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Flora of Espírito Santo, Brazil

Flora of Espírito Santo: tribe Microlicieae (Melastomataceae)

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Abstract

Microlicieae is one of the most diverse tribes in Melastomataceae, comprising three genera: *Microlicia* (including the former *Chaetostoma*, *Lavoisiera*, *Stenodon*, and *Trembleya*), *Poteranthera*, and *Rhynchanthera*. It is characterized by anthers with a prolonged pedoconnective, capsular fruits, and reniform, oblong seeds with a foveolate testa. This study presents a taxonomic treatment for the species of Microlicieae in the state of Espírito Santo. A total of ten species were registered in two genera, *Microlicia* (9 spp.) and *Rhynchanthera* (1 sp.). Of these, three are new species of *Microlicia*: *M. caparaoensis* is endemic to the Caparaó National Park; *M. capixaba* and *M. misteriosa* are endemic to a single inselberg, the "Alto Misterioso", in São Roque do Canaã. A fourth species was kept as *Microlicia* sp., since further studies will be necessary to confirm its identity. We also provide an identification key, morphological descriptions, distribution data, and comments for all species.

Key words: floristics, inselbergs, *Microlicia*, new species, *Rhynchanthera*.

Resumo

Microlicieae é uma das tribos mais diversas em Melastomataceae, composta por três gêneros: *Microlicia* (incluindo os antigos *Chaetostoma*, *Lavoisiera*, *Stenodon* e *Trembleya*), *Poteranthera* e *Rhynchanthera*. É caracterizada pelas anteras com pedoconectivo prolongado, frutos capsulares e sementes reniformes, oblongas, com testa foveolada. Este estudo apresenta o tratamento taxonômico para a tribo Microlicieae no estado do Espírito Santo. Um total de dez espécies foram registradas em dois gêneros, *Microlicia* (9 spp.) e *Rhynchanthera* (1 sp.). Destas, três são novas espécies de *Microlicia*: *M. caparaoensis* é endêmica do Parque Nacional do Caparaó; *M. capixaba* e *M. misteriosa* são endêmicas dea um único *inselberg*, o Alto Misterioso, em São Roque do Canaã. Uma quarta espécie foi mantida como *Microlicia* sp., pois mais estudos serão necessários para confirmar sua identidade. Também são fornecidos chave de identificação, descrições morfológicas, dados de distribuição e comentários para todas as espécies.

Palavras-chave: florística, *inselbergs*, *Microlicia*, novas espécies, *Rhynchanthera*.

Introduction

Melastomataceae is a large and pantropical plant family (Renner 1993; Clausing & Renner 2001) with ca. 177 genera and ca. 5,750 species (Michelangeli *et al.* 2020) and is one of the most diverse families on Earth (Reginato *et al.* 2020). Currently, there are ca. 3,700 accepted species of Melastomataceae in the neotropics (Michelangeli *et al.* 2020). Of these, approximately 40% occur in Brazil, where the family comprises 69 genera and 1,436 species occurring in all vegetation types (Goldenberg *et al.* 2020a). It is easily recognized by the leaves with acrodromous venation, bisexual, radially symmetric, and diplostemonous flowers, stamens with a pedoconnective prolonged below the thecae, and usually with dorsal and/or ventral appendages (Renner 1993; Clausing & Renner 2001).

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Melastomataceae is also among the most diverse families of plants in the state of Espírito Santo, with 198 species in 25 genera (Dutra *et al.* 2015; Goldenberg *et al.* 2020a). The family has been the subject of floristic treatments in several localities in the state (Goldenberg & Reginato 2006; Meirelles & Goldenberg 2012; Iglesias & Dutra 2017). Furthermore, a substantial amount of new species were described in the last 20 years (Guimarães & Goldenberg 2001; Goldenberg & Reginato 2007, 2009, 2013; Goldenberg & Tavares 2007; Tavares *et al.* 2008; Goldenberg & Kollmann 2010, 2016; Camargo & Goldenberg 2011; Meirelles *et al.* 2012; Caddah & Goldenberg 2012, 2013; Reginato & Goldenberg 2013; Bacci & Goldenberg 2015; Bacci *et al.* 2016, 2020; Iglesias *et al.* 2016; Bochorny & Goldenberg 2019; Bisewski *et al.* 2020; Goldenberg *et al.* 2020b). For the Flora of Espírito Santo, there are treatments for the genera *Behuria*, *Cambessedesia*, *Dolichoura*, *Huberia*, and *Merianthera* (Bochorny & Goldenberg 2017), *Bertolonia* (Bacci *et al.* 2017), and *Miconia* (Bacci *et al.* 2016).

The tribe Microlicieae is one of the most diverse in the Melastomataceae with 265 species (Versiane *et al.* 2021). It is monophyletic, with a near-endemic Brazilian distribution (Fritsch *et al.* 2004). The tribe is characterized by anthers with a prolonged pedoconnective below the thecae and capsular fruits with reniform, oblong seeds with a foveolate testa (Cogniaux 1883, 1891; Almeda & Martins 2001; Fritsch *et al.* 2004). Until recently, Microlicieae comprised seven genera, *Chaetostoma*, *Lavoisiera*, *Microlicia*, *Poteranthera*, *Rhynchanthera*, *Stenodon*, and *Trembleya* (Almeda & Martins 2001; Fritsch *et al.* 2004; Rocha *et al.* 2016). However, molecular and morphological studies led to a new circumscription for the genus *Microlicia*, which now includes *Chaetostoma*, *Lavoisiera*, *Stenodon*, and *Trembleya* (Versiane *et al.* 2021). Thus, Microlicieae currently has only three genera, *Microlicia*, *Poteranthera*, and *Rhynchanthera* (Versiane *et al.* 2021).

Among the genera of Microlicieae occurring in Espírito Santo (see Meirelles & Goldenberg 2012; Goldenberg & Reginato 2006), *Microlicia* can be characterized by its diplostemonous flowers lacking staminodes, with dimorphic stamens, and bicolorous anthers; and *Rhynchanthera* has isostemonous flowers, with subisomorphic stamens, concolorous anthers, and five additional staminodia. *Microlicia* is the largest genus in the tribe, with 248 species and a predominant distribution in Campo Rupestre and Cerrado from Brazil (Versiane *et al*. 2021; Pacifico *et al*. 2021; Romero *et al.* 2021); it has 241 species in Brazil (Versiane *et al*. 2021), and ten species in the Andes and Guiana Shield in Bolivia, Colombia, Guyana, and Peru (Wurdack 1958; Romero 2003; Mendoza-Cifuentes *et al*. 2019; Pacifico *et al*. 2020a; Versiane *et al*. 2020). *Rhynchanthera* has 15 species occurring from southern Mexico to Brazil and Paraguay (Renner 1990), from which eight are broadly distributed in Brazil (Renner 1990; Versiane & Silva-Gonçalves 2020).

In order to improve our knowledge of Melastomataceae in Espírito Santo, this study presents a taxonomic treatment for the species of Microlicieae in this state. We provide morphological descriptions, distribution data, comments, photos, and an identification key. We also describe three new species of *Microlicia*, including information on their conservation status, distribution, and affinities with morphologically similar species.

Material and Methods

The state of Espírito Santo has approximately 45,600 km^2 (MMA 2000), in coastal southeastern Brazil, between the states of Bahia, Minas Gerais, and Rio de Janeiro (Dutra *et al.* 2015). Despite being entirely located within the Atlantic Forest domain (Fundação SOS Mata Atlântica & INPE 2002), the state is covered with different vegetation types, such as rainforests ("Ombrophilous Dense Forest", according to Garbin *et al.* 2017), seasonal forests ("Seasonal Semideciduous Forest"), "campos nativos" ("Savannas"), montane grasslands ("Ecological Refuges"), and mangroves and "restingas" ("Pioneer Formations", according to Garbin *et al*. 2017).

This study was based on morphological analysis of specimens of Microlicieae collected in Espírito Santo and deposited at the herbaria CEPEC, CESJ, CVRD, ESA, FURB, HCF, HUEM, HUFU, K, MBML, NY, P, RB, SAMES, UEC, UPCB, US, and VIES (Thiers, continuously updated). We also examined specimens with available images in Jabot (<http://jabot.jbrj.gov.br/v2/consulta.php>), Jstor Global Plants (<https://plants.jstor.org/>), Reflora Virtual Herbarium (<http://reflora.jbrj.gov.br/reflora/herbarioVirtual/>), and *species*Link (<http://www.splink.org.br/>), which are indicated as "online image".

The morphological terminology followed Radford *et al.* (1986), but the description of the indumentum was based on Wurdack (1986). The

tribal description was based only on the plants that occur in Espírito Santo. The distribution maps were generated in R (R Core Team 2020), using geographical coordinates from the collection labels. When the coordinates were not informed, but only the locality was available in the labels (*e.g.*, municipality), we used the geoLoc tool from *species*Link (<http://www.splink.org.br/>) to provide specimen georeferencing. The preliminary assignment of conservation status for the new species was based on IUCN guidelines and criteria (IUCN 2001, 2019); we have not estimated the extent of occurrence and area of occupancy because the three new species are narrowly endemic, occurring in a single locality.

Results and Discussion

Microlicieae is represented by two genera and ten species in Espírito Santo. The most diverse genus is *Microlicia* with nine species, from which three are described for the first time here: *Microlicia caparaoensis* sp. nov., *M. capixaba* sp. nov., *M. cataphracta* (Mart. & Schrank *ex* DC.) Versiane & R.Romero, *M. cordata* (Spreng.) Cham., *M. isophylla* DC., *M. misteriosa* sp. nov., *M. parviflora* (D.Don) Versiane & R.Romero, *M. restingae* R.Romero & Woodgyer. The ninth species is presented here as *Microlicia* sp. since it seems not to belong to any known species in the genus, and more studies are needed to confirm its identity. The remaining species belongs to *Rhynchanthera*: *R. dichotoma* (Desr.) DC.

In a genus with nine species in the state, it is interesting to note that two of the three new species described here (*M. capixaba* and *M. misteriosa*) seem to be endemic to a single locality, the peak "Alto Misterioso". The "Alto Misterioso" is a chain with eight granitic rock outcrops (inselbergs) in the municipalities of São Roque do Canaã and Itaguaçu, central-western Espírito Santo, between 850−1,143 m elevation (Esgario *et al.* 2008). The peak is surrounded by areas cultivated mainly with coffee and bananas (Esgario *et al.* 2009). The vegetation on the top is predominantly rupicolous, with herbs, shrubs, and a few trees (Bochorny & Goldenberg 2019). The "Alto Misterioso" has at least 172 plant species (Esgario *et al.* 2009), and it is extremely important for the flora of Espírito Santo, due to its high diversity and several endemic species (see Fraga & Feres 2007; Kollmann & Fontana 2008; Esgario *et al.* 2009; Bochorny & Goldenberg 2019). Three new plant species that are endemic to "Alto Misterioso" have been described in the last 13 years: *Luxemburgia mysteriosa* (Fraga & Feres 2007), *Begonia mysteriosa* (Kollmann & Fontana 2008), and *Huberia misteriosa* (Bochorny & Goldenberg 2019). It is considered one of the priority areas for biodiversity conservation in the Central Ecological Corridor of the Atlantic Forest (Esgario *et al.* 2008), a biologically diverse area with several species that are either endangered or with restricted distribution (CEPF 2001). However, the region is not legally protected; therefore, we strongly suggest that the "Alto Misterioso" deserves more attention from authorities in order to create a protected area comprising its limits (Dutra *et al.* 2019).

