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Original Paper

Malpighiaceae from Lenheiro Mountain Range, Minas Gerais, Brazil

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Abstract

We present a taxonomic treatment for Malpighiaceae from the Lenheiro Mountain Range, São João del-Rei, Minas Gerais, Brazil, where a total of 23 species and nine genera were recorded. Identification keys for all genera and species are presented, along with morphological descriptions, photo plates, and comments on distribution, ecology and taxonomy of the studied species.

Key words: Cerrado, Malpighiales, rocky fields, taxonomy.

Resumo

Apresentamos o tratamento taxonômico para Malpighiaceae na Serra do Lenheiro, São João del-Rei, Minas Gerais, Brasil, onde um total de 23 espécies e nove gêneros foram registrados. Chaves de identificação para os gêneros e espécies são apresentadas, além de descrições morfológicas, pranchas fotográficas e comentários sobre distribuição, ecologia e taxonomia das espécies estudadas.

Palavras-chave: Cerrado, Malpighiales, campo rupestre, taxonomia.

Introduction

Malpighiaceae Juss. is one of the 36 families currently placed in Malpighiales (APG IV 2016). It comprises 77 genera and ca. 1,300 species of trees, shrubs, subshrubs or lianas, distributed in the tropics worldwide, but predominantly in the Neotropics (Davis & Anderson 2010). The family is easily recognized by unicellular T-shaped hairs, calyx 8-10 glandular, and five clawed petals (Anderson 1979, 1981). n Brazil, Malpighiaceae is represented by 46 genera and ca. 588 species, occurring in all regions and phytogeographic domains of the country (Almeida *et al*. 2020a).

The state of Minas Gerais is the second most diverse in species of Malpighiaceae, comprising 205 species (Almeida *et al*. 2020a). The high diversity rates of plants in Minas Gerais is strictly associated to the variety of altitudes, soils and climates, in which rocky fields hold most of the biological diversity of this state (Giulietti 1987). The Lenheiro Mountain Range is located in southern Minas Gerais, being a relatively small mountain range but possessing great historical relevance, since it is crossed by the Brazilian Royal Road (Tavares 2011). Thus, this mountain range was visited several times in the past by famous naturalists who described new species from this region (Jussieu 1843). A complete floristic survey the Lenheiro Mountain Range has been recently presented by Costa (2019), evidencing the rich flora that this mountain range still holds.

With the aim to further expand the floristic knowledge of the Lenheiro Mountain Range, we present a taxonomic treatment for

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the Malpighiaceae, including a key for all species occurring in this region, morphological descriptions, specimens examined, photo plates, and comments on distribution, ecology and taxonomy of all species.

Material and Methods

Study area

The Lenheiro Mountain Range (Fig. 1) is a 1,760 ha mountain range located northeastern of the urban center of the municipality of São João del-Rei, Minas Gerais state, Brazil (Ferreira 2015). The altitude in this region ranges from 900 to 1,246 m, showing cambisols and oxisols, and a seasonal climate (Cwb) characterized by dry winters and moderately hot summers (Alvares *et al.* 2013; Ferreira 2015; Sá Júnior 2009). Additionally, physiognomies of two different phytogeographic domains are recorded in this mountain range, the Atlantic Forest and Cerrado. Most of this region is characterized by savannas associated with rocky fields vegetation over quartzite rocky outcrops, and seasonal forest patches, which might be related to the areas' great biodiversity (Vasconcelos 2011).

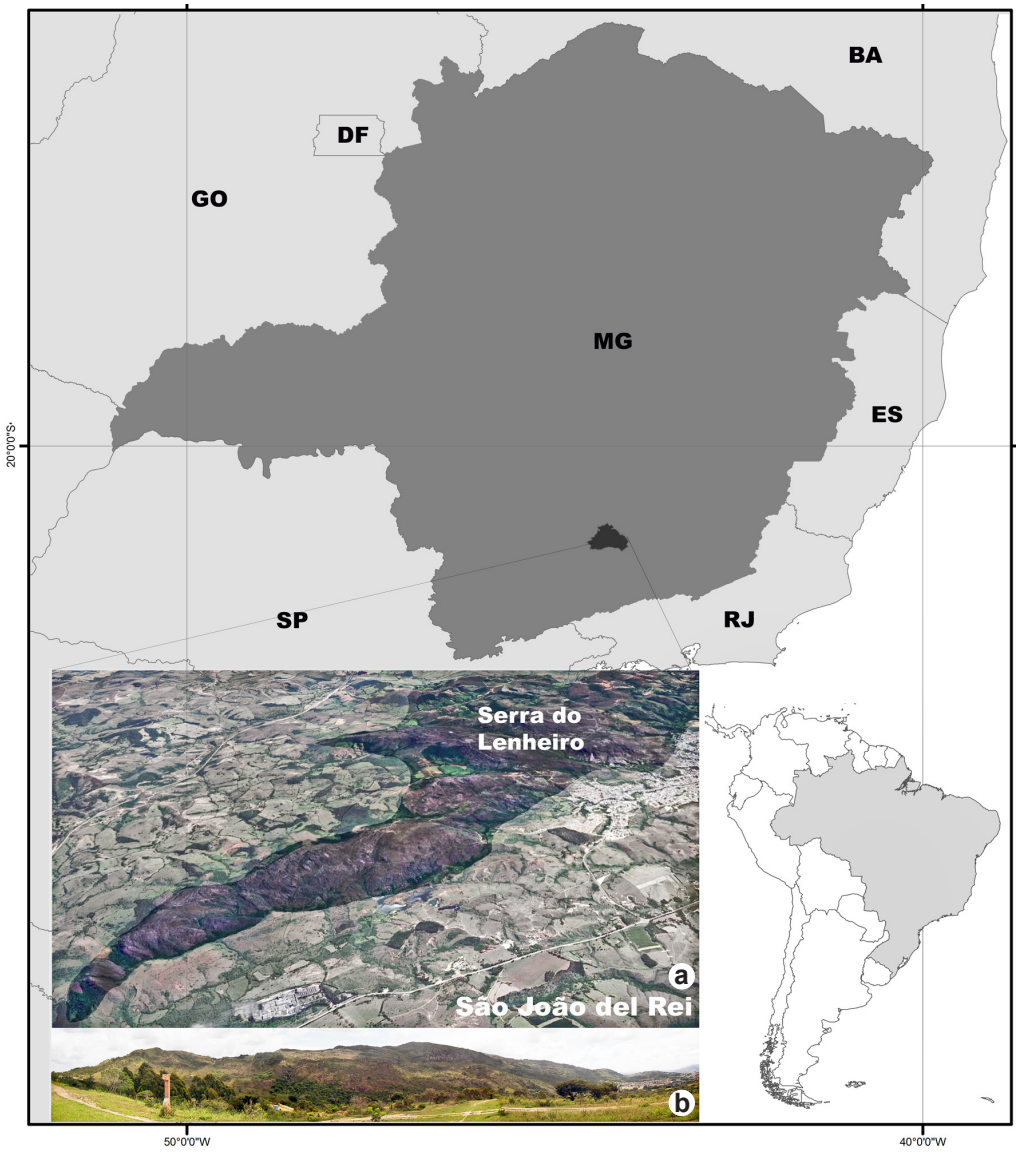

Figure 1 – Map locating the Lenheiro Range in Brazil – a. satellite view of the Lenheiro Range, in black; b. in situ view of the Lenheiro Range.

Taxonomy

The study was based on the analysis of collections from HUEFS, HUFSJ, NY, OUPR, RB, BHCB and SP (acronyms according to Thiers, continuously updated), complemented by specimens collected by us in the area between 2015 and 2018 and deposited at HUFSJ herbarium. Morphological terminology for vegetative characters followed Radford *et al.* (1974), and reproductive character followed Niedenzu (1928) and Anderson (1981). All photo plates were made using the Photoshop software (Adobe 2019), the map was elaborated using the ArcGIS 9.3 software (ESRI 2010), and shapefiles were obtained from IBGE (2015).

Results and Discussion

Malpighiaceae Juss., Gen. Pl. 252. 1789. Type: *Malpighia* L.

Trees, shrubs, subshrubs to lianas; unicellular hairs T-Y-V-shaped, rarely aciculate. Stipules epi- or interpetiolar, diminute or expanded. Leaves simple, opposite, rarely subopposite; leaf blade glandular, rarely eglandular, margins flat or revolute; petiole glandular, rarely eglandular. Inflorescences of first order of 1–3-flowered cincinni; second order inflorescences thyrsi, corymbs or umbels; third order inflorescences dichasia, thyrsi or panicles, axillary or terminal. Flowers zygomorphic, bisexual, heterocyclic, hypogynous. Sepals 5, glands 0–2 per sepal, anterior sepal usually eglandular. Petals 5, yellow or white to pink, free, clawed; posterior petal generally markedly different from lateral petals. Stamens 4–5–6–10, homo- or heteromorphic; anthers pubescent or glabrous. Gynoecium 2–3-carpellate, free or connate, 1-ovulate; ovule pendulous, anatropous; styles 1–3, free, rarely connate, apex acute, obtuse, capitate or truncate; stigma terminal or lateral. Fruit drupe, nut or schizocarp, the latter splitting into 3 mericarps, smooth, setose or winged.

A total of nine genera and 23 species were recorded at the Lenheiro Mountain Range.

Key for the genera of Malpighiaceae at the Lenheiro Mountain Range

1. Stipules expanded and connate into a cordiform structure; 5 fertile stamens, 5 staminodes ..... 8. *Peixotoa*
1'. Stipules absent or minute and free or connate into a bifid structure; 4 or 10 fertile stamens, 0 or 2 staminodes 2
    2. Leaf blades acicular; style 1 ..... 3. *Camarea*
    2'. Leaf blades broad; styles 3 3
        3. Apex of styles subulate, stigma minute; drupes ..... 2. *Byrsonima*
        3'. Apex of styles obtuse, capitate to truncate, stigma well-developed; schizocarps 4
            4. Mericarps with lateral wings more developed than the dorsal one 5
            4'. Mericarps with the dorsal wing more developed than the lateral ones 7
                5. Bracteoles 1-glandular; lateral wings fused into an orbicular wing ..... 6. *Mascagnia*
                5'. Bracteoles 0 or 2-glandular, never 1-glandular; 4 lateral wings X-shaped 6
                    6. Lianas; bracteoles eglandular ..... 7. *Niedenzuella*
                    6'. Shrubs; bracteoles 2-glandular ..... 9. *Tetrapterys*
                        7. Apex of style truncate, stigma lateral; dorsal wing abaxially thicker ..... 5. *Heteropterys*
                        7'. Apex of styles capitate, stigma terminal; dorsal wing adaxially thicker. 8
                            8. Petals glabrous, connectives glandular; mericarps without lateral winglets ..... 1. *Banisteriopsis*
                            8'. Petals pubescent, connectives eglandular; mericarps with two lateral winglets ..... 4. *Diplopterys*

1. *Banisteriopsis* C.B.Rob., N. Amer. Fl. 25(2): 131. 1910.

