

On the typification of *Anthurium* sect. *Belolonchium* (Schott) Engl. (Araceae—Pothoideae)

Alistair Hay^{1,2} Thomas B. Croat³, Mónica Carlsen⁴, Martín Llano-Almario⁵ & Oscar López-Floriano⁶

¹Jardín Botánico Paz y Flora, Bitaco, Valle del Cauca, Colombia.

²Australian Institute of Botanical Science, Botanic Gardens of Sydney, Mrs Macquarie's Road, Sydney 2000, Australia.

³P.A. Schulze Curator of Botany, Missouri Botanical Garden, 4344 Shaw Blvd., St. Louis, MO 63110, USA.

⁴Latin America Department, Science and Conservation Division, Missouri Botanical Garden, 4344 Shaw Boulevard, St. Louis, Missouri 63110, U.S.A.

⁵Departamento de Biología, Universidad del Valle, Calle 13 # 100-00, Cali, Valle del Cauca, Colombia.

⁶Herbario Enrique Forero HUAZ, Grupo de investigación en Botánica Uniamazonia, Universidad de la Amazonia, Calle 17 Diagonal 17 con Carrera 3F - Barrio Porvenir, Florencia, Colombia.

ABSTRACT

Four species are eligible as lectotypes for *Anthurium* sect. *Belolonchium* (Schott) Engl., now a very large and significant group of mostly Andean species requiring the application of the sectional name to be formally anchored by the designation of a type species. Each of the four is discussed in turn, and a rationale is provided for why they are, or are not, suitable for the purpose. Only one of the four species Schott included in grex *Belolonchium* unambiguously accords with the modern interpretation of the section whose morphological circumscription is further buttressed by molecular analysis. That species, *Anthurium nitidum* Benth., is therefore formally designated the lectotype of the section here. Ambiguities around the identity and geographic origin of *Anthurium oxybelium* Schott are explored, concluding that it is almost certainly not the widespread Andean species with which the name has often been associated. Nomenclatural issues surrounding later treatment by Engler of one of the four species, *Anthurium subsagittatum* (Kunth) Kunth, are also highlighted. A brief explanation of the purpose of typification is given for lay readers.

Key words: *Anthurium nitidum*; *A. subbastatum*; *A. subsagittatum*; *A. oxybelium*; William Purdie; La Guajira; Sierra Nevada, 'Charocapa'; Theodor Hartweg; Cauca.

INTRODUCTION

The large and important, mostly Andean *Anthurium* section *Belolonchium* (Schott) Engl., which became increasingly heterogeneous in its treatment in various publications by Engler, was explicitly based on *Anthurium* grex *Belolonchium* Schott. The grex included only four species from which a lectotype must be selected for the section, but under today's understanding, the species Schott included are at least in part not closely related to one another. Each of those four candidate species will be discussed in turn in the context of a lectotypification aligned with modern application of the sectional name which has become more clearly focussed with extensive and intensive alpha-taxonomic work, and molecular analyses.

For I.A.S. members and other readers who are not familiar with this technical term, 'typification' is, in our context, the designation of 'type' which is in turn a preserved object, usually a specimen, but sometimes an illustration, which serves the purpose of forming a permanent link between a plant taxon (i.e. a variety or subspecies or species or section or genus) and its scientific name. Without types, it would be impossible to say in a rigorous way that such and such scientific name can be correctly applied to a particular taxon, and that the same name cannot be correctly applicable to other taxa, making communicating about them very much harder than it now is. The type does not say anything about how the taxon should be circumscribed botanically, which may change with new information or with taxonomists' differing perspectives, but typification enables one to label the taxon with a name which can be corroborated by examination of the type.