Two other regions are outstanding in Microlicieae diversity: the Caparaó National Park and the "Reserva Natural Vale". The Caparaó National Park is a protected area located between the states of Minas Gerais and Espírito Santo, within the Mantiqueira Range (ICMBio 2015; Moreira *et al.* 2020; Fig. 1). About 1,790 species of plants have been listed for the Caparaó National Park, including 8% of the endemic species in the Atlantic Forest (6% of the angiosperms, 31% of the lycophytes and ferns, and 14% of non-vascular plants; Moreira *et al*. 2020). Five species of *Microlicia* (*M. caparaoensis*, *M. cataphracta*, *M. isophylla*, *M. parviflora*, and *Microlicia* sp.) occur in the area. Unfortunately, the illegal extraction of plants, use of pesticides, and deforestation in the surrounding areas have negatively impacted the park (Moreira *et al.* 2020; Araújo *et al.* 2021) and threatening its flora and fauna. The "Reserva Natural Vale" has about 22,000 ha, and it is located in northern Espírito Santo, municipalities of Linhares and Jaguaré (Costa & Silva 2003; Rolim *et al*. 2016); it is also part of the Central Corridor of the Atlantic Forest. According to Rolim *et al*. (2016), about 2,000 species belonging to 145 angiosperms families occur in the "Reserva Natural Vale", representing 13.5% of the species of angiosperms listed for the Atlantic Forest. Two species of *Microlicia* (*M. cordata* and *M. restingae*) occur in this area; neither of them is endemic to Espírito Santo and have not been collected outside the "Reserva Natural Vale".

Microlicieae Naudin, Ann. Sci. Nat. Ser 3. Bot. 12: 203. 1849.

Subshrubs, shrubs, or trees. Branches pilose or glabrous. Nodes thickened or not. Leaves sessile or petiolate, horizontal, ascending or descending, spreading or imbricate; blades chartaceous or

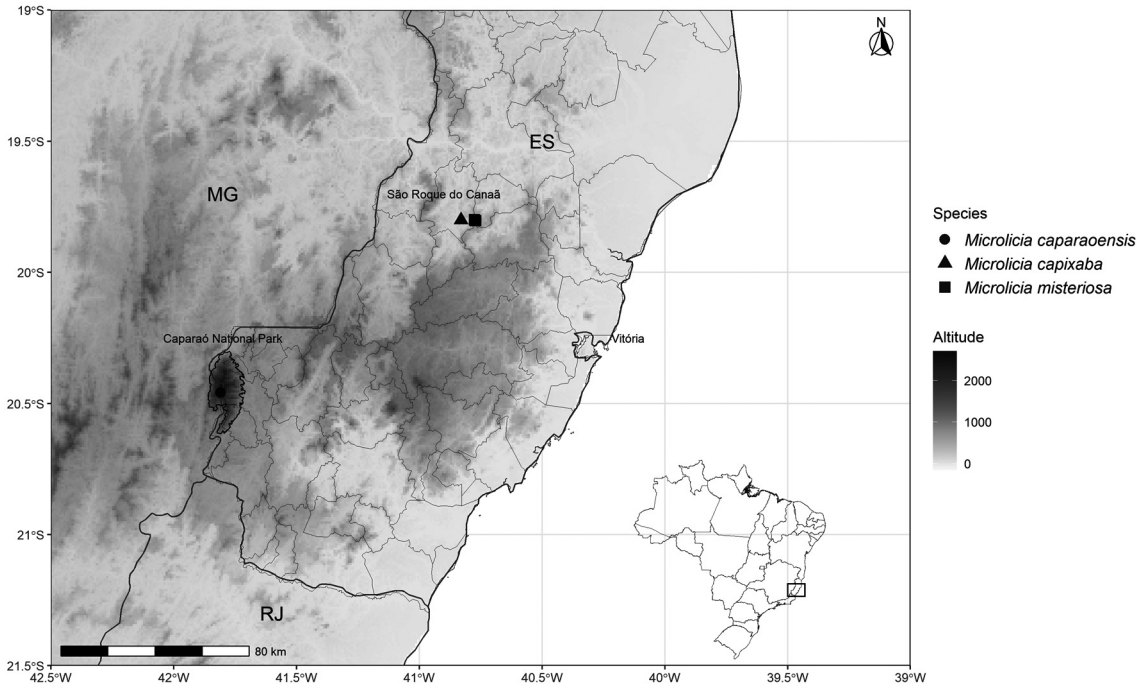

Figure 1 – Map with the distribution of *Microlicia caparaoensis*, *M. capixaba*, and *M. misteriosa* in Espírito Santo and Minas Gerais, Brazil.

coriaceous, keeled or not, margins entire, serrulate or crenulate, flat or revolute, callose or not, concolorous or discolorous, pilose or glabrous surfaces, 1−7-veined, secondary and tertiary veins present or absent. Inflorescences in simple or compound dichasia, paired flowers [resulting from the reduction of simple or compound dichasia] or solitary flowers, lateral or at the apex of the branches; bracts and bracteoles present or absent. Flowers 5–6-merous, sessile or pedicellate, perianth actinomorphic. Hypanthium campanulate to urceolate; calyx tube inconspicuous; sepals shorter, longer or with the same length as the hypanthium. Petals pink, magenta, lilac, purple, white, or white-pinkish. Stamens (5−)10−12, subisomorphic or dimorphic, anthers oblong or ovate, concolorous or bicolorous, tetrasporangiate or polysporangiate, apex rostrate; pedoconnectives prolonged, ventrally appendaged; staminodia present or absent. Ovary superior, semi-inferior inferior, 3−6-locular, glabrous; style glabrous, straight or curved at the apex; stigma punctiform. Capsules costate or not, with dehiscence from the base to the apex (acropetal) or from the apex to the base (basipetal), columellae caducous or persistent. Seeds numerous, slightly curved, testa foveolate.

Identification key for the genera and species of Microlicieae in the Espírito Santo state

1. Flowers with five stamens and five staminodia (*Rhynchanthera*) .....10. *Rhynchanthera dichotoma*
1’. Flowers with 10−12 stamens, lacking staminodia (*Microlicia*).
    2. Leaf blades with callose margins; ovary semi-inferior; fruits with acropetal dehiscence .... 3. *Microlicia cataphracta*
    2’. Leaf blades with non-callose margins; ovary superior; fruits with basipetal dehiscence.
        3. Flowers with polysporangiate anthers.....8. *Microlicia restingae*
        3’. Flowers with tetrasporangiate anthers.
            4. Inflorescences in simple or compound dichasia, or paired flowers.
                5. Petioles 5−7 mm long, petals white to white-pinkish ..... 7. *Microlicia parviflora*
                5’. Petioles absent or up to 0.5 mm long, petals pink.

6. Leaf blades, hypanthium, and sepals with setose trichomes mixed with spherical glands..... ..... 1. *Microlicia caparaoensis*
6'. Leaf blades, hypanthium, and sepals with only spherical glands ..... 2. *Microlicia capixaba*

4'. Flowers solitary.
7. Leaf blades with secondary and tertiary veins ..... 9. *Microlicia* sp.
7'. Leaf blades without secondary and tertiary veins.
8. Leaf blades with setose trichomes mixed with spherical glands..... 6. *Microlicia misteriosa*
8'. Leaf blades with only spherical glands.
9. Leaves sessile, leaf blades lanceolate and setose at the apex..... 5. *Microlicia isophylla*
9'. Leaves petiolate, leaf blades ovate or elliptic and non-setose at the apex .... 4. *Microlicia cordata*

Taxonomic treatment

1. *Microlicia caparaoensis* Versiane, R.Goldenb. & R.Romero, *sp. nov.* Type: BRAZIL. MINAS GERAIS: Alto Caparaó, Parque Nacional do Caparaó, estrada entre Macieira e Casa Queimada 29.V.2015, fl. and fr., *R. Goldenberg et al. 2194* (holotype: MBML; isotype: UPCB). Figs. 2-3

Microlicia caparaoensis is morphologically similar to *M. serpyllifolia* D.Don. However, *M. caparaoensis* can be recognized by its cespitose habit (*vs.* not branched in *M. serpyllifolia*), ascending leaves (*vs*. horizontal), setose indumentum (*vs*. velutinous), elliptic leaf blades with serrulate margins (*vs*. ovate and entire), flowers in simple or compound dichasia (*vs*. solitary flowers), and antesepalous stamens with pink-reddish to red anthers (*vs*. light pink).

Subshrubs 0.1−0.3 m tall, much-branched, dichotomous or trichotomous. Younger branches terete, green, blackish or reddish, with setose trichomes mixed with spherical glands, older branches terete or quadrangular, brownish, without leaves at the base, peeling off with age. Nodes not thickened, internodes 2.5–7 mm long. Leaves sessile, ascending, slightly imbricate, not amplexicaul; blades 4.5–8.5 × 2–9.5 mm, chartaceous, elliptic, apex acute and setose, seta ca. 0.2 mm long, base truncate, not keeled, margins serrulate, short-ciliate, flat, not callose, discolorous (when dry), abaxial surface green, adaxial surface green-brownish, both surfaces with setose trichomes mixed with spherical glands, 1−3-veined, sometimes lateral veins inconspicuous, visible on both surfaces, secondary and tertiary veins absent. Inflorescences in simple or compound dichasia, bracts 3−4.5 × 1.5−2.5 mm, ovate or lanceolate, pedicel ca. 0.4 mm long, bracteoles 2−2.5 × 1−1.5 mm, ovate or lanceolate, pedicel ca. 0.4 mm long. Flowers (4−)5-merous, perianth actinomorphic, pedicellate, pedicels 2–3 mm long, covered with setose trichomes mixed with spherical glands, green. Hypanthium 3.5–4 × 2–2.5 mm, oblong-campanulate, green to green-brownish, red-blackish or blackish, with setose trichomes mixed with spherical glands; calyx tube ca. 0.1 mm long; sepals 3–3.5 × ca. 1 mm, triangular, apex acute-setose, seta ca. 0.2 mm long, shorter or with the same length as the hypanthium, green to green-brownish or blackish, with setose trichomes mixed with spherical glands. Petals 9–11 × 5.5–7 mm, oblong or obovate-oblong, apex rounded or acuminate, pink, margins glabrous. Stamens (8−)10, dimorphic, anthers bicolorous, tetrasporangiate; larger (antesepalous) stamens (4−)5, filaments 4–4.5 mm long, white-pinkish, anthers ca. 2 mm long (including beak), oblong, pink-reddish to red, beaks ca. 0.5 mm long white-pinkish, pedoconnectives 2.5–3 mm long, pink, ventral appendages ca. 1.5 mm long, apex retuse, yellow; smaller (antepetalous) stamens (4−)5, filaments 4–4.5 mm long, white-pinkish, anthers ca. 2 mm long (including beak), oblong, yellow, beaks ca. 0.4 mm long, yellow, pedoconnectives ca. 1 mm long, yellow, ventral appendages ca. 0.3 mm long, apex retuse, yellow; staminodia absent. Ovary ca. 3 × 1.5 mm, 3-locular, oblong, superior, glabrous; style ca. 6 mm long, slightly curved at the apex, stigma punctiform. Capsules 4–4.5 × ca. 3.5 mm, oblong, not costate, brown, basipetal dehiscence, hypanthium covering the entire capsule, sepals persistent, columellae deciduous. Seeds 0.3–0.4 × 0.2–0.3 mm, numerous, slightly curved, cream, testa foveolate.