Shrubs, subshrub or lianas. Stipules interpetiolar, minute and free. Leaves opposite; leaf blades broad pilose to glabrous, glandular; petiole glandular. Umbels or thyrsi, arranged in dichasia or thyrsi, axillary to terminal. Sepals 2-glandular, except the anterior one. Petals yellow, pink or white, glabrous. Stamens 10, all fertile; connectives glandular, anthers pubescent to glabrous. Ovary sericeous, styles 3, apex capitate, stigma terminal well-developed. Schizocarps splitting into 3 mericarps, winged, dorsal wing more developed than lateral ones, adaxially thicker.

Banisteriopsis comprises ca. 60 species distributed in several phytogeographic domains in the Neotropics (Gates 1982). In Brazil, 48 species are recorded, out of which 31 species occur in Minas Gerais state (Francener 2020a) Four species are recorded from the Lenheiro Mountain Range.

Key for the species of *Banisteriopsis* in the Lenheiro Mountain Range

1. Thyrsi; flowers yellow at anthesis..... 1.2. *Banisteriopsis gardneriana*
1'. Umbels; flowers pink to white at anthesis 2
   2. Posterior petal narrowly elliptic; styles arched .....1.4. *Banisteriopsis muricata*
   2'. Posterior petal obovate to circular; styles erect 3
      3. Primary and secondary veins abaxially impressed; petals pink to white at anthesis, becoming paler at post-anthesis, anthers pubescent .....1.3. *Banisteriopsis malifolia*
      3'. Primary and secondary veins abaxially prominent; petals pink, not becoming pale at post-anthesis, anthers glabrous.....1.1. *Banisteriopsis campestris*

1.1. *Banisteriopsis campestris* (A.Juss.) Little, Phytologia 6: 506. 1959. Fig. 2a

Subshrub to shrubs, 40–50 cm tall. Leaf blades 2.28–7.26 × 1.5–4.65 cm, narrowly-elliptic, elliptic to ovate to obovate, base rounded, margin plane, apex acuminate to mucronate, both sides densely tomentose, veins abaxially prominent, 1–2 pairs of glands near base; petiole 1.7–5.8 × 1.2–1.7 mm, densely sericeous, 0–1 pair of glands at apex. Umbels, 4-flowered, axillary or terminal, solitary or arranged in dichasia; bracts ca. 1.9 × 1 mm, triangular; peduncle 1.67–26.2 × 0.9–1.2 mm, sericeous; bracteoles ca. 1.5 × 0.4 mm, lanceolate; pedicel 7.4–9 × 0.8–0.9 mm; sepals ca. 3.2 × 2.2 mm; sepal glands ca. 2.2 × 0.9 mm; petals pink, not becoming paler at post-anthesis; lateral petals blade ca. 7.2 × 8.2 mm, orbicular, claws ca. 5 × 0.2 mm, margin fimbriate; posterior petal blade 6.4–7.2 × 6–6.3 mm, obovate, glandular near the claw, claw 3.8–4.8 × 0.9–1 mm, margin fimbriate. Stamens heteromorphic; filaments 2.7–2.9 × 0.4–0.6 mm, glabrous; connectives 0.7–1.5 × 0.3–1 mm; anthers 1.1–1.4 × 0.4–0.8 mm, glabrous. Ovary pubescent; styles homomorphic, erects. Mericarps not seen, dorsal wings ca. 2.5 × 1–1.5 cm, sericeous (Carvalho 2010).

Specimens examined: São João del-Rei, Serra do Lenheiro, estrada que chega à torre, 21º09'21"S, 44º18'20"W, 957 m, 10.IV.2015, fl., *L.L. Alves 23* (HUFSJ); 21º10'33" S, 44º19'45" W, 1080 m, 9.VI.2017, fl., *M.T.R. Costa 963* (HUFSJ); 21º12'76"S, 44º27'03"W, 976 m, 14.III.2017, fl., *M.T.R. Costa 800* (HUFSJ); pico Nova a S. das Antenas, 10.I.2017, fl., *R.J.V. Alves 12555* (HUFSJ); águas férreas, 21º13'08"S, 44º28'44"W, 974 m, 21.II.2017, fl., *M.T.R. Costa 737* (HUFSJ); trilha para o areal, parte central da serra, 21º12'86"S, 44º30'09"W, 1153 m, 12.XII.2017, fl., *M.T.R. Costa 1294* (HUFSJ).

Banisteriopsis campestris is distributed across the Caatinga and Cerrado In Brazil (Francener 2020a). This species is commonly found in campos rupestres throughout the entire Lenheiro Mountain Range.

1.2. *Banisteriopsis gardneriana* (A.Juss.) W.R. Anderson & B. Gates, Contr. Univ. Michigan Herb. 11: 54. 1975. Fig. 2b-c

Lianas. Leaf blades 9.97–12.24 × 5.4–8.11 cm, elliptic to ovate, base rounded, margin revolute, apex rounded to acuminate, adaxially glabrescent, abaxially tomentose, veins impressed, eglandular; petioles 1.42–12 × 2.5–2.8 mm, tomentose, 1-pair of glands at apex. Thyrsi, several-flowered, axillar or terminal, solitary or arranged in thyrsi; bracts ca. 1.7 × 1 mm, triangular; peduncle ca. 3.5 × 1.2 mm, velutine; bracteoles ca. 1.4 × 0.5 mm, triangular; pedicels 5.3–10.08 × 0.7 mm; sepals 3–4.4 × 1.8–2.3 mm; sepal glands ca. 1.4 × 1 mm; petals yellow at anthesis; lateral petals blade 5.4–5.8 × 4.4–5 mm, orbicular, claws 1.7–2 × 0.4–0.5 mm, margin dentate; posterior petal blade ca. 3 × 0.4–0.9 mm,

Figure 2 – a-i. Flowering and fruiting branches of *Banisteriopsis* and *Byrsonima* at the Lenheiro Range – a. *Banisteriopsis campestris*; b-c. *Banisteriopsis gardneriana*; d. *Banisteriopsis malifolia*; e-f. *Banisteriopsis muricata*; g. *Byrsonima coccolobifolia*; h. *Byrsonima intermedia*; i. *Byrsonima pachyphylla*. Photos: a-h. L.L. Alves; i. R.F. Almeida.

ovate, claw ca. 2.4 × 0.5 mm, margin fimbriate. Stamens heteromorphic; filaments ca. 2–3 mm long; connectives 0.5–2 × 0.2–1.6 mm; anthers ca. 1.1 × 0.6 mm, glabrous. Ovary sericeous, styles heteromorphic. Mericarps with dorsal wing ca. 2.5 × 1 cm, sericeous, nut ca. 3.6 × 3.3 mm.

Specimens examined: São João del-Rei, Serra do Lenheiro, IX.1897, fl., *F.P. Magalhães-Gomes* (OUPR 18580); saindo da estrada que segue para o povoado de Cunha, 21º07'21"S, 44º18'07"W, 985 m, 21.IX.2016, fl., *L.L. Alves 155* (HUFSJ).

Additional specimen examined: BRAZIL. MINAS GERAIS: Tiradentes, Serra de São José, trilha do mangue, águas santas, 21º06'01,2"S, 44º52"04,7"W, 1,085 m, 28.VIII.2010, fl., *M. Sobral 13310* (HUFSJ).

Banisteriopsis gardneriana is widely distributed across the Cerrado and Caatinga domain in Brazil (Francener 2020a).

At the Lenheiro Mountain Range, this species is found in campos rupestres, but not very often.

There are few fruiting collections of this species, possibly because this species might produce few fruits, or they are early dispersed (Gates 1982). Despite that, there are two fruiting collections at the Lenheiro Mountain Range one of them, and one of than, is more than 100 years old. *Banisteriopsis gardneriana* is only this genus with petals yellow and has not inflorescence in umbels at Lenheiro Mountain Range at the moment.

1.3. *Banisteriopsis malifolia* (Nees & Mart.) B.Gates, Fl. Neotrop. Monogr. 30: 76. 1982. Fig. 2d

Subshrubs or shrubs, 0.4–1.5 m tall. Leaf blades 3.3–7.86 × 2.15–5.86 cm, elliptic to ovate, base cordate to rounded, apex acuminate, margins flat, abaxial side densely sericeous, adaxial side glabrescent, veins impressed, 1 pair of glands on the abaxial side, along the midvein near the first pair of secondary veins; petioles ca. 1.4 × 1.4 mm, densely velutine, eglandular. Umbels, 4-flowered, axillary or terminal, solitary or arranged in dichasia; bract ca. 3.3 × 2.2 mm, triangular; peduncle inconspicuous; bracteoles not seen, 1.8–2.8 mm, lanceolate to broadly oblong (Gates 1982); pedicels 7–11.2 × 1.3–1.5 mm; sepals ca. 5.5 × 3.3 mm; sepal glands ca. 3 × 1.3 mm; petals pink becoming paler at post-anthesis; lateral petals blade ca. 10 × 9.7 mm, orbicular, claw ca. 2.4 × 0.9 mm, margins dentate; posterior petal blade ca. 8.3 × 7.7 mm, circular, claw ca. 4.5 × 0.9 mm, orbicular, margin dentate. Stamens heteromorphic; filaments ca. 2.8 × 0.5 mm, glabrous; anthers ca. 1.5 × 0.9 mm, slightly pubescent; connective glandular, the opposite sepals ca. 1.2 × 1 mm, the opposite petals ca. 0.9 × 0.9 mm, ca. 0.3 mm longer than the anther sacs, apex rounded. Styles homomorphic, erects. Mericarps, dorsal wings ca. 2.08 × 1.1 cm, sericeous, carpophore ca. 1.5 × 0.7 mm, nut ca. 5 × 4.1 mm.

Specimen examined: São João del-Rei, Serra do Lenheiro, 21º12'76"S, 44º27'03"W, 976 m, 10.IV.2017, *M.T.R. Costa 827* (HUFSJ).

Additional specimens examined: BRAZIL. MINAS GERAIS: São João del-Rei, distrito do Rio das Mortes, loteamento Pinheiros, 21º11'56"S, 44º20'25"W, 940 m, 6.V.2017, fl. and fr., *L.L. Alves 150* (HUFSJ).

Banisteriopsis malifolia is widely distributed across the Amazon, Caatinga, Cerrado, Atlantic Forest domain in Brazil (Francener 2020a). At the Lenheiro Mountain Range, this species is found in campos rupestres.

Hairs in *Banisteriopsis malifolia* are usually irritating in contact to skin.

