

Seven new records of Myrtaceae in Brazil

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Abstract: *Calyptranthes conduplicata*, *C. vexata*, *Eugenia moritziana*, *E. pusilliflora*, *Marlierea suborbicularis*, *Myrcia crispa* and *M. subcordifolia* are new records for the Brazilian flora. All species except *Eugenia moritziana*, recorded from Espírito Santo state, are reported for the first time in Brazilian Amazonia.

Key words: *Calyptranthes*, *Eugenia*, *Marlierea*, *Myrcia*

Myrtaceae are represented in Brazil by about 1,000 native species (Sobral et al. 2015). Nevertheless, several regions, especially northern Brazil, are underestimated in their richness, which is due to the lack of collection efforts. Northern Brazil (i.e., the states of Acre, Amapá, Amazonas, Pará, Rondônia, Roraima and Tocantins) has an area of 3,856,570 km² (IBGE 2015) from where there are recorded about 668,000 plant collections (CRIA 2015). This would result in an average of 0.17 collection/km², considerably smaller than the Campbell sufficiency sampling index for tropical countries (one collection/km²; Campbell 1989) and even smaller than the average collection index for Brazil, which is about 0.6 collection/km² (Sobral and Stehmann 2009). Additionally, there is a scarcity of recent taxonomic studies on Myrtaceae of northern Brazil. Souza (1999) studied the Myrtaceae of the Reserva Florestal Adolpho Ducke in Manaus, Amazonas, and Rosário and collaborators provided occasional contributions to the knowledge of the family in the Amazonian biome (Rosário and Secco 2006; Rosário et al. 2005, 2013, 2014a, 2014b). Most identifications of Brazilian specimens must still rely on extra-Brazilian treatments such as the studies of McVaugh (1958, 1969) and Holst et al. (2002).

As a consequence of the scarcity of knowledge of the northern Brazilian flora, it may be expected that any detailed investigation of this region may bring to light geographical novelties such as those presented in this

paper. On the other hand, the finding of *Eugenia moritziana* in the southeastern state of Espírito Santo is also indicative that even relatively well surveyed biomes, such as the Atlantic rainforest, are still in need of investigation.

Specimens were identified were using available literature (Karsten 1848–1849; McVaugh 1958, 1969; Holst 2002; Holst and Kawasaki 2008) and by comparison with type specimens or images of type specimens (see references under each species). Maps were plotted using QuantumGIS 2.6.1 (QGIS Development Team 2014); the specimens used for plotting distribution, except type specimens and Brazilian collections, were not seen by us; information regarding these specimens were based on the protologues or on-line databases (see Table 1). Herbaria are identified through their standard acronyms (Thiers 2015).

We present the first records of seven species of Myrtaceae not previously reported for Brazil; most of them are new findings from northern Brazil, except *Eugenia moritziana*, which was collected in the southeastern state of Espírito Santo.

1. ***Calyptranthes conduplicata*** B.Holst, Selbyana 23: 137. 2002. Type: Venezuela. Amazonas: Carretera San Carlos-Solano, G. Morillo et al. 3940 (holotype VEN; isotypes MICH, NY). Figures 1 and 8.

Calyptranthes conduplicata is a tree up to 6 m from upland forests (“terra firme”). It is easily recognizable through its relatively large, glabrous blades and long petioles if compared with other Amazonian species of the genus; the petioles are 13–15 × 2.0–2.2 mm and black when dry, and the blades narrowly elliptic to oblong, 150–170 × 55–73 mm, 2.3–2.8 times longer than wide, slightly discoloured when dry, with apex acuminate and base rounded or cuneate. Although this species was originally collected in Venezuela, it was later collected in Paraguay (Tropicos 2014a), making it probably a widespread but scarcely collected species.

Table 1. Data of specimens other than type material and Brazilian collections used for plotting distribution of the species.