Examined material (paratypes): BRAZIL. MINAS GERAIS: Alto Caparaó, Parque Nacional do Caparaó, 29.V.2015, fl. and fr., *R. Goldenberg 2197* (MBML, UPCB), *R. Goldenberg 2205* (HUFU, MBML, UPCB). Espera Feliz, Parque Nacional do Caparaó, 13.VIII.2011,

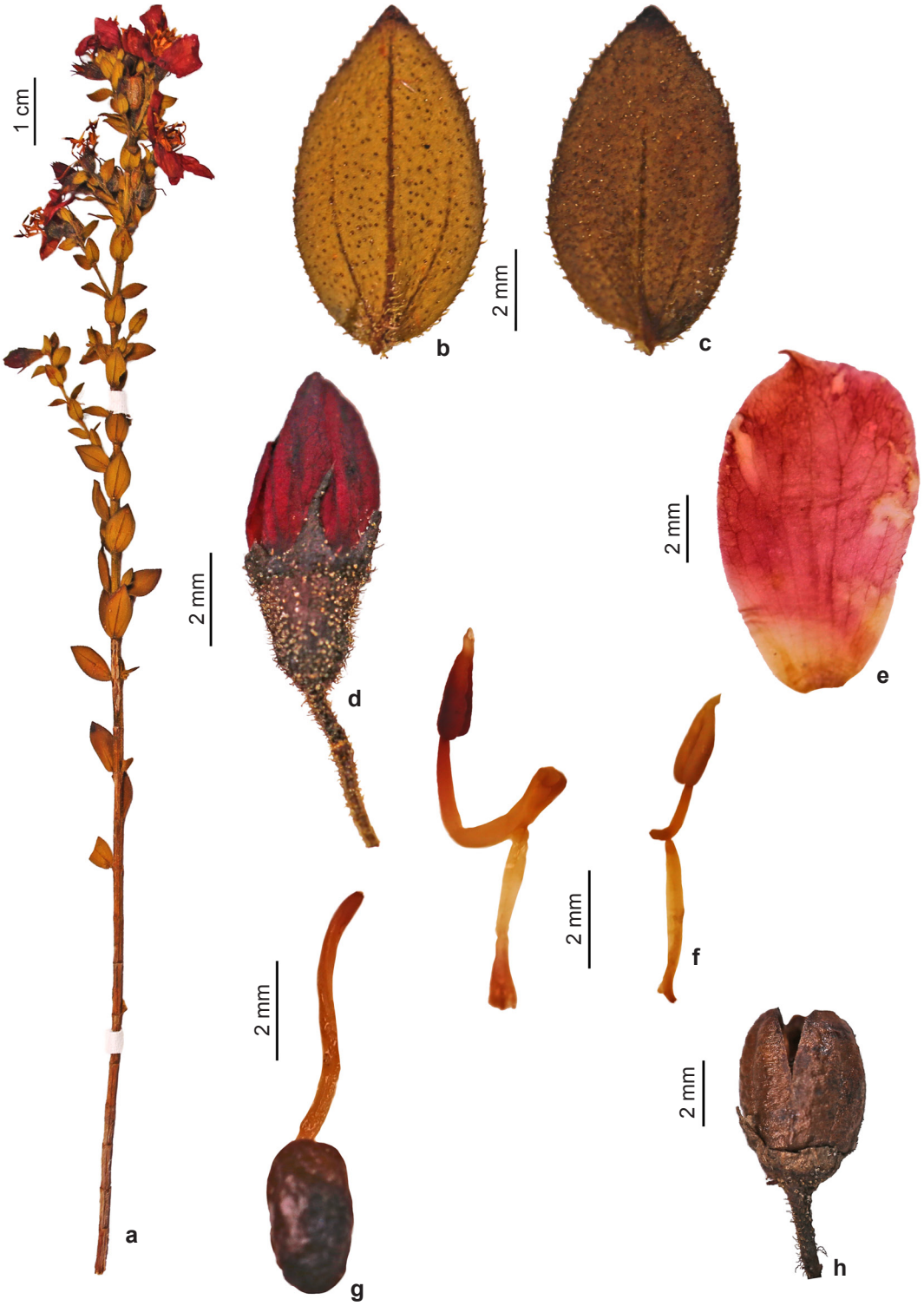

Figure 2 – a-h. *Microlicia caparaoensis* – a. flowering branch; b. leaf abaxial surface; c. leaf adaxial surface; d. flower bud; e. petal adaxial surface; f. stamens, antesepalous (left) and antepetalous (right); g. ovary and style; h. fruit. (all from *R. Goldenberg* 2205, HUFU).

Figure 3 – a-d. *Microlicia caparaoensis* – a. branch with leaves, flower, and fruit; b. branch with leaves, abaxial surface; c. flower; d. flowers in two dichasia. (Photos: R. Goldenberg).

fl. and fr, *G.H. Shimizu 541* (UEC); Parque Nacional do Caparaó, 1.V.1988, fl., *R.F. Novelino 17* (CESJ-online image); 30.IV.1989, fl., *O.S.T. Moreira 966* (CESJ-online image). ESPÍRITO SANTO: Dores do Rio Preto, Pedra Menina, 13.I.2013, fl., *J. Kuntz 853* (UPCB).

Microlicia caparaoensis is endemic to the montane grasslands in Caparaó National Park, occurring above 1,000 m elevation (see comments at the beginning of the results and discussion section). Considering that most populations of *M. caparaoensis* are inside a protected area, but also the fact that they can be found only in this locality, we suggest categorizing this species as Endangered (EN) (IUCN 2001, 2019).

This species was collected with flowers in January, May, and August and with fruits in May and August.

The epithet "caparaoensis" is derived from the name of the Caparaó National Park, in Minas Gerais and Espírito Santo, where this species occurs.

The plants described here as *M. capixaba* have been previously identified as *M. serpyllifolia* (see Moreira *et al*. 2020). Both species have leaf blades, hypanthium, and sepals covered with setose trichomes mixed with spherical glands, triangular sepals, shorter or with the same length as the hypanthium, pink petals, and stamens with bicolorous and tetrasporangiate anthers. For the distinction between them, see the species diagnosis. In the Caparaó National Park, *M. caparaoensis* and *M. isophylla* share the sessile leaves, flowers with pink petals, triangular sepals, bicolorous and tetrasporangiate anthers. However, *M. isophylla* has lanceolate leaf blades (*vs*. elliptic in *M. caparaoensis*), these concolorous (*vs*. discolorous), with a setose apex (*vs*. non-setose), leaf blades, hypanthium, and sepals covered only with spherical glands (*vs*. setose trichomes mixed with spherical glands), and solitary flowers (*vs*. inflorescences in simple or compound dichasia).

2. *Microlicia capixaba* Versiane, Fontelas & R.Romero, *sp. nov.* Type: BRAZIL. ESPÍRITO SANTO: São Roque do Canaã, Alto Misterioso, pedra 1, 1,130 m, 19°48'11.8"S, 40°46'13.7"W, 14.VII.2007, fl. and fr., *C. Esgario & A.P. Fontana 181* (holotype: MBML; isotypes: HUFU, UPCB). Fig. 4

Microlicia capixaba is morphologically similar to *M. coriacea* R.Pacifico, Almeda & Fidanza and *M. tomentella* Naudin. However, the new species can be recognized by its leaf blades covered only with spherical glands (*vs*. glandular trichomes mixed with spherical glands in *M. coriacea* and *M. tomentella*), and margins slightly dentate (*vs*. entire).

Subshrubs 0.7–1 m tall, much-branched, dichotomous or trichotomous. Younger branches terete, green, with spherical glands, older branches terete or quadrangular, brownish, without leaves at the base, peeling off with age. Nodes not thickened, internodes 3.5–6 mm long. Leaves petiolate, petioles 0.3–0.5 mm long, ascending, slightly imbricate, not amplexicaul; blades 4.5–15 × 2.5–9 mm, chartaceous, elliptic to ovate-elliptic, apex acuminate or acute, rarely slightly rounded, base rounded, not keeled, margins slightly dentate, flat, not callose, discolorous (when dry), abaxial surface green, adaxial surface brownish, both surfaces with spherical glands, 3−5-veined, visible on both surfaces, secondary and tertiary veins present, inconspicuous. Inflorescences reduced to two flowers or one bracteolate flower at the apex of the branches; bracts ca. 4 × 2 mm, elliptic, pedicels ca. 0.5 mm long, bracteoles ca. 3 × 1.5 mm, elliptic, pedicels ca. 1 mm long. Flowers 5-merous, perianth actinomorphic, pedicellate, pedicels ca. 1.5 mm long, covered with spherical glands, green. Hypanthium 2.5–3 × 1.8–2 mm, oblong-campanulate, green to green-brownish or green-blackish, with spherical glands; calyx tube ca. 0.1 mm long; sepals 2.7–3 × ca. 0.3 mm, linear-triangular, apex acute, longer or with the same length as the hypanthium, green to green-brownish, with glandular trichomes mixed with spherical glands. Petals 4.5–8.5 × 4–6 mm, obovate or oblong, apex acuminate, pink, margins glabrous. Stamens 10, dimorphic, anthers bicolorous, tetrasporangiate; larger (antesepalous) stamens 5, filaments 2.5–2.7 mm long, pink, anthers ca. 2 mm long (including beak), oblong, vinaceous, beaks ca. 0.3 mm long, pink-whitish, pedoconnectives 2.2–2.5 mm long, pink, ventral appendages 1.7–2 mm long, apex bilobed or truncate, yellow; smaller (antepetalous) stamens 5, filaments 2.8–3.3 mm long, pink, anthers ca. 1.8 mm long (including beak), oblong, yellow, beaks ca. 0.3 mm long, yellow, pedoconnectives 0.4−0.6 mm long, yellow, ventral appendages ca. 0.2 mm long, apex rounded to slightly retuse, yellow; staminodia absent. Ovary ca. 2 × 1 mm, 3-locular, globose, superior, glabrous; style ca. 5 mm long, straight or slightly curved at the apex, stigma punctiform. Capsules 3.8–4.5 × ca. 3 mm, ovate to globose, not costate, brown, basipetal dehiscence, hypanthium covering

