



Flora of Espírito Santo: Chrysobalanaceae

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- Atlantic Forest
- Malpighiales
- taxonomy
- systematics

Palavras-chave:

- Mata Atlântica
- Malpighiales
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Abstract

Chrysobalanaceae is a botanical family with a pantropical distribution, with its center of diversity in the Neotropics. In Brazil the family is present in the six Brazilian biomes, with 280 species, and the Atlantic Forest is an important dispersal center, with 67 species. This article listed and described Chrysobalanaceae species occurring in Espírito Santo state using herbarium (540 specimens examined) and field collections. Thirty-four species are recognized here, circumscribed in 9 genera. Linhares, Conceição da Barra and Santa Teresa are the municipalities with the highest number of taxa. *Licania* and *Hirtella* are the genera with most species, 12 and 10 respectively, while *Chrysobalanus*, *Exellodendron*, *Hymenopus* and *Parinari* have only one species each. *Leptobalanus turbinatus* is herein first reported for the state. The species *Couepia carautae*, *Hirtella parviunguis* and *Licania areolata* are here confirmed as endemic to Espírito Santo state. Identification keys, species descriptions, notes, photographs and occurrence maps are presented.

Resumo

Chrysobalanaceae é uma família botânica de distribuição Pantropical, com centro de diversidade na região Neotropical. No Brasil, a família está presente nos seis biomas brasileiros, com 280 espécies, e tem a Mata Atlântica como importante centro secundário de dispersão, onde são reconhecidas 67 espécies. Este trabalho inventariou e descreveu as espécies de Chrysobalanaceae ocorrentes no estado do Espírito Santo a partir de análises das coleções dos herbários (540 espécimes examinados) e coletas de campo. São reconhecidas 34 espécies circunscritas a 9 gêneros para o estado, sendo Linhares, Conceição da Barra and Santa Teresa os municípios com o maior número de táxons. *Licania* e *Hirtella* são os gêneros com maior número de espécies, 12 e 10 respectivamente, enquanto *Chrysobalanus*, *Exellodendron*, *Hymenopus* e *Parinari* têm apenas uma espécie cada. *Leptobalanus turbinatus* foi reportada pela primeira vez para o estado. As espécies *Couepia carautae*, *Hirtella parviunguis* e *Licania areolata* são confirmadas como endêmicas para o Espírito Santo. A partir da análise morfológica dos espécimes foram elaboradas chaves de identificação, descrições, comentários taxonômicos, ilustrações e mapas de ocorrência.

Original Papers

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Introduction

Described by Robert Brown (1818), the Chrysobalanaceae was established by genera previously circumscribed to Rosaceae, characterized by the presence of a gynobasic style, erect embryo and ovule and a tendency to zygomorphy of the flowers. Dedicated research on the group showed that the similarities are merely superficial, and these families are different and distant groups, phylogenetically and morphologically, that belong to different orders (Prance 1963; Prance & White 1988; APG 1998).

The family includes trees, shrubs and subshrubs, with simple, alternate leaves, with entire margins and stipules, perigynous flowers, with or without petals, the ovary with one to three carpels and a gynobasic style (Prance & Sothers 2003a).

Chrysobalanaceae has a pantropical distribution and comprises ca. 540 species, circumscribed in 27 genera, with higher diversity in the Neotropical region (Prance & Sothers 2003a; Christenhusz *et al.* 2017). In Brazil the family is present in all biomes, with 280 species and 13 genera in total (Sothers *et al.* 2024).

With an area of 46,074,448 km², the state of Espírito Santo (19°18'S, 40°31'W), located fully within the Atlantic Forest biome, is composed of 78 municipalities divided into four mesoregions (IBGE 2021). In the state territory there are 123 protected areas, distributed in continental and marine areas (Rosa *et al.* 2019; MMA 2022).

Due to its geographic position, colonizers limited the occupation of the state to its coast and this allowed the preservation of the innermost portion of the territory (Garbin *et al.* 2017). However, the intense deforestation in the XIX century for wood exploitation, coffee plantations and livestock resulted in a landscape with fragments of different sizes, some of which are currently inside public or private protected areas (Garbin *et al.* 2017; Rosa *et al.* 2019).

Studies show a high species richness in Espírito Santo (BFG 2015). Dutra *et al.* (2015), in the Espírito Santo checklist, indicates the state is in 7th place in angiosperm richness in Brazil, with more than 6,300 species, of which 516 are endemic. However, part of this richness is under some extinction risk as highlighted by Fraga *et al.* (2019), that included 1,431 plant species categorized as “Vulnerable”, “Endangered” or “Critically Endangered”.

For Chrysobalanaceae, Flora e Funga do Brasil lists 30 species and 8 genera in Espírito Santo (Sothers *et al.* 2024). In the checklist for Espírito Santo, 43 species were reported, circumscribed to six genera (*Chrysobalanus* L., *Couepia* Aubl., *Exellodendron* Prance, *Hirtella* L., *Licania* Aubl. and

Parinari Aubl.) (Dutra *et al.* 2015). Flora studies for the family were carried out in different states and regions (*e.g.*, Klein 1984; Prance 1988, 2003, 2007; Neves 1996; Assis 2003; Ottra *et al.* 2008; Hemsing & Romero 2010; Asprino & Amorim 2016; Gomes-Silva *et al.* 2018; Sothers & Prance 2018; Gomes-Silva & Alves 2020; Barros *et al.* 2022). However, specific studies about Chrysobalanaceae, as floristic inventories, were not carried out in Espírito Santo. The aim of this paper is to eliminate this gap, presenting the taxonomic treatment of species from Espírito Santo.

Materials and Methods

Exsiccatae from state collections were analysed (CVRD, MBML, VIES, SAMES) as well as other collections (FCAB, HRJ, RB, R, RBR), and specimens available online (ALCB, CAP, CEN, CEPEC, CESJ, ESA, INPA, HCF, HRCB, HUEFS, K, NY, MO, SP, SPF, SPSF, UEC, UNOP, UPCB) from different platforms (Reflora 2024; SpeciesLink 2024; Global Plants Jstor 2024). Acronyms followed Index Herbariorum (Thiers, continuously updated). 540 specimens were examined. Complementary fieldtrips following the exploratory walking method (Filgueiras *et al.* 1994) were carried out throughout the year of 2023. The collected material was processed following Mori *et al.* (1989) and deposited in RB and SAMES herbaria.

The identification of specimens was based on morphological analyses of herbarium specimens, species original descriptions, comparisons with type specimens and specialized family bibliography (*e.g.*, Prance 1972, 1989; Prance & Sothers 2003a, b). Morphological terminology was based on Harris & Harris (1994), Prance (1972) and Radford *et al.* (1974). When information from the exsiccatae labels such as common name, color of structures (*e.g.*, flower, petals, stamens), DBH (Diameter at Breast Height), and bark texture, were available, these were included in the species descriptions. In species with higher number of collections, one or two specimens of each municipality were selected, to represent the flowers and fruits of the species.

The distribution maps of taxa were made on QGIS (2023), the municipalities were plotted once for each species, using locality information present on exsiccatae labels. The geographic coordinates were inferred using GeoLoc tool (2024). For exsiccatae without available geographic coordinates, these were inferred using GeoLoc tool (2024) or Google Earth (2023) and collection locality descriptions.

As *Moquilea tomentosa* Benth. is a cultivated species in Espírito Santo, as well as in other states, it was not described here. However, it was included in the identification key for the genus, marked with an asterisk (*).

Results and Discussion

Taxonomic treatment

Nine genera of Chrysobalanaceae were recorded in Espírito Santo state, with thirty-four species in total. There are records of species occurrence in 40 municipalities, with Linhares (27 spp.), Conceição da Barra (18 spp.) and Santa Teresa (14 spp.) having the highest number of species. However, 38 municipalities have no records for the family. The highest number of species were collected in Tabuleiro forests (27 spp.).

According to Fraga *et al.* (2019), there are 14 species of Chrysobalanaceae at different threat levels: seven are classified as “Endangered”, four as “Vulnerable” and three as “Critically Endangered”. Furthermore, three species are categorized as “Near Threatened”, that is, the taxa can have their threat category changed soon if the existing threats are not interrupted.

Couepia carautae Prance is known only by the type specimen, collected in 1978 by José Spada in Linhares. Five other taxa have their type collected in the state: *Exellodendron gracile* (Kuhlmann) Prance (J.G. Kuhlmann, in 1934), *Licania areolata* Prance (G. Hatschbach, in 1995), *L. arianae* Prance (D.A. Folli, in 1980) *L. littoralis* var. *cuneata* Kuhlmann (J.G. Kuhlmann, in 1934) and *L. naviculistipula* Prance (R.P. Belém, in 1968). *Moquilea tomentosa*, popularly called Oiti, was the only cultivated species recorded, frequently used in urban afforestation (Prance 1972). *Moquilea silvatica* (Glaz. ex Prance) Sothers & Prance was collected by Glaziou in September

1875 in “Serra de Itabapoana, Espírito Santo”, and probably has a locality error. The previous (A.F.M. Glaziou 10701) and the subsequent (A.F.M. Glaziou 10703) collection numbers refer to Rio de Janeiro state (São Cristóvão and Copacabana respectively), which even has a municipality called São Francisco de Itabapoana, and that might indicate the species was collected there. From that we conclude that the species does not occur in Espírito Santo state.

Chrysobalanaceae R.Br., Narr. Exped. Zaire 433. 1818.

Trees, shrubs or subshrubs. Leaves alternate, simple, entire; stipules caducous to persistent. Inflorescences racemose, paniculate, spikes or cymose, bracteate. Flowers usually 2-bracteolate, actinomorphic to zygomorphic, bisexual, perigynous; receptacle tubular, short to elongate, with disc forming a lining on the receptacle or an annular or shortly tubular structure at its mouth; sepals 5, imbricate, erect or reflexed; petals 5 or absent, imbricate, usually caducous; stamens 2–125(–300), inserted on disc margin, side or adnate to it, in a complete circle to unilateral; filaments free to connate at base, included to far-exserted; anthers dorsifixed, longitudinally dehiscent, glabrous; ovary superior, inserted at base, at middle or at the mouth of the receptacle, carpels 1–3, 1–2-locular, 2 ovules, erect; style filiform, gynobasic; stigma distinctly or indistinctly 3-lobed. Drupes dry or fleshy, endocarp thin and bony to thick and woody, frequently densely pubescent on the inside (Prance & Sothers 2003a).

Identification key for the genera of Chrysobalanaceae from the state of Espírito Santo

1. Leaves with stomatal crypts on the abaxial surface.
 2. Leaves with a higher number of primary veins (ca. 18), discoid glands at the margin; flowers with petals 9. *Parinari*
 - 2'. Leaves with a lower number of primary veins (4 to 10), eglandular margin; flowers apetalous.
 3. Stamens longer than calyx lobes 6. *Leptobalanus*
 - 3'. Stamens shorter or similar to calyx lobes 7. *Licania*
- 1'. Leaves without stomatal crypts.
 4. Flowers apetalous 7. *Licania*
 - 4'. Flowers with petals.
 5. Flowers with 15 stamens or more.
 6. Ovary inserted at base of the receptacle.
 7. Shrubs; widely elliptic to rounded leaves, with rounded to subcordate apex 1. *Chrysobalanus*
 - 7'. Trees; elliptic leaves, with acuminate apex 8. *Moquilea*
 - 6'. Ovary inserted laterally at receptacle mouth 2. *Couepia*
 - 5'. Flowers with less than 10 stamens.
 8. Stamens far-exceeding calyx lobes 4. *Hirtella*
 - 8'. Stamens shorter or equaling calyx lobes.
 9. Ovary inserted at the base of the receptacle 5. *Hymenopus*
 - 9'. Ovary inserted at receptacle mouth 3. *Exellodendron*

1. *Chrysobalanus* L., Sp. Pl. 1: 513. 1753.

The genus *Chrysobalanus* comprises three species, two of which occur in Brazil (Prance & Sothers 2003a). *Chrysobalanus icaco* L. is the only species recorded in Espírito Santo state.

1.1. *Chrysobalanus icaco* L., Sp. Pl. 1: 513. 1753.

Figs. 1a-b; 2

Shrub to subshrub, prostrate to erect, to 1.5 m tall; branches glabrous, lenticellate. Leaves widely elliptic to rounded, 4–5.5 × 3–4.7 cm, chartaceous, discolorous, stomatal crypts absent, base cuneate, apex rounded to subcordate, glabrous on both sides, eglandular, midrib glabrous on both sides, impressed adaxially and prominent abaxially, primary veins 5–7 pairs, glabrous; petiole 2.5–5 mm long, terete, glabrous, eglandular; stipules 2, triangular to lanceolate, caducous, 1–2 mm long. Inflorescence axillary to terminal, compound cymes, puberulent; bracts triangular to lanceolate, ca. 2 mm long, puberulent; bracteoles triangular to lanceolate, ca. 1 mm long, glabrescent adaxially and puberulent abaxially. Flowers 7–8 mm long, puberulent, pedicel 1–1.5 mm long; receptacle campanulate, ca. 1.5 mm long, sericeous inside; sepals triangular, 1.5–3 mm long, pubescent inside; petals 5, lanceolate, ca. 5 mm long, glabrous, white; stamens 15–20, filaments 3.5–6 mm long, inserted in a complete circle, exserted, tomentose; ovary 1.5 mm, sericeous to tomentose, at base of the receptacle; style ca. 7.5 mm long, tomentose. Drupe ellipsoid, 2.2–2.4 × 1.7–1.9 cm; epicarp glabrous to glabrescent, red or vinaceous.

Selected material examined: Aracruz, Rebio de Comboios, restinga holocênica, formação arbustiva aberta não inundável, 4.XII.2018, fl., O.J. Pereira 8644 (SAMES). Conceição da Barra, estrada entre Guriri e Farol, 3.X.2016, fr., K.S. Valdemarin 197 (ESA, RB); Itaúnas, vegetação de restinga sobre dunas, com elevação de até 30 m, distante do mar aproximadamente 80 m, dunas localizadas depois da ponte do Rio Itaúnas, na direção de Riacho Doce, 6.X.2007, fl., A. Giaretta 239 (RB, SAMES, VIES). Guarapari, X.1980, fr., B. Weinberg 692 (RB, SPF); Praia do Sol, 13.IX.1986, fl., L.D. Thomaz 15 (RB, VIES); Parque Estadual Paulo Cesar Vinha, 15.V.2017, fr., R.H. Mota 25 (VIES). Linhares, Pontal do Ipiranga, moita próxima a praia, 1.XI.2010, fl., M.C.F. Jesus 372 (RB, SAMES, VIES); Rebio de Comboios, 20.III.1987, fl. and fr., O.J. Pereira 800 (RB, VIES). Presidente Kennedy, Praia das Neves, na restinga, propriedade da Ferrous, 30.V.2015, fr., I.G. Costa 642 (RB). São Mateus, Guriri, Mata de restinga próxima à foz do Rio São Mateus (Cricaré), à 14 km do Projeto Tamar, 5.IX.2008, fl., A. Giaretta 333 (RB, SAMES, VIES); mata seca de restinga, localizado próximo ao Projeto Tamar, herbácea pós-praia, 25.IV.2010, fr., M.M. Monteiro et al. 227 (RB, SAMES, VIES). Vila Velha, 14.VI.1986, fl., M.A. Milanezi (VIES908).

The prostrate shrub to subshrub habit is a helpful character for *Chrysobalanus icaco* subsp.

icaco, as it is not common in the family. It can also be recognized by the widely elliptic to rounded leaves with rounded to subcordate apex, completely glabrous on both surfaces and a red to vinaceous drupe. Collected with flowers throughout the year and fruits from May to July and October to December.

Chrysobalanus icaco is a widespread species, present in the African and American continent, typical from coastal areas (Prance 1972). *Chrysobalanus icaco* subsp. *icaco* is the only one recognized in Brazil, and it occurs in the states of Alagoas, Amapá, Bahia, Ceará, Espírito Santo, Maranhão, Pará, Paraíba, Piauí, Rio de Janeiro and São Paulo (Sothers & Prance 2023a). In Espírito Santo it has been recorded in restinga, in the municipalities of Aracruz, Conceição da Barra, Guarapari, Linhares, Presidente Kennedy, São Mateus and Vila Velha. It occurs in four protected areas (Área de Proteção Ambiental de Conceição da Barra, Parque Estadual de Itaúnas, Parque Estadual Paulo César Vinha and Reserva Biológica de Comboio) and is not considered threatened.

Some research shows its medicinal properties and reports on its use in traditional medicine, with antiangiogenic, diuretic and reduction of blood glucose effects (Feitosa et al. 2012). As a result, this species is commercialized in local markets and is sometimes confused with *Eugenia astringens* Cambess. (Myrtaceae), due to the rounded leaf shape (Silva & Peixoto 2009).

The common name for this species is maçã-de-praia (B Weinberg 692).

2. *Couepia* Aubl., Hist. Pl. Guiane 1: 519, t. 221. 1775.

Trees or shrubs. Leaves with abaxial surface of lamina glabrous or with an arachnoid indumentum, stomatal crypts absent, often with 1 or 2 pairs of glands at base and sometimes with small marginal glands near apex, stipules caducous to persistent. Inflorescence usually a congested thyrses, less often a few-flowered spike or raceme, very rarely flowers solitary. Bracts and bracteoles usually persistent, eglandular. Flowers pedicellate. Receptacle tube turbinate to narrowly cylindric, often slightly curved, ventricose, usually glabrous inside except at throat. Sepals usually eglandular. Petals 5. Stamens 15–100 or more, usually in a complete circle, far-exserted, glabrous; staminodes absent or short and filiform. Ovary 1(2–3)-carpellate, inserted laterally at mouth of receptacle mouth, 1-locular; style filiform, far-exserted, indistinctly 3-lobed at apex, hairy for greater part of length. Drupe surface without longitudinal channels, endocarp hard, granular, shortly hairy inside (Prance 2003; Prance & Sothers 2003b).



Figure 1 – a–l. Herbarium specimens of Chrysobalanaceae in detail – a–b. *Chrysobalanus icaco* subsp. *icaco* – a. inflorescence; b. fruits; c–d. *Exelodendron gracile* – c. inflorescence; d. fruits; e–f. *Hirtella parviunguis* – e. inflorescence; f. lanceolate stipules; g–h. *Hymenopus heteromorphus* var. *heteromorphus* – g. inflorescence; h. lanceolate stipules; i–j. *Leptobalanus octandrus* subsp. *octandrus* – i. inflorescence; j. leaf undersurface with stomatal crypts; k–l. *Parinari brasiliensis* – k. inflorescence; l. lenticellate branches and discoid glands on petiole. (a. C. Farney 4580; b. K.S. Valdemarin 197; c. D.A. Folli 6489; d. G.S. Siqueira 1063; e. D.A. Folli 6341; f. D.A. Folli 2007; g–h. I. A. Silva 280; i–j. D.A. Folli 5544; k. D.A. Folli 1500; l. A. Giaretta 716).

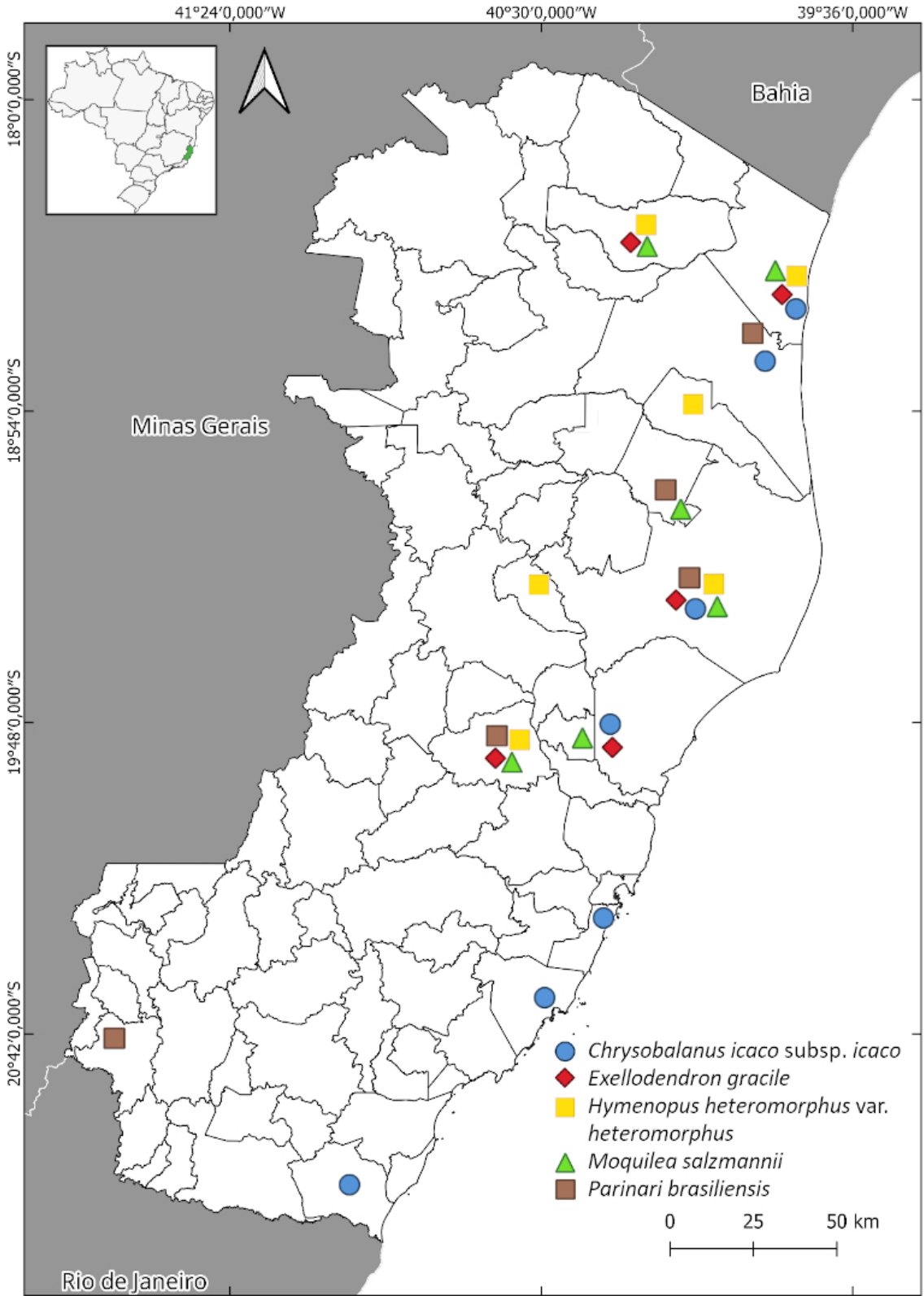


Figure 2 – Distribution map of *Chrysobalanus icaco* subsp. *icaco*, *Exellodendron gracile*, *Hymenopus heteromorphus* var. *heteromorphus*, *Moquilea salzmännii* and *Parinari brasiliensis* in Espírito Santo state.

