



Original Paper

Flora of Espírito Santo: Hiraeoide and Malpighioide clades (Malpighiaceae)

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Abstract

This is a taxonomic treatment of four genera and eight species of the hiraeoide and malpighioide clades (Malpighiaceae) in the state of Espírito Santo, Brazil. *Hiraea* and *Mascagnia* are the most diverse genera, with three species each, followed by *Amorimia* and *Lophopterys*, with one species each. Two species are listed as threatened: *H. bullata* and *M. velutina*. The main characteristics that can be used to identify the genera in Espírito Santo are epipetiolar or interpetiolar stipules, the indumentum on the branches, the inflorescence type, the number of elaiophores, and characteristics of the mericarps. Morphological descriptions, identification keys, taxonomic notes, geographic distribution maps, and photographic plates are provided for the species.

Key words: Atlantic Forest domain, Brazil, lianas, Malpighiales, taxonomy.

Resumo

Apresentamos o tratamento taxonômico de quatro gêneros e oito espécies dos cladogramas hiraeoide e malpighioide (Malpighiaceae) no estado do Espírito Santo. *Hiraea* e *Mascagnia* foram os gêneros de maior diversidade com três espécies registradas, cada, seguidos por *Amorimia* e *Lophopterys* com uma única espécie, cada. Duas espécies encontram-se ameaçadas de extinção: *H. bullata* e *M. velutina*. As principais características que podem ser utilizadas para a diferenciar os gêneros no Espírito Santo são: as estípulas epipeciolares ou interpeciolares, o indumento dos ramos, os tipos de inflorescências, o número de elaióforos e características dos mericarpos. Apresentamos descrições morfológicas, chaves de identificação, comentários taxonômicos, mapas de distribuição geográfica e pranchas de imagens para as espécies.

Palavras-chave: Floresta Atlântica, Brasil, lianas, Malpighiales, taxonomia.

Introduction

In Espírito Santo, the fifteenth most species-rich family is Malpighiaceae. There are 129 species and 23 genera of Malpighiaceae in the state, which occur mainly in dense ombrophilous forest (Almeida & Mamede 2014; Dutra *et al.* 2015). This family of angiosperms has the highest number of threatened species in the state (68 spp.), especially because of their restricted distributions (Dutra *et al.* 2019; Fraga *et al.* 2019). Studies involving Malpighiaceae have been carried out for over 15 years in the state, including new records, descriptions of new species, notes and additional

information about species (Amorim 2003; Almeida *et al.* 2013, 2015, 2018; Almeida & Amorim 2015; Almeida 2017; Francener *et al.* 2018), a list of species that occur in Espírito Santo (Almeida & Mamede 2014), a synopsis of *Stigmaphyllon* (Almeida & Mamede 2016) and a taxonomic treatment for the Flora do Espírito Santo project of the genera *Banisteriopsis* and *Byrsonima*, and the Barnebyoid and Bunchosoid clades (Almeida & Mamede 2020; Alves *et al.* 2021; Barros *et al.* 2022). In the present work, we contribute the treatment of the Hiraeoid and Malpighioid clades to the Malpighiaceae flora.

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The Hiraeoide clade has low support in molecular studies and comprises the genera *Hiraea*, *Excentradenia*, *Adelphia*, *Psychopterys*, and *Lophopterys* (Davis & Anderson 2010). These genera have mericarps with more developed lateral wings and a reduced or absent dorsal wing (Davis & Anderson 2010; Almeida *et al.* 2020). In Brazil, this clade is currently represented by four genera (*Adelphia*, *Excentradenia*, *Hiraea*, and *Lophopterys*) and 28 species (Almeida *et al.* 2020). In the Atlantic Forest domain, there are nine species of *Lophopterys* and *Hiraea* (Almeida *et al.* 2016).

The Malpighioid clade currently comprises three genera (*i.e.*, *Amorimia*, *Malpighia* and *Mascagnia*) and 33 species that are distributed in Brazil (Davis & Anderson 2010; Almeida *et al.* 2020). In the Atlantic Forest domain, only *Mascagnia* and *Amorimia* are represented, with six and seven species, respectively (Almeida *et al.* 2016, 2020). This clade has mericarps with lateral wings fused into an orbicular wing or reduced to fleshy crests (Almeida *et al.* 2017).

This work is a taxonomic treatment of the species in the Hiraeoid and Malpighioid clades in Espírito Santo, including identification keys, morphological descriptions, geographic distribution and taxonomic notes, distribution maps and photographic plates for the species.

Material and Methods

Herbarium specimens at BHCN, CEPEC, CRVD, HUEFS, MBML, RB, SAMES, SP, SPF, VIC and VIES (abbreviations according to Thiers, continuously updated) were examined, and specimens and types at K, MBM, MO, NY, RFA, UB and UPCB were virtually consulted through INCT-HVFF (<<https://specieslink.net/search/>>) and ReFlora (<<http://reflora.jbrj.gov.br/reflora/herbarioVirtual/ConsultaPublicoHVUC/ConsultaPublicoHVUC.do>>). Field expeditions were also conducted between 2017 and 2019, and the material obtained was deposited in the VIES herbarium. Flower and/or fruit samples were collected and preserved in 70% alcohol or rehydrated for identification and description. The specimens were analyzed using a stereomicroscope, specialized literature (Niedenzu 1928; Radford *et al.* 1974; Anderson 1981, 2014; Anderson & Davis

2001, 2005; Almeida 2018) and by consulting nomenclatural types of each binomial in person or using virtual herbaria.

Geographic distribution data were obtained from the labels of the examined specimens, and the classification of phytogeographies follows Garbin *et al.* (2017): dense ombrophilous forest (covering sloped forests in mountainous regions and *tabuleiro* forests in wet coastal lowlands), open ombrophilous forest, seasonal semideciduous forest, pioneer formations (heath, *restingas*, a set of coastal vegetations on marine sandy deposits of the Quaternary, mangroves), and ecological refuge (represented by montane grasslands in the Serra do Caparaó). Maps were prepared using the software ArcGis 9.2 (ESRI 2010), shapefiles were obtained from IBGE (2015) and geographic coordinates were taken from the exsiccata labels or inferred using the geoLoc tool (<<http://splink.cria.org.br/geoloc>>). The “Lista Nacional de Espécies da Flora Ameaçadas de Extinção” (CNCFlora 2019) and “Lista das Espécies Ameaçadas do Espírito Santo” (Fraga *et al.* 2019) were consulted to identify threatened species.

Results and Discussion

For Espírito Santo, four genera and eight species were recorded for the Hiraeoide and Malpighioid clades, which is 44% of the species cited for the Atlantic Forest (Almeida *et al.* 2016). *Mascagnia* and *Hiraea* are the most species-rich genera (3 spp. each) and *Amorimia* and *Lophopterys* are represented by one species each. Of the 10 species previously mentioned for the state (Almeida & Mamede 2014; Dutra *et al.* 2015), four were not confirmed. Specimens cited as *Amorimia rigida* (Jussieu 1833: 14) Anderson (2006: 183) were incorrectly identified and redetermined as *Amorimia maritima* (Jussieu 1833: 14) Anderson (2006: 181). Specimens determined as *Hiraea cuneata* Grisebach (1839: 246) and *H. fagifolia* Jussieu (1840: 258) were redetermined as *H. restingae* and *H. macrophylla*, respectively. For specimens treated as *Mascagnia bierosa* (Jussieu 1840: 260) Anderson in Anderson & Davis (2007: 102), not enough characters were found to distinguish them from *Mascagnia velutina* Anderson (2001: 414) so they were treated as the latter species.

**Identification key to the genera of the Hiraeoide and Malpighioide clades
in the state of Espírito Santo**

1. Stipules epipetiolar.
 2. Umbels of 1-flowered cincinni. Elaiophores 8. Mericarps winged, 2 lateral wings more developed than dorsal one 1. *Hiraea*
 - 2'. Thyrses of 1-flowered cincinni. Elaiophores 4. Mericarps winged, dorsal wing reduced, lateral wings 2, V-shaped 2. *Lophopterys*
- 1'. Stipules interpetiolar.
 3. Branches glabrous. Mericarps winged, lateral wings 2, more developed than the posterior one 3. *Amorimia*
 - 3'. Branches velutinous, sericeous or glabrescent. Mericarps winged, lateral wings 2, fused into an orbicular wing, dorsal wing reduced to a winglet..... 4. *Mascagnia*

Hiraeoid clade *sensu* Almeida & van den Berg (2021).

1. *Hiraea* Jacq., Enum. Syst. Pl. 4, 21. 1760.

Wood lianas; stipules epipetiolar, free. Leaves reduced associated to the inflorescence absent; petiole eglandular or 2-glandular at apex; leaf blade elliptic to ovate, margin entire, primary/secondary veins impressed on both surfaces, 2-glandular at base, several-glandular near margins. Umbels of 1-flowered cincinni; bracts and bracteoles persistent. Flowers with or without

peduncle; sepals parallel to the androecium, elaiophores 8. Mericarps winged, 2 lateral wings more developed than dorsal one, sparsely sericeous to sericeous.

Hiraea is easily differentiated from the remaining genera of Malpighiaceae in the state of Espírito Santo by the epipetiolar stipules and axillary umbels of 1-flowered cincinni. The genus is found from Mexico to Paraguay and comprises ca. 70 species (Anderson 2014), including 19 species in Brazil (Almeida *et al.* 2020) and three species in Espírito Santo.