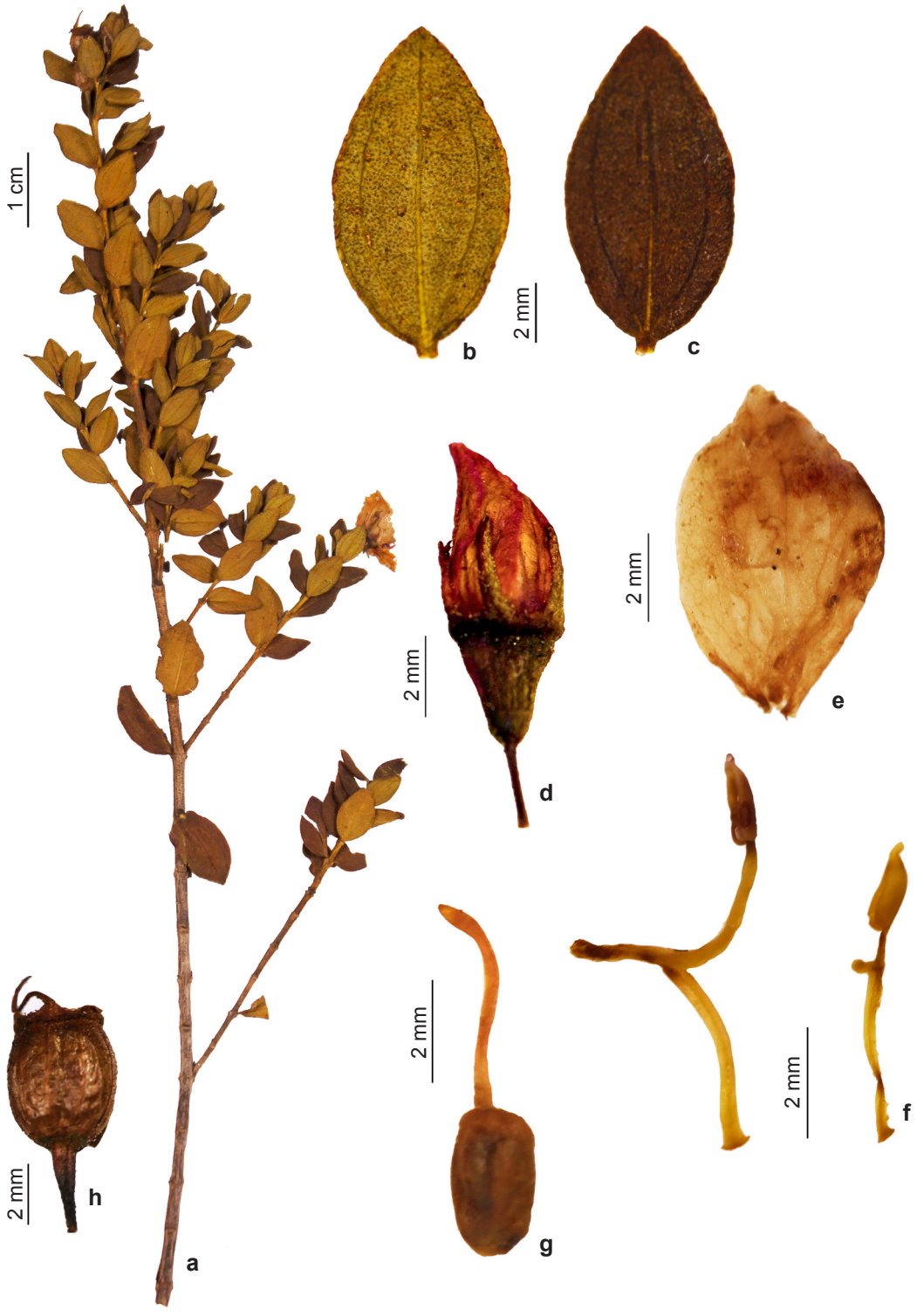

Figure 4 – a-h. *Microlicia capixaba* – a. flowering branch; b. leaf abaxial surface; c. leaf adaxial surface; d. flower bud; e. petal adaxial surface; f. stamens, antesepalous (left) and antepetalous (right); g. ovary and style; h. fruit. (all from *C. Esgario 54*, HUFU).

the entire capsule, sepals persistent, columellae deciduous. Seeds 0.4–0.5 × 0.2–0.4 mm, numerous, slightly curved, cream, testa foveolate.

Examined material (paratypes): São Roque do Canaã, 16.VII.2005, fl., *A.P. Fontana 1553* (MBML); 17.VII.2005, fl. and fr., *A.P. Fontana 1580* (MBML, UPCB); 19.VII.2005, fl. and fr., *L. Kollmann 8124* (MBML, UPCB); 2.X.2005, fl., *A.P. Fontana 1735* (MBML); 2.X.2005, fl., *A.P. Fontana 1748* (MBML); 4.III.2006, fl., *L. Kollmann 8735* (MBML, UPCB); 30.VII.2006, fl., *C. Esgario 54* (HUFU, MBML, UPCB); 26.VIII.2006, fl. and fr., *R.C. Brito 107* (HUFU, MBML, UPCB); 7.XI.2007, fl., *L. Kollmann 10156* (MBML, UPCB).

Microlicia capixaba is endemic to Espírito Santo, occurring only on an inselberg over 1,000 m elevation, the peak "Alto Misterioso", in São Roque do Canaã (Fig. 4; see comments at the beginning of the results and discussion section). Considering that *M. capixaba* was collected only a few times from a single unprotected locality, we suggest categorizing this species as Critically Endangered (CR) (IUCN 2001, 2019).

This species was collected with flowers in March, July, August, October, and November and with fruits in July and August.

The epithet "capixaba" refers to people or things native to Espírito Santo.

Microlicia capixaba is similar to *M. coriacea* and *M. tomentella*, both endemic to Minas Gerais (Pacifico *et al.* 2020b; Romero *et al.* 2020). The three species have pink petals, stamens with bicolorous and tetrasporangiate anthers. *Microlicia capixaba* and *M. coriacea* also share petiolate leaves, ovate-elliptic leaf blades, and linear-triangular sepals. However, *M. coriacea* has leaf blades covered with glandular trichomes mixed with spherical glands (*vs.* only spherical glands in *M. capixaba*), concolorous leaf blades when dry (*vs*. discolorous), secondary and tertiary veins strongly evident (*vs.* inconspicuous), petals with a glandular trichome (ca. 0.5 mm long) at the apex (*vs.* glandular trichome absent) (see Pacifico *et al.* 2020b). *Microlicia tomentella* differs from *M. capixaba* by its leaf blades, hypanthium, and sepals dense to sparsely covered with glandular trichomes mixed with spherical glands (*vs*. only spherical glands in *M. capixaba*), sessile leaves (*vs.* petiolate), with secondary and tertiary veins absent (*vs.* present). *Microlicia capixaba* is also similar to *Microlicia* sp., which also occurs in Espírito Santo. Both species have chartaceous and discolorous leaf blades with 3−5 veins, conspicuous secondary and tertiary veins, and flowers with pink petals, and dimorphic stamens with bicolorous and tetrasporangiate anthers. However, *Microlicia* sp. has ciliate-serrate and slightly revolute leaf margins (*vs.* slightly dentate and flat in *M. capixaba*), pedicel, hypanthium, and sepals densely covered with setose trichomes mixed with spherical glands (*vs.* only spherical glands). On the "Alto Misterioso", *M. capixaba* and *M. misteriosa* share the pink petals, dimorphic stamens, bicolorous, and tetrasporangiate anthers, but *M. misteriosa* differs by its both leaf surfaces, pedicels, hypanthium, and sepals densely covered with setose trichomes, mixed with spherical glands (*vs*. only spherical glands in *M. capixaba*).

3. *Microlicia cataphracta* (Mart. & Schrank *ex* DC.) Versiane & R.Romero, J. Linn. Soc. Bot. boab011: 18.

= *Lavoisiera imbricata* (Thunb.) DC., Prodr. 3: 103. 1828. Fig. 5a-b

Shrubs 0.3−2 m tall. Branches glabrous, hypanthium, and sepals with setose or glandular trichomes, or glabrous. Nodes thickened, internodes 1−1.5 mm long. Leaves sessile, ascending, strongly imbricate, semi-amplexicaul; blades 3–7 × 2–4 mm, coriaceous, ovate to oblong, apex acute, base attenuate or rounded, keeled, margins serrulate, ciliate or glandular-ciliate, flat, callose, hyaline, discolorous (when dry), green or green-yellowish, adaxial surface darker than the abaxial, both surfaces glabrous or with sparse glandular trichomes, 1−3-veined, midvein abaxially setose-appressed or glabrous, secondary and tertiary veins absent. Flowers solitary, 6-merous, sessile, bracts and bracteoles absent. Hypanthium campanulate, red to red-purplish. Sepals oblong, apex rounded or acute-setose, seta ca. 0.5 mm long, red to red-purplish, margins ciliate or glandular-ciliate, longer than the hypanthium length. Petals obovate or oblong, apex rounded, slightly acuminate or retuse, sometimes setose, seta ca. 0.5 mm long, totally pink or sometimes face abaxial pink with a pink-reddish longitudinal band, margins ciliate or glandular-ciliate. Stamens 12, dimorphic, anthers bicolorous, tetrasporangiate, filaments white or slightly yellowish; larger (antesepalous) stamens 6, anthers, oblong, pink or pink-reddish, pedoconnectives pale pink or white, ventral appendages with apex slightly retuse, yellow; smaller (antepetalous) stamens 6, anthers oblong, yellow, pedoconnectives yellow, ventral appendages with apex rounded, yellow; staminodia absent. Ovary 6-locular, semi-inferior. Capsules oblong, not costate, brownish, dehiscence acropetal, columellae persistent.

Figure 5 – a-e. Species of Microlicieae from Espírito Santo – a-b. *Microlicia cataphracta* – a. flower; b. petals, abaxial surface; c. flower of *M. cordata*; d-e. *M. isophylla* – d. flower buds; e. fertile branches. (Photos: a, b, d, e, R. Goldenberg; c. A.F.A. Versiane).

Examined material: Castelo, 1,600 m elev., 10.VII.2004, fl., *L. Kollmann 6847* (MBML, RB-online image, UPCB); 15.VIII.2006, fl., *J.M.L. Gomes 3069a* (VIES-online image); 16.VII.2008, fl., *A.P. Fontana 5377* (CEPEC-online image, MBML, RB-online image, UPCB); 9.IV.2009, fl., *J. Meirelles 296* (CEPEC-online image, MBML, RB-online image); 22.V.2010, fl., *J. Meirelles 489* (MBML, RB-online image). Domingos Martins, 16.VI.1984, fl. and fr., *O.J. Pereira 310* (UPCB, VIES-online image); 15.VI.1985, fl., *G. Hatschbach 49409* (UEC); 29.X.1987, fl., *O.J. Pereira 1334* (VIES); 11.VII.2006, fl. and fr., *A.P. Fontana 2211* (MBML, RB-online image), *2199* (MBML, RB-online image, UPCB), *2231* (MBML, RB-online image, UPCB). Dores do Rio Preto, Pedra Menina, 13.I.2013, fr., *J. Kuntz 852* (RB-online image, UPCB). Parque Nacional do Caparaó, 30.III.2006, fr., *C.G. Viana 156* (HUEM-online image). São Roque do Canaã, 17.VII.2005, fl., *A.P. Fontana 1581* (MBML, UPCB, RB-online image) and *1585* (MBML, UPCB, RB-online image); 19.VII.2005, fl., *A.P. Fontana 1596* (HUFU, MBML, RB-online image, UPCB); 19.VII.2005, fr., *A.P. Fontana 1600* (MBML, UPCB); 30.VII.2006, fl., *C. Esgario 52* (MBML, RB-online image); 26.VIII.2006, fl., *C. Esgario 70* (MBML, UPCB).

Microlicia cataphracta has a widespread distribution throughout Brazil, from Bahia to Paraná (Martins & Almeda 2017, as *Lavoisiera imbricata*). In Espírito Santo, *M. cataphracta* was collected in the municipalities of Castelo, Domingos Martins, Dores do Rio Preto, and São Roque do Canaã (Fig. 6), occurring in montane grasslands and vegetation on inselbergs. The specimens were collected with flowers in April to August and October, with flowers and fruits in June, and with fruits in Janeiro, March to April, and July. *Microlicia cataphracta* can be easily distinguished by its strongly imbricate and coriaceous leaf blades with callose and hyaline margins, semi-inferior ovary, capsules dehiscing from the base to the apex with a persistent columella.

