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Melastomataceae in a continental Atlantic Forest island from southeastern Brazil

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Abstract

The Marambaia is an important natural refuge for preserving the genetic heritage of several rain forest plant species. In this insular region, where the vegetation types are Lower Montane Rain Forest and *restingas* (sandy coastal plain habitat), the impressive diversity of Melastomataceae consists of seven genera and 25 species of which 13 represent new records for the area. *Miconia* is best represented with 10 species, followed by *Tibouchina* (6 spp.), *Leandra* (4 spp.), *Clidemia* (2 spp.) and *Huberia*, *Marcetia* and *Ossaea* (1 sp. each). Most of the species are shrubs or trees and occur in Dense Submontane Ombrophilous Forest. *Huberia ovalifolia* DC., *Leandra acutiflora* (Naudin) Cogn. and *Leandra melastomoides* Raddi are cited in the list of endangered species for the municipality of Rio de Janeiro. An identification key is provided as well as descriptions, illustrations, comments on morphological peculiarities of species, and geographical and phenological data.

Key Words: Brazilian coast, conservation, endemism, Marambaia, taxonomy

Introduction

The Conference of the Parties (COP 8), a decision-making body of the Convention on Biological Diversity (CBD) held in 2006, mentioned island biodiversity as a central theme, and focused on conservation and management of natural resources. In Brazil, floristic inventories of continental and oceanic islands are still too few to provide a comprehensive knowledge of Brazilian island floras. We highlight the studies of Kita & Souza (2003), Rogalski & Zanini (2003), and Menezes *et al.* (2005).

Marambaia is an insular conservation unit located on the southern shores of Rio de Janeiro state. It is part of the Atlantic Forest Biome, and the vegetation consists of Dense Submontane Ombrophilous Forest and *Restinga* (sandy coastal plain habitat), with significant floristic diversity that includes several species listed as endangered species for the municipality of Rio de Janeiro (Baumgratz 2000, Conde *et al.* 2005). However, a lack of taxonomic studies on several botanical families represents a knowledge gap for Marambaia.

The Melastomataceae is one the most diverse families of flowering plants of the Brazilian flora, consisting of 68 genera and 1,311 species (Baumgratz *et al.* 2010, 2013). The family is widely distributed in several biomes, except in the Caatinga (dry forest vegetation) of northeast Brazil. Significant species assemblages occur in different ecosystems, especially the Atlantic and Amazon forests, where centers of endemism have been reported (Renner 1993, Clausing & Renner 2001, Baumgratz 2004, Goldenberg & Amorim 2006, Goldenberg *et al.* 2012). The flora of Rio de Janeiro state has 29 genera and 334 species of Melastomataceae (Baumgratz *et al.* 2010, 2013). In the Atlantic Forest Biome Melastomataceae is also a species-rich family, with 40 genera and 581 species (Baumgratz *et al.* 2010, 2013), of which 391 are endemic (Goldenberg *et al.* 2009).

Melastomataceae is also common along trails and beside natural clearings since many species are pioneer plants that rapidly colonize these areas, and therefore contribute to the renewal and dynamics of the environment when the older individuals are lost (Armelin & Mantovani 2001, Souza *et al.* 2009). This ability to colonize open areas,

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clearings, trails and the edges of forest fragments make many Melastomataceae species good indicators of disturbed environments (Tabarelli & Mantovani 1999a, 1999b).

Over the past few decades, data relevant to the Melastomataceae of the Atlantic Forest of Rio de Janeiro state have been gathered, mainly from floristic inventories and taxonomic and regional flora studies (e.g., Brade 1956, Pereira 1961, 1964, 1966, Baumgratz 1980, 1982, 1984, Marques 1997, Baumgratz *et al.* 2001, 2006, 2007, Barberena *et al.* 2008, Chiavegatto & Baumgratz 2008, Silva & Baumgratz 2008, Baumgratz & Souza 2011). However, much more exploratory work remains to be done in poorly studied Atlantic forest remnants (Baumgratz *et al.* 2006, Goldenberg *et al.* 2009). These new studies will be essential to update recently published data on the diversity of Melastomataceae in the Brazilian flora (Baumgratz *et al.* 2010, 2013).

The aim of the present survey is to analyze the taxonomic diversity of this family on Marambaia. In addition, we present comments on endemic and endangered species, geographic distribution patterns, habitat preferences, and biogeographic relationships between the island and the adjacent continent.

Material & Methods

Area: physiographic characteristics

Marambaia is located in the southern part of Rio de Janeiro state, in the municipalities of Rio de Janeiro, Itaguaí and Mangaratiba (Fig. 1), between 23º 03' 13.98" S 43º 33' 44.31" W and 23º 05' 31.23" S 43º 46' 26.55" W. This island originated during the Quaternary period, and nowadays it covers an area of approx. 49.40 km^2 and has two distinct physiographic sections: (1) a narrow sandy zone, known as "Marambaia *Restinga*", that is approx. 40 km long in an E-W direction, and 1.800 m wide at its wides point (Ponta de Guaratiba): (2) a mountainous section situated on the west that is 3.500 m wide, and locally known as "Marambaia Island". The northern side of the island faces Sepetiba Bay, and the southern side faces the Atlantic Ocean (Fig. 1). Between these two sections there is the Marambaia Bay and a sandy spur named Ponta da Pompeba, which penetrates Sepetiba Bay (Pereira *et al.* 1990, Menezes 1996, Menezes & Araujo 1999, 2004, Roncarati & Menezes 2005, Souza 2005, Antonini 2007). The highest area is Marambaia Mountain at 641 m.

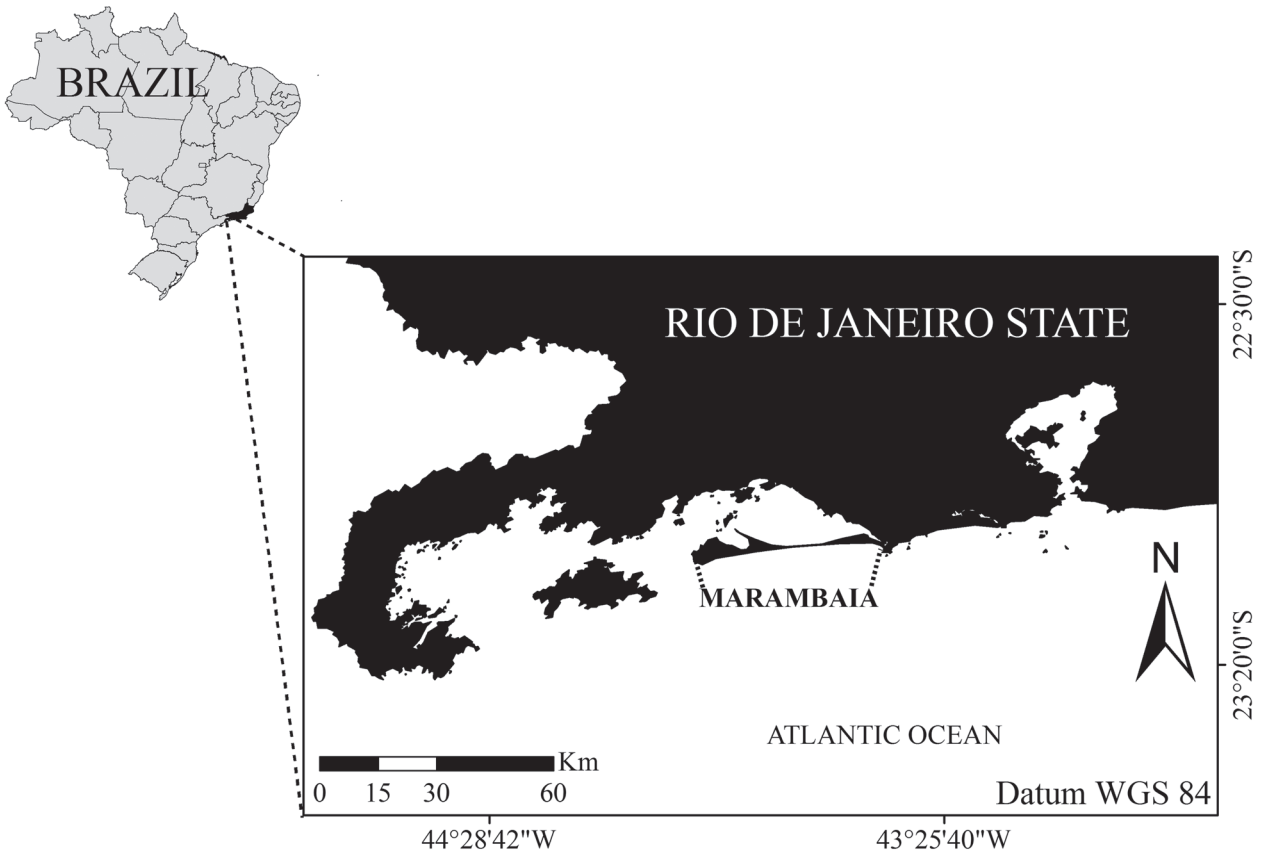

FIGURE 1. Location of Marambaia at southern Rio de Janeiro state, Brazil.

The island's climate type is Aw (tropical rainy climate), according to Köppen, with monthly average temperatures above 20°C and an annual average of approx. 23.7°C; February is the hottest month (approx. 26.8° C), and August, the coolest (approx. 20.9° C). The average annual precipitation is 1239.7 mm; March is the wettest month (approx. 140.6 mm), and August, the driest (approx. 47.4 mm). The predominant winds are from the south; in summer (December to March) it is dominated by the east quadrant (NE and E), and in winter (June to August) the south quadrant (S and SW; Mattos 2005).

From 1614 until mid-1896, Marambaia suffered anthropogenic interference of different types and intensities and was used as an important point of reception and sorting of slaves (Pereira *et al.* 1990, Conde *et al.* 2005). In 1981, the Brazilian Navy occupied the island and installed the Marine Education and Training Centre (Conde *et al.* 2005). Although the vegetation had suffered between 1940 and 1960 due to the urbanization and natural resource exploitation, it remains relatively well preserved (Pereira *et al.* 1990). Today, this island is a Conservation Unit of Rio de Janeiro state, and is categorized as an Environmental Protection Area of Mangaratiba (Conde *et al.* 2005).

The Vegetation

Marambaia has various geological features such as dunes, beaches, sandy ridges and inter-ridge depressions, resulting in a wide variety of environments and physiognomies (Fig. 2). We adopted the vegetation classification for the island according to Menezes & Araujo (2005) and Conde *et al.* (2005), but designated the Atlantic Forest slope as Dense Submontane Ombrophilous Forest, according to Veloso *et al.* (1991). We identify three types of vegetation: Restinga, Dense Submontane Ombrophilous Forest, and Mangrove. Mangroves are represented by very small, insignificant patches (Conde *et al.* 2005) lacking Melastomataceae. There are also secondary forests with a dense understory (Pereira *et al.* 1990, Antonini 2007, Menezes & Araujo 2005).

Restinga—Sandy coastal deposits formed during the Quaternary that support a diverse assemblage of plants. In Marambaia the *restinga* consists of open vegetation (herbaceous *restinga*), shrubby vegetation (shrubby *restinga*) and forest formations (Menezes & Araujo 2005). **Herbaceous *Restinga***—This is found in flooded depressions between the inner and outer sandy ridges, which form the cusps of the bay (e.g., Ponta da Pompeba); **Shrubby *Restinga***—A diverse physiognomy with dense thickets of shrubs, vines, terrestrial bromeliads and cacti, interspersed by open areas with exposed sandy soil; ***Restinga* Forest**—Here the sandy soil is not exposed, there is higher moisture and taller plants, with several trees; there are periodically or permanently flooded and beach ridge forests.

Dense Submontane Ombrophilous Forest—This is the dominant forest formation, found only on hillsides, from sea level to 641 m. It is a vegetation mosaic due to different regeneration times. The most preserved areas are in the central part of the island and on the ocean-facing slopes. The canopy may reach 12 to 30 m tall, while a second tree layer grows 6 to 10 m tall.

Morphology

The fieldwork covered all area of the island during four years (2007–2010). Sampling was conducted in all environments and physiognomies, using the path method (Filgueiras *et al.* 1994). Voucher materials were deposited in the herbaria of the Universidade Federal Rural do Rio de Janeiro (RBR) and Jardim Botânico do Rio de Janeiro (RB). Several collections from HB, GUA, R, RB, RBE, and RBR were also studied. The morphology was studied from herbarium specimens and preserved material collected during field trips. Dried reproductive materials were rehydrated in boiling water when necessary. Some observations were taken in nature, mainly texture and colours of structures. The descriptive terminology of the vegetative and reproductive structures follows Radford *et al.* (1974), Baumgratz (1985), Briggs & Johnson (1979), and Weberling (1988). The conservation status of some species was based on lists of Baumgratz (2000), Kollman *et al.* (2007), and MMA (2008).

Results

On Marambaia, Melastomataceae are represented by seven genera and 25 species (Fig. 3): *Clidemia* (2 spp.), *Huberia* (1 sp.), *Leandra* (4 spp.), *Marcetia* (1 sp.), *Miconia* (10 spp.), *Ossaea* (1 sp.) and *Tibouchina* (6 spp.). Most species (23) are found in Dense Submontane Ombrophilous Forest, of which 15 species are endemic to this environment, while only eight species occur in *Restinga* Forest. Few species are also found in Herbaceous and/or Shrubby *Restinga*, such as *Clidemia urceolata*, *Marcetia taxifolia*, *Miconia cinnamomifolia*, *Tibouchina gaudichaudiana*, and *T. trichopoda* (Tab. 1). Only *Marcetia taxifolia* is restricted to the last two vegetation types.

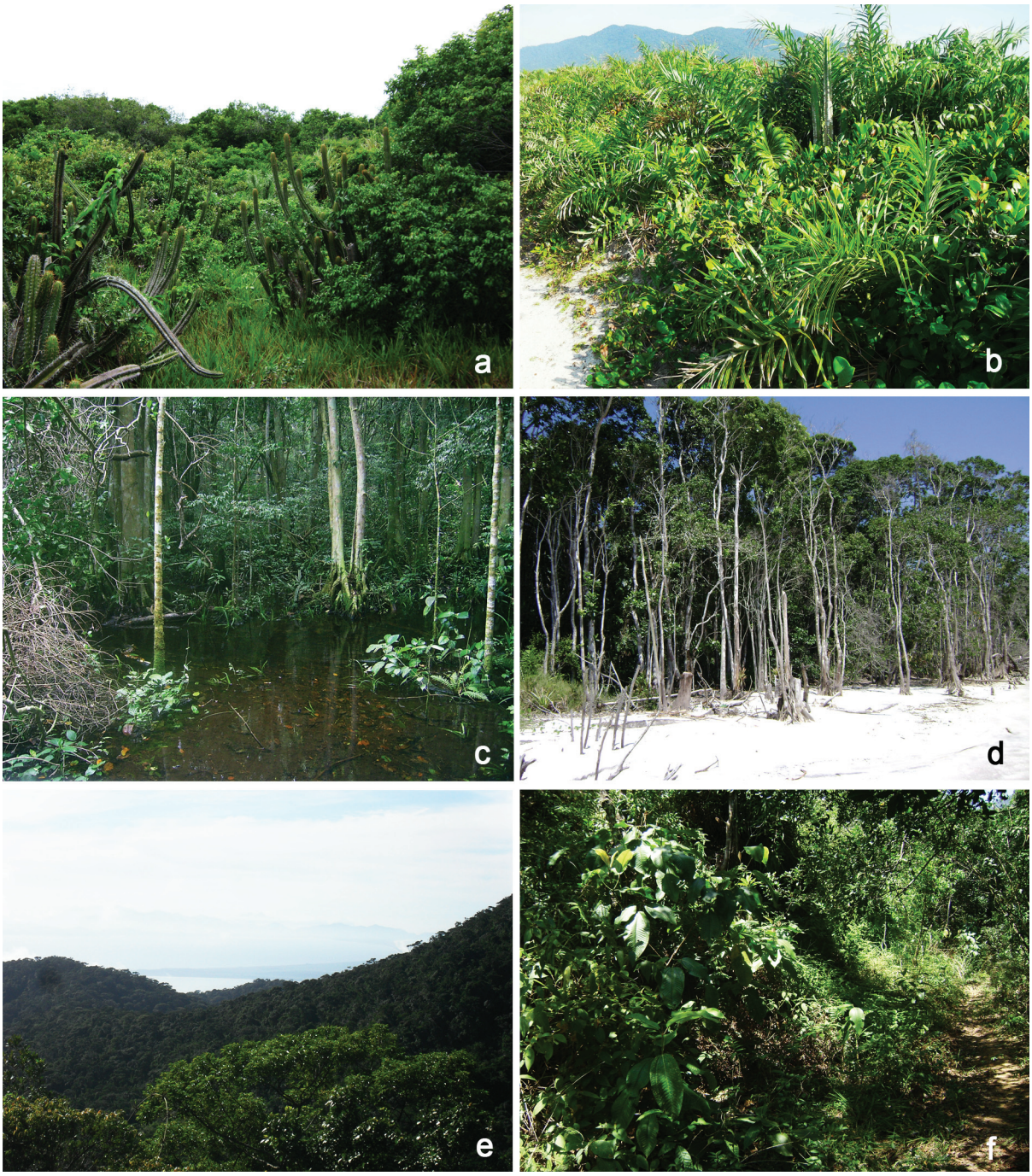

FIGURE 2. Vegetation types in Marambaia Island, Rio de Janeiro, Brazil. a. Herbaceous *Restinga*; b. Shrubby *Restinga*; c–d. *Restinga* Forest: permanent flooded forest (C), flooded forest along the beach on the continental side of the island (D); e–f. Dense Submontane Ombrophilous Forest.