Identification key to the species of *Hiraea* in the state of Espírito Santo

1. Petiole eglandular; leaf blade glabrescent on both surfaces; 2-glandular at base and several-glandular at margins 1.2. *Hiraea macrophylla*
- 1'. Petiole 2-glandular at apex; leaf blade adaxially glabrous, abaxially tomentose or glabrous; marginal glands near apex or 2-glandular on margins.
 2. Branches tomentose to velutinous. Leaf blade with tertiary veins impressed above and prominent below, producing a bullate surface, margin revolute 1.1. *Hiraea bullata*
 - 2'. Branches sericeous to glabrescent. Leaf blade without tertiary veins impressed above and prominent below, not producing a bullate surface, margin plane..... 1.3. *Hiraea restingae*

1.1. *Hiraea bullata* W.R.Anderson, Contr. Univ. Michigan Herb. 19: 372-373. 1993. Fig. 1

Woody lianas; branches tomentose to velutinous; stipules epipetiolar, 2.4–3.5 mm, subulate, persistent, free. Leaves with petioles 7–14 mm long, canaliculate, velutinous, 2-glandular at apex; leaf blade 7.3–16.2 × 3.9–10.8 cm, chartaceous, elliptic to ovate, base rounded, margin entire, revolute, apex rounded to acute, adaxially glabrous, abaxially tomentose, primary and secondary veins impressed on both surfaces, tertiary veins impressed above and prominent

below, producing a bullate surface, marginal glands near apex. Umbels, 2–4-flowered; main axis tomentose; bracts ca. 1.3 mm long, chartaceous, triangular, persistent, eglandular; peduncle 6.7–8.2 mm long, sericeous to velutinous; bracteoles ca. 1 mm long, chartaceous, triangular, persistent, eglandular. Flowers with pedicels 16–22 mm long, sericeous; sepals parallel to the androecium, ca. 2 × 1.6 mm, apex rounded, adaxially glabrous, abaxially sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, reddish, ca. 1.6 × 0.8 mm; lateral petals yellow, limb ca.

4.9 × 3.4 mm, orbicular, margin erose, claws ca. 2.1 × 0.1 mm; posterior petal with red macula at center, limb ca. 5.1 × 4 mm, obovate, margin fimbriate, claw ca. 2.9 × 0.3 mm; stamens with filaments 2–2.7 mm long, connectives glandular, thecae glabrous; ovary ca. 1.4 × 1.4 mm, spherical, sericeous; styles ca. 2.9 × 0.1 mm, erect, divergent, cylindrical, glabrous; stigma lateral, subulate to pediform. Mericarps brown when mature, lateral wings 2.3–2.7 × 1.3–1.5 cm, membranaceous, sparsely sericeous; nut 3.4–4.7 mm long, rugose, tomentose.

Specimens analysed: Conceição da Barra, área 126 da Aracruz Celulose S.A., 2.XII.1992, fl., *O.J. Pereira 4269* (CEPEC, VIES); estrada que segue para Itaúnas, 25.XI.2011, fl., *A.O. Giaretta 1061* (SAMES, VIES). Linhares, Pontal do Ipiranga, 4.XII.1996, fr., *O.J. Pereira 5741* (VIES); 20.X.1996, fr., *R.L.S. Dutra 176* (VIES); Reserva Florestal de Linhares, estrada Mac. Pele de Sapo, km 2.01, 22.X.1985, fl., *G.L. Farias 82* (CEPEC, CVRD, SP); Reserva Natural da CVRD, estrada municipal Canto Grande, km 0.05, fl., *D.A. Folli 4098* (CEPEC, CVRD, SP).

Hiraea bullata is endemic to Brazil and occurs in the states of Bahia and Espírito Santo in

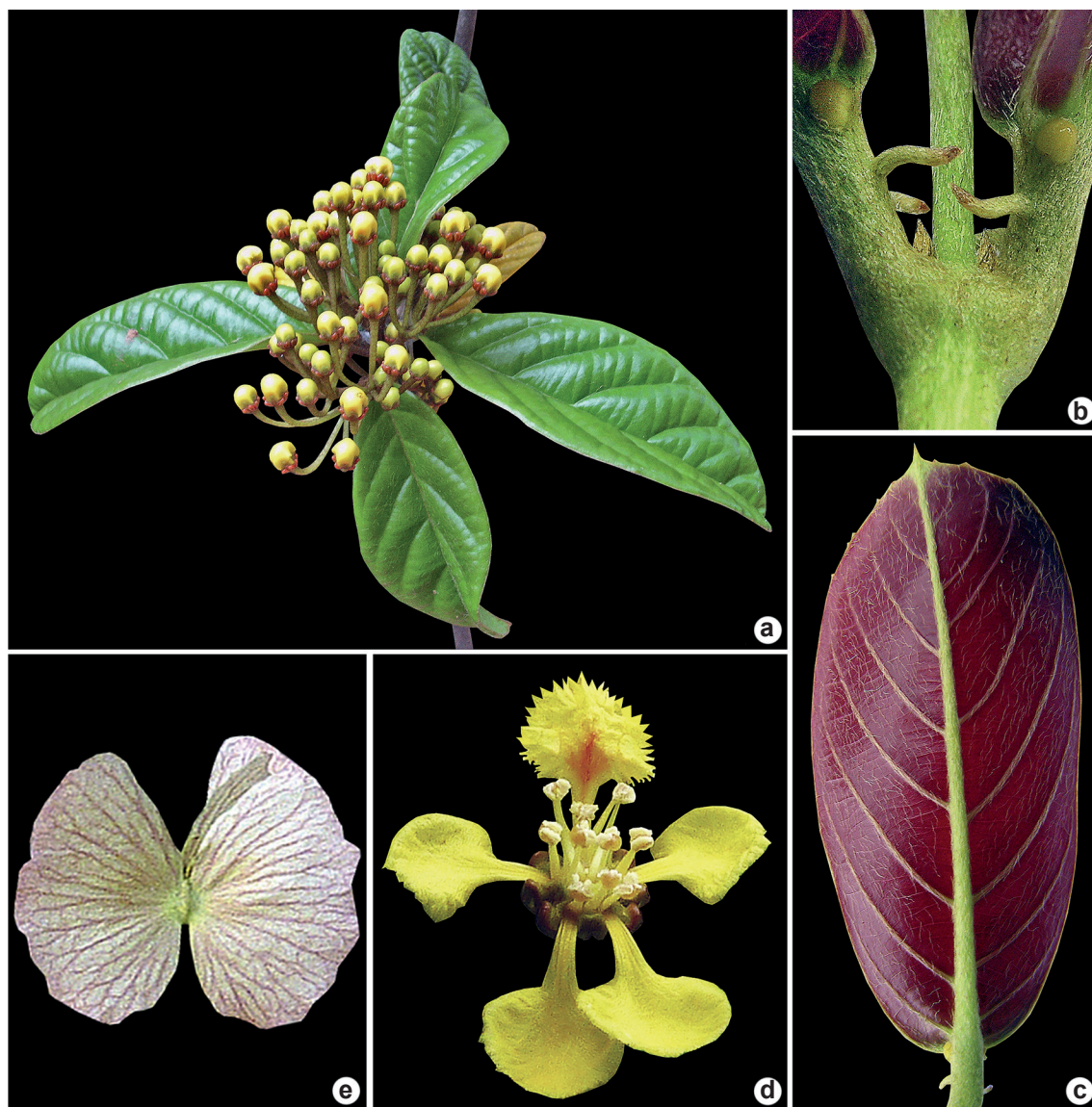


Figure 1 – a-e. *Hiraea bullata* – a. flowering branch; b. detail of stipules; c. abaxial surface of a leaf; d. flower in frontal view; e. winged mericarp in side view (photographs by A.Popovkin).

seasonal semideciduous and ombrophilous forests (Almeida *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest and in *restingas* in the northern part of the state (Fig. 2). It has been collected with flowers and fruits in October

and December and is listed as vulnerable by the CNCFlora (2019) and Fraga *et al.* (2019). *Hiraea bullata* is distinguished from the remaining species of the genus in Espírito Santo by its bullate leaves with revolute margins. Local name: cipó-iraia.