In the early days of specialist aroid classification, beginning principally with the Austrian H.W. Schott (1794–1865), followed by the German H.G.A. Engler (1844–1930), the modern concept of types did not exist as such. Although it had been considered long before, the 'type method' of fixing the application of plant names did not become internationally adopted until the publication in 1934 of the *International Rules of Botanical Nomenclature adopted by the 5th International Botanical Congress in Cambridge, 1930* [accessible at https://www.iapt-taxon.org/historic/Congress/IBC_1930/prepub.pdf.] where the type method was formally incorporated. It is for this reason that many earlier names in Araceae (and, of course, in all plant groups) have had to be typified retrospectively, but many still remain untypified or insufficiently precisely typified. This kind of retrospective typification is often a case of 'lectotypification' or selecting a type from among the materials that the original author included or had to hand at the time of his or her original publication of the name. However, tragically, much of the herbaria of Schott, in Vienna, and Engler, in Berlin, were destroyed in World War II, and in many of these cases a new type (or *neotype*) has to be designated. While it is possible for a modern author to simply state a new designation of a lectotype or neotype, such designations are very difficult bureaucratically to undo if there is an error (involving the approval of two formal international nomenclatural committees following a detailed published proposal), and therefore it is preferable nowadays to provide a clearly articulated rationale for the retrospective choice of a type.

Today, *Anthurium* species are assigned to 20 or so divisions of the genus at the level of section. Although some of the currently recognised sections are relatively to very recent, the majority were formally named by Engler, and mostly based explicitly on Schott's earlier division of the genus into grexes (singular grex) which he defined in his 1860 *Prodromus Systematis Aroidearum*. In these latter cases, the type of the section must be selected from among the species Schott

included in the relevant grex. The type of a section is generally given as the name of a species, but implicitly the type of the section is the type specimen of its type species. Hence, much of the discussion here concerns the type of each candidate species.

***ANTHURIUM* SECTION *BELOLONCHIUM* (SCHOTT) ENGL.**

Species of *Anthurium* sect. *Belolonchium* (Schott) Engl., of which there are probably more than 300, are a striking and conspicuous element of western neotropical montane forests, in particular of the northern Andes but with some extension into Central America. In Schott's *Prodromus*, his last great work on all the aroids then known, the circumscription of grex *Belolonchium* was somewhat vague in the sense of not providing clearly distinctive unique characteristics at least for the leaves (Schott, 1860: 528). He did however, state "*Pedunculus elongatus. Spatha lanceolata, patens, l. [i.e. vel] recurva, basi amplexa, viridis. Spadix juliformis, long-stipitatis, spatham superans*" [Peduncle elongate. Spathe lanceolate, spreading, or recurved, encircling at the base, green. Spadix catkin-like, long-stipitate, exceeding the spathe]. The catkin-like (or 'juliform') spadix seems to imply a spadix which is more or less pendent and that is one of the characteristics of sect. *Belolonchium* in the modern sense in which the bloom is also usually more or less long-pedunculate and the spathe shorter than the spadix. Nevertheless, the totality of these reproductive characteristics does not apply consistently across the four species Schott included in the grex.

The four species Schott (loc. cit.) included were *Anthurium nitidum* Benth., *A. oxybelium* Schott, *A. subhastatum* Schott and *A. subsagittatum* Kunth [sic — see below]. We will outline their suitability or otherwise as type species for the section, beginning with those most readily excluded and ending with the one which must be chosen.

1. *Anthurium subhastatum* Schott

Anthurium subhastatum Schott, Oesterr. Bot. Z. 8 (1858) 350. — Type: Without direct original evidence of locality, date or collector (holotype, K, K000434441; examined online at <http://specimens.kew.org/herbarium/K000434441>).

The holotype, stamped '*Herbarium Benthamianum*', bearing the species name in Schott's hand, was annotated in 1845 by Sir William Hooker, Kew's Director, "*Anthurium*; Santa Martha, Purdie". [William Purdie (1817–1857, Scottish gardener, pioneering botanical explorer of the Sierra Nevada de Santa Marta and other parts of Colombia, later Superintendent of the Royal Botanic Gardens, Trinidad]. Schott had it drawn (Schott Icon # 746; photo seen on-line at <http://specimens.kew.org/herbarium/K002087067>) and the drawing bears an annotation repeating Hooker's added note giving the locality and collector. Curiously, in the protologue Schott cited the origin more vaguely, merely as "*Nova-Granada. (Purdie in Herb. Benth.)*", Nueva Grenada at the time being more or less equivalent to today's Panama and Colombia combined.