Key to species of Melastomataceae on Marambaia

1. Ovary free inside the hypanthium or adnate to the hypanthium only at the base or by septa along the length, and free to the apex; fruit capsule (capsule loculicidal, *ruptidium* or *velatidium*) ..... 2.
- Ovary partial or completely inferior; fruit berry (*baccaceous* or *bacidium*) ..... 9.
2. Flower solitary, axillary; connective appendage thickened, and involving the base of the thecae; fruit capsule loculicidal ..... *Marcetia taxifolia*
- Inflorescences terminal; connective appendage ventral or dorsal, not thickened nor involving the base of the thecae; fruit *ruptidium* or *velatidium* ..... 3.
3. Leaves apparently glabrous, the indumentum glandular-punctate (trichomes inconspicuous); flower 4-merous; petals white and basally yellow; anthers yellow, and dorsally appendaged; ovary glabrous; seeds winged, linear to oblong ..... *Huberia ovalifolia*

- Leaves sharply pilose, the indumentum of other types, no glandular-punctate; flower 5-merous; petals purple or lilac; anthers purple, lilac or rose-purple, and ventrally appendaged; ovary pilose; seeds not winged, cochlear (*Tibouchina*) ..... 4.
4. Branches slightly to sharply winged; filaments 1/2–2/3-superior glandular-villous ..... 5.
- Branches not winged; filaments basally glandular or glandular-pubescent, not villous ..... 6.
5. Leaves with adaxial surface bullate and abaxial surface foveolate, the adaxial surface with strigose and strigulose trichomes basally many-branched, ... *Tibouchina estrellensis*
- Leaves with both surface plane, the adaxial surface with strigose and strigulose trichomes basally 1-2-branched ..... *Tibouchina granulosa*
6. Capsule *ruptidium* type ..... 7.
- Capsule *velatidium* type ..... 8.
7. Leaf base obtuse to acute; hypanthium 5–11 mm long; anthers 11–17 mm long ..... *Tibouchina gaudichaudiana*
- Leaf base obtuse-cordate; hypanthium 3–5 mm long; anthers 4–6 mm long. ..... *Tibouchina heteromalla*
8. Leaves with the adaxial surface with trichomes basally not thickened nor branched, the acrodromous marginal veins suprabasal; bracteoles 6.2–7.8 mm long; connective of antesepalous stamens 1,8–2 mm prolonged bellow the thecae ..... *Tibouchina corymbosa*
- Leaves with the adaxial surface with trichomes basally thickened and 1-2-branched, the acrodromous marginal veins basal; bracteoles 12–13 mm long; connective of antesepalous stamens 3.8–4 mm prolonged bellow the thecae ..... *Tibouchina trichopoda*
9. Inflorescences axillary and/or pseudo-axillary, sometimes also terminal ..... 10.
- Inflorescences terminal ..... 12.
10. Floral buds and petals apex acute to acuminate ..... *Ossaea marginata*
- Floral buds apex obtuse to rounded; petals apex rounded to rounded-emarginate (*Clidemia*) … ..... 11.
11. Branches and abaxial surface of leaf blades with furfuraceous-stellulate trichomes; inner torus with an irregularly toothed-fimbriated membranaceous ring; calyx internal lobes slightly denticulate or reduced to a membranaceous and sinuos ring ..... *Clidemia hirta*
- Branches and abaxial surface of leaf blades with stellate trichomes sharply pedicelate, not furfuraceous trichomes; inner torus sparsely glandular, sometimes glabrous; calyx internal lobes wide-ovate, apex rounded to truncate-emarginate ..... *Clidemia urceolata*
12. Floral buds and petals apex acute to acuminate (*Leandra*) ..... 13.
- Floral buds apex obtuse to rounded (*Miconia*) ..... 16.
13. Thyrsoids of scorpioid cymes; anthers yellow ..... *Leandra reversa*
- Thyrsoids with no branchlets of scorpyoid cymes; anthers white or white-rosy ..... 14.
14. Bracts and bracteoles involucral, broadly ovate, apex rounded ..... *Leandra melastomoides*
- Bracts and bracteoles not involucral, triangular, apex acuminate ..... 15.
15. Plants apparently glabrous, indumentum furfuraceous-stellulate, trichomes early-caducous; leaves domatia primary-axillary hair-tuft in abaxial surface ..... *Leandra acutiflora*
- Plants sharply pilose, indumentum with dendritic and rough-setulose trichomes, persistent; leaves domatia absent ..... *Leandra variabilis*
16. Adults leaves sharply discolour, adaxial surface green, abaxial surface brownish, white-brownish and/or rufous, indumentum persistent, and covering densely and all the epidermic surface, sometimes moderate and partially ..... 17.
- Adults leaves green, concolour, subconcolour or discolour, abaxial surface glabrous or indumentum generally sparse, sometimes dense and covering partially the epidermic surface, trichomes persistent or caducous ..... 22.
17. Inflorescences of scorpioid cymes ..... 18.
- Inflorescences with no branchlets of scorpioid cymes ..... 19.
18. Shrubs, sometimes treelets (2–4.5 m tall); indumentum of the leaves abaxial surface densely lanate, trichomes vermiform; thyrses pyramidal; fruit *bacidium* ..... *Miconia albicans*
- Trees (9–17 m tall); indumentum of the leaves abaxial surface lepidote-stellate; thyrses oblong; fruit *baccaceous* ..... *Miconia lepidota*
19. Branches indumentum with stellate and dendritic trichomes, no lepidote trichomes; calyx persistent; anthers yellow, becoming reddish to vinaceous, connective appendage latero-ventrally 2-lobed; fruit *bacidium* ..... *Miconia dodecandra*
- Branches indumentum lepidote-stellate or tomentosous-stellate, no dendritic trichomes; calyx caducous; anthers white, connective inappendaged or dorsal appendage calcarate; fruit *baccaceous* ..... 20.
20. Thyrsoids of glomerules ..... *Miconia chartacea*
- Thyrsoids with no branchlets of glomerules ..... 21.
21. Leaf blade abaxial surface dense and completely covered by the indumentum, the epidermic surface not exposed; inner torus lepidote-stellate; ovary apex with stellulate trichomes ..... *Miconia cubatanensis*
- Leaf blade abaxial surface moderate and partially covered by the indumentum, epidermic surface partially exposed; inner torus glabrous; ovary apex glabrous ..... *Miconia brasiliensis*
22. Branches nodes with interpetiolar pseudo-stipules, latelly caducous ..... *Miconia cinnamomifolia*
- Branches nodes without interpetiolar pseudo-stipules ..... 23.
23. Petioles 2.6–7.4 cm long; leaf blades 9.1–18 cm wide, base obtuse to rounded or subcordate; thyrsoids of glomerules ..... *Miconia calvescens*
- Petioles 0.5–2.4 cm long; leaf blades 1.9–8.7 cm wide, base acute, acute-decurrent or obtuse-cuneate; thyrsoids with no branchlets of glomerules ..... 24.
24. Leaf blade base acute; bracts and bracteoles caducous; calyx caducous; anthers pore ventral, very wide, and prolonged to the base as a longitudinal slit; fruit oligospermous (2–6 seeds) ..... *Miconia pusilliflora*
- Leaf blade base acute-decurrent or rounded-cuneate; bracts and bracteoles persistent; calyx persistent; anthers pore terminal, not prolonged to the base; fruit polyspermous (50–80 seeds) ..... *Miconia prasina*

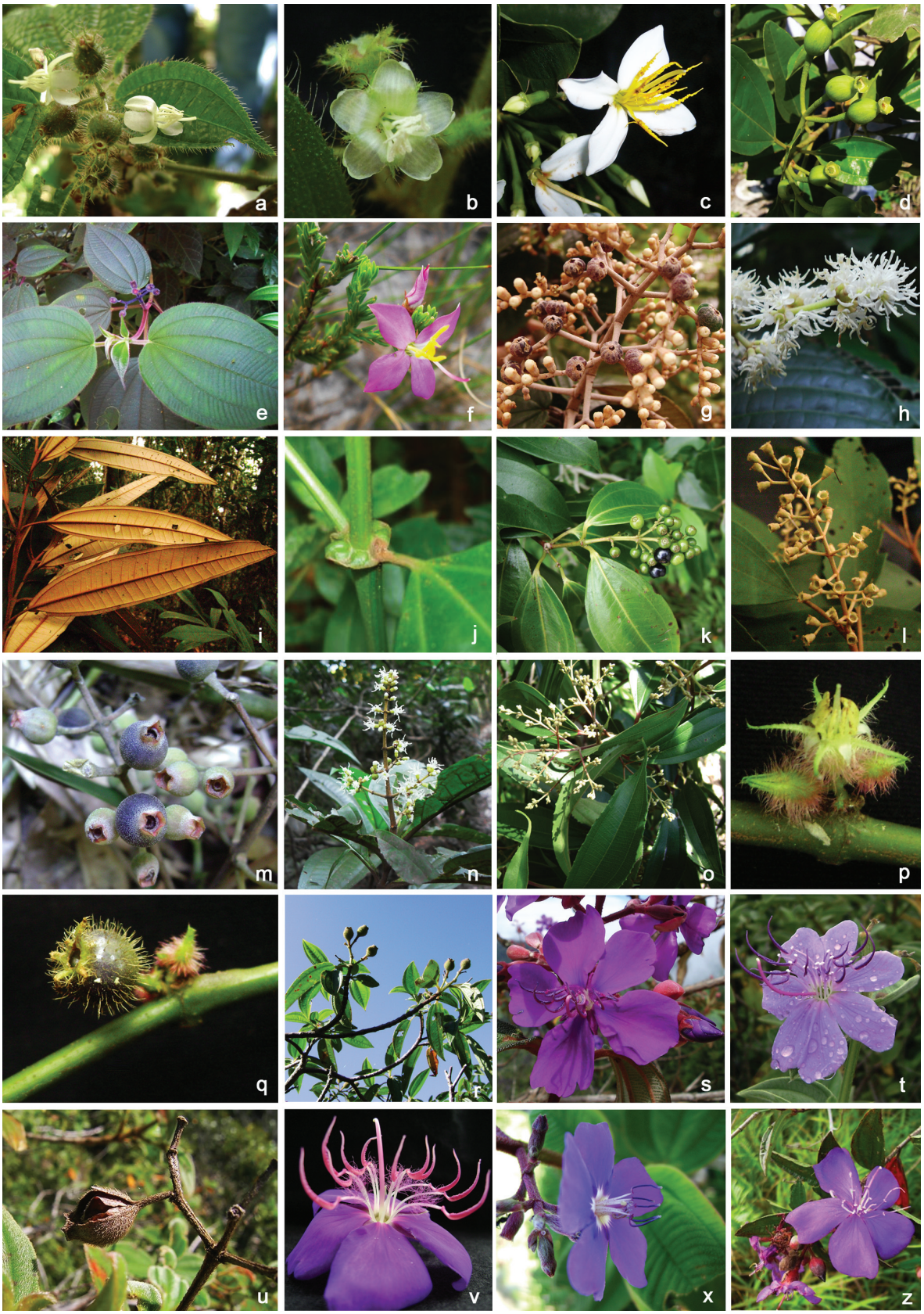

FIGURE 3. ***Clidemia hirta*** (L.) D.Don: a. flower and fruit. ***Clidemia urceolata***: b. flower. ***Huberia ovalifolia***: c. flower; d. fruits. ***Leandra reversa***: e. inflorescence. ***Marcetia taxifolia***: f. flowers. ***Miconia albicans***: g. fruits and floral buds. ***Miconia calvescens***: h. flowers. ***Miconia chartacea***: i. leaves. ***Miconia cinnamomifolia***: j. branches with interpetiolar pseudo-stipules; k. fruits. ***Miconia cubatanensis***: l. inflorescence. ***Miconia dodecandra***: m. fruits. ***Miconia prasina***: n. inflorescence. ***Miconia pusilliflora***: o. inflorescence. ***Ossaea marginata***: p. flowers; q. fruit. ***Tibouchina corymbosa***: r. fruits. ***Tibouchina estrellensis***: s. flower. ***Tibouchina gaudichaudiana***: t. flower; u. fruit. ***Tibouchina granulosa***: v. flower. ***Tibouchina heteromalla***: x. flower. ***Tibouchina trichopoda***: z. flower.

Taxonomic treatment

1. *Clidemia* Don (1823: 306).

Pilose shrubs. Leaves opposite, isophyllous or slightly anisophyllous. Inflorescence in leafy and/or aphyllous nodes, axillary and/or pseudo-axillary, sometimes also terminal; bracts and bracteoles persistent. Floral buds with obtuse to rounded apex. Flowers 5-merous; pedicel inconspicuous; inner torus pilose or tooth-fimbriated, glandular or not, sometimes glabrous; calyx persistent, bilobed, external lobes larger than the internal lobes; petals white, obovate or oblong, apex rounded or emarginate; stamens white, isomorphic, subequal in size, pore terminal, connective prolonged or not below the theca, dorsally appendage or not; ovary completely or partly inferior; style glabrous. Baccate, *bacidium* type, purple-darkness at maturity, polyspermous; seeds ovate, testa granulose.

1.1. *Clidemia hirta* (Linnaeus 1753: 390) Don (1823: 309). [Figs. 3a, 4a–d]

Shrubs 0.6–1.5 m; indumentum of the branches, leaves, inflorescences and hypanthium sparsely setose, setulose and furfuraceous-stellulate, in addition to glandular-setulose trichomes, glandular head usually caducous. Petioles 0.6–2.2 cm long; blade 7.9–13 × 4.6–7.2 cm, papyraceous, ovate to oblong-ovate, base obtuse, apex acute to acuminate, margin crenulate, ciliolate; adaxial surface bullate, abaxial surface also with stellate-pedicellate trichomes; acrodromous veins 5, the inner 3–4 mm suprabasal. Thyrsoids 1.5–2.8 mm long; bracts 2–3 × 1–1.5 mm, triangular-acuminate, bracteoles 1.5–2.3 × 0.6–1.1 mm, ovate-acuminate. Hypanthium 3–5.1 × 2.5–4.1 mm, campanulate; inner torus with an irregular tooth-fimbriated membranaceous ring; calyx with external lobes 3–4.8 × 0.1–0.5 mm, subulate, internal lobes slightly denticulate or reduced to a membranaceous and sinuous ring; petals 6.5–7 × 2.8–3.1 mm, obovate, apex rounded; stamens with filaments 1.2–2.5 mm long; anthers 3.5–5 mm long, connective prolonged ca. 0.1 mm, appendage slightly bilobed; ovary 2.8–4.5 × 1.1–2 mm, partly inferior, 5-celled, glabrous; style 5.7–7.2 mm long. *Bacidium* 5–8 × 3.1–6 mm, setose or glandular-setulose, glandular head caducous or not; seeds 0.4–0.9 × 0.1–0.5 mm.

Specimens examined:—7.VII.2007, fr., *K.C. Silva 16* (RB, RBR); 23.II.2008, fl., fr., *K.C. Silva 29* (RB, RBR); 29.VII.2008, fl., fr., *K.C. Silva 42* (RBR); 9.I.2010, fl., fr., *K.C. Silva 61* (RBR); 22.I.2010, fl., fr., *K.C. Silva 67* (RBR).

Distribution:—*Clidemia hirta* is widely distributed species from Central America to Argentina (Baumgratz *et al.* 2006). In Brazil it is found in almost all states, usually in open areas, sunny and very anthropized habitats (Baumgratz *et al.* 2006; Michelangeli & Reginato 2012). It is classified as Vulnerable for the municipality of Rio de Janeiro (Baumgratz 2000). In Malaysia, Hawaii, Tanzania, and Madagascar it has become a naturalized weed (Almeda 2009, Gleason 1939, Wurdack 1962, 1980).

Comments:—This is the first record for Marambaia, where *C. hirta* only occurs in Dense Submontane Ombrophilous Forest. It is distinguished mainly by the inner torus with an irregular tooth-fimbriated membranaceous ring, and calyx with slightly denticulate internal lobes or reduced to a membranaceous and sinuous ring. Additional illustrations in Baumgratz *et al.* (2006), and Matsumoto & Martins (2009).

