) 5: 209. 1813. Fig. 28A

Basionym: *Epidendrum lineare* Jacq., Enum. Syst. Pl. 29. 1760 *et* Select. Stirp. Amer. Hist. 221, t. 131, f. 1 .1763.
Type: West Indies. Plumier ic. 182, f. I, "Serapias foliis linearibus", in *Plantarum americanarum…*, habit with fruits.
Icones: AJB, Div. IV, 1320, tempera on paper by I. Gálvez, habit with flowers and fruits. «Galvez [signature] / 44 / Limodorum lineare [Ruiz]».
Herbarium: MA 810768, plants with fruits. «Gynandria / Dubia Fernande / zia?»; «Herbarium Peruvianum / Ruiz et Pavon / 4/93». MA 810769, plant, sterile. «Herbarium Peruvianum / Ruiz et Pavon / 4/93».

As noted by Schweinfurth (1960: 553), the genus *Isochilus* consists of several concepts apparently referable to a few species (see also Correll, 1941). As treated here, *I. linearis* is vegetatively quite a variable species but always with linear leaves <3 mm wide, loose or dense, usually distichous (rarely subsecund) inflorescence, and rose-purple flowers.

Widespread from Mexico to Brazil (type of *I. brasilensis* Schltr.), Paraguay, Argentina, Peru (type of *I. peruvianus* Schltr.), Bolivia, and the West Indies (type of *E. lineare*), the species received different names on the basis of relatively trivial, regional variations. In Peru, it is common in temperate forests from 900 to 1500 m. Bennett & Christenson (1998) illustrated the species as *I. peruvianus*, considered distinct from *I. linearis* on the basis of its smaller flowers and free lateral sepals.

42. Lycaste macrophylla (Poepp. & Endl.) Lindl., Edwards's Bot. Reg. 29: misc. 14. 1843. Fig. 29

Basionym: *Maxillaria macrophylla* Poepp. & Endl., Nov. Gen. Sp. Pl. 1: 37-38, t. 64. 1835 [1836].
Type: Peru. "Crescit in Peruviae transandinae fruticetis siccioribus tractus Chihuamccal in viciniis Cuchero", *Poeppig s.n.* (holotype, W).
Lycaste plana Lindl., Edwards's Bot. Reg. 29: t. 35. 1843.
Lycaste macrophylla var. *plana* (Lindl.) Oakeley, Lycaste, Ida, Anguloa 126. 2008.
Type: Bolivia. "Imported by Messrs. Loddiges, with whom it flowered in October last", *Loddiges s.n.* (holotype, K).
Lycaste macrophylla var. *alba* Oakeley, Lycaste, Ida, Anguloa 124. 2008.
Type: Peru?. Ex cultivation by Mr. Wuelfinghof, Germany, 11, May 1998, *H.F. Oakeley H52* (holotype, K).
Icones: AJB, Div. IV, 1255, tempera on paper by J.G. Rivera, plant habit with flower, floral dissections and fruit. «J.G.R. del [signature] / 377 / Orchis [Tafalla]».
Herbarium: MA 810771, pro parte: pseudobulb, inflorescence and flower mounted on top, left. «Gynandr. Diand. / Orchys / F. P. c. l. Nº 377. / Ex Chicop. A.º 95.» [Tafalla].

According to Oakeley (correction label 1999, and 2008) the pseudobulb with a short inflorescence and the flower mounted on the top left corner of the sheet correspond to the label handwritten by Tafalla (neither by Pavón, as suggested on the correction label of 1999, nor Ruiz, as in Oake-

Fig. 27. *Houlletia odoratissima*. AJB, Div. IV, 1278, tempera on paper by J.G. Rivera.

