http://doi.org/10.17648/heringeriana.v15i1.917948

Heringeriana 15: 67-86. 2021.
http://revistas.jardimbotanico.ibict.br/
Jardim Botânico de Brasília

ISSN 1983-6996 Versão impressa
Heringeriana
ISSN 2359-165X Versão *on-line*

Original article

Malpighiaceae from the Reserva Biológica da Mata Escura, Minas Gerais, Brazil

Rafael Felipe de Almeida[1]

ABSTRACT: I present the taxonomic treatment for Malpighiaceae Juss. (Malpighiales) from the Reserva Biológica da Mata Escura (RBME), Minas Gerais, Brazil, in which a total of 17 species and eight genera were recorded. Identification keys for all genera and species are presented, alongside photo plates, and comments on distribution, ecology, and taxonomy of the studied species.

Keywords: Atlantic Forest, Caatinga, Cerrado, Malpighiales, Taxonomy

RESUMO (Malpighiaceae na Reserva Biológica da Mata Escura, Minas Gerais, Brasil): Apresento o tratamento taxonômico para Malpighiaceae na Reserva Biológica da Mata Escura (RBME), Minas Gerais, Brasil, no qual um total de 17 espécies e oito gêneros foram registrados. Chaves de identificação para os gêneros e espécies são apresentadas, além de pranchas fotográficas e comentários sobre distribuição, ecologia e taxonomia das espécies estudadas.

Palavras-chave: Caatinga, Cerrado, Floresta Atlântica, Malpighiales, Taxonomia

INTRODUCTION

Malpighiaceae Juss. comprises 77 genera and ca. 1300 species of trees, shrubs, subshrubs, or lianas distributed in the tropics worldwide, with the Neotropics as its main diversity center (Davis & Anderson 2010). The family is easily recognized by unicellular T-shaped hairs, calyx 8-10 glandular, and five clawed petals (Anderson 1979, 1981). In Brazil, Malpighiaceae is represented by 46 genera and 588 species, occurring in all regions and phytogeographic domains of the country (Almeida *et al.* 2020).

The State of Minas Gerais comprises most portions of ecotonal phytophysiognomies in Eastern Brazil, mostly due to the Espinhaço mountain range (Rapini *et al.* 2008; Bitencourt & Rapini 2013). These mountains divide the Atlantic Forest, Caatinga and Cerrado domains (Rapini *et al.* 2008; Bitencourt & Rapini 2013), with most taxonomic studies on Malpighiaceae in this region having focused on the Cerrado domain, such as the Serra do Cipó (Mamede 1987), and Grão-Mogol (Mamede 2004) floras. Within these ecotonal areas in the State of Minas Gerais, the only federal conservation unit destined to protect the vegetation of northern Minas Gerais is the Reserva Biológica da Mata Escura (RBME). This reserve houses several threatened animal species, such as the golden-faced lion tamarin (*Leontopithecus chrysomelas*), yellow-breasted capuchin monkey (*Cebus xanthosternos*), and the northern muriqui (*Brachyteles hypoxanthus*), besides 14 species of birds (Ribon & Maldonado-Coelho 2000; Ribon *et al.* 2002). Nonetheless, taxonomic studies focusing on flowering plants at the RBME are quite scarce, with only two studies to date focusing

[1] Royal Botanical Gardens Kew, Science, Ecosystem Stewardship, Diversity & Livelihoods, Richmond, Surrey, TW9 3AE, UK. E-mail: r.felipe_de_almeida@kew.org https://orcid.org/0000-0002-9562-9287

on a preliminary checklist for Convolvulaceae, and on a new species of *Philodendron* Schott (Araceae) (Vasconcelos *et al.* 2013; Calazans 2020).

Thus, as a first step towards a complete floristic inventory in the RBME, I present the taxonomic study of Malpighiaceae from this conservation unit, including an identification key, examined specimens, photo plates, and comments on distribution, ecology, and taxonomy of the studied species.

MATERIAL E METHODS

Study area

The Reserva Biológica da Mata Escura (RBME) was created in 1999 comprising 51,000 hectares within the municipalities of Almenara and Jequitinhonha (Figure 1) (Melo 2005). The altitude varies from 300 to 1,000 m and, according to Bitencourt & Rapini (2013), it can still be regarded as part of the Espinhaço mountain range in an ecotonal zone between the Atlantic Forest, Caatinga and Cerrado domains. The RBME shows a dry climate and summer rainfalls with annual rainfall always less than 750-1000 mm (type BSw according to Köppen 1948). Several phytophysiognomies are recorded within its borders, such as campos rupestres, cerrados, inselbergs, seasonally dry forests, savannic grasslands, and ecotonal regions between caatinga/cerrado (Figure 2).

Taxonomy

I analyzed specimens collected or photographed in field trips between 2008 and 2015, besides collections from the BHCB, HUEFS, RB and SP herbaria (acronyms according to Thiers, continuously updated). Morphological terminology for vegetative characters followed Radford *et al.* (1974), and reproductive character followed Niedenzu (1928) and Anderson (1981). All illustrations were made using the Photoshop® software, the maps were elaborated using QGis 2.6.0-Brighton software (2014), and shapefiles were obtained from IBGE (2015), ICMBio (2021), and ForestGis (2019).

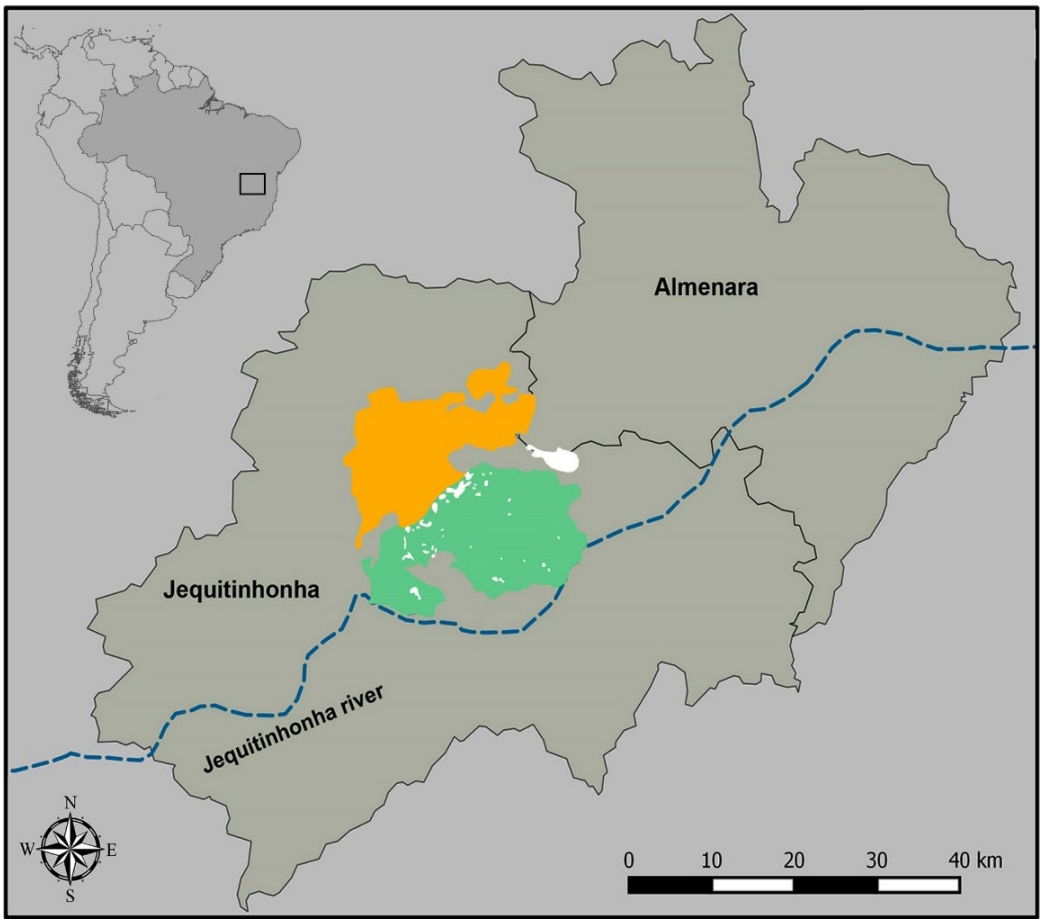

Figure 1. Map locating the Reserva Biológica da Mata Escura in Brazil. Green- seasonally dry forest. Orange- cerrado. White- campo rupestre.