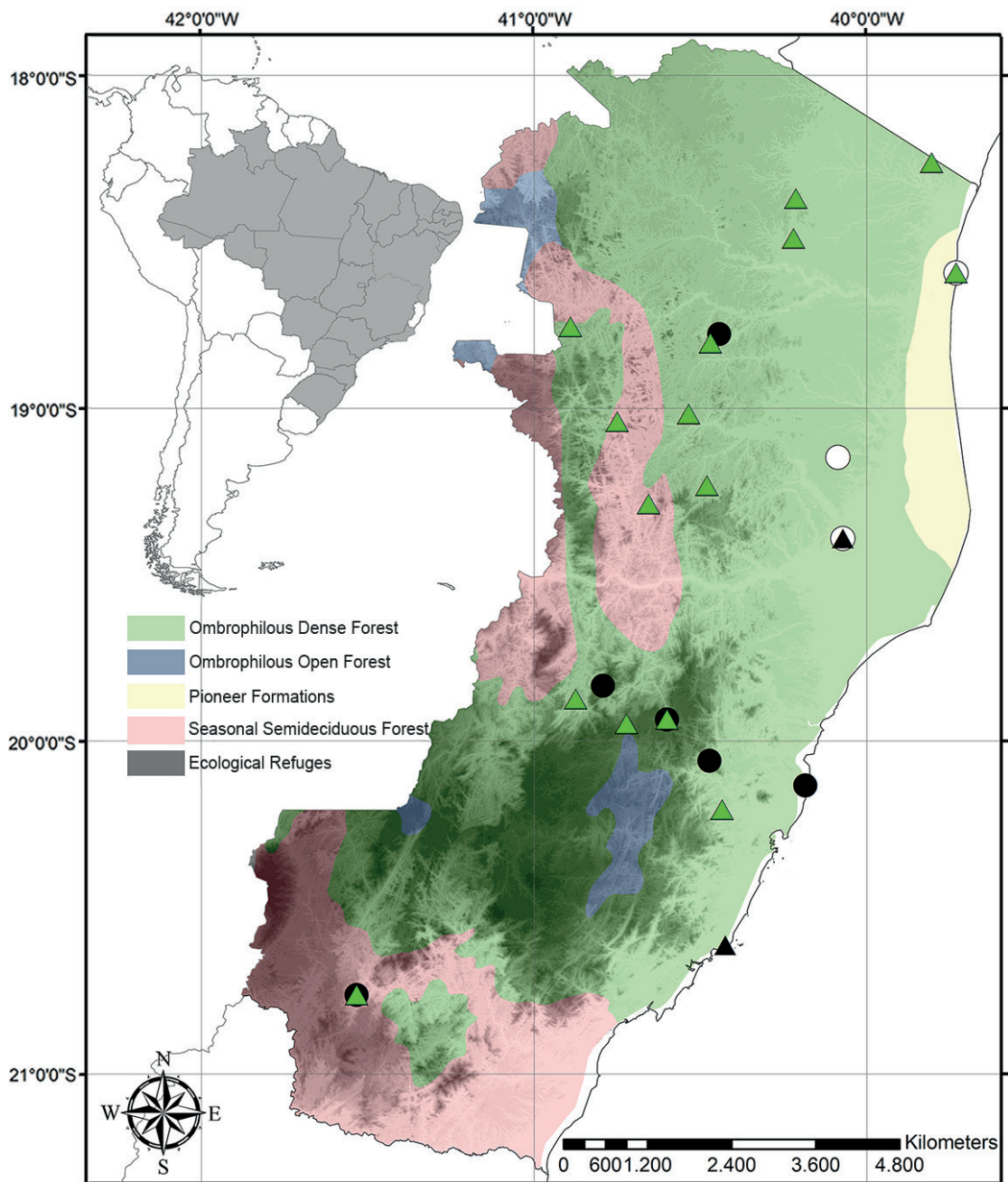


Figure 2 – Distribution map of *Hiraea bullata* (white circles), *Hiraea macrophylla* (black circles), *Hiraea restingae* (black triangles), and *Lophopterys floribunda* (green triangles). Shades of black in the background represent montane relief. Pink = seasonal semideciduous forest; Green = ombrophilous dense forest; Blue = ombrophilous open forest; Yellow = pioneer formations.

1.2. *Hiraea macrophylla* (Colla) P.L.R.Moraes & Guglielmo, Harvard Pap. Bot. 18(1): 27. 2013.

Fig. 3

Woody lianas; branches sericeous to glabrescent; stipules epipetiole, 1.4–2 mm long, subulate, persistent, free. Leaves with petioles 7–14 mm long, canaliculate, sericeous, eglandular; leaf blade 7.9–18.1 × 3.1–6.5 cm, chartaceous, elliptic to obovate, base acute, margin entire, plane, apex acute to rounded, rarely mucronate, both surfaces glabrescent, primary and secondary veins abaxially impressed, 2-glandular at base and several-glandular at margins. Umbels, 2–4-flowered; main axis sericeous; bracts 2–2.7 mm long, chartaceous, triangular, persistent, eglandular; peduncles 12–15 mm long, glabrous; bracteoles 1.4–1.6 mm long, chartaceous, triangular, persistent, eglandular. Flowers with pedicels 15–21 mm, sericeous; sepals parallel to the androecium, 1.6–2 × 1.9–2.2 mm, apex rounded, adaxially glabrous, abaxially sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, yellow, 0.9–1.5 × 0.5–0.7 mm; lateral petals yellow, limb 6.1–6.3 × 7.1–7.4 mm, orbicular, margins entire to slightly denticulate, claws 2.6–2.8 × ca. 0.3 mm; posterior petal yellow, limb ca. 4.5 × 4 mm, orbicular, margins fimbriate, glandular, claw ca. 4.5 × 0.5 mm; stamens with filaments 2–3 mm long, connectives glandular, thecae glabrous; ovary ca. 1 × 1.1 mm, spherical, sericeous; styles ca. 4.3 × 0.2 mm, arched, cylindrical, convergent at apex, glabrous; stigma lateral, truncate to pedalfiform. Mericarps brown when mature, lateral wings 2.1–1.3 × 7.1–7.4 cm, membranaceous, glabrescent; nut 2.9–3.3 mm long, rugose, sericeous.

Specimens analysed: Alegre, Ponte do Palmito, 21.I.2008, fl., *L. Kollmann 10385* (CEPEC, MBML, SP). Nova Venécia, Área de Proteção Ambiental da Pedra do Elefante, Serra de Baixo, -18.7769, -40.4438, 19.II.2008, fl., *C.N. Fraga 1900* (CEPEC, MBM, MBML, RB, UPCEB); 19.II.2008, fl., *A.M.A. Amorim 7185* (CEPEC, MBM, MBML, RB, UPCEB). Santa Leopoldina, Fazenda Caioaba, propr.: Cláudio Villoni, -20.0594, -40.4730, 29.I.2008, fl., *V. Demuner 4941* (CEPEC, SP, MBML). Santa Teresa, Pedra da Paulista, -19.8338, -40.7933, 17.II.2000, fr., *V. Demuner 769* (CEPEC, SP, MBML); Valsugana Velha, Estação Biológica de Santa Lúcia, 22.II.1994, fr., *C.C. Chamas 116* (CEPEC, MBML). Serra, Jacaraípe, próximo Rio Jacaraípe, fl., *B. Weinberg 693* (CEPEC, MBML).

Hiraea macrophylla is endemic to Brazil and occurs in seasonal semideciduous and ombrophilous forests in the states of Bahia, Espírito

Santo, Rio de Janeiro, and São Paulo (Anderson 2014; Almeida *et al.* 2020). In Espírito Santo, it has been recorded in dense ombrophilous forest and in *restingas* (Fig. 2), and occur in capoeiras, on stream banks and in hillside forests on rocky outcrops. It has been collected with flowers in January and February and with fruits in February. *Hiraea macrophylla* is distinguished from *H. restingae* by the leaf blades that have several glands on the margins (*vs.* margins 2-glandular) and glabrescent surfaces (*vs.* glabrous surfaces).

1.3. *Hiraea restingae* C.E.Anderson, Edinburgh J. Bot. 71(3): 375. 2014. Fig. 4

Woody lianas; branches sericeous to glabrescent; stipules epipetiole, 1.1–1.6 mm long, subulate, persistent, free. Leaves with petioles 4.8–8.3 mm long, canaliculate, sericeous, 2-glandular at apex; leaf blade 5.9–9.4 × 2.8–4.3 cm, chartaceous, elliptic, base rounded, margin entire, plane, apex rounded, both surfaces glabrous, primary vein abaxially impressed, 2-glandular at base, 2-glandular at margins. Umbels, 2–4-flowered; main axis sericeous; bracts 1.6–2 mm long, eglandular; peduncles 3.8–4.3 mm long; bracteoles 0.6–1 mm long, chartaceous, triangular, persistent, eglandular. Flowers with pedicels 4.6–6.1 mm, sericeous; sepals parallel to the androecium, ca. 1.2 × 1.9 mm, apex rounded to slightly acute, adaxially glabrous, abaxially sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, green, ca. 1.5 × 0.6 mm; lateral petals yellow, limb 4–4.3 × 5.4–5.7 mm, orbicular, margins entire, claws ca. 2.4 × 0.3 mm; posterior petal reddish, limb ca. 4.2 × 4 mm, orbicular, margins fimbriate, glandular, claw ca. 3.2 × 0.6 mm; stamens with filaments 2.3–3.2 mm long, connectives glandular, thecae glabrous; ovary ca. 1.2 × 1.1 mm, spherical, sericeous; styles ca. 3.3 × 0.2 mm, arched, divergent, cylindrical, glabrous; stigma lateral, truncate. Mericarp brown when mature, lateral wings ca. 2.4 × 1.4 cm, membranaceous, glabrescent; nut 3.5–4 mm long, rugose, sericeous.

Specimens analysed: Guarapari, Parque Estadual de Setiba, 6.IX.1990, fl., *O.J. Pereira 2216* (CEPEC, VIES); Parque Estadual Paulo César Vinha, trilha da restinga, -20.6136, -40.4255, 30.I.2012, fl., *R.F. Almeida 542* (SP). Linhares, Reserva Natural da CVRD, Aceiro Marco de Ferro, 20.I.2012, fl., *R.F. Almeida 518* (SP).

Additional specimens analysed: BRAZIL. RIO DE JANEIRO: Saquarema, restinga de Ipitangas, 25.XI.1988, fr., *M.F. Freitas 17* (RB).

Hiraea restingae is endemic to Brazil and occurs in *restingas* vegetation in the states of Bahia,



Figure 3 – a-c. *Hiraea macrophylla* – a. fruiting branch; b. detail of the mericarps in side view; c. flower in frontal view (Photographs: a-b. J.M.V. Braga; c. B. Mosta).



Figure 4 – a-d. *Hiraea restingae* – a. flowering branch; b. detail of flower in frontal view; c. flower in side view; d. winged mericarp in frontal view (Photographs by R.F.Almeida).

Espírito Santo, and Rio de Janeiro (Anderson 2014; Almeida *et al.* 2020). In Espírito Santo, it occurs in *tabuleiro* forests and in *restingas* (Fig. 2). It has been collected with flowers in January and September; the fruits are unknown for the state of Espírito Santo. *Hiraea restingae* resembles *H. macrophylla* (see comments under *H. macrophylla* for additional information).