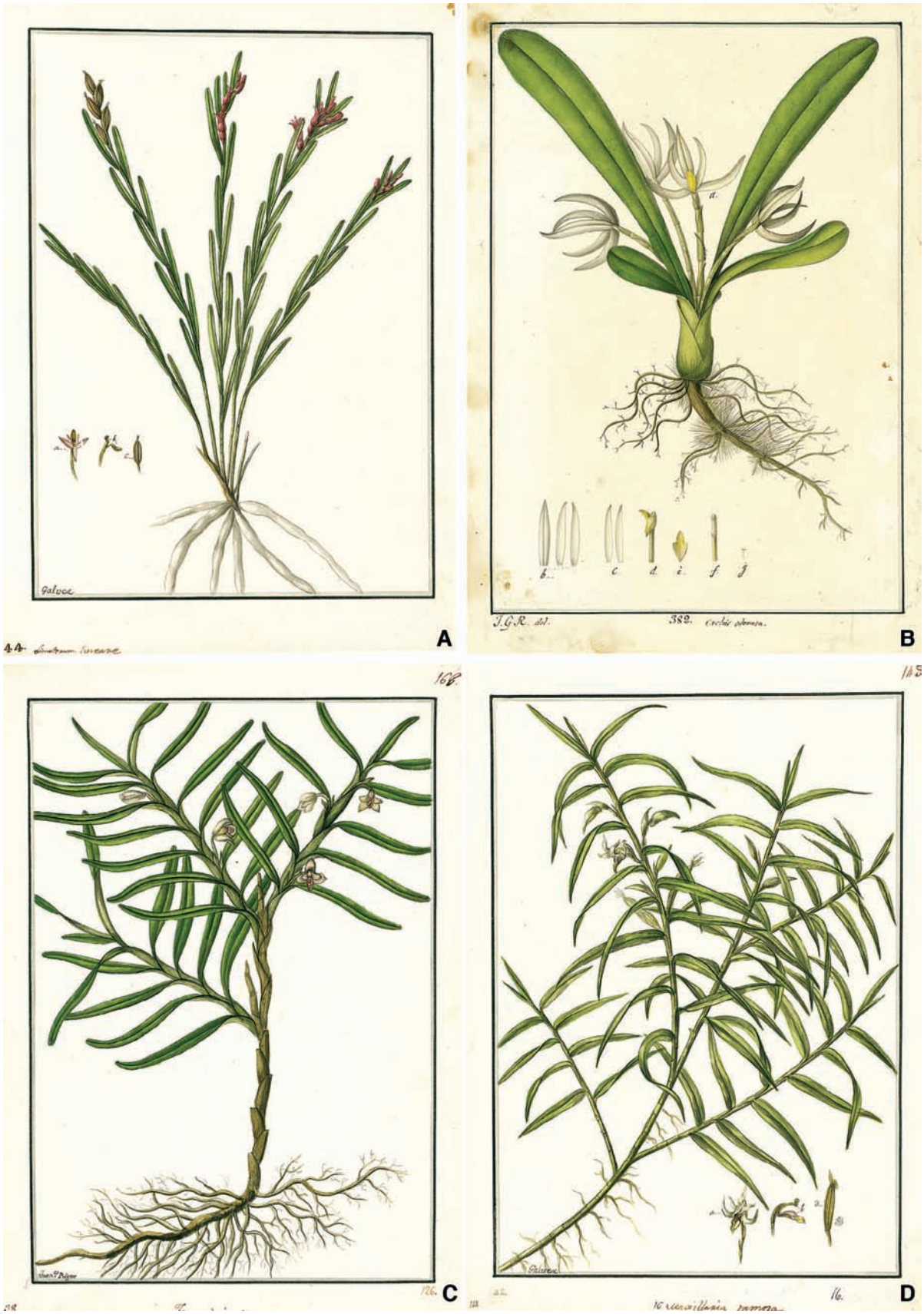

Fig. 28. **A,** *Isochilus linearis*. AJB, Div. IV, 1320, tempera on paper by I. Gálvez; **B,** *Maxillaria splendens*. AJB, Div. IV, 1256, tempera on paper by J. G. Rivera; **C,** *Maxillariella punctata*. AJB, Div. IV, 1250, drawing of type, tempera on paper by F. Pulgar; **D,** Lectotype of *Maxillariella ramosa*. AJB, Div. IV, 1243, tempera on paper by I. Gálvez.

Fig. 29. *Lycaste macrophylla*. AJB, Div. IV, 1255, tempera on paper by J. G. Rivera.

ley 2008). The number on the original label, «377», agrees with the illustration by J.G. Rivera, which represents the alba form of the species, recorded in Peru and Ecuador. The Archives of RJB also kept a manuscript description by Tafalla of this taxon, headed «L. N. 377. / Gynadria Diandria / Orchys / […]» (AJB, Div. IV, 4, 3).

A widespread species, highly variable in flower color and plant size, *L. macrophylla* has been considered a complex of closely related taxa, many of which have been treated at subspecific and varietal ranks. In its broad acceptation, the species ranges from Costa Rica to Bolivia and Peru. In the latter country, the typical form of *L. macrophylla* and its variations are common terrestrial and lithophytic, more rarely epiphytic, plants in both tropical and montane wet forests at (500)1300-2000 m, recorded in Amazonas, Cusco, Huánuco and San Martín provinces.

The large plants with waxy, fragrant flowers, variable in color, borne on erect, short to medium inflorescences with inflated bracts and provided with a distinctly 3-lobed lip, the lateral lobes erect and protruding beyond the isthmus, and the ligulate, concave callus with parallel edges, characterize the species.

43. Maxillaria longipetala Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 220. 1798. Fig. 30

Synonyms: *Dendrobium longipetalum* (Ruiz & Pav.) Pers., Syn. Pl. 2: 523. 1807.

Lycaste longipetala (Ruiz & Pav.) Garay, Caldasia 8(4): 524. 1962.

Sudamerlycaste longipetala (Ruiz & Pav.) Archila, Revista Guatemal. 5(3): 82. 2002.

Type: Peru. "Habitat in nemoribus Pillao, Acomayo et Pati supra saxa et arbores", *H. Ruiz & J. Pavón s.n.* (lectotype, MA).

Icones: AJB, Div. IV, 1236, drawing of type, proposed by McIllmurray & Oakeley (2004a) and selected here as the LECTOTYPUS, tempera on paper by I. Gálvez; habit with flowers, detail of the column and lip in lateral view, pollinarium and anther. «141 / Galvez [signature] / 114 / Maxillaria longipetala».

Herbarium: MA 810783 [?], sterile. «Herbarium Peruvianum / Ruiz et Pavon / 5/7 e».

Even tough *Maxillaria longipetala* has been consistently associated with *Lycaste* Lindl. (Schweinfurth, 1960, 1970; Dodson & Dodson, 1980; Brako & Zarucchi, 1993; Jørgensen & León-Yánez, 1999) and recently segregated genera (Archila Morales, 2002a, 2002b), the illustration by I. Gálvez unequivocally shows that it pertains to the core group of the genus *Maxillaria*; i.e., species with unifoliate pseudobulbs, provided with subtending, mostly non-foliaceous sheaths, and flowers with a prominent column foot and abundant perianth fibers (Blanco & al., 2007). McIllmurray & Oakeley (2004a) presented a detailed study of the identity of *M. longipetala*, partially translating Ruiz's unpublished manuscript in MA, headed «158 / Gynadria Diandria / Maxillaria longipetala / […]», which refers explicitly to plate 141 (AJB, Div. IV, 4, 3) and identifies the existing specimens previously referred to this taxon, conserved in MA and BM. The original confusion about the generic identity of *M. longipetala* probably stemmed from the sheet number 810776 in MA, which has a manuscirpt label by Ruiz: «Serapias? an Artehusa? [crossed] / Maxillaria / longipetala». The mounted specimen, consisting of two flowers and an inflorescence, undoubtedly corresponds to a species of the genus *Sudamerlycaste* Archila (maybe with the exception of the peduncle), which Oakeley (correction label 2009) identified as *Ida heynderycxii* (E. Morren) A. Ryan & Oakeley [= *Sudamerlycaste*] or *I. gigantea* (Lindl.) A. Ryan & Oakeley [=*Sudamerlycaste gigantea* (Lindl.) Archila]. The label by Ruiz, affixed to MA 810776, was evidently misplaced when the specimen was mounted.