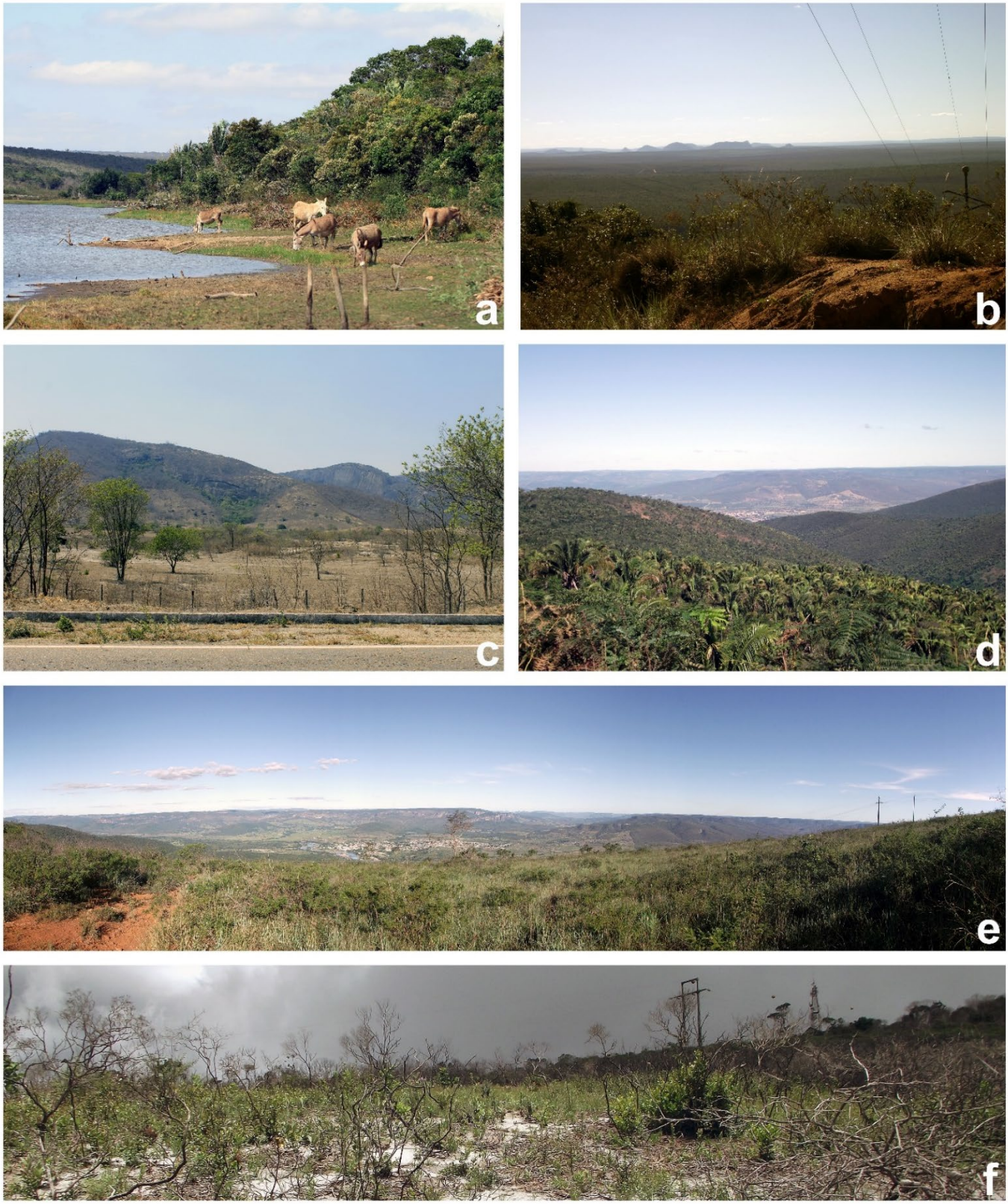

Figure 2. Phytophysiognomies found at Reserva Biológica da Mata Escura. a. seasonally dry gallery forest, b. cerrado, c. seasonally dry anthropomorphic forest, d. seasonally dry forest in regeneration process, evidencing several palm trees, e. savannic grassland, and f. campo rupestre (photographs by R.F. Almeida).

RESULTS AND DISCUSSION

Malpighiaceae is represented at RBME by eight genera and 17 species. A key to the species of Malpighiaceae in the Reserva Biológica da Mata Escura is presented below:

1. Thyrses 2

1'. Corymbs to umbels 7

2. Erect shrubs to trees, leaves eglandular, styles subulate at apex 3
2'. Scandent shrubs to lianas, leaves glandular, styles uncinate to capitate at apex 5
3. Erect shrubs, leaves glabrous on both surfaces, flowers whitish to light pink ..... *Byrsonima vacciniifolia*
3'. Trees, leaves abaxially sericeous to tomentose, flowers yellow to orange 4
4. Leaves plane, margins revolute, abaxially sericeous, cincinni without peduncles, styles curved at apex ..... *Byrsonima sericea*
4'. Leaves conduplicate, margins plane, abaxially tomentose, cincinni with peduncles, styles straight at apex ..... *Byrsonima stannardii*
5. Bracteoles glandular, mericarps with lateral wings more developed than the dorsal wing. *Amorimia rigida.*
5'. Bracteoles eglandular, mericarps with the dorsal wing more developed than the lateral wings or smooth 6
6. Stipules epipetiolar, fertile branches covered with stellate hairs, simple thyrses, flowers without pedicel, sepals enlarged in fruits, eglandular .... *Thryallis latifolia*
6'. Stipules interpetiolar, fertile branches covered with malpighiaceous hairs, compound thyrses, flower with a pedicel, sepals not enlarged in fruits, glandular ..... *Banisteriopsis anisandra*
7. Umbels, dorsal wing adaxially thickened 8
7'. Corymbs, dorsal wing abaxially thickened 14
8. Bracteoles glandular, mericarps with lateral wings more developed, X-shaped ..... *Glicophyllum ramiflorum*
8'. Bracteoles eglandular, mericarps with a dorsal wing more developed 9
9. Styles foliaceous at apex, stigma lateral 10
9'. Styles capitate at apex, stigma terminal 12
10. Leaves short-petiolated, umbels solitary, styles with foliaceous apex reduced, mericarps short-winged ..... *Stigmaphyllon paralias*
10'. Leaves long-petiolated, umbels arranged in dichasia, styles with foliaceous apex developed, mericarps long-winged 11
11. Leaves ovate, apex acute, mericarps reddish, with 3-pairs of reduced lateral wings ..... *Stigmaphyllon saxicola*
11'. Leaves cordate, apex rounded, mericarps greenish, with 1-2- pairs of lateral crests ..... *Stigmaphyllon tomentosum*
12. Petals abaxially pubescent, styles long, pubescent, mericarps with lateral wings ..... *Diplopterys pubipetala*
12'. Petals abaxially glabrous, styles short, glabrous, mericarps without lateral wings 13
13. Petioles biglandular at apex, glands opposite, leaves abaxially tomentose, margin of petals denticulate, wings of mericarps wider than longer .. *Banisteriopsis malifolia*
13'. Petioles biglandular at middle, glands alternate, leaves abaxially sericeous, margin of petals fimbriate, wings of mericarps longer than wider ..... *Banisteriopsis membranifolia*
14. Sepals revolute at apex. *Heteropterys byrsonimifolia*
14'. Sepals plane at apex 15
15. Petals pink, keeled ..... *Heteropterys pteropetala*
15'. Petals yellow, not keeled 16
16. Petioles biglandular at base, bracteoles inserted in the apex of peduncles, margin of petals erose ..... *Heteropterys brunnea*
16'. Petioles biglandular at middle or apex, bracteoles inserted bellow the apex peduncles, margin of petals entire ..... *Heteropterys trichanthera*

1. *Amorimia rigida* (A.Juss.) W.R.Anderson, Novon 16(2): 183. 2006. Figure 3.

Specimens examined: BRAZIL. **Minas Gerais**. Jequitinhonha: Reserva Biológica da Mata Escura, Estrada para a fazenda Porto Alegre, S16°25'00", W41°01'00"10, 10 December 2014, fl., fr., *R.F. Almeida 556, 557, 558, 559, 560, 561, 562* (HUEFS).

Distribution and ecology: *Amorimia rigida* occurs in seasonally dry forests in the States of Bahia and Minas Gerais (Almeida 2018). It was collected in fragments of riparian seasonally dry forests alongside Jequitinhonha River within the RBME.

Notes: *Amorimia rigida* is the only species of the genus occurring within RBME, being readily differentiated from the remaining species of the studied area by its long thyrsi of 1-flowered cincinni, glandular bracts and bracteoles, pubescent petals, and butterfly-shaped mericarps (with 2 lateral wings dominant) (Almeida 2018).