4. ***Microlicia cordata*** (Spreng.) Cham., Linnaea 9(3): 390. 1834. Fig. 5c

Subshrubs or shrubs 0.5−1 m tall. Branches, hypanthium, and sepals with spherical glands. Nodes not thickened, internodes 0.8−3.5 mm long. Leaves petiolate, petioles 0.1–0.2 mm long, horizontal or slightly ascending, spreading or imbricate, not amplexicaul; blades 2.5–6 × 1.5–3 mm, chartaceous, ovate or elliptic, apex acuminate to rounded-acuminate, base rounded or cordate, not keeled, margins entire, flat, not callose, discolorous (when dry), abaxial surfaces green-brownish, adaxial surfaces green yellowish, both surfaces with setose trichomes mixed with spherical glands, 3-veined, visible on both surfaces, secondary and tertiary veins absent. Flowers solitary, 5-merous, pedicellate, pedicels 1.5–2 mm long, covered with spherical glands, brown or blackish, bracts and bracteoles absent. Hypanthium campanulate, green reddish. Sepals triangular, smaller or with the same length as the hypanthium, green reddish. Petals oblong, apex acuminate, pink, margins glabrous. Stamens 10, dimorphic, anthers bicolorous, tetrasporangiate, filaments pink; larger (antesepalous) stamens 5, anthers oblong, vinaceous, pedoconnectives pink, ventral appendages with apex retuse, yellow; smaller (antepetalous) stamens 5, anthers oblong, yellow, pedoconnectives yellow, ventral appendages with apex slightly retuse, yellow; staminodia absent. Ovary 3-locular, superior. Capsules ovate-oblong, not costate, brown, dehiscence basipetal, columellae deciduous.

Examined material: Linhares, VII.1985, fl. and fr., *M. Sobral 4056* (UEC); 23.III.1986, fl. and fr., *M. Sobral 4683* (CVRD-online image, UEC, US-online image); 6.VIII.1992, fr., *G.L. Webster 29628* (K-online image); 6.IV.2006, fl. and fr., *G.O. Romão 1244* (ESA-online image).

Microlicia cordata occurs in Bahia, Espírito Santo, Minas Gerais, and Rio de Janeiro (Romero *et al.* 2020). In Espírito Santo, it is restricted to the municipality of Linhares, to the north, in the "Reserva Natural Vale" (Fig. 7) in "campo nativo", on sandy and humid soils. This species was collected with flowers and fruits from March to April and with fruits in August. *Microlicia cordata* can be recognized by its petiolate leaves, discolorous and ovate or elliptic leaf blades, long pedicellate flowers with pink petals, and dimorphic stamens with bicolorous and tetrasporangiate anthers.

5. ***Microlicia isophylla*** DC., Prodr. 3: 120. 1828. Fig. 5d-e

Subshrubs ca. 0.3 m tall. Branches, hypanthium, and sepals with spherical glands. Nodes not thickened, internodes 1.5−3 mm long. Leaves sessile, ascending, imbricate, not amplexicaul; blades 2–5 × 0.7–1.5 mm, chartaceous, lanceolate, apex acute, setose, seta ca. 0.3 mm long, base truncate, not keeled, margins entire to slightly crenulate, flat, not callose, concolorous (when dry), green, both surfaces with spherical glands, 1-veined, visible on both

surfaces, secondary and tertiary veins absent. Flowers solitary, lateral or at the apex of the branches, 5-merous, pedicellate, pedicels ca. 1.5 mm long, covered with spherical glands, green-brownish. Hypanthium campanulate or oblong-campanulate, red-blackish. Sepals triangular, apex setose, seta 0.3 mm long, shorter or with the same length as the hypanthium, red-blackish. Petals obovate or oblong, apex acuminate, setose, seta ca. 0.5 mm long, pink, margins glabrous. Stamens 10, dimorphic, anthers bicolorous, tetrasporangiate, filaments pink; larger (antesepalous) stamens 5, anthers oblong, pink, pedoconnectives cream-pinkish, ventral appendages with apex retuse, yellow; smaller (antepetalous) stamens 5, anthers oblong, yellow, pedoconnectives yellow, ventral appendages with apex slightly bilobed, yellow; staminodia absent. Ovary 3-locular, superior, glabrous. Capsules 3–4 × 1.5–3 mm, oblong, not costate, dark brown, dehiscence basipetal, columellae deciduous.

Examined material: Dores do Rio Preto, 16.III.2014, fl., *M. Monge 2592* (UEC, UPCB).

Additional material: BRAZIL. MINAS GERAIS: MUNICIPALITY??????????, Serra do Caparaó, 2.VII.1888, fr., *C.A.W. Schwacke 6161* (P); 8.II.1890, fl. and fr., *C.A.W. Schwacke 6720* (P). Alto Caparaó, 29.V.2015, fl. and fr., *R. Goldenberg 2193* (MBML, UPCB). Caparaó, 15.VI.1991, fl. and fr., *G. Hatschbach 55513* (MBM-online image, US-online image).

Microlicia isophylla occurs in Espírito Santo, Minas Gerais, Rio de Janeiro, and São Paulo (Romero *et al.* 2020). The only known collection of *M. isophylla* in Espírito Santo is from montane grasslands in the Caparaó National Park (Fig. 6), and it was collected only with flowers in March. *Microlicia isophylla* can be recognized by its sessile leaves with lanceolate, concolorous, 1-veined leaf blades with an acute apex, and flowers with pink petals.

6. *Microlicia misteriosa* Versiane, R.Goldenb. & R.Romero, *sp. nov.* Type: BRAZIL. ESPÍRITO SANTO: São Roque do Canaã, Alto Misterioso, inselberg 850-1,143 m, pedra 2, 10.IV.2005, fl. and fr., *A.P. Fontana et al. 1286* (holotype: MBML; isotype: UPCB). Fig. 7

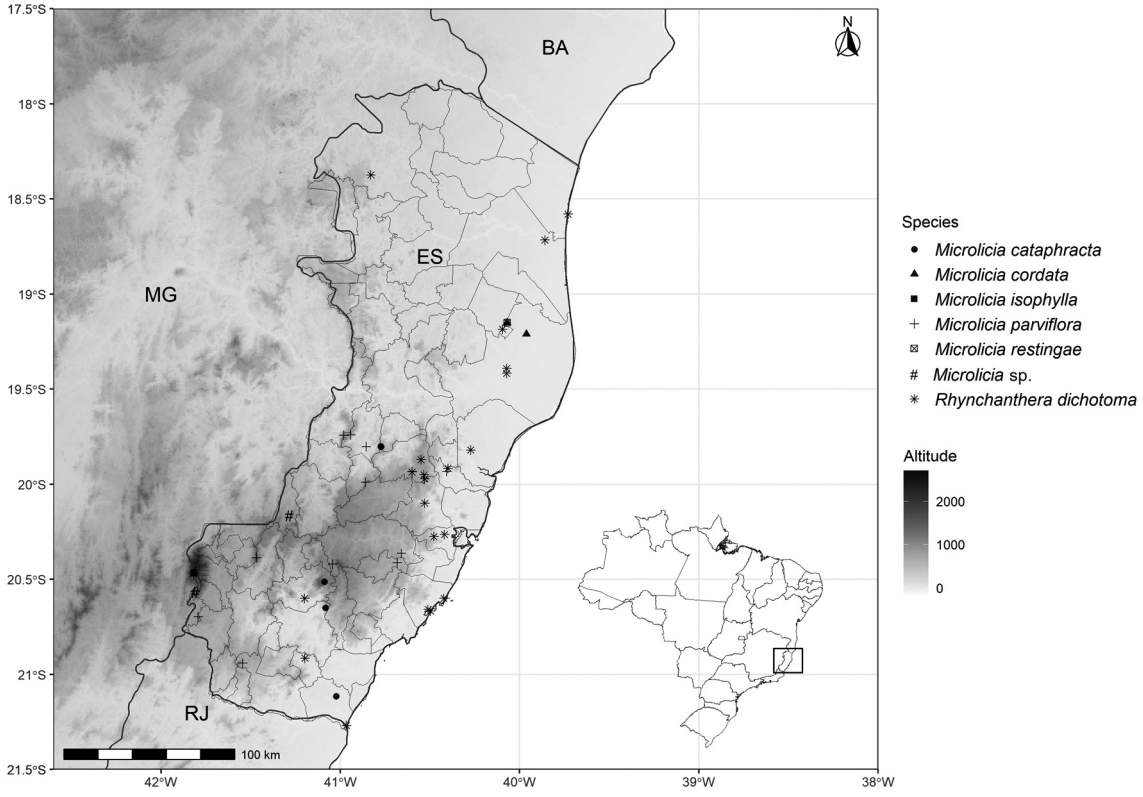

Figure 6 – Map with the distribution of *Microlicia cataphracta*, *M. cordata*, *M. isophylla*, *M. parviflora*, *M. restingae*, *Microlicia* sp., and *Rhynchanthera dichotoma* in Espírito Santo, Brazil.

Microlicia misteriosa is morphologically similar to *M. confertiflora* Naudin, however, the new species can be recognized by its hypanthium and sepals covered with setose trichomes mixed with spherical glands (*vs.* only spherical glands in *M. confertiflora*), lanceolate sepals with a long setose apex, the seta at the apex ca. 0.5 mm long (*vs.* triangular, non-setose), longer or with the same length as the hypanthium (*vs.* shorter).

Subshrubs 0.3−0.4 m tall, erect, few-branched, dichotomous or trichotomous. Younger branches terete, green, with setose trichomes mixed with spherical glands, older branches terete or quadrangular, brownish, without leaves at the base, peeling off with age; nodes not thickened, internodes 2.4–7.2 mm long. Leaves sessile to short-petiolate, petioles ca. 0.2 mm long, ascending, slightly imbricate, not amplexicaul; blades 5–9.7 × 2.8–4.7 mm, chartaceous, ovate to ovate-lanceolate, apex acute or slightly rounded, base rounded, not keeled, margins serrulate, flat, sometimes revolute, not callose, concolorous to slightly discolorous (when dry), abaxial surface light green, adaxial surface green-brownish, both surfaces with setose trichomes mixed with spherical glands, 1−3-veined, visible on both surfaces, secondary and tertiary veins absent. Flowers solitary, lateral or at the apex of the branches; bracts and bracteoles absent. Flowers 5-merous, perianth actinomorphic, pedicellate, pedicels 1.6–3.2 mm long, covered with setose trichomes mixed with spherical glands, blackish. Hypanthium 1–2 × 1.3–1.5 mm, campanulate to oblong-campanulate, green to green-brownish or blackish, with setose or glandular trichomes mixed with spherical glands; calyx tube ca. 0.1 mm long; sepals 1.7–2 × ca. 0.5 mm, lanceolate, apex setose, seta ca. 0.5 mm long, longer or with the same length as the hypanthium, red-blackish, with glandular trichomes mixed with spherical glands. Petals 5–6.2 × 2.8–3.2 mm, oblong, apex acuminate, setose, seta ca. 0.2 mm long, pink, margins glabrous. Stamens 10, dimorphic, anthers bicolorous, tetrasporangiate; larger (antesepalous) stamens 5, filaments 2–2.3 mm long, pink, anthers 1.8–2 mm long (including beak), oblong, pink, beaks ca. 0.2 mm long, pink-whitish, pedoconnectives 1.6–2.2 mm long, pink, ventral appendages 0.8–1 mm long, apex retuse or slightly bilobed, yellow; smaller (antepetalous) stamens 5, filaments 1.5–1.7 mm long, pink, anthers ca. 1.5 mm long (including beak), ovate-oblong, yellow, beaks ca. 0.3 mm long, yellow, pedoconnectives ca. 0.3 mm long, yellow, ventral appendages ca. 0.2 mm long, apex slightly bilobed, yellow; staminodia absent. Ovary ca. 1.5 × 1 mm, 3-locular, oblong, superior, glabrous; style ca. 4 mm long, curved at the apex, stigma punctiform. Capsules 3.2–3.5 × 2.8–3 mm, globose, not costate, dark brown to blackish, basipetal dehiscence, hypanthium covering the entire capsule, sepals persistent, columellae deciduous. Seeds ca. 0.4 × 0.2 mm, numerous, slightly curved, cream, testa foveolate.