2. *Lophopterys floribunda* W.R.Anderson & C.C.Davis, Contr. Univ. Michigan Herb. 23: 92-93, f. 1. 2001. Fig. 5

Woody lianas; branches quadrangular, sericeous; stipules epipetiolar, absent to vestigial, free. Leaves with petioles 10–17 mm long, canaliculate, sericeous, eglandular or 4-glandular at apex; leaf blade 11–17.2 × 4.1–6.3 cm, chartaceous, oblong to elliptic, base rounded, margin entire, plane, apex mucronate, adaxially glabrescent to glabrous, abaxially sericeous, primary vein abaxially impressed, eglandular. Thyrses of 1-flowered cincinni, solitary to arranged in secondary thyrses, 20–144-flowered; main axis sericeous; bracts 1.2–1.8 mm long, chartaceous, triangular, persistent, eglandular; peduncles 0.8–1.4 mm long, glabrous; bracteoles 1.8–2.5 mm long, chartaceous, triangular, persistent, eglandular. Flowers with pedicels 2.6–3.4 mm long, sericeous; sepals adpressed to the androecium, 1.9–2 × 1.3–1.6 mm, apex rounded to acute, adaxially glabrous, abaxially sericeous, the lateral four 1-glandular, the anterior eglandular; elaiophores 4, green, 0.7–1.3 × 1–2 mm; margin erose; lateral petals yellow, limb ca. 5.6 × 4.4 mm, orbicular, margin erose, claws ca. 0.8 × 0.3 mm; posterior petal yellow, ca. 4.1 × 3.2 mm, orbicular, margin erose, claw ca. 3 × 0.7 mm; stamens with filaments 1.3–1.6 mm long, connectives glandular, thecae glabrous; ovary ca. 1.2 × 1 mm, spherical, sericeous; styles ca. 1.8 × 0.1 mm, arched, divergent, cylindrical, sparsely sericeous; stigmas lateral, truncate. Mericarps winged, brown when mature, chartaceous, sericeous; dorsal wing reduced; lateral wings 2, V-shaped, 2.5–3 × 0.7–0.9 cm; nut 7.1–7.5 mm long, slightly striated, sericeous.

Specimens analysed: Alegre, área antropizada, cong. 106 sub. 3 subsp. 10 Na.7RN, -20.7635, -41.5331, 30.X.2014, fl. and fr., *A.A. de Oliveira* 35 (VIES). Barra de São Francisco, Parque Ecológico Sombra da Tarde, 12.IX.1998, fl., *S.L. Mendes* (CEPEC 79889, MBML 7748, UESC 8462); 21.XI.2000, fr., *L. Kollmann* 3267 (CEPEC, MBML, SP, UESC). Colatina, Boa Esperança (Torre 37/1 - LT 230 Kv Mascarenhas x Verona), -19.2877, -40.6564, 16.VII.2008, fl., *A.M. Assis* 1719 (MBML, VIES). Conceição da Barra, Reserva Biológica do Córrego Grande, 1.X.2008, fl., *O.J. Pereira et al.* 7663 (SAMES, VIES); estrada de Dourados, Vale do Itaúnas, 8.XI.1953, fl., *A.P. Duarte* (CEPEC 56965, RB 215064). Governador Lindemberg, propriedade de José Antônio, -19.2329, -40.4810, 22.VIII.2006, fl., *V. Demuner et al.* 2671 (CEPEC, MBML, SP, VIES). Itarana, fazenda Guandú, nas proximidades de Itarana, 11.X.2000, *E.R. Salviani & H. Lorenzi* 1632 (HPL). Nova

Venécia, Área de proteção Ambiental Pedra do Elefante, -18.8044, -40.4697, 9.V.2008, fr., *A.M. Amorim et al. 7412* (MBML, RB, UPCB). Pinheiros, canal do Rio Itauninhas, barragem, -18.4900, -40.2201, 13.IX.2015, fl., *G.S. Siqueira et al. 1095* (CVRD, HUEFS, RB); Reserva Biológica Córrego do Veado, estrada à esquerda da sede da REBIO, 18.IX.2010, fl., *M. Ribeiro 267* (SAMES, VIES). Santa Leopoldina, Colina verde, Morro do Agudo, -20.1061, -40.4348, 29.VIII.2007, fl., *R.R. Vervloet et al. 3342* (CEPEC, MBML, SP, VIES). Santa Teresa, Várzea Alegre, Cachoeira do Madalão, 30.VII.2001, fl., *L. Kollmann et al. 4459* (CEPEC, MBML, SP, UESC); estrada de Tabocas para Várzea Alegre, 10.XI.1998, fr., *L. Kollmann et al. 934* (CEPEC, MBML, SP, UESC); fl., *L. Kollmann et al. 926* (CEPEC, MBML); São Sebastião, propriedade Djalma Novelii, 26.IX.2000, fr., *V. Demuner et al. 1416* (CEPEC, MBML, UESC); São Roque, Santa Luzia, -19.0402, -40.7505, 24.XI.2007, fr., *M. Simonelli et al. 1299* (CEPEC, MBML, SP). São Gabriel da Palha, norte do Rio Doce, IX.1949, fl., *J. Viera & J. Mendonça 33* (RB).

Lophopterys floribunda is endemic to Brazil and occurs in the states of Amazonas, Pará, Amapá, Bahia, Minas Gerais, and Espírito Santo (Anderson & Davis 2001; Almeida *et al.* 2020). It is well represented in the state, where it occurs in seasonal semideciduous forest, dense ombrophilous forest and *restingas* of pioneer formations (Fig. 2). It inhabits hillside areas, forest edges, *muçunungas*, forests in initial and medium stages of regeneration, rocky outcrops and *tabuleiro* forests. It has been collected with flowers from July to October and with fruits from May to September and in November. *Lophopterys floribunda* is distinguished from the remaining species of Malpighiaceae in Espírito Santo by the quadrangular branches, 1-glandular sepals, and V-shaped, winged mericarps.

Malpighioid clade *sensu* Almeida & van den Berg (2021).

3. *Amorimia maritima* (A.Juss.) W.R.Anderson, *Novon* 16(2): 181. 2006. Fig. 6

Woody lianas; branches glabrous; stipules interpetiolar, 0.2–0.5 mm long, triangular, deciduous, free. Leaves with petioles 3.6–10 mm long, canaliculate, glabrous, eglandular; leaf blade 2.8–11.4 × 5.7–16.9 cm, chartaceous, elliptic, base acute, margin entire, plane, apex acute, both surfaces glabrous, primary vein impressed on both surfaces, 2-glandular near base. Thyrses of 1-flowered cincinni, solitary or secondarily arranged in thyrses, 10–45-flowered; main axis

sericeous to velutinous; bracts 3.6–4.6 mm long, chartaceous, lanceolate, persistent, 2-glandular near margins; peduncle 2.6–4.7 mm long; bracteoles 1.6–2.3 mm long, chartaceous, oblanceolate to lanceolate, persistent, eglandular. Flowers with pedicels 2.8–5.1 mm long, sericeous; sepals adpressed to the androecium, 2.8–3 × 1.1–1.3 mm, apex rounded, both surfaces sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, green-yellowish at pre-anthesis, reddish post-anthesis, 2.7–2.9 × 0.9–1.4 mm; lateral petals yellow to reddish at post-anthesis, limb ca. 5.4 × 2.8 mm, ovate to elliptic, margin erose, claws ca. 1.5 × 0.3 mm; posterior petal yellow to reddish at post-anthesis, ca. 5.7 × 3.3 mm, ovate to elliptic, margin erose, claw ca. 1.7 × 0.5 mm; stamens with filaments 1.8–2 mm long, connectives glandular, thecae pubescent at base; ovary ca. 1.2 × 1.7 mm, conical, sericeous; styles ca. 1.3 × 0.4 mm, free, erect, divergent, cylindrical, glabrous; stigma lateral, truncate. Mericarps winged, brown when mature, lateral wings 2, more developed than the posterior one, 1–2.1 × 1.3–3.1 cm, chartaceous, sericeous to glabrescent; dorsal wing reduced, sericeous; nut 5.6–12 mm long, rugose, sericeous to glabrescent.

Specimens analysed: Fazenda Boa Lembrança, 9.IV.1984, fl., *C. Dobereiner 1774* (RB). Alegre, São João do Norte, Base da Pedra Severina, 25.VI.2008, fr., *L. Kollmann 11066* (MBML, VIES); 17.III.2009, fl., *D.R. Couto 1130* (MBML, SP, VIES). Aracruz, Aricanga, 4.III.2018, fl., *T.F. Sagrillo 301* (MBML). Cachoeiro do Itapemirim, Sítio do Remy, 4.II.1991, fl., *P.C. Vinha 1204* (CEPEC, VIES). Colatina, VI.1984, fr., *C. Dobereiner 1765* (MO, NY). Linhares, 6.VIII.1990, fl. (VIES 4346); Bebedouro, 26.VIII.1981, fr., *C. Dobereiner 1677* (CEPEC, K, RB, UB). Mimoso do Sul, Fazenda Gabiroba, -21.2100, -41.3572, 2.IV.2001, fl., *F.B. Pereira* (RFA 27435). Nova Venécia, Área de Proteção Ambiental da Pedra do Elefante, -18.7670, -40.4576, 26.IV.2010, fr., *A.M. Assis 2509* (MBML, VIES); -18.7669, -40.4577, 10.V.2008, fl., *A.M. Amorim 7425* (CEPEC, MBM, MBML, RB, UPCB); fr., *A.M. Amorim 7426* (CEPEC, MBML, RB, SP); -18.7769, -40.4438, 17.VIII.2008, fr., *A.M. Amorim 7529* (CEPEC, MBM, MBML, RB, UPCB); Serra de Baixo, Mata da Fazenda Santa Rita, -18.7777, -40.4444, 15.IV.2009, fr., *R.C. Forzza 5534* (MBM, MBML, RB, UPCB); Serra de Cima (Torre 98/3 - LT230kv Mascarenhas x Verona), -18.3130, -40.4822, 25.IV.2008, fl. and fr., *A.M. Assis 1512* (MBML, SP, VIES); trilha Pedra do Elefante, 16.III.2015, fl., *N.T.L. Pena 116* (VIES); trilha principal na Mata da Fazenda Santa Rita, -18.3130, -40.4822, 16.VII.2008, fr., *A.M. Amorim 7512* (CEPEC, RB); -18.7825, -40.4327, fr., *A.M. Amorim 7513* (MBM). Santa Teresa, Escola