A second specimen at Kew (examined on-line at <http://specimens.kew.org/herbarium/K000434441>), determined with this name and stamped '*Herbarium Hookerianum*',

was not annotated by Schott, but bear's Purdie's label "*Pothos* sp. Hab. Monte del Agua, [illegible: ?Cholino], Rio Hacha, Sept 1844".

The two specimens contain such extremely closely identical plants that it could well be tempting to interpret them as duplicates of the same collection. However, as they are not numbered by Purdie, this strictly cannot be demonstrated, and each must be regarded an un-numbered unicate. Nevertheless, it seems reasonable to at least draw attention to the information on the second specimen, bearing Purdie's label, in attempting to gauge where, when and by whom the holotype was likely collected, informed too by Hooker's annotation.

The species still appears to be known only from the two above-mentioned specimens and so appears to be a Sierra Nevada (far northern Colombian) endemic. Both specimens show cataphylls that are at first persistent/marcescent, then later degrading to fibres, weakly hastate leaves, erect stipitate spadices and reflexed spathes. Thus, the species does not display classic *Belolonchium* characteristics overall. Moreover, it was transferred by Engler (1898: 375; 1905: 113) to sect. *Xialophyllum* (Schott) Engl., and Delannay & Croat (2025: 197) then excluded it from *Xialophyllum* and indicated that belongs in sect. *Cardiolonchium* (Schott) Engl. It is therefore discounted as a candidate for lectotypification of section *Belolonchium*.

2. *Anthurium subsagittatum* (Kunth) Kunth

Anthurium subsagittatum (Kunth) Kunth, Enum. Pl. 3 (1841) 79. — *Pothos subsagittatus* Kunth in Humboldt, Bonpland & Kunth, Nov. Gen. Sp. 1 (1816, '1815') 77 (quarto ed.); 64 (folio ed.). — Type: VENEZUELA [Nova Andalusia], [Monagas], between Caripe & Guardia de San Agustín, [alt. 520 hexap. (950 m approx.)], J.A. Bonpland 259 (holotype, P, MNHN-P-P00150199, examined online at <https://science.mnhn.fr/institution/mnhn/collection/pl/item/p00150199?listIndex=1&listCount=1424>).

Schott (loc. cit.: 530), while indicating explicitly that the name originated with Kunth, appears to have based his decision to include this species in his grex *Belolonchium* on other material he had seen, citing at the end of the description "Venezuela, Appun [the German botanist Carl Ferdinand Appun (1820–1872)]. etc. [sic!] — *v.v. cult. et spontan. sicc.* [meaning he had seen living cultivated plants and dried wild-collected specimens]". It appears that he simply misapplied the name to this other material, and, though it is not germane to the question of whether this species is a suitable candidate for lectotypification of section *Belolonchium*, Engler proceeded to create something of a mess in his attempt to deal with Schott's apparent mistake with this species (see further discussion appended below).

[Today, a number of collections, all Venezuelan, are determined as *Anthurium subsagittatum* (Kunth) Kunth in Tropicos (<https://www.tropicos.org/name/2100773>), despite its proper identity being uncertain. They do not accord with sect. *Belolonchium*, and the species so identified was attributed (but with uncertainty) to sect. *Xialophyllum* (Schott) Engl. in the account of Venezuelan aroids by Croat & Lambert (1986)].

The type of *Anthurium subsagittatum* (Kunth) Kunth, based on *Pothos subsagittatus* Kunth, is a sterile specimen consisting only of two severed leaves evidently missing much of their petioles.