With 67 species, *Couepia* is a neotropical genus distributed from Mexico to Brazil (Prance & Sothers 2003b; Sothers *et al.* 2014). In Brazil, the genus comprises 52 species,

present in the *Caatinga*, *Cerrado*, Atlantic Forest and Amazonian domains (Sothers & Prance 2023b). In Espírito Santo it is represented by five species.

Identification key for *Couepia* from the state of Espírito Santo

1. Leaves oblong, base obtuse to subcordate.
 2. Floral receptacle tubular, stamens 26–29, with shorter filaments (ca. 6 mm long) 2.1. *Couepia belemii*
 - 2'. Floral receptacle subcampanulate, stamens 16–25, with longer filaments (0.9–1.7 cm long).
 3. Petiole 3–5 mm long, flowers ca. 1.2 cm long, stamens ca. 16 2.4. *Couepia ovalifolia*
 - 3'. Petiole 7–15 mm long, flowers 1.6–1.9 cm long, stamens 24–25 2.5. *Couepia schottii*
- 1'. Leaves elliptic, base cuneate.
 4. Leaves coriaceous, primary veins 14–16 pairs 2.2. *Couepia carautae*
 - 4'. Leaves chartaceous, primary veins 10–11 pairs 2.3. *Couepia monteclarensis*

2.1. *Couepia belemii* Prance, Fl. Neotrop. Monogr. no. 9: 228. 1972. Fig. 3

Tree, up to 30 m tall, DBH 40 cm, young branches glabrous to slightly pubescent, becoming glabrous with age, lenticellate. Leaves oblong, 8–11.9 × 3.5–5.8 cm, coriaceous, discolorous, base obtuse, apex acuminate, acumen 3–8 mm long, adaxially glabrous, abaxially tomentose, midrib prominent in both surfaces, glabrous, primary veins 15–18 pairs; petiole 5–11 mm, glabrous to pubescent, canaliculate, eglandular, rarely with discoid glands; stipules caducous (not seen). Inflorescence terminal to subterminal, paniculate, sericeous; bracts 1, triangular, up to 1.6 cm long, sericeous, eglandular, caducous; bracteoles 2, triangular, 4–7 mm long, sericeous. Flowers 1.1–1.4 cm long, sericeous, pedicel ca. 3 mm; receptacle tubular, ca. 6 mm, glabrous, except at throat; sepals with acute apex, 4–5 mm long, pubescent, not reflexed; petals with acute apex, glabrous, margin ciliate; stamens 26–29, in a semi circle, filaments ca. 6 mm long, glabrous, free, with short staminodes opposite to them; ovary 3 mm, tomentulose, style 9 mm long, tomentulose at lower half. Drupe ellipsoid, sessile, 3.6–3.7 × 2.5–2.9 cm, epicarp rugose, glabrous.

Selected material examined: Conceição da Barra, Flona do Rio Preto, estrada principal, 18.VI.2018, fr., B.G. Sossai 207 (VIES). Linhares, Reserva Natural Vale, Estrada Macanaíba Pele de Sapo Ant. 161, km 3568, lado direito, 23.XII.1981, fl., I.A. Silva 283 (CVRD, MO, NY, RB); trecho de Muçununga próximo ao nativo do contorno do Roxinho, 17.IV.2011, fr., D.F. Lima 209 (CVRD, ESA, HUEFS, RB).

Couepia belemii can be confused with *C. ovalifolia* and *C. schottii* because of its oblong coriaceous leaves, with obtuse base and similar number of prominent primary veins. *C. belemii* can be distinguished by the abaxially tomentose leaves, tubular receptacle and shorter stamens in

higher number. In I.A. Silva 283 it is possible to observe characters similar to *Couepia bracteosa*, an amazonian species reported as close to *C. belemii* by Prance (1972), as they belong to “*Couepia bracteosa* species group”. However, the characters that differentiate them (leaf size and base, inflorescence striation and stamens disposition) are not well defined, as they overlap in the exsiccatae. Flowers collected in October and December and fruits in June.

Couepia belemii is endemic to Atlantic Forest, recorded in Bahia and Espírito Santo states. In the latter, it occurs in Mussununga and Mata de Tabuleiro, in Conceição da Barra and Linhares municipality, in two protected areas: Floresta Nacional do Rio Preto and Reserva Natural Vale. For Brazil the taxon is assessed as “Endangered” (EN), and for the state it is classified as “Vulnerable” (Fraga *et al.* 2019, Brasil 2022).

The common name for this species is taquipé (I.A. Silva 283).

2.2. *Couepia carautae* Prance, Fl. Neotrop. Monogr. 9S: 70, f. 16, 99. 1989. Fig. 3

Tree, up to 22 m tall, stem ca. 15 m tall, cylindric, bark rough, young branches glabrous, lenticellate. Leaves elliptic, 8.6–10.4 × 2.5–3.5 cm, coriaceous, discolorous, base cuneate, apex acuminate, acumen ca. 4–6 mm long, adaxially glabrous, abaxially arachnoid to glabrescent, midrib prominent adaxially, glabrous, with glands along its length, prominent abaxially, glabrous, primary veins 14–16 pairs; petiole 6–9 mm, glabrous, canaliculate, eglandular; stipules caducous (not seen). Inflorescence terminal to subterminal, paniculate, tomentulose; bracts caducous (not seen); bracteoles 2, lanceolate, ca. 3 mm long, tomentose. Flowers 1.4–1.5 cm long, white, tomentose, pedicel

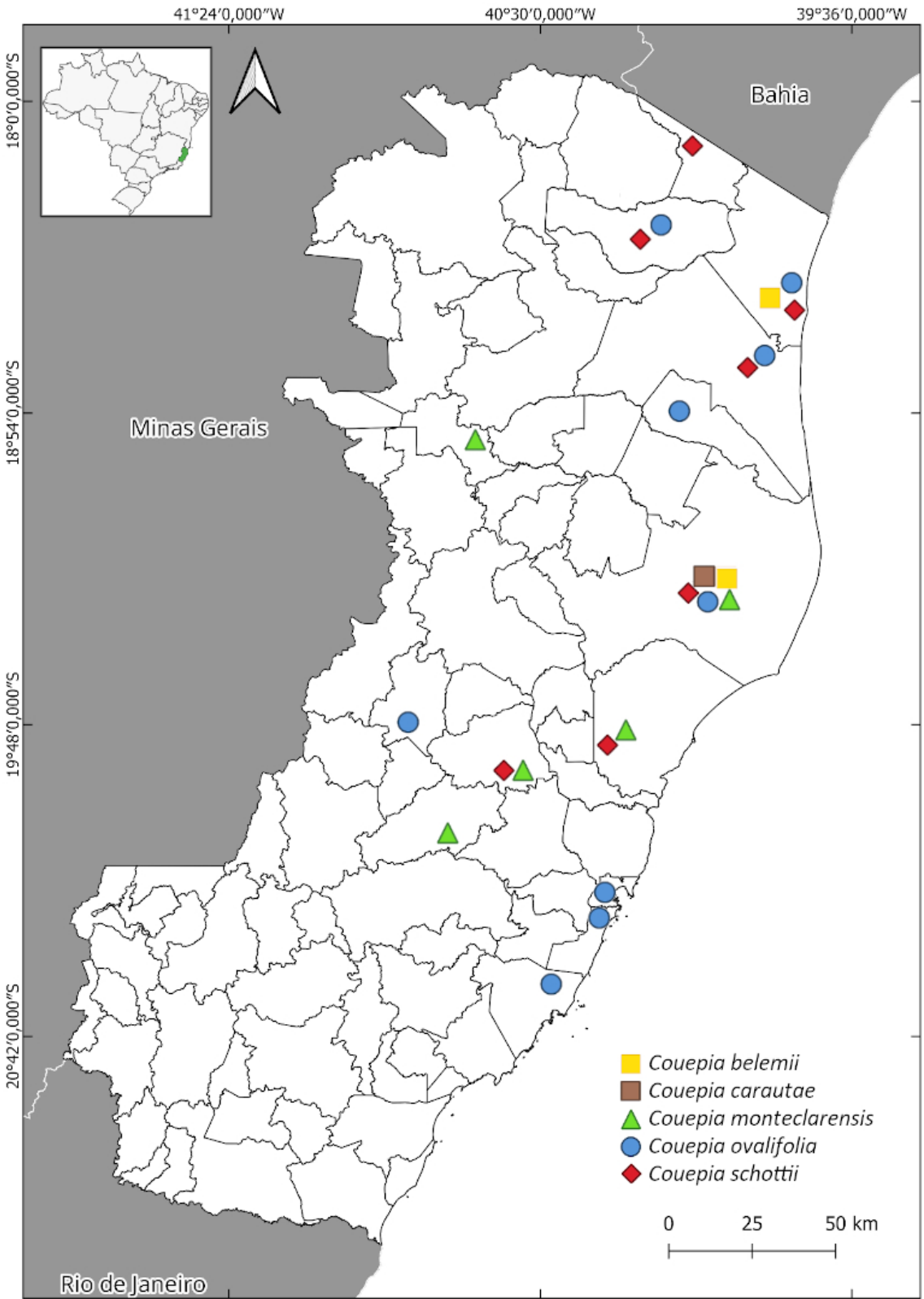


Figure 3 – Distribution map of *Couepia belemii*, *Couepia carautae*, *Couepia monteclarensis*, *Couepia ovalifolia* and *Couepia schottii* in Espírito Santo state.

ca. 2.5 mm; receptacle tubular, 7–8 mm, glabrous, except at throat; sepals with acute apex, ca. 6 mm long, tomentulose; petals with acute apex, margin ciliate, glabrous; stamens ca. 30, in a complete circle, filaments 1.5–2 cm long, glabrous, free; ovary ca. 2 mm, tomentulose, style ca. 1.2 cm long, tomentulose. Drupe not seen.

Material examined: Linhares, Reserva Natural Vale, Estrada 143 A 6, km 1430, 24.I.1978, fl., J. Spada 31/78 (CVRD, INPA, K, RB, NY).

Couepia carautae is slightly similar to *C. monteclarensis* because of the elliptic leaves of similar length with acuminate apex, but can be distinguished by the combination of elliptic coriaceous leaves, with cuneate base, less conspicuous primary veins, glands on the length of the lamina's adaxial surface, tomentose inflorescence and tubular receptacle. Collected with flowers in January.

This species is here confirmed as endemic to Espírito Santo state, and it is only known by its type collection, from Linhares, in a Mata de Tabuleiro area. *Couepia carautae* was assessed as "Critically Endangered" (CR) for the state and the country (Fraga *et al.* 2019; Brasil 2022).

The common name for this species is milho-torrado (J. Spada 31/78).

2.3. *Couepia monteclarensis* Prance, Fl. Neotrop. Monogr. 95: 66, f. 14. 1989. Fig. 3

Trees, up to 11 m tall, DBH 20 cm, stem up to 7 m tall, young branches pubescent, becoming glabrous with age, conspicuously lenticellate. Leaves elliptic, 7.9–12.1 × 3.2–4.3 cm, chartaceous, discolorous, base cuneate, apex acute to acuminate, acumen up to 3 mm long, adaxially glabrous, abaxially arachnoid, midrib plane adaxially, prominent abaxially, glabrous, primary veins 10–11 pairs; petiole 0.6–1 cm, glabrous, terete, eglandular; stipules 2, ca. 8 mm long, linear, chartaceous, glabrous, caducous. Inflorescence terminal, paniculate, pubescent; bracts caducous (not seen); bracteoles 2, triangular, ca. 1 mm long, pubescent. Flowers white, ca. 2.1 cm long, pubescent, pedicel ca. 2 mm; receptacle subcampanulate, 5–6 mm, glabrous, except at throat; sepals rounded with acute apex, ca. 3 mm long, pubescent, not reflexed, eglandular; petals with acute apex, glabrous, with ciliate margin; stamens 14–16, in 3/4 circle, filaments 0.8–1 cm long, glabrous, united at base; ovary 1–1.5 mm, tomentulose, style 1.5–2 cm long, 1/2 tomentulose. Drupe ellipsoid, sessile, 2–2.3 × 1.7–1.8 cm, epicarp smooth, glabrous.

Selected material examined: Águia Branca, Rochedo, propr. Ailton Corteletti, 7.VI.2006, fr., V. Demuner 2434 (MBML). Aracruz, M-71 na virada para entrar no carreador, 4.III.1993, fl., R.N. Oliveira 445 (VIES). Linhares, Reserva Natural Vale, saindo da Estrada do Flamengo

sentido a Estrada da Mantegueira, 7.V.2009, fl., P.J.M. Maas 9807 (CEPEC, CVRD, K, L); 31.VIII.2009, fr., G.S. Siqueira 478 (CVRD, K). Santa Maria de Jetibá, Rio Santa Maria da Vitória, 23.XI.2000, fr., O.J. Pereira 6645 (VIES). Santa Teresa, São Lourenço, mata fria, terreno de Clério Loss, 9.IX.1998, fr., L. Kollmann 482 (CEPEC, MBML).

Couepia monteclarensis is similar to *C. carautae* (see comments under this species). However, it can be distinguished by the chartaceous leaves, terete petiole, subcampanulate receptacle and ciliate petals. Collected with flowers in March to May and fruits in June to August and November.

This species is also endemic to Atlantic Forest, recorded in Bahia, Minas Gerais, Rio de Janeiro, São Paulo and Espírito Santo states (Fraga *et al.* 2019; Sothers & Prance 2023b). In the latter, it occurs in Ombrophilous forests and Mata de Tabuleiro, in Águia Branca, Aracruz, Linhares, Santa Maria de Jetibá and Santa Teresa municipalities. This species was classified as "Least Concern" (LC) when analyzed for the country by Amorim & Aragão (2021), and "Endangered" (EN) in a regional assessment by Fraga *et al.* (2019). It was recorded in three protected areas: Estação Biológica de Santa Lúcia, Reserva Biológica Augusto Ruschi and Reserva Natural Vale.

The common names for this species are milho-torrado-amarelo (P.J.M. Maas 9807) and milho-torrado-folha-lisa (G.S. Siqueira 478).

2.4. *Couepia ovalifolia* (Schott) Benth. ex Hook.f., Fl. bras. (Martius) 14(2): 48. 1867.

Basionym: *Chrysobalanus ovalifolius* Schott, in Spreng., Syst. Veg. 4(2): 406. 1827. Figs. 3; 4a-b

Shrub to tree, up to 5 m tall, DBH 2.5 cm, stem up to 2 m tall, branches glabrous, lenticellate. Leaves oblong, 6–11.3 × 2.6–4.3 cm, coriaceous, discolorous, base obtuse or subcordate, apex acuminate, acumen 3–5 mm long, adaxially glabrous (sometimes lustrous), abaxially pubescent to arachnoid, midrib prominulous adaxially, glabrous, prominent abaxially, glabrous, primary veins (8)10–16 pairs; petiole 3–5 mm, glabrous to pubescent, canaliculate, sometimes with glands; stipules ca. 2 mm long, lanceolate, chartaceous, pubescent, caducous. Inflorescence terminal to subterminal, paniculate, pubescent; bracts 2, lanceolate, 3–4 mm long, pubescent, eglandular, caducous; bracteoles 2, triangular to lanceolate, 3 mm long, pubescent. Flowers ca. 1.2 cm long, puberulent, pedicel 1–3 mm; receptacle subcampanulate, 5–7 mm, glabrous, except at throat; sepals with apex rounded to acute, 3–4 mm long, pubescent, reflexed, eglandular; petals caducous (not seen); stamens ca. 16, in a semicircle, filaments 0.9–1.3 cm long, bended, some partially bent, giving the impression of being smaller, glabrous, free; ovary 1–1.5 mm, tomentulose, style 0.7–1.3 cm long, 3/4

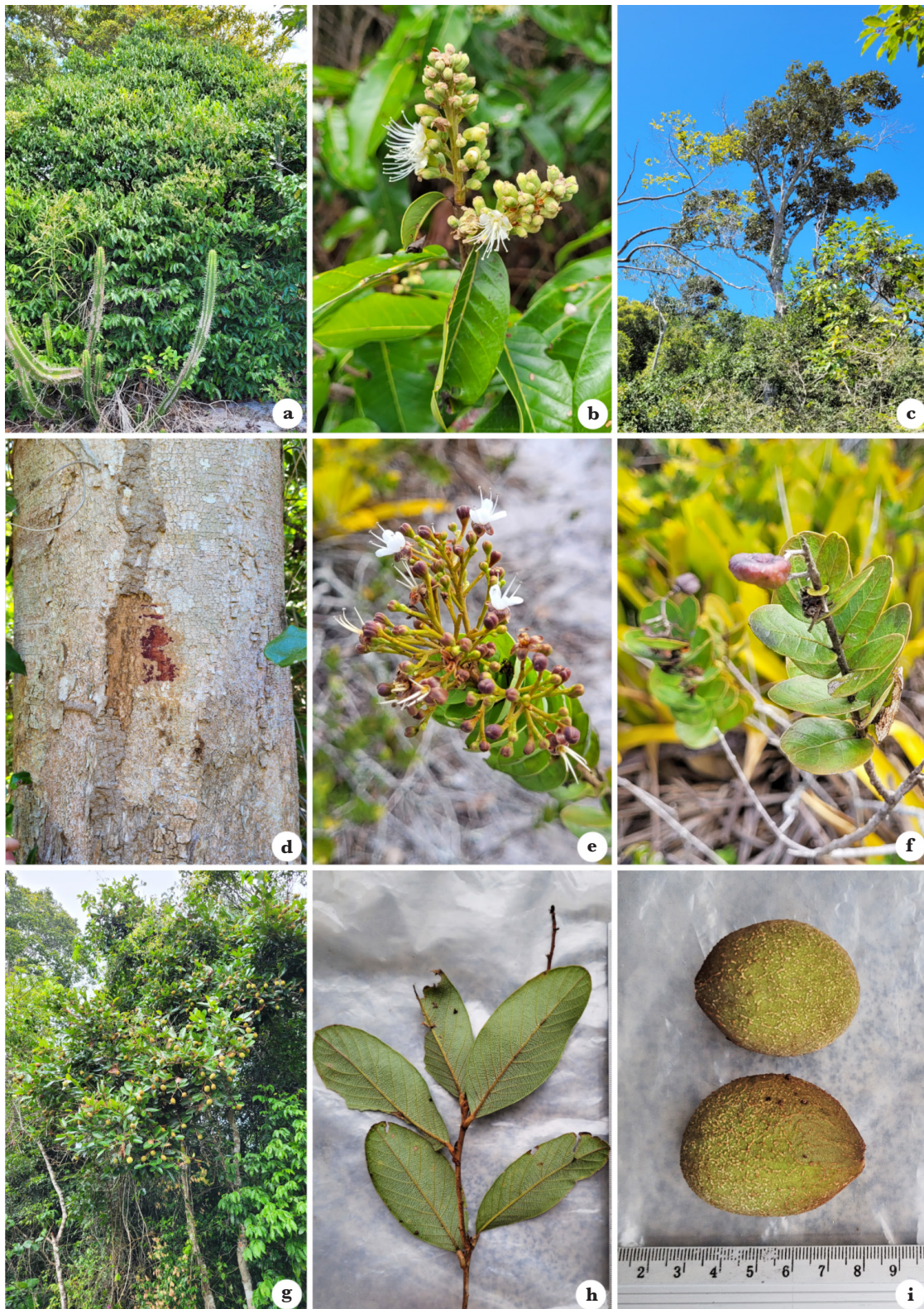


Figure 4 – a-i. Field photographs of Chrysobalanaceae – a-b. *Couepia ovalifolia* – a. shrub; b. inflorescence; c-d. *Couepia schottii* – c. tree; d. bark; e-f. *Hirtella corymbosa* – e. inflorescence; f. fruit; g-i. *Licania naviculistipula* – g. tree; h. leaves; i. fruit. (a-b. N. Barros 22; c-d. N. Barros 20; e-f. N. Barros 29; g-i. N. Barros 24).

tomentulose. Drupe ellipsoid, sessile, $2.6\text{--}3 \times 2.9\text{--}3.1$ cm, epicarp rugose, glabrous.

Selected material examined: Conceição da Barra, área 157 da Aracruz Celulose S.A., 25.X.1993, fl., O.J. Pereira 5142 (RB). Itaguaçu, Alto Limoeiro, 12.V.1946, A.C. Brade 18344 (RB). Guarapari, Parque Estadual de Setiba, 4.X.1988, fl., O.J. Pereira 1836 (VIES); Parque Estadual Paulo César Vinha, 7.X.2017, fl., R.H. Mota 32 (VIES). Jaguaré, Restinga pleistocênica, 7.XI.2023, fr., O.J. Pereira 10559 (SAMES). Linhares, Reserva Natural Vale, Muçununga na Estrada do Flamengo (X1), 19.IX.1987, fl., C. Farney 1678 (CEPEC, CVRD, K, RB); Aceiro Parajú, 18.X.2019, fl., G. Felitto 1252 (CVRD, RB). Pinheiros, Rebio Córrego do Veado, estrada próxima a sede da Rebio, 13.II.2022, fr., L.F.T. Menezes 2788 (SAMES). São Mateus, Pedra D'água, vegetação de restinga próxima ao hospital Roberto Silveiras, 21.IX.2006, fl., L.F.T. Menezes 1554 (RB, SAMES, VIES); Bairro Quadrado, mata seca sobre restinga Pleistocênica, 16.I.2008, fr., R.F.A. Martins 146 (RB, SAMES, VIES). Vila Velha, 21.XI.1983, fl., P.C. Vinha (VIES261); Reserva Estadual de Jacarenema, 15.VII.2004, fl., G.G.K. Lube 146 (VIES). Vitória, Camburi, 23.XII.1998, fr., A.M. Assis 687 (VIES).

Couepia ovalifolia is similar to *C. belemii* (see comments under this species). The taxon is also similar to *C. schottii*, as both form the “*C. ovalifolia* species group”, and are distinguished by only a few morphological characters such as the lamina shape, size, the number of primary veins and petiole length (Prance 1972). *Couepia ovalifolia* usually has smaller leaves, a lower number of primary veins and shorter petiole, but these characters overlap with *C. schottii* in some of the analyzed material. To better delimit these taxa, further studies on other characters is necessary. Collected with flowers from August to November and fruits from November to January.

Couepia ovalifolia is endemic to Atlantic Forest and has been recorded in Bahia, Espírito Santo, Minas Gerais and Rio de Janeiro states (Sothers & Prance 2023b). In Espírito Santo it occurs in Restinga, Mussununga and Mata de Tabuleiro, in Conceição da Barra, Guarapari, Itaguaçu, Linhares, Jaguaré, Pinheiros, São Mateus, Vila Velha and Vitória.

This species is well represented in collections and occurs in some protected areas (e.g., Parque Estadual Paulo César Vinha, Reserva Natural Vale, Reserva Biológica Córrego do Veado, Reserva Estadual de Jacarenema), which indicates it is not threatened for the state.