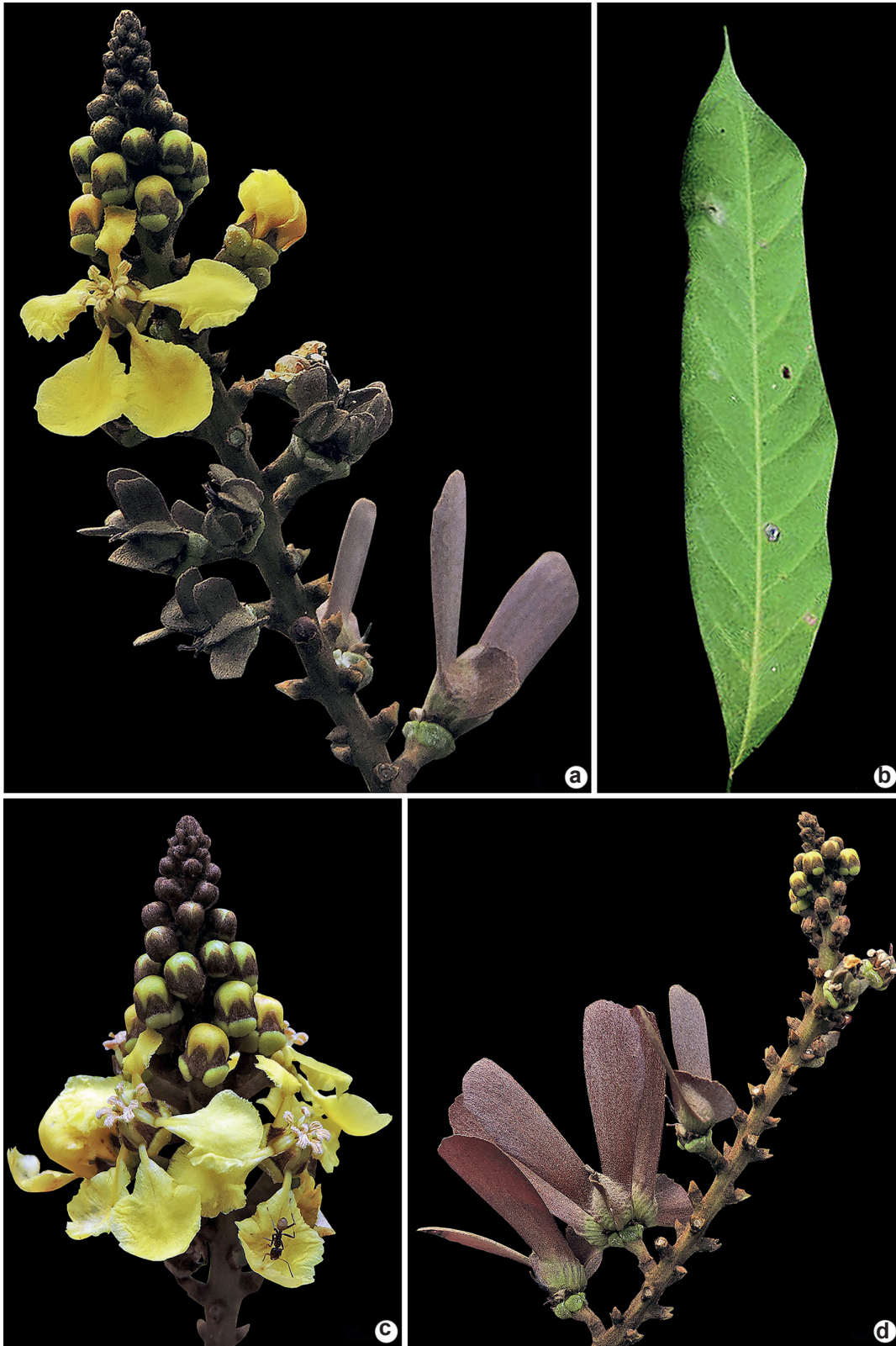


Figure 5 – a-d. *Lophopterys floribunda* – a. flowering and fruiting branch; b. detail of the abaxial surface of a leaf; c. flowers in side view; d. winged mericarps in frontal and side view (Photographs by G. Shimizu).

Agrotécnica Federal de Santa Teresa, 12.V.1999, fl. and fr., *W.P. Lopes 698* (CEPEC, HUEFS, MBML, SP); Mata do Sr. Fausto (Várzea Alegre), fundos do patrimônio, -19.895, -40.7627, 30.I.2002, fl. and fr., *M. Groppo 983* (CEPEC, K, SP, SPF); Pedra da onça, propriedade

de Antônio Rocon, 13.VI.2000, fr., *V. Demuner 1101* (CEPEC, HUEFS, MBML, SP); Rio Saltinho, beira da estrada fundão-Santa Teresa, 29.V.2001, fr., *L. Kollmann 3726* (CEPEC, MBML, SP); São João de Petrópolis, Ifes campus Santa Teresa, mata do São Brás, abaixo do ponto



Figure 6 – a-d. *Amorimia maritima* – a. flowering branch; b. detail of an inflorescence with unpollinated yellow flowers and pollinated red flowers; c. flower in frontal view; d. winged mericarp in frontal view (Photographs: a-c. F. Flores; d. C.S. Pessoa).

de captação de água, -19.8025, -40.6888, 2.IX.2015, fr., *E.F. Oza 1* (MBML). São Mateus, 24.V.1998, fr., *J. Dobereiner 2009* (NY); 19.VI.1999, fr., *J. Dobereiner 2016* (NY); Fazenda Córrego Grande, 18.VI.1984, fl. and fr., *C. Dobereiner 1773* (K, NY, RB); Fazenda Pedra Linda, 17.VI.1984, fl., *C. Dobereiner 1771* (RB, SP). Serra, Área de Proteção Ambiental do Mestre Álvaro, 15.II.2013, fl., *P.H.D. Barros 161* (VIES); 15.II.2013, fl., *P.H.D. Barros 160* (HUEFS, VIES); Mestre Álvaro, -20.1285, -40.3078, 23.III.2010, fl., *A.M. Assis 2342* (VIES); 14.VI.2010, fr., *R.S. Cribari 11* (VIES). Sooretama, Reserva Biológica de Sooretama, Lagoa do Macaco, 15.V.1977, fl., *G. Martinelli 2232* (RB); fl., *G. Martinelli 2240* (RB); fl. and fr., *G. Martinelli 2248* (HUEFS, NY, RB); sentido próx. à ponte Córrego Rodrigues dentro da REBIO, estrada Municipal da REBIO, -19.0268, -40.2278, 13.VIII.2010, fr., *G.S. Siqueira 561* (CEPEC, CVRD, HUEFS, RB, SP). Vila Velha, Morro da Mantegueira, 18.X.1992, fl., *J.M.L. Gomes 1776* (VIES). Vitória, Parque Estadual da Fonte Grande, 12.VI.2003, fl., *O.J. Pereira 7179* (VIES).

Amorimia maritima is endemic to the Atlantic Forest of Brazil and occurs in seasonal semideciduous forests and ombrophilous forests in the states of Sergipe, Bahia, Espírito Santo, and Rio de Janeiro (Almeida 2018; Almeida *et al.* 2020). It is a well-collected species in the state, with records for both edge and canopy areas within seasonal semideciduous forest and dense ombrophilous forest (Fig. 7), including many records from *tabuleiro* forests. It has been collected with flowers from January to June, and in August and October, and with fruits in January and from April to September. *Amorimia maritima* is morphologically

similar to species of *Mascagnia*, but it can be distinguished by the leaves that are glabrous on both surfaces (*vs.* variously pubescent leaves in *Mascagnia*), bracts and bracteoles 2–3-glandular (*vs.* 0–1-glandular in *Mascagnia*), and mericarps with chartaceous, free wings (*vs.* membranaceous and fused in *Mascagnia*).

4. *Mascagnia* (Bertero *ex* DC.) Bertero, Hortus Ripul. 85. 1824.

Woody lianas; stipules interpetiolar. Leaves with petioles 0–2-glandular; leaf blade with margin plane, primary vein impressed to slightly abaxially canaliculate, 2–4-glandular abaxially or 4-glandular near margin. Thyrses, corymbs to umbels of 1-flowered cincinni, 1–67-flowered; bracts and bracteoles eglandular to 1-glandular, persistent. Flowers with sepals parallel to adpressed to the androecium, 2-glandular; elaiophores 8. Mericarps winged, lateral wings 2, fused into an orbicular wing, membranaceous, sericeous to glabrescent; dorsal wing reduced to a winglet.

Mascagnia is distinguished from the remaining genera of Malpighiaceae in the state of Espírito Santo by the winged mericarps with orbicular, membranaceous lateral wings (Almeida *et al.* 2016). The genus is exclusively neotropical, distributed from Mexico to northern Argentina and comprises ca. 40 species (Anderson 2001). In Brazil, there are 19 species (Almeida *et al.* 2020), of which three species are found in Espírito Santo.