It was collected by Aimé Bonpland (likely in 1800) on Alexander von Humboldt's 1799–1804 expedition to the Americas. There is no annotation by Schott or Engler to indicate either of them had examined it. The leaf blades and venation bear very little resemblance to the leaves of *Belolonchium* in the modern sense, and the species, based on its extremely incomplete type, is here discounted as a potential lectotype for the section.

Anthurium subsagittatum (Kunth) Kunth was cited as the type of section *Belolonchium* by Tarazona Ocaña (2022: 28) without explicit rationale, perhaps because it was the first species listed under the section in Engler (1878: 63 & 1879: 151), though it was not the first in Schott (1860: 528) the protologue of the grex on which the section is explicitly based. This evidently mechanical rather than rational typification was anyway not effective because it appeared in a thesis lacking an ISBN or other evidence that it was intended to be an effective publication (see Turland et al., 2018: Art. 30.9; also Hay, 2024).

3. *Anthurium oxybelium* Schott

Anthurium oxybelium Schott, Oesterr. Bot. Wochenbl. 7(39) (1857) 310. — Type: Nueva Granada [Colombia]. [La Guajira?: Sierra Nevada], “Charocapa”, Río de la Hacha, October 1844, W. Purdie s.n. (holotype, K, not found; photo, MO).

Typification of section *Belolonchium* was briefly discussed, but not effected, in Hay & Llano-Almario (2023) where it was proposed that *Anthurium oxybelium* Schott would be a likely candidate, as it had been extensively thought to be a very widespread upland Andean species clearly representative of the section in the modern sense. However, it has since become apparent that not only is its type missing (we hope merely temporarily misplaced), but also, based on a photograph of the type at MO (**Figure 1**), it does not clearly conform to section *Belolonchium* in what has become the ‘classic’ modern sense. While, under modern interpretation, ‘*Anthurium oxybelium*’ has been thought to be a very widespread and common, variable high-altitude species (possibly also described no less than seven times under various names by Sodiro: see Leimbeck & Croat, 2002), Engler’s last revision (Engler, 1905: 232) cited only the Purdie type at Kew and placed no other names in its synonymy. It is only in more recent times that the name has become applied so widely to certain high altitude belolonchiums ranging from Colombia to Peru.

The type locality for *Anthurium oxybelium* has long been given only as Nova-Granata [by Schott (loc. cit.)] or later as Río [de la] Hacha [e.g., Engler 1878: 64 & 1879: 152 in both of which, being considered a juvenile plant, the species was treated as a synonym of *A. nitidum* Benth. (q.v. below), which may have been the start of the subsequent confusion]. Later, Engler (1905: 232) gave the same locality, though there it was once again recognised as a discrete species; and more recently, for example, in Leimbeck & Croat (2002), the locality has again been given as “Río Hacha, exact locality unknown”. There is a river by that name in Caquetá/Huila (running eventually to the Amazon), and the coordinates given for this Purdie collection in Tropicos (01°33'11"N 075°31'46"W; accessed 19 Apr. 2025) apparently pertain to that locality.

However, there is another Río Hacha (more usually now given as Riohacha), the capital of the northern Colombian Department of La Guajira. While much of the Guajira Peninsula is