Among the collections of Ruiz and Pavón in MA, there is another sheet that could represents a true specimen of *M. longipetala* (MA 810783), but it is sterile and is not annotated on the original labels by the botanists of the Expedition. The specimen consists of a single vegetative shoot, including a portion of the rhizome, the pseudobulb, the basal cataphylls, a leaf, and the base of an inflorescence. Mansfeld (correction label, 1928) suggested the possibility of associating it with "Lycaste longipetala". I consider that this hypothesis is not unlike, even though the availbale data do not allow a definitive identification of this sheet as part of the type material of *Maxillaria longipetala*.

On the other hand, the sheet conserved in the British Museum (BM 533583, digital image!), and erroneusly considered an isotype of *M. longipetala*, was originally annotated by Pavón as «Orchis odorata del Peru», and subsequently annotated by Lindley as «Maxillaria longipetala Fl. Per.». The name, "Orchis odorata", is the same noted on plate No. 1256 of the Ruiz and Pavón collection in MA, painted by J. G. Rivera, which undoubtedly illustrates a specimen of *Maxillaria* section *Multiflorae* Christenson.

For this reason, and in the absence of any other *exsiccata* definitely attributable to the type collection, the plate 114 by Gálvez is the only material eligible for the typification of *Maxillaria longipetala*. This was evidently the intention by McIllmurray and Oakeley (2004a), who, however, failed to formally designate the lectotype, according to art. 7.11 of the International Code of Botanical Nomenclature (McNeill & al., 2006). For this reason, and following their proposal, a lectotype of *M. longipetala* is designated in the present paper.

In his *Relación*, Ruiz notes that the first description and the illustration of *M. longipetala* were prepared in Muña in August-September 1786 (Ruiz 2007: 287; Ms. 54). He also mentions the species among those described in Chacahuasi in October 1787 (idem 303; Ms. 59).

Maxillaria longipetala could be the first available name for the species better known as *M. triloris* E. Morren (1870), originally described as from Venezuela, and also recorded in Colombia, Ecuador, and Peru, at elevations of 800 to 1800 m.

Fig. 30. Lectotype of *Maxillaria longipetala*. AJB, Div. IV, 1236, tempera on paper by I. Gálvez.

44. Maxillaria platypetala Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 221. 1798. Fig. 31

Synonym: *Dendrobium platypetalum* (Ruiz & Pav.) Pers., Syn. Pl. 2: 523. 1807.

Type: Peru. Huánuco: "Habitat in Peruviae montibus nemorosis ad Muña et Chaclla vicos", *H. Ruiz & J. Pavón s.n.* (holotype, MA).

Icones: AJB, Div. IV, 1237, illustration of type, tempera on paper by I. Gálvez; plant habit with flowers, lateral view of column and lip, pollinarium and anther. «142 / Galvez [signature] / Maxillaria platypetala [Ruiz] / no 90».

Herbarium: MA 810784, HOLOTYPUS, fertile. «Arethusa? grandiflora / Maxillaria / grandiflora» [Ruiz].

Prodromus: Icona 25, MAXILLARIA. The flowers in frontal and lateral views, and the details of the column and lip, pollen, and anther, were engraved from the original illustration by Gálvez.

The Journal by Ruiz makes no mention of *Maxillaria platypetala*, but it refers on two occasions to "Maxillaria grandiflora", the first when speaking about the rich orchid diversity found at Huassahuassi and Palca (Ruiz 2007: 136; Ms. 12), and the second in the report of the descriptions and illustrations prepared during the stay in Muna, in August-September 1786 (*idem* 287; Ms. 54). The same name, «Maxillaria / grandiflora» (as well as «Arethusa? grandiflora»), is annotated in Ruiz's handwriting on the specimens MA 810784. This was ostensibly the first name chosen by Ruiz for the species later published as *M. platypetala*. In the unpublished Ruiz manuscript,which includes a detailed description of *M. platypetala* (AJB, Div. IV, 4, 3, «159 / Gynadria Diandria / Maxillaria platypetala / […] ic. 142»), the preliminary name «Arethusa grandiflora» was crossed and replaced by Ruiz himself with the current name of *Maxillaria platypetala*. McIllmurray and Oakeley (2001) informally proposed to typify *M. platypetala* with the illustration by I. Gálvez, but this proposal is made superfluous by the presence of an actual holotype in the Herbarium Peruvianum by Ruiz and Pavón in MA.

The type sheet (MA 810784) has a plant and a single flower, which is mounted on a separate leaflet in non-resupinate position. The basal, large, non-foliaceous sheaths enveloping the pseudobulb, the long-petiolate leaves, the long inflorescences enveloped by several imbricate, tubular, compressed bracts, and the large, non resupinate, white flowers with rose and yellow lip are diagnostic of the species and agree with the features of the plant labelled by Ruiz as "Maxillaria grandiflora". Foldats (correction label, 1992) identified this specimen as *Maxillaria grandiflora* (Kunth) Lindl., based on *Dendrobium grandiflorum* Kunth, but the latter species has resupinate flowers held on shorter inflorescences (less than 15 cm long).

Maxillaria platypetala is endemic to Peru, where it has been recorded in Huánuco and Pasco. The species inhabits wet, cool forests between 1900 and 2500 m.

45. Maxillaria prolifera Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 226. 1798. Fig. 32

Synonym: *Dendrobium proliferum* (Ruiz & Pav.) Pers., Syn. Pl. 2: 524. 1807.