1.2. *Clidemia urceolata* Candolle (1828: 158). [Figs. 3b, 4e–j]

Shrubs 1.5–2 m; indumentum of the branches, leaves, inflorescences, hypanthium, internal calyx lobes, and fruits moderately to densely setose and glandular-setose, glandular head caducous or not, and stellate trichomes sharply pedicelate. Petioles 0.5–3.1 cm long; blade 4.9–15.6 × 2.2–6.6 cm, papiraceous or chartaceous, ovate, base obtuse, apex acuminate, margin crenulate, ciliolate, adaxial surface bullate, abaxial surface foveolate; acrodromous basal veins 5. Thyrsoids 2.5–8.9 cm long; bracts 2.1–2.3 × 0.3–0.8 mm, bracteoles 1.7–2 × 0.3–0.5 mm, both narrowly triangular. Hypanthium 3–5.8 × 2.1–4 mm, campanulate; inner torus sparsely glandular, sometimes glabrous; calyx with external lobes 3–4.5 × 0.8–2.7 mm, subulate-awned, internal lobes 1.8–3 × 1.8–2.1 mm, wide-ovate, apex rounded to truncate-emarginate; petals 3.9–6 × 3–3.5 mm, broadly ovate, apex rounded-emarginate; stamens with filaments 1.9–3.8 mm long; anthers 2.2–4.1 mm long, connective not prolonged, unappendaged; ovary 2–3 × 2–2.2 mm, inferior, 4–5 celled, furfuraceous-stellulate and rare glandular-setulose; style 4.9–8 mm long. *Bacidium* 3.8–6 × 3–5 mm, subglobose; seeds 0.6–0.9 × 0.4–0.7 mm.

Specimens examined:—10.II.2000, fl., fr, *H.R.P. Lima 344* (RB, RBR); 16.II.2004, fr., *L.F.T. Menezes et al. s.n.* (RBR 7186); 22.V.2005, fr., *F.C. Nettesheim 123* (RBR); 7.IV.2007, fl., fr., *K.C. Silva 4* (RB, RBR); 25.IX.2009, fl., fr., *K.C. Silva 50* (RBR); 22.I.2010, fl., fr., *K.C. Silva 66* (RBR).

Distribution:—A widely distributed species from Central America to Brazil, where it occurs from the state of Bahia to Santa Catarina (Michelangeli & Reginato 2012).

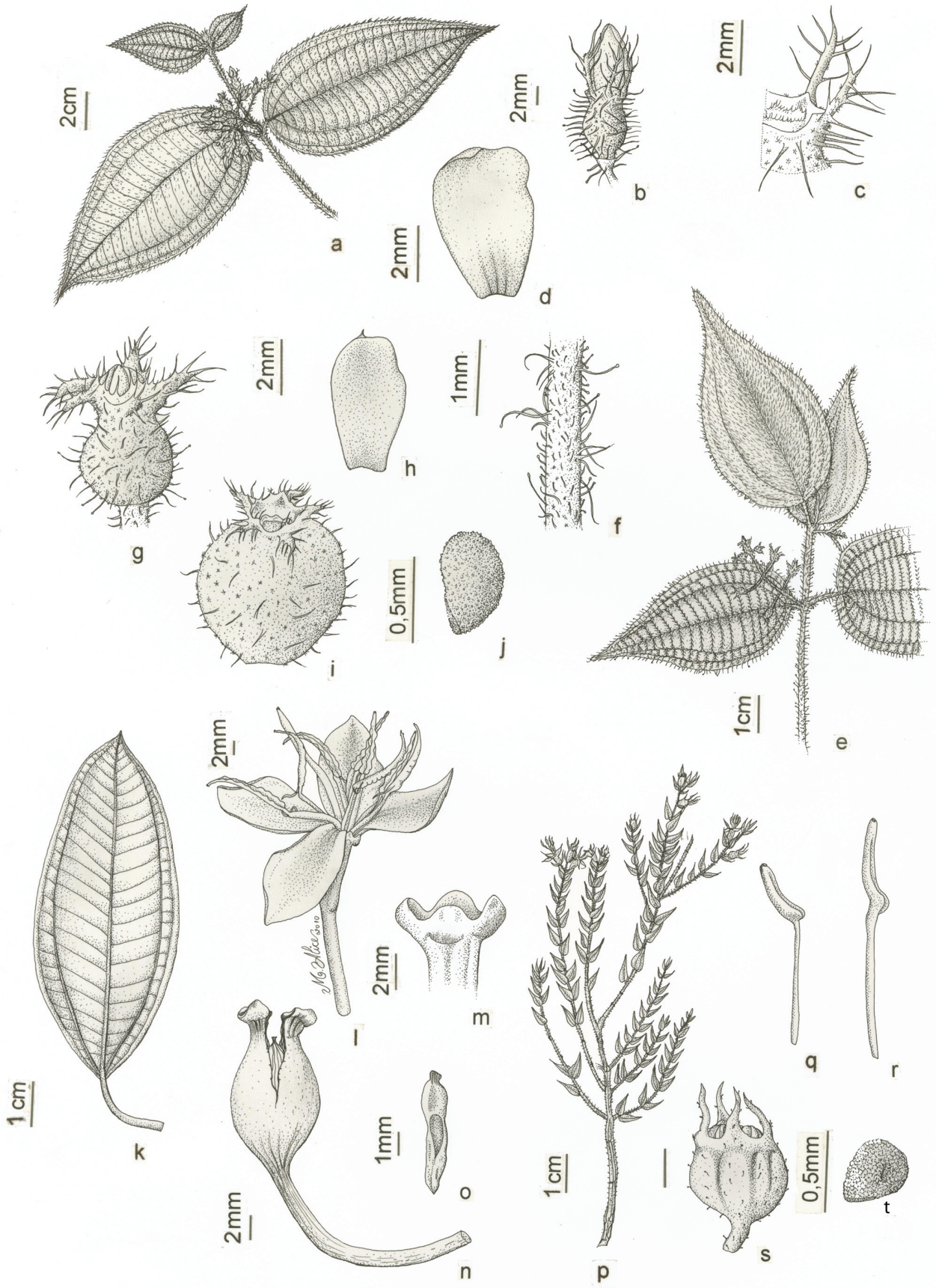

FIGURE 4. ***Clidemia hirta***: a. flowering branch; b. floral bud; c. calyx lobes; d. petal (*Silva 42*). ***Clidemia urceolata***: e. flowering branch; f. detail of branch indumentum; g. floral bud; h. petal; i. fruit; j. seed (*Silva 50*). ***Huberia ovalifolia***: k. leaf: abaxial surface; l. flower; m. calyx; n. disruptive capsule, showing the disruption of hypanthium; o. seed (k. *Menezes 826*; l–m. *Silva 92*; n. *Silva 32*; o. *Menezes 826*). ***Marcetia taxifolia***: p. floriferous branch; q. antipetalous stamen; r antisepalous stamen; s. fruit: loculicidal capsule; t. seed (*Menezes 252*).

Comments:—In Marambaia, it is found in Shrubby *Restinga* and Dense Submontane Ombrophilous Forest. It resembles *C. hirta* by the bullate adaxial leaves surface, yet with moderate to dense cover of numerous setose, glandular-setose and stellate trichomes. *Clidemia urceolata* may be sometimes mistaken with *C. capitellata* (Bonpland 1816: 5) Don (1823: 310) [= *C. neglecta* Don (1823: 307)], a related species that differs by its conspicuous bracteoles, and less dense glandular-pubescence (Wurdack 1971). Additional illustrations in Cogniaux (1883–1888) and Matsumoto & Martins (2009).

2. *Huberia* Candolle (1828 :167)

2.1. *Huberia ovalifolia* Candolle (1828: 167). [Figs. 3c–d, 4k–o]

Trees or treelets 3–15 m, apparently glabrous; indumentum of the branches, leaves, inflorescences, pedicel, hypanthium and calyx glandular-punctate. Petioles 1.2–3.5 cm long; blade 5.7–18 × 2.5–8 cm, chartaceous, ovate or elliptic, base obtuse to acute, apex obtuse to acute, margin entire; acrodromous basal veins 3. Inflorescences 5.4–15.2 cm, terminal; bracts 1.5–2.4 × 5–9 mm, bracteoles 0.5–1 × 0.1–0.5 mm, both persistent, linear-triangular. Flowers 4-merous; pedicel 1.1–2 cm long; hypanthium 3–10 × 2.2–2.9 mm, tubulose; calyx persistent, lacinias unilobed, 1.8–2.7 × 1.6–3 mm, broadly ovate, apex rounded; petals 11–26 × 6–17 mm, white, yellow at the base, apex rounded-acuminate, glabrous; stamens isomorphic, subequal in size, yellow, becoming reddish at maturity; filaments 5–9 mm long; anthers 11–12 mm long, pore terminal, connective not prolonged nor thickened bellow the thecae, dorsal appendage 4.2–9 mm long, linear; ovary 4.7–6.5 × 1.9–4 mm, 2/3-superior free inside the hypanthium, 1/3-inferior adnate at the base, 4-celled, glabrous; style 1.6–2.6 cm long, glabrous. Capsule 12–14 × 6–9 mm, *ruptidium* type, urceolate, ovate, polyspermous; seeds 2.5–5 × 0.5–0.9 mm, winged, linear to oblong, dorso-ventrally flattened.

Specimens examined:—17.XII.1997, fl., *R. Facre s.n.* (RBR 10271); 15.XII.1998, ster., *L.F.T. Menezes & M.C. Souza 577* (RB, RBR); 15.IV.2000, fl., *M. Conde 470* (RB, RBR); 3.VI.2000, ster., *L.F.T. Menezes 665* (RBR); 20.I.2001, fl., *M.C. Souza 180* (RBR); 25.II.2001, fl., *L.F.T. Menezes 826* (RBR); 10.VI.2006, fl., *A.C.C. Moreira 20* (RBR); 7.IV.2007, fl., fr., *K.C. Silva 15* (RBR); 4.III.2008, fl., fr., *K.C. Silva 32* (RB, RBR); 27.IX.2009, ster., *K.C. Silva 60* (RBR); 21.IV.2010, fl., *K.C. Silva 92* (RBR).

Distribution:—Endemic to Brazil and Atlantic Forest Biome, occurring from the state of Bahia to São Paulo (Chiavegatto & Baumgratz 2012). It is categorized as Vulnerable to the municipality of Rio de Janeiro (Baumgratz 2000).

Comments:—In Marambaia Island, *H. ovalifolia* occurs in *Restinga* Forest and Dense Submontane Ombrophilous Forest. It can also be distinguished by the long floral pedicel (1.1–2 cm); flowers with yellow stamens, thecae become reddish to vinaceous after fertilization, connective with a linear dorsal appendage, and capsules of the *ruptidium* type. Additional illustrations in Baumgratz (1997, 2009).

3. *Leandra* Raddi (1820: 385).

Shrubs, sometimes treelets; indumentum of varying types. Leaves peciolate; blade chartaceous, papiraceous and/or membranaceous; acrodromous veins basal and/or suprabasal. Inflorescences terminal; bracts and bracteoles persistent. Floral buds with acute to acuminate apex. Flowers 5(–6)-merous; inner torus glabrous or pilose; calyx persistent, tube inconspicuous, bilobed, lobes reflex, the external lobes conspicuous and larger than the internal, these generally reduced; petals white or white-vinaceous, linear or triangular, apex acute to acuminate, glabrous; stamens isomorphic, subequal in size; anthers white, white-rosy or yellow, straight or extrorsely curve, pore terminal, connective prolonged or not bellow the thecae, dorsal appendage inconspicuous or absent; ovary inferior or partly inferior; style glabrous. Baccate, *bacidium* type, polyspermous; seeds ovate-obtriangular.

3.1. *Leandra acutiflora* (Naudin 1851: 371) Cogniaux (1886: 162–163). [Figs. 5a–c]

Shrubs or treelets 3–3.5 m, apparently glabrous; indumentum sparse to moderately furfuraceous-stellulate, the trichomes early-caducous. Petioles 1.8–2 cm long; blade 7.5–11 × 2.3–3.2 cm, chartaceous, elliptic, base acute, apex acuminate, margin entire, abaxial surface also sparsely setulose in acrodromous veins; acrodromous veins 3–5, 7–11 mm suprabasal; primary-axillary hair-tuft domatia in abaxial surface. Thyrsoids with no branchlets of scorpyoid cymes, 4.4–10.2 cm long; bracts 0.2–0.3 × 0.8–0.9 mm, bracteoles 0.1–0.2 × ca. 0.5 mm, both triangular-acuminate, not involucral. Flowers 5-merous; pedicelate; hypanthium 1–1.5 × 2–2.1 mm, campanulate; inner torus glandular-setulose, glabrescent; calyx with external lobes 0.4–0.6 × 0.1–0.2 mm, internal lobes 0.9–1 x 0.4–0.9 mm, narrowly triangular; petals 2.1–2.2 × 0.7–1 mm, white, reflex, oblong-attenuate; stamens with filaments 1–1.1 mm long; anthers 1.1–1.2 mm long, straight, connective 0.1–0.2 mm prolonged, unappendaged or with dorsal inconspicuous calcar;

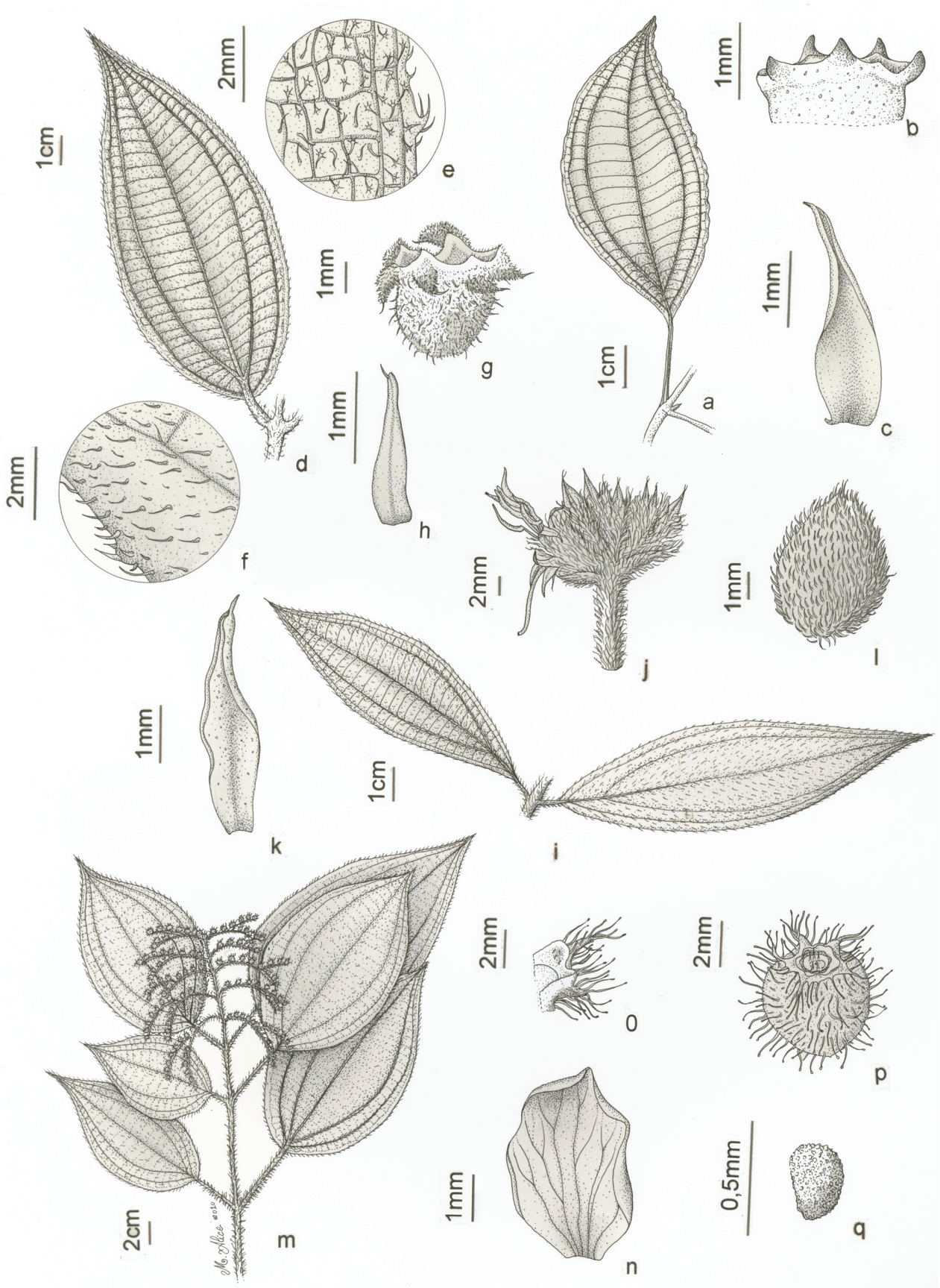

FIGURE 5. ***Leandra acutiflora***: a. leaf: abaxial surface; b. calyx; c. petal (*Lima & Silva s.n.* RB 44251). ***Leandra variabilis***: d. leaf: abaxial surface; e–f. leaf: adaxial and abaxial surfaces, respectively; g. hypanthium and calyx; h. petal (*Neto 1506*). ***Leandra melastomoides***: i. leaves; j. floral involucre and flower; k. petal; l. bract: adaxial surface (*Baumgratz 1073*). ***Leandra reversa***: m. floriferous branch; n. petal; o. calyx lobe; p. young fruit; q. seed (m–o. *Pessoa & Abbas 1054*; n. *Bacellar et al. 17*; p. *Luchiari 715*; q. *Brade 1433*).

ovary 1.2–1.3 × 2.2–2.3 mm, almost completely inferior, 3-celled, glabrous; style 4–4.1 mm long. *Bacidium* 2.5–3 × 2.6–3 mm, light-purple, oblong; seeds 0.6–0.8 × 0.5–1 mm, obtriangular, testa granulose.