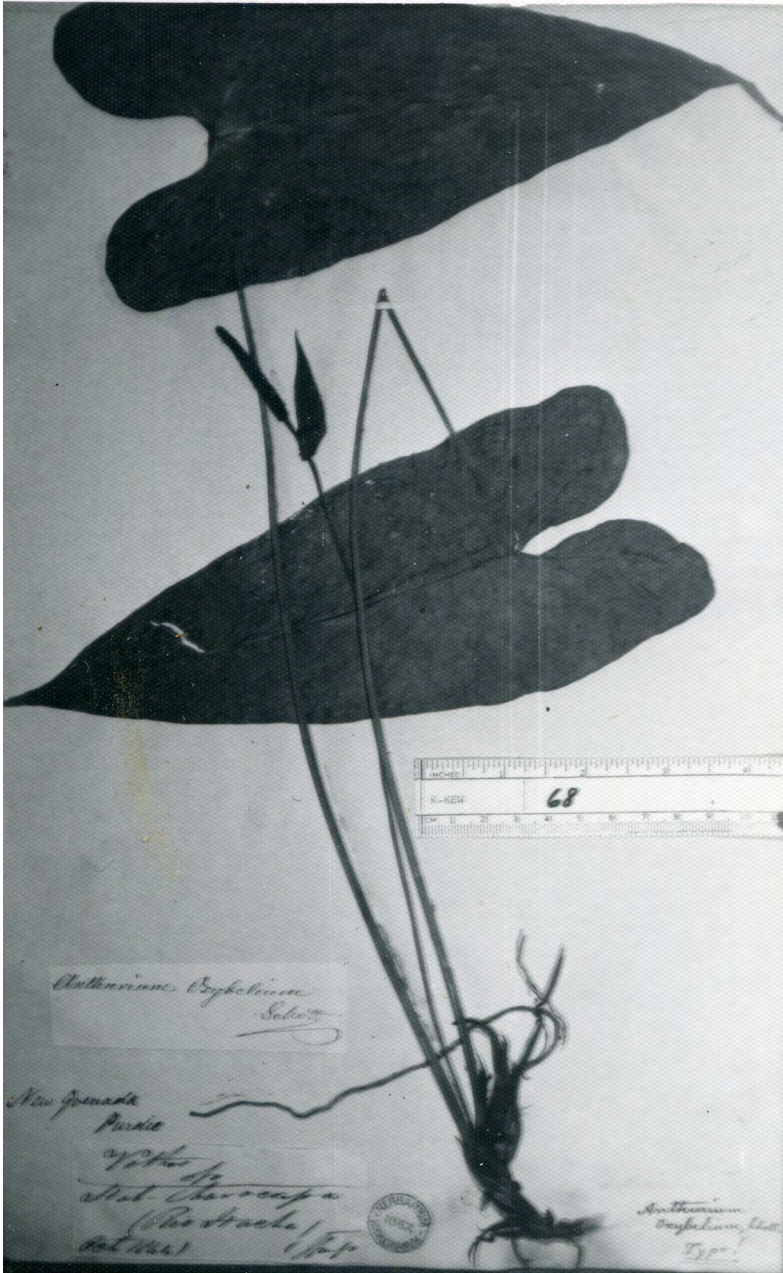


Figure 1. Photograph taken at Kew, probably in the 1970s, of the holotype of *Anthurium oxybelium* Schott, annotated with that name in Schott's handwriting (lower left), and with William Purdie's label (bottom left) reading "*Pothos* sp. Hab. – Charocapa (Rio Hacha), Oct 1844, Wm.P." Note the evidently erect spadix. — Photo T.B. Croat

occupied by semi-desert scrub and hence a most improbable source of the plant in question, to the southwest the department extends into the wet Sierra Nevada de Santa Marta.

Various evidence together confirms with virtual certainty that the type of *Anthurium oxybelium* was collected in the isolated Sierra Nevada de Santa Marta. In a letter dated August 20th 1844, sent by Purdie from Valledupar in the north Colombian Department of Cesar (which abuts La Guajira and Magdalena) to Sir William Hooker, Purdie wrote that he intended to ascend the Sierra Nevada from the Rio de la Hacha side [<https://plants.jstor.org/stable/10.5555/al.ap.visual.kldc10106>], hence the inclusion of (this) “Rio [de] Hacha” on Purdie’s labels.

The Purdie type of *Anthurium oxybelium*, which has long been cited, since Schott, as being deposited at Kew, cannot be found either at K or at Missouri to where it may perhaps have been loaned at some time. All that has been accessible is a scan of a black and white photograph of the type, taken long ago by Croat at Kew. The label indicates that the specimen was collected at a locality with the apparent name “Charocapa”, Rio Hacha. This locality has still not yet been pinned down (Engler, 1879: 152, transcribed it as “Charoecipa” which does not appear to be a recorded place name either), but it is very clear that plants collected by Purdie which bear the locality Rio [de la] Hacha, and at least two bearing that specific locality name “Charocapa” were collected in the Sierra Nevada de Santa Marta.