Examined material (paratypes): São Roque do Canaã, 17.VII.2005, fl. and fr., *A.P. Fontana 1582* (HUFU part B, MBML, UPCB); *A.P. Fontana 1578* (MBML, UPCB); 19.VII.2005, fl. and fr., *L. Kollmann 8125* (MBML, UPCB); 19.VII.2005, fl. and fr., *A.P. Fontana 1606* (HUFU, MBML); 4.III.2006, fl. and fr., *L. Kollmann 8720* (MBML, UPCB); 26.VIII.2006, fl., *C. Esgario 69* (MBML, UPCB); 11.V.2007, fl. and fr., *C. Esgario 164* (MBML); 14.VII.2007, fl. and fr., *C. Esgario 183* (HUFU, MBML, UPCB); 7.XI.2007, fl. and fr., *L. Kollmann 10157* (MBML, UPCB).

Microlicia misteriosa is endemic to the peak "Alto Misterioso", in São Roque do Canaã, Espírito Santo (Fig. 3), where it occurs above 800 m elevation (see comments at the beginning of the results and discussion section). We suggest categorizing *M. misteriosa* as Critically Endangered (CR) (IUCN 2001, 2019), since it has few collections and occurs in a single, non-protected area.

This species was collected with flowers and fruits in March, May, July, August, and November.

The epithet "misteriosa" refers to the peak "Alto Misterioso" in Espírito Santo, where it occurs.

Microlicia misteriosa is morphologically similar to *M. confertiflora*, which occurs in Bahia and Minas Gerais (Romero *et al.* 2020). Both species have branches with setose trichomes, flowers with pink petals, dimorphic stamens with bicolorous and tetrasporangiate anthers. However, *M. confertiflora* differs in having hypanthium and sepals covered with only spherical glands (*vs.* setose trichomes mixed with spherical glands in *M. misteriosa*), both leaf surfaces with only spherical glands, sometimes the abaxial surface sparsely setose (*vs.* with setose trichomes mixed with spherical glands in both surfaces), triangular sepals (*vs.* lanceolate), these shorter than the hypanthium (*vs.* longer or with the same length). For more information, see *M. capixaba*.

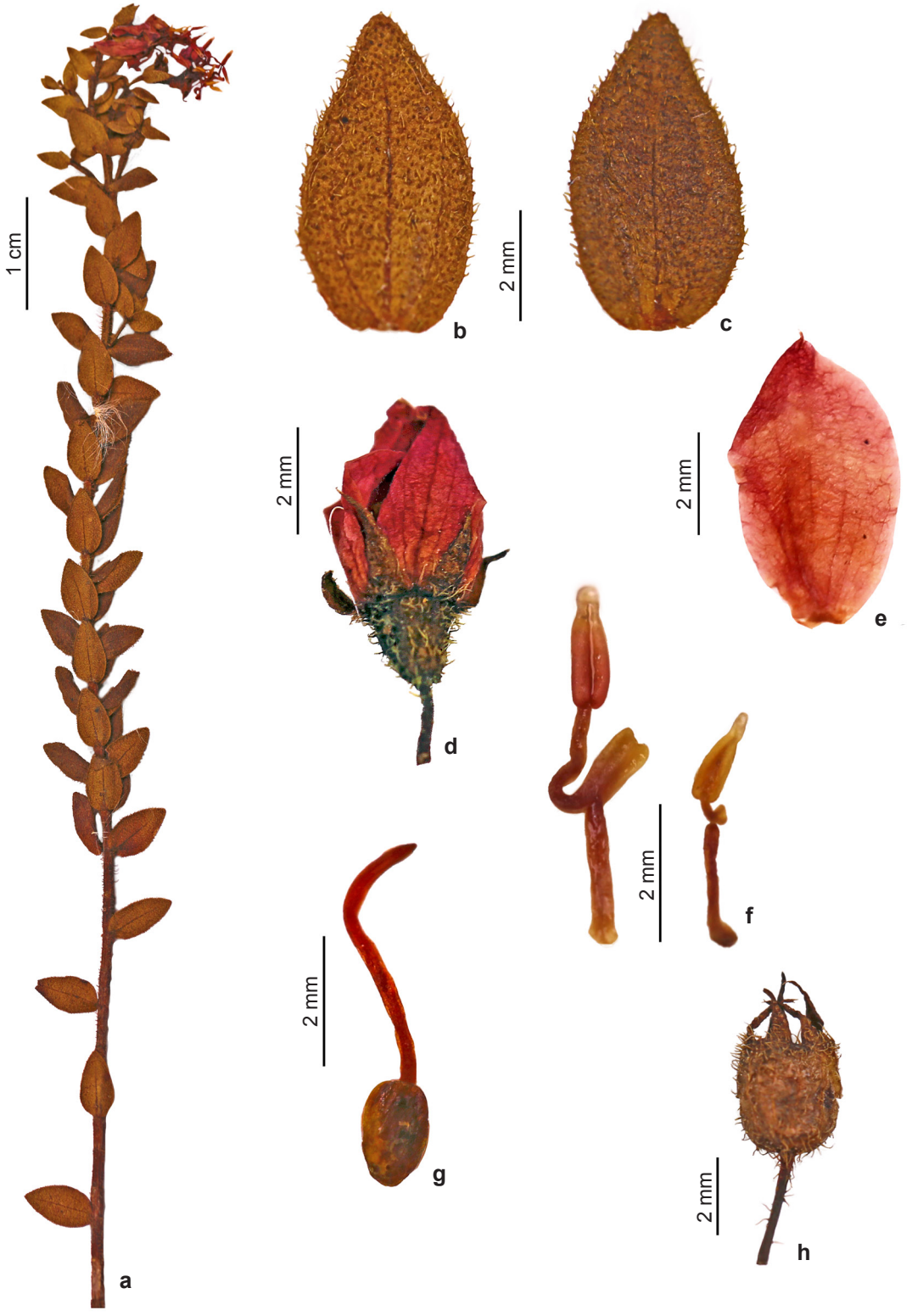

Figure 7 – a-h. *Microlicia misteriosa* – a. flowering branch; b. leaf abaxial surface; c. leaf adaxial surface; d. flower bud; e. petal adaxial surface; f. stamens, antesepalous (left) and antepetalous (right); g. ovary and style; h. fruit. (all from *C. Esgario* 183, HUFU).

7. *Microlicia parviflora* (D.Don) Versiane & R.Romero, J. Linn. Soc. Bot. boab011: 20.
≡ *Trembleya parviflora* (D.Don) Cogn. in Mart., Eichler & Urban, *Fl. bras.* 14(3): 128. 1883. Fig. 8a

Shrubs or trees 1−4 m tall. Branches, hypanthium, and sepals with spherical glands. Nodes not thickened, internodes 7–20 mm long. Leaves petiolate, petioles 5−7 mm long, ascending, not imbricate, not amplexicaul; blades 13–50 × 4.5–17 mm, chartaceous, lanceolate to oblong-lanceolate or spatulate, apex acuminate or rounded, base attenuate, not keeled, margins entire, revolute, not callose, discolorous (when dry), abaxial surfaces light green, adaxial surfaces dark-green, blackish or dark-brown, both surfaces with spherical glands, 3-veined, visible on both surfaces, secondary and tertiary veins present. Inflorescences in dichasia simple or compound, terminal or lateral, bracts and bracteoles present. Flowers 5−6-merous, pedicellate, pedicels 1–2.5 mm long, covered with spherical glands, green. Hypanthium campanulate or oblong, green. Sepals triangular, apex acute, shorter than hypanthium length. Petals obovate or oblong, apex acuminate or acute, white to white-pinkish, margins glabrous. Stamens 10−12, dimorphic, anthers bicolorous, tetrasporangiate, filaments pink; larger (antesepalous) stamens 5−6, anthers ovate, vinaceous to reddish, pedoconnectives pink, ventral appendages with apex retuse, yellow; smaller (antepetalous) stamens 5−6, anthers ovate, yellow, pedoconnectives yellow, ventral appendages with apex rounded to slightly retuse, yellow; staminodia absent. Ovary 5−6-locular, superior. Capsules globose, 10-costate, brownish, dehiscence basipetal, columellae caducous.

Examined material: Caparaó, 17.VII.2007, fl. and fr., *L. Kollmann 9926* (MBML). Domingos Martins, 16.VI.1984, fl. and fr., *O.J. Pereira 309* (CEPEC-online image, VIES-online image); Pedra Azul, 30.V.1995, fl., *C.N. Fraga 195* (MBML, RB-online image). Dores do Rio Preto, 1,200 m, 6.VII.2004, fl. and fr., *L. Kollmann 6783* (MBML, UPCB); 20.VI.2006, fl. and fr., *M.J.R. Rocha 94* (RB-online image); 16.III.2014, fl., *M. Monge 2595* (UEC, UPCB). Fundão, 800 m, 15.VII.1998, fl. and fr. *L. Kollmann 231* (MBML, RB-online image, UPCB); 920 m, 11.X.2003, fr., *A.P. Fontana 620* (MBML, UPCB). Itaguaçu, 14.V.1946, fl., *A.C. Brade 18205* (NY-online image, RB-online image); 6.VI.2007, fl. and fr., *A.P. Fontana 3485* (MBML, RB-online image); 6.VI.2007, fl. and fr., *A.P. Fontana 3512* (MBML, RB-online image, UPCB). Itarana, 12.VI.2005, fl. and fr., *L. Kollmann 7830* (MBML, UPCB); 30.VIII.2010, fr., *L. Kollmann 12029* (MBML, UPCB). Iúna, 30.V.2013, fl. and fr., *A.P. Fontana 7678* (MBML, UPCB); 30.V.2013, fl. and fr., *J.P.F. Zorzanelli 694* (VIES-online image). Marechal Floriano, 8.VI.2003, fl., *G. Hatschbach 74984* (FURB-online image, HCF-online image, MBM, MBML). Mimoso do Sul, 22.VI.2008, fl. and fr., *D.R. Couto 561* (MBML). Santa Teresa, 19.VI.1984, fl. and fr., *J.M. Vimercat 199* (MBML, UPCB); 17.III.1985, fl., *H.Q. Boudet Fernandes 1902* (MBML, UPCB, US-online image); 10.V.1985, fl. and fr., *G. Martinelli 10932* (RB-online image); 4.VI.1985, fl., *W. Boone 524* (MBML, UPCB); 2.VII.1985, fl. and fr., *W. Boone 557* (MBML, UPCB, US-online image); 25.IV.2002, fl., *R.R. Vervloet 212* (MBML, RB-online image, UPCB); 24.V.2002, fl., *R.R. Vervloet 295* (MBML, RB-online image, UPCB); 14.V.2003, fl., *R.R. Vervloet 2442* (MBML, RB-online image, UPCB); 4.V.2006, fl. and fr., *L. Kollmann 9012* (MBML); 15.IX.2006, fr., *L. Kollmann 9301* (MBML); 21.VIII.2012, fr., *T.B. Flores 988* (ESA-online image, HUFU, MBML, RB-online image, UEC, UPCB, VIES-online image). São Lourenço, fl., *D.R. Couto 765* (MBML, UPCB).