Species	Specimen	Herbarium	Source
<i>Calypttranthes conduplicata</i>	Aymard 9037	SEL	Holst 2002
<i>Calypttranthes conduplicata</i>	Ortiz 1060	MO	Tropicos 2014a
<i>Eugenia moritziana</i>	Cuello 1173	MO	Tropicos 2014c
<i>Eugenia moritziana</i>	Cuello 1567	MO	Tropicos 2014c
<i>Eugenia moritziana</i>	González 1307	MO	Tropicos 2014c
<i>Eugenia moritziana</i>	Steyermark 116992	MO	Tropicos 2014c
<i>Eugenia moritziana</i>	Steyermark 118225	MO	Tropicos 2014c
<i>Eugenia pusilliflora</i>	Acevedo-Rodríguez 7633	MO	Kawasaki and Holst 2009
<i>Eugenia pusilliflora</i>	Castro 433	MO	Tropicos 2014d
<i>Eugenia pusilliflora</i>	Cerón 8667	MO	Tropicos 2014d
<i>Eugenia pusilliflora</i>	Cerón 9363	MO	Tropicos 2014d
<i>Eugenia pusilliflora</i>	Dik 1491	MO	Kawasaki and Holst 2009
<i>Eugenia pusilliflora</i>	Gudiño 8	MO	Kawasaki and Holst 2009
<i>Eugenia pusilliflora</i>	Neill 9465	MO	Kawasaki and Holst 2009
<i>Eugenia pusilliflora</i>	Palacios 10438	MO	Kawasaki and Holst 2009
<i>Eugenia pusilliflora</i>	Ruiz 1093	MO	Tropicos 2014d
<i>Eugenia pusilliflora</i>	Wisum 502	MO	Tropicos 2014d
<i>Marlierea suborbicularis</i>	Berry 5577	MO	Tropicos 2014e
<i>Marlierea suborbicularis</i>	Berry 5704	MO	Tropicos 2014e
<i>Marlierea suborbicularis</i>	Berry 5958	MO	Tropicos 2014e
<i>Marlierea suborbicularis</i>	Berry 6180	MO	Tropicos 2014e
<i>Marlierea suborbicularis</i>	Castillo 4235	MO	Tropicos 2014e
<i>Marlierea suborbicularis</i>	Castillo 7238	MO	Tropicos 2014e
<i>Marlierea suborbicularis</i>	Melgueiro 6	MO	Tropicos 2014e
<i>Myrcia crispa</i>	Maguire 30287	S	GBIF 2015
<i>Myrcia crispa</i>	Maguire 42271	ASU	COTRAM 2015
<i>Myrcia crispa</i>	Steyermark 109743	MO	Tropicos 2014f
<i>Myrcia subcordifolia</i>	Neill 14649	MO	Tropicos 2014g
<i>Myrcia subcordifolia</i>	Neill 16821	MO	Tropicos 2014g
<i>Myrcia subcordifolia</i>	Palacios 6723	MO	Holst and Kawasaki 2008
<i>Myrcia subcordifolia</i>	Rodríguez 2643	MO	Tropicos 2014g

Specimen examined: Brazil. Amazonas. Estrada Manaus to Porto Velho, km 40–30, 20 July 1972, M. Silva et al. 987 (INPA).

2. ***Calypttranthes vexata*** McVaugh, Fieldiana, Botany 29: 412. 1963. Type: Guyana; basin of Essequibo river, A.C. Smith 2723 (holotype NY; isotypes MO, US; for type image see Tropicos 2014b). Figures 2 and 9.

Calypttranthes vexata is a tree to 12 m from upland forests (“terra firme”), distinguished from other Amazonian species of the genus by its sessile flowers. Leaves are glabrous, with petioles 9–10 × 1.5–1.6 mm and blades narrowly elliptic, 95–130 × 40–50 mm, 2.4–3.2 times longer than wide. It was presently known only from the type collection, gathered in Guyana.

Specimen examined: Brazil. Amazonas: mun. Manaus, road Manaus to Caracaraí, km 26, 11 November 1966, G.T. Prance, B.S. Pena & J.F. Ramos 3074 (INPA).

3. ***Eugenia moritziana*** H.Karsten, Auswahl Gew. Venez.: 18. 1848–1849. Lectotype: Venezuela, Aragua, Tovar, Moritz 1628 (K, P; for type image see K 2015). Figures 3 and 8.

Eugenia moritziana is a tree 5–7 m collected in coastal Atlantic rainforests; it is recognizable by its markedly

discolorous leaves, adaxially dull green, abaxially light golden yellow when young, turning grey or pale silver with age, with the venation scarcely or not visible due to the density of the indumentum. Leaves have petioles 5–7 × 1–1.6 mm and blades are elliptic to narrowly elliptic, 79–105 × 28–50 mm, 2.0–2.8 times longer than wide. It was presently known for Venezuela.

Specimens examined: Brazil. Espírito Santo: mun. Linhares, Reserva Natural Vale, 13 December 2006, G.S. Siqueira 281 (CVRD, HUFSJ); idem, 22 January 2008, D.A. Folli 5919 (CVRD, HUFSJ); mun. Sooretama, Reserva de Sooretama, 17 July 1969, D. Sucre 5710 (RB).