Buttressing the idea that the type of *Anthurium oxybelium* is from the Sierra Nevada, and not from the Andes proper, are, for example, the facts that the exact same locality data and date appear (in the same hand) on Purdie’s label on the type [K000450074] of *Diastema ochroleucum* Hook. (Gesneriaceae), published in Bot. Mag. 72 (1846) t. 4254 where it was stated that the plant had been sent to Kew by Purdie from the Sierra Nevada. In addition, Morillo (1978) cited as paratypes of the far northern Colombian endemic mesophytic asclepiad *Blepharodon cuatrecasasii* Morillo (Apocynaceae), besides collections from Santa Marta and Norte de Santander, a collection by Weir [presumably John Weir, d. 1898] with the locality given as “**Int. de Guajira, Río Hacha, Charocapa**, [1861] Weir s/n (K)» [see also <https://www.gbif.org/occurrence/1260152941>; <https://www.tropicos.org/collection/2070294>].

Finally, biographical notes on Purdie provided by Ewan (1948) indicate that “[i]n September and October of 1844 Purdie followed up his exploration of the Santa Marta Mountains by a journey along their north slope from Riohacha to Antonio (i.e. San Antonio) and San Miguel at 5500 feet elevation, possibly following the usual trail that passes through the village of Dibulla and up the Rio Ancho or Macotama Valley.” Ewan also recorded that two locality names from Purdie’s Sierra Nevada exploration were unknown, one of them being “Chinocapa”, perhaps a variation on Charocapa.

Establishing the correct area of the collection locality of the type specimen of *Anthurium oxybelium* is germane to the question of whether it is a suitable candidate for the lectotypification of section *Belolonchium* because the type, as mentioned earlier, does not display the characteristic nutant spadix of ‘classic’ sect. *Belolonchium*. That could, in principle, be due to the way it was dried and mounted. Yet, we have seen no other material at all from the Sierra Nevada corresponding to “*Anthurium oxybelium*” in the very broad current sense of it being a *Belolonchium*. This, along with other far northern Colombian *Anthurium* material similar in aspect to the type of *Anthurium oxybelium*, and which clearly does not conform to

'classic' *Belolonchium*, leads us to wonder if *A. oxybelium* Schott is a northern Colombian and possibly northwestern Venezuelan endemic belonging to a different section.

While we do not intend to attempt to solve that last question here, the facts and ambiguities discussed above should make it clear that there is sufficient doubt over the true identity of *Anthurium oxybelium* to exclude it as a candidate species for lectotypification of section *Belolonchium*.

4. *Anthurium nitidum* Benth.

Anthurium nitidum Benth., Pl. Hartw. (1846) 255. — Type: COLOMBIA. Department of Cauca: *in ascensu ad* Páramo de Guanacas, prov. Popayán, altit. 9,500 ped. [ca. 2900 m], 1843, K.T. Hartweg 1402 (holotype, K K000434271, examined on-line at <http://specimens.kew.org/herbarium/K000434271>; isotypes K, K000434272 & LD, LD1413358, both examined on-line respectively at <http://specimens.kew.org/herbarium/K000434272> and <https://www.botmus.lu.se/Lund/Images/1413358.jpg>).

The type of *Anthurium nitidum* unambiguously conforms to the modern interpretation of section *Belolonchium*, being a relatively high-altitude Andean species exhibiting condensed stems, cataphylls marcescent to brown fibres, well-developed pedately veined posterior costae, relatively long-pedunculate blooms with nutant spadices and overarching spathes. It is thus the only species Schott included in grex *Belolonchium* suitable to typify the section in accord with its modern definition as it is generally perceived by *Anthurium* specialists (and aroid enthusiasts) today. See **Figure 2** for a representative example; also figures in Hay & López-Florianio (2025, in this issue).