Specimen examined:—15.V.2010, fr., *K.C. Silva & F.S. Gonçalves 96* (RBR).

Additional specimens examined:—BRASIL. Rio de Janeiro: Guanabara, 1.VII.1971, fl., *D. Sucre 8026* (RB).

Distribution:—Endemic to Brazil, occurring from the state of Minas Gerais to Santa Catarina, and in Cerrado and Atlantic Forest Biomes (Souza & Baumgratz 2012a). It is categorized as Vulnerable in the municipality of Rio de Janeiro (Baumgratz 2000).

Comments:—This is the first record for Marambaia. *Leandra acutiflora* occurs only in Dense Submontane Ombrophilous Forest, in very wet areas at about 641 m. The indumentum is apparently absent, since the stellulate trichomes are inconspicuous and become early caducous. Additional illustrations in Brade (1960), Camargo *et al.* (2009), and Souza & Baumgratz (2009).

3.2. *Leandra melastomoides* Raddi (1820: 386). [Figs. 5i–l]

Shrubs to treelets 2–4.5 m; indumentum of the branches, petioles and inflorescences hispid-estrigulose, the trichomes appressed-ascendant. Petioles 1–2.3 cm long; blade 8–17 × 2.8–5.5 cm, chartaceous, elliptic, base obtuse to acute, apex acute to acuminate, margin entire; adaxial surface bullate, veins with hispid trichomes, blade estrigose-estrigulose, abaxial surface with veins hispid, blade setose-villous; acrodromous veins 3–5, 4–11 mm suprabasal. Thyrsoids of glomerules, 6.5–8.1 cm long; bracts 4.8–5 × 3.8–4 mm, bracteoles 4–5 × 2.3–3.2 mm, both involucral, rose to vinaceous and persistent in fruiting, broadly ovate, apex rounded, the outer bracts with the abaxial surface completely appressed-hispidulous. Flowers 5–6-merous, subsessile; hypanthium 2.1–3 × 1.4–2.2 mm, tubulose, densely appressed-hispid; inner torus glabrous; calyx with external lobes 2–2.1 × 0.9–1 mm, triangular, appressed-hispid, internal lobes 1.1–2 × 0.2–0.3 mm, glabrous, margin sometimes sparse-ciliolate; petals 4–4.5 × 0.9–0.8 mm, white, narrowly triangular, apex acuminate-apiculate; stamens isomorphic, subequal in size, filaments 3.8–5 mm long; anthers 2.1–3 mm long, white-rosy, extrorsely sigmoid, connective 0.7–0.8 mm prolonged, appendage inconspicuous, truncate; ovary 1.5–2 × 1–1.5 mm, 1/2-inferior, 4-celled, setulose; style 8.7–9 mm long. *Bacidium* 7–8 x 3.8–4 mm, purple darkness, subglobose-urceolate, sparsely hispid; seeds 1–1.2 × 0.4–0.8 mm, obtriangular, testa smooth.

Specimen examined:—15.V.2010, ster., *K.C. Silva & F.S. Gonçalves 99* (RBR).

Additional specimen examined:—BRASIL. Rio de Janeiro: Macaé, 5.VI.2000, fl., fr., *M.G. Bovini et al. 1850* (RB); Parati, 19.XII.2007, fl., *J.F.A. Baumgratz et al. 1073* (RB).

Distribution:—A widely distributed species in South America. In Brazil, *L. melastomoides* occurs in the states of Paraíba, Goiás, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná and Santa Catarina, in the Distrito Federal, and in Cerrado and Atlantic Forest Biomes (Souza & Baumgratz 2012a). According to Wurdack (1962), the occurrence of this species in the state of Pará, Brazil, and in Suriname is doubtful, and based on Souza & Baumgratz (2009), it can be found up to 850 m elevation in the rain forests. This species is categorized as Vulnerable in the municipality of Rio de Janeiro (Baumgratz 2000).

Comments:—This is the first record for Marambaia, where *L. melastomoides* occurs in Dense Submontane Ombrophilous Forest, in very humid areas at 640 m. It can also be distinguished from the other species by very rough leaves covered by hispid, strigose and strigulose trichomes, rose to vinaceous outer bracts and bracteoles, persistent in fruiting, and all the abaxial surface with hispidulous-appressed trichomes. Additional illustrations in Souza & Baumgratz (2009).

3.3. *Leandra reversa* (Candolle 1828: 161) Cogniaux (1886: 198–199). [Figs. 3e, 5m–q]

Shrubs 0.5–1.7 m; indumentum of the branches, petioles and inflorescences purple-blue, moderately to densely glandular-hirtellous, glandular head very early-caducous. Petioles 2.9–4 cm long; blade 10.9–16.5 × 6.3–8.8 cm, membranaceous or papiraceous, ovate or elliptic, base rounded, apex acute-acuminate, margin denticulate, ciliolate; indumentum rose at the margin, sparsely or densely setose; acrodromous basal veins 5–7, the inner 3–5 mm suprabasal. Thyrsoids of scorpioid cymes 7.2–13.2 cm long; bracts 0.7–0.8 × 0.4–0.5 mm, bracteoles 0.4–0.5 × 0.1–0.2 mm, both triangular-acuminate. Flowers 5-merous, pedicelate; hypanthium 2.3–4 × 2.5–4 mm, campanulate, glandular-setulose; inner torus glandular-setulose or glabrous; calyx with external lobes 1.3–1.5 × 0.1–0.2 mm, narrowly triangular, the internal lobes 1–1.2 × 1.1–1.7 mm, triangular, both glandular-setulose; petals 3.7–3.9 x 0.6–0.7 mm, white-vinaceous, linear; stamens with filaments 2.5–5.5 mm long, anthers 1.5–4.8 mm long, yellow, straight, connective inconspicuously prolonged, appendage calcarate; ovary 1.5–3.3 × 1.6–2 mm, 1/3-inferior, 5-celled, apex pilose; style 5.5–11 mm long. *Bacidium* 5.9–6.1 × 5–5.7 mm, purple, subglobose, glandular-setulose; seeds 0.5–0.6 × 0.1–0.2 mm, ovate-obtriangular, testa granulose.

Specimen examined:—15.V.2010, fr., *K.C. Silva & F.S. Gonçalves 98* (RBR).

Additional specimen examined:—BRASIL. Rio de Janeiro: Vista Chinesa, 10.I.1999, fl., *R. Bacellar et al. 17* (RB); Silva Jardim, 22.VIII.2001, fl., *S.V.A. Pessoa & B.A. Abbas 1054* (RB).

Distribution:—It occurs from the state of Minas Gerais to Santa Catarina, in Cerrado and Atlantic Forest formations (Souza & Baumgratz 2012a). According to Wurdack (1962) the occurrence of this species in Bolivia, Peru, and the state of Piauí, in Brazil, is doubtful.

Comments:—This is the first record for Marambaia, where the species is restricted to Dense Submontane Ombrophilous Forest in very wet areas at approx. 641 m. It can also be distinguished by the indumentum of the branches, petioles and inflorescences glandular-hirtellous, the foliar margin with rose indumentum, and white-vinaceous petals. Additional illustrations in Baumgratz *et al.* (2006), Souza & Baumgratz (2009), and Camargo *et al.* (2009).

3.4. ***Leandra variabilis*** Raddi (1829: 42). [Figs. 5d–h]

Shrubs or treelets 2–4 m, sharply pilose; indumentum of the branches, petioles, veins in abaxial surface of the leaves, inflorescences and hypanthium rufous, moderately to densely with dendritic trichomes, sessile or short-pedicelate, and rough-setulose trichomes, persistent. Petioles 2.8–3.3 cm long; blade 16.5–30.5 × 8.3–12.4 cm, papiraceous or chartaceous, elliptic, base obtuse, apex acuminate, margin crenulate-ciliolate; adaxial surface estrigulose-setulose, abaxial surface also with setulose trichomes; domatia absent; acrodromous veins 5, 6–10 mm suprabasal. Thyrsoids of glomerules, 9.5–14.6 cm long; bracts 3.2–3.3 × 0.8–1.1 mm, bracteoles 1.8–2 × 0.5–0.6 mm, both triangular-acuminate, not involucral. Flowers 5-merous; pedicelate; hypanthium 2.2–2.5 × 2–2.4 mm, campanulate; inner torus setulose; calyx with external lobes 0.8–1.5 × 0.8–1 mm, internal lobes obsolete; petals 2.9–3.2 × 0.5–0.6 mm, white, reflex, narrowly triangular; stamens with filaments 1.6–1.7 mm long; anthers ca. 1.9 mm long, white, straight, connective not prolonged, unappendaged; ovary 1.2–1.8 × 1.5–1.9 mm, 1/2-inferior, 3-celled, sparse-setulose; style 5.9–6 mm long. *Bacidium* 3.2–6 × 4–5 mm, purple, subglobose, sparse-setulose and -dendritic; seeds 0.3–0.4 × 0.2–0.3 mm, obtriangular, testa granulose.

Specimens examined:—7.IV.2007, fr., *K.C. Silva 13* (RB, RBR); 29.VII.2008, fr., *K.C. Silva 48* (RB, RBR); 3.IV.2010, ster., *K.C. Silva 87* (RBR).

Additional specimen examined:—BRASIL. Rio de Janeiro: Miguel Pereira, 13.XI.2001, fl., *S.J. Silva Neto et al. 1506* (RB).

Distribution:—Endemic to the Atlantic Forest Biome of Brazil, occurring in the states of Espírito Santo, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul (Souza & Baumgratz 2012a).

Comments:—In Marambaia, it is found from sea level up to 641 m in Dense Submontane Ombrophilous Forest. The indumentum of the branches and petioles are rufous, densely covered by dendritic and rough-setulose trichomes. *Leandra variabilis* is morphologically closer to *L. carassana* (Candolle 1828: 162) Cogniaux (1886: 120), a sympatric species which is distinguished by bracts and calyx tube and lobes that are longer (Camargo *et al.* 2009, Souza & Baumgratz 2009). Additional illustrations in Raddi (1829) and Souza & Baumgratz (2009).

4. ***Marcetia*** Candolle (1828: 124)

4.1. ***Marcetia taxifolia*** (Saint-Hilaire 1823: 150) Candolle (1828: 124). [Figs. 3f, 4p–t]

Subshrubs or shrubs 0.3–1.5 m; indumentum of the branches, leaves, inflorescences, hypanthium and calyx densely glandular-hirtellous. Leaves sessile or petioles 0.5–0.8 mm long; blade 4–5.3 × 0.8–1.2 mm, chartaceous, narrowly elliptic, base cordate-lobate, apex acuminate, margin entire, ciliolate; acrodromous basal veins 3. Flowers 4-merous, solitaries, axillaries, pedicelate; bracteoles 1.6–1.9 × 0.1–0.2 mm, linear, caducous; hypanthium ca. 3 × 2.5–3 mm, campanulate; calyx with lobes 2–3.2 × 1–1.8 mm, narrowly triangular, margin ciliolate, persistent; petals 6.7–8 × 3.1–3.3 mm, rose, elliptic, apex acuminate, glabrous; stamens isomorphic and of two sizes, anthers yellow, slightly falciform, pore terminal, connective not prolonged, appendage thickened and involving the base of the thecae, with or not ventral projections, antesepalous with filaments 7.6–7.8 mm long, anthers 4–4.2 mm long, antepetalous with filaments 6–6.3 mm long, anthers 3.3–3.8 mm long; ovary 2.1–2.3 × ca. 1.5 mm, free inside the hypanthium, 4-celled, glabrous; style 1–1.4 cm long, glabrous. Capsule loculicidal 3.5–4 × 3–3.5 mm, polyspermous; seeds ca. 0.5 × 0.5 mm, cochlear or subcochlear, testa foveolate.

Specimens examined:—5.VIII.1998, fl., fr., *L.F.T. Menezes s.n.* (RBR 10269); 29.V.1999, fl., fr., *L.F.T. Menezes et al. 252* (RBR); 11.VI.2004, fl., *L.F.T. Menezes et al. s.n.* (RBR 7297); 5.IV.2008, fr., *K.C. Silva 34* (RBR).

Distribution:—A widely distributed species in South America, occurring in abundance in Venezuela but less frequent in Guyana and Colombia (Martins 1989, 2009). In Brazil, it is found in the states of Roraima, Ceará, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, and Paraná, and in the Distrito Federal (Martins & Bernardo 2012).

Comments:—In Marambaia, the species occurs in Herbaceous and Shrubby *Restinga*. It can also be distinguished by the small leaf size (4–5.3 × 0.8–1.2 mm), rose petals, yellow anthers, and the cochlear or subcochlear seeds, with foveolate testa. Additional illustrations in Chiavegatto (2005) and Martins (2009).

5. ***Miconia*** Ruiz & Pavon (1794: 60), *nom. cons.*

Trees, treelets or shrubs; indumentum of varying types. Inflorescences terminal; bracts and bracteoles persistent or caducous. Floral buds of apex obtuse to rounded. Flowers (4–)5-merous; calyx persistent or circumcisely caducous, lacinias bilobate, lobes connate, the external obsolete and generally denticulate, the internal distinct; petals white or white-rosy, apex obtuse, rounded or emarginate; stamens subisomorphic or dimorphic; anthers white or yellow, pore terminal, connective prolonged or not bellow the thecae, unappendaged or with dorsal appendage, sometimes with lobes ventrally prolonged; ovary partly or completely inferior; style glabrous or pilose. Baccates, *bacidium* type, polyspermous, or *baccaceous* type, oligospermous or polyspermous; seeds obtriangular, obovate, ovate or suborbicular plano-convex.

5.1. ***Miconia albicans*** (Swartz 1788: 70) Triana (1871: 116). [Figs. 3g, 6a–e]

Shrubs, sometimes treelets, 2–4.5 m; indumentum of the branches, petioles, inflorescences and abaxial surface of the foliar blades, bracts and bracteoles, hypanthium and calyx densely lanate, vermiform trichomes. Petioles 6–13 mm long; blade 7.8–10.3 × 4.2–5.2 cm, discolour, chartaceous, elliptic-oblong, base obtuse, apex obtuse-acute, margin revolute, ciliolate; adaxial surface green, glabrescent, abaxial surface brownish to rufous, completely covered by the indumentum, epidermic surface not exposed, the trichomes persistent; acrodromous basal veins 5. Thyrses of scorpioid cymes, 7.1–11.3 cm long, piramidal; bracts 1.8–4 × 0.8–1 mm, bracteoles 0.8–1.2 × 0.1–0.3 mm, both persistent, narrowly triangular, apex acuminate, adaxial surface glabrous. Flowers 5-merous, sessile; hypanthium 2–2.5 × ca. 2 mm, campanulate; inner torus glabrous; calyx persistent, lobes 0.9–1.2 × 1–1.2 mm, triangular; petals 2–3.2 × 2–3 mm, white, obovate, apex obtuse; stamens of two sizes, white, pore terminal, connective inconspicuously prolonged, appendage trilobate, one dorsal and two latero-ventral, antesepalous with filaments 1.1–3 mm long, anthers 2.3–3.2 mm long, antepetalous with filaments 1–3.8 mm long, anthers 2.1–3.8 mm long; ovary 1–1.1 × 1–1.1 mm, inferior, 3-celled; style 4–5 mm long, expanded at the apex. *Bacidium* 3.2–4.5 × 3.7–5 mm, polyspermous (ca. 30 seeds), oblate; seeds 0.8–1 × 0.5–0.9 mm, obtriangular, testa smooth.

Specimens examined:—7.IV.2007, fl., *K.C. Silva 12* (RB, RBR); 25.IX.2009, fl., fr., *K.C. Silva 49* (RBR); 22.I.2010, fl., fr., *K.C. Silva 68* (RBR).

Distribution:—This species has a wide distribution, occurring from western and southern Mexico and Antilles to Paraguai (Almeda 2009; Goldenberg 2009). In Brazil, it is found in almost all states, from Amazonas to Paraná (Goldenberg 2012).

Comments:—This is the first record for Marambaia, where the species occurs in Dense Submontane Ombrophilous Forest. It can be distinguished by the leaves with the green adaxial and brownish to rufous abaxial surfaces, white petals and anthers, trilobate connective appendages, one dorsal and two latero-ventral lobes, green young fruits and jade green to vinous when mature. Additional illustrations in Baumgratz *et al.* (2006), and Goldenberg (2009).