Type: Peru. Junín: "Habitat in Huassahuassi frigidis locis ubi cl. Tafalla plantam descripsit et delineavit", *J.J. Tafalla s.n.* (holotype, MA).

Icones: AJB, Div. IV, 1240, drawing of type, tempera on paper by F. Pulgar; plant habit with flowers, single flower and floral dissections. «Fran.co Pulgar [signature] / 114 / Maxillaria prolifera [Ruiz]».

Herbarium: MA 810803, HOLOTYPUS, sterile. «Gynand. Diand. / Ophrys? / F. P. c. L. N.º 114 / Ex Huassa-huassi Año 94» [Tafalla].

Ruiz and Pavón (1798) published a short diagnosis of *Maxillaria prolifera* based on the material originally collected and described by Tafalla, and illustrated by Francisco Pulgar six years after their departure from Peru.

Maxillaria prolifera most probably belongs to the genus *Ornithidium* Salisb., according to the characterization of the genus proposed by Blanco and collaborators (2007), i.e., plants frequently long-rhizomatous, with stems and leaves of most species with an olive green coloration, thick roots, usually fascicled inflorescences, and small, campanulate-subglobose flowers. However, the specific epithet is predated, in *Ornithidium*, by *O. proliferum* Fawc. & Rendle, published in 1910 for a West Indian species described from Jamaica.

46. Maxillaria splendens Poepp. & Endl., Nov. Gen. Sp. Pl. 1: 38. 1836, *vel affinis*. Fig. 28B

Type: Peru. Lima: "Crescit […] in primis in tractu montium ad praedio Pampayaco meridiem versus sito", *E. Poeppig 1129* (holotype, W).

Icones: AJB, Div. IV, 1256, tempera on paper by J.G. Rivera; plant habit with flowers and floral dissection. «J. G. R. del [signature] 382 / Orchis odorata».

Herbarium: MA 810779, fertile. «Gynand. Diand. / Orchys odorata / F. P. c. l. nº 382. / Ex Chicop. A.º 98.»; «Herbarium Peruvianum / Ruiz et Pavon / 25/18». MA 810780, sterile. «Herbarium Peruvianum / Ruiz et Pavon / 25/18».

Maxillaria splendens is endemic to Peru, where it grows epiphytically (occasionally as a terrestrial) in wet montane forests at elevations of about 2000 m.

It is distinguished by the compressed pseudobulbs enclosed at the base by several foliaceousand non-foliaceous sheaths, monophyllous at apex, the axillary fascicles of numerous flowers, borne on long pedicels covered with numerous elongate, tubular, membraneous bracts, and the white flowers with orange-yellow lip.

The number of the plate by José Gabriel Rivera, «382», agrees with the original label of the exsiccata kept in MA. The Archives of RJB also host the original description of this plant, in a *recto* and *verso* manuscript headed «L. 382. / Gynadria Diandria / Orchys / […]» (AJB, Div. IV, 4, 3). According to the manuscript, the plant illustrated by J.G. Rivera was collected during the excursions of the *agregados*, Tafalla and J.A. Manzanilla, to Chicoplaya and

Fig. 31. *Maxillaria platypetala*. AJB, Div. IV, 1237, drawing of type, tempera on paper by I. Gálvez.

Fig. 32. *Maxillaria prolifera*. AJB, Div. IV, 1240, drawing of type, tempera on paper by F. Pulgar.

the Monzón mountains, in 1798 («Habitat Silvis Chicoplaya [sic]»).

Another specimen of the same species of *Maxillaria*, originally collected by the Expedition and eventually sold to Lambert, is kept at the British Museum. It was annotated by Pavón: «Orchis odorata del Peru». John Lindley successively identified the specimen as *Maxillaria longipetala*, and for this reason it has been considered erroneously as an isotype of the latter species.

McIllmurray and Oakeley (2004b) discussed the concept of "Orchis odorata" *sensu* Ruiz y Pavón, concluding that it belongs to the section *Multiflorae* of *Maxillaria*, a large group of taxa close to *M. splendens*, and suggesting it has a close resemblance to *M. mathewsii* Lindl. (*non* Rchb.f., 1863).

47. Maxillariella punctata (Ruiz & Pav.) Pupulin, **comb. nov.** Fig. 28C

Basionym: *Fernandezia punctata* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 239. 1798.

Type: Peru. Huánuco: "Habitat in Muña supra arbores et saxa", *H. Ruiz & J. Pavón s.n.* (holotype, MA; isotypes, MA).

Synonyms: *Camaridium arbuscula* Lindl., Pl. Hartw. 153. 1845.

Maxillaria arbuscula (Lindl.) Rchb.f., Bonplandia 4: 213. 1856.

Adamanthus arbuscula (Rchb. f.) Szlach., Richardiana 7: 30. 2007 [2006].

Maxillariella arbuscula (Lindl.) M.A. Blanco & Carnevali, Lankesteriana 7(3): 528. 2007.

Type: Ecuador. "In montibus Loxa", *T. Hartweg s.n.* (holotype, K).

Icones: AJB, Div. IV, 1250, drawing of type, tempera on paper by F. Pulgar, plant habit with flowers. «168 / Franc.co Pulgar [signature] / 126. / 38 Fernandezia Punctata [Ruiz]».

Herbarium: MA 810740, HOLOTYPUS, fertile. «Complanata [crossed] / Fernandezia / Punctata» [Ruiz]. «Herbarium Peruvianum / Ruiz et Pavon / 4/94». MA 810738, ISOTYPUS, fertile. «Herbarium Peruvianum / Ruiz et Pavon / 4/94». MA 810739, ISOTYPUS, sterile. «Herbarium Peruvianum / Ruiz et Pavon / 4/94».

Recorded in Ecuador, Peru and Bolivia, *M. punctata* is an epiphytic, rarely terrestrial species in premontane and montane wet forest at elevations of 1200 to over 3000 m. In Peru, populations are found Amazonas, Cajamarca, Huánuco and Pasco, usually in cool forests at 200-2600 m.