TIPIFICATION OF *ANTHURIUM* SECT. *BELOLONCHIUM* (SCHOTT) ENGL.

Anthurium Schott sect. *Belolonchium* (Schott) Engl. in Martius (ed.), Fl. Bras. 3(2) 63. 1878. — *Anthurium* grex *Belolonchium* Schott, Prodr. Syst. Aroid. 528. 1860. — Type species: *Anthurium nitidum* Benth. (lectotype, designated here).

“*ANTHURIUM SUBSAGITTATUM* SCHOTT”

In both his earlier accounts of *Anthurium*, Engler (1878: 63 & 1879: 152) included *Anthurium subsagittatum* (Kunth) Kunth, explicitly based on *Pothos subsagittatus* Kunth, but citing only collections made by Appun in Venezuela (without precise locality), Fendler 1340 from Tovar, Venezuela, and Karsten from Colombia (without precise locality), but making no direct citation of the type of *Pothos subsagittatus*, though that was implicitly included by reference to the basonym. Except for the fuller citation of specimens seen, these accounts barely deviated from Schott's (1860: 530). Thus, *Anthurium subsagittatum* from Schott (1860: 530) through to Engler (1879: 152) had, with hindsight, apparently become a mixed concept.

Twenty years later, Engler (1898) revised the by then much larger genus *Anthurium* again. In attempting to unravel the confusion, he (Engler, 1898: 383), declared [translated from the Latin] *Anthurium subsagittatum* (Kunth) Kunth is “...a species to be disregarded, since only a leaf has been described and it is very doubtful to which section the plant of Humboldt, missing



Figure 2. *Anthurium* cf. *giganteum* Engl., cultivated Jardín Botánico Paz y Flora, Valle del Cauca, Colombia, showing features commonly present in sect. *Belolochium* in the narrow sense: dense stem with cataphylls degrading to marcescent fibres; sagittate leaf blades with elaborately pedately-veined posterior lobes; and nutant to pendent spadices (exceptionally long in this species), overarched by the spathe. — Photo A. Hay

from the Berlin herbarium, belongs”. Actually, the type, which does indeed consist merely of two leaf blades with incomplete petioles, is at Paris herbarium (see above), and noted to have been donated by Bonpland in 1833, so it is perhaps a wonder that neither Schott nor Engler had seen it.

His grand declaration that the basionym of *Anthurium subagittatum* was to be disregarded was printed beneath the protologue (Engler 1898: 383) of species #83 *Anthurium karstenianum* Engl. which Engler based on “*A. subsagittatum* (Kunth) Schott [sic], Prodr. 530 et Engl. in DC... 151 n. 70 *pr. p.* [in part] Columbia (Karsten)”, the specimen correctly cited as the holotype of *A. karstenianum* Engl. in the recent revision of *Anthurium* sect. *Xialophyllum* (Schott) Engl. by Delannay & Croat (2025). [Delannay & Croat (2025: 198), slipped in including *Anthurium subsagittatum* (Kunth) Kunth [sic] as a synonym of Colombian *A. karstenianum* Engl., which was not what Engler had intended to convey, while treating the latter as known only from its type (Delannay & Croat, 2025: 348 & fig. 60)].

In the same revision Engler (1898: 438) included as species #242 “*Anthurium subsagittatum* Schott Prodr. 530, *non* Kunth *nec alior* [nor any other]”, categorically excluding the basionym, and treating the name *sui generis* as Schott’s, though Schott had never published the name as his own: this name, i.e. without a basionym, was not of Schott’s creation, but Engler’s. [Curiously, species #242 in the species key of the same work appears as *Anthurium subsagittatum* Kunth! (Engler, 1898: 436)]. “*Anthurium subsagittatum* Schott,” of Engler (1898: 438) if indeed it should be attributed solely to Schott and not to Schott ex Engl., is illegitimate either way, being antedated by *A. subsagittatum* (Kunth) Kunth. Engler (1898: 438) cited *Fendler 1340*, another specimen collected by Appun, and furthermore indicated the species had been cultivated at Schönbrunn. It should probably be lectotypified with the above-mentioned Fendler collection, the only located collection from the wild, of which there are extant duplicates at GH, K, MO and US [see <https://records.data.kew.org/occurrences/1e450ac3-a858-41ba-ba7d-7540f21ab330?lang=en-AU>; <https://www.gbif.org/occurrence/1999079862>; <https://www.tropicos.org/collection/1716620>]. Whether the illegitimate *Anthurium subsagittatum* Schott ex Engl., were it to be so typified, requires a new name or is to be placed into the synonymy of something else must await revision.