5.2. ***Miconia brasiliensis*** (Sprengel 1825: 297) Triana (1871: 118). [Figs. 6f–i]

Trees, sometimes treelets, 4–15 m; indumentum of the branches, petioles, inflorescences, hypanthium and calyx brownish to rufous, densely tomentose-stellate, the trichomes latelly caducous, not dendritic. Petioles 0.8–2.2 cm long, slightly striated; blade 7.9–12.5 × 2.3–3.5 cm, discolour, chartaceous, elliptic, base acute, apex acuminate to caudate, margin entire to inconspicuous-crenulate, slightly revolute, adaxial surface green, with sparse stellate trichomes, caducous, abaxial surface light brown, moderate and partly lepidote-stellate, epidermic surface partly exposed, the trichomes persistent; acrodromous basal veins 3. Thyrsoids with no branchlets of scorpioid or glomerule cymes, 5–6.4 cm long; bracts 0.8–1.5 × 0.2–0.3 mm, bracteoles 0.6–2.5 × 0.2–0.4 mm, both oblong-triangular, caducous. Flowers 5-merous, pedicelate; hypanthium 1.6–2.3 × 1.8–2 mm, campanulate; inner torus glabrous; calyx caducous, lobes 0.9–1 × 1–1.1 mm, membranaceous, denticulate; petals 2.1–2.8 × 1–1.2 mm, white, obovate, apex rounded; stamens subisomorphic and subequal in size; filaments 1.6–2.5 mm long; anthers 1.7–2.1 mm long, white, slightly falciform, pore terminal-ventral, connective dorsally thickened, with an inconspicuous calcar, truncate; ovary 0.5–0.8 × 0.9–1.1 mm, inferior, 3-celled, glabrous; style 4.1–5.1 mm long, slightly thickened at the apex, glabrous. *Baccaceous* 3–4 × 4–4.2 mm, black, subglobose, with sparse stellulate trichomes, oligospermous (up to 8 seeds); seeds 2–2.1 × 1.1–1.2 mm, obovate- or obtriangular-convex, testa smooth.

Specimen examined:—23.VI.2002, fl., *G.M. Siqueira 62* (RBR); 3.VIII.2002, fl., *Adriano & G.M. Siqueira 71* (RBR); 26.IX.2009, fr., *K.C. Silva 51* (RBR).

FIGURE 6. ***Miconia albicans***: a. floriferous branch; b. calyx lobes; c. petal; d–e. antisepalous and antipetalous stamens, respectively (a. *Neto 1429*; b–e. *Silva 68*). ***Miconia brasiliensis***: f. floriferous branch; g. hypanthium and calyx; h. stamen; i. petal (*Silva 124*). ***Miconia calvescens***: j. floriferous branch; k. hypanthium; l. petal; m–n. stamens (j. *Brade 16162*; k–n. *Vieira 922*).

Additional specimen examined:—BRASIL. Rio de Janeiro: Parque Estadual da Pedra Branca, 11.VIII.2006, fl., *M.F.O. Silva 124* (RB).

Distribution:—Endemic to the Atlantic Forest Biome of Brazil, where it occurs in the states of Espírito Santo, Rio de Janeiro, São Paulo, and Santa Catarina (Goldenberg 2012).

Comments:—This is the first record for Marambaia, where *M. brasiliensis* is found only in Dense Submontane Ombrophilous Forest. It can also be distinguished by the indumentum of the branches, petioles, inflorescences, leaves abaxial surface, hypanthium and calyx brownish to rufous, adaxial leaf surface light brown and moderately pilose, and abaxial leaf surface with the epidermis partly exposed, plus glabrous inner torus and ovary. Additional illustrations in Cogniaux (1883–1888).

5.3. ***Miconia calvescens*** Candolle (1828: 185). [Figs. 3h, 6j–n]

Trees, sometimes treelets, 4–7 m; indumentum of the branches, leaves, inflorescences, abaxial surface of the bracts and bracteoles, hypanthium and calyx furfuraceous-stellulate, the trichomes generally caducous. Petioles 2.6–7.4 cm long; blade 20.5–39.1 × 9.1–18 cm, discolour green, abaxial surface sometimes vinaceous to pink when young, chartaceous, elliptic or ovate, sometimes oblong-ovate, base obtuse to rounded or subcordate, apex acute, margin undulate; abaxial surface very sparsely furfuraceous-stellulate or glabrous; acrodromous basal veins 5, or the inner pair up to 10 mm suprabasal. Thyrsoids of glomerules 14.3–27.1 cm long, vinaceous; bracts 2.8–2.9 × 1.8–1.9 mm, bracteoles 3–4.9 × 1.5–1.9 mm, both concave, obovate, apex rounded, very early-caducous. Flowers 5-merous, sessile; hypanthium 1.5–2.9 × 1.8–2.5 mm, campanulate; inner torus glabrous; calyx persistent, lobes ca. 1 x 1–1.5 mm, broad-triangular; petals 2.5–3.2 × 1.7–2 mm, white, obovate, apex obtuse to rounded; stamens subisomorphic and subequal in size; filaments 1.8–4.2 mm long; anthers 2–2.3 mm long, white, straight, connective slightly prolonged, appendage dorsally truncate and ventrally 2-auriculate, joined together forming a sheat at the thecae base; ovary 0.8–2.5 × 1.3–2.1 mm, almost completely inferior, 3-celled, sparse-glandular; style 1.8–3.5 mm long, glabrous. *Bacidium* 2.8–3 × 2.9–3 mm, vinaceous to purple-blackness, subglobose, polyspermous (100–150 seeds); seeds ca. 0.3 × 0.2 mm, obtriangular.

Specimens examined:—10.II.2000, fl., fr., *H.R.P. Lima s.n.* (RBR 10262); 13.I.2004, fl., *L.F.T. Menezes 1117* (RBR); 7.IV.2007, fr., *K.C. Silva 1, 3* (RB, RBR); 9.I.2010, fl., *K.C. Silva 64* (RBR); 23.IV.2010, fl., *K.C. Silva 102* (RBR).

Distribution:—This species has a wide distribution, occurring from southern Mexico and Central America to Paraguai (Almeda 2009). In Brazil, it is found in the Pará, Amazonas, Acre, Rondônia, Mato Grosso, Mato Grosso do Sul, Goiás, Pernambuco, Alagoas, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, and Santa Catarina (Goldenberg 2009).

Comments:—In Marambaia, this species occurs in *Restinga* Forest and Dense Submontane Ombrophilous Forest. It can be distinguished by the connective appendage that is dorsally truncate and ventrally biauriculate, to form a sheat at the thecae base. The abaxial surface of young leaves can be vinaceous or rosy, becoming green when mature. Additional illustrations in Baumgratz *et al.* (2006).

5.4. ***Miconia chartacea*** Triana (1871: 119). [Figs. 3i, 7a–e]

Trees 7–9 m; indumentum of the branches, petiole, abaxial surface of foliar blades, inflorescences, bracts, bracteoles, hypanthium and calyx lepidote-stellate, dark brown to rufous, dendritic trichomes absent. Petioles 1.9–3.2 cm long, sharply striated; blade 12.5–19.2 × 2.4–6.1 cm, discolour, chartaceous, elliptic, base acute, apex acute, margin entire to sinuous, revolute; adaxial surface green, furfuraceous-stellulate, glabrescent, abaxial surface rufous, completely covered by the indumentum, epidermic surface not exposed, the trichomes persistent; acrodromous veins 5, 4–13 mm suprabasal. Thyrsoids of glomerules, with no branchlets of scorpioid cymes, 16.4–17.6 cm long; bracts 0.9–1.1 × 0.7–0.8 mm, bracteoles 0.5–1 × 0.3–0.7 mm, both thick, linear-oblong, apex acute, usually early-caducous. Flowers 5-merous, sessile; hypanthium ca. 1.8 × 1.3 mm, campanulate; calyx inflexed, apparently truncate, caducous, lobes ca. 1 × 1.1 mm, denticulate; petals ca. 2.5 × 1 mm, white, reflex, obovate, apex rounded-emarginate; stamens subisomorphic and subequal in size; filaments ca. 3 mm long; anthers 1.8–2.5 mm long, white, pore terminal-ventral, connective not prolonged, unappendaged or with an inconspicuous dorsal calcar; ovary ca. 0.9 × 1 mm, inferior, 2–3-celled, glabrous; style ca. 4 mm long, glabrous. *Baccaceous* 3.7–4 × ca. 4 mm, subglobose, sparsely lepidote-stellulate, oligospermous (1–3 seeds); seeds 1.9–2 × 1.8–1.9 mm, suborbicular plano-convex, testa slightly sulcate along the length, smooth.

Specimens examined:—29.II.2008, ster., *R.S. Nunes 23* (RBR); 17.V.2008, ster., *K.C. Silva 36* (RBR); 26.IX.2009, ster., *K.C. Silva 54* (RBR).

Additional specimens examined:—BRASIL. Espírito Santo: Santa Maria de Jetibá, 19.XI.2002, fl., *L. Kollmann et al. 5753* (RB); Santa Tereza, 21.I.2003, fr., *R.R. Vervloet et al. 1694* (RB).

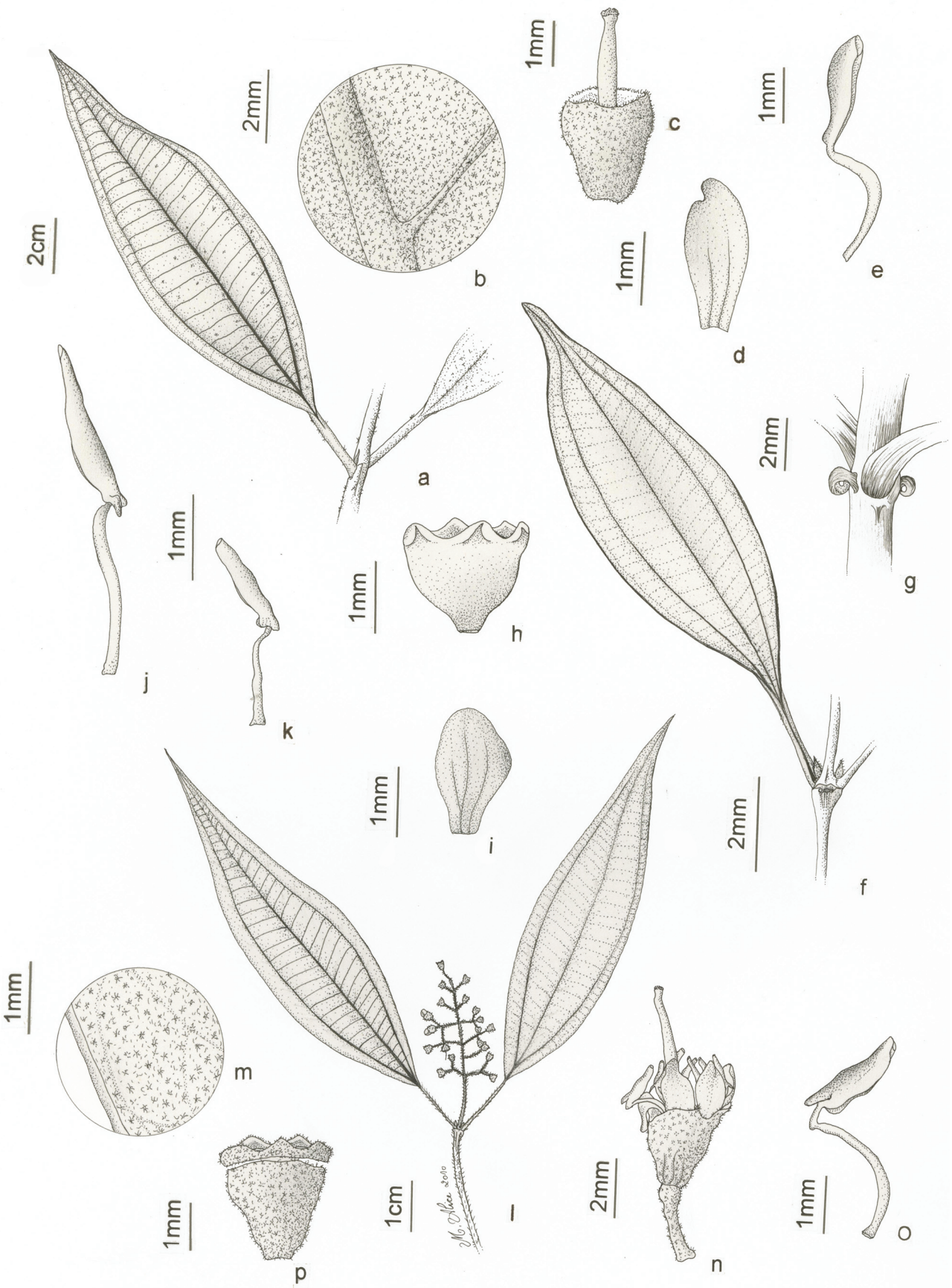

FIGURE 7. ***Miconia chartacea***: a. stem node; b. leaf: abaxial surface; c. hypanthium and style; d. petal; e. stamen (a. *Forzza et al. 3044*; b. *Vervloet et al. 1694*; c–e. *Chiavegatto et al. 11*). ***Miconia cinnamomifolia***: f. stem node; g. interpetiolar pseudo-stipule; h. hypanthium and calyx; i. petal; j–k. antisepalous and antipetalous stamens, respectively (f., h–k. *Luchiari 119*; g. *Oliveira s.n.* RB 326289). ***Miconia cubatanensis***: l. floriferous branch; m. leaf: abaxial surface; n. flower; o. stamen; p. hypanthium and calyx (*Silva 35*).

Distribution:—Endemic to Brazil, occurring in the states of Goiás, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and Santa Catarina, and in the Distrito Federal (Goldenberg 2012).

Comments:—This is the first record to Marambaia, where this species is restricted to Dense Submontane Ombrophilous Forest. Although it was not collected in fertile condition, *M. chartacea* is easily recognized by its lepidote-stellate indumentum and the chartaceous and discoloured leaves, with green adaxial surface, and rufous abaxial surface that is completely covered by the persistent indumentum. It may also be identified by the inflorescences of glomerules and the caducous calyx that isvery reduced in length, inflexed, and apparently truncate. According to Goldenberg (2009), the fruits of *M. chartacea* have 2–6 large seeds. Additional illustrations in Chiavegatto (2005).

5.5. ***Miconia cinnamomifolia*** (Candolle 1828: 194) Naudin (1850: 168). [Figs. 3j–k, 7f–k]

Trees, sometimes treelets, 4–15 m; indumentum sparsely furfuraceous-stellulate, the trichomes early-caducous. Branches nodes with interpetiolar pseudo-stipules as lamellar protrusions, flat or revolute, latelly caducous. Petioles 7–24 mm long; blade 6.9–13 × 3.3–7.2 cm, discolour green, adaxial surface bright, generally blackness in colour when dried, chartaceous, elliptic to obovate, base acute or acute-cuneate, apex acuminate, margin entire; abaxial surface glabrescent with epidermic surface completely exposed; acrodromous veins 3, 2–7 mm suprabasal, rarely basal. Thyrsoids 4.2–12.9 cm long; bracts 1.7–1.9 × 0.5–0.6 mm, bracteoles 0.3–0.5 × 0.05–0.1 mm, both navicular, early-caducous. Flowers 5-merous, pedicelate; hypanthium ca. 1.5 × 1.3 mm, campanulate, slightly costate to the apex; inner torus glabrous; calyx caducous, lobes 0.5–0.6 × 0.9–1 mm, broadly ovate; petals 3–3.3 × 1.1–1.8 mm, white, oblong-obovate, apex rounded to asymmetric-truncate; stamens subequal in size; anthers straight, connective 0.1–0.2 mm prolonged, antesepalous with filaments 3–3.1 mm long, anthers 2–2.4 mm long, appendage unilobed or bilobed, antepetalous with filaments 2.8–2.9 mm long, anthers 2–2.2 mm long, appendage dorsally with a minute calcar and latero-ventrally 2-auriculate; ovary 1–1.1 × 1–1.2 mm, inferior, 3-celled, glabrous; style 7–7.2 mm long, enlarged at the apex, glabrous. *Baccaceous* 2.6–4 × 2.5–5 mm, purple-blackness, globose, polyspermous (ca. 30 seeds); seeds 1–1.3 × 0.8–1.1 mm, obovate to ovate, testa granulose.

Specimens examined:—12.XII.1997, fl., *R. Facre 9* (RBR); 27.IX.1999, fl., fr., *L.F.T. Menezes et al. 558* (RBR); 18.III.2000, ster., *L.F.T. Menezes 625* (RBR); 15.IV.2000, fr., *M. Conde 472* (RBR); 12.VI.2000, fl., fr., *L.FT. Menezes 563* (RBR); 29.I.2002, fl., fr., *L.F.T. Menezes 913* (RBR); 18.II.2006, fr., *F.C. Nettesheim 174* (RBR); 23.II.2008, fr., *K.C. Silva 24* (RB, RBR).

Distribution:—Endemic to the Atlantic Forest Biome of Brazil where it occurs from the state of Bahia to Santa Catarina (Goldenberg 2012).

Comments:—In Marambaia, this species is found in Shrubby *Restinga, Restinga* Forest, and Dense Submontane Ombrophilous Forest. *Miconia cinnamomifolia* can also be distinguished by the discoloured green leaves, with a bright adaxial surface that is generally nigrescent when dried, and the caducous calyx. Additional illustrations in Baumgratz *et al.* (2006), and Goldenberg (2009).