Identification key to the species of *Mascagnia* in the state of Espírito Santo

1. Branches, petioles, and leaf blades velutinous..... 4.3. *Mascagnia velutina*
- 1'. Branches, petioles, and leaf blade sericeous, sparsely sericeous, tomentose to glabrescent.
 2. Petioles 5–8.5 mm long, 2-glandular at apex; leaf blade 5.2–11.8 × 3.2–7.6 cm, elliptic to ovate 4.2. *Mascagnia sepium*
 - 2'. Petioles ca. 15 mm long, eglandular; leaf blade ca. 4.9 × 4.4 cm, orbicular 4.1. *Mascagnia cordifolia*

4.1. *Mascagnia cordifolia* (A.Juss.) Griseb., *Flora brasiliensis* 12(1): 95. 1858. Fig. 8

Woody lianas; branches sericeous; stipules interpetiolar, 1.3–2 mm long, narrowly triangular, persistent, free. Leaves with petioles ca. 15 mm long, canaliculate, sericeous, eglandular; leaf blade ca. 4.9 × 4.4 cm, chartaceous, orbicular, base rounded, margin entire, plane, apex rounded to mucronate, both surfaces sericeous, primary and secondary veins slightly abaxially impressed, 4-glandular, abaxially near margin. Thyrses,

18–67-flowered; main axis sericeous; bracts 2.6–3.1 mm long, chartaceous, narrowly triangular, persistent, eglandular; peduncles 2.5–3 mm long; bracteoles 0.6–1.2 mm long, chartaceous, narrowly triangular, persistent, eglandular. Flowers with pedicels 2.1–2.4 mm long, sericeous; sepals adpressed to the androecium, ca. 2.3 × 1.2 mm, apex rounded, adaxially glabrous, abaxially sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, yellow, ca. 1.8 × 0.5–0.8 mm; lateral petals pink, limb 4.2–4.5 ×

3.1–3.3 mm, elliptic, margin erose, claws ca. 1 × 0.2 mm; posterior petal pink, limb ca. 4.3 × 3.4 mm, elliptic, margin erose, claw ca. 1.6 × 0.4 mm; stamens with filaments ca. 1.3 mm long, connectives glandular, thecae glabrous; ovary ca.

1.2 × 1.4 mm, ovoid, sericeous; styles ca. 1.9 × 0.2 mm, erect, diverging, cylindrical, glabrous; stigma lateral, truncate. Mericarps with lateral wings ca. 0.9 × 1.6 cm, glabrescent; nut 2.5–3.3 mm long, rugose, sericeous.

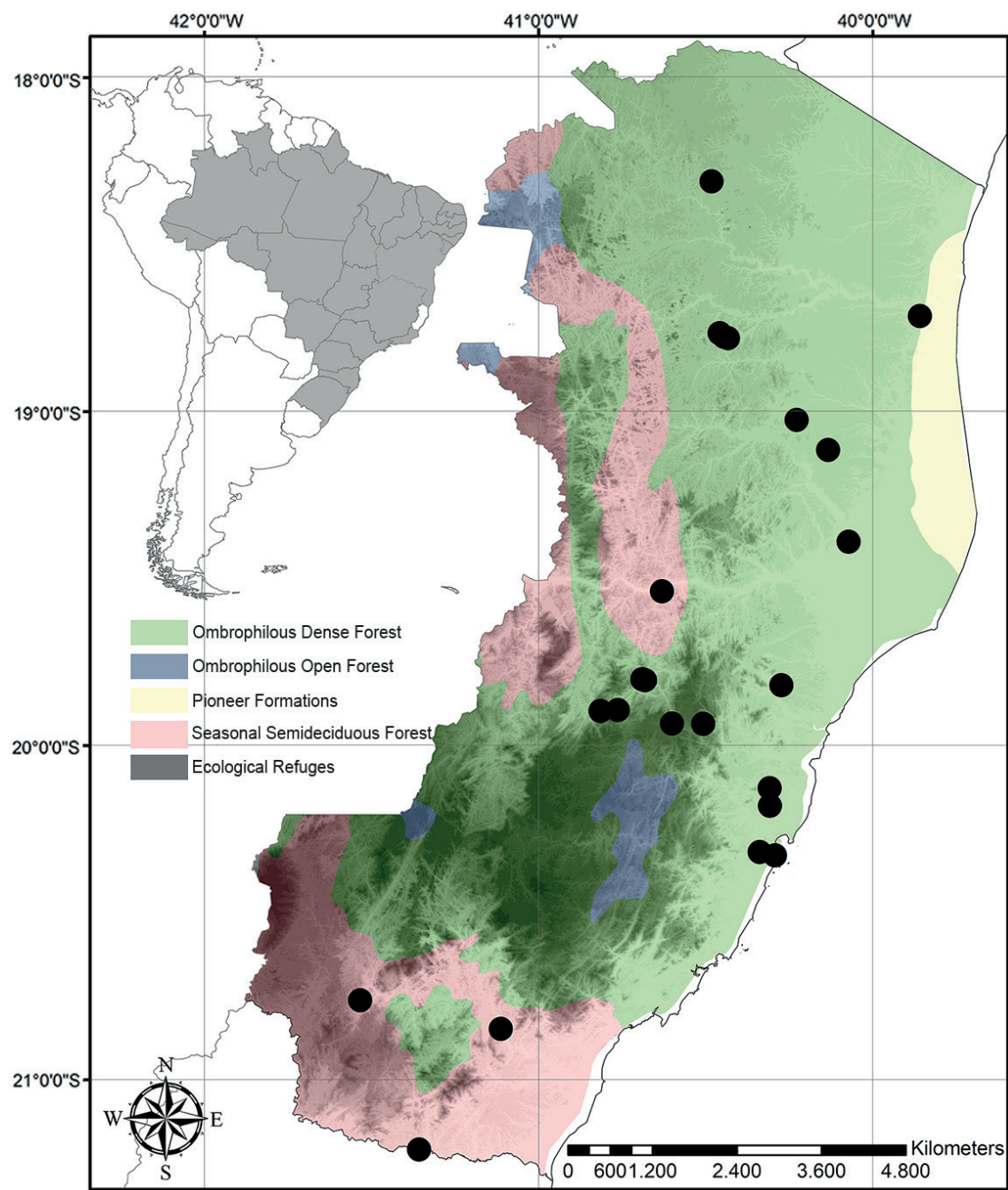


Figure 7 – Distribution map of *Amorimia maritima* (black circles). Shades of black in the background represent montane relief. Pink = seasonal semideciduous forest; Green = ombrophilous dense forest; Blue = ombrophilous open forest; Yellow = pioneer formations.

Specimens analysed: Conceição da Barra, Reserva Biológica Córrego Grande, km 4 da estrada do perímetro, 23.I.2012, fl., *R.F. Almeida et al. 534* (SP). Linhares, Reserva Natural da CVRD, estrada Santa Terezinha, km 0,4, 18.I.2001, fl., *D.A. Folli 3809* (CEPEC, CVRD, RB, SP), estrada Gavião Real,

-19.1513, -40.0663, 4.I.2018, fl. and fr., *G.S. Siqueira 1237* (CVRD, RB). Sooretama, Reserva Natural Vale, estrada Aceiro Bobbio, -19.1310, -40.0760, 13.II.2012, fr., *G.S. Siqueira 716* (CEPEC, CVRD, RB). Sooretama: Reserva Natural Vale, Estrada Aceiro Bobbio, 13.II.2012, fr., *G.S. Siqueira 716* (RB).

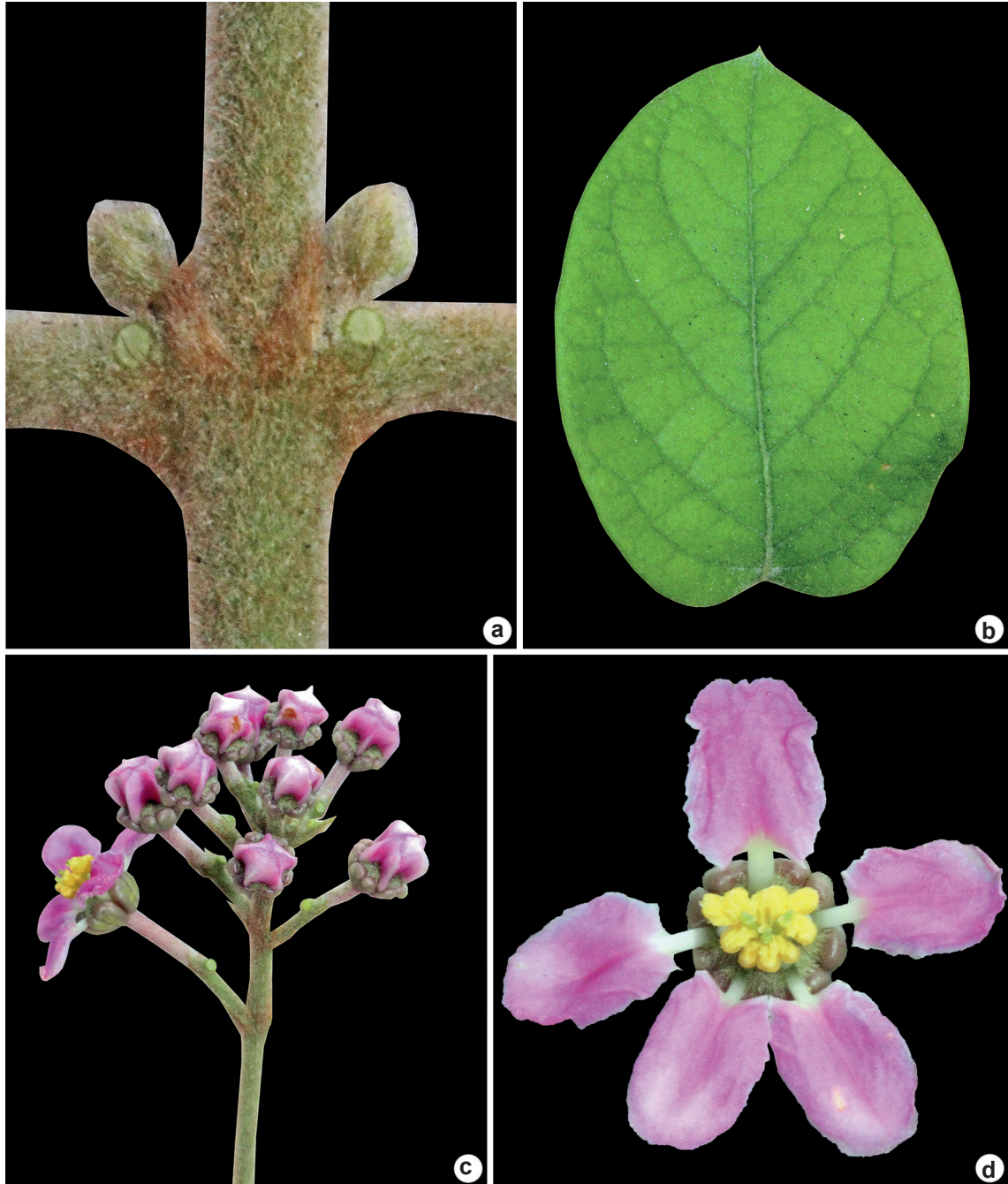


Figure 8 – a-d. *Mascagnia cordifolia* – a. detail of interpetiolar stipules; b. detail of the adaxial surface of a leaf; c. inflorescence; d. flower in frontal view (Photographs: M.O.O. Pellegrini).