1.4. *Banisteriopsis muricata* (Cav.) Cuatrec., Webbia 13(2): 503-504. 1958. Fig. 2e-f

Shrubs or lianas, ca. 0.5 m tall. Leaf blades 3.1–12.6 × 3–8 cm, orbicular to ovate, base cordate to attenuate, margins flat, apex acute to acuminate to cuspidate, abaxial side densely tomentose or sericeous, adaxial side slightly sericeous, glabrescent, veins impressed, eglandular or with 1 pair of glands along the secondary veins; petioles 14–15 × 1.2–2.2 mm, tomentose, eglandular or with 1 pair of glands. Umbels, 4-flowered, axillary or terminal, solitary or arranged in dichasia; bracts ca. 1.5 × 1.2 mm, triangular; peduncles 4.7–6.4 × 0.6–0.7 mm, densely tomentose; bracteoles ca. 1.1 × 0.8 mm, triangular; pedicels 7–8.4 × 0.8–1 mm; sepals ca. 3.4 × 2 mm, eglandular; petals pink to white, lateral petals blade ca. 4 × 3.8 mm, orbicular to broadly elliptic, claws ca. 2.3 × 0.6 mm, margins dentate; posterior petal blade 6.6 × 3.3 mm, narrowly elliptic, claw ca. 2.8 × 1.4 mm, base broad, margins dentate. Stamens heteromorphic; filaments ca. 2.1 × 0.3 mm, glabrous; anthers ca. 1 × 0.7 mm, glabrous; connectives of the stamens opposite to the antero-lateral sepals glandular, ca. 0.7 × 0.4 mm, connectives of the stamens opposite the lateral sepals densely glandular, broad, ca. 1.8 ×1.2 mm, ca. 1.4 mm longer than the anther sacs, apex rounded. Styles heteromorphic, 2 arched, 1 straight, glabrous. Mericarps, dorsal wings ca. 3 × 1.3 cm, sericeous, carpophore ca. 2.2 × 0.4 mm, nut ca. 6.4 × 5 mm.

Specimen examined: São João del-Rei, Serra do Lenheiro, 21º10'33"S, 44º19'45"W, 971 m, 9.VI.2017, fr., *M.T.R. Costa 971* (HUFSJ).

Additional specimen examined: BRAZIL. MINAS GERAIS: São João del-Rei, rua Otávio Angelo Calsavara, bairro Colônia, 21º45'55"S, 44º14'19"W, 13.II.2011, fl., *M. Sobral 13757* (HUFSJ).

Banisteriopsis muricata is widely distributed across the Amazon, Caatinga, Cerrado, Atlantic Forest in Brasil (Francener 2020a). At the Lenheiro Mountain Range, this species is found in vegetation over campos rupestres.

2. *Byrsonima* Rich. *ex* Kunth, Nov. Gen. Sp. (quarto ed.) 5: 147. 1821[1822].

Trees, shrubs or subshrubs, branches aerial or underground. Stipules epipetiolar, connate, minute. Leaves opposite; petioles eglandular; blades broad glabrous or pilose, eglandular. Thyrsi sessile or pedunculate, cincinni 1–2-flowered. Sepals all 2-glandular. Petals yellow to orange or red or pink or white, glabrous. Stamens 10, all fertile, free or connate at base; connectives glandular, anthers sericeous to glabrous. Ovary glabrous or sericeous, styles 3, glabrous, apex acute, stigma terminal. Drupes, exocarp fleshy, green when immature, yellow to red when mature.

Byrsonima comprises ca. 150 species distributed in several phytogeographic domains in the Neotropics (Niedenzu 1928). In Brazil, 99 species are recorded, out of which 40 occur in the state of Minas Gerais (Francener 2020b). Seven species are recorded for the Lenheiro Mountain Range.

Key to the species of *Byrsonima* at the Lenheiro Mountain Range

1. Flowers yellow, becoming orange or red after anthesis 2
1'. Flowers pink to white, becoming paler after anthesis or posterior petal yellow to red and laterals petals pink to white 5
2. Stamens free at base; ovary glabrous 3
2'. Stamens connate at base; ovary sericeous-tomentose ..... 2.3. *Byrsonima pachyphylla*
3. Leaf blade both glabrous to slightly sericeous mostly along the midrib; petiole ca. 3 mm ..... 2.2. *Byrsonima intermedia*
3'. Leaf blade both tomentose; petiole sessile 4
4. Inflorescence axis ca. 30 cm long; indumentum predominantly white ..... 2.7. *Byrsonima verbascifolia*
4'. Inflorescence axis ca. 9 cm long; indumentum predominantly ferruginous ..... 2.4. *Byrsonima stannardii*
5. All the petals pink to white becoming paler after anthesis; leaf blade sericeous to glabrate to glabrous 6
5'. Posterior petal yellow to red and laterals petals pink to white; leaf blade abaxially tomentose ..... 2.6. *Byrsonima variabilis*
6. Leaf blade sericeous to glabrate, obovate to oblong; veins green ..... 2.5. *Byrsonima vacciniifolia*
6'. Leaf blade glabrous, circular to ovoid; veins pink ..... 2.1. *Byrsonima coccolobifolia*

2.1. *Byrsonima coccolobifolia* Kunth, Nov. Gen. Sp. (quarto ed.) 5: 148. 1821[1822]. Fig. 2g

Trees or shrubs, 1.6–2.5 m tall, branches aerial. Stipules ca. 2.2 × 1.5 mm, triangular. Leaf blades 6–12 × 4.6–6.9 cm, ovate to circular, base rounded to attenuate, margins flat, apex rounded, glabrous on both sides, primary and secondary veins pink; petiole inconspicuous. Thyrsi sessile, ca. 30-flowered, main axis 6.8–13.6 cm; bract ca. 2.6 × 1 mm, lanceolate, abaxial side slightly tomentose, adaxial side glabrous; bracteoles ca. 1.5 × 0.5 mm, lanceolate; pedicels 1–8.7 × 0.6–0.8 mm, densely tomentose. Sepals ca. 3.2 × 2 mm, abaxial side glabrescent, adaxial side densely sericeous, revolute at anthesis, ovate; glands ca. 2 × 0.8 mm, white to pink; petals white to pink becoming paler after anthesis; lateral petals blade ca. 4.5 × 4 mm, claw ca. 2.7 × 0.5 mm, margins entire; posterior petal blade ca. 2.5 × 4.6 mm, claw ca. 4.3 × 0.6 mm, margins entire. Stamens free, homomorphic; filaments ca. 2.6 × 0.7 mm, densely sericeous at base; anthers ca. 2.4 × 1 mm, sericeous; connectives

ca. 1.8 × 0.8 mm, not surpassing the anther sacs. Ovary glabrescent; styles ca. 4.8 × 0.3 mm. Drupes not seen, 7–8 mm diam., ovoid to globose (Anderson 1981).

Specimen examined: São João del-Rei, Serra do Lenheiro, 21º13'19"S, 44º27'59"W, 989 m, 14.IV.2017, *M.T.R. Costa 801* (HUFSJ).

Additional specimen examined: BRAZIL. MINAS GERAIS: São João del-Rei, loteamento Pinheiros, distrito do Rio das Mortes, 21º19'89"S, 44º34'42"W, 26.XI.2017, fl., *L.L. Alves 227* (HUFSJ).

Byrsonima coccolobifolia is widely distributed across the Amazon, Cerrado and Atlantic Forest domain in Brazil (Francener 2020b). At the Lenheiro Mountain Range, this species is found in campos rupestres.

2.2. *Byrsonima intermedia* A.Juss., *Fl. bras.* Merid. (quarto ed.) 3(22): 82. 1832[1833]. Fig. 2h

Shrub, 0.4–1.1 m tall, trunks and branches aerial. Stipules 2.5–3 × 0.8–1.4 mm, lanceolate. Leaves opposite, leaf blades 3.68–11.74 × 1.54–4.4 cm, elliptic to ovate, apex acute to acuminate to rounded, margin slightly revolute, base attenuate, both the slides glabrous to slightly sericeous mostly along the midrib; petiole 2.8–3.1 × 1.7–2 mm, expanded at base, sericeous. Thyrsi, ca. 20-flowered, main axis ca. 6.15 cm long; bract ca. 1.7 × 0.4 mm, lanceolate, adaxially glabrous, abaxially tomentose; peduncle absent; bracteoles ca. 1.4 × 0.6 mm, triangular; pedicel ca. 5.1 × 1 mm, densely tomentose; sepals ca. 2.6 × 1.6 mm, ovate, both sides tomentose; glands ca. 2 × 0.9 mm, green to yellow; petals yellow becoming orange or red after anthesis, lateral petals blade ca. 4 × 3.8 mm, claw ca. 2.3 × 0.3 mm, margin crenate; posterior petal blade ca. 2.3 × 3.7 mm, claw ca. 2.6 × 0.8 mm, margin erose. Stamens free, homomorphic; anthers ca. 2.5 × 0.8 mm, sericeous; connectives ca. 1.7 × 0.4 mm, equaling pollen sacs; filaments ca. 2.1 × 0.4 mm, sericeous. Ovary glabrous; style ca. 3 × 0.3 mm. Drupes not seen, ca. 5 mm diam, globose (Mamede 1987).

Specimens examined: São João del-Rei, Serra do Lenheiro, estrada que chega à torre, 21º09'32"S, 44º17'22"W, 994 m, 27.III.2015, fl., *L.L. Alves 15* (HUFSJ); 21º14'20"S, 44º29'30"W, 1,131 m, 9.V.2015, fl., *M.T.R. Costa 357* (HUFSJ); 21º14'42"S, 44º29'43"W, 1,089 m, 10.XII.2017, *M.T.R. Costa 1276* (HUFSJ); acesso pela estrada para Cunha, 21º07'11"S, 44º17'23"W, 1,046 m, 26.IV.2018, fl., *M.T.R. Costa 1463* (HUFSJ).

Byrsonima intermedia is widely distributed across the Amazon, Cerrado, Atlantic Forest and Pantanal domain in Brazil (Francener 2020b). At the Lenheiro Mountain Range, this species is found in campos rupestres.

Even though the leaves of *Byrsonima intermedia* usually glabrous on both sides, we recorded a few specimens covered by a sericeous indumentum, becoming glabrescent age.

2.3. *Byrsonima pachyphylla* A.Juss., *Fl. bras.* Merid. (quarto ed.) 3(22): 77. 1832 [1833]. Fig. 2i

Trees, 3–5 m tall, branches aerial, erect or tortuous. Stipules ca. 5.5 × 4 mm, wide-triangular. Leaves, leaf blades 15–19 × 8–10.5 cm, coriaceous, lanceolate to elliptic, apex acuminate, margin slightly revolute, base cuneate, adaxially glabrous to sericeous-tomentose at midrib, abaxially tomentose; petioles sessile to up to 4–10 mm long, velutine. Thyrsi of 1–2 flowered cincinni, 6–36-cincinni distributed in the median and distal portion of the rachis, rachis 5.5–16.5 cm long; bracts and bracteoles deciduous to persistent in fruiting; bracts ca. 7 × 2 mm, triangular, adaxially glabrous, abaxially sericeous-velutine; peduncle sessile; bracteoles ca. 3 × 1.5 mm, triangular; pedicels ca. 8 mm long, tomentose; sepals ca. 5.5 × 3 mm, ovate, revolute in anthesis, adaxially glabrous, abaxially sericeous to sericeous-tomentose; glands ca. 2.5 × 1 mm, yellow; petals yellow becoming orange or red after anthesis, lateral petals blade ca. 7.5 × 9 mm, margin slightly erose, claws ca. 5.5 × 0.5 mm; posterior petal blade ca. 5.5 × 6.5 mm, margin erose, claw ca. 4.5 × 1 mm. Stamens connate at base; filaments ca. 3 × 1 mm, pilose at base; connectives ca. 2 × 1 mm, exceeding or not the locules up to 0.2 mm long, apex acute; anthers ca. 2.5 × 0.8 mm, sericeous to glabrous. Ovary sericeous-tomentose; styles ca. 4.5 × 0.2 mm. Drupes not seen, 5–7 mm diam., ovoid, glabrescent, calyx persistent (Francener 2016).