ACKNOWLEDGEMENTS

The first author is most grateful to Anna Haigh (K) for twice searching for the type of *Anthurium oxybelium* there, and to Mike Grayum (MO) for kindly deciphering some abbreviations in Schott’s *Prodromus*, drawing attention to Ewan’s published notes on Purdie, and for invaluable, detailed critical commentary on the manuscript.

REFERENCES

- Croat, T.B. & N. Lambert (1986). The Araceae of Venezuela. *Aroideana* 9: 3–213.
- Delannay, X. & T.B. Croat (2025). Revision of *Anthurium* Sect. *Xialophyllum* (Schott) Engl. (Araceae). *Aroideana* 48(1): 196–495.
- Engler, A. (1878). Araceae. Pp. 25–224 in C.F.P. von Martius & A.G. Eichler (eds), *Flora Brasiliensis* Vol. 3, Part 2. Munich & Leipzig.
- Engler, A. (1879). Araceae in A. & C. De Candolle, *Monographiae Phanerogamarum*, vol. 2. Masson, Paris.
- Engler, A. (1898). Beiträge zur Kenntnis der Araceae. VIII. 15. Revision der Gattung *Anthurium* Schott. *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 25: 352–476.
- Engler, A. (1905). Araceae—Pothoideae. In A. Engler (ed.), *Das Pflanzenreich* 21 (IV.23B): 1–330. Engelmann, Leipzig.

- Ewan, J. (1948). *Purdieanthus* and *Lehmanniella*, two endemic Colombian genera of Gentianaceae, and biographical notes on Purdie and Lehmann. *Caldasia* 5(21): 85–98.
- Hay, A. (2024). On the identities of the two *Anthurium latifolium* Sodiro (Araceae), and the correct name for *Anthurium* sect. *Digitinervia* (Sodiro) Engl. *Aroideana* 47(3): 25–37.
- Hay, A. & M. Llano-Almario (2023). *Anthurium matabanchoyae*, a distinctive new species of sect. *Belolonchium* (Araceae—Pothoideae) from Laguna de La Cocha, eastern Nariño, Colombia. *Aroideana* 46(3): 53–71.
- Hay, A. & O. López-Floriano (2025). *Anthurium constantinoi* A.Hay & López-Flor., a sinuate-leaved new species of *Anthurium* Schott, sect. *Belolonchium* (Schott) Engl. (Araceae—Pothoideae), from the Department of Nariño, Colombia. [*Aroideana* 48\(2\): 135–151](#).
- Leimbeck, R.A. & T.B. Croat (2002). A new species of *Anthurium* (Araceae) from Southern Ecuador and a revision of the *Anthurium oxybelium* Schott complex. *Novon* 12(4): 474–480.
- Morillo, G. (1978). Tres especies nuevas de *Blepharodon* Decne. *Acta Botanica Venezuelica* 13(1–4): 75–80.
- Schott, H.W. (1860). *Prodromus systematis aroidearum*. Mechitarists' Press, Vienna.
- Tarazona Ocana, D.M. (2022). *Taxonomic revision and morphometric analysis of selected Anthurium (Araceae) species from Bolivia and Peru*. M.Sc. Thesis, University of Missouri, St. Louis.
- Turland, N., J.H. Wiersema et al. (2018). International code of nomenclature for algae, plants and fungi (Shenzhen Code). Koeltz Botanical Books.