Mascagnia cordifolia occurs in savannas in Bolivia and Brazil in the states of Acre, Amazonas, Rondônia, Pará, Tocantins, Mato Grosso, Mato Grosso do Sul, Goiás, Distrito Federal, Minas Gerais, São Paulo, Rio de Janeiro, Espírito Santo, Bahia,

Maranhão, Paraíba and Pernambuco (Anderson & Davis 2005; Almeida *et al.* 2020). In Espírito Santo, it has been recorded in *tabuleiro* forests in the northern region of the state (Fig. 9). It has been collected in seasonally dry forests with flowers in

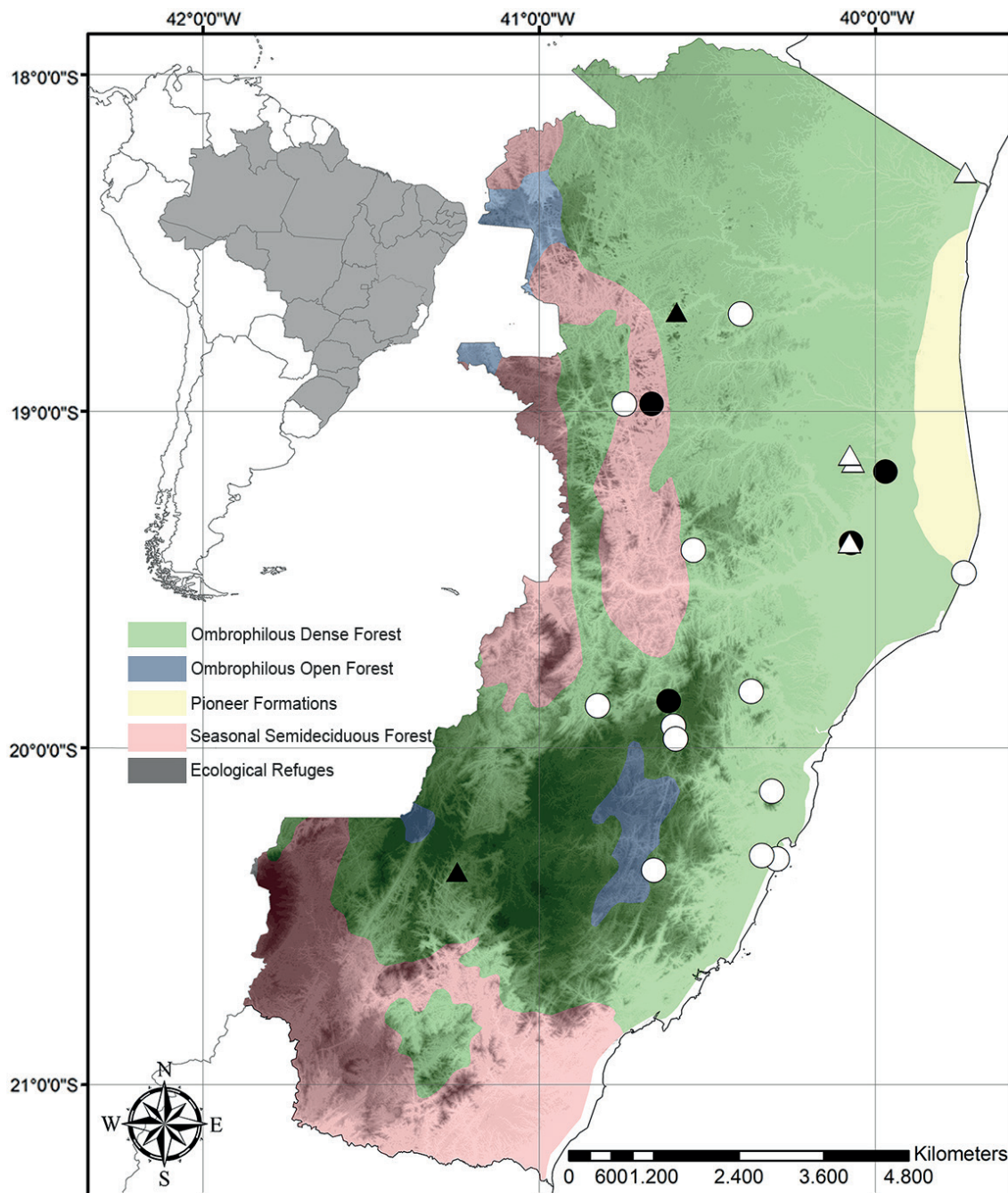


Figure 9 – Distribution map of *Mascagnia cordifolia* (white triangles), *Mascagnia sepium* (black circles), and *Mascagnia velutina* (white squares). Shades of black in the background represent montane relief. Pink = seasonal semideciduous forest; Green = ombrophilous dense forest; Blue = ombrophilous open forest; Yellow = pioneer formations.

January and with fruits in January and February. *Mascagnia cordifolia* is distinguished from the remaining species of *Mascagnia* in Espírito Santo by the orbicular leaves and lax thyrses. A study focused on the *Mascagnia cordifolia* group (Anderson 2005) sampled a single specimen from the state of Espírito Santo and found that its indument is not as dense and erect as that in other populations of this species. Local name: mucunã-borboleta.

4.2. *Mascagnia sepium* (A.Juss.) Griseb., *Flora brasiliensis* 12(1): 96. 1858. Fig. 10a-c

Woody lianas; branches sericeous to glabrescent; stipules interpetiolar, 1.3–1.6 mm long, narrowly triangular, persistent, free. Leaves with petioles 5–8.5 mm long, canaliculate, sericeous, 2-glandular at apex; leaf blade 5.2–11.8 × 3.2–7.6 cm, membranaceous, elliptic to ovate, base obtuse to subcordate, margin entire, plane, apex acute to acuminate, both surfaces sparsely sericeous to glabrescent, primary vein slightly adaxially canaliculate, 2–4-glandular abaxially, near margin. Corymb, 6–12-flowered; main axis sericeous; bracts 1.4–2 mm long, chartaceous, triangular, persistent, eglandular; peduncles 2.2–3 mm long, sericeous; bracteoles 0.6–1.3 mm long, chartaceous, narrowly triangular, persistent, 1-glandular. Flowers with pedicels 6.1–8.3 mm long, sericeous; sepals adpressed to the androecium, ca. 16 × 12 mm, apex acute to rounded, adaxially glabrous, abaxially sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, green-yellowish, ca. 1.6 × 0.5 mm; lateral petals yellow, limb ca. 3.9 × 2.4 mm, ovate, margin entire, claws ca. 1.2 × 0.1 mm; posterior petal yellow, limb ca. 3.3 × 2.8 mm, ovate, margin entire, claw ca. 1.2 × 0.4 mm; stamens with filaments 0.9–1.1 mm long, connectives glandular, thecae glabrous; ovary ca. 1.2 × 1.2 mm, spherical, sericeous; styles ca. 2.8 × 0.1 mm, erect, diverging, cylindrical, glabrous; stigmas lateral, truncate. Mericarps light-green when mature, lateral wings ca. 0.8 × 1.5 cm, sericeous; nut 2.2–3.7 mm long, smooth, sericeous. **Specimens analysed:** Águia Branca, Santa Luzia, prop.: Ciro Ferreira, -18.9780, -40.6655, 27.IV.2006, fl., *V. Demuner et al.* 2264 (MBML); Sr. Voito, -18.9784, -40.7470, 22.XI.2007, fr., *V. Demuner et al.* 4581 (MBML). Domingos Martins, arredores da cidade, 11.XI.1986, fl., *G. Hatschbach & J.M. Silva* 50776 (CEPEC, MBM, MO, US). Ibirapu, rod. BR-101, 16.VI.1985, fl., *G. Hatschbach & J.M. Silva* 49433 (MBM, MO, UPCEB). Linhares, Cacimbas, ponto de amostragem 6, -19.4802, -39.7372, 24.X.2019, fl. and fr., *A.D. Firmino et al.* 1442 (VIES); para Povoação, plantação de cacau, 26.XI.1973,