Specimen examined: São João del Rei, Serra do Lenheiro, 1,300 m, 25.IV.1957, fl., *E. Pereira 3141* (RB, SP).

Byrsonima pachyphylla is widely distributed across the Amazon and Cerrado domain in Brazil (Francener 2020b). At the Lenheiro Mountain Range, this species is found in campos rupestres.

2.4. *Byrsonima stannardii* W.R.Anderson, Kew Bull. 47(4): 725-727, f. 1. 1992. Fig. 3a-b

Subshrubs to shrubs, 0.4–1.5 m tall, branches and trunks aerials. Stipules ca. 5.5 × 2.4 mm, triangular. Leaf blades 5.5–11.63 × 2.48–6 cm, elliptic to obovate, apex rounded to retuse,

margin flat, base attenuate to oblique, both sides tomentose, ferrugineous; petiole sessile. Thyrsi, ca. 30-flowered, main axis ca. 9 cm,; bract ca. 4.4 × 0.7 mm, lanceolate, adaxially glabrescent, abaxially tomentose; peduncle absent; bracteole ca. 2.8 × 0.6 mm, lanceolate; pedicel ca. 11.5 × 1 mm, tomentose; sepals ca. 3.4 × 2.2 mm, adaxially glabrous, abaxially tomentose, apex revolute in anthesis, ovate; glands ca. 2.4 × 1 mm, green to yellow to orange; petals yellow becoming orange or red after anthesis, lateral petals blade ca. 4.4 × 6.2 mm, claw ca. 2.8 × 0.4 mm, margin crenate; posterior petal blade ca. 3.2 × 2.8 mm, claw ca. 2.8 × 0.4 mm, margin erose. Stamens free at base, homomorphic; anthers ca. 2.4 × 0.8 mm, glabrous to sericeous; connectives ca. 1.9 × 0.4 mm, longer than pollen sacs in ca. 0.1 mm, apex acute; filaments ca. 2.0 × 0.6 mm, sericeous at base. Ovary glabrous; styles 4.2 × 0.3 mm. Drupes ca. 7.4 mm diam., globose, glabrous.

Specimens examined: São João del-Rei, Serra do Lenheiro, estrada para o Cunha, próximo à Escola de Montanhismo do Exército, 21º08'32"S, 44º18'01"W, 1,122 m, 16.X.2018, fl., *L.L. Alves 242* (HUFSJ); trilha alternativa de acesso às torres de transmissão, 21º15'73"S, 44º30'02"W, 1,080 m, 6.IV.2017, fl., *M.T.R. Costa 833* (HUFSJ); estrada para Trindade, 21º08'26"S, 44º17'36"W, 25.XII.2012, fl. and fr., *M. Sobral 15285* (HUFSJ).

Byrsonima stannardii is distributed across the Cerrado in Minas Gerais and Bahia states. The species is not frequent at the Lenheiro Mountain Range, being found in campos rupestres.

2.5. *Byrsonima vacciniifolia* A.Juss., *Fl. bras.* Merid. (quarto ed.) 1(3): 84. 1825. Fig. 3e-f

Subshrubs, shrubs, 0.6–2 m tall; branches aerial; stipules triangular. Leaf blades ca. 4 × 1.2 cm, obovate to oblong, apex emarginate to rounded, margin flat, base attenuate, both sides sericeous to glabrescent, white; petiole ca. 0.3 mm, sericeous to glabrous. Thyrsi, ca. 15-flowered, main axis ca. 2.2 cm long; bract ca. 2 × 1 mm, lanceolate, adaxially glabrous, abaxially sericeous; peduncle absent; bracteole ca. 1.2 × 0.9 mm, lanceolate; pedicel ca. 0.8 mm, sericeous; glands ca. 1.5 × 0.8 mm, white to pink; petals white becoming paler after anthesis; lateral petals blade ca. 5 × 5.2 mm, claw pink, ca. 3.6 × 0.8 mm; posterior petal blade ca. 3.4 × 4 mm, claw pink, ca. 3.6 × 1.6 mm. Stamens free, homomorphic; anthers ca. 1.8 × 0.9 mm, slightly pubescent; connectives ca. 2 × 0.5 mm, the one opposite the posterior petal equaling the pollen sacs, the remaining ones ca. 0.9 mm longer; filaments ca. 2.6 × 0.4 mm, sericeous at base. Ovary glabrous; styles ca. 3.5 mm long. Drupes ca. 5.5 mm diam., globose, glabrous.

Specimen examined: São João del-Rei, Serra do Lenheiro, 22.VII.1881, fl., *A.F.M. Glaziou 12480* (NY).

Byrsonima vacciniifolia is distributed across the Cerrado and Caatinga domain in Brazil (Francener 2020b). At the Lenheiro Mountain Range, this species is not found in expeditions and has few collection records for Minas Gerais state.

The only specimen of *Byrsonima vacciniifolia* from the study site was collected by the French botanist Auguste Glaziou more than 100 years ago.

2.6. *Byrsonima variabilis* A.Juss., *Fl. bras.* Merid. (quarto ed.) 3(22): 78. 1832[1833]. Fig. 3g-h

Shrubs, 0.8–1.8 m tall, branches aerial; stipules ca. 3.8 × 2.6 mm, triangular. Leaf blades 3.1–11.1 × 1.33–5.48 cm, elliptic to obovate to obtuse, apex rounded to mucronulate to apiculate, margin flat, base rounded to oblique, adaxially glabrescent, abaxially tomentose, ferruginous; petiole ca. 4 × 2.3 mm, tomentose. Thyrsi, ca. 30-flowered, main axis 4.14–9.3 cm; bract ca. 9 × 1.2 mm, lanceolate, adaxially glabrescent, abaxially tomentose; peduncle absent; bracteole ca. 5.5 × 1 mm, lanceolate; pedicel ca. 7.4 × 1 mm, tomentose; sepals ca. 4.5 × 2.6 mm, adaxially glabrous, abaxially tomentose, apex revolute, ovate; glands ca. 3 × 1.3 mm, white to pink; lateral petals white to pink becoming paler after anthesis, blade ca. 5.6 × 7.3 mm, claw ca. 3.7 × 0.5 mm, margins erose; posterior petal yellow becoming orange to red after anthesis, blade ca. 3.5 × 3.7 mm, claw ca. 3.8 × 1.2 mm, margins erose. Stamens free, homomorphic; filaments ca. 3.3 × 0.7 mm, barbate at base; anthers ca. 2.8 × 0.8 mm, glabrous; connectives ca. 2.4 × 0.6 mm, not surpassing the anther sacs or barely surpassing the anther sacs ca. 0.01 mm, apex rounded. Ovary glabrous; styles ca. 5 × 0.3 mm. Drupes not seen.

Specimens examined: São João del-Rei, Serra do Lenheiro, subida pelo Lenheiros, próximo à queda d'água, 21º08'21"S, 44º17'11"W, 1,012 m, 16.X.2018, fl., *L.L. Alves 237* (HUFSJ); 21º13'81"S, 44º29'12"W, 1,051 m, 28.X.2016, fl., *M.T.R. Costa 643*(HUFSJ); 21º08'24"S, 44º17'19"W, 1,028 m, 16.IX.2013, fl., *A. Francener 1392* (HUFSJ, SP); porção da serra atrás da base do Exército, 21º15'25"S, 44º30'55"W, 1,128 m, 11.VIII.2017, fl., *M.T.R. Costa 1107* (HUFSJ); 21º14'55"S, 44º30'20"W, 1,196 m, 5.VIII.2017, fl., *M.T.R. Costa 1058* (HUFSJ); 21º07'52"S, 44º18'04"W, 1,161 m, 8.I.2017, fl., *M.T.R. Costa 681* (HUFSJ).

Figure 3 – a-i. Flowering and fruiting branches of *Byrsonima* at the Lenheiro Range – a-b. *Byrsonima stannardii*; c-d. *Byrsonima subterranea*; e-f. *Byrsonima vacciniifolia*; g-h. *Byrsonima variabilis*; i. *Byrsonima verbascifolia*. Photos: a-d, g-i. L.L. Alves; e-f. R.F. Almeida.

Byrsonima variabilis is distributed across the Cerrado and Atlantic Forest domain in Brazil (Francener 2020b). At the Lenheiro Mountain Range, this species is found in campos rupestres.

2.7. *Byrsonima verbascifolia* (L.) DC., Prodr. 1: 579. 1824. Figs. 3i; 4a

Shrubs 0.2–1.8 m tall, branches aerial. Stipules ca. 9 × 5 mm, triangular. Leaf blades 2.9–15.3 × 2–10.8 cm, elliptic to ovate to obovate, base attenuate to rounded, margins flat, apex rounded to truncate to acute, both sides densely tomentose, white; petiole sessile. Thyrsi sessile, ca. 38-flowered, main axis 13.2–33.3 cm; bract ca. 6.5 × 2.8 mm, triangular to lanceolate, abaxial side densely tomentose, adaxial side glabrous; peduncle sessile; bracteole ca. 3.8 × 1.5 mm, triangular to lanceolate; pedicel ca. 11.3 × 1.1 mm, densely tomentose; sepals ca. 5 × 2.6 mm, abaxial side densely tomentose, adaxial side glabrous, revolute at anthesis; glands ca. 2.3 × 1 mm, green to yellow to red; petals yellow becoming orange to red after anthesis, lateral petals blade ca. 5.3 × 7 mm, claw ca. 4.6 × 0.5 mm, margins erose; posterior petal blade ca. 4.4 × 4.3 mm, claw ca. 4.1 × 0.8 mm, margins erose. Stamens free, homomorphic; filaments ca. 4.1 × 0.4 mm, sericeous at base; anthers ca. 2.9 × 1.2 mm, sparsely sericeous; connectives ca. 2.3 × 0.5 mm, not surpassing the anther sacs to barely surpassing the anther sacs ca. 0.01 mm, apex rounded. Ovary glabrous, styles ca. 4.8 × 0.3 mm. Drupes 8–11 diam., globose, glabrous to sparsely sericeous.