The common names for this species are oitido-nativo (*D. Araujo* 8114, *G. Felitto et al.* 1252,) and oiti-da-areia (*D.A. Folli* 4655).

2.5. *Couepia schottii* Fritsch, Ann. K. K. Naturhist. Hofmus. 5: 13. 1890. Figs. 3; 4c-d

Tree, up to 21 m tall, branches glabrous, lenticellate. Leaves oblong, $9.4\text{--}17.1 \times 3.1\text{--}8.1$ cm, coriaceous, discolorous, base obtuse to subcordate,

apex rounded or acuminate, acumen 3–4 mm long, adaxially glabrous (sometimes lustrous), abaxially arachnoid, sometimes ferrugineous, midrib prominulous adaxially, glabrous, prominent abaxially, glabrescent, primary veins 14–20 pairs, often with marginal loops uniting them; petiole 0.7–1.5 cm, glabrous to pubescent, canaliculate, usually with 2 discoid glands; stipules caducous (not seen). Inflorescence terminal to subterminal, paniculate, tomentose; bracts and bracteoles caducous (not seen). Flowers 1.6–1.9 cm long, tomentulose, pedicel ca. 2 mm; receptacle subcampanulate, 7–8 mm, glabrous, except at throat; sepals with rounded apex, 4–6 mm long, tomentulose, sometimes reflexed; petals with rounded apex glabrous, margin ciliate; stamens 24–25, in a $3/4$ circle, filaments 1.3–1.7 cm long, bended, glabrous, free; ovary 2–3 mm, tomentulose, style ca. 2 cm long, tomentulose at lower half. Immature drupe ellipsoid, sessile, $2\text{--}2.8 \times 1.5\text{--}1.7$ cm, epicarp granular, glabrescent.

Selected material examined: Aracruz, Rebio de Comboios, estação amostral 8, 17.XI.2021, fl., O.J. Pereira 9780 (VIES). Conceição da Barra, Rebio de Córrego Grande, área ensolarada imediatamente ao lado da estrada, 26.VII.2019, M. Ribeiro 1575 (SAMES). Linhares, Degredo, restinga arbórea, 15.III.2007, fr., C. Farney 4631 (MBM, RB, SAMES); Reserva Natural Vale, próximo a Estrada X-1 talhão 601, 19.I.1973, fl., J. Spada 148 (CVRD, INPA, RB). Pedro Canário, margem da BR-101, direção: Rio-Itaúnas, 19.X.2008, fl., A.C.S. Cavalcanti 279 (HUEFS, RB). Pinheiros, Rebio Córrego do Veado, 23.II.2011, fr., M. Ribeiro 448 (RB, SAMES, VIES); Regência, arredores, $19^{\circ}38'08''\text{S}$, $39^{\circ}52'15''\text{W}$, 3.IV.2019, fr., M.L. Brotto 3426 (CVRD, MBM, NY, RB, VIES). Santa Teresa, Dois Pinheiros, mata do Banestes, 30.VI.1998, fr., L. Kollmann 162 (MBML). São Mateus, Bairro Liberdade, mata seca sobre restinga pleistocênica, 16.I.2008, fl. and fr., R.F.A. Martins 16 (SAMES).

Couepia schottii is similar to *C. belemii* and *C. ovalifolia* (see comments under these species). Collected with flowers from October to January and fruits in January to April and July.

This taxon occurs in Bahia, Espírito Santo and Rio de Janeiro states (Sothers & Prance 2023b). In Espírito Santo it occurs in Restinga, Mussununga and Tabuleiro forests in Aracruz, Conceição da Barra, Linhares, Pedro Canário, Pinheiros, Santa Teresa and São Mateus municipalities. It is assessed as “Endangered” (EN) to Brazil (Brasil 2022). In Espírito Santo this taxon is present in five protected areas (Reserva Biológica Augusto Ruschi, Parque Natural Municipal de São Lourenço, Reserva Biológica Córrego do Veado, Floresta Nacional de Goytacazes, Reserva Natural Vale) and is represented by old and new collections. Based on this evidence we suggest that this species is not threatened in the state.

The common name for this species is milhotorrado-de-folha-larga (*M. Ribeiro* 448).

3. *Exellodendron* Prance, Fl. Neotrop. Monogr. no. 9: 195. 1972.

Restricted to South America, the genus was collected in Guianas, Venezuela and Brazil. *Exellodendron* comprises five species and all of them occur in Brazil (Prance & Sothers 2003a). Only *Exellodendron gracile* is recorded in Espírito Santo state.

3.1. *Exellodendron gracile* (Kuhlm.) Prance, Fl. Neotrop. Monogr. no. 9: 200. 1972.

Basionym: *Parinari gracilis* Kuhlm. Anais Reunião Sul-Amer. Bot. 3: 78. 1938. Figs. 1c-d; 2; 5

Tree, up to 34 m tall, DBH 4.8–5.6 cm; young branches arachnoid, becoming glabrous with age, lenticellate. Leaves elliptic to oblong-elliptic, 4–8.5 × 2–3.4 cm, chartaceous, discolorous, stomatal crypts absent, base cuneate, apex acute to acuminate, acumen 3–5 mm long, glabrous on both surfaces; midrib prominent on both surfaces, glabrous to arachnoid adaxially, arachnoid abaxially at basal 1/2, primary veins 7–9 pairs, not prominent, glabrous abaxially; petiole 3–4 mm long, arachnoid to sparsely arachnoid, canaliculate; stipules 2, 3–4 mm long, caducous, lanceolate, chartaceous, midrib sericeous, margin glabrous. Inflorescence terminal to subterminal, paniculate, sericeous, bracts caducous (not seen), bracteoles 3, ca. 1 mm long, sericeous inside. Flowers 5–7 mm long, pubescent outside, pedicel 1.5 mm long; receptacle subcampanulate, swollen on stamen side, sericeous inside; sepals triangular, 1.5–2 mm long, puberulent inside, not reflexed; petals 5, apex triangular, 1–2 mm long, glabrous; stamens 8, filaments 1–1.5 mm long, inserted unilaterally, included or the same length as sepals, glabrous, with ca. 4 short staminodes, opposite to them; ovary 1 mm long, sericeous, inserted at mouth of receptacle, style 3 mm long, glabrous. Drupe ellipsoid, 1.8–3.5 × 1–1.8 cm; epicarp glabrous, lenticellate, smooth, vinaceous.

Selected material examined: Aracruz, córrego d'água, Fazenda do Retiro (proprietário Manoel Pedro Cararetto), 2.IV.2008, fr., R.D. Ribeiro 950 (RB, SPF); Rebio de Comboios, próximo à reserva indígena, ponto de amostragem 8, 17.III.2020, fr., A.D. Firmino 1683 (VIES). Conceição da Barra, trilha Sul da Flona (Restinga), Flona do Rio Preto, 5.III.2020, fr., S.C. Dutra 234 (RB, VIES); Viveiro dos pássaros, Núcleo Juçara, Matriz 052, 28.X.2013, fr., Grupo de Coletores do Núcleo Juçara 52 (RB). Linhares, Reserva Natural Vale, Estrada Aceiro Catelã - João Pedro, 10.III.2015, fr., G.S. Siqueira 1063 (RB); Rebio de Comboios - IBAMA, próximo a estrada Porteira, 4.I.1991, fl., D.A. Folli 1251 (RB). Pinheiros, Rebio Córrego do Veado, 1.VI.2010, fr., M. Ribeiro 175 (RB, SAMES, VIES); 7.XII.2009, fl., D.A. Folli 6489 (HUEFS, RB). Santa Teresa, Estação Biológica Caixa D'Água, 18.XI.1998, fl., L. Kollmann 1056 (MBML).

Exellodendron gracile can be recognized by the arachnoid surfaces (young branches, young leaves,

petiole), primary veins of leaves not prominent, the swollen subcampanulate receptacle and stipitate fruit. Collected with flowers January, June and December, and fruits from March to June and August.

This species is endemic to the Atlantic Forest, in the states of Bahia and Espírito Santo (Sothers & Prance 2023c). In Espírito Santo it occurs in Mata de Tabuleiro and Restinga, in Aracruz, Conceição da Barra, Linhares, Pinheiros and Santa Teresa municipalities. Brasil (2022) assessed the species as “Endangered” (EN) to Brazil.

This species was recorded in five protected areas (Estação Biológica Caixa D'Água, Reserva Biológica de Comboios, Reserva Biológica Córrego do Veado, Reserva Natural Vale, Floresta Nacional do Rio Preto) and is not threatened in the state. It was described by Kuhlmann and illustrated by Nilton Leal as *Parinari gracile* in Kuhlmann (1938), a book which is difficult to access, using a specimen collected in Linhares municipality. The illustration is reproduced here (Fig. 5). Prance (1972) transferred the species to *Exellodendron* but did not illustrate it.

The common names for this species are água-fria (I.A. Silva 377), azeitona-preta (V. Souza 210), milho-torrado (G.L. Farias 61) and oiti (Kuhlmann 1938).

4. *Hirtella* L., Sp. Pl. 1: 34. 1753.

Trees and shrubs. Leaves glabrous or with strigose or strigulose hairs, stomatal crypts absent; sometimes with 2 large bulbous myrmecophilous inflations at base of lamina, or often with many small submarginal or scattered discoid glands; petiole eglandular. Inflorescence usually a raceme or thyrses, more rarely a corymb or complex cyme. Bracts and bracteoles often with stipitate or sessile glands. Receptacle tube subcampanulate to narrowly cylindric, slightly gibbous, usually glabrous inside except near throat. Sepals usually spreading or reflexed, acute, often with sessile or shortly stalked glands on margin. Petals 5; Stamens 3–9, filaments far-exserted, glabrous, usually opposite to short filiform staminodes. Ovary usually inserted at mouth of receptacle tube; style filiform, far-exserted. Drupe with smooth thin hard non-granular endocarp with longitudinal shallow channels representing the lines of weakness that permit the seedling to escape (Prance 2003; Prance & Sothers 2003b).

The genus comprises 110 species, mainly distributed in the Neotropics, with only two species in the African continent (Prance & Sothers 2003b). In Brazil, the genus occurs in all states with 68 accepted species (Asprino 2023). In Espírito Santo it is represented by 10 species.

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Volume III

KUHLMANN: Esp. novas equatoriais
ESTAMPA IV



Parinarium gracile

Figure 5 – Original illustration of *Parinarium gracile*, basionym of *Exellodendron gracile* (Kuhlmann 1938).

Identification key for *Hirtella* from the state of Espírito Santo

1. Leaves glabrescent to hispid adaxially; flowers with 7 stamens.
 2. Leaves with rounded base, acuminate apex (4–7 mm long); flowers longer (2–2.5 cm).....4.8. *Hirtella santosii*
 - 2'. Leaves with cuneate base, rounded to shortly acuminate apex (0.5–4 mm long); flowers shorter (1.9–2.2 cm).....4.4. *Hirtella hebeclada*
- 1'. Leaves glabrous adaxially; flowers with 6 or less stamens.
 3. Leaves with base subcordate to rounded.
 4. Inflorescence a raceme; drupe ellipsoid4.9. *Hirtella sprucei*
 - 4'. Inflorescence a corymb; drupe obovoid.
 5. Leaves with margin slightly revolute; flowers with 5 stamens 4.5. *Hirtella insignis*
 - 5'. Leaves with margin not revolute; flowers with 3 stamens 4.3. *Hirtella corymbosa*
 - 3'. Leaves with base cuneate.
 6. Leaves with apex rounded 4.1. *Hirtella bahiensis*
 - 6'. Leaves with apex acute to acuminate.
 7. Inflorescence paniculate.
 8. Young branches sparsely hispid; leaves margin slightly revolute; inflorescence hispid, flowers shorter (≤ 1.6 cm).....4.10. *Hirtella triandra*
 - 8'. Young branches glabrous, leaves margin not revolute, inflorescence pubescent, flowers longer (ca. 2.5 cm) 4.2. *Hirtella barrosoi*
 - 7'. Inflorescence racemose.
 9. Leaves oblong to obovate, 10–14.1 $\times$ 3.1–4.8 cm, stipules linear..... 4.7. *Hirtella racemosa*
 - 9'. Leaves elliptic, 3.9–7.2 $\times$ 1.3–2.9 cm, stipules lanceolate 4.6. *Hirtella parviunguis*

4.1. *Hirtella bahiensis* Prance, Fl. Neotrop. Monogr. 9: 307. 1972. Figs. 6; 7a-b

Tree, up to 25 m tall, DBH ca. 37 cm, stem up to 20 m tall, cylindric, bark rough; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic to obovate, 3.2–4.2 $\times$ 1.7–2.3 cm, chartaceous, discolorous, base cuneate, apex rounded, glabrous adaxially, pubescent to sparsely pubescent abaxially, midrib prominulous adaxially, prominent abaxially, primary veins 5–7 pairs, margin slightly revolute; petiole ca. 2 mm long, pubescent, terete, eglandular; stipules 2, lanceolate, ca. 1.5 mm long, chartaceous, pubescent, caducous. Inflorescence terminal to axillary, paniculate, densely pubescent; bracts 2, triangular, ca. 2.5 mm long, pubescent, eglandular; bracteoles 2, triangular, ca. 2.5 mm long, pubescent, with 3–5 discoid glands at apex, slightly stipitate. Flowers white, ca. 1–1.3 cm long, pubescent, pedicel ca. 2 mm long; receptacle tubular, ca. 3 mm long, glabrous; sepals triangular, ca. 3 mm long, pubescent, reflexed; petals elliptic, 3–4 mm long, glabrous; stamens 3, inserted unilaterally, filaments ca. 6 mm long, united at base, with 5 staminodes opposite to them; ovary ca. 1.5 mm long, sericeous, style 6–7 mm long, basal 2/3 sericeous. Drupe brown or purple, obovoid, sessile, 1–1.3 $\times$ 0.6–1.3 cm, epicarp smooth, longitudinally striate, pubescent to glabrescent.

Material examined: Conceição da Barra, Aracruz Celulose S.A., 3.XII.1992, fr., O.J. Pereira 4337 (VIES). Linhares,

Reserva Natural Vale, Estrada 232, km 3460, lado direito, 285 m após o Córrego, 24.XI.1978, fl. and fr., I.A. Silva 30 (CVRD, INPA, NY, RBR); Estrada Jueirana-vermelha, km 1613, 27.XI.1991, fl. and fr., D.A. Folli 1506 (CVRD). Santa Teresa, Estação Biológica de Santa Lúcia, 26.I.2015, fr., P.L.R. de Moraes 4687 (ALCB, CEPEC, CESJ, HRCB, UPCB).

Hirtella bahiensis is quite distinct from the other species in the state, and is distinguished by the small elliptic to obovate leaves, with rounded apex, low number of primary veins (5–7), slightly revolute margin and bracteoles with discoid glands at the apex. Collected with flowers in November and fruits in November to January.

With a restricted occurrence in Bahia and Espírito Santo states, *H. bahiensis* is endemic to the Atlantic Forest (Asprino 2023). In Espírito Santo it is recorded in Conceição da Barra, Linhares and Santa Teresa municipalities, in Restinga, Tabuleiro and Ombrophilous Forests, respectively. This species is assessed as Endangered (EN) for the state (Fraga *et al.* 2019), where it was collected in two protected areas (Reserva Biológica de Santa Lúcia and Reserva Natural Vale).

The common name for this species is flamengo (I.A. Silva 30).

4.2. *Hirtella barrosoi* Prance, Fl. Neotrop. Monogr. 9: 298. 1972. Fig. 6

Tree, up to 19 m tall, DBH 35 cm, stem 14 m tall; branches glabrous, lenticellate. Leaves elliptic, 8–10 $\times$ 1.5–2.8 cm, chartaceous, discolorous, base cuneate,

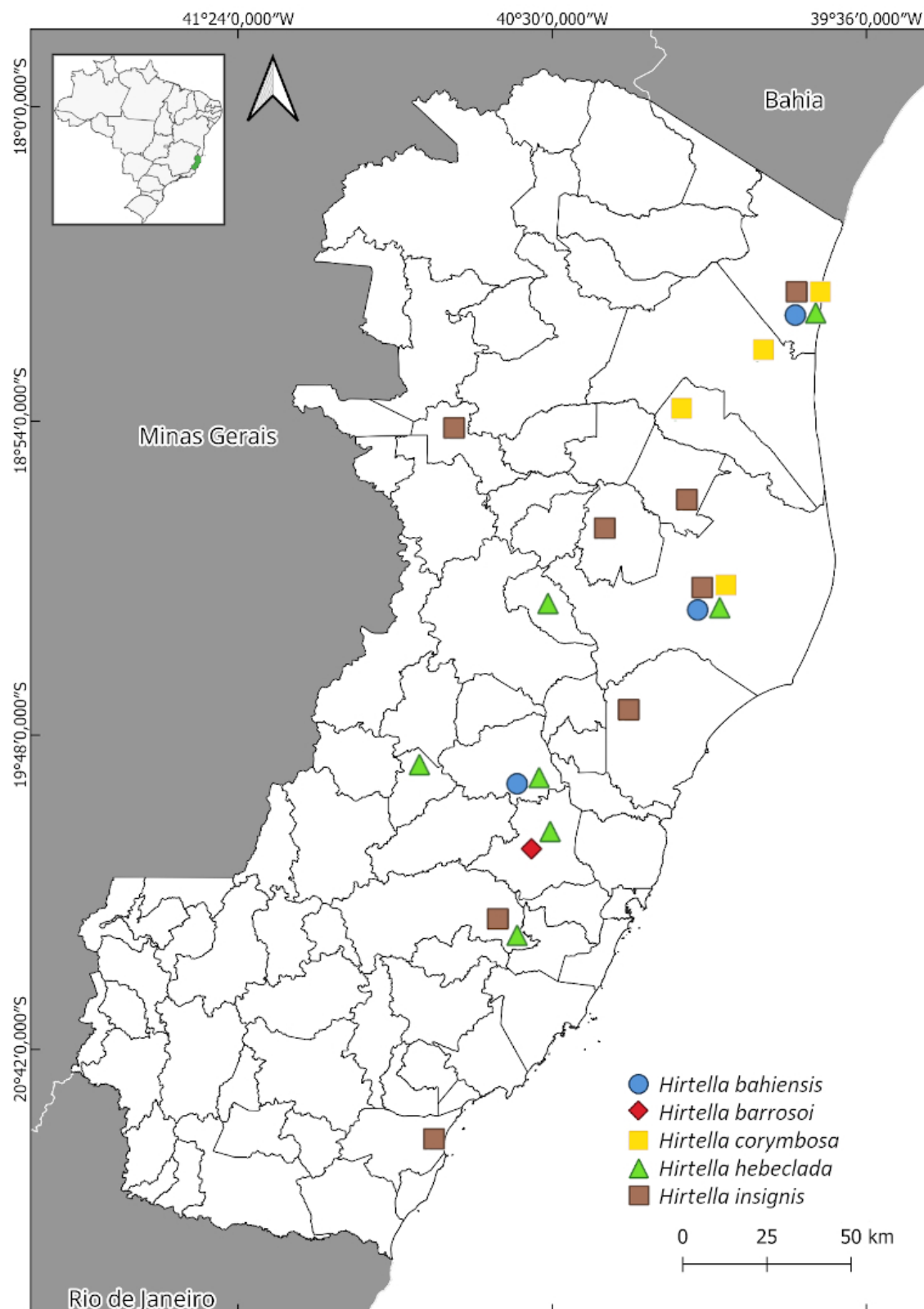


Figure 6 – Distribution map of *Hirtella bahiensis*, *Hirtella barrosoi*, *Hirtella corymbosa*, *Hirtella hebeclada* and *Hirtella insignis* in Espírito Santo state.

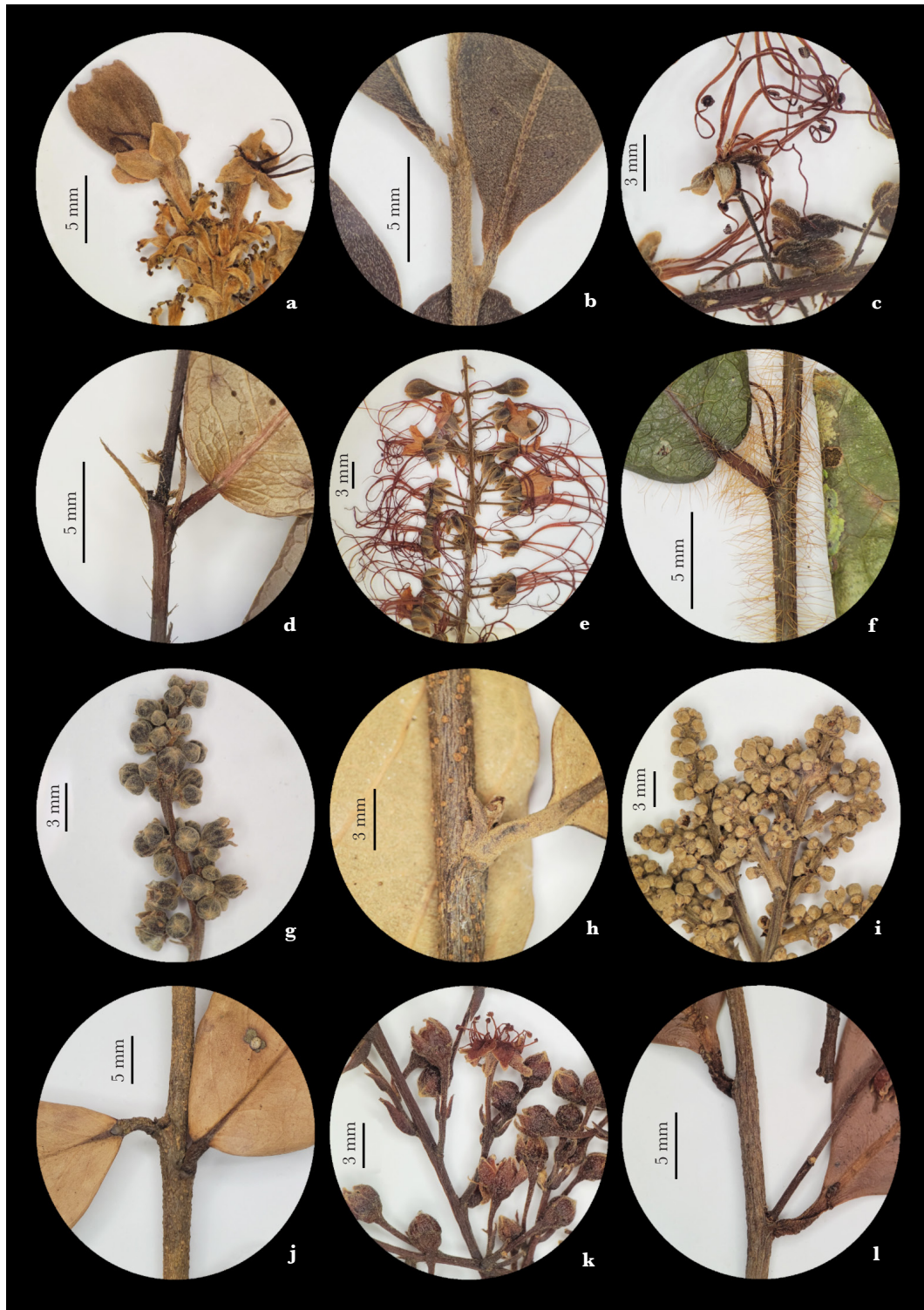


Figure 7 – a–l. Herbarium specimens of Chrysobalanaceae in detail – a–b. *Hirtella bahiensis* – a. bracteoles with glands and fruit; b. pubescent branch and petioles; c–d. *Hirtella racemosa* – c. flower; d. sparsely hispid branch and linear stipule; e–f. *Hirtella sprucei* – e. inflorescence; f. hispid branch and linear stipules; g–h. *Licania hypoleuca* – g. inflorescence; h. glabrous lenticellate branch and pubescent petiole; i–j. *Licania littoralis* – i. inflorescence; j. glabrous branch and petioles; k–l. *Moquilea salzmännii* – k. inflorescence; l. glabrous branch and petioles. (a–b. D.A. Folli 1506; c–d. G.S. Siqueira 1207; e. I.A. Silva 136; f. G.S. Siqueira 1346; g–h. D.A. Folli 5486; i. D.A. Folli 920; j. D.A. Folli 4634; k. G.L. Farias 69; l. G.L. Farias 70).

apex acuminate, acumen 4–7 mm long, glabrous on both sides, midrib prominulous and glabrous on both sides, primary veins 7–9 pairs, sometimes with discoid glands on lamina, margin not revolute; petiole 3–4 mm long, glabrous, terete, eglandular; stipules caducous (not seen). Inflorescence terminal, paniculate, pubescent; bracts 1, triangular, 1–1.2 mm, pubescent, eglandular; bracteoles 2, ca. 0.5 mm, triangular, pubescent, eglandular. Flowers ca. 2.5 cm long, pubescent, pedicel ca. 5–6 mm long; receptacle campanulate, 1.5–2 mm long, glabrous except at throat; sepals green, rounded, 3–4 mm long, pubescent, reflexed; petals white, rounded, ca. 3.5 mm long, glabrous; stamens blue, 3, inserted unilaterally, filaments 1.3–1.8 cm, free; ovary 1.5–2 mm, sericeous, style ca. 1.6 mm long, sericeous at lower half. Drupe ellipsoid, 2–2.3 × 1.5–1.6 cm, epicarp longitudinally striate, glabrous.