The plants formed by slender, branching stems with distichously arranged, linear-ligulate leaves unequally bilobed at apex, the axillary inflorescences carrying a single flower with a long pedicel spotted with purple, and the white flowers finely spotted with crimson and flushed purple on the proximal portion of the lip, are diagnostic of *M. punctuata*.

According to the *Relación* by Ruiz, the original description and illustration were prepared in Muña, during the stay of the Expedition in August-September 1786 (Ruiz, 2007: 287; Ms. 55).

48. Maxillariella ramosa (Ruiz & Pav.) Pupulin, **comb. nov.** Fig. 28D

Basionym: *Maxillaria ramosa* Ruiz & Pav., Syst. Veg. Fl. Peruv. Chil. 1: 226, 1798.

Type: Peru. Huánuco: "Habitat in nemoribu Chichao supra arbores ad Mesapata in Machaynio praedia", *H. Ruiz & J. Pavón s.n.* (lectotype, MA).

Icones: AJB, Div. IV, 1243, drawing of type, tempera on paper by I. Gálvez, proposed by McIllmurray & Oakeley (2001, 2004b), and designated here as the LECTOTYPUS; plant habit with flowers, single flower, detail of the column and lip in lateral view, fruit and seeds. «148 [Ruiz] / Galvez [signature] / 42. / 16 [alia manu] / 114 / 16 [alia manu] Maxillaria ramosa [Ruiz]».

Herbarium: no materials of this species are present in MA.

The typification of *Maxillaria ramosa*, as well as the understanding of its real taxonomic identity, has been particularly problematic. The name has been generally misapplied to *Ornithidium pendulum* (Garay, 1967; Garay & Sweet, 1972; Dodson & Dodson, 1980; Brako & Zarucchi, 1993; Jørgensen & León-Yánez, 1999; Atwood, 2001, among others) a different species, which in turn has been described under six different names from three to four countries (see Blanco & al., 2008), including *Scaphyglottis tafallae* Rchb.f., also described from the original materials of the Expedition. McIllmurray and Oakeley (2004b) unraveled part of the confusion, presenting for the first time the illustration of *Maxillaria ramosa* painted by Isidro Gálvez and discussing the original manuscript by Ruiz kept in the Archives of RJB.

The plate by Gálvez, annotated by Ruiz with the name «Maxillaria ramosa», bears several numbers, of which «42» was probably the original assigned to the illustration. Number «16» was surely written later, and with a different color of ink. It is also written in front of the name annotated by Ruiz, something not found in any other of the orchid plates by the Expedition. It probably corresponds to the numeration adopted in the *Systema* (Ruiz & Pavón, 1798), in which consecutive numbers were assigned to the species of each genus. Other numbers handwritten on the plate are «148» (upper right corner, in Ruiz's handwriting) and «114» (bottom, left corner). What it is sure is that the illustration was painted ante 1788, when Isidro Gálvez sailed to Spain with Ruiz and Pavón, and therefore cannot be associated in any way (as noted by McIllmurray & Oakeley, 2004b; Blanco & al., 2008) with the plants collected at Chicoplaya almost ten years later (MA 810802, G, W), on which Reichenbach based his *Scaphyglottis tafallae*.

It is fortunate that the Archives of the RJB maintain, among other manuscripts by Ruiz, Pavón, Tafalla, and Manzanilla, also the original, extended, manuscript description of *Maxillaria ramosa* («Gynandria Diandria / Maxillaria ramosa ic. 148», AJB Div. IV, 4, 3). Here Ruiz described the stems as foliaceous («Caulis ramosum, foliosum, vaginatus, radicand, teres») and gave a description of the leaves as «lanceolate, acute, distichous, alternate, sheeting, patent»; the flowers are described as yellowish white («Corolla albolutescens»), with the lip yellow, and purplish on the inferior

side. Most importantly, he annotated the number of the plate which illustrates the species, «ic. 148», the same number written by him on the illustration which serves as the lectotype.

As McIllmurray and Oakeley (2001, 2004b) indisputably showed, the illustration by Gálvez corresponds to the protologue, and in turn to Ruiz's unpublished manuscript. As the latter does not bear a reference by Ruiz to any *exsiccatum* (he usually referred to dry vouchers with the expression «c. esqueleto»), it is probable that the original specimen became lost during the Macora fire in 1785. Consequently, the authors are right in suggesting typifying the species with the only extant original illustration. However, in discussing the status of *Maxillaria ramosa*, McIllmurray and Oakeley (2004b) referred to their previous paper on *Maxillaria platypetala* (McIllmurray & Oakeley, 2001) concerning the species' lectotypification, but the proposed lectotype was not formally designated in neither of their papers, according to ICBN art. 7.11 (McNeill & al., 2006, see Blanco & al., 2008). For this reason a lectotype is selected here in accordance with the mandatory rule of the Code.

In a recent paper, and in consideration of the long history of misapplication of the name *M. ramosa*, Blanco and collaborators (2008) suggest that a case can be made for its rejection, according to art. 56 and 57 of the ICBN (McNeill & al., 2006), and the authors eventually opted for not transferring the name to *Maxillariella* (Blanco & al., 2008). I rather agree with McIllmurray and Oaekeley (2004b), that the name has not been used consistently in any sense since its publication in 1798, and its transfer to *Maxillariella* could avoid further confusion on this matter.

On the other hand, the status of "Orchis ramosa" sensu Tafalla is clairified by the existence of a descriptive manuscript in the Archives of RJB [«Nº 16 / 14 (*alia manu*) / Gynandria Diandria / Orchys / ramosa (…), AJB, Div. IV, 4, 3], which corresponds with and explicitly refers to the specimens conserved in MA (810802), W (fragment), B (destroyed) and G (digital image!), the latter mistakenly selected as the type of *Maxillaria ramosa* (McIllmurray & Oakeley, 2001; Atwood, 2001).