4. ***Eugenia pusilliflora*** M.L.Kawasaki & B.Holst, J. Bot. Res. Inst. Texas 3: 616. 2009. Type: Ecuador, Napo, Tena Cantón, C.E. Cerón et al. 8667 (holotype QCNE, isotypes F, MO, SEL; for type image see F 2015a). Figures 4 and 8.

Eugenia pusilliflora is a tree 3–10 m from upland forests (“terra firme”), recognizable through its relatively small and glabrous flowers with buds to 4 × 3 mm. Leaves are glabrous, petioles 4–5 × 0.9–1 mm and blades elliptic, 57–80 × 27–35 mm, 2.0–2.3 times longer than wide, markedly discolorous when dry. The specimens examined differ slightly from the protologue in the mostly glabrous ovaries, which are moderately pilose according to the



Figure 1. *Calyptranthes conduplicata* (Silva 987). Scale: 50 mm.



Figure 2. *Calypttranthes vexata* (Prance 3074). Scale: 50 mm.



Figure 3. *Eugenia moritziana* (Siqueira 281). Scale: 50 mm.



Figure 4. *Eugenia pusilliflora* (Rosas 256). Scale: 50 mm.

protologue. This species was known for Ecuador and Peru.

Specimens examined: Brazil. Acre: mun. Cruzeiro do Sul, próximo ao novo aeroporto, 11 February 1976, O.P. Monteiro & C. Damião 320 (INPA); idem, ramal 4 do projeto Santa Luzia (INCRA), 11 September 1985, A. Rosas Jr. et al. 256 (INPA). Amazonas: mun. Eirunepé, BR-364, cruzamento rio Gregório, 07°45' S, 071°34' W, 2 October 1987, M. Clara Ferreira & A.P. de Araújo 39 (HRB, INPA). Rondônia: Costa Marques, 12°15' S, 064°16' W, 1 April 1987, C.A.C. Ferreira 8765 (INPA). Guarajá-Mirim, 10°40' S, 064°55' W, 10 April 1987, C.A.C. Ferreira 8788 (INPA).

5. ***Marlierea suborbicularis*** McVaugh, Mem. New York Bot. Gard. 10: 88. 1958. Type: Venezuela, Amazonas, mun. Manoa, rio Guainia, B. Maguire et al. 36400 (holotype MICH, isotypes F, NY; for type image see MICH 2015a). Figures 5 and 9.

Marlierea suborbicularis is a shrub (height not recorded) from upland forests (“terra firme”), with typically widely ovate or nearly rounded glabrous blades 65–70 × 40–50 mm, 1.2–1.6 times longer than wide with scarcely visible petioles, these to 3 × 2 mm. It was presently known from Venezuela.

Specimen examined: Brazil. Roraima: Serra Surucucu, 2 February 1975, B.G.S. Ribeiro s.n. (IAN 145637).

6. ***Myrcia crispa*** McVaugh, Mem. New York Bot. Gard. 18: 130. 1969. Type: Venezuela, Amazonas, Serranía Parú, R.S. Cowan & J.J. Wurdack 31236 (holotype MICH; isotype NY; for type image see MICH 2015b). Figures 6 and 8.

Myrcia crispa is a tree to 8 m, with twigs, petioles and abaxial side of blades covered by rufescent trichomes; blades are markedly discoloured when dry, with the adaxial face dark brown, glabrous and shining, and the abaxial face rufescent, dull and densely pilose. Leaves have petioles 5–8 × 2–2.5 mm, and blades are elliptic to obovate, 63–70 × 30–33 mm, 1.9–2.4 times longer than wide. It was previously known only for Venezuela. Former records of *Myrcia crispa* from northeastern Bahia state, Brazil (Amorim 1025 and Davidse 11969, both SP; see images in CRIA 2015) are collections of *Myrcia eriocalyx* De Candolle, a distinct species belonging to the *Gomidesia* clade (see Lucas et al. 2011; *Myrcia crispa* belongs to the *Myrcia* clade) which occasionally bears a dark brown indumentum that may be confused with that of *M. crispa*. Nevertheless, blades are usually ovate or rounded in *M. eriocalyx*, while they are elliptic or obovate in *M. crispa*.

Specimen examined: Brazil. Amazonas. Uaupés, rio Negro, 7 March 1975, B.G.S. Ribeiro 863 (IAN).