Material examined: Santa Leopoldina, Colina Verde (Morro do Agudo), propriedade de Israel E. Ramos (trilha da casa), 29.V.2007, fl., V. Demuner 4084 (CEPEC, MBML).

Additional material: BRAZIL. RIO DE JANEIRO: Rio de Janeiro, Horto Florestal, 28.VIII.1930, fr., *Victorio* (K1172764, NY378188, RB537033); Matta do Teixeira Borges, perto da sede do Horto Florestal, 26.V.1928, fl., *Pessoal do Horto Florestal* (B100464818, MBM347331, MO2195584, NY01085719, P00753692, RB136922, SPF00187423).

Hirtella barrosoi is slightly similar to *H. parviunguis* because of the elliptic glabrous leaves, with similar size and number of primary veins. However, *H. barrosoi* can be distinguished by the longer acumen (4–7 mm long vs. 3–4 mm long in *H. parviunguis*), paniculate inflorescence with smaller bracts (1–1.2 vs. 6–7 mm long) and lower number of stamens (3 vs. 5). Collected with flowers in May.

Hirtella barrosoi is endemic to the Atlantic Forest, recorded only in Ombrophilous Forests in the states of Rio de Janeiro and Espírito Santo (Barros *et al.* 2022). In Espírito Santo it occurs only in Santa Leopoldina municipality and is not recorded in any protected areas. This species was assessed as Data Deficient (DD) at a national level (Fernandez 2018).

4.3. *Hirtella corymbosa* Cham. & Schltdl., Linnaea 2(4): 545. 1827. Figs. 4e–f; 6

Shrub or tree, up to 5 m tall; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic to widely elliptic, 3.4–4.1 × 2–2.6 cm, chartaceous, discolorous, base rounded, apex acuminate, acumen ca. 0.5 mm long, rarely mucronate, glabrous on both sides, midrib prominulous adaxially, prominent abaxially, basal 1/3 hispid, primary veins 7–8 pairs, hispid, lamina with discoid glands, margin not revolute; petiole 1–2 mm long, hispid, terete, eglandular; stipules 2, linear, 1.5–2 mm long, chartaceous, hispid, subpersistent. Inflorescence terminal,

corymbose panicle, pubescent; bracts 2, triangular, 1.5–2 mm long, pubescent, eglandular; bracteoles 2, triangular, 1–1.5 mm long, pubescent, eglandular. Flowers white or vinaceous ca. 9 mm long, pubescent, pedicel ca. 3 mm long; receptacle campanulate, 2 mm long, glabrous except at throat; sepals rounded with acute apex, ca. 2 mm long, puberulous, reflexed; petals white, rounded, ca. 2 mm long, glabrous; stamens 3, inserted unilaterally, filaments ca. 6 mm long, united at base; ovary ca. 1.5 mm long, sericeous, near receptacle mouth, style ca. 6 mm long, basal 1/3 sericeous. Drupe vinaceous or purple, obovoid, sessile, 1.8–1.9 × 1–1.3 cm, epicarp smooth, longitudinally striate, glabrescent.

Selected material examined: Conceição da Barra, APA de Conceição da Barra, 30.XI.2011, fl., A. Giaretta 1108 (RB, SAMES, VIES); Comunidade de Lajinha, Fazenda Rancho Tropical II, restinga arbustiva alta com moitas, 5.VII.2007, fl. and fr., C. Farney 4772 (MBML, RB). Jaguaré, 20.XI.2023, fl., O.J. Pereira 10600 (SAMES). Linhares, de Linhares para São Mateus, 7.V.1966, fl., A.P. Duarte 9747 (HB, RB); Reserva Natural Vale, aceiro Luiz Durão, aceiro Nativo Parajú, 12.II.2020, fr., G. Felitto 1319 (CVRD, RB). São Mateus, seguindo por estrada de terra atrás do campus do CEUNES, 13.IX.2023, fl. and fr., N. Barros 29 (RB, SAMES).

Hirtella corymbosa can be recognized by the small (3.4–4.1 × 2–2.6 cm) elliptic to widely elliptic leaves, with a reduced acumen and rounded base, short petiole (1–2 mm long), corymbose panicle, with eglandular bracts and bracteoles and flower with 3 stamens. The flower (sepals, stamens and style) is also shorter in general compared with other species of *Hirtella*. Collected with flowers throughout the year and fruits from January to September.

Hirtella corymbosa is endemic to the Atlantic Forest, restricted to Bahia and Espírito Santo states (Asprino 2023). In the latter, it occurs in four municipalities in the northern part of the state, in Restinga and Mata de Tabuleiro, in Conceição da Barra, Jaguaré, Linhares and São Mateus, in Restinga areas and Tabuleiro Forests, especially in areas of Muçununga and Campos nativos. This species is assessed as Data Deficient (DD) for the state (Fraga *et al.* 2019), where it was collected in three protected areas: Área de Proteção Ambiental de Conceição da Barra, Parque Estadual de Itaúnas and Reserva Natural Vale. Considering the number of occurrences of *H. corymbosa* in the state and its distribution, inside and outside protected areas, a re-evaluation of its conservation status is necessary (Barros *et al.*, in prep.).

The common name for this species is orelha-de-gato (G. Felitto *et al.* 1319).

4.4. *Hirtella hebeclada* Moric., ex DC., Prodr. 2: 529. 1825. Fig. 6

Tree, up to 12 m tall, DBH 26–30 cm, stem 7–12 m tall, flat, bark rough; young branches

hispid to densely hispid, becoming glabrous with age, lenticellate. Leaves elliptic, $6.3\text{--}12.2 \times 3.7\text{--}6$ cm, chartaceous, discolourous, base cuneate, apex rounded to acuminate, acumen $0.5\text{--}4$ mm long, adaxially glabrescent to hispid, abaxially sparsely hispid, midrib plane adaxially and prominent abaxially, hispid, primary veins 8–10 pairs, hispid, occasionally with discoid glands abaxially at base or throughout all its length; petiole 3–6 mm long, terete, hispid to densely hispid; stipules 2, triangular, 2–3 mm long, hispid, persistent, eglandular. Inflorescence terminal to subterminal, racemose, densely hispid; bracts 2, triangular, 2 mm long, hispid, caducous; bracteoles 2, triangular, 1 mm long, hispid, persistent, with or without sessile glands. Flowers white, $1.9\text{--}2.2$ cm long, hispid, pedicel $0.8\text{--}1$ cm long; receptacle campanulate, $1\text{--}2$ mm long, glabrous except at throat; sepals triangular, $3\text{--}4$ mm long, pubescent, reflexed; petals white, rounded, ca. 4 mm long, glabrous; stamens vinaceous, 7, inserted unilaterally, united at base, filaments ca. 1 cm long; ovary ca. 1 mm long, sericeous, style ca. 1.2 cm long, hispid at base. Immature drupe green, obovoid, sessile, $0.9\text{--}2 \times 0.4\text{--}0.7$ cm, epicarp longitudinally striate, pubescent.

Selected material examined: Conceição da Barra, Trilha do Canastra, Flona do Rio Preto, 29.III.2019, fl., J. Gurtler 654 (RB, VIES). Domingos Martins, Rio Jucu, 25.I.2001, fl., O.J. Pereira 6840 (VIES). Itarana, Alto Jatiboca, Fazenda de Frederico Sadler, 26.II.2003, fr., J.A. Lombardi 5212 (MBM, UNOP). Linhares, Reserva Natural Vale, Estrada 162, km 1200, lado direito, 10.XII.1979, fl., I.A. Silva 131 (RB, NY, RBR). Marilândia, Alto Liberdade, propriedade de Deucleio Lorenzini, 19.IV.2006, fl., L.F.S. Magnago 937 (MBML). Santa Leopoldina, Serra do Ramallete, Fazenda Caioaba, propriedade Cláudio Virloni, trilha da divisa, lado esquerdo, 16.II.2006, fl., V. Demuner 1866 (MBML). Santa Teresa, Estrada do Vinte e Cinco de Julho, terreno do Fracalossi, 6.IV.1999, fl., L. Kollmann 2380 (MBML); Lombardia, 25.I.1954, fl., J. Dolbolmo (RB86219).

Hirtella hebeclada is similar to *H. santosii* in leaf shape (elliptic in *H. hebeclada* vs. elliptic to oblong-elliptic in *H. santosii*), with hispid indumentum on the lamina surface, midrib, petiole, stipules, inflorescence, bracts and bracteoles, the racemose inflorescence and same number of stamens (7). However, *H. hebeclada* can be distinguished by the shortly acuminate leaves, with cuneate base and lower number of primary veins (8–10 vs. 11–13 pairs). Collected with flowers from December to April and with immature fruits in February.

Hirtella hebeclada is restricted to Brazil and occurs in Espírito Santo, Minas Gerais, Paraná, Rio de Janeiro, Rio Grande do Sul, Santa Catarina and São Paulo (Asprino 2023). In Espírito Santo it occurs in Restinga, Ombrophilous forest and Mata de Tabuleiro, in the municipalities of Conceição da Barra, Domingos Martins, Itarana, Linhares,

Marilândia, Santa Leopoldina and Santa Teresa. It has been collected in four protected areas, Estação Biológica de Santa Lúcia, Floresta Nacional do Rio Preto, Reserva Biológica Augusto Ruschi and Reserva Natural Vale.

4.5. *Hirtella insignis* Briq. ex Prance, Fl. Neotrop. Monogr. 9: 279. 1972. Fig. 6

Shrub or tree, up to 12 m tall, DBH 5.7 cm, stem $1.5\text{--}4$ m tall, cylindric, bark rough; young branches sparsely hispid, becoming glabrous with age, conspicuously lenticellate. Leaves oblong to oblong-elliptic, $6.7\text{--}14.2 \times 3.2\text{--}6.5$ cm, chartaceous to coriaceous, discolourous, base subcordate, apex acuminate, acumen up to 5 mm long, glabrous on both sides, midrib plane to prominulous adaxially, prominent abaxially, glabrous, primary veins 7–8 pairs, with sessile discoid glands at lamina base, margin slightly revolute, glabrous to sparsely hispid; petiole 2–4 mm long, glabrous to sparsely hispid, terete, eglandular; stipules 2, linear, 2–3 mm long, chartaceous, sparsely hispid, persistent. Inflorescence terminal, corymbose panicle, sparsely hispid to glabrescent, bracts 2, lanceolate, ca. 2 mm long, sparsely hispid, with or without stipitate gland at apex; bracteoles 2, triangular, $1\text{--}2$ mm long sparsely hispid, with or without stipitate gland at apex. Flowers ca. $1.6\text{--}2$ cm long, glabrescent, pedicel $5\text{--}6$ cm long; receptacle campanulate, ca. 2 mm long, glabrous except at throat; sepals triangular, $3\text{--}3.5$ mm long, puberulous, reflexed; petals rounded, $4\text{--}5$ mm long, glabrous; stamens 5, inserted unilaterally, filaments white to purple, ca. 1.2 cm long, united at base; ovary $1.5\text{--}2$ mm long, sericeous, style $0.8\text{--}1$ mm long, basal $1/2$ tomentulose. Drupe vinaceous, obovoid, sessile, $1.5\text{--}2 \times 0.8\text{--}1.1$ cm, epicarp smooth, longitudinally striate, glabrescent.

Selected material examined: Águia Branca, Águas Claras, Zequinha, 15.VIII.2007, fr., R.R. Veroliet 3185 (HUEFS, MBML). Aracruz, M7-1 no carreador para chegar no pomar, 4.III.1993, fl., R.N. Oliveira 443 (CAP, VIES). Conceição da Barra, Rebio do Córrego Grande, Mata de Tabuleiro, 11.II.2013, fl., M.B. Costa 29 (SAMES, VIES). Domingos Martins, BR-262 sentido MG, floresta ciliar, após ponte do Rio Jucu, 11.I.2001, fl., O.J. Pereira 6729 (VIES). Itapemirim, Estrada para Marataízes, mata de restinga perturbada, perto do lixão, a ca. 3 km N de Marataízes, 22.II.1995, fl. and fr., J.R. Pirani 3585 (K, MBM, NY, SPF). Linhares, Reserva Natural Vale, Estrada 154 km, lado esquerdo da contra-mão, vindo para o escritório, 5.VIII.1979, fl., D.A. Folli 76 (CVRD, INPA, NY, RBR). Rio Bananal, Alto Bananal, 1.VIII.2007, fr., R.R. Veroliet 3084 (MBML); propriedade de Jonas Graci, 25.IV.2007, fl., V. Demuner 3829 (MBML). Sooretama, Reserva Natural Vale, 2.II.2013, fl., M.G. Caxambu 4533 (HCF).

Hirtella insignis is characterized by the conspicuously lenticellate branches, oblong to oblong-elliptic glabrous leaves, with subcordate base, short petiole (2–4 mm long) and a terminal corymbose panicle inflorescence. An easily

recognizable feature is the stipitate gland at the apex of the bracts and bracteoles, however this was not observed in all the analyzed exsiccatae. Collected with flowers January to May and August, and fruits in February, August and November.

Hirtella insignis occurs in Alagoas, Bahia and Espírito Santo (Asprino 2023). In the latter, it is recorded in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Águia Branca, Aracruz, Conceição da Barra, Domingos Martins, Itapemirim, Linhares, Rio Bananal and Sooretama municipalities. This species was assessed as Near Threatened (NT) for Brazil, and Data Deficient (DD) for the state of Espírito Santo (Fernandez & Moraes 2019; Fraga *et al.* 2019).

However, the conservation status of *H. insignis* for the state should be re-evaluated as we found specimens from municipalities where the species had not been previously reported. This additional data suggests that the species is not currently threatened. *Hirtella insignis* occurs in different municipalities and is present in some protected areas (*e.g.*, Floresta Nacional de Goytacazes, Reserva Biológica de Comboios, Reserva Biológica do Córrego Grande, Reserva Natural Vale).

4.6. *Hirtella parviunguis* Prance, Revista Brasil. Bot. 2(1): 34. 1979. Figs. 1e-f; 8

Tree, up to 23 m tall, DBH 38 cm, stem 12 m tall, cylindric, bark rough; young branches sparsely pubescent, becoming glabrous with age, lenticellate. Leaves elliptic, 3.9–7.2 × 1.3–2.9 cm, chartaceous, discolorous, base cuneate, apex acute to acuminate, acumen 3–4 mm long, glabrous on both sides, midrib plane to prominulous adaxially, prominulous abaxially, primary veins 7–9 pairs, sometimes with discoid glands at the base of the lamina; petiole 2–3 mm long, pubescent, terete, eglandular; stipules 2, lanceolate, 3–6 mm long, chartaceous, pubescent, at petiole basis, persistent. Inflorescence terminal, racemose, pubescent; bracts 2, lanceolate, 6–7 mm long, pubescent; bracteoles 1, triangular, ca. 2 mm long, pubescent, eglandular. Flowers ca. 1.7 cm long, pubescent, pedicel 4–6 cm long; receptacle campanulate, 2–3 mm long, glabrous except at throat; sepals rounded, with acute apex, ca. 3 mm long, pubescent, reflexed; petals elliptic, ca. 3 mm long, glabrous; stamens 6, inserted unilaterally, filaments 1.2–1.3 cm long, free; ovary ca. 1 mm long, sericeous, style 1.1–1.3 cm long, basal 1/3 sericeous. Drupe dark green, obovoid, sessile, 2.2–2.9 × 1.4–1.5 cm, epicarp smooth, longitudinally striate, glabrous.

Selected material examined: Domingos Martins, Melgaço, 8.XI.1993, fr., G. Hatschbach 59746 (CEPEC, US). Linhares, estrada a povoação, 30.III.1971, fl., T.S. Santos 1512 (CEPEC, NY); Reserva Natural Vale, Estrada Parajú,

próximo à antiga casa de guarda, 24.VIII.1993, fr., D.A. Folli 1958 (CVRD, RB).

Hirtella parviunguis is close to *H. barrosoi* (see comments under this species). However, it can be distinguished by the leaves with shorter acumen, stipules at base of petiole, racemose inflorescence, larger bracts and higher number of stamens. Collected with flowers from March to July, and fruits from August to November.

Hirtella parviunguis is here confirmed endemic to Espírito Santo state, recorded only in the municipalities of Domingos Martins and Linhares, in Restinga, Ombrophilous forest and Mata de Tabuleiro areas. This species is classified as EN for the country (Brasil 2022) and Critically Endangered (CR) for the state (Fraga *et al.* 2019). It was collected in only one protected area, Reserva Natural Vale.

The common names for this species are cabaceiro (D.A. Folli 2007) and macucurana (D.A. Folli 1958)

4.7. *Hirtella racemosa* Lam., Encycl. 3(1): 133. 1789. Figs. 7c-d; 8

Shrub or small tree, up to 4 m tall, young branches sparsely hispid, becoming glabrous with age, lenticellate. Leaves oblong to obovate, 10–14.1 × 3.1–4.8 cm, chartaceous, discolorous, base cuneate, apex acuminate, acumen 1–1.3 cm long, glabrous to glabrescent on both sides, midrib prominent on both sides, glabrous to sparsely hispid, primary veins 9–11 pairs, eglandular, margin glabrous to sparsely hispid; petiole 3–4 mm long, sparsely hispid, terete, eglandular; stipules 2, 5–9 mm long, linear, chartaceous, glabrous to sparsely hispid, caducous. Inflorescence subterminal to axillary, racemose, pubescent; bracts 2, linear, ca. 7 mm long, pubescent to sparsely hispid, with sessile glands; bracteoles 2, linear, 1.5 mm long, pubescent to sparsely hispid, with sessile glands. Flowers 1.6–2 cm long, pubescent, pedicel 3–4 mm long; receptacle campanulate, 1–2 mm long, glabrous; sepals triangular to rounded, 2–3 mm long, pubescent, reflexed; petals white, rounded, 4–5 mm long, glabrous; stamens 6, lilac or yellow with pinkish apex, inserted unilaterally, filaments 1–1.2 cm long, united at base; ovary ca. 1 mm long, villous, style 1.1–1.3 cm long, basal 1/3 hispid. Drupe reddish, ellipsoid, sessile, 1.4–1.5 × 0.5–0.6 cm, epicarp smooth, longitudinally striate, glabrescent.

Selected material examined: Barra de São Francisco, Parque Municipal Sombra da Tarde, 12.XII.2000, fr., L. Kollmann 3510 (MBML). Conceição da Barra, Rebio Córrego Grande, trilha dos km, 11.XII.2022, fl., M.S. Carvalho-Neta 43 (SAMES). Governador Lindenberg, Mata da Prefeitura, 14.XI.2006, fr., V. Demuner 3070 (MBML). Linhares, Reserva Natural Vale, Trilha do Peroba-amarela, 28.XI.2017, fl., G.S. Siqueira 1207 (CVRD). Marilândia, Liberdade, propriedade Deoclécio Lorenccini, 11.XII.2007, fl., V. Demuner 4743 (MBML).