According to Ruiz's journal, the members of the Expedition visited Maichainio (one of the type locations) on August 3, 1780 (Ruiz, 2007: 164; Ms. 21), and the hacienda of Mesapata in July of 1785 (idem, 264; Ms. 46d). It was probably during the stay in Macora, from the end of June and the beginning of August, 1785, that Gálvez illustrated *M. ramosa*. The original description of the species was lost during the Macora fire; Ruiz recorded the name of *M. ramosa* among the species that were re-described in Huánuco in 1785-86 (idem, 281; Ms. 53).

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REFERENCES

Ames, O. 1923. Orchidaceae quaedam Americanae. II. *Schedulae Orchidianae* 2: 1-24.

Angely, J. 1973 ("1970"). Flora Analítica e Fitogeográfica do Estado de São Paulo, tomo 6. São Paulo.

Archila Morales, F.L. 2002a. *Sudamerlycaste* Archila, un género nuevo para Sudamérica. *Revista Guatemalensis* 5(2): no pagination.

Archila Morales, F.L. 2002b. Addenda et corrigenda para *Sudamerlycaste* Archila. *Revista Guatemalensis* 5(3): 77-82.

Atwood, J.T. 2001. Letter to the Editor. *Orchid Review* 109: 316-317.

Barreiro, A. (ed.). 1931. Relación del Viage hecho a los Reynos de Perú y Chile… Extractados por los Diarios por el orden que llevó en estos su autor Don Hipólito Ruiz. Madrid, Real Academia de Ciencias Exactas, Físicas y Naturales.

Bennett, D.E. & E. Christenson. 1995. New species of Peruvian. Orchidaceae III. *Brittonia* 47(2):182-200.

Bennett, D.E. & E.A. Christenson. 1998. I*cones Orchidacearum Peruvianum.* Part 3, t. 401-600. Lima, Ed. A. Pastorelli de Bennett.

Blanco, M.A., G. Carnevali, W.M. Whitten, R.B. Singer, S. Koehler, N.H. Williams, I. Ojeda, K.M. Neubig & L. Endara. 2007. Generic realignments in Maxillariinae (Orchidaceae). *Lankesteriana* 7(3): 515-537.

Blanco, M.A., G. Carnevali, D. Bogarín & R.B. Singer. 2008. Further disentangling of a taxonomic puzzle: *Maxillaria ramosa, Ornithidium pendulum*, and a new species, *O. elianae* (Orchidaceae). *Harvard Papers in Botany* 13(1): 137-154.

Bleichmar, D. 2008. Atlantic competitions. Botany in the Eighteenth-Century Spanish Empire. Pp. 225- 251. In: J. Delbourgo & N. Dew (eds.), *Science and Empire in the Atlantic World.* New York, Routledge.

Brako, L. & J.L. Zarucchi 1993. Catalogue of the flowering plants and Gymnosperms of Peru. *Monographs in Systematic Botany from the Missouri Botanical Garden* 45: i-xl, 1-1286.

Collantes, B. 2006. Peruvian orchids in danger. http://www.livinginperu.com/features-102-general-peruvian-orchids-danger, 20 June, 2006, consulted on June 18, 2010.

Colmeiro, M. 1875. Bosquejo histórico y estadístico del Jardín Botánico de Madrid. *Anales de la Sociedad Española de Historia Natural* 4: 241-345.

Correll, D.S. 1941. Studies in *Isochilus*, *Mormodes* and *Hexalectris*. *Botanical Museum Leaflets, Harvard University* 10: 1-24.

D'Arcy, W.G. 1987. Flora of Panama. Checklist and Index. *Monographs in Systematic Botany from the Missouri Botanical Garden* 17(1): i-xxx, 1-328; 18(2): i-ix, 1-672.

Dodson, C.H. & D.E. Bennett. 1989. Orchids of Peru. Fasc. 2. *Icones Plantarum Tropicarum, ser. 2*: pl. 101-200.

Dodson, C.H. & P.M. Dodson 1980. Orchids of Ecuador. *Icones Plantarum Tropicarum* 1: pl. 1-100.

Dodson, C.H. & C.A. Luer. 2005. Orchidaceae. Genera *Aa-Cyrtidiorchis*. *In*: G. Harling & L. Andersson (eds.), *Flora of Ecuador* 76: 1-347. Botanical Institute, Göteborg University.

Dodson, C.H. & R. Vásquez. 1989. *Epidendrum parviflorum* R. & P. Pl. 226. In: C.H. Dodson (ed.). Orchids of Bolivia. *Icones Plantarum Tropicarum, ser. 2*. Missouri Botanical Garden, St. Louis.

Dressler, R.L. 1989. Will the real *Epidendrum ibaguense* please stand up?. *American Orchid Society Bulletin* 58: 796-800.

Dressler, R.L., M.A. Blanco, F. Pupulin & K.M. Neubig. 2011. Proposal to conserve the name *Sobralia* (Orchidaceae) with a conserved type. *Taxon* 60(3): 907-908.

Estrella, E. (ed.). 1989. *Flora Huayaquilensis sive descriptiones et icones plantarum Huayaquilensium secundum systema Linnaeanum digestae / Auctore Johanne Tafalla.* 2 vols. Icona and Real Jardín Botánico, Madrid.

Estrella, E. 1995. *La "Flora Huayaquilensis" de Juan Tafalla. Crónica e Iconografía de una Expedición Silenciada (1799-1808).* Banco del Progreso, Jardín Botánico de Guayaquil, Guayaquil. 2nd edition.

Estrella, E.J. Núñez & S. Lara. 1991. *Flora huayaquilensis: la Expedición Botánica de Juan Tafalla a la Real Audiencia de Quito, 1799-1808.* Ediciones Abya-Yala, Centro Cultural Artes. Quito.