5.6. ***Miconia cubatanensis*** Hoehne (1922: 139). [Figs. 3l, 7l–p]

Trees 7–8 m; indumentum of the branches, leaves, inflorescences, hypanthium and lobes the calyx densely lepidote-stellate, dendritic trichomes absent. Petioles 1.4–2.7 cm long, striated; blade 7.8–14.4 × 2–4.3 cm, discolour, chartaceous, elliptic, base obtuse, apex acuminate, margin serrate, slightly revolute; adaxial surface dark green, glabrescent, abaxial surface rufous, dense and completely covered by the indumentum, epidermic surface not exposed, the trichomes persistent; acrodromous basal veins 3; domatia marsupiform, axilar-primary, with a short membrane, sometimes absent. Thyrsoids 2.4–4 cm long, with no branchlets of scorpioid cymes or glomerules; bracts 1–1.1 × 0.1–0.2 mm, bracteoles 0.4–1 × 0.1–0.2 mm, both linear-triangular, acuminate, persistent. Flowers 5-merous, pedicelate; hypanthium 1–1.1 × 1.5–2 mm, campanulate; inner torus lepidote-stellate; calyx caducous, lobes 0.7–0.8 × 1.1–1.5 mm, denticulate-triangular; petals 2.1–2.5 × 1.1–1.2 mm, white, ovate, apex rounded; stamens subisomorphic and subequal in size, anthers white, pore terminal, connective with a dorsal appendage calcarate, antesepalous with filaments ca. 1.1 mm long, anthers ca. 1.9 mm long, connective ca. 0.3 mm prolonged, antepetalous with filaments ca. 1.5 mm long, anthers ca. 1.7 mm long, connective ca. 0.2 mm prolonged; ovary 0.9–1.1 × 0.9–1.1 mm, inferior, 3-celled, stellulate trichomes at the apex; style 4–6.4 mm long, glabrous. *Baccaceous* 4–4.1 × 3.8–4 mm, globose, lepidote-stellate, oligospermous (6–9 seeds); seeds ca. 2.5 × 2.5 mm, obovate, convex, testa smooth.

Specimens examined:—17.V.2008, fl., *K.C. Silva 35b* (RB, RBR); 17.V.2008, fl., fr., *K.C. Silva 36b* (RB, RBR); 26.IX.2009, ster., *K.C. Silva 52* (RBR); 26.IX.2009, ster., *K.C. Silva 53* (RBR).

Distribution:—Endemic to Brazil, occurring in the states of Mato Grosso, Bahia, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, and Santa Catarina, and in the Distrito Federal (Goldenberg 2012).

Comments:—This is the first record from Marambaia, where *M. cubatanensis* is restricted to Dense Submontane Ombrophilous Forest. In the state of Rio de Janeiro, the species was known only to occur in tropical montane forests over 800 m. It can be distinguished by the discoloured leaves with a dark green adaxial surface, and rufous abaxial surface, inflorescences not in scorpioid cymes nor in glomerules, caducous calyx, and the connective with a calcarate appendage.

5.7. *Miconia dodecandra* (Desrousseaux 1797: 46) Cogniaux (1887: 243). [Figs. 3m, 8a–f]

Trees 5–11 m; indumentum of the branches, leaves, inflorescences, abaxial surface of the bracts and bracteoles, hypanthium and calyx densely furfuraceous-stellulate and -dendritic, the trichomes caducous or not. Petioles 4.2–7.6 cm long, striated; blade 16.5–22.2 × 6.3–9 cm, discolour, chartaceous, elliptic, base obtuse, apex acuminate, margin entire; adaxial surface dark green, glabrescent, abaxial surface rufous, completely covered by the indumentum, epidermic surface not exposed, the trichomes persistent; acrodromous basal to inconspicuously suprabasal veins 5. Thyrsoids 6.4–18 cm long, with no branchlets of scorpioid cymes; bracts 8–15 × 0.9–2 mm, bracteoles 5–6 × 1.5–2 mm, both involucral, elliptic, apex acute or acuminate, early-caducous. Flowers 5-merous, pedicelate; hypanthium 3.9–4 × 1.8–2.7 mm, campanulate; inner torus glabrous; calyx persistent, lobes 1.1–1.9 × 2.2–2.3 mm, triangular; petals 6–8.5 × 3–3.1 mm, white-rosy, oblong, apex obtuse to rounded; stamens isomorphic, subequal in size, yellow, becoming reddish to vinaceous after fertilization; filaments 6.5–7.8 mm long; anthers 6–7.5 × 0.6–1 mm, falciform, pore terminal, connective not prolonged, dorsally gibbous and callous, appendage latero-ventrally bilobed; ovary 2–3 × 1–1.9 mm, 1/2-inferior, 3-celled, setose at the apex; style 1.2–1.3 cm long, setose. *Bacidium* 5–7.5 × 4–5.8 mm, subglobose, sparsely furfuraceous-stellulate, polyspermous (70–100 seeds); seeds 0.4–1 × 0.5–1 mm, obtriangular, granulose.

Specimens examined:—17.VIII.2002, fr., *G.M. Siqueira & A.L. Melo 84* (RBR); 7.IV.2007, fl., *K.C. Silva 7, 14* (RB, RBR); 7.IV.2007, fl., fr., *K.C. Silva 9* (RB, RBR); 19.III.2010, fl., fr., *K.C. Silva 75, 76* (RBR).

Distribution:—This species has a wide distribution, occurring from Mexico to the south of Brazil, where it is found in the states of Amazonas, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and in the Distrito Federal (Goldenberg 2012).

Comments:—In Marambaia, this species is restricted to Dense Submontane Ombrophilous Forest. It has discolour leaves with a dark green adaxial surface and a rufous abaxial surface, early caducous involucral bracts and bracteoles, and a dorsally gibbouos and callous connective with two latero-ventral lobes. Additional illustrations in Baumgratz (1982).

5.8. *Miconia lepidota* Candolle (1828: 180). [Figs. 8g–i]

Trees 9–17 m; indumentum of the branches, leaves, inflorescences, hypanthium and calyx lepidote-stellate. Petioles 1.3–2.6 cm long; blade 7.1–12.3 × 2.8–4.8 cm, discolour, membranaceous or chartaceous, elliptic, base obtuse, apex acute, margin slightly undulate; adaxial surface green, bright, glabrescent, abaxial surface light cinereous and completely covered by the indumentum, epidermic surface not exposed, trichomes persistent; acrodromous basal veins 3. Thyrses of scorpioid cymes, 13–20 cm long, oblong; bracts 3.2–5.8 × 0.6–1 mm, bracteoles 1.8–2 × 0.4–0.6 mm, both narrowly triangular, apex acuminate, caducous. Flowers 5-merous, sessile; hypanthium 1.7–1.8 × 1.8–1.9 mm, campanulate; calyx persistent, lobes ca. 1 × 1 mm, triangular; petals 3–3.2 × 1.4–1.5 mm, white, oblong, apex obtuse; stamens dimorphic, subequal in size and shape, anthers white, straight, antesepalous with filaments 4.5–4.9 mm long, anthers 2.3–3.2 mm long, connective 0.3–0.4 mm prolonged, appendage ventral 2-auriculate, dorsal absent, antepetalous with filaments 3.8–4 mm long, anthers 1.8–2 mm, connective 0.2–0.3 mm long prolonged, appendage ventral 2-auriculate, dorsal calcarate; ovary 1.1–1.2 × 1–1.1 mm, inferior, 3-celled, glabrous; style 3.5–4 mm long. *Baccaceous* 2–3 × 2.5–3.2 mm, purple-blackness, subglobose, sparsely lepidote-stellate, oligospermous (11–13 seeds); seeds 1.2–1.4 × 0.8–1 mm, obovate to ovate, testa smooth.

Specimens examined:—3.II.2007, ster., *R.S. Nunes 4* (RBR); 3.IV.2010, ster., *K.C. Silva 84* (RBR); 21.IV.2010, ster., *K.C. Silva 93* (RBR); 15. V. 2010, ster., *K.C. Silva 104* (RBR)

Additional material examined:—BRASIL. Rio de Janeiro: Santa Maria Madalena, 19.X.1995, fl., *R. Marquete et al. 2401* (RB). Silva Jardim, 7.V.1996, fl., *C. Luchiari et al. 722* (RB, RBR); 7.VII.1999, fr., *C. Luchiari et al. 785* (RB, RBR).

Distribution:—This species has a wide distribution, occurring from Colombia, Venezuela and all the Guiana to Bolívia. In Brazil this species is found in the states of Amazonas, Acre, Rondônia, Roraima, Pará, Amapá, Mato Grosso, Maranhão, Pernambuco, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, and São Paulo (Goldenberg 2009, 2012).

Comments:—This is the first record to Marambaia, where it occurs in *Restinga* Forest and Dense Submontane Ombrophilous Forest. Despite not having been found in fertile condition, *M. lepidota* may be recognized by the discoloured leaves with shiny green adaxial surface, and abaxial surface densely covered with a light cinereous indumentum of persistent lepidote-stellate trichomes. It may also be identified by the scorpioid cymes and oblong inflorescences. Additional illustrations in Baumgratz *et al.* (2006).

5.9. *Miconia prasina* (Swartz 1788: 69) Candolle (1828: 188). [Figs. 3n, 8n–q]

Treelets or trees, 2–7 m; indumentum of the branches, leaves, inflorescences, hypanthium and calyx furfuraceous-stellulate, the trichomes caducous. Petioles 0.5–1.3 cm long; blade 10.9–26 × 4–8.7 cm, green, concolour to subconcolour, membranaceous to papiraceous, elliptic, base acute-decurrent or obtuse-cuneate, apex acuminate to acute, margin crenulate, abaxial surface early-glabrescent; acrodromous veins 5, the inner pair 15–44 mm suprabasal. Thyrsoids 9.9–19.9 cm long, no branchlets of glomerules; bracts ca. 1 × 0.5–0.8 mm, bracteoles 0.7–0.9 × 0.2–0.4 mm, both concave, oblong-triangular, apex acute, persistent. Flowers 5-merous, pedicelate; hypanthium 1.5–2.1 × 1.2–1.9 mm, campanulate; inner torus glabrous; calyx persistent, lobes 0.6–0.9 × 0.8–1 mm, triangular; petals 2–2.5 × 1–1.6 mm, white, asymmetric, ovate, apex obtuse to rounded, sometimes emarginate; stamens isomorphic, subequal in size; filaments 3–4 mm long; anthers 2.8–3 mm long, white, pore terminal, connective slightly prolonged, appendage bilobed, with lateral and ventral lobes, or 3-lobed, with an additional dorsal calcar; ovary 0.8–1.3 × 1–1.5 mm, inferior, 3-celled, puberulous; style 5.8–6.5 mm, glabrous. *Bacidium* 3–4 × 3.2–4.2 mm, subglobose, puberulous, polyspermous (50–80 seeds); seeds 0.7–1 × 0.4–0.9 mm, narrowly obtriangular.

Specimens examined:—17.XII.1997, fr., *R. Facre 5* (RBR); 13.V.1998, fl., *R. Couto s.n.* (RB 378276, RBR 10258); 28.XII.1998, fr., *L.F.T. Menezes & M.C. Souza s.n.* (RBR 10260); 29.V.1999, fr., *L.F.T. Menezes et al. 291* (RBR); 16.II.2000, fl., fr., *R.H.P. Lima 348* (RBR); 15.IV.2000, fl., *M. Conde 481* (RB, RBR); 3.VIII.2002, fr., *Adriano & G.M. Siqueira 69* (RBR); 7.IV.2007, fl., *K.C. Silva 2, 5* (RB, RBR); 7.VII.2007, fr., *K.C. Silva 17* (RB, RBR); 12–13.X.2007, fr., *K.C. Silva 20* (RB, RBR); 9.I.2010, fl., *K.C. Silva 63* (RBR).

Distribution:—This species has a wide distribution, occurring from southern Mexico, Central America and the West Indies to Paraguay. In Brazil, it is found in almost all states, usually in open areas (Goldenberg 2009, 2012).

Comments:—In Marambaia, *M. prasina* occurs in *Restinga* Forest and Dense Submontane Ombrophilous Forest, and it is a great source of food for the local fauna. This species can also be identified by the adult green concolored to subconcolored leaves, the distinctly suprabasal acrodromous venation, and the bilobed connective with latero-ventral lobes, or 3-lobate, due to the presence of a dorsal appendage. Aditional illustrations in Baumgratz *et al.* (2006).

5.10. *Miconia pusilliflora* (Candolle 1828: 194) Naudin (1850: 171). [Figs. 3o, 8j–m]

Trees 7–13 m; indumentum of the branches, leaves, inflorescences, hypanthium and calyx furfuraceous-stellulate, trichomes early-caducous. Petioles 1.5–2.4 cm long; blade 8.6–25 × 1.9–5.3 cm, green subconcolour, chartaceous, elliptic, base acute, apex acuminate to caudate, margin serrulate; acrodromous basal veins 3; domatia absent. Thyrsoids 3.6–11.5 cm long, no branchlets of glomerules; bracts caducous, not seen; bracteoles 0.3–0.9 × 0.1–0.2 mm, linear-triangular, caducous. Flowers 4–5-merous, pedicelate; hypanthium 0.9–1.1 × 0.9–1 mm, campanulate; inner torus glabrous; calyx caducous, lobes 0.9–1 × 0.8–0.9 mm, triangular, margin ciliolate; petals 1.1–1.5 × 0.9–1 mm, white, asymmetric, apex rounded; stamens isomorphic, equal in size, filaments 1.8–2 mm long; anthers 1.3–1.5 mm long, white, straight, pore ventral, very wide and prolonged to the base as a longitudinal slit, connective ca. 0.2 mm prolonged, unappendaged; ovary 0.2–0.3 × 0.4–0.5 mm, inferior, 3-celled, glabrescent; style 3-3.2 mm long, glabrous. *Baccaceous* 2–4 × 1.3–3.5 mm, costate when young, oligospermous (2–6 seeds); seeds 2.8–3.8 × 1.8–2 mm, ovate to suborbicular, convex, testa smooth, slightly sulcate along the length.

Specimens examined:—2.III.2008, fl., *R.S. Nunes 2* (RBR); 27.IX.2009, fr., *K.C. Silva 58* (RBR); 19.III.2010, fl., *K.C. Silva 81* (RBR); 15.V.2010, fl., fr., *K.C. Silva & F.S. Gonçalves 101* (RBR).

Distribution:—*Miconia pusilliflora* occurs in Brazil, Argentina and Paraguay. In Brazil it is endemic to the Atlantic Forest Biome, and found from the state of Bahia to Rio Grande do Sul (Goldenberg 2009, 2012).

Comments:—This is the first record to Marambaia, where this species occurs in *Restinga* Forest and Dense Submontane Ombrophilous Forest. It can also be distinguished by the green subconcolored leaves, with acuminate to caudate apices, serrulate margins, and the young costate fruits. A peculiar morphological characteristic is the presence of domatia on the abaxial leaf surface, but those may be absent (Baumgratz 1984, Baumgratz *et al.* 2006, Goldenberg 2009). In specimens of *M. pusilliflora* from Marambaia, these foliar structures have not been found. Additional illustrations in Cogniaux (1883–1888), and Baumgratz *et al.* (2006).

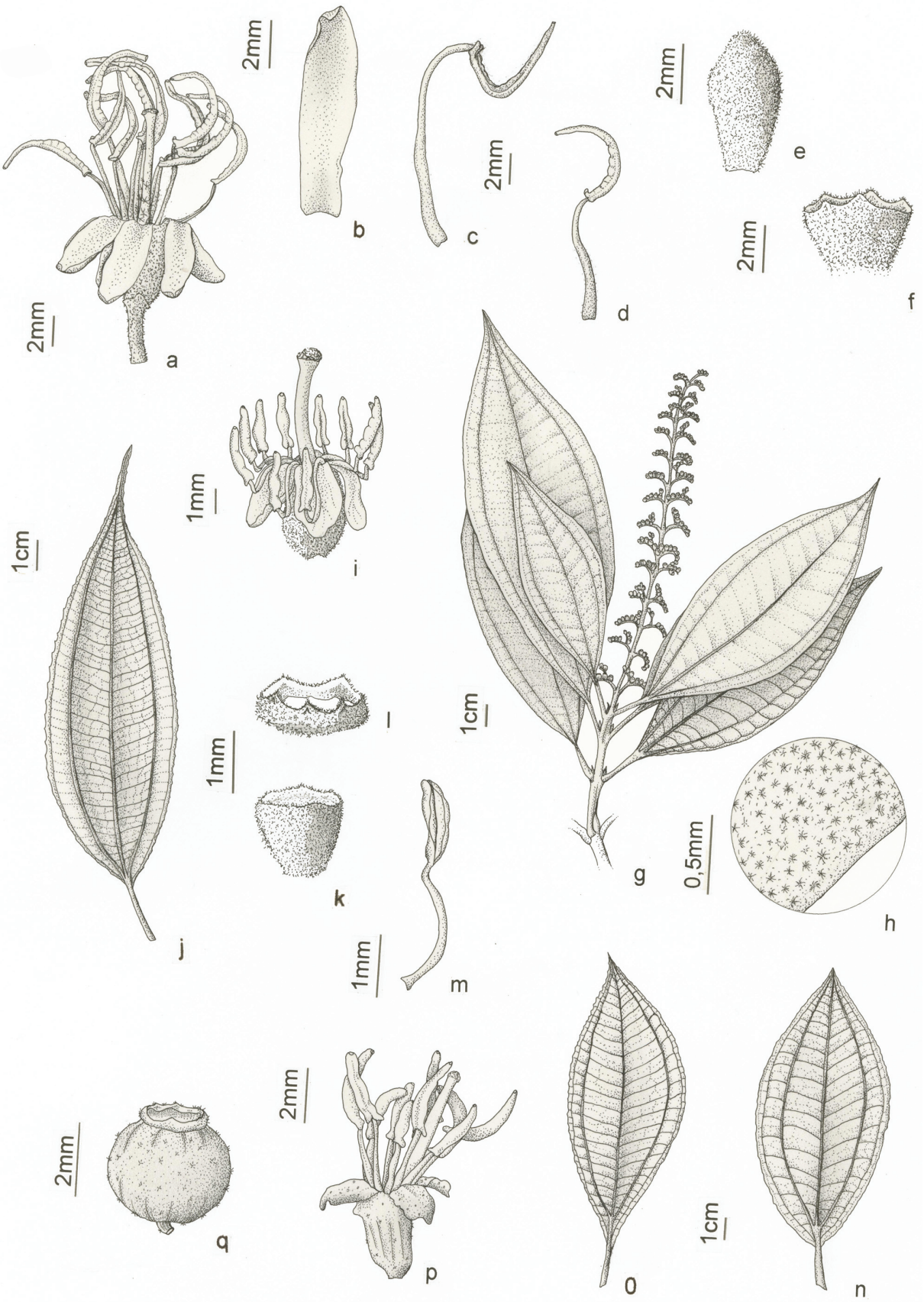

FIGURE 8. ***Miconia dodecandra***: a. flower; b. petal; c–d. stamens; e. bracteole; f. calyx (a–d., f. *Silva 7; e. Silva 14*). ***Miconia lepidota***: g. floriferous branch; h. leaf: abaxial surface; i. flower (g–h. *Luchiari et al. 722*; i. *Farias et al. 197*). ***Miconia pusilliflora***: j. leaf: abaxial surface; k. hypanthium; l. calyx; m. stamen (*Silva & Gonçalves 101*). ***Miconia prasina***: n–o. leaf: abaxial and adaxial surfaces, respectively; p. flower; q. fruit (*Kurtz 167*).