fr., *R.S. Pinheiro & T.S. dos Santos* 2300 (SPF); Reserva Florestal de Linhares, estrada Jueirana Vermelha, final da estrada próximo ao Rio Barra Seca, fr., 7.X.1996, *D.A. Folli* 2794 (CEPEC, CVRD, SP, US); Reserva Natural da Vale do Rio Doce, aceiro Catelã João Pedro, -19.1792, -39.9699, 20.IX.2012, *G.S. Siqueira* 567 (CVRD, SP). Marilândia, ES-356, saída da cidade atrás da serralheria, 10.10.2015, *R.F. Almeida* 822 (HUEFS). Nova Venécia, norte do Espírito Santo, fl., 18.XI.1954, *A.P. Duarte & J.C. Gomes* 3740 (RB). Santa Teresa, Aparecidinha, terreno de Bringhenti, 16.XII.1998, fl., *L. Kollmann et al.* 1348 (CEPEC, MBML); 16.VI.1999, fr., *L. Kollmann et al.* 2585 (CEPEC, MBML); 3.XI.1999, fl. and fr., *V. Demuner et al.* 215 (CEPEC, MBML, SP); beira da estrada p/o 25 de Julho, 3.XII.1998, fr., *L. Kollmann et al.* 1213 (MBML); estrada da Pedra do Cruzeiro para Pedra da Onça, 10.XI.1998, fl., *L. Kollmann et al.* 956 (MBML); Pedra do Cruzeiro, -19.8744, -40.8261, 24.XI.2007, fl., *M. Simonelli et al.* 1334 (CEPEC, MBML); São Lourenço, Country Club, na trilha no alto da cachoeira, 15.XII.1998, fl., *L. Kollmann et al.* 1308 (CEPEC, HUEFS, MBML, SP). Serra, APA Mestre Álvaro, 4.XI.2012, fl. and fr., *P.H.D. Barros & D.T. Iglesias* 127 (VIES); Nova Almeida, 5.II.1984, fr., *B. Weinberg* 680 (CEPEC, MBML). Vila Velha, Morro do Moreno, face sul, próximo à estrada, -20.3297, -40.2924, 15.XII.2016, fl. and fr., *D.T. Wandekoken* 187 (SAMES, VIES). Vitória, Goiabeiras, Campus da UFES, mata, 26.VIII.1985, fl., *O.J. Pereira* 299 (VIES); mata da caixa d'água, 18.XI.1994, fl., *C.N. de Fraga & G.O. Pinto* 69 (CEPEC, MBML).

Mascagnia sepium is endemic to Brazil and occurs in rainforests in the states of Amazonas, Pará, Tocantins, Goiás, Mato Grosso, Mato Grosso do Sul, Distrito Federal Ceará, Maranhão, Piauí, Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Sergipe, Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná and Santa Catarina (Almeida *et al.* 2020). In the state, it is found in dense and open ombrophilous forests, and in *restingas* of pioneer formations, in the interior and on the edges of forests, on rocky outcrops and in *capoeiras* (Fig. 9). It has been collected with flowers in April, June, August, October, November and December and with fruits in February, October, and December. *Mascagnia sepium* is distinguished from the remaining species of *Mascagnia* in Espírito Santo by the sericeous branches and leaves (*vs.* velutinous).

4.3. *Mascagnia velutina* C.E.Anderson, *Brittonia* 53(3): 414. 2001. Fig. 10d-f

Woody lianas; branches velutinous; stipules interpetiolar, 0.8–1.1 mm long, triangular, persistent, free. Leaves with petioles 7–13 mm long, canaliculate, velutinous, 2-glandular at apex; leaf blade 6.8–8.1 × 3.8–4.9 cm, chartaceous, ovate to elliptic, base rounded, margin entire, plane, apex acuminate to mucronate, both surfaces velutinous,

primary vein abaxially impressed, 2–4-glandular abaxially. Thyrses, 14–30-flowered; main axis velutinous; bracts 1.3–2.2 mm long, chartaceous, subulate, persistent, eglandular; peduncles 0.4–0.6 mm long, velutinous; bracteoles 0.5–1 mm long, chartaceous, triangular, persistent, eglandular.

Flowers with pedicels 0.6–0.8 mm long, sericeous; sepals parallel to the androecium, ca. 1.4×1 mm, apex acute, adaxially glabrous, abaxially sericeous, the lateral four 2-glandular, the anterior eglandular; elaiophores 8, green, ca. 1.6×0.4 mm; lateral petals yellow, limb ca. 3.3×2.3 mm, orbicular,

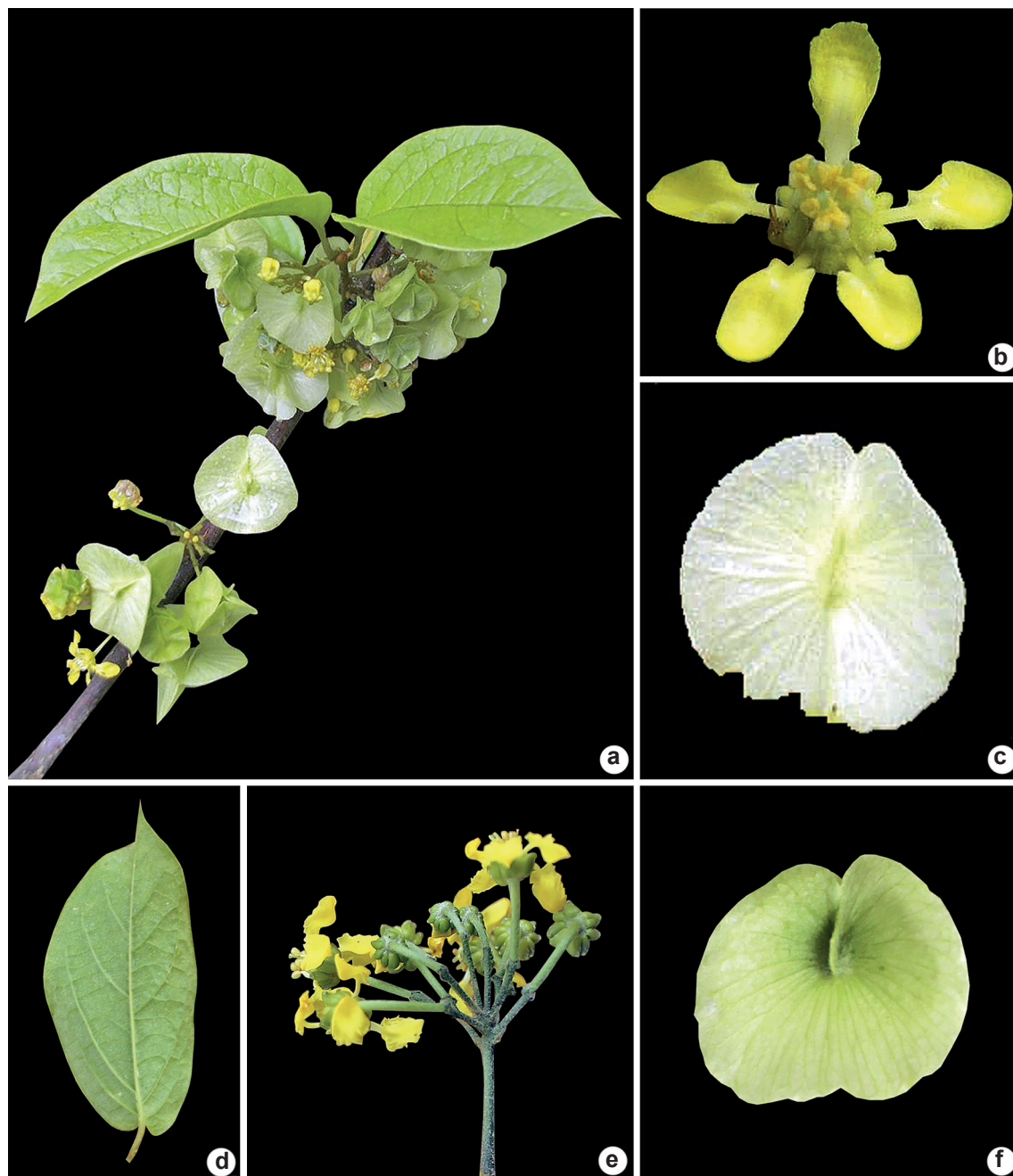


Figure 10 – a-c. *Mascagnia sepium* – a. flowering and fruiting branch; b. flower in frontal view; c. winged mericarp in frontal view (Photographs: P.H.D.Barros). d-f. *Mascagnia velutina* – d. leaf in abaxial view; e. inflorescence; f. winged mericarp in frontal view (Photographs: R.F.Almeida).

margin erose, claws ca. 1.1×0.1 mm; posterior petal yellow, limb ca. 3.5×2.7 mm, orbicular, margin erose, claw 1.3×0.3 mm; stamens with filaments 1–1.1 mm long, connectives glandular, thecae glabrous; ovary ca. 1.1×1.1 mm, spherical, sericeous; styles ca. 2.5×0.1 mm, erect, diverging, cylindrical, glabrous; stigma lateral, truncate. Mericarps brown when mature, lateral wings $1.4\text{--}2.4 \times 0.4\text{--}1.1$ cm, sericeous; nut $0.5\text{--}0.7$ mm long, striated, sericeous.

Specimens analysed: Conceição do Castelo, Alto Bananal, 18.X.1995, fl., *G. Hatschbach & F.J. Zelma 49939* (CEPEC, INPA, MBM, RB, SP, UPCB, US). Vila Pavão, Barra da Rapadura, fazenda do Sr. Wagner Scardini, -18.705, -40.5911, 16.II.2014, fr., *R.C. Forzza et al. 7834* (CEPEC, SP, RB, VIES).

Mascagnia velutina is endemic to Brazil and occurs in seasonal semideciduous forests and ombrophilous forests in the states of Minas Gerais, São Paulo, Rio de Janeiro, and Espírito Santo (Almeida *et al.* 2020). In Espírito Santo, it is known from only two collections in dense ombrophilous forest (Fig. 9), on rocky outcrops and in secondary forest. It is regarded as endangered by Fraga *et al.* (2019). It has been collected with flowers in October and with fruits in February. *Mascagnia velutina* is distinguished from the remaining species of *Mascagnia* in Espírito Santo by the velutinous indument on the branches and leaves.

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