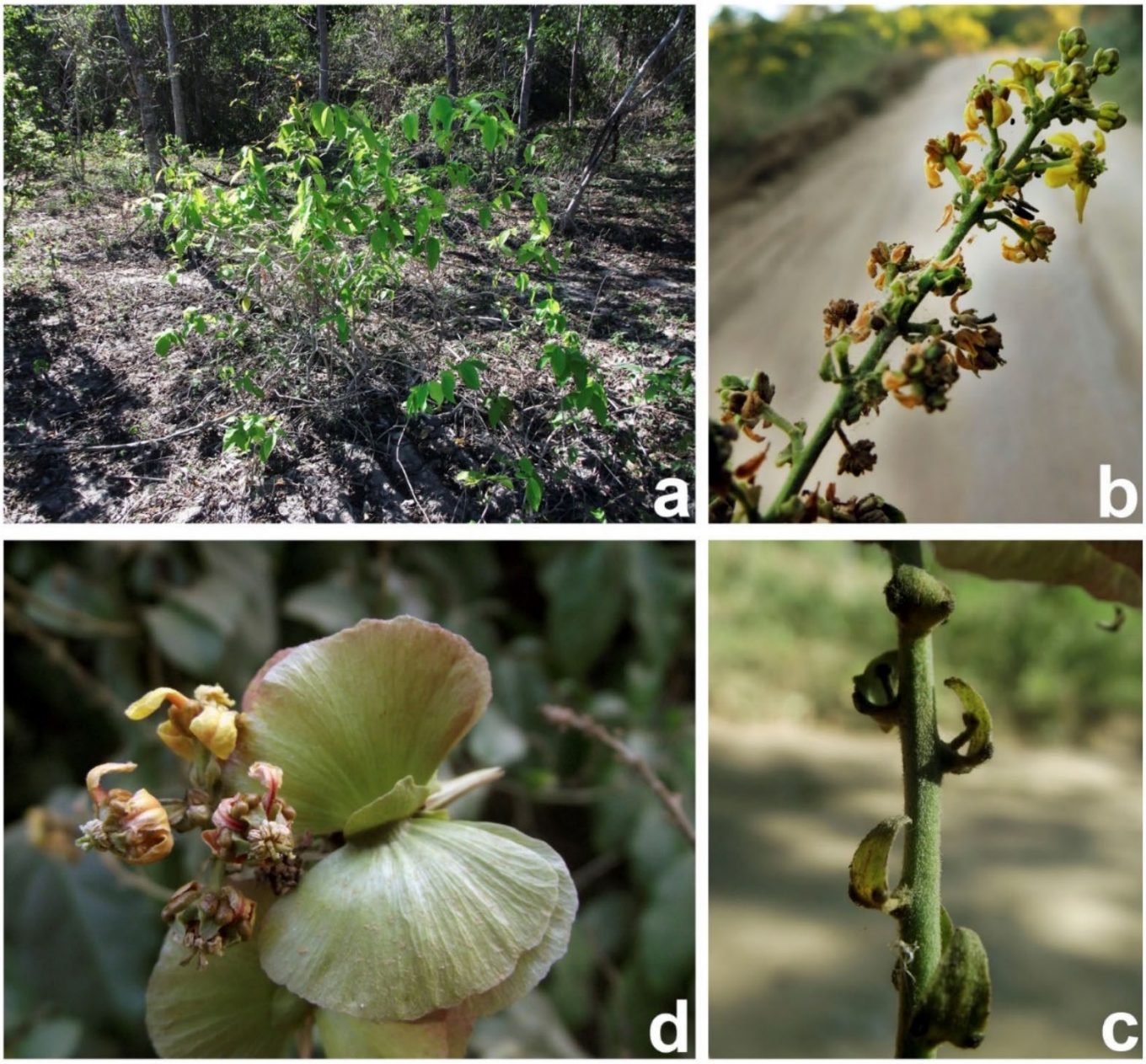

Figure 3. *Amorimia rigida*: a. habit, b. thyrse, c. glandular bracts and bracteoles, d. butterfly-shaped mericarps (photographs by R.F. Almeida).

2. *Banisteriopsis anisandra* (A.Juss.) B.Gates, Fl. Neotrop. Monogr. 30: 150. 1982. Figure 4.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°26'02", W41°00'12", 10 December 2014, fl., fr., *R.F. Almeida 722* (HUEFS).

Distribution and ecology: *Banisteriopsis anisandra* is a common species in the Cerrado domain (BFG 2018). It was collected in cerrado s.s. fragments alongside the northern border of the RBME.

Notes: *Banisteriopsis anisandra* is distinguished by the long, biglandular petioles, and mericarps with appressed irritating hairs (Gates 1982).

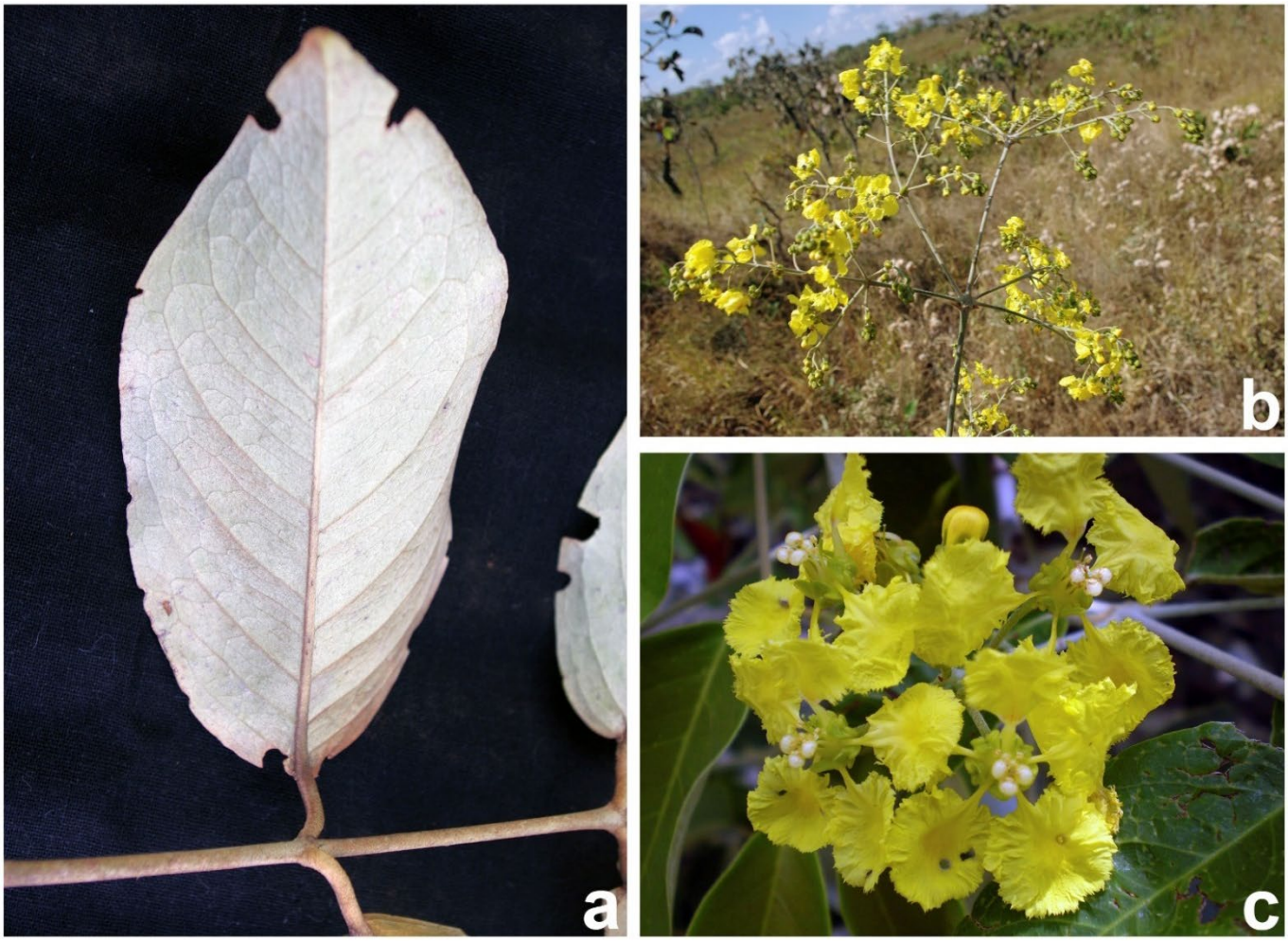

Figure 4. *Banisteriopsis anisandra*: a. leaf in abaxial side showing the white-tomentose indumentum, b. compound thyrse, c. flowers in anthesis (photographs by C.F. Hall).

3. *Banisteriopsis malifolia* (Nees & Mart.) B.Gates, Fl. Neotrop. Monogr. 30: 76. 1982. Figure 5.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, Estrada para Pedra Azul, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 572*, *573*, *574*, *576* (HUEFS).

Distribution and ecology: *Banisteriopsis malifolia* is widespread throughout the cerrados of Central Brazil (Gates 1982). It was collected in cerrado s.s. fragments alongside the northern border of the RBME.

Notes: *Banisteriopsis malifolia* show great leaf variation over its distribution range, but it is differentiated by biglandular petioles at apex, mericarps with wings wider than longer, and the nut is densely hairy on the inside (Gates 1982).