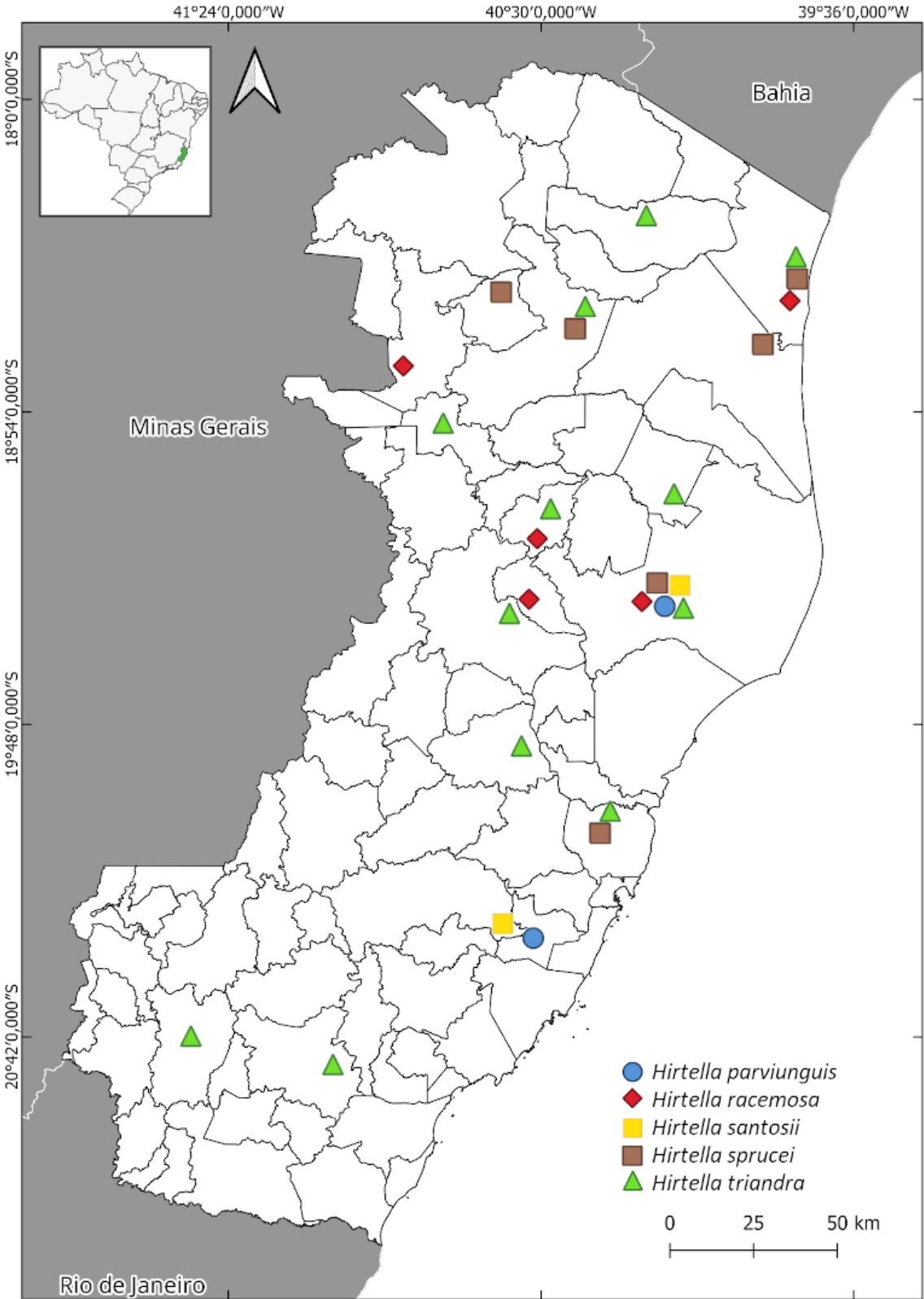


Figure 8 – Distribution map of *Hirtella parviunguis*, *Hirtella racemosa*, *Hirtella santosii*, *Hirtella sprucei* and *Hirtella triandra* in Espírito Santo state.

Hirtella racemosa has three varieties, *H. racemosa* var. *hexandra* (Willd. ex Roem. & Schult.) Prance, *H. racemosa* var. *hispid*a Prance and *H. racemosa* var. *racemosa*, but as the characters overlap in the material examined, this classification is not adopted here.

Hirtella racemosa can be recognized by the sparsely hispid to glabrous branches, larger leaves with cuneate base, glabrous to sparsely hispid margin, hispid petiole and stipules, racemose inflorescence and bracteoles with sessile glands. Collected with flowers from October to February, and fruits in November and December.

This species has a wide distribution, from North to South America (Prance & Sothers 2003b). In Brazil it has already been recorded in all the states of the North, Northeast and Central-West regions, and Espírito Santo, Minas Gerais and Rio de Janeiro in the Southeast region (Asprino 2023; Barros *et al.* 2022). In Espírito Santo it occurs in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Barra de São Francisco, Conceição da Barra, Governador Lindenberg, Linhares, Marilândia and Vila Pavão municipalities. This species was assessed as Least Concern (LC) at a national level, but for the state of Espírito Santo it is assessed as Endangered (EN) (Oliveira & Messina 2012; Fraga *et al.* 2019). It is represented by a few collections spread throughout the state and was collected in three protected areas: Parque Natural Municipal Sombra da Tarde, Reserva Biológica do Córrego Grande and Reserva Natural Vale, which confirms the EN status.

4.8. *Hirtella santosii* Prance, Revista Brasil. Bot. 2(1): 34. 1979. Fig. 8

Shrub, up to 2 m tall, young branches hispid, becoming sparsely hispid with age, lenticellate. Leaves elliptic to oblong-elliptic, 11–14 × 3.8–5.7 cm, chartaceous, discolorous, base rounded, apex acuminate, acumen 4–7 mm long, sparsely hispid to glabrescent adaxially, sparsely hispid abaxially, margin sparsely hispid, midrib prominent adaxially, prominent abaxially, hispid, primary veins 11–13 pairs, sparsely hispid to glabrescent on both surfaces, discoid glands throughout the lamina; petiole 3–4 mm long, hispid, terete, eglandular; stipules 2, ca. 4 mm long, lanceolate, chartaceous, hispid, persistent. Inflorescence terminal, racemose, densely hispid; bracts 1, lanceolate, 2–3 mm long, hispid, with sessile glands; bracteoles 2, triangular, ca. 1 mm long, hispid, with sessile glands. Flowers 2–2.5 cm long, sparsely hispid, pedicel ca. 1.1 cm long; receptacle campanulate, ca. 3 mm long, glabrous except at throat; sepals triangular, 3–3.5 mm long, pubescent, reflexed; petals white, triangular to rounded, 4–5 mm long, glabrous; stamens 7, in a complete circle,

filaments vinaceous 1.3–1.4 cm long, united at base; ovary ca. 1.5 mm long, villous, style ca. 1.5 mm long, basal 1/3 hirsute. Drupe not seen.

Material examined: Domingos Martins, BR-262, prox. a Vitor Hugo, Rio Jucu, Braço Sul, 17.I.1995, fl., G. Hatschbach 61601 (CEPEC). Linhares, Reserva Natural Vale, Estrada Paraju, km 0, 2.XII.2006, fl., E.J. Lucas 974 (CVRD, ESA, K, RB).

Additional material: BRAZIL. BAHIA: Almadina, Serra do Corcovado, acesso pela fazenda de Seu Francisco, 23.XI.2014, fl., R. Asprino 112 (RB).

Hirtella santosii is similar to *H. hebeclada* as mentioned before but can be characterized by the rounded leaf base, longer acumen and higher number of primary veins. Collected with flowers in December.

Hirtella santosii is an Atlantic Forest endemic species, and is recorded to Alagoas, Bahia and Espírito Santo (Asprino 2023; Asprino & Amorim 2016). In the latter it is recorded by only two collections, in Ombrophilous forest and Mata de Tabuleiro, in Domingos Martins and Linhares municipalities, one of them inside a protected area (Reserva Natural Vale). This species is assessed as Endangered (EN) for the country (Brasil 2022) and we suggest the same category for the state.

4.9. *Hirtella sprucei* Benth. ex Hook.f., Fl. bras. (Martius) 14(2): 31. 1867. Figs. 7e–f; 8

Shrub or tree, up to 8 m tall, DBH 6 cm, stem ca. 5 m tall, cylindric, bark rough; young branches hispid, becoming glabrous with age, lenticellate. Leaves oblong, 9.6–17 × 2.1–3.3 cm, chartaceous, discolorous, base subcordate, apex acuminate, acumen 0.6–1 cm long, glabrous on both sides, midrib prominent on both sides, glabrous to sparsely hispid, primary veins 7–13 pairs, eglandular; petiole 2–4 mm long, hispid, terete, eglandular; stipules 2, linear, 6–7 mm long, chartaceous, hispid, caducous. Inflorescence subterminal to axillary, racemose, pubescent; bracts 2, linear, 3–6 mm long, hispid, eglandular; bracteoles 2, triangular, ca. 0.5 mm long, pubescent, with sessile glands. Flowers white, 1.5–1.9 cm long, pubescent, pedicel 3–4 mm long; receptacle campanulate, 1–2 mm long, glabrous except at throat; sepals triangular, 2–3 mm long, pubescent, reflexed; petals rounded, 3–3.5 mm long, glabrous; stamens 4–5, inserted unilaterally, purplish, filaments 1.9 cm long, free; ovary villous, ca. 1 mm, style ca. 5 mm long, basal 1/3 hispid. Drupe ellipsoid, sessile, 1.4–1.9 × 0.6–0.7 cm, epicarp smooth, longitudinally striate, glabrescent to glabrous.

Selected material examined: Conceição da Barra, Rebio do Córrego Grande, floresta alta sobre tabuleiro, km 5 ao 6 da estrada interna, 5.VI.2011, fr., M. Ribeiro 551 (SAMES). Linhares, Reserva Natural Vale, Estrada da Juerana-vermelha, Barra Seca, fr., M.B. Paciencia 2463 (CVRD, ESA); Estrada 161, km 1250, lado direito, 26.XII.1979, fl.,

I.A. Silva 136 (INPA, NY, RB, RBR). Nova Venécia, Fazenda Santa Rita, ao pé da pedra da torre (P7), 21.II.2018, fl. and fr., J.A.C. Gurtler 497 (VIES). São Mateus, 8.XI.2022, fl., L.F.T. Menezes 3257 (SAMES). Serra, APA Mestre Álvaro, 15.II.2013, fl., P.H.D. Barros 166 (VIES). Vila Pavão, Barra da Rapadura, Fazenda do Sr. Wagner Scardini, 16.II.2014, fl., R.C. Forzza 7837 (HUEFS, K, RB, VIES).

Hirtella sprucei is easily distinguished by the hispid to glabrous branches, slender leaves, hispid indumentum on the lamina midrib, petiole and stipules, subcordate leaf base, short petiole (sometimes partially covered by the leaf) and non-conspicuous primary veins. Collected with flowers from November to March and fruits in January and June.

Hirtella sprucei has been recorded in Bahia, Espírito Santo, Mato Grosso, Minas Gerais and Rio de Janeiro states (Asprino 2023). In Espírito Santo it occurs in Restinga, Ombrophilous forest, Mussununga and Mata de Tabuleiro, in Conceição da Barra, Linhares, Nova Venécia, São Mateus, Serra and Vila Pavão municipalities. It is assessed as Vulnerable (VU) for the state (Fraga *et al.* 2019), where it was collected in four protected areas: Área de Proteção Ambiental de Mestre Álvaro, Floresta Nacional de Goytacazes, Reserva Natural Vale and Reserva Biológica do Córrego Grande. It may not be in a lower extinction risk.

The common name for this species is cordão-de-frade (D.A. Folli 5468, G.S. Siqueira 1346).

4.10. *Hirtella triandra* Sw., Prodr. 51. 1788.

Fig. 8

Tree, up to 9 m tall, DBH 25 cm; young branches sparsely hispid, becoming glabrous with age, lenticellate. Leaves elliptic, 4.4–10.9 × 2.5–4.1 cm, chartaceous, discolorous, base cuneate, apex acute to acuminate, acumen ca. 3 mm long, glabrous on both sides, midrib plane to prominulous adaxially, prominent abaxially, basal 1/3 hirsute to glabrous adaxially, sparsely hispid abaxially, primary veins 8–10 pairs, sparsely hispid abaxially, with discoid glands throughout leaf lamina, margin slightly revolute; petiole 2–3 mm long, sparsely hispid to glabrous, terete, eglandular; stipules 2, linear, 2–3 mm long, chartaceous, hispid, caducous. Inflorescence terminal or axillary, paniculate, hispid; bracts 2, triangular, 5–6 mm long, hispid, margin with sessile glands; bracteoles 2, triangular, 1–3 mm long, hispid, eglandular. Flowers 1.3–1.6 cm long, pubescent, pedicel ca. 1.5–2 cm long; receptacle campanulate, ca. 1 mm long, glabrous; sepals rounded, with acute apex, 2–3 mm long, puberulous, reflexed; petals rounded, 1.5–2 mm long, glabrous; stamens 3, inserted unilaterally, filaments 1.1–1.2 cm long, united at base; ovary ca. 1–1.5 mm long, sericeous, style ca. 1–1.5 cm long, basal 1/3 tomentulose. Drupe obovoid, sessile,

1.1–1.9 × 0.6–0.9 cm, epicarp smooth, longitudinally striate, glabrescent.

Selected material examined: Águia Branca, Assentamento 16 de abril, 4.X.2007, fl. and fr., H.Q. Boudet Fernandes 3485 (MBML). Alegre, São João do Norte, PCH Santa Fé, reservatório de derivação, ilha pluvial do Rio Braço Norte, 5.VIII.2008, fl., V.C. Manhães 98 (MBML, VIES). Cachoeiro de Itapemirim, R.F. Bananal do Norte, 29.IX.1993, fl., G. Acacio 68 (CAP, VIES). Colatina, margem do Pancas, Estrada Velha, Rio Doce, 20.IX.1930, fl. and fr., J.G. Kuhlmann 381 (RB). Conceição da Barra, Flona do Rio Preto, trilha da sede abandonada, 12.XI.2019, fl. and fr., S.C. Dutra 32 (VIES). Governador Lindenberg, Morelo, propriedade de Fernando Nicolli, 5.XI.2007, fl., V. Demuner 4456 (MBML). Linhares, Reserva Natural Vale, C.N. Gávea, 25.VI.2010, fl. and fr., V.B.R. Ferreira 138 (RB, VIES). Nova Venécia, fazenda próxima a pedra da cebola, ataques no meio do pasto, estrada seguindo para Gameleira, 4.XI.2010, fl. and fr., M. Ribeiro 355 (RB, SAMES, VIES). Pinheiros, Rebio Córrego do Veado, estrada a esquerda da sede da Rebio que vai para o Córrego da água limpa, 15.VIII.2010, fl., I.S. Broggio 81 (RB, VIES); 1.XI.2010, fr., I.S. Broggio 109 (RB, VIES). Santa Teresa, Várzea Alegre, Cachoeira do Mandalon, 27.VII.2000, fl., V. Demuner 1328 (MBML). Serra, Nova Almeida, Sítio São José, 28.XII.1999, fl. and fr., I.D. Rodrigues 232 (VIES); propriedade de Venturini e José Altoé, estrada para Putiri, 24.XII.1999, fr., I.D. Rodrigues 215 (VIES). Sooretama, estrada entre vilarejo Juncado e a Rebio de Sooretama, 2.X.2016, fl. and fr., K.S. Valdemarin 160 (CEN, CVRD, ESA, RB, SPSE, UEC).

Hirtella triandra has three subspecies, *H. triandra* subsp. *media* (Standl.) Prance, *H. triandra* subsp. *punctulata* (Miq.) Prance and *H. triandra* subsp. *triandra*, but the characters that delimit them often overlap in the specimens analyzed. Thus, no infraspecific taxa was used here.

Hirtella triandra can be distinguished by the glabrous elliptic leaves, with cuneate base and slightly revolute margin, paniculate hispid inflorescence and flowers with only 3 stamens. Collected with flowers in July and September to December, and fruits from April to December.

This taxon occurs in Acre, Amazonas, Bahia, Espírito Santo, Mato Grosso, Minas Gerais, Pará, Rio de Janeiro, Rondônia, and Roraima (Asprino 2023). In Espírito Santo state it was collected in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Águia Branca, Alegre, Cachoeiro de Itapemirim, Colatina, Conceição da Barra, Governador Lindenberg, Linhares, Nova Venécia, Pinheiros, Santa Teresa, Serra and Sooretama municipalities. Although *H. triandra* was assessed as Vulnerable (VU) for the state (Fraga *et al.* 2019), this species is present in 10 municipalities and four protected areas (Floresta Nacional do Rio Preto, Reserva Biológica Córrego do Veado, Reserva Biológica de Sooretama, Reserva Natural Vale) and may not be at such a high risk of extinction.

The common names for this species are azeitona-ciliar (D.A. Folli 2065) and azeitona-domorro (D.A. Folli 6666).

5. *Hymenopus* (Benth.) Sothers & Prance, Kew Bull. 71(4):58: 14. 2016.

The genus comprises 28 species, distributed from Central and South America (Sothers *et al.* 2016). In Brazil there are 20 accepted species, one of which occurs in Espírito Santo, *Hymenopus heteromorphus* var. *heteromorphus* (Benth.) Sothers & Prance.

5.1. *Hymenopus heteromorphus* (Benth.) Sothers & Prance var. *heteromorphus*, Kew Bull. 71(58): 18. 2016.

Basionym: *Licania heteromorpha* Benth., J. Bot. (Hooker), 2: 221. 1840. Figs. 1g-h; 2

Tree, up to 26 m tall, DBH 18–55 cm., stem ca. 5–16 m tall; young branches hispid, becoming glabrous with age, lenticellate. Leaves elliptic to oblong-elliptic, 7.7–10.2 × 3.2–4.7 cm, chartaceous to coriaceous, slightly discolorous, base cuneate, with 2 glands, apex rounded to acute, glabrous on both sides, midrib prominent adaxially, sparsely hispid on both surfaces, becoming glabrous with age adaxially, without stomatal crypts, margin glabrous to hispid, becoming glabrous with age, primary veins 10–13 pairs, sparsely hispid abaxially; petiole 4–6 mm long, hispid, terete; stipules 2, lanceolate, ca. 5.5 mm long, chartaceous, hispid abaxially, caducous. Inflorescence subterminal to terminal, panicle of cymes, pubescent; bracts caducous (not seen); bracteoles 1–1.5 mm long, triangular, pubescent. Flowers 2–5 mm long, white, green or yellow, pubescent, sessile or pedicellate, pedicel 1–1.5 mm long; receptacle campanulate, 1–1.5 mm long, pubescent; sepals triangular, ca. 1 mm long, glabrous adaxially, pubescent abaxially; petals 5, ca. 1 mm long, glabrous adaxially, pubescent abaxially; stamens 5, filaments ca. 0.5 mm long, glabrous, free, included, inserted in a complete circle; ovary ca. 0.5 mm long, inserted at receptacle base, villous; style ca. 0.5 mm long, glabrous. Drupe globose, sessile, 2–2.7 × 2.2–2.5 cm, epicarp granular, glabrous.

Selected material examined: Conceição da Barra, Aracruz Celulose S.A., 22.IX.1992, fr., O.J. Pereira 3883 (VIES); Itaúnas, mata seca de restinga sobre cordão arenoso próximo de uma área entre cordões dominado por *Montrichardia*, área atrás da Fazenda Jequitiaia, 14.I.2010, fl., A. Giaretta 692 (SAMES). Linhares, Reserva Natural Vale, 14.XII.1981, fl., H.C. de Lima 1660 (NY, RB). Jaguaré, lado esquerdo da casa de guarda na área do Estivado, 30.XI.1992, fr., D.A. Folli 1744 (RB). Marilândia, Alto Liberdade, propriedade de Deucleio Lorenzini. 19.IV.2006, fr., L.F.S. Magnago 943 (MBML). Pinheiros, Rebio Córrego do Vead, 13.II.2022, L.F.T. Menezes

2937 (SAMES). Santa Teresa, Rebio Augusto Ruschi, Nova Lombardia, 7.XI.2001, fr., L. Kollmann 4985 (MBML).

Hymenopus heteromorphus var. *heteromorphus* is quite different from the other taxa occurring in the state. The flowers and its structures are reduced, especially the included stamens. In some exsiccatae there are pedicellate and sessile flowers in the same inflorescence. The slightly discolorous leaves and the hispid pubescence present on young branches, stipules, leaf margin and primary veins also help in its identification. Collected with flowers from March to July and December, and fruits from April and September to November.

This taxon occurs in Bolivia, Brazil, Colombia, French Guiana, Guyana, Peru and Venezuela (Sothers *et al.* 2016). In Brazil it is recorded in Amazonas, Amapá, Espírito Santo, Maranhão, Mato Grosso, Pará, Rio de Janeiro, Rondônia and Roraima (Barros *et al.* 2022; Sothers & Prance 2023d). In Espírito Santo it occurs in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Conceição da Barra, Linhares, Jaguaré, Marilândia, Pinheiros and Santa Teresa municipalities. In the state it was collected in three protected areas (Reserva Natural Vale, Reserva Biológica Córrego do Vead, Reserva Biológica Augusto Ruschi) and can be considered “Near Threatened” (NT).

The common name for this species is Carrapeta (D.A. Folli 1744, D.A. Folli 4801, I.A. Silva 008).

6. *Leptobalanus* (Benth.) Sothers & Prance, Kew Bull. 71(4):58: 21. 2016.

Shrubs or trees. Leaf lower surface glabrous, tomentose or lanate, stomatal crypts present or absent. Inflorescence panicle, racemose panicle or panicle of cymes. Bracteoles small. Sepals 5. Petals absent. Stamens (7–)8–10(12–22), filaments usually far exceeding calyx lobes, in a complete circle; filaments free or less often slightly connate at base, glabrous. Ovary villous or bearing some form of pilosity, rarely entirely glabrous; inserted at base of receptacle. Fruit globose to ellipsoid; epicarp smooth, lenticellate or pubescent; endocarp pubescent or rarely glabrous (Sothers *et al.* 2016).

With 31 species, *Leptobalanus* is distributed from Mexico to Brazil (Prance & Sothers 2003b). In Brazil the genus has 15 species, present in the Amazonian domain, Atlantic Forest and Cerrado (Sothers & Prance 2023e). In Espírito Santo it is represented by two species, *Leptobalanus octandrus* (Hoffmanns. ex Schult. & Roem.) Sothers & Prance subsp. *octandrus* and *Leptobalanus turbinatus* (Benth.) Sothers & Prance.

Identification key for *Leptobalanus* from the state of Espírito Santo

1. Leaves with cuneate base and stomatal crypts on the abaxial surface; inflorescence racemose panicle; stamens usually longer (4–5 mm) 6.1. *Leptobalanus octandrus* subsp. *octandrus*
- 1'. Leaves with rounded base, without stomatal crypts; inflorescence compound cymes; stamens usually shorter (1–4 mm) 6.2. *Leptobalanus turbinatus*

6.1. *Leptobalanus octandrus* (Hoffmanns. ex Schult. & Roem.) Sothers & Prance subsp. *octandrus*, Kew Bull. 71(4)-58: 27. 2016.

Basionym: *Hirtella octandra* Hoffmanns. ex Roem. & Schult., Syst. Veg. 15(5): 274. 1819. Figs. 1i-j; 9

Shrub to tree, up to 30 m tall, DBH 25–30 cm, stem 2–20 m tall, cylindric; branches glabrous, lenticellate. Leaves elliptic, 4–8.2 × 2.1–4.5 cm, chartaceous, discolorous, base cuneate, apex acuminate, rarely acute or rounded, acumen up to 4 mm long, glabrous adaxially, glabrescent to tomentose abaxially, with stomatal crypts, midrib prominent on both sides, primary veins 6–9 pairs; petiole 4–7 mm long, glabrous to puberulous, plane adaxially, with 2 discoid glands, near lamina; stipules 2, filiform, 2–5 mm long, chartaceous, puberulent, often caducous. Inflorescence terminal to subterminal, racemose panicle, sparsely tomentulose; bracts 1, triangular, ca. 1.5 mm long, sparsely tomentulose; bracteoles 3, triangular, ca. 0.5 mm long, pubescent. Flowers 4–6 mm long, green to yellow, pubescent, sessile or pedicellate, pedicel ca. 1 mm long; receptacle campanulate, ca. 1 mm long, tomentose; sepals triangular, 1–1.5 mm long, sericeous on both sides; stamens 8–11, 4–5 mm long, filaments glabrous, free; ovary 0.5–1 mm long, sericeous; style 2.5–3 mm long, sparsely sericeous to half its length. Drupe ellipsoid, green, stipitate or not, 1.6–2.1 × 1.8–2 cm, epicarp smooth, glabrous.