Specimens examined: São João del-Rei, Serra do Lenheiro, subida pelo Lenheiros, próximo à queda d'água, 21º08'25"S, 44º17'11"W, 1,012 m, 16.X.2018, fl., *L.L. Alves 236* (HUFSJ); 21º13'19"S, 44º27'59"W, 989 m, 14.IV.2017, fr., *M.T.R. Costa 802* (HUFSJ); estrada para Trindade, bairro Tejuco, 21º14'10"S, 44º28'67"W, 992 m, 26.IV.2017, fr., *M.T.R. Costa 903* (HUFSJ); subida pela parte de trás da igreja São José, 21º07'39"S, 44º17'21"W, 1,020 m, fl. and fr., 16.X.2015, *L.L. Alves 43* (HUFSJ); 21º14'07"S, 44º29'28"W, 1,085 m, 13.III.2015, fl., *M.T.R. Costa 397* (HUFSJ); trilha lateralmente à esquerda da principal que leva à torre, 21º09'29"S, 44º18'05"W, 1,056 m, 22.V.2015, fl., *L.L. Alves 36* (HUFSJ); 21º14'55"S, 44º30'20"W, 1,196 m, 5.VIII.2017, fl., *M.T.R. Costa 1060* (HUFSJ); 21º09'21"S, 44º18'20"W, 957 m, 10.IV.2015, fl., *L.L. Alves 21* (HUFSJ); 15.IX.1897, fl., *F.M. Magalhães-Gomes* (OUPR 18581); 1,300 m, 25.IV.1957, fl., *E. Pereira 3141* (RB).

Byrsonima verbascifolia is widely distributed across the Amazon, Caatinga, Cerrado and Atlantic Forest domain in Brazil (Francener 2020b). At the Lenheiro Mountain Range, this species is found in campos rupestres. It has recently been placed as a synonym for *B. verbascifolia* in Flora of Brazil studies (Francener 2020b).

3. *Camarea* A.St.-Hil., Bull. Sci. Soc. Philom. Paris 1823: 133. 1823.

Subshrubs, underground stem a xylopodium. Stipules absent. Leaves opposite or subopposite; blades acicular glabrous or pilose, glandular; petioles when present eglandular. Thyrsi or umbels, inflorescences at the basal nodes bearing cleistogamous flowers, the ones in the apical nodes bearing chasmogamous flowers, cincinni 1-flowered. Flowers dimorphic, the cleistogamous diminute, sepals eglandular, lacking petals, stamen 1, filaments absent or nearly so, ovary 2-carpellate, styles and stigmas absent; the chasmogamous perfect. Sepals 5, the lateral 2-glandular. Petals yellow, glabrous. Stamens 4, basally connate, staminodes 2, connectives inconspicuous, eglandular, not surpassing the anther sacs, anthers glabrous. Ovary 3-carpellate, style 1, stigma terminal, capitate. Mericarps with dorsal wing developed or not, nut smooth or setose or crested; areole ventral, small, concave.

Camarea being represented by eight species, of which five are recorded for Minas Gerais, and two at the Lenheiro Mountain Range (Sebastiani 2020).

Key for the species of *Camarea* at the Lenheiro Mountain Range

1. Leaves sessile, blades elliptic to lanceolate, with acicular hairs, margins flat; ovary sericeous; mericarps setose ..... 3.1. *Camarea affinis*
1'. Leaves petiolar, blades acicular to linear-lanceolate, slightly sericeous, margins strongly revolute; ovary glabrous; mericarps winged ..... 3.2. *Camarea ericoides*

3.1. *Camarea affinis* A.St.-Hil., Hist. Pl. Remarq. Brasil, 157. 1825. Fig. 4b-c

Subshrubs 20–40 cm tall. Leaf blades 1.6–15.8 × 1.6–5.5 mm, elliptic to lanceolate, base cordate, margins flat, ciliate with acicular hairs, apex acute to acuminate, adaxial side with acicular hairs, abaxial side with acicular hairs along the primary vein, 2-glandular near the margins; petiole absent. Thyrsi solitary or arranged in umbels; peduncle 3.7–6.1 mm long, sparsely sericeous; main axis 2.3–6.8 cm long; bracts ca. 3.4 × 0.8 mm, margins ciliate with acicular hairs, abaxial side with acicular hairs; bracteoles 0.8–1.5 × ca. 0.4 mm, lanceolate; pedicels 3.2–4.8 mm long, glabrous. Sepals ca. 2.6 × 1.8–3.4 mm, ovate to broadly ovate, adaxial side glabrous, abaxial side sericeous; glands 1.5–2 × 0.7–0.8 mm, cream colored, elliptic to ovate; lateral petals blade ca. 6.2 × 4.8 mm, margins erose, claw ca. 2.4 × 0.5 mm; posterior petal blade ca. 3.7 × 4.7 mm, margins erose, claw ca. 4.7 × 1 mm. Stamens heteromorphic; filaments ca. 1.8 × 0.4 mm, glabrous; anthers ca. 0.6 × 0.6–0.7 mm, glabrous; connectives ca. 0.4 × 0.2 mm. Ovary sericeous, style ca. 3.3 × 0.3 mm, glabrous. Mericarps setose, developing from cleistogamous flowers, nut glabrous, setae pilose at apex; fruits from chasmogamous flowers not seen; the mericarps lacking a dorsal wing and possess setose and glabrous nuts, with the setae pilose only at apex (Mamede 1990).

Specimens examined: São João del-Rei, Serra do Lenheiro, 21º12'76"S, 44°27'03"W, 976 m, 14.IX.2017, fl., *M.T.R. Costa 799* (HUFSJ); acesso pelo Senhor dos Montes, 21º12'41"S, 44º28'00"W, 967 m, 25.I.2018, fl., *M.T.R. Costa 1331* (HUFSJ); subida para a torre pelo Tijuco, 21º09'32"S, 44º17'22"W, 994m, 27.III.2015, fl., *L.L. Alves 14* (HUFSJ); subida pelo Barro Preto, 21º81'98"S, 44º17'12"W, 1,043 m, 6.III.2015, fl. and fr., *S.N. Carvalho 3* (HUFSJ); 3.I.2006, fl., *A. Rapini 1280* (HUEFS).

Camarea affinis is distributed across the Cerrado domain in Brazil (Sebastiani 2020). At the Lenheiro Mountain Range, this species is found in campos rupestres.

3.2. *Camarea ericoides* A.St.-Hil.,Bull. Sci. Soc. Philom. Paris, 1823: 133. Fig. 4d

Subshrubs ca. 15 cm tall, xylopodium present or not. Leaf blades 1.4–9.4 × 0.8–5.3 mm, acicular to linear-lanceolate, base obtuse, margins strongly revolute, glabrous, apex acute, adaxial side sparsely sericeous, glabrescent, abaxial side sericeous, 2-glandular near the base and margins; petiole 0.3–0.6 mm long. Thyrsi solitary; peduncle 1.6–2.4 × 0.3–0.5 mm; main axis ca. 3.5 cm long; bracts ca. 3.1 × 0.4 mm, adaxial side glabrous, abaxial side sericeous; bracteoles ca. 0.9 × 0.4 mm, elliptic; pedicels, 2.5–3.7 mm × 0.4–0.5 mm; sepals ca. 2.2 × 2 mm, ovate, apex rounded, both sides glabrous; glands ca. 1.4 × 1 mm, orbicular to obovate. Stamens heteromorphic; filaments ca. 3 × 0.5 mm, glabrous; anthers 0.6 × 0.6 mm, glabrous; connectives ca. 0.3 × 0.2 mm. Ovary glabrous; style ca. 3.5 × 0.3 mm, glabrous. Cleistogamous flowers not seen, produced at the apex of very reduced branches. They lack sepal glands and petals, present a sole stamen and a 2-carpellate ovary. On the other side, the mericarps present a developed dorsal wing, and a glabrous and setose nut (Mamede 1990).

Specimen examined: São João del-Rei, Serra do Lenheiro, acesso pela trilha em frente a base do exército, 21º13'15"S, 44º30'12"W, 1,162 m, 28.II.2017, fl., *M.T.R. Costa 1231* (HUFSJ).

Camarea ericoides is distributed across the Cerrado domain in Brazil (Sebastiani 2020). At the Lenheiro Mountain Range, this species is found in campos rupestres.

4. *Diplopterys* A.Juss., Icon. Sel. Pl. 3: 20, pl. 33. 1837.

Lianas. Stipules interpetiolar, minute, free. Leaves opposite; petioles eglandular; blades broad glabrous, eglandular. Umbels 4–10-flowered, solitary or arranged in thyrsi. Sepals all 2-glandular. Petals yellow, abaxial side pubescent. Stamens 10, fertile; connectives nor surpassing the anther sacs; anthers glabrous. Ovary 3-carpellate; styles 3, capitates, stigmas terminal well developed. Mericarps with developed dorsal wing, adaxially thickened, nuts crested with two lateral winglets, calyx persistent.

A total of 20 species are recorded from Brazil, where six species are known to occur in Minas Gerais (Almeida 2020b), where a sole species occurs at the Lenheiro Mountain Range.

4.1. *Diplopterys pubipetala* (A.Juss.) W.R. Anderson & C.C. Davis, Harvard Pap. Bot. 11(1): 13. 2006. Fig. 4e-f

Lianas, branches glabrescent. Stipules ca. 0.3 × 0.2 mm, sparsely sericeous on both sides, apex acute. Leaf blades ca. 5.5 × 3.7 mm, elliptic to ovate, base rounded to attenuate, margins flat, apex cuspidate to caudate, adaxial side glabrescent,

Figure 4 – a-i. Flowering and fruiting branches of *Byrsonima*, *Camarea*, *Diplopterys*, and *Heteropterys* at the Lenheiro Range – a. *Byrsonima verbascifolia*; b-c. *Camarea affinis*; d. *Camarea ericoides*; e-f. *Diplopterys pubipetala*; g. *Heteropterys byrsonimifolia*; h. *Heteropterys escalloniifolia*; i. *Heteropterys rubiginosa*. Photos: a-i. L.L. Alves.

abaxial side glabrous and several minute glands impressed; petioles ca. 6.6 × 1.1 mm, slightly sericeous, hairs golden. Thyrsi sessile; main axis ca. 4.6 cm long; bracts ca. 1.7 × 0.6 mm, lanceolate, adaxial side glabrescent, abaxial side slightly sericeous; bracteoles ca. 1.2 × 0.4 mm, triangular, adaxial side glabrescent, abaxial side slightly sericeous; pedicels ca. 23.3 × 0.7mm, sericeous; sepals ca. 2.8 × 2 mm, adaxial side glabrescent, abaxial side sericeous, ovate; glands broadly elliptic to obovate, ca. 2.1 × 1 mm; lateral petals blade ca. 5,5 × 5 mm, ovate; posterior petal blade ca. 4,3 × 4 mm, orbicular, margin fimbriate. Stamens connate at base; filaments ca. 4 × 0.3 mm, glabrous; anthers ca. 1.4 × 0.6 mm, glabrous; connectives ca. 1.4 × 0.5 mm. Ovary densely pubescent; styles ca. 4.5 × 0.3 mm, curved, glabrous. Mericarps with lateral wings ca. 15.5 × 6 mm, sericeous, dorsally undulate, carpophore ca. 6.7 × 0.3 mm, nut ca. 4,7 × 3 mm. **Specimens examined**: São João del-Rei, Serra do Lenheiro, estrada indo para o povoado de Cunha, 21º07'21"S, 44º18'07"W, 21.IX.2016, fl. and fr., *L.L. Alves 152* (HUFSJ).