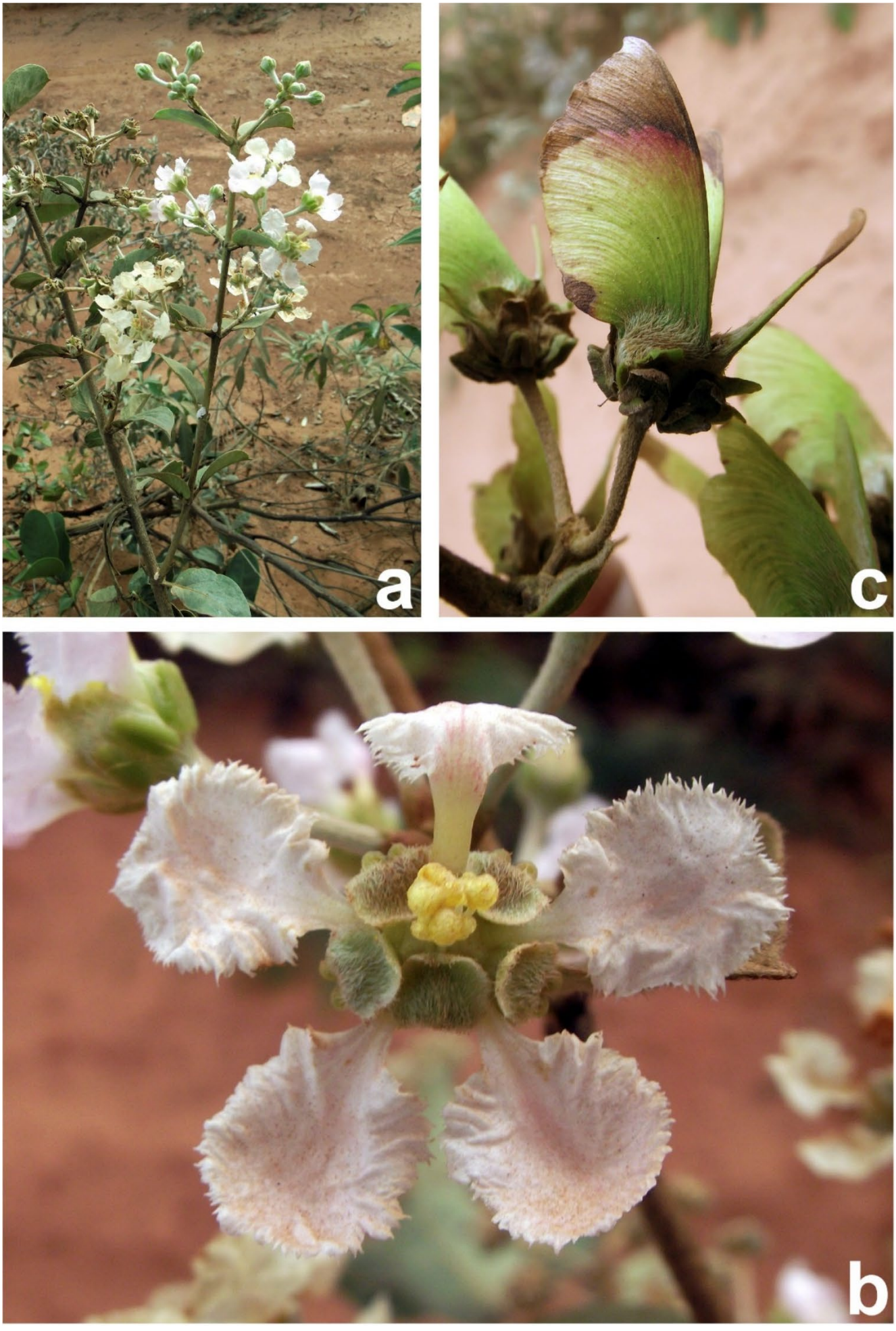

Figure 5. *Banisteriopsis malifolia*: a. habit, b. flower in anthesis, c. mericarps in side view (photographs by R.F. Almeida).

4. *Banisteriopsis membranifolia* (A.Juss.) B.Gates, Fl. Neotrop. Monogr. 30: 106. 1982. Figure 6.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, Estrada para Pedra Azul, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 575* (HUEFS).

Distribution and ecology: *Banisteriopsis membranifolia* occurs in the Atlantic rainforest, and disjunctly in the Amazon rainforest, growing on the edge of forests (Almeida *et al.* 2020). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Banisteriopsis membranifolia* is differentiated by its pilose anthers, petioles biglandular at the middle, and mericarps with prominent well-developed lateral winglets (Gates 1982).

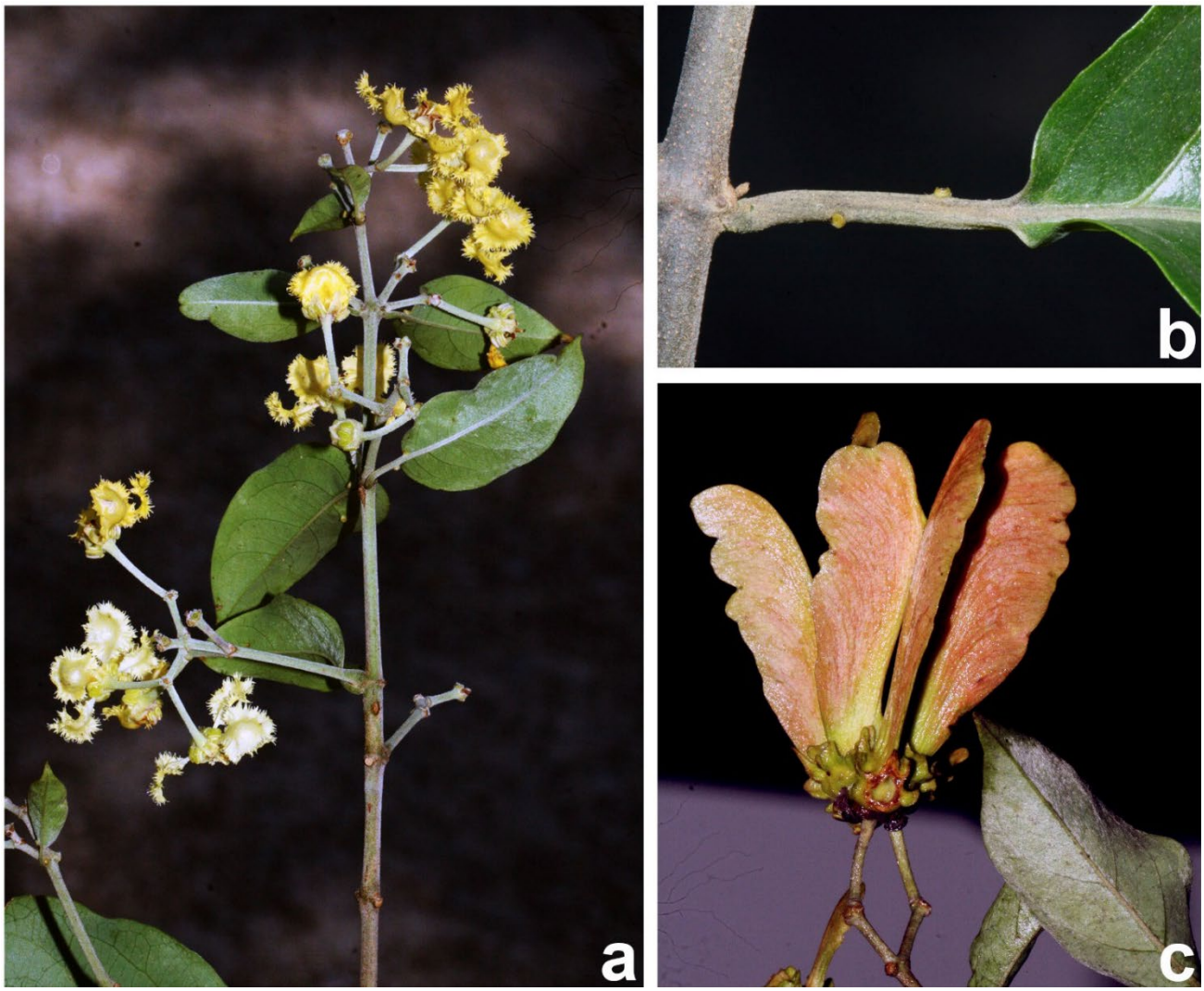

Figure 6. *Banisteriopsis membranifolia*: a. flowering branch, b. detail of the glandular petiole, c. mericarps in side view (photographs by M.O.O. Pellegrini).

5. *Byrsonima sericea* DC., Prodr. 1: 580. 1824. Figure 7.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, Estrada para Pedra Azul, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 565* (HUEFS); *loc. cit.*, 10 December 2014, fl., fr., *R.F. Almeida 709* (HUEFS).

Distribution and ecology: *Byrsonima sericea* is widespread in the Atlantic rainforest, usually growing on forest edges (Almeida *et al.* 2020). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Byrsonima sericea* is a small tree with golden sericeous leaves abaxially, the posterior petal bears a pair of small glands at the apex of the claw, and the cincinni lack peduncles (Mamede 1987).