Foster, R.C. 1958. A catalogue of the ferns and flowering plants of Bolivia. *Contributions from the Gray Herbarium* 184: 1-223.

Garay, L.A. 1967. Studies in American orchids VI. *Botanical Museum Leaflets, Harvard University* 21: 249-264.

Garay, L.A. 1978a. Studies in American orchids X. *Botanical Museum Leaflets, Harvard University* 26(1): 1-38.

Garay, L.A. 1978b. Orchidaceae (Cypripedioideae, Orchidoideae, Neottioideae). In: G. Harling. & B. Sparre (eds.), *Flora of Ecuador* 9: 1-305. University of Göteborg and Swedish Museum of Natural History, Göteborg and Stockholm.

Garay. L.A. & H.R. Sweet. 1972. Notes on West Indian orchids, III. *Journal of the Arnold Arboretum* 53: 515-530.

Garay, L.A. & G.A. Romero-González. 1998. Schedulae Orchidum. *Harvard Papers in Botany* 3(1): 53-62.

Garay, L.A. & G. Romero-González. 1999. Schedulae Orchidum II. *Harvard Papers in Botany* 4(2): 475-488.

García Guillén, E. & O. Muñoz Paz. 2003. Historia administrativa y organización de los fondos de la Expedición al Virreinato del Perú (1777-1831). Pp. 171-220. In: F. Muñoz Garmendía (ed.), *La botánica al servicio de la Corona. La expedición de Ruiz, Pavón y Dombey al Virreinato del Perú (1777-1831).* Barcelona, Lunwerg / CSIC.

González Bueno, A. 2008. José Celestino Mutis (1732-1808). Naturaleza y arte en el Nuevo Reyno de Granada. Edición conmemorativa del II Centenario. AECID y CSIS, Madrid.

González Bueno, A. 2009. La naturaleza en imágenes. Los pintores de la Flora del Nuevo Reyno de Granada. Pp. 211-238. In: B. Ribas Ozonas (ed.). *José celestino Mutis en el bicentenario de su fallecimiento (1808-2008).* Instituto de España, Real Academia Nacional de Farmacia. Mongrafía 26. Madrid.

Govaerts, R. 2010. World Checklist of Selected Plant Families. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet at http://apps.kew.org/wcsp/

Hágsater, E., J. García-Cruz & L. Sánchez-Saldaña. 2003. *Epidendrum*. Pp. 101-169. In: B.E. Hammel, M.H. Grayum, C. Herrera & N. Zamora (eds.), Manual de Plantas de Costa Rica. Vol. 3: Molocotiledóneas (Orchidaceae-Zingiberaceae). *Monographs in Systematic Botany from the Missouri Botanical Garden* 93.

Hágsater, E. 2008 (ed.). The genus *Epidendrum*. Part 7. "Species new & old in *Epidendrum*". *Icones Orchidacearum (Mexico)* 11: i-xxvii, pl. 1101-1200.

Hágsater, E. 2009 (ed.). The genus *Epidendrum*. Part 78. "Species new & old in *Epidendrum*". *Icones Orchidacearum (Mexico)* 12: i-v, pl. 1201-1300.

Hiepko, P. 1987. The collections of the Botanical Museum Berlin-Dahlem (B) and their history. *Englera* 7: 219-252.

Jenny, R. 2003. *Gongora*, uno status riconosciuto dal 1993 ed una checklist attuale / *Gongora*, a status recognized since 1993 and a current checklist. *Caesiana* 20: 1-34.

Jørgensen, P.M. & S. León-Yánez. 1999. Catalogue of the vascular plants of Ecuador. *Monographs in Systematic Botany from the Missouri Botanical Garden* 75.

Kränzlin, F.W.L. 1928. Orchidaceae novae Bolivianae. *Repertorium Specierum Novarum Regni Vegetabilis* 25: 18-32.

Lack, H.W. 1979. Die südamerikanischen Sammlungen von H. Ruiz und Mitarbeitern im Botanischen Museum Berlin-Dahlem. *Willdenowia* 9: 177-198.

Lindley, J. 1833. *Synassa* Lindl. *Edward's Bot. Reg.* 19: sub. t. 1618.

Lindley, J. 1838 [1841]. Sertum Orchidaceum: a Wreath of the Most Beautiful Orchidaceous Flowers. J. Ridgways, London.

Lindley, J. 1840. The Genera and Species of Orchidaceous Plants. J. Ridgways, London.

Lindley, J. 1841. Notes upon the genus *Epidendrum*. *J. Bot. (Hooker)* 3: 81-89.

Lindley, J. 1845a. Orchidaceae Loxenses. Pp. 149-156. In: G. Bentham, Plantas Hartwegianas imprimis Mexicanas adjectis nunnullis Grahamianis enumerat novasque describit. Part 2. *Plantarum Hartwegianarum.* George Bentham, London.

Lindley, J. 1845b. Miscellaneous matters, no. 38. *Edward's Bot. Reg.* 31: Misc. 59.

Linné, C. von. 1735. Systema naturæ, sive regna tria naturæ systematice proposita per classes, ordines, genera, & species. Haak, Lugduni Batavorum.

Luer, C.A. 2004. New species and combinations in the Pleurothallidinae. Pp. 253-265. In: C.A. Luer, Icones pleurothallidinarum XXVI. *Monographs in Systematic Botany from the Missouri Botanical Garden* 95: 253-265.

Mathews, A. 1832a. Letter to Sir William Jackson Hooker; from Lima, 7 July 1832; four page letter comprising three images. Directors' Correspondence 67/115. Library and Archives at Royal Botanic Gardens, Kew.

Mathews, A. 1832b. Letter to Sir William Jackson Hooker, from Lima; c.1832; four page letter comprising four images. Directors' Correspondence 67/116. Library and Archives at Royal Botanic Gardens, Kew.