6. *Ossaea* Candolle (1828: 168).

6.1. *Ossaea marginata* (Desrousseaux 1797: 32) Triana (1871: 147). [Figs. 3p–q, 9a–c]
Shrubs 1.3–1.7 m; indumentum of the branches, petioles, inflorescences, hypanthium and calyx furfuraceous-stellulate and setose. Petioles 1.6–4.4 cm long; blade 10.6–19 × 3.2–5.9 cm, papiraceous, elliptic, base obtuse, apex acuminate, margin entire or crenulate, appressed-ciliolate; adaxial surface densely appressed-setulose in the marginal region, abaxial surface also furfuraceous-stellulate; acrodromous veins 5, the inner pair 5–15 mm suprabasal. Botryoid and metabotryoid 0.9–16 mm long, axillary, in leafy and/or aphyllous nodes; bracts 0.8–1 × 0.1–0.2 mm, bracteoles 0.8–0.9 × 0.1–0.2 mm, both persistent, triangular, apex acuminate. Floral buds with apex acute to acuminate. Flowers 5-merous, pedicelate; hypanthium ca. 3 × 2.1–3 mm, campanulate; inner torus setulose, glabrescent; calyx persistent, bilobed, external lobes 3.5–5 × 0.5–1 mm, narrowly triangular, margin densely ciliolate, internal lobes 0.7–0.8 × 1.8–2 mm, short-triangular to ovate; petals 3–3.2 × 1–1.1 mm, white, narrowly triangular, apex acute to acuminate; stamens equal in size and shape, filaments ca. 2 mm long; anthers ca. 2 mm long, yellow, straight, pore terminal, connective not prolonged bellow the thecae, appendage dorsal, obsolete; ovary ca. 1 × 1–2 mm, 3/4- inferior, 4-celled, sparsely setulose; style ca. 6 mm long, glabrous. Baccate, *bacidium* type, 5.5–8 × 4.5–7 mm, purple-blackness, sparsely furfuraceous-stellulate and setose, polyspermous; seeds 0.8–1 × 0.1–0.3 mm, obtriangular.

Specimens examined:—23.XII.2005, fl., fr., *F.C. Nettesheim 162* (RBR); 12–13.X.2007, fl., fr., *K.C. Silva 18* (RB, RBR); 12–13.X.2007, fr., *K.C. Silva 19* (RB, RBR); 23.II.2008, fr., *K.C. Silva 28* (RB, RBR); 9.I.2010, fr., *K.C. Silva 62* (RBR).

Distribution:—It occurs in Brazil, Argentina and Paraguay. In Brazil, it is found in the states of Mato Grosso do Sul, Minas Gerais, Espírito Santo, Rio de Jnaeiro, São Paulo, Paraná, and Santa Catarina, in Cerrado and Atlantic Forest Biomes (Souza & Baumgratz 2012b).

Comments:—In Marambaia, this species occurs in Dense Sobmontane Ombrophuilous Forest. It can be distinguished by the axillary inflorescences at leafy and/or aphyllous nodes, the floral buds and petals with acute to acuminate apices, bilobed laciniate calyx, and the partly inferior ovary. Additional illustrations in Goldenberg *et al.* (2005), and Souza (2009).

7. *Tibouchina* Aublet (1775: 445).
Trees or shrubs, sometimes treelets; branches flattened, terete or tetragonal, sometimes sharply or slightly winged. Inflorescences terminal; bracts and bracteoles persistent or caducous. Flowers 5-merous; calyx with lacinias unilobed, caducous; petals purple or lilac, obovate, apex asymmetric, margin ciliolate, glabrous; stamens purple to light purple, dimorphic and of two sizes, 5 larger antesepalous, 5 smaller antepetalous, anthers purple, lilac or pink, falciform or curve, pore terminal, connective prolonged bellow the thecae, appendage ventral, glabrous or pilose; ovary partly adnate to the hypanthium by septa along the length, free to the apex, 5-celled, pilose; stigma capitate. Capsule, *velatidium* or *ruptidium* type, polyspermous; seeds cochleate, granulate.

7.1. *Tibouchina corymbosa* (Raddi 1829: 124) Cogniaux (1885: 363). [Figs. 3r, 9d–j]
Treelets 2–4 m; indumentum of the branches, leaves, inflorescences, abaxial surface of the bracts, bracteoles and lobes of the calyx appressed-strigose or -estrigulose. Branches flattened to terete, not winged. Petioles 1.2–3 cm long, strigulose; blade 2.7–8.5 × 0.9–3.7 cm, membranaceous, elliptic, base subcordate, apex acuminate, margin entire, slightly undulate, ciliolate; adaxial surface with trichomes basally not thickened nor branched; acrodromous veins 5, the inner basal, the marginal suprabasal and diverging from the inner. Thyrsoids or double dichasia 5.6–6.6 cm long; bracts foliaceous not seen, caducous; bracts not foliaceous 10–11 × 1–1.1 mm, thick, narrowly triangular, adaxial surface glabrous, persistent; bracteoles 6.2–7.8 × 1.5–2 mm, oblong, concave, adaxial surface glabrous, caducous. Pedicel 4.2–9.5 mm; hypanthium 6–7 × 4.1–4.3 mm, tubulose, glandular-strigulose, glandular head caducous; calyx glandular-strigulose, glandular head caducous, lobes 4–4.2 × 1.5–2.2 mm, caducous, triangular, margin ciliolate; petals 18–22 × 10–12 mm, purple, apex truncate; stamens with filaments basally glandular, anthers lilac, slightly falciform, appendage bilobed, antesepalous with filaments 11–12 mm long, anthers 11–12 mm long, connective 1.8–2 mm prolonged, antepetalous with filaments 7.8–8 mm long, anthers 8.8–9 mm long, connective 0.5–0.9 mm prolonged; ovary 4–5.5 × 2.5–3 mm, densely setose at the apex; style 18–23 mm long, glabrous. *Velatidium* 7–9.5 × 4–7 mm; seeds 0.3–0.5 × 0.05–0.1 mm.

Specimens examined:—27.IX.2009, ster., *K.C. Silva 56* (RBR); 19.III.2010, fr., *K.C. Silva 80* (RBR).

Additional specimen examined:—BRASIL. Rio de Janeiro: Itaipuaçu, 14.I.1982, fl., fr., *R.H.P. Andreata et al. 377* (RB).

Distribution:—Endemic to the state of Rio de Janeiro in the Atlantic Forest Biome (Guimarães 2012).

Comments:—This is the first record for Marambaia, where *T. corymbosa* is restricted to Dense Submontane Ombrophilous Forest. It can be distinguished by its basally subcordate leaves and the basal glandular filaments. Additional illustrations in Guimarães (1997).

7.2. *Tibouchina estrellensis* (Raddi 1829: 388) Cogniaux (1885: 342). [Figs. 3s, 9k–n]

Trees 10–15 m; indumentum of the branches, petioles and inflorescences sparsely to densely strigose to strigulose, hispidulous and furfuraceous-dendritic. Branches tetragonal, slightly to sharply winged. Petioles 0.9–2.3 cm long; blade 11.6–13.3 × 3.9–5.5 cm, chartaceous, elliptic, base obtuse to rounded-cuneate, apex obtuse-acuminate, margin obscure-undulate, appressed-ciliolate; adaxial surface bullate, moderately strigose, the trichomes basally thickened and many-branched, branches connate to the epiderm, abaxial surface foveolate, densely setulose-dendritic; acrodromous veins 5, the inner basal, the marginal suprabasal and diverging from the inner, hispidulous-dendritic, trichomes appressed, at abaxial surface. Thyrsoids 10.9–16.7 cm long; bracts foliaceous 12–39 × 5–16 mm; bracts not foliaceous 15–16 × 4–7 mm, thick, concave, elliptic, early-caducous; bracteoles 9–18 × 5–11 mm, concave, ovate, caducous. Pedicel 6–7 mm long; hypanthium 6.5–7 × 3.8–4 mm, campanulate, densely strigulose-dendritic, the trichomes appressed; calyx with lobes 4.8–10 × 3.4–5 mm, caducous, triangular, abaxial surface hispidulous; petals 18–28 × 13–16 mm, purple, apex rounded-asymmetric, apiculate; stamens with filaments 1/2–2/3-superior glandular-villous, glandular head caducous, anthers purple, slightly falciform, connective with appendage bilobed, antesepalous with filaments 9–10 mm long, anthers 11–12 mm long, connective 0.8–1 mm prolonged, antepetalous with filaments 9–10 mm long, anthers 11–12 mm long, connective 0.1–0.2 mm prolonged; ovary 5–11 × 3.5–4 mm, sericeo; style 23–24 mm long, setose. *Velatidium* 9–11 × 6–7 mm; seeds 0.9–1.1 × 0.1–0.3 mm.

Specimens examined:—15.IV.2000, fl., fr., *M. Conde 459* (RB, RBR); 15.IV.2006, fr., *F.C. Nettesheim s.n.* (RBR 22528); 7.IV.2007, fl., *K.C. Silva 8* (RB, RBR).

Distribution:—Endemic to Brazil in the Atlantic Forest Biome, in the states of Minas Gerais, Espírito Santo, Rio de Janeiro, and São Paulo (Guimarães 2012).

Comments:—In Marambaia, *T. estrellensis* is restricted to Dense Submontane Ombrophilous Forest. This species is distinguished mainly by branches slightly to sharply winged, leaves with a bullate adaxial surface and the many-branched trichomes at the base, and foveolate abaxial surface. *Tibouchina estrellensis* is very close to *T. granulosa* which differs by the flat leaves on both surfaces and the presence of basal 1–2-branched strigose trichomes on the adaxial surface. Additional illustrations in Cogniaux (1885), Guimarães (1997), and Baumgratz *et al.* (2006).

7.3. *Tibouchina gaudichaudiana* (Candolle 1828: 128) Baillon (1879: 7). [Figs. 3t–u, 10a–f]

Shrubs 0.5–3 m; indumentum of the branches, petioles, inflorescences, hypanthium and calyx glandular-setose and/or -setulose, glandular head caducous or not. Branches tetragonal, not winged. Petioles 0.3–1.2 cm long; blades 3–11 × 1.4–4.5 cm, chartaceous, elliptic or narrowly ovate, sometimes oblong, base obtuse to acute, apex acute, sometimes obtuse, margin entire; adaxial surface densely setose, abaxial surface densely setose at the veins and with fine trichomes at the blade; acrodromous basal veins 5, with additional faint marginal pair. Thyrsoids 3.7–22.5 cm long, terminals; bracts foliaceous 15–44 × 4–17 mm; bracts not foliaceous 7–8 × 1.1–1.2 mm, thick, concave, oblong, caducous; bracteoles 3–10 × 1.9–6 mm, elliptic, caducous. Pedicel 1.1–7 mm long; hypanthium 5–11 × 3–5.5 mm, campanulate; calyx with lobes 2.9–5 × 1.8–3.5 mm, caducous, triangular, margin ciliolate; petals 16–25 × 10–16 mm, lilac, apex rounded-apiculate, margin glandular-ciliolate; stamens with filaments basally glandular, anthers purple, falciform, connective prolonged, appendage bilobed, glandular, antesepalous with filaments 13–15 mm long, anthers 13–17 mm long, connective 1.3–1.8 mm prolonged, antepetalous with filaments 9–12 mm long, anthers 11–12 mm long, connective ca. 0.5 mm prolonged; ovary 2–7.5 × 2.5–5 mm, glandular-setose, glandular head caducous or not; style 1–3.1 cm long, basally glandular-pubescent, glandular head caducous or not. Ruptidium 4–13 × 5–7 mm; seeds 0.2–1 × 0.1–0.7 mm.

Specimens examined:—4.I.1999, fl., *L.F.T. Menezes 198* (RB, RBR); 15.IV.2000, fl., fr., *M. Conde 478* (RBR); 23.XII.2000, fl., *M.C. Souza 152* (RBR); 3.I.2002, fl., fr., *L.F.T. Menezes 892* (RBR); 19.I.2002, fl., fr., *L.F.T. Menezes 937* (RBR); 27.XII.2002, fl., *L.F.T Menezes 1044* (RBR); 23.XII.2004, fl., fr., *L.F.T. Menezes 1312* (RBR); 29.XII.2004, fl., *L.F.T. Menezes 1325* (RBR); 23.XII.2005, fl., *F.C. Nettesheim 165* (RBR); 7.IV.2007, fl., fr., *K.C. Silva 6* (RBR); 7.IV.2007, fl., fr., *K.C. Silva 11* (RB, RBR); 23.II.2008, fl., fr., *K.C. Silva 21* (RB, RBR); 23.II.2008, fl., fr., *K.C. Silva 22* (RB, RBR); 23.II.2008, fl., *K.C. Silva 23* (RBR); 23.II.2008, fl., *K.C. Silva 26* (RB, RBR); 23.II.2008, fl., *K.C. Silva 27* (RB, RBR); 4.III.2008, fr., *K.C. Silva 30* (RBR); 4.III.2008, fl., fr., *K.C. Silva 31* (RB, RBR); 5.III.2008, fl., *K.C. Silva 33* (RB, RBR); 9.I.2010, fl., *K.C. Silva 65* (RBR); 15.I.2010, fl., *K.C. Silva 74* (RBR).

FIGURE 9. ***Ossaea marginata***: a. floriferous branch; b. young fruit; c. seed (a. *Silva 18*; b–c. *Silva 28*). ***Tibouchina corymbosa***: d. floriferous branch; e–f. leaf: abaxial and adaxial surfaces, respectively; g. calyx lobes; h. bract; i. fruit; j. seed (d. *Guimarães 327*; e–g., i–j. *Silva 80*; h. *Cardoso 32*). ***Tibouchina estrellensis***: k–l. leaf: adaxial and abaxial surfaces, respectively; m. calyx; n. fruit (*Conde 459*). ***Tibouchina granulosa***: o. stem node; p–q. leaf: adaxial and abaxial surfaces, respectively; r. tetragonal and winged branch; s. calyx; t. bract: adaxial surface; u. fruit; v. seed (*Silva 10*).

Distribution:—Endemic to the state of Rio de Janeiro in the Atlantic Forest Biome (Guimarães 2012).

Comments:—In Marambaia, it is the only species of Melastomataceae found in four major vegetation types: Herbaceous and Shrubby *Restinga*, *Restinga* Forest, and Dense Submontane Ombrophilous Forest. It is distinguished by the setose- and/or glandular-setulose indumentum and the basally glandular filaments. Morphological variation in leaf length of the leaves between individuals growing in forest (6–11 cm long) and *restinga* (3–7.7 cm long) environments is clear. Conde *et al.* (2005) listed *Tibouchina litoralis* Ule (1915: 351), *T. reichardtiana* Cogniaux (1885: 361) and *T. urceolaris* (Schr. & Mart. ex Candolle 1828: 139) Cogniaux (1885: 355) for Marambaia based on RBR herbarium material. Additional illustrations in Baillon (1879) and Guimarães (1997).