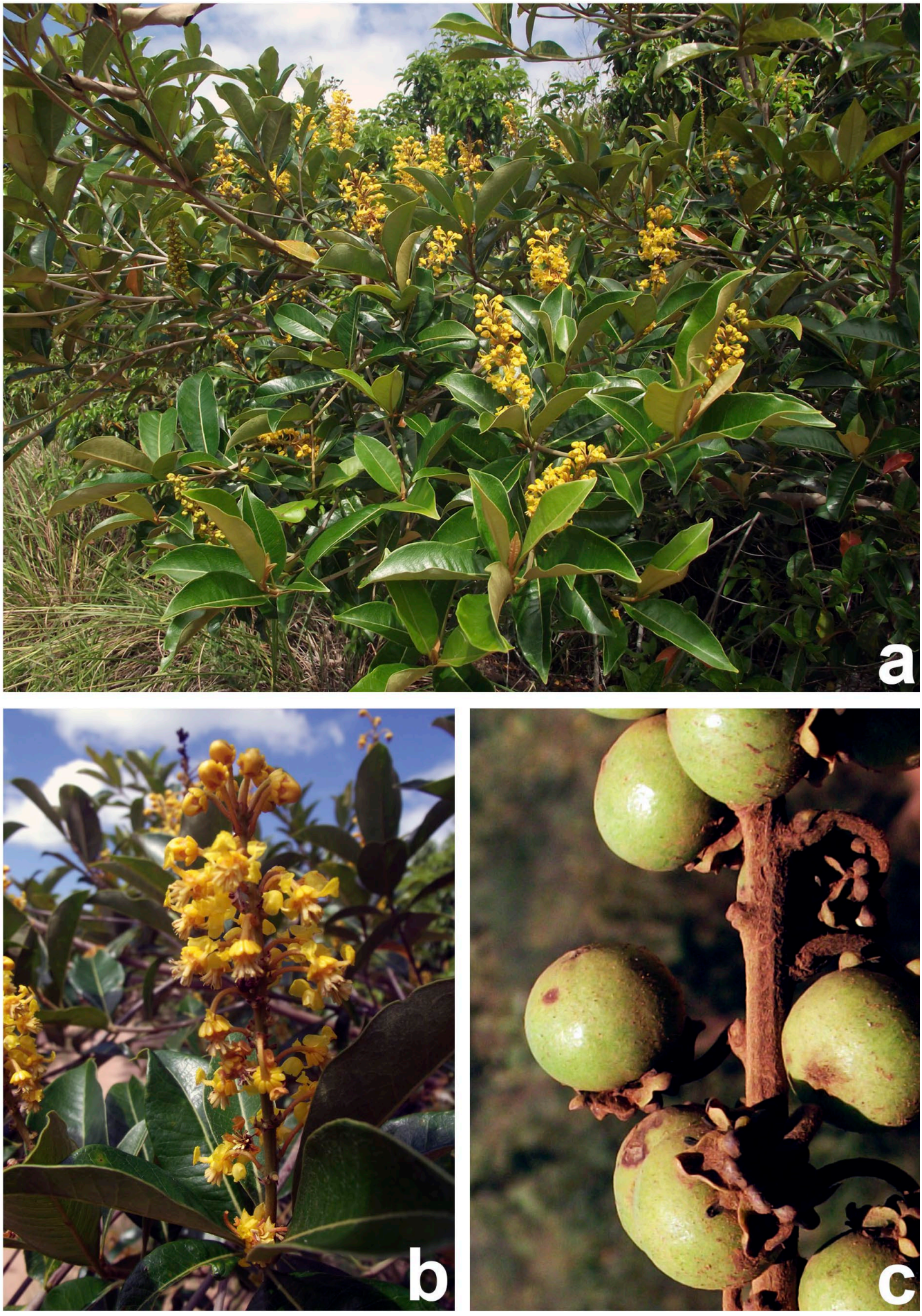

Figure 7. *Byrsonima sericea*: a. habit, b. thyrse, c. mature fruits (photographs by R.F. Almeida).

6. *Byrsonima stannardii* W.R.Anderson, Kew Bull. 47(4): 725–727. 1992. Figure 8.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 711* (HUEFS).

Distribution and ecology: *Byrsonima stannardii* has a rather wide distribution in the quarzitic hills throughout the Serra do Espinhaço, especially in the States of Bahia and northern Minas Gerais (Anderson 1991; Francener *et al.* 2016). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Byrsonima stannardii* is a shrub or small tree with leaves densely white tomentose abaxially, pedunculate cincinni, all petals yellow turning orange or red with age, and drupes quite large, with more than 1 cm diam, usually spherical (Anderson 1991).

Figure 8. *Byrsonima stannardii*: a. flowering branch, b. epipetiolar stipules, c. immature drupe (photographs by R.F. Almeida).

7. *Byrsonima vacciniifolia* A.Juss., Fl. Bras. Merid. (quarto ed.) 1(3): 84. 1825. Figure 9.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 690* (HUEFS).

Distribution and ecology: *Byrsonima vacciniifolia* occurs in areas of campo rupestre and caatinga in the 0053tates of Bahia and Minas Gerais (Rolim 2004). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Byrsonima vacciniifolia* is distinguished by its glabrous leaves, and whitish to light pink flowers (Almeida *et al.* 2020).

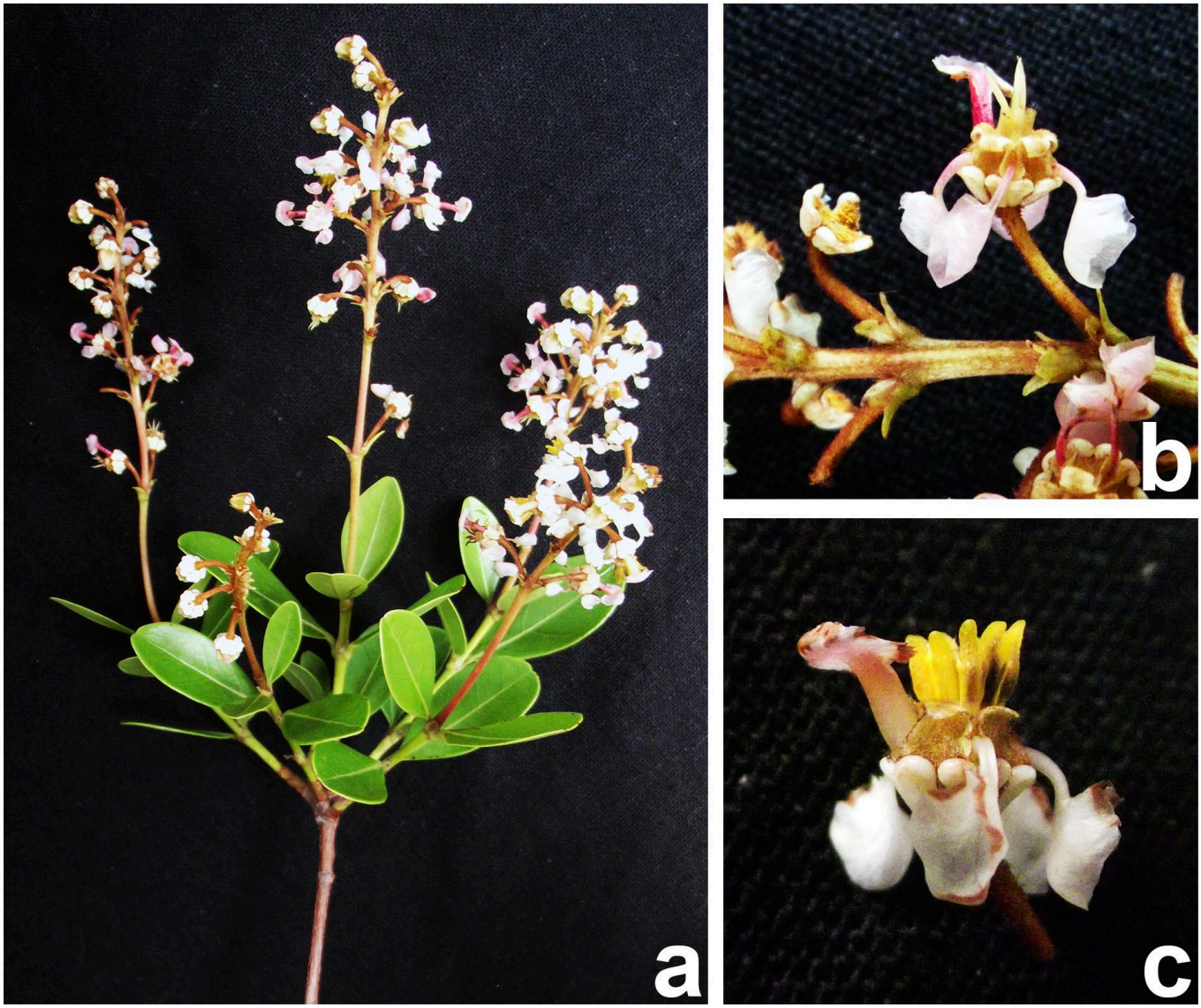

Figure 9. *Byrsonima vacciniifolia*: a. flowering branch, b. 1-flowered cincinni, c. flower in side view (photographs by R.F. Almeida).

8. *Diplopterys pubipetala* (A.Juss.) W.R.Anderson & C.C.Davis, Harvard Pap. Bot. 11(1): 13. 2006. Figure 10.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, Estrada para Pedra Azul, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 567* (HUEFS).

Distribution and ecology: *Diplopterys pubipetala* is widespread throughout all phytophysiognomies in Brazil, Bolivia, Colombia, Paraguay, and Peru (Gates 1982). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME and in cerrado s.s. fragments in the northern border of the reserve.

Notes: *Diplopterys pubipetala* presents a set of characters that easily distinguishes it from the remaining species from the RBME: lianas, glabrous leaves with impressed minute glands abaxially, yellow petals, the posterior petal abaxially tomentose, and reddish mericarps bearing 4-6 lateral wings (Gates 1982).

Figure 10. *Diplopterys pubipetala*: a. habit, b. flowers, c. mericarps (photographs by M.O.O. Pellegrini).

9. *Glicophyllum ramiflorum* (A.Juss.) R.F.Almeida, Nordic J. Bot. 39(1)-e02876: 16. 2021. Figure 11.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 721* (HUEFS).

Distribution and ecology: *Glicophyllum ramiflorum* is endemic to Brazil, occurring in Cerrado areas (Francener *et al.* 2015). It was collected in cerrado s.s. fragments alongside the northern border of the RBME.

Notes: *Glicophyllum ramiflorum* is a scandent shrub that loses its leaves when flowering and fruiting. The inflorescence is a solitary umbel of 1-flowered cincinni, and X-shaped mericarps with dominant lateral wings (Francener *et al.* 2015).

10. *Heteropterys brunnea* R.Sebast. & Mamede, Hoehnea 37(2): 341–343. 2010. Figure 12.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 684* (HUEFS).

Distribution and ecology: *Heteropterys brunnea* distribution is restricted to southeastern States of Bahia and Espírito Santo (Sebastiani & Mamede 2010; Almeida *et al.* 2020). Our collection is the first official record for this threatened species in the State of Minas Gerais. It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Heteropterys brunnea* is distinguished by biglandular petioles at base, leaves and branches covered with tomentose hairs, corymbs with short-pedunculated cincinni, petals yellow, posterior petal glandular at base, and pilose anthers (Sebastiani & Mamede 2010).

Figure 11. *Glicophyllum ramiflorum*: a. sterile branch, b. flowering branch, c. fruiting branch (photographs a by R.F. Almeida and b-c by E. Silva).