Microlicia parviflora occurs in Goiás, Distrito Federal, Bahia, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, and Paraná (Goldenberg *et al.* 2015; Pacifico & Fidanza 2020, as *Trembleya parviflora*). In Espírito Santo, it has been collected in Domingos Martins, Dores do Rio Preto, Fundão, Itaguaçu, Itarana, Iúna, Marechal Floriano, Mimoso do Sul, Santa Teresa, and São Loureço (Fig. 6), in rainforest or montane grasslands on sandy soils, humid or not. It was collected with flowers from March to June, with flowers and with fruits from May to July, and with fruits from August to October. *Microlicia parviflora* can be recognized by its leaf blades, hypanthium, and sepals with only spherical glands, long petiolate leaves (5−7 mm long), discolorous leaf blades with revolute margins and conspicuous secondary and tertiary veins, and white to white-pinkish petals.

8. *Microlicia restingae* R.Romero & Woodgyer, Kew Bull. 73(22): 13-15. 2018. Fig. 8b-c

Subshrub ca. 0.7 m tall. Branches, hypanthium, and sepals with setose trichomes mixed with spherical glands. Nodes not thickened, internodes 2–4 mm long. Leaves petiolate, petioles 0.2−0.5 mm long, ascending, imbricate, not amplexicaul; blades 5–9 × 1.5–2.5 mm, elliptic, chartaceous, apex acuminate, setose, seta 0.8–1.5 mm long, base attenuate, not keeled, margins ciliate-crenulate, flat, not callose, discolorous (when dry), abaxial surface green-brownish, adaxial surface brownish, abaxial surface densely covered with setose trichomes,

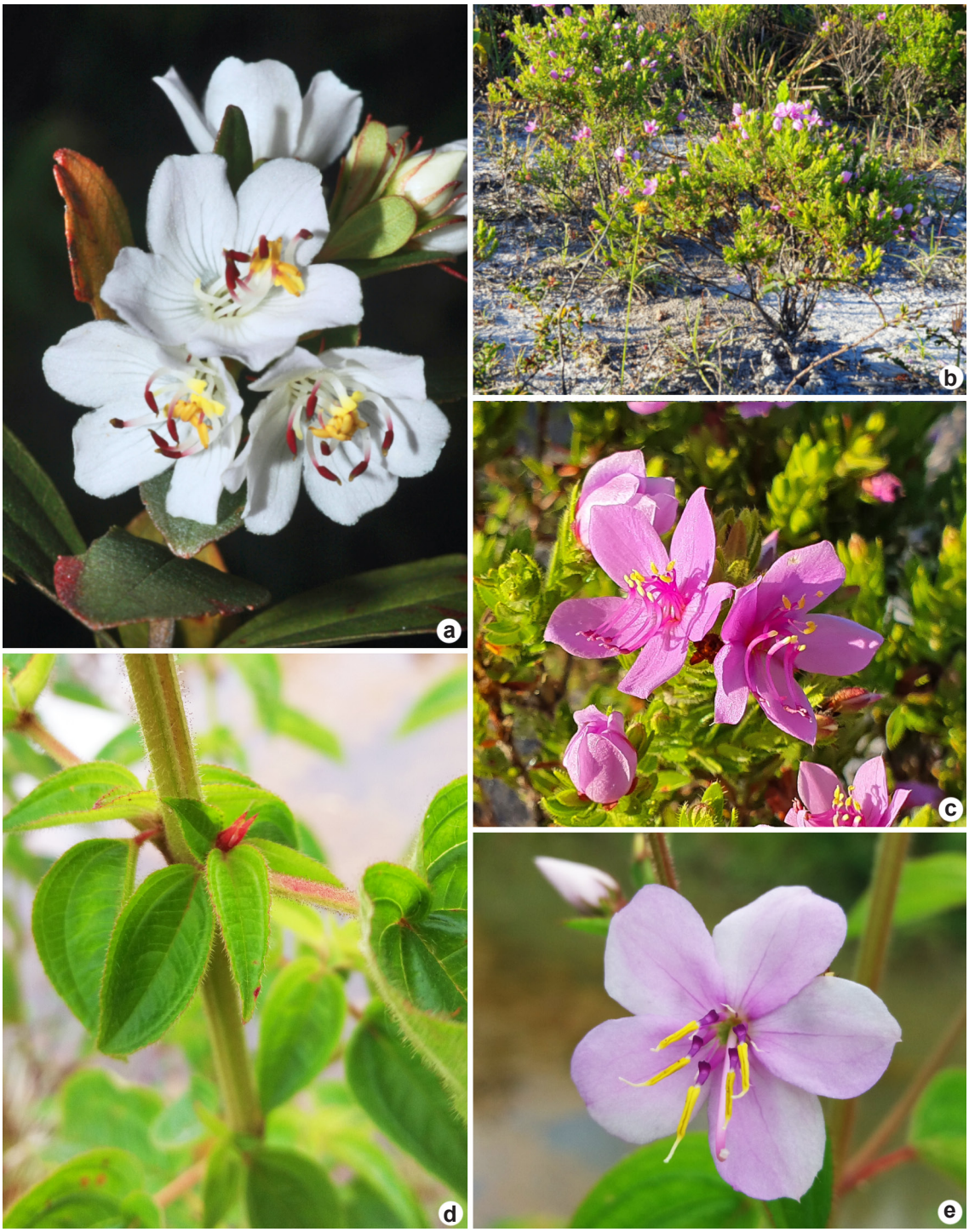

Figure 8 – a-e. Species of Microlicieae from Espírito Santo – a. flowers of *Microlicia parviflora*; b-c. *M. restingae* – b. habit and habitat; c. flowers; d-e. *Rhynchanthera dichotoma* – d. leaves; e. flower. (Photos: a. R. Goldenberg; b, c. D.N. Silva; d, e. L.R. Tavares).

adaxial surface glabrous, 3-veined, visible on both surfaces, secondary and tertiary veins absent. Inflorescences in dichasia reduced to one flower, at the apex of the branches, bracts and bracteoles absent. Flowers 5-merous, pedicellate, pedicels ca. 1 mm long, covered with setose trichomes mixed with spherical glands, green-brownish. Hypanthium oblong to oblong-campanulate, brownish. Sepals oblong-lanceolate, apex setose, seta 0.7–1 mm long, longer than the hypanthium length, brownish. Petals obovate or oblong, apex acuminate, pink, margins glabrous. Stamens 10, dimorphic, anthers bicolorous, polysporangiate, filaments pink; larger (antesepalous) stamens 5, anthers oblong, vinaceous, pedoconnectives pink, ventral appendages with apex retuse, yellow; smaller (antepetalous) stamens 5, anthers oblong, yellow, pedoconnectives yellow, ventral appendage with apex rounded to slightly retuse, yellow; staminodia absent. Ovary 3-locular, superior. Capsules ovate-oblong, not costate, dark brown, dehiscence basipetal, columellae deciduous.
Examined material: Linhares, Reserva de Linhares, Docemade, 3.II.1972, fl. and fr., *D. Sucre 8040* (RB).

In this study, we expand the distribution of *M. restingae* to Espírito Santo, since it was up to now known as endemic to Bahia in areas of "restinga" (Romero & Woodgyer 2018). In Espírito Santo, this species occurs in the municipality of Linhares, inside the "Reserva Natural Vale" (Fig. 6) in "campo nativo". In both states, Bahia and Espírito Santo, *M. restingae* is found in areas on sandy soils. Here, *M. restingae* was collected with flowers and fruits in February. This species can be recognized by its petiolate leaves, discolorous leaf blades with a glabrous adaxial surface, and also the leaf abaxial surface, hypanthium, and sepals densely covered with setose trichomes mixed with spherical glands, and stamens with polysporangiate anthers (see Romero & Woodgyer 2018).

9. *Microlicia* sp.

Subshrub 0.4−1 m tall. Branches, hypanthium, and sepals with setose trichomes mixed with spherical glands. Nodes not thickened, internodes 1.5–11 mm long. Leaves sessile or petiolate, petioles 0.2−0.5 mm long, ascending, not imbricate, not amplexicaul; blades 2–9 × 1–7 mm, elliptic, chartaceous, apex acuminate, base rounded or attenuate, not keeled, margins ciliate-serrate, slightly revolute, not callose, discolorous (when dry), abaxial surface green-brownish, adaxial surface brownish, both surfaces covered with spherical glands, sometimes with setose trichomes sparsely distributed, 3−5-veined, visible on both surfaces, secondary and tertiary veins present. Flowers solitary, lateral or at the apex of the branches; bracts and bracteoles absent. Flowers 5-merous, pedicellate, pedicels 2.5−3 mm long, covered with setose trichomes mixed with spherical glands, blackish. Hypanthium campanulate, green-blackish or green-reddish. Sepals triangular, smaller than the hypanthium length, green-blackish or green-reddish. Petals obovate or oblong, apex acuminate, pink, margins glabrous. Stamens 10, dimorphic, anthers bicolorous, tetrasporangiate, filaments pink; larger (antesepalous) stamens 5, anthers oblong, vinaceous, pedoconnectives pink, ventral appendages with apex retuse, yellow; smaller (antepetalous) stamens 5, anthers oblong, yellow, pedoconnectives yellow, ventral appendage with apex rounded to slightly retuse, yellow; staminodia absent. Ovary 3-locular, superior. Capsules oblong, not costate, dark brown, dehiscence basipetal, columellae deciduous.
Examined Material: Brejetuba, Monte Feio, 1,310 m, 27.VII.2009, fl. and fr., *A.P. Fontana & Menini-Neto 6038* (MBML). Dores do Rio Preto, Pedra Menina, 1,200 m, 6.VII.2004, fl. and fr., *L. Kollmann & R.L. Kollmann 6784* (MBML, UPCB).

Microlicia sp. is quite similar to *M. capixaba*, which was described above. However, *Microlicia* sp. has pedicels, hypanthium, and sepals densely covered with setose trichomes mixed with spherical glands (*vs.* only with spherical glands in *M. capixaba*), allowing us to consider them as different species. However, more detailed analysis for these specimens is needed before considering them as belonging to a new species. It occurs on inselbergs over 1,200 m elevation in two localities of Espírito Santo. The first is on "Pedra Menina", in the municipality of Dores do Rio Preto, within the Park National do Caparaó boundaries; the second one is "Monte Feio", in Brejetuba, which is not a protected area.