Selected material examined: Água Doce do Norte, afloramento rochoso próximo ao centro da cidade, 24.VI.2015, fr., J. Luber 138 (VIES). Aracruz, Al-Guaraná, 8.IV.1992, fl., R.N. Oliveira 212 (VIES). Conceição da Barra, Rebio do Córrego Grande, área de Muçununga, Trilha da Lagoa, 30.X.2012, fl., M. Ribeiro 831 (RB, SAMES, VIES). Itarana, Limoeiro de Santo Antônio, 18.IV.2009, fl., V.B. Sarnaglia Júnior 35 (VIES). Jerônimo Monteiro, Condomínio Vivenda dos Mestres, 6.X.2011, fl., H.M. Dias 793 (VIES). Linhares, Reserva Natural Vale, próx. a Estrada 161 talhão 601, 14.II.1973, fl., J. Spada 193 (INPA, RB); Estrada Flamengo, 19.XI.2014, fr., D.A. Folli 7309 (CVRD, RB). Marilândia, Liberdade, propriedade Deoclécio Lorencini, 14.VII.2006, fl., V. Demuner 2650 (MBML, RB); fl. and fr., 11.XII.2007, V. Demuner 4752 (MBML). Santa Maria de Jetibá, Belém, terreno de Paulo Seik, 25.IX.2003, fr., L. Kollmann 6291 (MBML); 17.VI.2003, fr., L. Kollmann 6220 (MBML). Santa Teresa, São Antônio, terreno do Boza, 22.III.1999, fl., L. Kollmann 2211 (MBML, RB); 27.IV.1999, fr., L. Kollmann 2515 (MBML, RB).

Leptobalanus octandrus subsp. *octandrus* can be distinguished by the chartaceous leaves, less conspicuous and less pubescent stomatal crypts, often caducous stipules and exserted stamens (4–5 mm long). Collected with flowers from October to April and July, and fruits from April to November.

Leptobalanus octandrus subsp. *octandrus* is a widely distributed taxon, recorded in Bolivia, Colombia, Guianas, Peru, Venezuela and Brazil (Prance & Sothers 2003a). In the latter it occurs

in all states from the Central-West and Southeast regions, in the states of Amazonas, Amapá, Bahia, Ceará, Maranhão, Pará, Paraíba, Pernambuco, Roraima, Sergipe and Tocantins (Sothers & Prance 2023e). In Espírito Santo it occurs in Ombrophilous forest, Mussununga and Mata de Tabuleiro, in the municipalities of Água Doce do Norte, Aracruz, Conceição da Barra, Itarana, Jerônimo Monteiro, Linhares, Marilândia, Santa Maria de Jetibá and Santa Teresa. It was collected in three protected areas (Floresta Nacional do Rio Preto, Reserva Biológica do Córrego Grande, Reserva Natural Vale) and is not considered threatened.

The common names for this species are azeitona-verde (D.A. Folli 5544, 7309, A.A. da Luz 4), milho-torrado (J. Spada 193) and milho-torrado-mirim (J. Spada 67/78).

6.2. *Leptobalanus turbinatus* (Benth.) Sothers & Prance, Kew Bull. 71(4)-58: 28. 2016.

Basionym: *Licania turbinata* Benth., J. Bot. (Hooker) 2: 218. 1840. Fig. 9

Tree?; young branches glabrescent, becoming glabrous with age, lenticellate. Leaves elliptic, 3.1–5.2 × 2.3–2.6 cm, coriaceous, discolorous, base rounded, apex acute to rounded, glabrous on both sides, without stomatal crypts, midrib prominulous adaxially, prominent abaxially, primary veins 7–9 pairs, margin slightly revolute; petiole 3–4 mm long, glabrous, canaliculate, eglandular; stipules 2, ca. 4 mm long, lanceolate, glabrous, caducous. Inflorescence terminal, compound cymes, pubescent; bracts lanceolate, 1 mm long, pubescent, sometimes with discoid glands at base; bracteoles 3, triangular, ca. 0.5 mm long, pubescent, eglandular. Flowers ca. 6 mm long, pedicellate, pedicel ca. 1 mm long, pubescent, receptacle campanulate, ca. 1.5–2 mm long, pubescent on the inside, tomentose at apex; sepals triangular, ca. 1.5 mm long, pubescent; stamens ca. 10, 1–4 mm long, free, filaments glabrous; ovary ca. 1 mm long, sericeous; style ca. 6 mm long, tomentose at base. Drupe ellipsoid, not stipitate, 2.3–2.5 × 1.9–2 cm, epicarp smooth, glabrous.

Material examined: Vitória, 6.II.1941, fr., A. Ruschi SP45069 (SP).

Additional material: BAHIA. Porto Seguro, próximo ao Arraial da Ajuda, 25.XI.1963, fl., A.P. Duarte 8057 (NY, RB).

Leptobalanus turbinatus can be confused with *Licania littoralis* by their glabrous leaves, of similar size, number of primary veins, slightly revolute margin and short petiole. It can be distinguished by the less conspicuous primary veins, flowers with exserted and more numerous stamens, and the glabrous and not stipitate fruit. Collected with fruits in February.

As the only specimen for Espírito Santo does not have the habit or other stem details

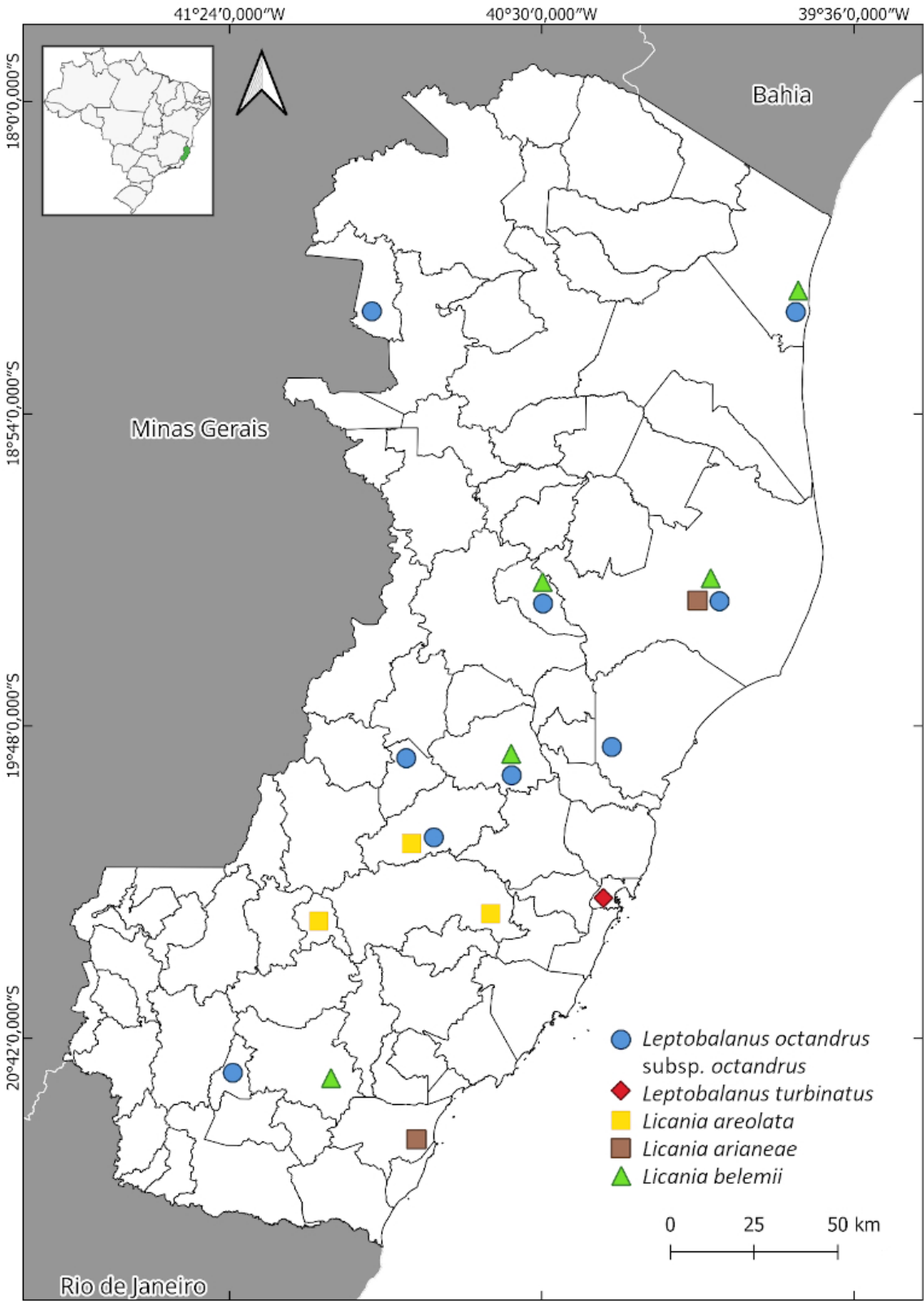


Figure 9 – Distribution map of *Leptobalanus octandrus* subsp. *octandrus*, *Leptobalanus turbinatus*, *Licania areolata*, *Licania arianeae* and *Licania belemii* in Espírito Santo state.

available, we do not include this information in the description. Specimens from Bahia, a neighbouring state, are trees, up to 3 m tall.

Leptobalanus turbinatus occurs in areas of restinga in Bahia and Pernambuco (Sothers & Prance 2023), and is here first recorded for the state of Espírito Santo, only in the municipality of Vitória. In the state this species is represented by only one record from 1941 and it is not associated with any protected area, which suggests it is under a high threat level. Brasil (2022) assessed it as “Endangered” (EN) for the country.

The common name for this species is faia-branca (*A. Ruschi* SP45069).

7. *Licania* Aubl., Hist. Pl. Guiane 1: 119. 1775.

Trees or shrubs. Leaf variously pilose or glabrous, with or without stomatal crypts; petiole with a pair of glands present or absent.

Inflorescences racemose panicles, panicles or spikes; bracteoles usually much shorter than or rarely equaling calyx, not enclosing flower buds. Petals absent. Sepals subequal, acute. Stamens 2–7 (8–11), unilateral or less frequently inserted in a complete circle; filaments shorter than or equaling the calyx lobes, mostly free to base and glabrous or less often sparsely pubescent. Ovary 1-carpellate, pilose, inserted at the base of receptacle, style filiform. Drupe globose to ellipsoid, epicarp tomentose, pubescent, pulverulent, or smooth. (Prance & Sothers 2003a; Sothers *et al.* 2016)

The genus comprises ca. 100 species, distributed throughout the Neotropics (Sothers *et al.* 2016). In Brazil, there are 74 species of *Licania*, present in all states of the North, Central-West and Southeast regions and in seven states of the Northeast region (Sothers & Prance 2023f). In Espírito Santo it is represented by 12 species.

Identification key for *Licania* from the state of Espírito Santo

1. Leaves without stomatal crypts on abaxial surface.
 2. Leaves glabrous on both sides..... 7.7. *Licania littoralis*
 - 2'. Leaves glabrous adaxially, pubescent to tomentulose abaxially.
 3. Leaves smaller (1.3–1.8 cm); stipules linear 7.12. *Licania* sp.1
 - 3'. Leaves larger (2–7.8 cm); stipules lanceolate.
 4. Leaves longer (6.6–15 cm); stamens inserted in a semi-circle.
 5. Young branches pubescent; stipules longer (ca. 3–5 mm long), persistent; stamens 3 7.8. *Licania micrantha* subsp. *micrantha*
 - 5'. Young branches glabrous; stipules shorter (ca. 2 mm long), caducous; stamens 5... 7.3. *Licania belemii*
 - 4'. Leaves shorter (4.3–6.3 cm); stamens inserted unilaterally.
 6. Leaves with apex acute; stamens 3..... 7.10. *Licania nitida*
 - 6'. Leaves with apex acuminate; stamens 4..... 7.5. *Licania hypoleuca* var. *hypoleuca*
- 1'. Leaves with stomatal crypts on abaxial surface.
 7. Stamens 4–5.
 8. Petiole pubescent, usually shorter (4–6 mm)..... 7.6. *Licania kunthiana*
 - 8'. Petiole glabrous to glabrescent, usually longer (5–11 mm).
 9. Inflorescence spikes paniculate, bracteoles shorter (ca. 0.5 mm long), flowers smaller (ca. 1.5 mm long)..... 7.1. *Licania areolata*
 - 9'. Inflorescence racemose panicle, bracteoles longer (ca. 1 mm long), flowers larger (ca. 2 mm long)..... 7.11. *Licania spicata*
 - 7'. Stamens 6–8.
 10. Primary veins in a lower number (6–7), stamens inserted in a complete circle 7.4. *Licania hoehnei*
 - 10'. Primary veins in a higher number (8–13), stamens inserted unilaterally.
 11. Leaves larger (3.3–4.1 cm), primary veins usually in a higher number (9–13 pairs), stamens in a lower number (7)..... 7.2. *Licania arianene*
 - 11'. Leaves smaller (4.5–6.6 cm), primary veins usually in a lower number (8–9 pairs), stamens in a higher number (8)..... 7.9. *Licania naviculistipula*

7.1. *Licania areolata* Prance, Kew Bulletin 72(43): 4. 2017. Fig. 9

Tree, up to 25 m tall; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic, 6.2–7.2 × 2.2–2.7 cm, chartaceous, discolorous, base cuneate, apex acuminate, acumen up to 8 mm long, glabrous adaxially, tomentose abaxially, stomatal crypts inconspicuous, midrib impressed adaxially, prominent abaxially, pubescent abaxially, primary veins 7–8 pairs; petiole 6–8 mm long, glabrescent, slightly canaliculate, eglandular; stipules caducous (not seen). Inflorescence terminal to subterminal, spikes paniculate, pubescent; bracts 1, triangular, ca. 1 mm long, pubescent, caducous; bracteoles 3, triangular, ca. 0.5 mm long, pubescent. Flowers ca. 1.5 mm long, sessile, pubescent, receptacle campanulate, ca. 1 mm long, sericeous on the inside; sepals triangular, ca. 0.8 mm long, pubescent; stamens 5, inserted in a semi-circle, free, filaments ca. 0.5 mm long, glabrous; ovary ca. 0.8 mm long, sericeous; style ca. 1 mm long, sericeous. Drupe brown, slightly stipitate, 3.2–3.5 × 2.9–3 cm, epicarp smooth, pubescent.

Selected material examined: Domingos Martins, BR-262, próximo a Vitor Hugo, Rio Jucu, Braço Sul, 17.I.1995, fl., G. Hatschbach 61607 (CEPEC, IPA, K, MBM, MBML, SPF). Santa Maria de Jetibá, fragmento florestal a 5 km do centro do município, propriedade do Senhor Paulo Sick, 15.IX.2004, fl. and fr., R.N.C. Teixeira 56 (VIC); 2 km da cidade, propriedade de Helmar Gummes, 24.IX.2005, fr., R.N.C. Teixeira 189 (K, VIC). Venda Nova do Imigrante, Alto Bananal, 15.I.1995, fl., G. & M. Hatschbach 61510 (FUEL, HUCP, HUEFS, MBM, PEL, RB).

Licania areolata is very similar to *L. spicata*, as they share the elliptic acuminate leaves, with cuneate base and inconspicuous stomatal crypts, similar petiole size, and sessile flowers with stamens inserted in a semi-circle. *Licania areolata* can be distinguished by the bracteoles (ca. 0.5 mm in *L. areolata* vs. 1 mm in *L. spicata*) and flower size (ca. 1.5 mm vs. 2 mm). Further studies are necessary for a more consistent delimitation of these species, as so many morphological characters overlap. Collected with flowers January and September, and with fruits in September and December.

Licania areolata is here confirmed as endemic to Espírito Santo state, in accordance with Sothers & Prance (2023f), and it occurs in Ombrophilous forests, in Domingos Martins, Santa Maria de Jetibá and Venda Nova do Imigrante municipalities.

The most recent record of this species dates from 2005 and it does not seem to be present in any protected areas, which suggests it is under a high threat level for the state.

7.2. *Licania arianeae* Prance, Fl. Neotrop. Monogr. 9S: 44. 1989. Fig. 9

Tree, up to 20 m tall, DBH 22 cm, stem 18 m tall, cylindric, rough bark, young branches

pubescent, becoming glabrous with age, lenticellate. Leaves elliptic to oblong-elliptic, 7.4–10.8 × 3.3–4.1 cm, chartaceous, discolorous, base cuneate to obtuse, apex rounded to acuminate, acumen ca. 5 mm long, glabrous adaxially, tomentulose abaxially, conspicuous stomatal crypts, midrib prominulous adaxially, prominent abaxially, glabrescent, primary veins 9–13 pairs; petiole 6–7 mm long, pubescent, slightly canaliculate, with 2 sessile glands at apex; stipules 2, 0.7–1 cm long, rectangular to lanceolate, pubescent, persistent. Inflorescence terminal to axillary, panicle of cymes, tomentulose; bracts 1, lanceolate, ca. 7 mm long, tomentulose, caducous; bracteoles 3, triangular, ca. 0.5 mm long, pubescent. Flowers 5–6 mm long, pubescent, receptacle campanulate, 3–4 mm long, tomentulose on the inside, pedicel ca. 1 mm long; sepals with acute apex, ca. 2 mm long, puberulous on both sides; stamens 7, inserted unilaterally, free, staminodes ca. 5; filaments 1.5–2 mm long, glabrous, pubescent at base; ovary 1–1.5 mm long, villous, style ca. 4.5 mm long, glabrescent. Drupe not seen.

Selected material examined: Itapemirim, estrada para Marataízes, perto do lixão, a ca. de 3 km de Marataízes, 22.II.1995, fl., J.R. Pirani 3583 (K, MBM, NY, SPF). Linhares, Reserva Natural Vale, Estrada Farinha-seca, ant. 221, km 2260, lado direito, 19.V.1980, fl., D.A. Folli 228 (NY, RB); próximo a Estrada 142, Talhão 402, 22.V.1972, fl., A.M. Lino 45 (NY, RB).

Licania arianeae can be recognized by the leaves with conspicuous stomatal crypts and long persistent stipules, easily observed characters even in sterile specimens of Chrysobalanaceae. These characters are shared with *L. naviculistipula*, but *L. arianeae* can be distinguished by the elliptic to oblong-elliptic leaves, 9–13 pairs of primary veins and 7 stamens (vs. oblong-elliptic to ovate, 8–9 pairs, and 8 stamens in *L. naviculistipula*). Collected with flowers in February and May.

Licania arianeae is here confirmed as endemic to the Atlantic Forest, with records from Rio de Janeiro and Espírito Santo (Barros *et al.* 2022). In the latter, it occurs in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Itapemirim and Linhares municipalities. The taxon is classified as “Endangered” (EN) (Fraga *et al.* 2019; Brasil 2022) and it was collected in only one protected area (Reserva Natural Vale).

The common name for this species is quebra-machado (D.A. Folli 228).

7.3. *Licania belemii* Prance, Fl. Neotrop. Monogr. no. 9: 172. 1972. Fig. 9

Tree, up to 27 m tall, DBH 31–38.2 cm, stem 10–19 m tall, flat to cylindric, rough bark, branches glabrous, lenticellate. Leaves elliptic to widely elliptic, 9.5–15 × 5.2–7.8 cm, chartaceous, discolorous, base cuneate, apex acuminate,

acumen 5–8 cm long, adaxially glabrous, abaxially tomentose, stomatal crypts inconspicuous, midrib plane adaxially, prominent abaxially, primary veins 5–6 pairs; petiole 0.7–1.1 cm long, glabrous, terete to slightly canaliculate, eglandular; stipules 2, ca. 2 mm, lanceolate, pubescent, caducous. Inflorescence terminal to subterminal, racemose panicle, pubescent; bracts 1, triangular, ca. 1 mm, pubescent; bracteoles 3, triangular, ca. 0.2 mm long, pubescent. Flowers yellow, 2–3 mm long, sessile, pubescent; receptacle campanulate, ca. 1.5 mm long, tomentulose on the inside; sepals triangular, ca. 1 mm long, puberulous; stamens 5, inserted in a semi-circle, free, filaments ca. 0.4 mm long, glabrous; ovary ca. 1 mm long, sericeous, style ca. 2 mm long, basal 3/4 tomentose. Immature drupe green to brown, stipitate, 1.6–1.9 × 0.7–1.3 cm, epicarp rugose, pubescent.

Selected material examined: Cachoeiro de Itapemirim, Flona Pacotuba, 3.VII.2007, L.N. Moreira 48 (VIES). Conceição da Barra, Rebio do Córrego Grande, estrada interna km 4, 20.VIII.2011, fr., M. Ribeiro 576 (HUEFS, RB, SAMES). Linhares, Reserva Natural Vale, Estrada 142, km 1250 lado esquerdo, 11.I.1979, fl., D. A. Folli 61/79 (CVRD, INPA, NY, RBR); Estrada Municipal Canto Grande, 28.X.2013, fr., D.A. Folli 7121 (CVRD, RB). Marilândia, Liberdade, propriedade de Reinaldo Bautz, 27.IX.2006, fr., L.F.S. Magnago 1425 (CEPEC, HUEFS, MBML). Santa Teresa, Estação Biológica de Santa Lúcia, 26.I.2015, fl., P.L.R. Moraes 4697 (BHCB, CEN, CVRD, HRCB).

Licania belemii is similar to *L. micrantha*, as they share the elliptic to widely elliptic leaves, with cuneate base, acuminate apex, close number of primary veins (5–6 pairs in *L. belemii* vs. 6–7 pairs in *L. micrantha*) and flower with length (2–3 vs. ca. 3 mm). These species are also particular in having primary veins more widely spaced when compared with other *Licania* species analysed here. Despite the superficial similarity, *L. belemii* can be distinguished by the inconspicuous stomatal crypts, usually longer petiole (0.7–1.1 cm vs. 3–9 mm long), more branched inflorescence and higher number of stamens (5 vs. 3). Collected with flowers from December to January and with fruits in January, April and from June to October.

Licania belemii is restricted to Bahia and Espírito Santo states. In Espírito Santo it occurs in Mussununga, Ombrophilous forest and Mata de Tabuleiro, in Cachoeiro de Itapemirim, Conceição da Barra, Linhares, Marilândia and Santa Teresa municipalities. It is classified as “Endangered” (EN) in both national and regional assessments (Fraga et al. 2019; Brasil 2022) and it was recorded in four protected areas: Estação Biológica de Santa Lúcia, Floresta Nacional Pacotuba, Reserva Biológica do Córrego Grande and Reserva Nacional Vale.