Figure 12. *Heteropterys brunnea*: a. inflorescence in side view, b. flower, c. mericarps in side view (photographs by R.F. Almeida).

11. *Heteropterys byrsonimifolia* A.Juss., Ann. Sci. Nat., Bot., sér. 2 13: 276. 1840. Figure 13.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 718* (HUEFS).

Distribution and ecology: *Heteropterys byrsonimifolia* is a common species on Brazilian cerrados (Almeida *et al.* 2020). It was collected in cerrado s.s. fragments alongside the northern border of the RBME.

Notes: *Heteropterys byrsonimifolia* is a shrub or small tree, with leaves usually glabrous or glabrescent on both sides, impressed glands abaxially, petals yellow, and sepals revolute at apex (Pessoa *et al.* 2014).

Figure 13. *Heteropterys byrsonimifolia*: a. habit, b. thyrse, c. mericarps in side view (photographs by R.F. Almeida).

12. *Heteropterys pteropetala* A.Juss., Fl. Bras. Merid. (quarto ed.) 3(21): 31, t. 167. 1832 [1833]. Figure 14.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, 27 March 2008, fl., fr., *T.E. Almeida 1334* (BHCB); *loc. cit.*, Estrada para Pedra Azul, 29 June 2013, S16°25'00", W41°01'00", fl., *R.F. Almeida 566* (HUEFS).

Distribution and ecology: *Heteropterys pteropetala* is a common species on Brazilian cerrados (Almeida *et al.* 2020). It was collected in cerrado fragments alongside the northern border of the RBME.

Notes: *Heteropterys pteropetala* is a scandent shrub, usually with rounded leaves, 2-4-glandular near base, sepals plane at apex, and pink petals (Pessoa *et al.* 2014).

Figure 14. *Heteropterys pteropetala*: a. inflorescence, b. 1-flowered cincinni in side view (photographs by F. Flores).

13. *Heteropterys trichanthera* A.Juss., Ann. Sci. Nat., Bot., sér. 2 13: 273. 1840.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 569* (HUEFS).

Distribution and ecology: *Heteropterys trichanthera* is commonly found on cerrado and caatinga in the States of Bahia, Ceará, Goiás, Minas Gerais, Pernambuco, and Piauí (Almeida *et al.* 2020). It was collected in cerrado s.s. fragments alongside the northern border of the RBME.

Notes: *Heteropterys trichanthera* is characterized by its biglandular petioles at middle or apex, leaves chartaceous, 2–4-glandular abaxially near margins, and hairy anthers (Pessoa *et al.* 2014).

14. *Stigmaphyllon paralias* A.Juss., Fl. Bras. Merid. (quarto ed.) 3(22): 33. 1832 [1833]. Figure 15.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 568* (HUEFS).

Distribution and ecology: *Stigmaphyllon paralias* is commonly found in eastern Brazil, in areas of caatinga, campo rupestre, and restinga (Almeida *et al.* 2020). It was collected in fragments of campo rupestre alongside the southern border of the RBME.

Notes: *Stigmaphyllon paralias* is an erect shrub, with chartaceous, short-petiolated leaves with entire margins, solitary umbels, styles with foliaceous apex reduced, and mericarps with dorsal wing very reduced (Almeida & Mamede 2016).

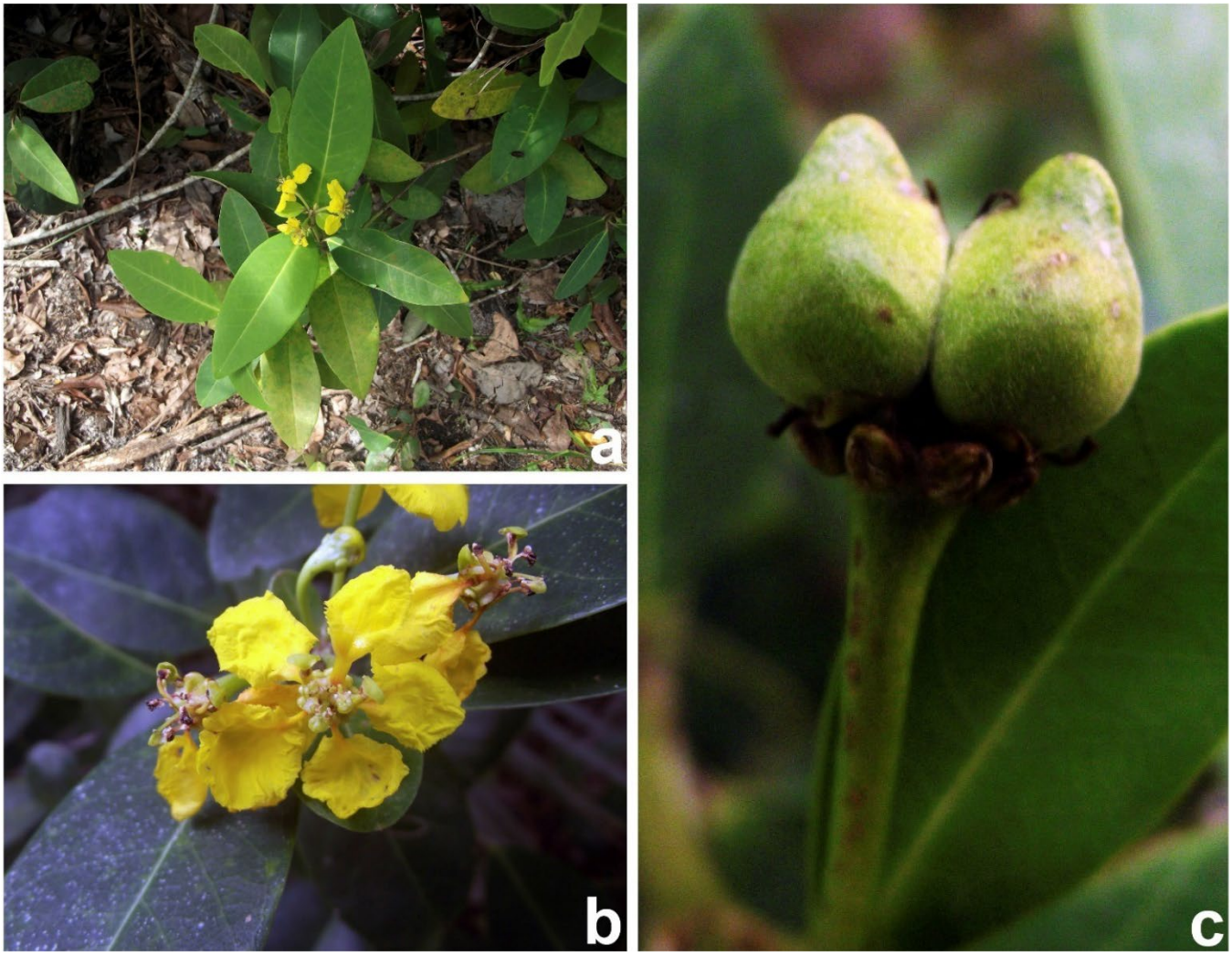

Figure 15. *Stigmaphyllon paralias*: a. habit, b. solitary umbels, c. mericarps in side view (photographs by R.F. Almeida).

15. *Stigmaphyllon saxicola* C.E.Anderson, Contr. Univ. Michigan Herb. 17: 16. 1990. Figure 16.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, Estrada para Vai quem Quer, S16°25'00", W41°01'00", 29 June 2013, fl., fr., *R.F. Almeida 570, 571* (HUEFS).

Distribution and ecology: *Stigmaphyllon saxicola* occurs in seasonal semideciduous forests and rainforests in the States of Bahia, Espírito Santo, and Minas Gerais (Almeida & Mamede 2016). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Stigmaphyllon saxicola* is a liana with ovate, sparsely tomentose leaves, with umbels arranged in dichasia, styles with foliaceous apex well-developed, and reddish mericarps, with a long dorsal wing and 6 reduced lateral winglets (Almeida & Mamede 2016).

