

TYPIIFICATION OF NAMES OF BRAZILIAN AND CARIBBEAN SPECIES OF *CALYPTRANTHES* (MYRTACEAE – MYRCIINAE)

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Holotypes do not exist for many names currently accepted in *Calyptranthes* (Myrtaceae – Myrciinae), either because the species was described with several syntypes or because the holotype is lost or destroyed. A thorough literature survey, extensive visits to international herbaria and analysis of online type collections has been undertaken. As a result, six lectotypifications and three neotypifications are made here. The type collection for *Calyptranthes thomasiana* is clarified.

Keywords. *Calyptranthes*, lectotypes, neotypes, taxonomy.

INTRODUCTION

Calyptranthes Sw. (Myrtaceae – Myrciinae) is a neotropical genus of c.260 accepted species (Govaerts *et al.*, 2008), with high levels of endemism. It is usually associated with *Myrcia* DC. ex Guill. and *Marlierea* Cambess., the other genera of the subtribe Myrciinae. *Calyptranthes* species sampled for a phylogenetic study form a monophyletic clade within Myrciinae and can be distinguished morphologically from closely related species of *Myrcia*, *Marlierea* and former *Gomidesia* O.Berg by a circumscissile calyptra (Lucas *et al.*, 2011), plus all the other morphological characters that separate *Calyptranthes* as an accepted genus. In preparation for a taxonomic treatment of *Calyptranthes* currently underway, the problem of missing or destroyed South American Myrtaceae type material must be addressed.

Early descriptions of *Calyptranthes* species from the Caribbean were made by Grisebach (1861) and Wright (1866, 1868), based on Wright's Cuban material deposited in the Berlin herbarium and destroyed (Stafleu & Cowan, 1981), probably by fire, during the Second World War. To date the most complete account of *Calyptranthes* from Brazil was made by Otto Berg for *Flora Brasiliensis* (Berg, 1857–1859). The author often cited more than one collection, or multiple duplicates of one collection, for each new species described. Berg was based in Berlin and the original material of his species was often deposited in Berlin (B), Vienna (W) or 'Mart. Herb.'. Martius's herbarium of about 63,000 collections is housed at BR. His Brazilian collections, however, are deposited at M (Stafleu & Cowan, 1981). Most of the type collections

cited in *Flora Brasiliensis*, and deposited at B, have been destroyed and in some cases there is no other original material, thereby necessitating neotypifications. We also take the opportunity to lectotypify a number of names. We therefore present six lectotypifications and three neotypifications here.

MATERIALS AND METHODS

The taxonomy used here follows the *World Checklist of Selected Plant Families* (WCSP, 2013). Digital images of all material seen for this study are marked (!) and are available on request from the first author. Most are also currently available from JSTOR (2013). Information regarding where collections or top sets of particular collectors or authors are housed is from *Taxonomic Literature 2* (www.biodiversity-library.org/item/103414). Where there were no obvious reasons to select one syntype or collection number over another, the more widely distributed collection was selected. The following herbaria were visited: BM, E, G, K, M, US, W. The following type collections were searched online (separate from JSTOR): C, F, LYJB, NY, RB, S, U (at L). Links to herbarium websites can be found at *Index Herbariorum* (Thiers, 2013). The curators of the following herbaria kindly checked for particular collections: GOET, HAL, LE, MA, MEL.

All specimens cited have been seen unless otherwise indicated and will shortly be available at the *Myrcia s.l.* scratchpad (<http://scratchpads.eu>).

LECTOTYPIFICATIONS

Calyptranthes clusiifolia (Miq.) O.Berg in Martius, Fl. Bras. 14(1): 39 (1857) (*'clusiaefolia'*). – *Myrcia clusiifolia* Miq., Linnaea 22: 533 (1849). – Type: Brazil, Minas Gerais, Caldas, *Regnel* 126 (lecto U, designated here; isolecto SP).

Myrcia clusiifolia was described by Miquel (1849) with no type collection indicated. The description was based on a collection made 'Quas in Brasiliae provincia Minarum generalium inprimis prope Caldas collegerat clar'. Later, when Berg (1857–1859) transferred the species to *Calyptranthes*, two collections were cited, *Regnel* 126 and *Widgren* 536 (K!), and the spelling of the epithet was changed to *'clusiaefolia'*. *Regnel* 126 is annotated as being from Caldas, Minas Gerais, Brazil. A duplicate of this collection has been found at U (housed at L), which houses the top set of Miquel's collections. We believe that *Regnel* 126 (U) is not only the collection seen by Berg at the time of *Flora Brasiliensis*, but is likely also to be the material used by Miquel to describe *Myrcia clusiifolia*. We therefore select this specimen as lectotype.