7.4. *Tibouchina granulosa* (Desrousseaux 1797: 44) Cogniaux (1885: 340). [Figs. 3v, 9o–v]

Trees ca. 5 m; indumentum of the branches, petioles and inflorescences sparsely to densely strigose to strigulose, hispidulous and furfuraceous-dendritic. Branches tetragonal, slightly or sharply winged. Petioles 0.7–2.1 cm long; blade 11.7–19.6 × 3.5–5.3 cm, chartaceous, base obtuse, apex abtuse-acuminate, margin obscure-undulate, revolute; adaxial surface plane, strigulose to strigose, trichomes appressed, basally thickened and 1–2-branched, branches connate to the epiderm, abaxial surface plane, with blade densely setulose-dendritic; acrodromous veins 5, the inner 4–10 mm suprabasal, the marginal suprabasal and diverging from the inner, hispidulous-dendritic, trichomes appressed, at abaxial surface. Thyrsoids 8.3–12.9 cm long; bracts foliaceous not seen, caducous; bracts not foliaceous 2.3–5.9 × 1.2–1.5 cm, thick, bracteoles 6–8 × 5–12 mm, both navicular, caducous. Pedicel 3.5–5 mm long; hypanthium 7–11 × 5.1–6 mm, campanulate, densely strigulose-dendritic; calyx with lobes 8.1–11 × 2.5–4 mm, caducous, triangular, margin ciliolate; petals 24–31 × 16–21 mm, purple, apex apiculate; stamens with filaments 1/2–2/3-superior glandular-villous, glandular head caducous, anthers pink to purple, slightly falciform, connective with appendage bilobed, glabrous, antesepalous with filaments 1.4–1.5 cm long, anthers 14–15 mm long, connective 1.3–1.9 mm prolonged, antepetalous with filaments 12–13 mm long, anthers 12–13 mm long, connective 0.6–0.8 mm prolonged; ovary 4–6 × 4–5 mm, densely sericeo; style 2.2–2.6 cm long, 1/2-inferior setose. *Velatidium* 11–12 × 7–7.5 mm; seeds ca. 1 × 0.1–0.3 mm.

Specimens examined:—17.VI.2003, fl., fr, *L.F.T. Menezes 1085 et al.* (RBR); 7.IV.2007, fl., fr., *K.C. Silva 10* (RB, RBR).

Distribution:—Endemic to Brazil in Atlantic Forest Biome (Guimarães 1997, 2012). It is practically restricted to the state of Rio de Janeiro because there is only a single specimen collected in the state of São Paulo, near the border between these two states (Guimarães 1997).

Comments:—In Marambaia, *T. granulosa* is restricted to Dense Submontane Ombrophilous Forest. It is distinguished mainly by the winged branches, the flat leaves on both surfaces, and the adaxial surface with appressed strigose trichomes, basally thickened, 1–2-branched. *Tibouchina granulosa* is very close to *T. estrellensis*, as mentioned previously under the latter species. Additional illustrations in Guimarães (1997), and Baumgratz *et al.* (2006).

7.5. *Tibouchina heteromalla* (Don 1823: 295) Cogniaux (1885: 336). [Figs. 3x, 10g–k]

Shrubs ca. 0.5 m; indumentum of the branch, petioles and inflorescences hispidulous-sericeo. Branches tetragonal, not winged. Petioles 2.2–3.4 cm long; blade 10.1–15 × 4.7–8.9 cm, chartaceous or membranaceous, broadly ovate to elliptic, base obtuse-cordate, apex acute, margin entire; adaxial surface bullate, densely sericeo-setulose, the trichomes appressed, abaxial surface foveolate-reticulate, densely villous-sericeo; acrodromous basal veins 5, hispidulous-sericeo and sparsely villous at abaxial surface. Thyrsoids 17.7–24.6 cm long; bracts foliaceous not seen, caducous; bracts not foliaceous 7–8 × ca. 3 mm, thick, slightly concave, elliptic, early-caducous; bracteoles 3.5–4 × 1.4–1.5 mm, concave, elliptic, early-caducous. Pedicel 1.8–2 mm long; hypanthium 3–5 × 2.7–3 mm, tubulose, appressed-sericeo; calyx with lobes ca. 3 × 1.5–1.7 mm, caducous, triangular, margin ciliolate, appressed-sericeo in abaxial surface; petals 8–11 × 7.5–9 mm, purple; stamens with filaments basally glandular-pubescent, anthers lilac, falciform, connective bilobulate, antesepalous with filaments 5.8–6 mm long, anthers 5–6 mm long, connective 1–1.5 mm prolonged, appendage glandular, antepetalous with filaments ca. 4.5 mm long, anthers 4–4.2 mm long, connective 1–1.3 mm prolonged, appendage glabrous, sometimes with one gland; ovary 5–5.5 × 4–5 mm, sericeo; style 7–7.3 mm long, basally setulose. Ruptidium 10–11 × 3.5–4.9 mm; seeds 0.6–0.7 × ca. 0.1 mm.

Specimens examined:—27.IX.2009, ster., *K.C. Silva 57* (RBR); 22.I.2010, ster., *K.C. Silva 70* (RBR); 19.III.2010, fl., fr., *K.C. Silva 79* (RBR).

Distribution:—Endemic to Brazil, occurring in the states of Goiás, Paraíba, Pernambuco, Minas Gerais, Espírito Santo, Rio de Janeiro, and São Paulo (Guimarães 2012).

FIGURE 10. ***Tibouchina gaudichaudiana***: a. hypanthium and calyx; b–c. antisepalous and antipetalous stamens, respectively; d. bract; e. fruit; f. seeds (a, d. *Silva 27*; b–c. *Souza 152*; e–f. *Silva 30*). ***Tibouchina heteromalla***: g. hypanthium and calyx; h. bract; i–j. antisepalous and antipetalous stamens, respectively; k. fruit (g, i–k. *Silva 79*; h. *Nadruz 2119*). ***Tibouchina trichopoda***: l. floriferous branch; m–n. leaf: adaxial and abaxial surfaces, respectively; o. bract; p. bracteole; q. petal; r. calyx lobes; s–t. antisepalous and antipetalous stamens, respectively; u. fruit (*Silva 106*).

Comments:—This is the first record for Marambaia, where it is restricted to Dense Submontane Ombrophilous Forest. *Tibouchina heteromalla* is distinguished by the bullate adaxial surface that is densely sericeous-setulose, and the reticulate-foveolate abaxial surface that is densely sericeous-villous, with sericeous-hispidulous and sparse-villous acrodromous venation and glandular-pubescent filaments at the base. Additional illustrations in Cogniaux (1883–1888), Guimarães (1997), and Baumgratz *et al.* (2006).

7.6. *Tibouchina trichopoda* (Candolle 1828: 151) Baillon (1879: 75). [Figs. 3z, 10l–u]

Shrubs or treelets 1.5–4 m; indumentum of the branch, petioles and inflorescences sparse or moderately appressed-hirtellous. Branches flattened when young, the adults tetragonal, costate, not winged. Petioles 0.8–1.3 cm long; blade 5.7–7.1 × 1.9–2.9 cm, chartaceous, elliptic, base abtuse, apex acute, margin entire; adaxial surface appressed-strigulose, trichomes basally thickened and 1–2-branched, branches connate to the epiderm, abaxial surface sericeo; acrodromous basal veins 3–5, the marginal not diverging from the inner, appressed-hirtellous at abaxial surface. Triads or corymbiform metabotryoids 5.6–6.5 cm long; bracts 11–13 × 5–7 mm, bracteoles 12–13 × 8–11 mm, both involucral, concave, caducous. Pedicel 4–9 mm long; hypanthium 4–5.1 × 5–5.5 mm, campanulate, densely strigulose; calyx with lobes 3–4.5 × 2.5–3.8 mm, triangular, margin ciliolate, strigulose in abaxial surface, caducous; petals 25–29 × 11–23 mm, purple, apex rounded-apiculate; stamens with filaments basally glandular-pubescent, anthers purple, falciform, connective with appendage bilobed, antesepalous with filaments 13–14 mm long, anthers 8–10 mm long, connective 3.8–4 mm prolonged, antepetalous with filaments 10–11 mm long, anthers 8–9 long, connective 0.8–0.9 mm prolonged; ovary 3.2–6 × 4–5 mm, densely sericeo; style 20–26 mm long, glabrous. *Velatidium* 6.5–9 × 8–9 mm; seeds 0.6–1 × 0.1–0.3 mm.

Specimens examined:—23.II.2008, fl., *K.C. Silva 25* (RB, RBR); 19.I.2001, fl., *L.F.T. Menezes 743* (RBR), 18.XII. 2010, fl., fr., *K. C. Silva 106* (RBR).

Additional specimen examined:—BRASIL. Rio de Janeiro: Silva Jardim, 14.II.2003, fl., fr., *B.A. Abbas et al. 85* (RB).

Distribution:—Endemic to Brazil in the Atlantic Forest Biome, occurring from the state of Minas Gerais to Rio Grande do Sul (Guimarães 2012).

Comments:—In Marambaia, it is restricted to Shrubby *Restinga* and *Restinga* Forest. *Tibouchina trichopoda* is distinguished by leaves with 3–5 basal acrodromous veins, marginal veins not diverging from the inner ones, appressed-strigulose adaxial surface, and abaxial surface with sericeous blade and appressed-hirtellous acrodromous venation. In addition, involucral and concave bracteoles, and the filaments basally glandular-pubescent also identify this species. Additional illustrations in Cogniaux (1883–1888), and Baumgratz *et al.* (2006).

Discussion

The survey of Melastomataceae on Marambaia increases our knowledge of this family in coastal island floras and the Atlantic Forest of Brazil. There are seven genera and 25 species, of which 13 (52%) are endemic to Brazil. All of them occur in the Atlantic Forest, but only 10 (40%) are endemic to this biome (Tab. 1). *Miconia* is the best represented genus, with 10 species, followed by *Tibouchina* (6 spp.) and *Leandra* (4 spp.). The following 13 species (52%) are new records for Marambaia: as *Clidemia hirta*, *Leandra acutiflora*, *L. melastomoides, L. reversa, Miconia albicans, M. brasiliensis, M. chartacea, M. cubatanensis, M. lepidota, M. pusilliflora, Tibouchina corymbosa, T. granulosa* and *T. heteromalla*.

Among the two vegetation types, the Dense Submontane Ombrophilous Forest is the richest in species (23), of which 15 (60%) occur only in this habitat. In *Restinga* there are 10 species: *Marcetia taxifolia* and *T. trichopoda* that are restricted to this vegetation, and the other eight species (32%) occur in Dense Submontane Ombrophilous Forest and *Restinga* (Tab. 1). However, *M. taxifolia* can be found in upper Dense Montane Ombrophilous Forest, and in the Amazon, Caatinga *s.l.* and Cerrado Biomes (Martins & Bernardo 2012), and *T. trichopoda,* in Tropical Alluvial Forest (Baumgratz *et al.* 2006, 2007, Guimarães 2012).

Among the endemic species of the Atlantic Forest, *T. corymbosa* and *T. granulosa* are endemic to the state of Rio de Janeiro. *Tibouchina estrellensis* is restricted to the states of Minas Gerais to São Paulo while *T. trichopoda* occrurs from the state of Espírito Santo to Santa Catarina, and *M. brasiliensis* is found from the state of Espírito Santo to São Paulo and in the state of Santa Catarina. The other species (*Huberia ovalifolia*, *L. variabilis*, *M. cinnamomifolia*, *M. pusilliflora* and *Ossaea marginata*) have a wider distribution, in northern and/or southern areas of the country. *Leandra variabilis*, *M.*

brasiliensis, *T. corymbosa*, *T. estrellensis* and *T. granulosa* are specialist elements from the Atlantic Forest while the other five species are generalists and also found in *Restinga*. The 14 non-endemic species of the Atlantic Forest are generalist elements, also occupying habitats of the Amazonian, Cerrado and/or Caatinga *s.l.* Biomes (Tab. 1).

TABLE 1. Species of Melastomataceae occurring in Marambaia, highlighting the tribe, habit (tr = tree; trl = treelet; sh = shrub; sbs = subshrub), and vegetation type (RF = *Restinga* Forest; HR = Herbaceous *Restinga*; SR = Shrubby *Restinga*; DOF = Dense Submontane Ombrophilous Forest; (*) = new record to Marambaia; (#) = endemic to Atlantic Forest; (+) = Vulnerable to the municipality of Rio de Janeiro (Baumgratz 2000).

Species	Tribe	Habit	Vegetation type
Clidemia hirta (L) D.Don (*)	Miconieae	sh	DOF
Clidemia urceolata DC.	Miconieae	sh	SR, DOF
Huberia ovalifolia DC. (#) (+)	Merianieae	tr, trl	RF, DOF
Leandra acutiflora (Naudin) Cogn. (*) (+)	Miconieae	trl, sh	DOF
Leandra melastomoides Raddi (*) (+)	Miconieae	trl, sh	DOF
Leandra reversa (DC.) Cogn. (*)	Miconieae	sh	DOF
Leandra variabilis (A.Gray) Cogn. (#)	Miconieae	trl, sh	DOF
Marcetia taxifolia (A.St.-Hil.) DC.	Melastomeae	sh, sbs	SR, HR
Miconia albicans (Sw.) Triana (*)	Miconieae	trl, sh	DOF
Miconia brasiliensis (Spreng.) Triana (*) (#)	Miconieae	tr, trl	DOF
Miconia calvescens DC.	Miconieae	tr, trl	RF, DOF
Miconia chartacea Triana (*)	Miconieae	tr	DOF
Miconia cinnamomifolia (DC.) Naudin (#)	Miconieae	tr, trl	RF, SR, DOF
Miconia cubatanensis Hoehne (*)	Miconieae	tr	DOF
Miconia dodecandra (Desr.) Cogn.	Miconieae	tr	DOF
Miconia lepidota DC. (*)	Miconieae	tr	RF, DOF
Miconia prasina (Sw.) DC.	Miconieae	tr, trl	RF, DOF
Miconia pusilliflora (DC.) Naudin (*) (#)	Miconieae	tr	RF, DOF
Ossaea marginata (Ders.) Triana	Miconieae	sh	DOF
Tibouchina corymbosa (Raddi) Cogn. (*) (#)	Melastomeae	trl	DOF
Tibouchina estrellensis (Raddi) Cogn. (#)	Melastomeae	tr	DOF
Tibouchina gaudichaudiana (DC.) Baill. (#)	Melastomeae	sh	RF, SR, HR, DOF
Tibouchina granulosa (Desr.) Cogn. (*) (#)	Melastomeae	tr	DOF
Tibouchina heteromalla (D.Don) Cogn. (*)	Melastomeae	sh	DOF
Tibouchina trichopoda (DC.) Baill. (#)	Melastomeae	sh, trl	RF, SR

Tree species of Melastomataceae occur mainly in the ombrophilous forest, some of which also occur in the *Restinga* Forest. Shrub species are common in the Herbaceous and Shrubby *Restinga* (Tab. 1), but some can be found on the edge and in clearings within the rain forest.

Melastomataceae species from the island have wide or restricted geographic distribution in the Atlantic Forest Biome. They belong to three major evolutionary lineages, represented by the tribes Melastomeae (*Tibouchina* and *Marcetia*) and Merianieae (*Huberia*), with capsular fruits, and Miconieae (*Clidemia*, *Leandra*, *Miconia* and *Ossaea*)

with berry fruits. Seventeen species (68%) produce fleshy fruits consumed by birds and mammals (Barroso *et al.* 1984, Baumgratz 1985, Galetti & Stotz 1996, Loiselle & Blake 1999, Haemig, 2011). The other species (32%) have capsular fruits and seeds that can be dispersed by wind or rain (Baumgratz 1985, Renner 1989, Rodrigues da Silva *et al.* 2009, Barberena *et al.* 2010).

The diversity of these tribes in the Atlantic Forest Biome is notable due to the richness of genera like *Clidemia*, *Leandra*, *Miconia*, *Ossaea* and *Tibouchina*; nevertheless none of these are exclusive to Brazil nor to this biome (Goldenberg *et al.* 2009; Baumgratz *et al.* 2010).

Almost all the species of *Tibouchina* from Marambaia are endemic to Brazil and the Atlantic Forest Biome, except *T. heteromalla* that also occurs in the Cerrado Biome. *Tibouchina gaudichaudiana* is very common in *Restinga* and alluvial forest habitats, and only occurs in the states of Rio de Janeiro and Espírito Santo (Baumgratz *et al.* 2010). *Marcetia taxifolia*, another taxon of this tribe, is widely distributed in Brazil and South America (Martins & Bernardo 2012), occurring in humid and dry habitats.

The occurrence of Melastomataceae species with wide distribution in Brazil or South America, which are found in rain forests and/or dry habitats, may also support the hypothesis that in the past Marambaia was wholly connected to the mainland, with a wider distribution of the species in the southeastern Brazilian coast (Roncarati & Menezes 2005).

None of Marambaia's Melastomataceae are found on the official government list of endangered species of the Brazilian flora (MMA 2008), but several are found in conservation units, both in the state of Rio de Janeiro and in other regions of the country. However, *H. ovalifolia*, *L. acutiflora* and *L. melastomoides* were classified as threatened in the municipality of Rio de Janeiro (Baumgratz 2000).

The scarce information for the flora of Brazilian islands exposes the need to expand taxonomic and floristic studies in other insular areas, and shed light on the strengthen conservation and management priorities for these environments.

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