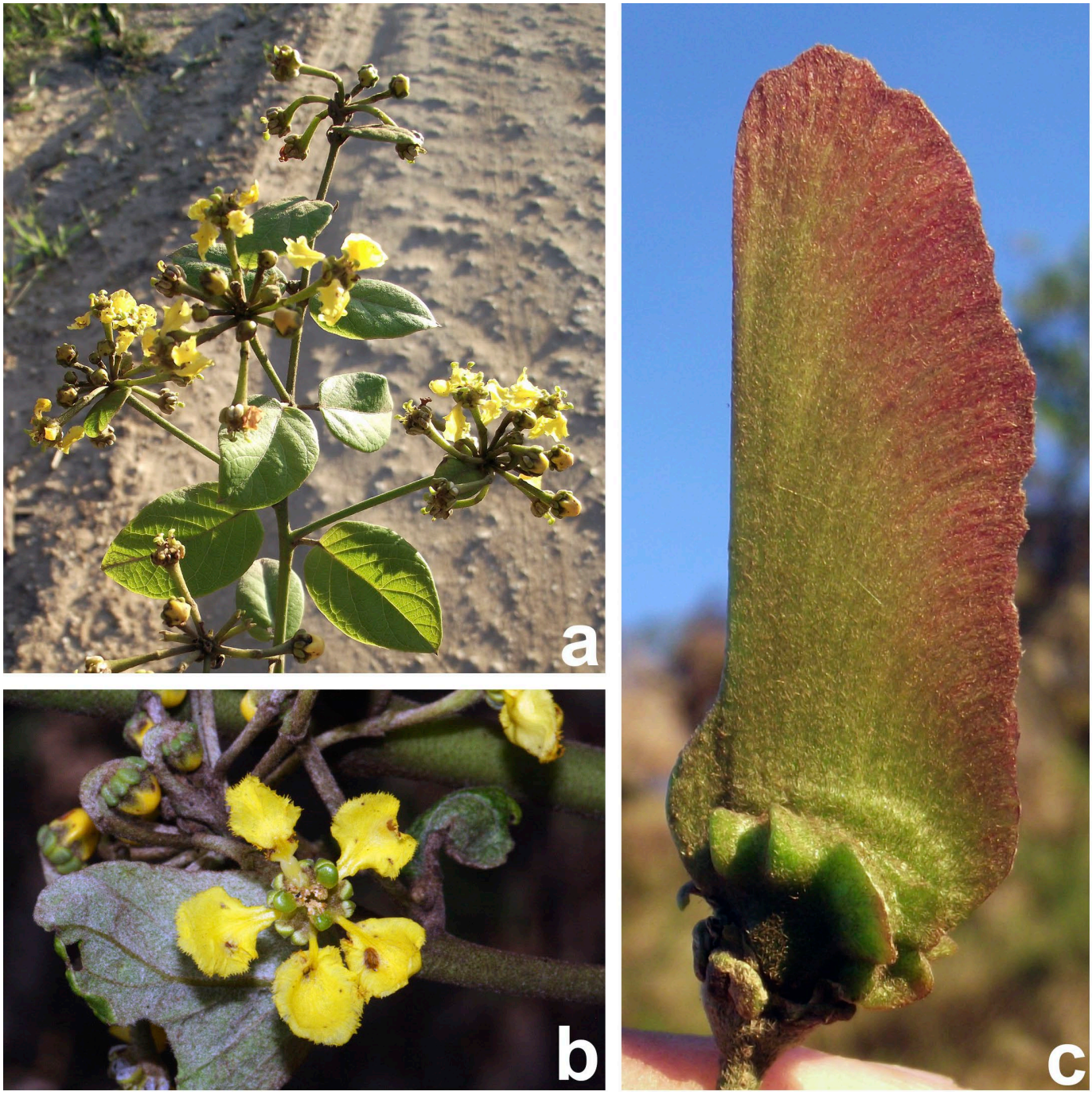

Figure 16. *Stigmaphyllon saxicola:* a. flowering branch, b. flower in anthesis, c. mericarp in side view (photographs by R.F. Almeida).

16. *Stigmaphyllon tomentosum* A.Juss., Fl. Bras. Merid. (quarto ed.) 3(22): 53. 1832 [1833]. Figure 17.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 679* (HUEFS).

Distribution and ecology: *Stigmaphyllon tomentosum* occurs in dense rainforests and restingas in the states of Espírito Santo and Rio de Janeiro (Almeida & Mamede 2016; Almeida *et al.* 2020). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Stigmaphyllon tomentosum* is a liana with cordate, white-tomentose leaves, and greenish mericarps, with a well-developed dorsal wing, and 2-4 lateral winglets (Almeida & Mamede 2016).

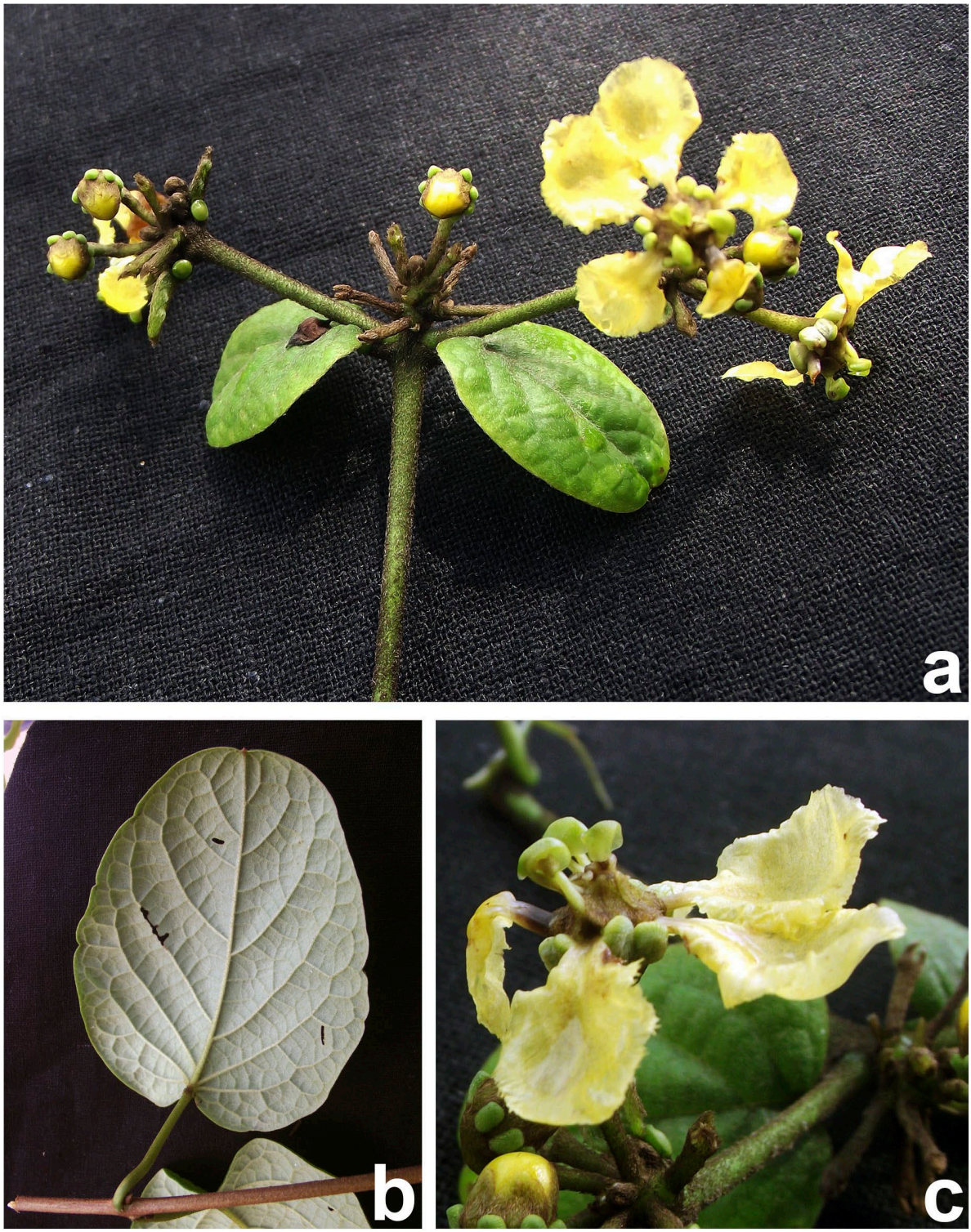

Figure 17. *Stigmaphyllon tomentosum:* a. umbels arranged in a dichasium, b. leaf in abaxial view, c. flower in side view (photographs by R.F. Almeida).

17. *Thryallis latifolia* Mart., Nov. Gen. Sp. Pl. 3: 79–80. 1829. Figure 18.

Specimens examined: BRAZIL. **Minas Gerais.** Jequitinhonha: Reserva Biológica da Mata Escura, S16°25'00", W41°01'00", 10 December 2014, fl., fr., *R.F. Almeida 687* (HUEFS).

Distribution and ecology: *Thryallis latifolia* occurs on cerrados of the States of Minas Gerais and São Paulo (Anderson 1995). It was collected in fragments of seasonally dry forests alongside the southern border of the RBME.

Notes: *Thryallis latifolia* is distinguished by epipetiolar stipules, leaves with stalked glands at the apex of petioles, inflorescence and flowers covered with stellate hairs, eglandular sepals and enlarged in fruits (Anderson 1995).