Calyptranthes eriocephala Urb., Symb. Antill. 7: 297 (1912). – Type: Dominican Republic, 'prope Constanza, 1200m. alt., in sylva, m. Jul. flor.', *H. von Tuerckheim* 3463 (lecto BR!, designated here).

Although Urban and Tuerckheim were both based in Berlin, no herbarium was cited in the protologue and any original material of *Calyptranthes eriocephala* from B would have been destroyed. Stafleu & Cowan (1981, in the entry for Urban) refers to ‘The West Indian collections distributed by him’, suggesting all material of *Tuerckheim* 3463 was available to Urban before duplicate material was distributed. A duplicate of the type collection bearing Urban’s handwriting is lodged at BR and is here chosen as the lectotype.

Calyptranthes grammica (Spreng.) D.Legrand, Lilloa 31: 196 (1962). – *Myrtus grammica* Spreng., Syst. Veg. 2: 480 (1825). – Type: Brazil, Minas Gerais, *Sellow* s.n. (lecto W, designated here; isolecto BM, K, M, P).

Calyptranthes musciflora var. *obscura* O.Berg in Martius, Fl. Bras. 14(1): 539 (1859). – Type: Brazil, [Rio de Janeiro], Serra dos Orgaos, Feb., *Sellow* s.n. (B, destroyed).

Sellow is the only collector mentioned in the protologue and his collections of *Myrtus grammica*, likely to be original material, were found at the herbaria mentioned above. We believe it is likely to be original material since W (Vienna) was one of the herbaria to which *Sellow* sent duplicates and since it is also cited as holding part of Sprengel’s personal collection (Stafleu & Cowan, 1981).

However, the collection *Sellow* s.n. (W) bears the name ‘*Calyptranthes musciflora* var. *venosa* Berg’, not a valid published name. Berg (1859) described *Calyptranthes uniflora* var. *venosa* based on a sheet in the Berlin herbarium. The W sheet selected here as the lectotype matches the protologue of *Calyptranthes grammica* well, is almost certainly original material studied by Sprengel and was only later misidentified as *Calyptranthes musciflora* by Berg. This collection also provides floral structures.

Calyptranthes langsdorffii O.Berg in Martius, Fl. Bras. 14(1): 539 (1859). – Type: Brazil, ‘in silvis apricis fruticetisque prope Mandioca prov. Rio de Janeiro’, *Riedel* s.n., 1823 (lecto LE, designated here). Remaining syntypes: Brazil, Rio de Janeiro, *Riedel & Langsdorff* 427 (G, LE).

For this name Berg cites ‘Langsdorff et Riedel’ from LE. Collections of this species bearing the name of either Langsdorff or Riedel only were located in various herbaria. However, material bearing the names of both collectors was found only in G and LE. Three collections, all marked by Berg, were found at LE and are candidates for syntypes. One specimen collected by Langsdorff has no further link to the protologue. The two remaining bear the collectors *Riedel* and *Riedel et Langsdorff* respectively. The former quotes the locality as in the protologue precisely. The latter, although matching the type collectors cited by Berg, albeit in reverse order, has less precise locality information and also bears the number 427. These two specimens are so closely matched morphologically that we consider them to be from the same collection. We also believe the specimen at G to be a duplicate of this collection (strengthened by the presence of number 427 on the G sheet). We select as lectotype the LE collection with the precise locality information as we see this as a closer link to the protologue

than the presence of both collector names. This sheet has recently been marked as holotype although this should be corrected to lectotype.

Calyptranthes rostrata Griseb., Mem. Amer. Acad. Arts 8: 181 (1861). – Type: Cuba, ‘in sylvis densis prope Monte Verde, florif. Junio, fructif. Julio’, *Wright* s.n. (lecto K [K000331040], designated here; isolecto C (×2), GH (×2), GOET (×3) n.v., K (×2), MO, NY, P (×2), S, W).

According to Stafleu & Cowan (1981) Grisebach’s main herbarium is at GOET, but many of the types for his *Flora of the British West Indian Islands* are at K. Wright’s numbers are often not collection numbers, but ‘taxon numbers’ assigned later by Asa Gray (Mill & Stark-Schilling, 2010).

Three sheets at Kew bear the type locality and variously the numbers 174, 1216 or both.

A specimen of *Wright* [174] at GOET is labelled as ‘lectotype’ but no literature was found to support this assertion. The GOET website (2011) notes their Myrtaceae collection was revised by Bisse in 1980 but Bisse (1981) did not lectotypify this name. We therefore propose the K collection of *Wright* s.n. (K000331040) as lectotype for this name.