The common name for this species is milho-torrado-amarelo (D.A. Folli 5163, D.A. Folli 7121).

7.4. *Licania hoehnei* Pilg., Notizbl. Bot. Gart. Berlin-Dahlem, 8: 541. 1923. Fig. 10

Shrub to tree, up to 30 m tall; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic, 5–8.1 × 2–3.1 cm, chartaceous, discolorous, base cuneate, apex acuminate, acumen 3–6 mm long, adaxially glabrous, abaxially tomentose, stomatal crypts inconspicuous, midrib plane adaxially, prominent abaxially, pubescent, primary veins 6–7 pairs; petiole 3–5 mm long, pubescent, slightly canaliculate, eglandular; stipules caducous (not seen). Inflorescence terminal, racemose panicle, tomentose; bracts 1, triangular, 1.5–2 mm long, tomentulose; bracteoles 3, triangular, ca. 0.5 mm long, adaxially glabrous, abaxially tomentulose. Flowers 3–3.5 mm long, sessile, tomentulose; receptacle campanulate, 1.5–2 mm long, tomentulose; sepals triangular, ca. 1 mm long, sericeous; stamens 6–7, inserted in a complete circle, free, filaments ca. 0.5 mm long, glabrescent; ovary ca. 1 mm, sericeous; style ca. 2.5 mm long, basal 1/2 pubescent. Drupe ellipsoid, stipitate, 2.8–3.5 × 2.2–2.7 cm, epicarp smooth, pubescent.

Material examined: Colatina, Estrada do Pancas, 19.IX.1930, fr., J.G. Kuhlmann 364 (RB). São Mateus, Fazenda Alegria, fr., A. Mattos (NY 87948).

Additional material: BAHIA, Santana do Riacho, Serra do Cipó, próximo a Fazenda do Alto do Palácio 23.IX.1981, fl. and fr., F.C.F. da Silva 82 (MG, RB).

Licania hoehnei can be confused with *L. areolata* and *L. spicata*, but can be distinguished by the combination of leaves with inconspicuous stomatal crypts, slightly canaliculate and short (3–5 mm long) petiole, tomentose racemose panicle inflorescence and flowers with 6 to 7 stamens, inserted in a complete circle. Collected with fruits in September.

Licania hoehnei occurs in Bolivia and Brazil (Prance & Sothers 2003a). In Brazil it was collected in Bahia, Espírito Santo, Mato Grosso, Minas Gerais, Rio de Janeiro and São Paulo states (Sothers & Prance 2023f). In Espírito Santo it occurs in Ombrophilous forest in Colatina and São Mateus municipality. This species is represented by scarce old records, none of them in protected areas, suggesting a higher extinction threat level for Espírito Santo.

The common name for this species is milho-torrado (J.G. Kuhlmann 364).

7.5. *Licania hypoleuca* Benth. var. *hypoleuca*. Bot. Voy. Sulphur, 91–92, t. 32. 1844. Figs. 7g–h; 10

Tree, up to 19 m tall, DBH 27 cm, stem 14 m, young branches glabrescent, becoming glabrous with age, lenticellate. Leaves elliptic, 4.3–6 × 2.2–3.2 cm, chartaceous, discolorous, base cuneate to obtuse, apex acuminate, acumen up to 5 mm long, glabrous adaxially, tomentulose abaxially, stomatal

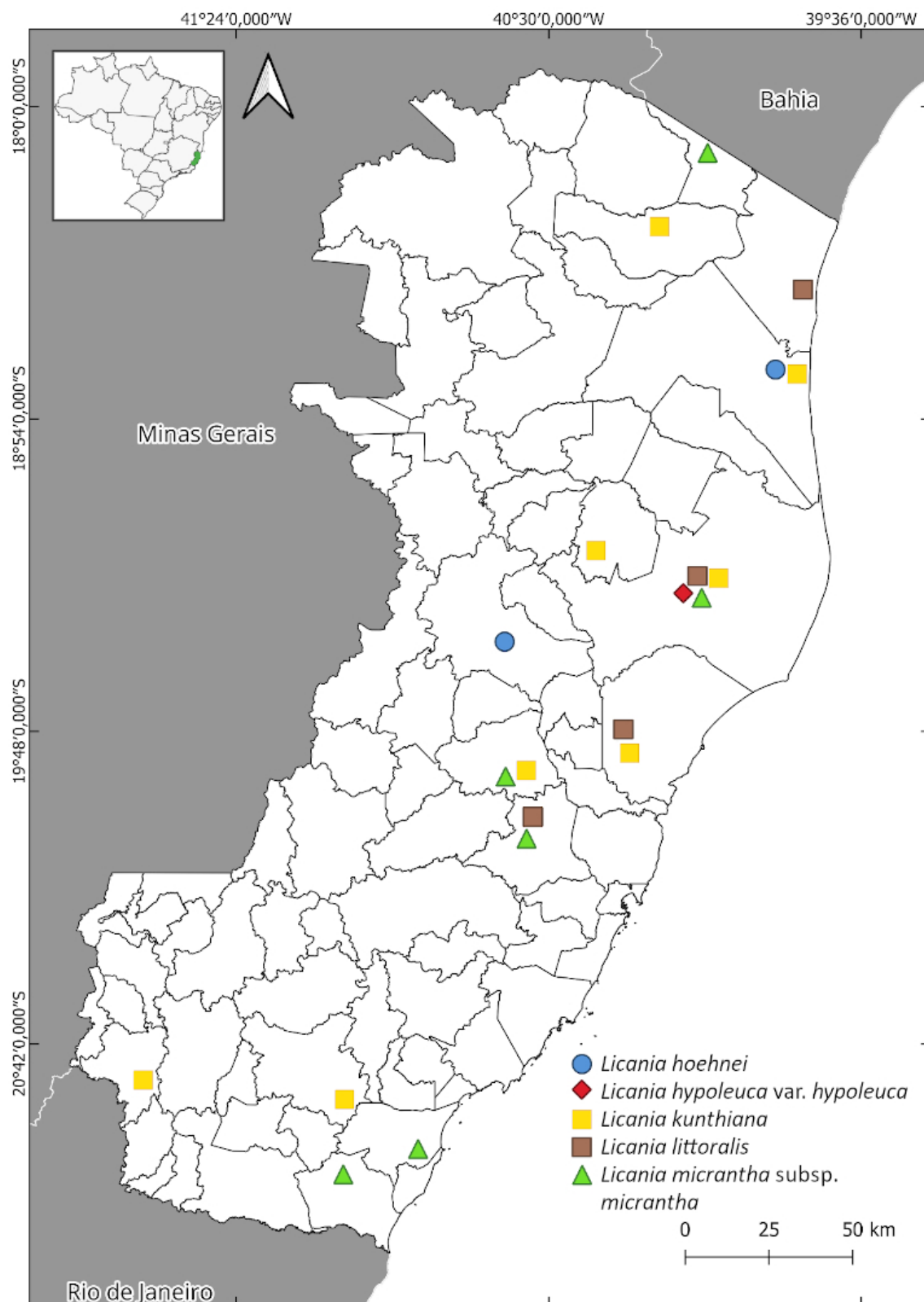


Figure 10 – Distribution map of *Licania hoehnei*, *Licania hypoleuca* var. *hypoleuca*, *Licania kunthiana*, *Licania littoralis* and *Licania micrantha* subsp. *micrantha* in Espírito Santo state.

crypts absent, midrib plane to impressed adaxially, prominent abaxially, glabrous abaxially, primary veins 6–7 pairs; petiole 4–5 mm long, pubescent to glabrescent, slightly canaliculate, eglandular; stipules 2, lanceolate, 2–3 mm, glabrescent, caducous. Inflorescence terminal to subterminal, racemose panicle, pubescent; bracts 1, triangular, ca. 1 mm long, pubescent, caducous; bracteoles 3, triangular, ca. 0.5 mm long, pubescent. Flowers light green, ca. 2.5 mm long, pedicellate, pedicel ca. 0.2 mm, pubescent, receptacle campanulate, ca. 1.5 mm long, sericeous on the inside; sepals triangular, ca. 0.8 mm long, pubescent; stamens 4, unilaterally, free, filaments ca. 0.5 mm long, glabrous; ovary ca. 1 mm long, sericeous; style ca. 1.5 mm long, 2/3 sericeous. Immature drupe ellipsoid, stipitate, 1–1.5 × 0.6–0.7 cm, epicarp slightly rugose, pubescent.

Material examined: Linhares, Reserva Natural Vale, Estrada Flamengo, 8.4 km, 27.VIII.2003, fl., D.A. Folli 4586 (CVRD, RB).

Licania hypoleuca is quite similar to *L. kunthiana*, as both have elliptic acuminate leaves, of similar size, cuneate to obtuse base and petiole size, but *L. hypoleuca* var. *hypoleuca* can be distinguished by the absence of stomatal crypts, lanceolate stipules and four unilaterally inserted stamens (*vs.* inconspicuous stomatal crypts, linear stipules, five stamens in a complete circle in *L. kunthiana*).

Licania hypoleuca occurs from Mexico to Bolívia (Prance & Sothers 2003a). In Brazil it occurs in the Amazon region, Bahia and Espírito Santo (Sothers & Prance 2023f). In Espírito Santo it was collected in Mata de Tabuleiro, only in the municipality of Linhares, which suggests a higher threat level for the species in the state. It was collected in one protected area, Reserva Natural Vale.

The common name for this species is milho-assado (D.A. Folli 4586).

7.6. *Licania kunthiana* Hook.f., Fl. bras. 14(2): 16. 1867. Fig. 10

Tree, up 6–20 m tall, DBH 24–30 cm, stem 10–13 m tall, cylindric, rough bark; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic, 4.5–8.5 × 2–3.7 cm, chartaceous, discolorous, base cuneate to obtuse, apex acuminate, acumen 3–7 mm long, glabrous adaxially, pubescent abaxially, stomatal crypts conspicuous to inconspicuous, midrib impressed adaxially, prominent abaxially, primary veins 7–9 pairs; petiole 4–6 mm long, pubescent, slightly canaliculate, eglandular; stipules 2, linear, persistent, 2–4 mm long, pubescent to glabrous, chartaceous. Inflorescence terminal to subterminal, racemose panicle, sparsely puberulous, bracts 1, triangular to lanceolate, 1–1.5 mm long, puberulous; bracteoles 3, triangular, ca. 0.5 mm long, pubescent.

Flowers yellow, ca. 2 mm long, sessile, pubescent; receptacle campanulate, 1.5–2 mm long, pubescent; sepals triangular, 0.5–1 mm long, pubescent; stamens 5, inserted in a complete circle, free, filaments ca. 0.5 mm long, glabrous; ovary ca. 1 mm, sericeous; style 2 mm long, basal 3/4 pubescent. Drupe brown, globose, stipitate, 2.1–2.5 × 1.7–2 cm, epicarp smooth, puberulous.

Selected material examined: Aracruz, Coqueiral, 10.II.1993, fr., R.N. Oliveira 411 (VIES). Cachoeiro de Itapemirim, Flona Pacotuba, 14.V.2007, L.N. Moreira 20 (VIES). Guaçuí, Floresta do Rosal, 28.VIII.2010, fl., R.A. Curto 94 (VIES). Linhares, Reserva Natural Vale, Colodete entre quadras de Eucalyptus, Estrada 163, 20.IX.1974, fl., J. Spada 329 (INPA, NY, RBR). Pinheiros, Rebio Córrego do Veadó, estrada à esquerda da sede da reserva, 18.XII.2010, fr., M. Ribeiro 399 (RB, SAMES, VIES). Rio Bananal, Estrada Primavera, 24.VI.2016, fr., D.A. Folli 7473 (CVRD, RB). Santa Teresa, Estação Biológica de Santa Lúcia, 1.VI.1993, L.D. Thomaz 1642 (HUEFS, MBML, VIES). São Mateus, estrada para Barra Nova, brejo velho, sítio do seu Darcy, área de pasto, onde no passado predominava restinga, 29.X.2012, fr., M. Ribeiro 829 (SAMES, VIES).

Licania kunthiana is similar to *L. hypoleuca* (see comments under this species). It can be recognized by the combination of elliptic acuminate leaves, with stomatal crypts, primary veins 7–9 pairs, linear short stipules, slightly puberulous inflorescence, and flowers with five stamens, inserted in a complete circle. Collected with flowers in August to October and fruits in June and from October to February.

Licania kunthiana is a widespread species, and occurs in Bolivia, Brazil, Costa Rica, French Guiana, Peru and Venezuela (Prance & Sothers 2003a). In Brazil it occurs in different biomes such as the Amazon rainforest, Atlantic Forest, *Catinga* and *Cerrado*, in all the states of Central West, North, Southeast regions, and some states of the Northeast region (Bahia, Maranhão, Pernambuco and Sergipe) (Sothers & Prance 2023f). In Espírito Santo it occurs in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Aracruz, Cachoeiro de Itapemirim, Guaçuí, Linhares, Pinheiros, Rio Bananal, Santa Teresa and São Mateus municipalities. It was collected in four protected areas: Estação Biológica de Santa Lúcia, Floresta Nacional Pacotuba, Reserva Biológica Córrego do Veadó and Reserva Natural Vale. This species is not threatened at a regional or national level.

The common names for this species are milho-torrado (D.A. Folli 7473) and milho-torrado-miúdo (J. Spada 329).

7.7. *Licania littoralis* Warm., Vidensk. Meddel. Dansk Natuhist. Foren. Kjøbenhavn: 67. 1874.

Figs. 7i–j; 10

Tree, up to 25 m tall, DBH 45–60 cm, stem up to 18 m tall, cylindric, bark rough to scaly;

branches glabrous, lenticellate. Leaves obovate to widely-elliptic, 3–6.9 × 2.1–4.9 cm, chartaceous, discolorous, base cuneate, obtuse or rounded, apex obtuse, rounded or subcordate, glabrous on both sides, stomatal crypts absent, midrib plane to prominulous adaxially, prominent abaxially, glabrous on both sides, primary veins 4–6 pairs, margin plane to slightly revolute; petiole 2–4 mm long, glabrous, terete, eglandular; stipules caducous (not seen). Inflorescence terminal to axillary, racemose panicle or panicle of cymes, pubescent; bracts 1, triangular to lanceolate, 1.5–2 mm long; bracteoles 3, triangular, 0.5–1 mm long, persistent. Flowers light green to white, 1.5–3 mm long, sessile, puberulous; receptacle campanulate, ca. 1 mm long, pubescent on the inside; sepals triangular, ca. 1 mm long, puberulous on both sides; stamens 5–6, inserted in a semi-circle, free, filaments ca. 0.2 mm long, glabrous; ovary ca. 1 mm, tomentulose; style ca. 2 mm long, sparsely pubescent. Drupe ellipsoid, stipitate, ca. 3.1 × 2.3 cm, epicarp smooth, glabrous.

Selected material examined: Aracruz, Coqueiral, 13.VI.1995, fl., J.N. Neves 223 (VIES). Conceição da Barra, Itaúnas, área atrás da Fazenda Jequitaita, 11.II.2011, fr., A.G.Oliveira 950 (RB, SAMES, VIES). Linhares, Reserva Natural Vale, Estrada 151, km 2700, talhão 501, 27.IV.1978, fl., J. Spada 79-78 (CVRD, INPA, NY, RBR); Estrada Aceiro Apelta, Santa Teresinha, 9.VI.2015, fl. and fr., G.S. Siqueira 1075 (RB); Lagoa do Durão, Rio Doce, 14.IV.1934, fl., J.G. Kuhlmann 208 (MO101058730, NY428464, RB537076). Santa Leopoldina, Fazenda Caioaba, propriedade Virloni, trilha da divisa, 9.VIII.2006, fr., L.F.S. Magnago 1257 (ESA, MBML, RB, SPF).

Licania littoralis has two varieties, *L. littoralis* var. *littoralis* and *L. littoralis* var. *cuneata* Kuhlman, but this classification is not adopted here, as the characters that differ among the varieties overlap in the material examined.

Licania littoralis is similar to *Leptobalanus turbinatus* in some leaf aspects, as above-mentioned, but it can be distinguished by the lower number of primary veins, flowers with a lower number of included stamens (5–6 in *Licania littoralis* vs. 10 in *Leptobalanus turbinatus*) and stipitate fruit. Collected with flowers from April to June, and with fruits in February and from June to October.

Licania littoralis is endemic to the Atlantic Forest, in Bahia, Espírito Santo, Pernambuco, Rio de Janeiro and Sergipe states (Sothers & Prance 2023f). In Espírito Santo it occurs in Ombrophilous forest and Mata de Tabuleiro, in Aracruz, Conceição da Barra, Linhares and Santa Leopoldina municipalities. This species is assessed as “Vulnerable” (VU) for the state (Fraga *et al.* 2019) and it was collected in two protected areas: Reserva Biológica de Comboio and Reserva Natural Vale.

There are two species of *Licania* collected by J.G. Kuhlmann with the number 208 (*Licania*

micrantha and *L. littoralis*), as well as species from other botanical families such as Fabaceae and Elaeocarpaceae.

The common name for this species is guaraci (I.A. Silva 170, G.S. Siqueira 1075).

7.8. *Licania micrantha* Miq. subsp. *micrantha*. Stirp. Surinam. Select.: 29. 1851. Fig. 10

Shrub to tree, up to 24 m tall, DBH 19–30 cm, stem up to 6 m tall; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic to widely-elliptic, 6.6–11.6 × 3.4–5.5 cm, chartaceous to coriaceous, discolorous, base cuneate to obtuse, apex acute to acuminate, acumen up to 7 mm long, adaxially glabrous, abaxially pubescent to tomentulose, stomatal crypts absent, midrib impressed to plane adaxially, prominent abaxially, primary veins 6–7 pairs; petiole 3–9 mm long, glabrous, terete, eglandular; stipules 2, lanceolate, 3–5 mm long, sparsely puberulous, persistent. Inflorescence terminal to subterminal, racemose panicle, pubescent; bracts ca. 2 mm long, triangular, caducous; bracteoles 3, triangular, 0.5 mm long, pubescent, persistent. Flowers yellow, ca. 3 mm long, sessile, puberulous; receptacle campanulate, 1.5–2 mm long, pubescent on the inside; sepals triangular, ca. 1 mm long, puberulous; stamens 3, in a semi-circle, free, filaments ca. 0.5 mm long, pubescent; ovary ca. 0.8 mm long, sericeous; style 2.5–3 mm long, pubescent throughout. Immature drupe ellipsoid, stipitate, 1–1.2 × 0.7–0.8 cm; epicarp rugose, puberulous.

Selected material examined: Itapemirim, floresta de restinga, próximo à área protegida pela marinha, estrada de Itaóca-Itapemirim, rodovia ES-060, 19.X.2008, fl., A.C.S. Cavalcanti 277 (MBML, RB). Linhares, Reserva Natural Vale, estrada Gávea km 2.1, 8.X.2003, fl., D.A. Folli 4619 (CVRD, K); Lagoa do Durão, Rio Doce, 14.IV.1934, fr., J.G. Kuhlmann 208 (NY00378408, RB35360). Pedro Canário, margem da BR-101, direção Rio-Itaúnas, 19.X.2008, fr., A.C.S. Cavalcanti 283 (RB). Presidente Kennedy, propriedade da Ferrous, próximo à Praia das Neves, 27.IX.2009, fl., Maielo-Silva 132 (RB). Santa Leopoldina, propriedade Família Balbino - Timbuí Seco, 26.XI.2005, fl., A. M. Assis 1103 (MBML). Santa Teresa, Estação Biológica de Santa Lúcia, 20.X.1993, fr., L.D. Thomaz 1641 (MBML, VIES).

Licania micrantha is similar to *L. belemii* (see comments under this species). However, it can be distinguished by the absence of stomatal crypts, persistent lanceolate stipules, usually shorter petiole (3–9 mm long in *L. micrantha* vs. 0.7–1.1 cm long in *L. belemii*), less branched inflorescence and lower number of stamens (3 vs. 5). Collected with flowers in July and from September to February, and with fruits from October to December.

Licania micrantha subsp. *micrantha* occurs in Bolivia, Brazil, Colombia, Costa Rica, French Guiana, Guyana and Venezuela (Prance & Sothers

2003a). In Brazil it was collected in Acre, Amazonas, Amapá, Bahia, Espírito Santo, Mato Grosso, Rio de Janeiro, Rondônia, and Roraima states (Sothers & Prance 2023f). In Espírito Santo state it is recorded in Restinga, Ombrophilous forest and Mata de Tabuleiro, in Itapemirim, Linhares, Pedro Canário, Presidente Kennedy, Santa Leopoldina and Santa Teresa municipalities. It was recorded in two protected areas: Estação Biológica de Santa Lúcia and Reserva Natural Vale.

The common names for this species are oiti (J.G. Kuhlmann 208) and bafo-de-bezerro (D.A. Folli 4619).

7.9. *Licania naviculistipula* Prance, Fl. Neotrop. Monogr. 9: 398. 1972. Figs. 4g-i; 11

Tree up to 25 m tall, DBH ca. 8 cm, stem up to 19 m tall, cylindric, rough bark; young branches pubescent, sometimes becoming glabrous with age, lenticellate. Leaves oblong-elliptic to ovate, 8.2–14.2 × 4.5–6.6 cm, chartaceous, discolorous, base obtuse to subcordate, apex acute to acuminate, acumen up to 4 mm long, glabrous adaxially, pubescent abaxially, conspicuous stomatal crypts, midrib impressed adaxially, prominent abaxially, pubescent adaxially to glabrous on both sides, primary veins 8–9 pairs; petiole 0.5–1 cm long, pubescent to glabrous, terete, sometimes with 2 sessile glands in the middle; stipules 2, rectangular to lanceolate, 4–8 mm long, pubescent, persistent. Inflorescence terminal to axillary, panicle of cymes, pubescent to densely pubescent; bracts 2, lanceolate, 2.5–5 mm long, pubescent, caducous; bracteoles 3, triangular, 0.5–2 mm long, pubescent, persistent. Flowers light yellow, 3–6 mm long, puberulous, receptacle campanulate, 2–3 mm long, tomentulose on the inside, pedicel ca. 1 mm long; sepals with acute apex, ca. 1 mm long, puberulous on both sides; stamens 8, inserted unilaterally, free; filaments ca. 1 mm long, glabrous, pubescent at base; ovary ca. 1 mm long, villous, style 2.8–3.5 mm long, pubescent at basal 2/3. Drupe brown, ellipsoid, sessile, 4.2–4.4 × 2.9–3.8 mm, epicarp smooth, pubescent.

Selected material examined: Anchieta, fragmento de tabuleiro, 8.VIII.2009, J.M.L. Gomes 3349 (HUEFS, VIES). Conceição da Barra, Aracruz Celulose S.A., 9.VI.1992, fl., O.J. Pereira 3443 (RB, SAMES, VIES); 13.XII.2008, fl. and fr., A. Giaretta 431 (SAMES, VIES). Linhares, Vale do Rio Doce, 8.VII.1968, fl., R.P. Belém 3814 (CEPEC, MO, NY, SP); Reserva Natural Vale, próximo a borda da estrada Aceiro Baldo Faé, 15.IX.2023, fr., N. Barros 24 (RB, SAMES). Marataízes, na restinga, 3.XI.1972, fr., L. Krieger CESJ11885 (CESJ). Presidente Kennedy, São Salvador, 6.XI.1996, fr., J.M.L. Gomes 2204 (VIES).