McIllmurray, M., & H.F. Oakeley. 2001. *Maxillaria platypetala* Ruiz & Pav., the type for the genus. *Orchid Review* 109: 49-51.

McIllmurray, M., & H.F. Oakeley. 2004a. Definizione del tipo di *Maxillaria longipetala* Ruiz & Pav., description of *Orchis odorata sensu* Ruiz & Pav. e sua relazione con *Maxillaria longipetala* Barb. Rodr. / Typification of *Maxillaria longipetala* Ruiz & Pav. Unpublished and its Realtionship to *Maxillaria longipetala* Barb. Rodr. *Caesiana* 23: 1-6.

McIllmurray, M., & H.F. Oakeley. 2004b. Definizione del tipo di *Maxillaria ramosa* Ruiz & Pavon./Typification of the name *Maxillaria ramosa* Ruiz & Pavon. *Caesiana* 23: 33-41.

McNeill, J., F.R. Barrie, H.M. Burdet, V. Demoulin, D.L. Hawksworth, K. Marhold, D.H. Nicholson, J. Prado, P.C. Sulva, J.E. Skog, J.H. Wiersema & N.J. Turland. 2006. International Code of Botanical Nomenclature (Vienna Code). Repert. Sp. Nov. Reg. Veg. 146. Available online at: http://ibot.sav.sk/icbn/main.htm.

Miller, H.S. 1970. The herbarium of Aylmer Bourke Lambert: notes on its acquisition, dispersal, and present whereabouts. *Taxon* 19: 489-553.

Oakeley, H.F. 2008. *Lycaste, Ida* and *Anguloa*. The essential guide. Cambrian Printers, Aberystwyth, Wales, U.K.

Poeppig, E.F. & S.F.L. Endlicher. 1837. *Nova Genera ac Species Plantarum,* vol, 1. Friderich Hofmeister, Leipzig.

Puig-Samper Mulero, M.A. & F. Pelayo López. 2009. El Archivo de las expediciones botánicas. Pp. 88-141. In: San Pío Aladrén, M.P. (ed.). *Memoria y naturaleza: el Archivo del Real Jardín Botánico de Madrid.* Lunwerg Editores, Madrid.

Reichenbach, H.G. 1854b. Orchideae Warscewizianae recentiores. *Bonplandia* 2(9): 107-116.

Reichenbach, H.G. 1856. Orchideae Ruizianae et Pavonianae Musaei Boisseriani. *Bonplandia* 2(18-19): 210-217.

Rodríguez Nozal, R. 1994. Las colecciones americanas generadas por las Expediciones Botánicas de la España ilustrada: un análisis de su dispersión. *Lulloa* 17: 403-436.

Ruiz, H. 2007. *Relación del viaje hecho a los reinos de Perú y Chile por los botánicos y dibujantes enviados por el Rey para aquella expedición, extractada de los diarios por el orden que llevó en éstos su autor.* Introdución, transcripción y notas de Raúl Rodríguez Nozal y Antonio González Bueno. Madrid, Los Libros de la Catarata.

Ruiz, H. & J. Pavón. 1794. *Flora peruvianae et chilensis prodromus.* Madrid.

Ruiz, H. & J. Pavon. 1798. *Systema vegetabilium Florae Peruvianae et Chilensis, characteres prodromi genericos differentiales, specierum om-*

nium differentias, durationem, loca natalia, tempus florendi, nomina vernacula, vires et usus nonnullis illustrationibus interspersis complectens. Madrid, Typis Gabrielis de Sancha.

Santiago, E. & E. Hágsater. In press. *Epidendrum paniculatum* Ruiz & Pav. In: E. Hágsater (ed.). The Genus *Epidendrum,* Part 10. "Species New & Old in Epidendrum". *Icones Orchidacearum* 14.

Schlechter, R. 1924. Beiträge zur Orchideenkunde von Colombia. I. Orchidaceae Hoppianae. *Repertorium Specierum Novarum Regni Vegetabilis Beihefte* 27: 5-123.

Schlechetr, R. 1992. Beiträge zur Orchideenkunde von Zentralamerika. I. Orchidaceae Powellianae Panamenses. *Repertorium Specierum Novarum Regni Vegetabilis Beihefte* 22.

Schweinfurth, C. 1958. Orchidaceae, Orchids of Peru. *Fieldiana, Botany* 30(1): 1-260.

Schweinfurth, C. 1959. Orchidaceae, Orchids of Peru. *Fieldiana, Botany* 30(2): 261-531.

Schweinfurth, C. 1960. Orchidaceae, Orchids of Peru. *Fieldiana, Botany* 30(3): 533-785.

Schweinfurth, C. 1961. Orchidaceae, Orchids of Peru. *Fieldiana, Botany* 30(4): 787-1026.

Schweinfurth C. 1970. First supplement to the Orchids of Peru. *Fieldiana, Botany* 33: 1-85.

Stafleu F.A. & R.S. Cowan. 1979. Taxonomic literature 2. *Regnum vegetabile* 98.

Steele, A.R. 1964. *Flowers for the king: the expedition of Ruiz and Pavón and the Flora of Peru.* Duke University Press, Durham, North Carolina.

Tafalla, J.J. 1989. *Flora Huayaquilensis, sive descriptiones et icones plantarum Huayaquilensium secundum systema Linnaeanum digestae.* 2 vols. Madrid, Icona and Real Jardín Botánico.

Vásquez C., R. & P.L. Ibisch (eds.). 2004. Orquídeas de Bolivia. Diversidad y estado de conservación. Vol II. Laeliinae, Polystachyinae, Sobraliinae con actualización y complementación de Pleurothallidinae. Editorial FAN, Santa Cruz-Bolivia.

Williams, B. S. 1871. *The orchid-grower's manual, containing brief descriptions of upwards of eight hundred species and varieties of orchidaceous plants; together with notices of their times of flowering, and most approved modes of treatment...* London, Victoria and Paradise nurseries.

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