Diplopterys pubipetala is widely distributed accros Amazon, Caatinga, Cerrado, Atlantic Forest and Pantanal domain im Brazil (Almeida 2020b). At the Lenheiro Mountain Range, this species is found in campos rupestres.

5. *Heteropterys* Kunth, Nov. Gen. Sp. (quarto ed.) 5: 163-167, pl. 450. 1821[1822].

Subshrubs or shrubs. Stipules epi- or interpetiolar, minute, free. Leaves opposite; petioles eglandular; blades broad glabrous or pubescent, glandular or not. Thyrsi or corymbs. Sepals, the lateral 2-glandular. Petals yellow, glabrous. Stamens 10, all fertile, homomorphic, free or connate at base; connectives not surpassing the anther sacs; anthers glabrous or pubescent. Ovary 3-carpellate, styles 3, truncates, stigmas lateral well developed. Mericarps with developed dorsal wing, abaxially thickened, horizontally or obliquely or perpendicularly inserted in the nut, lateral wings or winglets reduced or absent, nut ovoid to round.

A total of 102 species are recorded from Brazil, where 33 species are known to occur in Minas Gerais (Pessoa *et al*. 2020), out of which only four are recorded from the Lenheiro Mountain Range.

Identification key to the species of *Heteropterys* at the Lenheiro Mountain Range

1. Trees; leaf blades eglandular; sepals revolute at anthesis 2
1'. Subshrubs or shrubs; leaf blades, 0–2-glandular near the base; sepals flat at anthesis 3
    2. Leaf blades abaxially densely tomentose; bracteoles patent; stamens connate at base, anthers sericeous, ovary densely sericeous ..... 5.1. *Heteropterys byrsonimifolia*
    2'. Leaf blades abaxially glabrous; bracteoles spreading; stamens free, anthers glabrous, ovary densely tomentose ..... 5.2. *Heteropterys escalloniifolia*
        3. Leaf blades tomentose on both sides, margins flat; corymbs .... 5.3. *Heteropterys rubiginosa*
        3'. Leaf blades glabrescent on both sides, margins revolute; umbels ..... 5.4. *Heteropterys umbellata*

5.1. *Heteropterys byrsonimifolia* A.Juss., Ann. Sci. Nat., Bot. II, 13: 276. 1840. Fig. 4g

Trees or treelets, 0.7–4 m tall. Stipules interpetiolar. Leaf blades 3.8–8.2 × 1.6–3.8 cm, narrowly elliptic to elliptic, base attenuate, margins flat, apex rounded or acuminate, adaxial side glabrous, abaxial side densely tomentose, eglandular; petioles 4.3–7.4 × 1.5 mm, sericeous, glabrescent. Corymbs 2–12-flowered; peduncle ca. 1.2 × 0.7 mm, densely tomentose; main axis ca. 8.3 cm; bracts ca. 1.7 × 1 mm, ovate, adaxial side glabrous, abaxial side densely tomentose; bracteoles ca. 1.4 × 0.6 mm, ovate, patent; pedicels ca. 2.3 × 0.7 mm, densely tomentose; sepals ca. 2.8 × 1.4 mm, adaxial side slightly tomentose, glabrescent, abaxial side densely tomentose, ovate, revolute at anthesis; glands narrowly elliptic, ca. 1.5 × 0.8 mm; petals yellow, lateral petals blade ca. 3.3 × 2.8 mm, orbicular, claw ca. 2.8 × 0.3 mm, margins erose; posterior petal blade ca. 3.6 × 2.6 mm, orbicular, claw ca. 2.2 × 1 mm, margins erose. Stamens connate at base; filaments ca. 2.2 × 0.4 mm, glabrous; anthers ca. 0.9 × 0.4 mm, sericeous; connectives ca. 0.4 × 0.3 mm. Ovary densely sericeous; styles ca. 1.8 × 0.3 mm, glabrous; anterior stigma pointing

towards the center of the flower, the posterior pointing towards the latero-posterior petals. Mericarps not seen, dorsal wing 12.7–30 mm long, tomentose, nut with inconspicuous lateral veins (Pessoa 2015).

Specimens examined: São João del-Rei, Serra do Lenheiro, acesso por trilha pelo bairro Senhor dos Montes, 21º12'64"S, 44º27'27"W, 953 m, 6.X.2017, fl., *M.T.R. Costa 1215* (HUFSJ); 15.IX.1897, *F. Magalhães-Gomes* (OUPR 18578); estrada indo para o povoado de Cunha, arredores da Serra do Lenheiro, 21º07'21"S, 44º18'07"W, 985 m, 21.IX.2016, fl., *L.L. Alves 153* (HUFSJ).

Heteropterys byrsonimifolia is widely distributed across the Cerrado domain in Brazil (Pessoa *et al*. 2020). At the Lenheiro Mountain Range, this species is found in campos rupestres.

5.2. *Heteropterys escalloniifolia* A.Juss., Ann. Sci. Nat., Bot. II, 13: 276. 1840. Fig. 4h

Trees, ca. 4 m tall. Stipules ca. 1.2 × 1 mm, epipetiolar, broadly elliptic. Leaf blades ca. 8.1 × 2.5 cm, narrowly elliptic, base attenuate, margins flat, apex acuminate, both sides glabrous, eglandular; petioles ca. 4.3 × 1.4 mm, slightly tomentose, glabrescent, eglandular. Corymbs many-flowered; peduncles ca. 2.6 × 0.8 mm, densely tomentose; main axis ca. 8.2 cm long; bracts ca. 2.4 × 1.4 mm, ovate, adaxial tomentose, abaxial side densely tomentose; bracteoles ca. 2.1 × 1.1 mm, ovate, spreading; pedicels ca. 4.3 × 0.7 mm, densely tomentose; sepals ca. 2.2 × 1.5 mm, adaxial side glabrous, abaxial side tomentose, elliptic, revolute at anthesis; glands elliptic, ca. 1.4 × 0.6 mm; petals yellow, lateral petals blade ca. 2.7 × 2.8 mm, orbicular, claw ca. 3.3 × 0.3 mm, margins erose; posterior petal blade ca. 2.5 × 2 mm, broadly elliptic, claw ca. 3.3 × 0.4 mm, margins erose. Stamens free; filaments ca. 2.4 × 0.2 mm, glabrous; anthers ca. 0.9 × 0.7 mm, glabrous; connectives ca. 0.6× 0.4 mm. Ovary densely tomentose; styles heteromorphic, ca. 3.3 × 0.3 mm, glabrous; stigmas pointing towards the posterior petal. Mericarps not seen, dorsal wing 15.3–23.2 mm long, tomentose, nuts with inconspicuous lateral veins (Pessoa 2015).

Specimen examined: São João del-Rei, Serra do Lenheiro, estrada indo para o povoado de Cunha, 21º07'21"S, 44º18'07"W, 985 m, 21.IX.2016, fl., *L.L. Alves 153* (HUFSJ).

Heteropterys escalloniifolia is distributed across the Cerrado and Caatinga domain in Brazil (Pessoa *et al*. 2020). At the Lenheiro Mountain Range, this species is found in campos rupestres.

5.3. *Heteropterys rubiginosa* A.Juss., Ann. Sci. Nat., Bot. II, 13: 278. 1840. Fig. 4i

Shrubs ca. 0.5 m tall. Stipules ca. 2.3 × 1.4 mm, epipetiolar, ovate. Leaf blades ca. 6 × 3.1 cm, elliptic to obovate, base attenuate, margins flat, apex mucronulate to apiculate, adaxial side tomentose, abaxial side densely tomentose, 2-glandular near the base; petioles ca. 5.3 × 1.1 mm, densely tomentose, eglandular. Corymbs many-flowered; peduncle ca. 2.2 × 0.6 mm, densely tomentose; bracts ca. 2,1 × 0,5 mm, lanceolate, adaxial side slightly tomentose, abaxial side densely tomentose; bracteoles ca. 1.1 × 0.4 mm, lanceolate, patent; pedicels ca. 6.8 × 0.5 mm, tomentose; sepals ca. 3.3 × 1.6 mm, adaxial side glabrous, abaxial side tomentose, ovate, flat at anthesis; glands narrowly elliptic, ca. 1.8 × 0.7 mm; petals yellow, lateral petals blade ca. 5 × 3.5 mm, ovate, claw ca. 2 × 0.5 mm, margins entire to crenulate; posterior petal blade ca. 5.2 × 4.2 mm, broadly elliptic to ovate, claw ca. 1.4 × 0.6 mm, margins crenulate. Stamens connate at base; filaments ca. 2.5 × 0.2 mm, glabrous; anthers ca. 1.2 × 0.6 mm, glabrous; connectives ca. 0.8 × 0.4 mm. Ovary sericeous; styles ca. 2.2 × 0.2 mm, glabrous; stigmas turned all to the same side of the flower. Mericarps with dorsal wing ca. 15 × 5.7 mm, densely tomentose, green to red, calyx and styles persistent.

Specimens examined: São João del-Rei, Serra do Lenheiro, trilha para paredão rochoso, entrada na estrada para Cunha, 21º11'69"S, 44º28'88"W, 1,054 m, 4.XII.2018, fl. and fr., *M.T.R. Costa* 1554 (HUFSJ).

Heteropterys rubiginosa is distributed across the Amazon, Caatinga, Cerrado domain in Brazil (Pessoa *et al*. 2020). At the Lenheiro Mountain Range, this species is found in campos rupestres.

5.4. *Heteropterys umbellata* A.Juss., *Fl. bras*. Merid. (quarto ed.) 3(21): 25, pl. 166. 1832[1833]. Fig. 5a-b

Subshrubs or shrubs 0.4–1.3 m tall. Stipules ca. 0.6 × 0.4 mm, epipetiolar, triangular. Leaf blades 2–13 × 13–6.7 cm, elliptic, base rounded to attenuate, margins revolute, apex rounded, both sides glabrescent, 0–2-glandular near the base; petioles ca. 2 × 0.5 mm, sericeous. Umbels 7–5-flowered; peduncle ca. 1.4 × 0.4 mm, sericeous; bracts ca. 1.1 × 0.4 mm, ovate, adaxial side glabrous, abaxial side slightly sericeous; bracteoles ca. 0.7 × 0.4 mm, ovate, patent; pedicels 2.2–4.8 × 0.3–0.4 mm, slightly

sericeous; sepals ca. 1.4–2 × 0.8–1.1 mm, adaxial side glabrous, abaxial side slightly sericeous, ovate, flat at anthesis; glands obovate, ca. 1 × 0.7 mm; petals yellow, lateral petals blade ca. 2.7 × 2.2 mm, obovate, claw ca. 1.6 × 0.4 mm, margins crenulate; posterior petal blade ca. 2 × 1.9 mm, orbicular, claw ca. 2.3 × 1.2 mm, margins erose. Stamens connate at base; anthers ca. 0.7 × 0.6 mm, glabrous; connectives 1.4–2 × 0.3 mm. Ovary sericeous; styles ca. 2.2 × 0.3 mm, glabrous. Mericarps not seen, winglets ca. 1.5 cm long, ascending, and smooth nut (Mamede 1987). **Specimens examined**: São João del-Rei, Serra do Lenheiro, morro do lado esquerdo às águas férreas, 21º13'64"S, 44º27'93"W, 981 m, 17.IX.2017, *M.T.R. Costa 1142* (HUFSJ); acesso pelo Senhor dos Montes, 21º12'90"S, 44º27'61"W, 1,063 m, 3.III.2018, fl., *M.T.R. Costa 1406* (HUFSJ); subida pela parte de trás da igreja São José, 21º07'39"S, 44º17'21"W, 1,020 m, 16.X.2015, fl., *L.L. Alves 44* (HUFSJ, HUESB); 21º14'07"S, 44º29'28"W, 1,085 m, 13.III.2015, fl., *M.T.R. Costa 401* (HUFSJ).