Licania naviculistipula is close to *L. arianeae* (see comments under this species). However, it can be distinguished by the elliptic to oblong-elliptic leaves, lower number of primary veins (8–9 pairs

in *L. naviculistipula* vs. 9–13 pairs in *L. arianeae*) and higher number of stamens (8 vs. 7). Collected with flowers and fruits throughout the year.

Licania naviculistipula is endemic to the Atlantic Forest, recorded only in Bahia and Espírito Santo states (Sothers & Prance 2023f). In Espírito Santo it occurs in Restinga and Mata de Tabuleiro, in Anchieta, Conceição da Barra, Linhares, Marataízes and Presidente Kennedy municipalities. It is assessed as “Endangered” (EN) for the country and the state (Fraga *et al.* 2019; Brasil 2022). This species occurs in two protected areas: Reserva Natural Vale and Parque Estadual de Itaúnas.

The common name for this species is guaitimarrom (G.S. Siqueira 888).

7.10. *Licania nitida* Hook.f., Fl. bras. 14(2): 17. 1867. Fig. 11

Tree up to 6 m tall; young branches glabrescent, becoming glabrous with age, lenticellate. Leaves elliptic to oblong-elliptic, 4.8–6.3 × 2–3.6 cm, chartaceous, discolorous, base cuneate to obtuse, apex acute, glabrous adaxially, pubescent to tomentulose abaxially, without stomatal crypts, midrib impressed adaxially, prominent abaxially, glabrous on both sides, primary veins 6–7 pairs; petiole 3–4 mm long, glabrous, terete, eglandular; stipules 2, lanceolate, 3–5 mm long, glabrous, persistent. Inflorescence terminal to axillary, racemose panicle, pubescent; bracts 2, lanceolate, ca. 2 mm long, pubescent, caducous; bracteoles 3, triangular, ca. 1 mm long, pubescent, persistent. Flowers 2–2.5 mm long, pubescent, receptacle campanulate, ca. 1.5 mm long, tomentulose on the inside, pedicel ca. 0.5 mm long; sepals triangular, ca. 1 mm long, puberulous on both sides; stamens 3, inserted unilaterally, free; filaments ca. 0.2 mm long, glabrous; ovary ca. 1 mm long, villous, style ca. 3 mm long, pubescent at 3/4 basal. Drupe brown, ellipsoid, stipitate, 2.1–2.2 × 1.2–1.4 mm, epicarp rugose, glabrescent.

Material examined: Itapemirim, Praia do Pontal, 22.I.1984, fr., D. Araujo 5974 (MBM, VIES). Piúma, ca. 3 km S do Morro do Aghá, na rodovia ES-060, 8.XII.1994, fr., J.R. Pirani 3496 (MO, NY, SPF).

Additional material: BRAZIL. RIO DE JANEIRO: Horto Florestal, XI.1926, fl., H. Almeida (RB136931).

Licania nitida can be distinguished from other *Licania* species by its elliptic to oblong-elliptic leaves with acute apex, without stomatal crypts in the abaxial surface, and flowers with 3 stamens. Collected with fruits in January and December.

Licania nitida occurs in Bahia, Espírito Santo, Goiás, Minas Gerais, Rio de Janeiro and São Paulo states (Sothers & Prance 2023f). In Espírito Santo, it occurs in Restinga and Mata de Tabuleiro, in Itapemirim and Piúma municipalities. Although *L. nitida* is assessed as “Least Concern” (LC) for

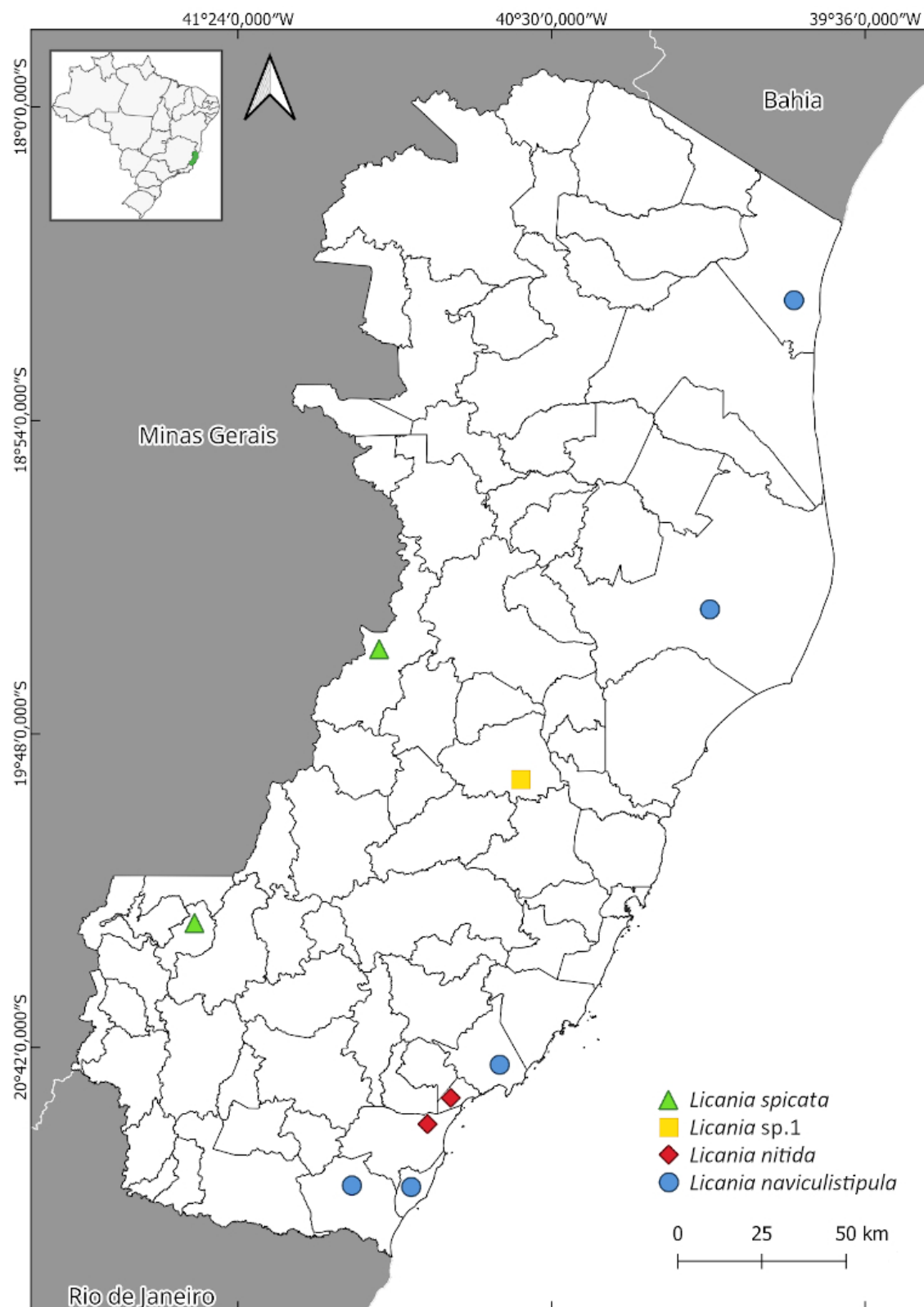


Figure 11 – Distribution map of *Licania nitida*, *Licania naviculistipula*, *Licania spicata* and *Licania sp.1* in Espírito Santo state.

Brazil (León 2020), in Espírito Santo this species is present in only two municipalities, none inside protected, which may indicate a higher threat level.

7.11. *Licania spicata* Hook.f., *Fl. bras.* 14(2): 16. 1867. Fig. 11

Tree, up to 16 m tall, DBH ca. 28 cm, stem up to 10 m tall, cylindric, rough bark; young branches glabrescent, becoming glabrous with age, lenticellate. Leaves elliptic, 5.6–11.1 × 2.6–3.6 cm, chartaceous, discolorous, base cuneate, apex acuminate, acumen 0.5–1.5 cm long, glabrous adaxially, pubescent abaxially, stomatal crypts inconspicuous, midrib impressed adaxially, prominent abaxially, primary veins 7–9 pairs; petiole 0.5–1.1 cm long, glabrescent to glabrous, canaliculate, eglandular; stipules caducous (not seen). Inflorescence terminal to subterminal, racemose panicle, pubescent to tomentulose; bracts caducous (not seen); bracteoles 3, triangular, ca. 1 mm long, pubescent. Flowers ca. 2 mm long, sessile, pubescent to tomentulose, receptacle campanulate, 1–1.5 mm long, sericeous on the inside; sepals triangular, 1–1.5 mm long, puberulous; stamens 4–5, inserted in a semi-circle, free, filaments ca. 1 mm long, glabrous; ovary ca. 1 mm long, sericeous; style ca. 1 mm long, sparsely sericeous at base. Drupe green to brown, ellipsoid, stipitate, 2.1–2.7 × 1.6–2.1 cm, epicarp slightly rugose, pubescent.

Material examined: Baixo Guandu, Baixo Guandú a Alto Lage, km 2, 14.XII.2001, fr., A.A. da Luz 40 (CVRD, K, RB). Iúna, Serra do Valentim, Floresta do Senhor Aristides, na borda da vegetação, 31.I.2016, fl., J.P.F. Zorzanelli 1431 (VIES).

Additional material: BRAZIL. RIO DE JANEIRO: Cachoeiras de Macacu, Parque Estadual dos Três Picos/ Reserva Ecológica de Guapiaçu, Trilha Verde, 19.I.2018, fl., C. Baez 1346 (RB).

Licania spicata is similar to *L. areolata* (see comments under this species). However, it can be distinguished by the bracteoles (ca. 1 mm in *L. spicata* vs 0.5 mm in *L. areolata*) and flower size (ca. 2 mm vs. 1.5 mm). Collected with flowers in May and fruits in August.

Endemic to the Atlantic Forest, *Licania spicata*, was recorded in Bahia, Espírito Santo, Minas Gerais and Rio de Janeiro states (Sothers & Prance 2023f). In Espírito Santo it occurs in Ombrophilous forest, in in Baixo Guandu and Iúna. This species has few records, and none of them are inside protected areas, suggesting a higher threat level for the state.

The common name for this species is bafo-de-vaca (A.A. da Luz 40).

7.12. *Licania* sp. 1. Fig. 11

Tree, up to 25 m tall, DBH 45–60 cm, stem up to 18 m tall, cylindric, rough to scaly bark; young branches pubescent, becoming glabrous with age, lenticellate. Leaves elliptic to obovate, 3–4.5 × 1.3–

1.8 cm, membranous to chartaceous, discolorous, base cuneate, apex acute to acuminate, acumen up to 2 mm, glabrous adaxially, tomentulose abaxially, stomatal crypts absent, midrib plane adaxially, prominent abaxially, pubescent abaxially, primary veins 6–7 pairs, margin plane; petiole 2–3 mm long, pubescent, terete, eglandular; stipules 2, 2–3 mm, linear, pubescent, chartaceous, caducous. Inflorescence terminal to axillary, racemose panicle or panicle of cymes, pubescent; bracts 1, triangular, ca. 1 mm long; bracteoles 3, triangular, 0.5–1 mm long, persistent. Flowers green, ca. 3 mm long, pedicellate, pedicel ca. 1 mm, puberulous; receptacle campanulate, ca. 1.5–2 mm long, pubescent on the inside; sepals triangular, ca. 1 mm long, puberulous on both sides; stamens 3, inserted in a semi-circle, free, filaments ca. 0.1 mm long, glabrous; ovary ca. 1 mm, sericeous; style ca. 2 mm long, sparsely sericeous. Drupe ellipsoid, sessile, ca. 1.7–1.8 × 1.4–1.6 cm, epicarp smooth, pubescent.

Selected material examined: Santa Teresa, Estação Biológica de Santa Lúcia, 7.III.1995, fl., L.D. Thomaz 1635 (HUEFS, MBML, VIES); 1.VIII.1995, fr., L. D. Thomaz 1639 (HUEFS, MBML, VIES).

Initially identified as *Licania leptostachya* Benth., the specimens L.D. Thomaz 1635, 1639 and H.Q. Boudet Fernandes 2603 do not correspond to this species. *Licania leptostachya* occurs in some North (Amapá, Pará, Rondônia and Roraima) and Northeast (Bahia and Maranhão) states but not in Espírito Santo (Sothers & Prance 2023f). *Licania* sp.1 occurs in Ombrophilous forest, in Santa Teresa municipality, inside a protected area, the Estação Biológica de Santa Lúcia. Collected with flowers in May and fruits from August to October.

There are similarities with *L. leptostachya*, such as the membranous elliptic leaves, with acuminate apex and cuneate base. However, the inflorescence of *L. leptostachya* is elongate with flowers in glomerules, with 6–7 stamens inserted in a complete circle vs. short racemose panicle, flowers with 3 stamens inserted in a semi-circle in *Licania* sp.1. More collections in this locality can better clarify the identification of these species.

8. *Moquilea* Aubl., Hist. Pl. Guiane 1: 521, t. 208. 1775.

Trees. Leaf lower surface glabrous or lanate, without stomatal crypts. Petiole with or without glands. Inflorescence panicles, racemes or racemose panicles. Bracts and bracteoles small. Petals 4–5. Stamens 11–60(–90), inserted in a complete circle; filaments glabrous, usually far exceeding calyx lobes, free or slightly united at base. Ovary lanate, tomentose or pilose, inserted at base of receptacle. Fruit globose to ellipsoid, epicarp glabrous or pubescent, smooth, lenticellate; endocarp glabrous or sparsely pubescent within (Sothers *et al.* 2016).

Moquilea is present in Central and South American countries, with 54 species in total (Sothers *et al.* 2016). In Brazil, there are 15 accepted species within the genus, recorded in the Amazon, Cerrado and Atlantic Forest biomes (Sothers & Prance 2023g).

Only two species occur in Espírito Santo, *Moquilea salzmannii* Hook.f. and *Moquilea tomentosa* Benth. The latter is a widely cultivated species, native to the northeastern region of Brazil, and frequently used in urban afforestation throughout Brazil.

Identification key for *Moquilea* from the state of Espírito Santo

1. Leaves elliptic to obovate, arachnoid to glabrous adaxially, with shorter acumen (ca. 3–5 mm) *Moquilea tomentosa**
- 1'. Leaves elliptic, glabrous adaxially, with longer acumen (ca. 5–9 mm) 8.1. *Moquilea salzmannii*

8.1. *Moquilea salzmannii* Hook.f., *Fl. bras.* (Martius) 14(2): 21. 1867. Figs. 2; 7k-l

Tree, up to 30 m tall, DBH 63 cm, stem ca. 18 m tall, cylindric, bark rough, light brown, heartwood dark reddish brown, branches glabrous, lenticellate. Leaves elliptic, 4.5–8.3 × 2–4 cm, chartaceous to coriaceous, discolorous, base cuneate, apex acuminate, acumen 5–9 mm long, glabrous adaxially, glabrescent to glabrous abaxially, without stomatal crypts, midrib prominulous adaxially, glabrous, primary veins 9–11 pairs, inconspicuous; petiole 3–5 mm long, glabrous, canaliculate, eglandular; stipules caducous (not seen). Inflorescence terminal to subterminal, panicle of cymules, pubescent; bracts 1, lanceolate 2.5–4 mm long, pubescent, caducous; bracteoles 3, lanceolate, ca. 1.5 mm long, pubescent, caducous. Flowers 0.8–1 cm long, white, green or yellow, pubescent, receptacle cupuliform, ca. 1 mm long, pubescent on the inside, pedicellate, pedicel 1–5 mm long; petals 5, rounded, 2–2.5 mm long, glabrous, margin ciliate; sepals triangular, ca. 1–2 mm long, pubescent on both sides; stamens ca. 20, free at most length, united at base, exserted, in a complete circle; filaments ca. 3 mm long, glabrous; ovary ca. 1 mm long, lanate, at receptacle base, style ca. 2 mm long, glabrous. Drupe ellipsoid, green, stipitate, 7–11 × 3.9–7 cm, epicarp rugose, glabrous.

Selected material examined: Conceição da Barra, Flona do Rio Preto, mata em regeneração a beira da estrada, 10.IV.2011, fr., M. Ribeiro 496 (RB, SAMES, VIES); Rebio de Córrego Grande, floresta alta sobre Tabuleiro, estrada interna km 4, 13.VII.2011, fr., M. Ribeiro 571 (SAMES, VIES). Ibirapu, sítio localizado após a BR-101, no início da subida para o mosteiro, à esquerda, 5.VI.1990, J.M.L. Gomes 1202 (HUEFS, VIES). Linhares, Lagoa do Durão, Rio Doce, 11.IV.1934, fr., J.G. Kuhlmann 162 (NY, RB); Reserva Natural Vale, Estrada Flamengo, ant. X-1, km 5.576, lado direito, 12.IX.1985, fl., G.L. Farias 70 (CVRD, RB, UEC). Pinheiros, Rebio de Córrego do Veado, 13.II.2022, L.F.T. Menezes 2993 (SAMES). Santa Teresa, Estação Biológica de Santa Lúcia, 20.X.1993, fl., L.D. Thomaz 1637 (HRCB, MBML, VIES). Sooretama, Rebio de Sooretama, Estrada do Quirino, 2017, fl., *Curso de campo UFES, UFRJ, IBRJ 03* (RB, RBR, SAMES).

Moquilea salzmannii can be distinguished from other species by its inconspicuous primary veins on both sides of the leaf (hindering the counting), the flowers with elongate pedicel, short cupuliform receptacle and the stamens exserted and united at base. This species is pollinated by insects and has a biotic dispersal syndrome (Rolim *et al.* 2016). Collected with flowers from October to November and fruits from April to June.

Moquilea salzmannii is endemic to Atlantic Forest, recorded in Bahia and Espírito Santo (Sothers & Prance 2023g). In the latter, it occurs in Ombrophilous forest and Mata de Tabuleiro, in Conceição da Barra, Ibirapu, Linhares, Pinheiros, Santa Teresa and Sooretama. It is assessed as “Least Concern” (LC) for Brazil (Fernandez & Amorim 2018). In Espírito Santo the species was collected in six protected areas (Estação Biológica de Santa Lúcia, Floresta Nacional do Rio Preto, Reserva Biológica de Córrego Grande, Reserva Biológica de Córrego do Veado, Reserva Biológica de Sooretama, Reserva Natural Vale), with collections from different decades, which indicates it is not threatened.

The common names for this species are guaiti (*D.A. Folli* 120), oiti-coró (*J.G. Kuhlmann* RB 294) and oiti-da-bahia (*L.S. Leoni* 5856).

9. *Parinari* Aubl., *Hist. Pl. Guiane* 1: 514. 1775.

The genus comprises 39 species, with a Pantropical distribution (Barbosa-Silva 2024). A single species occurs in Espírito Santo state, *Parinari brasiliensis* (Schott) Hook.f.

9.1. *Parinari brasiliensis* (Schott) Hook.f., *Fl. bras.* 14(2): 51. 1867.

Basionym: *Petrocarya brasiliensis* Schott, *Systema Vegetabilium*, editio decima sexta 4(2): 405. 1827. Figs. 1k-l; 2

Tree, up to 30 m tall, DBH 25–53 cm; young branches villous to tomentose, becoming glabrous with age, lenticellate. Leaves elliptic, 6.5–8.5(14) ×

2.9–4 cm, chartaceous, discolorous, base cuneate, apex acute, margin with discoid glands abaxially, glabrous adaxially, tomentose abaxially with stomatal crypts, midrib impressed adaxially, prominent and sparsely tomentose in both surfaces, primary veins ca. 18(30) pairs, sparsely tomentose to glabrescent abaxially; petiole 0.5–1 cm long, velutinous or sparsely tomentose, canaliculate, with 2 glands at middle; stipules caducous (not seen). Inflorescence terminal, paniculate, pubescent to densely pubescent, bracts ca. 3 mm long, triangular. Flowers white, 5–7 mm long, pubescent outside, pedicel 1–1.5 mm long; receptacle campanulate, interior pubescent to sericeous at base, sericeous at apex; sepals triangular, 2–3 mm long, puberulent inside; petals rounded, 1.5–2.5 mm long, glabrous, puberulent at the margin, caducous; stamens ca. 7, 2–3 mm long, inserted unilaterally or in 3/4 circle, ca. 7 staminodes; ovary ca. 1 mm long, sericeous, style ca. 4 mm long, basal half sericeous. Drupe brown, ellipsoid, 3.5–4 × 2–2.5 cm; epicarp glabrous, sparsely tomentose at base, lenticellate, rugose. **Selected material examined:** Guaçuí, Floresta do Rosal, 29.IV.2010, R.A. Curto 135 (VIES). Linhares, Degredo, 3.VI.2013, fr., D.A. Folli 7070 (RB, RNV); Reserva Natural Vale, Estrada Flamengo, 25.XI.1991, fl., D.A. Folli 1500 (RB, CVRD). Santa Teresa, Estação Biológica de Santa Lúcia, 8.XII.1992, L.D. Thomaz 1643 (MBML, VIES). São Mateus, área de Mucununga, 24.V.2018, fr., L.F.T. Menezes 2552b (SAMES). Sooretama, Reserva Biológica de Sooretama, porção oeste, trilha do rio sul, 19.I.2010, fl., A. Giaretta 716 (RB, SAMES, VIES).

Parinari brasiliensis can be recognized by elliptic leaves with stomatal crypts and discoid glands on the abaxial surface, high number of primary veins, petiole with two glands in the middle portion, paniculate inflorescence and fewer stamens (ca. 7) unilaterally inserted. Collected with flowers from November to March and fruits from March to July and October.

This species is endemic to the Atlantic Forest, in the states of Alagoas, Bahia, Espírito Santo, Minas Gerais, Paraná, Pernambuco, Rio de Janeiro, Santa Catarina and São Paulo (Barbosa-Silva 2024). In Espírito Santo it is recorded in Restinga, Mussununga, Ombrophilous and Tabuleiro forests, in Guaçuí, Linhares, Santa Teresa, São Mateus and Sooretama. *Parinari brasiliensis* is classified as “Near Threatened” (NT) for Brazil (Barbosa-Silva 2024). In Espírito Santo there are old and recent collections and it is recorded in three protected areas (Estação Biológica de Santa Lúcia, Reserva Biológica de Sooretama, Reserva Natural Vale) and is therefore not considered threatened.

The common name for this species is bafo-de-boi-mirim (*D.A. Folli 1500, 2077, 3944, 5107, 5614, 7070*).

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Data Availability Statement

In accordance with Open Science communication practices, the authors inform that there is no data sharing of this manuscript.

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