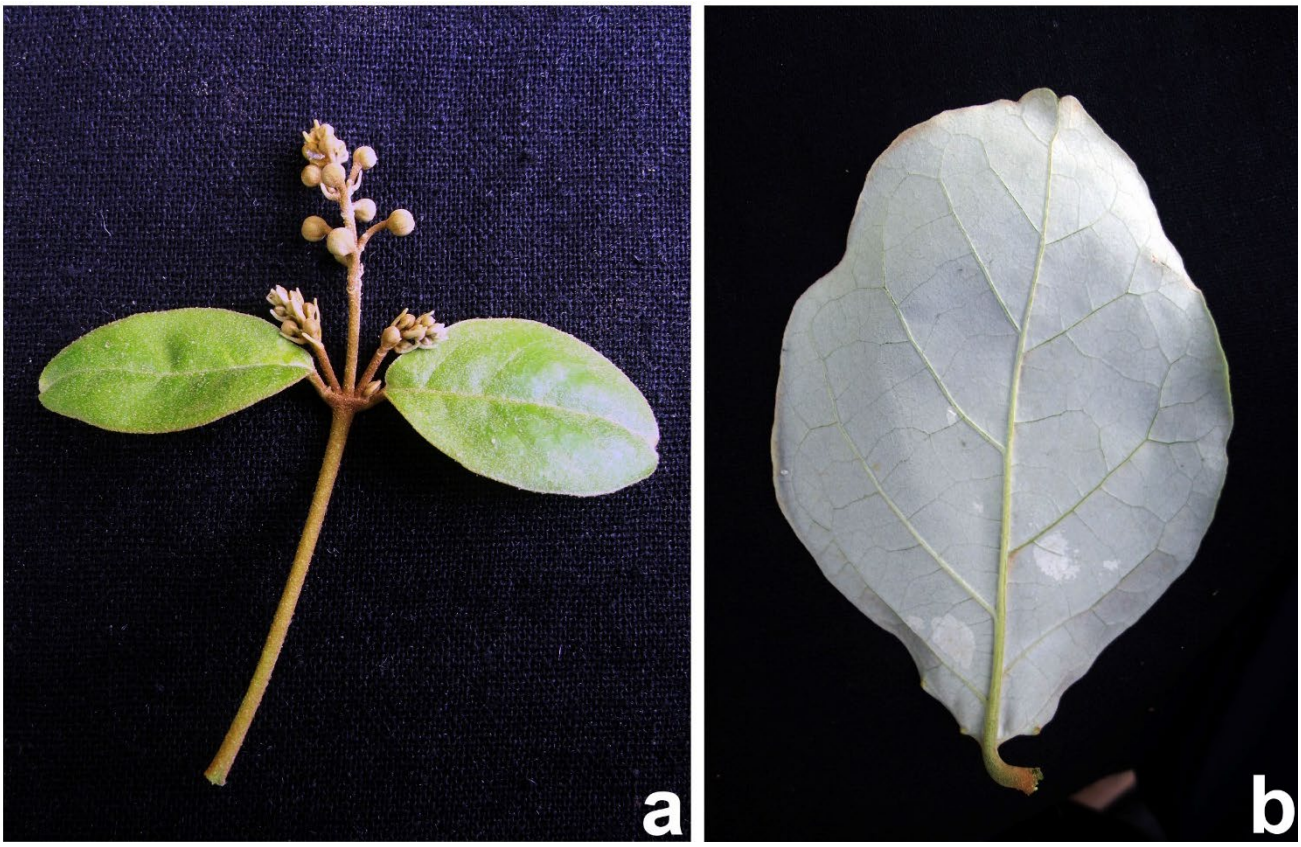

Figure 18. *Thryallis latifolia*: a. flowering branch, b. leaf in abaxial view (photographs by R.F. Almeida).

ACKNOWLEDGEMENTS

I thank Augusto Francener for constructive comments on an early draft of the manuscript and for the map; and Climbiê F. Hall, Estevão Silva, Fernando Flores, and Marco Pellegrini for the Malpighiaceae photographs.

REFERENCES

Almeida, R.F. (2018) Taxonomic revision of *Amorimia* W.R.Anderson (Malpighiaceae). Hoehnea 45(2): 238-306. doi.org/10.1590/2236-8906-47/2017

Almeida, R.F.; Francener, A.; Pessoa, C.; Sebastiani, R.; Oliveira, Y.R.; Amorim, A.M.A.; Mamede, M.C.H. 2020. Malpighiaceae in Flora do Brasil 2020. Jardim Botânico do Rio de Janeiro.Disponível em: <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB155>. Acesso em: 27 jun. 2021.

Anderson, C.E. (1995) Revision of *Thryallis* (Malpighiaceae). Contributions from the University of Michigan Herbarium 20: 3-14.

Almeida, R.F. & Mamede, M.C.H. (2016) Sinopse de Malpighiaceae no Estado do Espírito Santo, Brasil: *Stigmaphyllon* A. Juss. Hoehnea 43(4): 601-633. dx.doi.org/10.1590/2236-8906-22/2016

Anderson, W.R. (1979) Floral conservatism in Neotropical Malpighiaceae. Biotropica. 11: 219-223.

Anderson, W.R. (1981) Malpighiaceae. In: The Botany of Guyana Highland - Part IX. Memoirs of the New York Botanical Garden 32: 21-305.

Anderson, W.R. (1991) A new species of *Byrsonima* (Malpighiaceae) from eastern Brazil. Kew Bulletin 47(4): 725-727.

Bitencourt, C. & Rapini, A. (2013) Centers of Endemism in the Espinhaço Range: identifying cradles and museums of Asclepiadoideae (Apocynaceae). Systematics and Biodiversity 11(4): 525-536. Doi.org/10.1080/14772000.2013.865681.

Calazans, L.S.B. (2020) A new species of *Philodendron* (Araceae) from an enclave of Atlantic rainforest in Minas Gerais State, Brazil. Phytotaxa 452(3): 217-223.

Davis, C.C. & Anderson, W.R. (2010) A complete generic phylogeny of Malpighiaceae inferred from nucleotide sequence data and morphology. American Journal of Botany 97: 2031-2048.

Forest-Gis. (2019) Available from: http://forest-gis.com/download-de-shapefiles/. Accessed: 3 January 2021).

Francener, A.; Damasceno-Júnior, G.A. & Gomes-Klein, V.L. (2015) *Tetrapterys* Cav. (Malpighiaceae) from Brazilian Midwest. Acta Botanica Brasilica 29(1): 143-156. doi: 10.1590/0102-33062014abb3665

Francener, A.; Almeida, R.F. & Mamede, M.C.H. (2016) Taxonomic novelties in *Byrsonima* (Malpighiaceae) from the state of Minas Gerais, Brazil. Phytotaxa 291 (2): 133-140. doi.org/10.11646/phytotaxa.291.2.4

Gates, B. (1982) *Banisteriopsis*, *Diplopterys* (Malpighiaceae). Flora Neotropica 30. New York: The New York Botanical Garden.

IBGE - Instituto Brasileiro de Geografia e Estatística. (2015) Mapa de vegetação do Brasil. Instituto Brasileiro de Geografia e Estatística. Rio de Janeiro, Brasil. Available from: http://www.ibge.gov.br/home/presidencia/noticias/21052004biomashtml.shtm (Accessed: 2 January 2021).

ICMBio – Instituto Chico Mendes de Conservação da Biodiversidade. (2021) Mapa Temático e Dados Geoestatísticos das Unidades de Conservação Federais. Available from: http://www.icmbio.gov.br/portal/geoprocessamentos/51-menu-servicos/4004-downloads-mapa-tematico-e-dados-geoestatisticos-das-uc-s (Accessed: 1 January 2021).

Köppen, W. (1948) Climatologia: con un estudio de los climas de la tierra. Fondo de Cultura Econômica. México. 479p.

Mamede, M.C.H. (1987) Flora da Serra do Cipó, Minas Gerais: Malpighiaceae. Boletim de Botânica da Universidade de São Paulo 9: 157-198.

Mamede, M.C.H. (2004) Flora de Grão Mogol, Minas Gerais: Malpighiaceae. Boletim de Botânica da Universidade de São Paulo 22(2): 291-302.

Melo, F.R. (2005) A Reserva Biológica Federal da Mata Escura e Sua Importância como Unidade de Conservação para os Primatas do Médio Rio Jequitinhonha, Minas Gerais. Neotropical Primates, 13(1): 26-29. doi.org/10.1896/1413-4705.13.1.26.

Niedenzu, F. (1928) Malpighiaceae. *In* Das Pflanzenreich, ed. A. Engler, IV. 141: 1-870.

Pessoa, C.; Costa, J.A.S. & Amorim, A.M. (2014) Flora da Bahia: Malpighiaceae 2 – *Heteropterys*. Sitientibus, série Ciências Biológicas 14: 1-41.

QGIS 2.6.0-Brighton (2014) QGIS Geographic Information System. Open Source Geospatial Foundation Project. Available from: http://qgis.osgeo.org (Accessed: 11 January 2021).

Rapini, A.; Ribeiro, P.L.; Lambert, S; & Pirani, J.R. (2008) A flora dos campos rupestres da Cadeia do Espinhaço. Megadiversidade 4: 16-24.

Radford, A.E.; Dickison, W.C.; Massey, J.R. & Bell, C.R. (1974) Vascular Plants Systematics. Harper & Row Publishers. New York.

Ribon, R. & Maldonado-Coelho, M. (2000) Caracterização Preliminar da Avifauna da Mata Escura, Município de Jequitinhonha, Nordeste de Minas Gerais. Relatório Técnico. Instituto Estadual de Florestas (IEF) e Universidade Federal de Minas Gerais (UFMG). Belo Horizonte.

Ribon, R.; Whitney, B.M. & Pacheco, J.F. (2002) Discovery of Bahia Spinetail *Synallaxis cinerea* in north-east Minas Gerais, Brazil, with additional records of some rare and threatened montane Atlantic Forest birds. Cotinga 17: 46-50.

Rolim, S.I.E. (2004) Revisão e redefinição de *Byrsonima* Rich. *ex* Kunth. subg. *Macrozeugma* Nied. (Malpighiaceae). Tese de doutorado. Universidade de São Paulo.

Sebastiani, R. & Mamede, M.C.H. (2010) Estudos taxonômicos em *Heteropterys* subsect. *Stenophyllarion* (Malpighiaceae) no Brasil1. Hoehnea 37(2): 337-366.

Thiers, B. continuously updated. Index Herbariorum: A global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Available from: http://sweetgum.nybg.org/ih/ (Accessed: 7 April 2019).

Vasconcelos, L.V.; Alves, M.; Almeida, R.F. & Hall, C.F. (2013) Checklist Preliminar de Convolvulaceae na Reserva Biológica da Mata Escura, Jequitinhonha, Minas Gerais, Brasil. In: 64° Congresso Nacional de Botânica, 2013, Belo Horizonte. Anais do 64° Congresso Nacional de Botânica. Viçosa: Sociedade Botânica do Brasil.