Heteropterys umbellata is distributed across the Cerrado and Atlantic forest. At the Lenheiro Mountain Range, this species is found in campos rupestres.

6. *Mascagnia* (Bertero *ex* DC.) Bertero, Hortus Ripulensis 85. 1824.

Lianas. Stipules epipetiolar, minute, free. Leaves opposite; petiole glandular; blades broad pilose, glandular. Thyrsi with 1–2-flowered cincinni. Sepals all 2-glandular. Petals pink, glabrous. Stamens 10, all fertile; connectives not surpassing the anther sacs; anthers glabrous. Ovary 3-carpellate, styles 3, capitate, stigmas terminal well developed. Mericarps with dorsal wing reduced to a winglet, lateral wings fused into an orbicular structure, membranous, velutine.

Mascagnia is represented by 19 species in Brazil, where four are known to occur in Minas Gerais (Almeida 2020c), and one at the Lenheiro Mountain Range.

6.1. *Mascagnia cordifolia* (A.Juss.) Griseb., *Fl. bras.* 12(1): 95. 1858. Fig. 5c-d

Lianas. Stipules 2.1–4.4 × 0.8–1.2 mm. Leaf blades 4.9–11.7 × 3.5–9.5 cm, broadly elliptic to ovate, base slightly cordate to cordate, margins flat to slightly revolute, apex acute to caudate, both sides densely velutine, 0–2–7-glandular, glands impressed on both sides of the blade between the primary vein and the margins; petioles 23.2–9 × 1.5–1.7 mm, densely velutine, 1-glandular at the base near the insertion with the stem. Thyrsi many-flowered; peduncle 3.6–7.4 × 0.4–0.7 mm; main axis ca. 6–12.3 cm; bracts 1.6–2.8 × 0.4–1 mm, lanceolate, both sides densely velutine; bracteoles 1.7–2.4 × 0.6–1 mm, generally one bigger than the other with a basal gland; pedicels 2–7.5 × 0.6 mm, densely velutine; sepals ca. 2.8 × 2 mm, adaxial side glabrescent, abaxial side velutine, triangular to ovate; glands obovate, ca. 2 × 1.3 mm; lateral petals blade ca. 5.5 × 4.3 mm, elliptic, claw ca. 1.2 × 0.5 mm, margins denticulate; posterior petal blade ca. 5 × 4.2 mm, broadly elliptic, base cordate, claw ca. 1.7 × 0.5 mm, margins erose. Stamens connate at base, homomorphic; filaments ca. 2.3 × 0.7 mm, glabrous; anthers ca. 1.8 × 0.9 mm; connectives ca. 1.3 × 0.6 mm. Ovary sericeous; styles homomorphic, glabrous. Mericarps lateral wing ca. 20 × 23 mm, orbicular, membranous, velutine.

Specimens examined: São João del-Rei, Serra do Lenheiro, base da serra, 21.VII.1973, fl., *J. Badini* (OUPR 24170); estrada para o povoado de Cunha, 21º05'42"S, 44º16'01"W, 928 m, 21.IX.2016, fl., fr., *L.L. Alves 113* (HUFSJ).

Mascagnia cordifolia is widely distributed across Amazon, Caatinga, Cerrado, Atlantic Forest domain in Brazil (Almeida 2020c). At the Lenheiro Mountain Range, this species is found in vegetation over campos rupestres.

7. *Niedenzuella* W.R.Anderson, Novon 16(2): 194-198. 2006.

Lianas. Stipules epipetiolar, minute, free. Leaves opposite; petiole eglandular; blades broad pilose, eglandular. Thyrsi arranged in thyrsi. Sepals the lateral 2-glandular. Petals yellow, glabrous. Stamens 10, all fertile; connectives not surpassing the anther sacs; anthers glabrous. Ovary 3-carpellate, styles 3, apex truncate, stigmas lateral well developed. Mericarps dorsal wing reduced into a winglet, lateral wings X-shaped.

Niedenzuella is represented by 13 species in Brazil, where six are found in Minas Gerais (Almeida 2020d), and one at the Lenheiro Mountain Range.

7.1. *Niedenzuella warmingiana* (A.Juss.) W.R. Anderson, Novon 16(2): 202. 2006. Fig. 5e

Liana. Leaf blades ca. 3.8 × 1.4 cm, elliptic, base attenuate, margins flat, apex mucronulate to acuminate, adaxial side slightly sericeous, abaxial side densely sericeous, eglandular; petioles ca. 2.7 × 0.8 mm, densely sericeous, eglandular.

Thyrsi many-flowered; peduncle ca. 1.4 × 0.4 mm, sericeous; bracts ca. 1.9 × 0,6 mm, triangular, adaxial side slightly tomentose, glabrescent, abaxial side densely tomentose; bracteoles ca. 1.3 × 0.4 mm, ovate, spreading; pedicels ca. 5.2 × 0.6 mm, sericeous; sepals ca. 4 × 0,7 mm, adaxial side glabrous, abaxial side sericeous, ovate, revolute at anthesis; glands ca. 2 × 1 mm, narrowly elliptic to obovate; petals yellow, lateral petals blade ca. 4.2 × 2.8 mm, elliptic, claw ca. 2.2 × 0.4 mm, margins erose; posterior petal blade ca. 2.8 × 2.6 mm, orbicular, claw ca. 2.6 × 0.5 mm, margins crenate. Stamens connate at base, homomorphic; filaments ca. 1.6 × 0.4 mm, glabrous; anthers ca. 1.2 × 0.7 mm; connectives ca. 0.6 × 0.4 mm. Ovary densely tomentose; styles 3, ca. 2.1 × 0.3 mm, heteromorphic, glabrous, 2 straight, 1 slightly arcuate; stigmas 2 pointing towards one side of the flower, 1 pointing to the opposite direction. Mericarps not seen.

Specimen examined: São João del-Rei, Serra do Lenheiro, estrada indo para o povoado de Cunha, 21º05'41"S, 44º16'07"W, 909 m, 21.IX.2016, fl., *L.L. Alves 167* (HUFSJ).

Niedenzuella warmingiana is distributed across the Cerrado domain at the Minas Gerais state in Brazil (Almeida 2020d). At the Lenheiro Mountain Range, this species is found in vegetation over campos rupestres.

8. *Peixotoa* A.Juss., *Fl. bras.* Merid. (quarto ed.) 3(22): 59. 1832[1833].

Shrubs or subshrubs. Stipules interpetiolar, expanded, basally connate, triangular. Leaves opposite; petioles glandular or not; blades pilose, glandular. Umbels solitary or arranged in dichasia or thyrsi. Sepals the laterals 2-glandular. Petals yellow, glabrous. Stamens 5, fertile, staminodes 5; connectives not surpassing the anther sacs; anthers glabrous. Ovary 3-carpellate, styles 3, stigma terminal, capitate. Mericarps dorsal wing expanded, thickened adaxially, dorsal wings reduced to winglets.

A total of 28 species of *Peixotoa* are recognized in Brazil, with 14 occurring in Minas Gerais (Almeida 2020e), and two at the Lenheiro Mountain Range.

Identification key for the species of *Peixotoa* from the Lenheiro Mountain Range

1. Leaf blades with minutely denticulate margins, petioles densely tomentose; umbels solitary; anther sacs always closed, never releasing pollen grains ..... 8.1. *Peixotoa reticulata*
1'. Leaf blades entire, petioles densely velutine; umbels arranged in dichasia; anther scas opening, releasing pollen grains..... 8.2. *Peixotoa tomentosa*

8.1. *Peixotoa reticulata* Griseb., Linnaea 13: 213. 1839. Fig. 5g

Subshrubs or shrubs, 25–60 cm tall. Stipules ca. 7 × 7.8–8.9 mm. Leaf blades 3.8–10.8 × 2.7–7.4 cm, elliptic to broadly elliptic to obovate to orbicular, base cordate to rounded to attenuate, margins flat, minutely denticulate, apex apiculate to acuminate, adaxial side velutine, abaxial side sparsely tomentose, 0–2-glandular near the first pair of secondary veins; petioles ca. 3.9 × 1.4 mm, densely tomentose, 0–2-glandular just below the blade. Umbels 4–12-flowered, solitary; peduncle absent; bracts ca. 0.7 × 1.1 mm, triangular, adaxial side glabrous, abaxial side tomentose; bracteoles ca. 0.2 × 0.3 mm, triangular; pedicels 7–11.8 × 0.7 mm, densely tomentose; sepals ca. 5.6 × 3.5 mm, ovate; glands broadly elliptic; lateral petals blade ca. 7.9 × 9.1 mm, orbicular to broadly elliptic to cordate, claw ca. 2.3 × 0.7 mm, margins erose; posterior petal blade ca. 4.7 × 3.8 mm, orbicular to broadly elliptic, claw ca. 3.9 × 1.7 mm, margins fimbriate, glandular. Stamens free; filaments ca. 3.2 × 0.5 mm, glabrous; anthers ca. 1.5 × 1.4 mm, glabrous, anther sacs always closed, never releasing pollen grains; connectives ca. 1.2 × 0.6 mm. Ovary sericeous; styles glabrous. Mericarps not seen, dorsal wings 1.3–2 × 0.9–1.3 cm, velutine, nuts 4–7.5 × 0.3–0.6 mm and smooth (Anderson 1982).

Specimens examined: São João del-Rei, Serra do Lenheiro, trilha à esquerda da principal que leva à torre, 21º09'29"S, 44º18'05"W, 1,056 m, 22.V.2015, fl., *L.L. Alves 39* (HUFSJ); trilha à esquerda da principal que leva à torre, 21º09'29"S, 44º18'05"W, 1,056 m, 22.V.2015, fl., *L.L. Alves 37* (HUFSJ); subida pelo Tijuco, 21º13'87"S, 44º28'23"W, 967 m, 12.XII.2014, fl., *M.T.R. Costa 260* (HUFSJ); estrada que chega na torre, sob pedras, 21º09'21"S, 44º18'20"W, 957 m, 10.IV.2015, fl., *L.L. Alves 20* (HUFSJ).