Calyptranthes sintenisii Kiaersk., Bot. Tidsskr. 17: 250 (1889). – Type: Puerto Rico, ‘Limoncello del monte’, Sierra de Luquillo, ‘in sylvis’, s.d., *Sintenis* 1662 (lecto C, designated here; isolecto BR, E, JE, K, LD n.v., S). Remaining syntypes: Dominican Republic, Santo Domingo, Rio S. Marcos, *Eggers* 2686 (G, K, M, S).

Kiaerskou described this species in honour of Paul E. E. Sintenis and cited two collections, one collected by Sintenis and the other by Eggers. Both collections were widely distributed to several herbaria. Considering Kiaerskou’s epithet it seems more appropriate to select the Sintenis collection and as Copenhagen houses the top set of Kiaerskou’s specimens we have selected the lectotype from there. This is also the sole collection bearing flowers and young fruits and the collection locality.

NEOTYPIFICATIONS

Calyptranthes brasiliensis Spreng., Syst. Veg. 2: 499 (1825). – Type: Brazil, s.d., *Sellow* 367 (neo K, designated here; isoneo P).

Sprengel described *Calyptranthes brasiliensis* without citing any collection, therefore the holotype is unknown; possibly it was from Sprengel’s own collection. After Sprengel’s herbarium was dismantled a large part of his collection was sold to MEL but nothing has been reported about the fate of the Myrtaceae collections. We believe Sprengel’s Myrtaceae collection was distributed to different German herbaria, including Halle, through Karl Müller. Later it was bought by Berlin, in 1890, and subsequently destroyed – including the material identified as *Calyptranthes brasiliensis* (a personal

visit revealed no Myrtaceae collections had survived the Second World War). No collections were found in B, G, GOET, HAL, M, MEL or W.

The only historical specimens identified as *Calyptranthes brasiliensis* were found at K and P, made by Sellow. Neither specimen can be precisely linked by annotation to Sprengel's protologue although these specimens are a good match for Sprengel's description. We therefore believe this collection to be the best option to stand as type and selected the K specimen as neotype.

Calyptranthes grandifolia O.Berg in Martius, Fl. Bras. 14(1): 48 (1857). – Type: Brazil, 'in prov. Rio de Janeiro', Sellow s.n. (holo B, probably destroyed). Neotype: Brazil, Rio de Janeiro, Sellow 67 (neo K, designated here; isoneo P, W).

Sellow collections from Rio de Janeiro (Brazil) identified as *Calyptranthes grandifolia* by Berg were found at K, P and W, all of them without number but later annotated '67'. No duplicates bear the locality information 'Habitat in prov. Rio de Janeiro', thereby directly linking the material to the protologue. It is possible that these specimens are original material, but this cannot be confirmed. We therefore select the K specimen as neotype rather than lectotype.

Calyptranthes rubella (O.Berg) D.Legrand, Fl. Ilust. Catarin. 1 (Mirtac.) 535 (1971). – *Calyptranthes variabilis* var. *rubella* O.Berg in Martius, Fl. Bras. 14(1): 49 (1859) ('8'). – Type: Brazil 'ad Itararé, prov. Rio Grande do Sul', Sellow s.n. (holo B, destroyed). Neotype: Brazil, Santa Catarina, Florianópolis, Pantano do Sul, R. Klein & A. Bresolin 6590 (neo FLOR, designated here; isoneo HBR n.v., MVM n.v.).

No material identified as *Calyptranthes variabilis* var. *rubella* by Berg was found in any herbarium accessed for this work, and enquiries to R (Museu Nacional do Rio de Janeiro, Brazil), that might possibly hold a Sellow duplicate, have proved fruitless. In elevating the name to species level, Legrand & Klein (1971) cited several specimens. We have selected their most widely distributed cited collection as the neotype.

NOTES

Calyptranthes thomasiana O.Berg, Linnaea 27: 26 (1855). – Type: US Virgin Islands, St. Thomas, *Unknown collector* (cited as being under the name *Eugeniae aectosantis* Poir. in 'hb. Kunth'). Type: US Virgin Islands, St. Thomas, *Unknown collector* s.n. (holo P).

At the Paris herbarium a collection from St. Thomas was found, without collector or collector number, but labelled as *Eugenia aectosantis* as mentioned in the protologue. This specimen is very likely to be the one mentioned by Berg (1855) from 'hb. Kunth'. Kunth's collections, along with Humboldt and Bonpland, are at P. Although this cannot be confirmed we assume this collection is the holotype of *Calyptranthes thomasiana*.

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