7. ***Myrcia subcordifolia*** B.Holst & M.L.Kawasaki, J. Bot. Res. Inst. Texas 2: 303. 2008. Type: Ecuador, Zamora-Chinchipe: Nagaritza Cantón, 10 December 1990, W.

Palacios 6723 (holotype QCNE, isotypes F, MO, SEL; for type image see F 2015b). Figures 7 and 9.

Myrcia subcordifolia is a tree to 16 m from floodable forests (“várzea”), recognizable through its leaves with petioles 2.5–4 × 2 mm mostly scarcely visible and obovate blades 60–110 × 34–64 mm, 1.7–1.8 times longer than wide, with widely rounded base, occasionally subcordate at the junction with the petioles. This species was previously known for Ecuador.

Specimen examined: Brazil. Amazonas: Coari, 04°00' S, 065°00' W, 16 December 2004, I.L. Amaral & L.M. Soares 2854 (INPA).

All species registered here except *Eugenia moritziana* were collected in the states of northern Brazil. These new findings are an eloquent demonstration of the scarcity of collections along the Amazonian biome (for numerical data see Introduction). On the other side, the occurrence of *E. moritziana* in the coastal rainforest of Espírito Santo, more than 3,000 km from the Venezuelan populations, although not exactly surprising if we consider the biogeographical connections of Amazonian and Atlantic biomes (e.g., Costa 2003), may exemplify the fact that even well surveyed areas are yet incompletely known in its floristic composition. Espírito Santo state has an area of 46,095 km² (IBGE 2015) and there are nearly 180,000 collections there (CRIA 2015), with an average of nearly four collections/km².

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Figure 5. *Marlierea suborbicularis* (Ribeiro 145637). Scale: 50 mm.



Figure 6. *Myrcia crispa* (Ribeiro 863).



Figure 7. *Myrcia subcordifolia* (Amaral 2854). Scale: 50 mm.

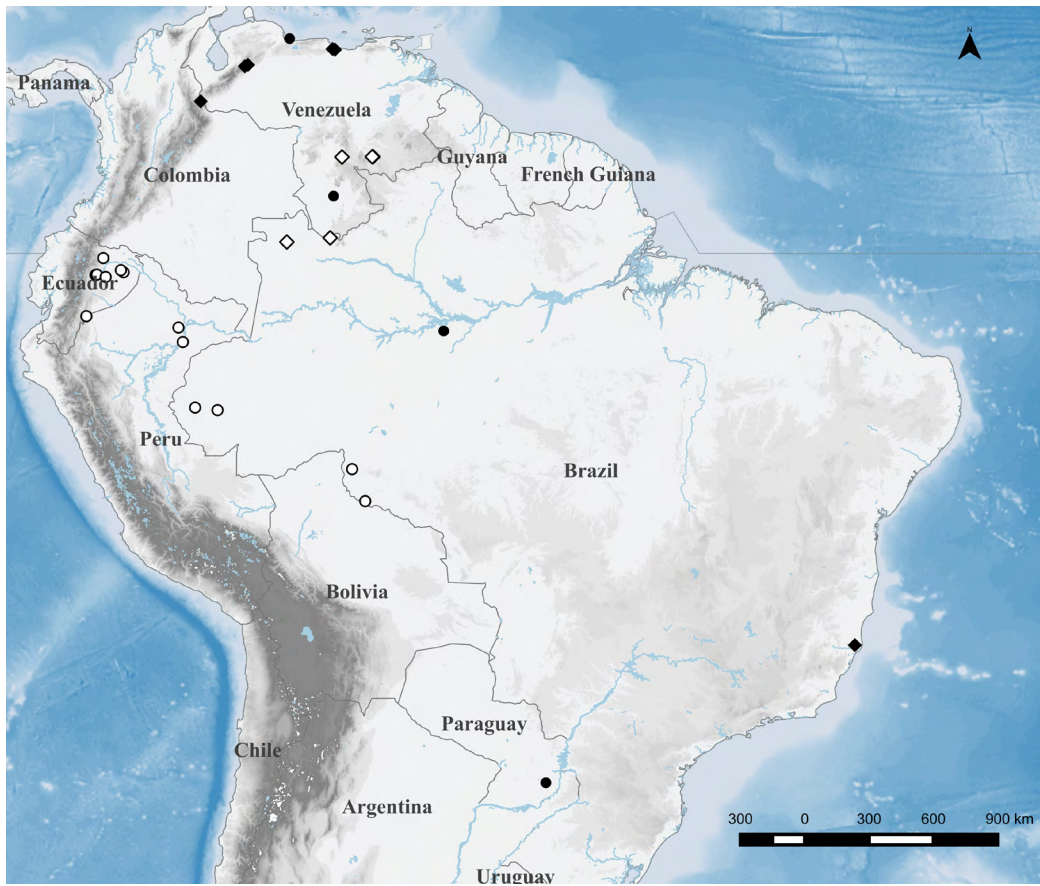


Figure 8. Distribution of *Calyptanthes conduplicata* (black circles), *Eugenia moritziana* (black diamonds), *Eugenia pusilliflora* (white circles) and *Myrcia crisa* (white diamonds). For data of the specimens mapped, see Table 1.