Peixotoa reticulate is widely distributed across the Cerrado and Atlantic Forest domain in Brazil (Almeida 2020e). At the Lenheiro

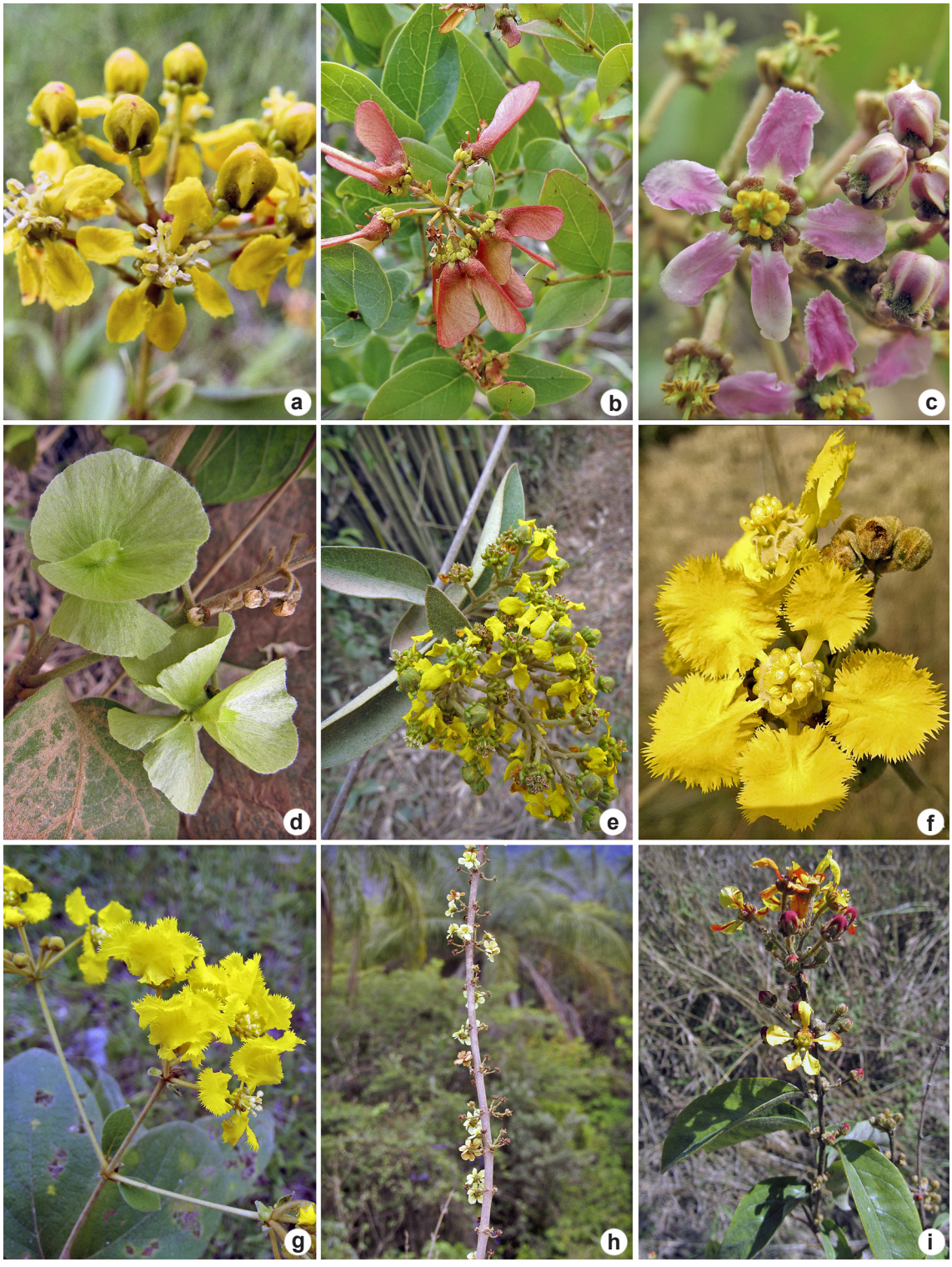

Figure 5 – a-i. Flowering and fruiting branches of *Heteropterys*, *Mascagnia*, *Niedenzuella*, *Peixotoa*, and *Tetrapterys* at the Lenheiro Range – a-b. *Heteropterys umbellata*; c-d. *Mascagnia cordifolia*; e. *Niedenzuella warmingiana*; f. *Peixotoa tomentosa*; g. *Peixotoa reticulata*; h-i. *Tetrapterys ramiflora*. Photos: a-i. L.L. Alves.

Mountain Range, this species is found at the campos rupestres.

Peixotoa reticulata is an apomictic species, where the anthers sacs remain closed and, when they eventually open, pollen fertility is reduced to only 3–20% (Anderson 1982).

8.2. *Peixotoa tomentosa* A.Juss., *Fl. bras.* Merid. (quarto ed.) 3(22): 61. 1832[1833]. Fig. 5f

Subshrubs or shrubs, 40–150 cm tall. Stipules 3.6–8.5 × 3.9–6.7 mm. Leaf blades 2.2–8.7 × 1.1–6.2 cm, elliptic to broadly ovate, cordate to orbicular, base attenuate to cordate, margins flat, entire, apex acuminate, adaxial side velutine, abaxial side densely velutine with golden hairs, 0–2-glandular near the first pair of secondary veins; petioles 1.8–6.6 × 1.2–1.8 mm, densely velutine, 0–2-glandular just below the blade. Umbels 4–12-flowered, arranged in dichasia; peduncle absent; bracts ca. 1 × 0.8 mm, triangular, adaxial side tomentose, abaxial side densely tomentose; bracteoles ca. 0.5 × 0.2 mm, triangular; pedicels 14.2–21 × 0.6–1 mm, densely velutine with golden hairs; sepals 4–5.3 × 2.7–3 mm, ovate; glands ovate, ca. 1.9 × 1.2 mm; lateral petals blade 9.4–12.4 × 7.8–11.7 mm, orbicular to broadly elliptic to cordate, claw 2.4–2.8 × 0.5–1.3 mm, margins fimbriate, glandular or not; posterior petal blade 7.7–9.3 × 5.4–7.9 mm, broadly elliptic to orbicular, claw 2–3.7 × 0.8–1.7 mm, margins fimbriate, densely glandular. Stamens free; filaments 3.2–4.1 × 0.3–0.5 mm, glabrous; anthers 1–1,6 × 0,6–0,8 mm, glabrous, anther sacs always opening, releasing pollen grains; connectives ca. 0.7 × 0.4 mm. Ovary sericeous; styles glabrous. Mericarps with dorsal wing ca. 20 × 12 mm, margins arcuate, lateral wing ca. 2 × 9 mm, semicircular, areole ca. 3.2 × 3.8 mm.

Specimens examined: São João del-Rei, Serra do Lenheiro, próximo às torres de transmissão, 21º15'79"S, 44º31'06"W, 1,139 m, 27.I.2018, fl., *M.T.R. Costa 1346* (HUFSJ); estrada que chega à torre, 21º09'21"S, 44º18'20"W, 957 m, 10.IV.2015, fl., *L.L. Alves 19* (HUFSJ); acesso às torres de transmissão, 21º15'73"S, 44º30'02"W, 1,080 m, fl., *M.T.R. Costa 864* (HUFSJ); estrada para Trindade, 21º14'10"S, 44º28'67"W, 992 m, 26.IV.2017, fl., *M.T.R. Costa 901* (HUFSJ); atrás da base do exército, 21º15'25"S, 44º30'55"W, 1,128 m, 11.VIII.2017, fl., *M.T.R. Costa 1106* (HUFSJ); à esquerda a trilha principal que leva à torre, 21º09'29"S, 44º18'05"W, 1,056 m, 22.V.2015, fl. and fr., *L.L. Alves 38* (HUFSJ).

Peixotoa tomentosa is widely distributed across the Cerrado domain in Brazil (Almeida 2020e). At the Lenheiro Mountain Range, this species is found at the campos rupestres.

9. *Tetrapterys* Cav., Diss. 9: 433. 1790.

Shrubs. Stipules epipetiolar, minute, free. Leaves opposite; petiole glandular or not; blades broad pilose, eglandular. Thyrsi, cincinni sessile. Sepals the laterals 2-glandular. Petals yellow, glabrous. Stamens 10, all fertile; connectives not surpassing the anther sacs; anthers glabrous. Ovary 3-carpellate; styles 3, apex truncate, stigmas lateral well developed. Mericarps dorsal wing reduced into a winglet, lateral wings X-shaped.

A total of 32 species of *Tetrapterys* are recorded from Brazil, with 13 listed for Minas Gerais (Almeida 2020f), and one at the Lenheiro Mountain Range.

9.1. *Tetrapterys ramiflora* A.Juss. in. A. St-Hil. *Fl. bras.* Mer. 3: 8. 1832. Fig. 5h-i

Shrubs, 1–2,5 m tall. Stipules 2.1 × 0.6 mm, lanceolate. Leaf blades 3.5–8 × 1.2–3.4 cm, elliptic, base attenuate, margins flat, apex acuminate, both sides densely tomentose, eglandular; petioles ca. 3.5 × 1.2 mm, densely tomentose, eglandular. Thyrsi many-flowered, congested at stem; peduncle ca. 2.2 × 0.6 mm, tomentose; bracts ca. 2 × 0.8 mm, lanceolate, adaxial side glabrescent, abaxial side tomentose; bracteoles ca. 1.8 × 0.4 mm, lanceolate, 2-glandular, spreading; pedicels ca. 6.5 × 0.6 mm, tomentose; sepals ca. 4.2 × 1.6 mm, adaxial side glabrous, abaxial side tomentose, ovate, revolute at anthesis; glands ca. 2 × 0,7 mm, elliptic; lateral petals yellow, with 2 red stripes, blade ca. 6.5 × 5 cm, orbicular, claw ca. 2.8 × 0.7 mm, margins erose; posterior petal yellow, blade ca. 7.8 × 4.4 cm, elliptic, claw ca. 2.7 × 0.9 mm, margins erose. Stamens connate at base, heteromorphic; filaments ca. 2 × 0.2 mm, glabrous; anthers ca. 0.8 × 0.6 mm; connectives ca. 0.5 × 0.4 mm. Ovary densely velutine; styles ca. 3 × 0.3 mm, glabrous. Mericarps superior lateral wings ca. 5.5 × 5.7 mm, inferior lateral wings ca. 7.3 × 5.2 mm, nut smooth, calyx persistent.

Specimens examined: São João del-Rei, Serra do Lenheiro, estrada para o povoado de Cunha, 21º05'42"S, 44º16'01"W, 928 m, 21.IX.2016, fr., *L.L. Alves 112* (HUFSJ); estrada para o Fé, 21º06'26"S, 44º19'04"W, 955 m, 16.X.2018, fl. and fr., *L.L. Alves 240* (HUFSJ).

Tetrapterys ramiflora is widely distributed across the Caatinga, Cerrado, Atlantic Forest domain in Brazil (Almeida 2020f). At the Lenheiro Mountain Range, this species is found at the campos rupestres.

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