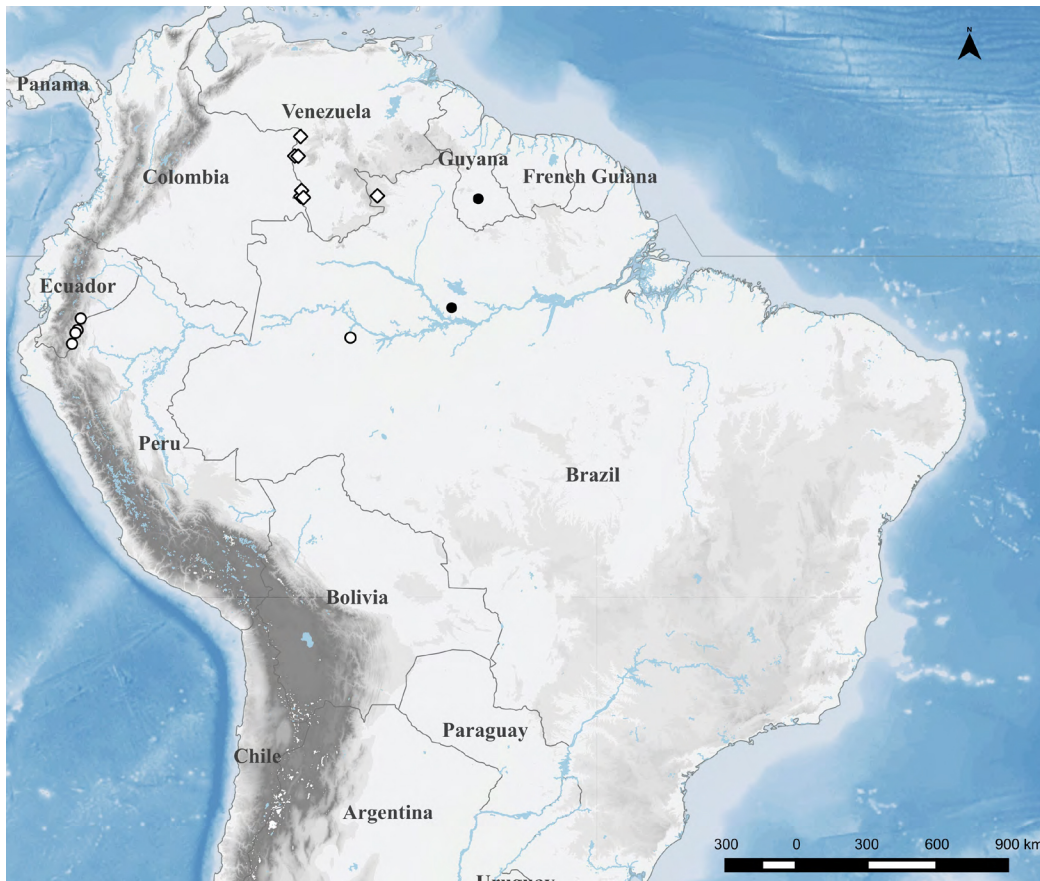


Figure 9. Distribution of *Calyptanthes vexata* (black circles), *Marlierea suborbicularis* (white diamonds) and *Myrcia subcordifolia* (white circles). For data of the specimens mapped, see Table 1.

- [common/imagedisplay.php?irn=136437&reftable=efmFnh&refirn=703669](http://common.imagedisplay.php?irn=136437&reftable=efmFnh&refirn=703669), 4 January 2015.
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Authors' contribution statement: MS wrote the text; MS and MADS identified *Calypttranthes conduplicata*, *C. vexata*, *Eugenia moritziana*, *E. pusilliflora* and *Myrcia subcordifolia*; MFS identified *M. suborbicularis* and *Myrcia crisper*; TEA organized the collection data and prepared the distribution maps.

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