10. *Rhynchanthera dichotoma* (Desr.) DC., Prodr. 3: 107. 1828. Fig. 8d-e

Subshrubs to shrubs 0.5−2 m tall. Branches, hypanthium, and sepals with glandular trichomes mixed with spherical glands. Leaves petiolate, petioles 5−22 mm long, green to red-greenish, horizontal or descending, not imbricate, not amplexicaul; blades 15–58 × 7–36 mm, chartaceous, ovate to ovate-lanceolate, apex acuminate, base cordate, not keeled, margins serrulate, flat, not

callose, discolorous (when dry), abaxial surface light green, adaxial surface dark-green, both surfaces glandular trichomes, 5−7-veined, visible on both surfaces, secondary and tertiary veins present. Inflorescences in dichasia simple or compound. Flowers 5-merous, pedicellate, pedicels 3–9 mm long, covered with glandular trichomes mixed with spherical glands, green-reddish to reddish. Hypanthium urceolate, red to red-purplish, densely viscous. Sepals triangular-linear, apex setose, seta 0.3–0.5 mm long, shorter than the hypanthium length, red or green-reddish, densely viscous. Petals obovate or oblong, apex acuminate, lilac to purple, margins glabrous. Stamens 5, subisomorphic, anthers oblong, concolorous (yellow), tetrasporangiate, filaments purple, pedoconnectives purple, ventral appendages with apex rounded, purple; 5 staminodia, filiform, white and purple. Ovary 3−4-locular, superior. Capsules globose, not costate, green or brownish, dehiscence basipetal, columellae deciduous.

Examined material: Aracruz, 27.X.1992, fl. and fr., *O.J. Pereira 3960* (VIES-online image). Atílio Vivácqua, 650 m, 25.IV.2007, fl., *L. Kollmann 9658* (MBML). Cariacica, 5.VIII.1983, fl., *G. Hatschbach 46719* (MBM-online image); 23.VII.2008, fl., *C.N. Fraga 2206* (CEPEC, MBML, RB, UPCB); 20.X.2008, fl. and fr., *P. Labiak 4989* (CEPEC, MBML, RB, UPCB). Castelo, 4.XII.1955, fl., *E. Pereira 2093* (RB). Conceição da Barra, 25.IX.2010, fl. and fr., *M. Ribeiro 289* (SAMES-online image); fl., *A.P. Duarte 3744* (RB-online image, US-online image). Ecoporanga, 7.IX.2012, fl. and fr., *I.V. Damaceno 88 and 94* (MBML). Estrada entre Vitória e Colatina, km 252, 7.IX.1977, fl., *G.J. Shepherd 5840* (MBM-online image, UEC). Fundão, 1.VIII.1984, fl. and fr., *R.M. Pizziolo 210* (MBML, US-online image). Guarapari, 30.VIII.1982, fl. and fr., *O.J. Pereira 104* (VIES-online image) and *O.J. Pereira 121* (CEPEC-online image, VIES-online image); 30.VIII.1982, fl. and fr., *O.J. Pereira 100* (VIES-online image), *O.J. Pereira 102* (VIES-online image), and *O.J. Pereira 103* (VIES-online image); 6.VI.2015, fl. and fr., *D.T. Wandekoken 163* (SAMES-online image, VIES-online image). Linhares, 12.VIII.1965, fl. and fr., *R.P. Belém 1575* (CEPEC-online image, RB-online image, US-online image); 12.VIII.1965, fl. and fr., *J.L. Sobrinho 1082* (US-online image); 16.VIII.1973, fl. and fr., *J. Spada* (RB/online image); 15.VII.1985, fl., *M. Sobral 4044* (CVRD-online image); 20.VII.1991, fl., *D.A. Folli 1418* (US-online image); 24.IX.1996, fl., *O.J. Pereira 5618* (VIES-online image); 24.X.1996, fl. and fr., *R.L.S. Dutra 192* (VIES-online image); 14.VII.1998, fl., *D.A. Folli 3196* (RB-online image, UEC); 17.VII.2003, fl., *G.S. Siqueira 23* (RB-online image); 21.VII.2005, fl. and fr., *D.A. Folli 5082* (CVRD-online image); 31.X.2007, fl. and fr., *P. Guimarães 319* (RB-online image). Presidente Kennedy, 25.VII.2015, fl. and fr., *I.G. Costa 699* (UEC). Santa Leopoldina, 8.VIII.2004, fl. and fr., *A.P. Fontana 922* (MBML, UPCB). Santa Teresa, 17.IX.1984, fl., *R.M. Pizziolo 236* (CEPEC-online image, MBML, US-online image); 600 m, 27.VII.1986, fl., *M. Leitman 151* (RB-online image); 13.IX.2001, fl. and fr., *L. Kollmann 4534* (MBML, RB-online image, UPCB); 26.IX.2001, fl., *L. Kollmann 4752* (MBML, RB-online image, UPCB); 22.VIII.2004, fl. and fr., *A.D. Ferreira 157* (MBML); 15.IX.2006, fl., *L. Kollmann* (MBML, UPCB). São Mateus, X.2010, fl., *C.S. Vieira 01* (SAMES-online image). Rio Doce, 15.VII.1942, fl., *Bueno* (RB-online image). Sooretama, 16.VII.1969, fl, *D. Sucre 5634* (RB-online image).

Rhynchanthera dichotoma occurs in French Guiana, Guyana, Peru, Trinidad, and Venezuela and Brazil (Renner 1990), in the states of Acre, Amazonas, Bahia, Distrito Federal, Espírito Santo, Goiás, Minas Gerais, Paraná, Rio de Janeiro, Roraima, Santa Catarina, and São Paulo (Renner 1990). It is the only species of *Rhynchanthera* that occurs in Espírito Santo, and it was collected in Aracruz, Atílio Vivacqua, Cariacica, Castelo, Conceição da Barra, Ecoporanga, Fundão, Guarapari, Linhares, Santa Teresa, São Mateus, and Sooretama (Fig. 6) in rainforest, "restinga", and "campo nativo" on sandy and humid soils. It was collected with flowers in March, from July to September and December, flowers and fruits from June to October and December. *Rhynchanthera dichotoma* differs from the other species in *Rhynchanthera* by its ovate to ovate-lanceolate leaf blades and subisomorphic stamens with yellow anthers (Renner 1990; Versiane & Silva-Gonçalves 2020).

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References

Almeda F & Martins AB (2001) New combinations and new names in some Brazilian Microlicieae (Melastomataceae), with notes on the delimitation of *Lavoisiera*, *Microlicia*, and *Trembleya*. Novon 11: 1-7.

Araújo EA, Kunz SH, Dias HM, Zorzanelli JPF & Callegaro RM (2021) Vascular plant checklist in an area of extreme biological importance: filling gaps in the Caparaó National Park-ES, Brazil. Biota Neotropica 21: e20201024.

Bacci LF & Goldenberg R (2015) *Miconia valentinensis* (Melastomataceae), a new species from Espírito Santo, Brazil. Phytotaxa 195: 272-278.

Bacci LF, Amorim AM & Goldenberg R (2016) Three new species of *Bertolonia* (Melastomataceae) from Espírito Santo, Brazil. PeerJ 4: e2822.

Bacci LF, Amorim AM & Goldenberg R (2017) Flora do Espírito Santo: *Bertolonia* (Melastomataceae). Rodriguésia 68: 1663-1676.

Bacci LF, Caddah MK & Goldenberg R (2016) The genus *Miconia* (Melastomataceae) in Espírito Santo, Brazil. Phytotaxa 271: 1-92.

Bacci LF, Iglesias DT & Goldenberg R (2020) A new critically endangered species of *Bertolonia* (Melastomataceae, Bertolonieae) from Espírito Santo, Brazil. Phytotaxa 460: 89-96.

Bisewski GCA, Bacci LF, Amorim AM & Goldenberg R (2020) Novelties in *Bertolonia* (Melastomataceae) from northeastern Brazil. Brazilian Journal of Botany 43: 563-574.

Bochorny T & Goldenberg R (2017) Flora do Espírito Santo: clado de *Merianthera* e gêneros afins (Melastomataceae). Rodriguésia 68: 1677-1692.

Bochorny T & Goldenberg R (2019) A new species of *Huberia* (Melastomataceae) from Espírito Santo, Brazil. Brittonia 71: 408-413. <https://doi.org/10.1007/s12228-019-09568-x>

Caddah MK & Goldenberg R (2012) A new species of *Miconia* (Melastomataceae) from the Atlantic Forest of Brazil. Systematic Botany 3: 974-977.

Caddah MK & Goldenberg R (2013) *Miconia atlantica*, a new species of Melastomataceae from the eastern mountains of Brazil. Brittonia 65: 351-356.

Camargo EA & Goldenberg R (2011) Two new species of *Leandra* from Espírito Santo, Brazil. Brittonia 63: 220-226.

Chamisso A (1834) Melastomaceae americanae. *In*: Schlechtendal DFL (ed.) De plantis in expeditione speculatoria romanzoffiana et in herbariis regiis berolinensibus obervatis. Linnaea 9: 428-460.

Clausing G & Renner SS (2001) Molecular phylogenetics of Melastomataceae and Memecylaceae: implications for character evolution. American Journal of Botany 88: 486-498.

Cogniaux A (1883) *Microlicia* D.Don. *In*: Martius CFP, Eichler AG & Urban I (eds.) *Flora brasiliensis*. Fleischer, Leipzig and Munich. Vol. 14, pars. 3, pp. 37-122.

Cogniaux CA (1891) Melastomataceae. *In*: Candolle ALPP & Candolle ACP (eds.) *Monographiae Phanerogamarum*. Vol. 7. G. Masson, Paris. Pp. 1-619.

Costa DP & Silva AG (2003) Briófitas da Reserva Natural Vale do Rio Doce, Linhares, Espírito Santo, Brasil. Boletim do Museu de Biologia Mello Leitão 16: 21-38.

CEPF - Critical Ecosystem Partnership Fund (2001) Atlantic forest hotspot: Brazil briefing book. Washington, District of Columbia, USA. 85p. Available at <http://lerf.eco.br/img/publicacoes/final.atlanticforest.brazil.briefingbook.pdf>. Access on 12 January 2021.

De Candolle AP (1828) Prodromus systematis naturalis regni vegetabilis. Vol. 3. Treuttel et Würtz, Parisiis [Paris]. 494p.

Dutra VF, Alves-Araújo A & Carrijo TT (2015) Angiosperm checklist of Espírito Santo: using electronic tools to improve the knowledge of an Atlantic Forest biodiversity hotspot. Rodriguésia 66: 1145-1152.

Dutra FV, Guarnier JC, Firmino AD, Tuler AC, Peixoto AL, Kameyama C, Saiter FZ, Barroso FG, Siqueira GS, Heiden G, Shimizu GH, Lima HC, Dias HM, Gomes JML, Trarbach J, Rossini J, Marinho LC, Simonelli M, Ribeiro M, Barros PHD, Santos PMLA, Goldenberg G & Cardoso WC (2019) Angiospermas eudicotiledôneas ameaçadas de extinção no estado do Espírito Santo. *In*: Fraga CN, Formigoni MH & Chaves FG (eds.) Fauna e flora ameaçadas de extinção no estado do Espírito Santo. Instituto Nacional da Mata Atlântica, Santa Teresa. Pp. 192-215.

Esgario CP, Fontana AP & Silva AG (2009) A flora vascular sobre rocha no Alto Misterioso, uma área prioritária para a conservação da Mata Atlântica no Espírito Santo, Sudeste do Brasil. Natureza on line 7: 80-91.

Esgario CP, Ribeiro LF & Silva AG (2008) O Alto Misterioso e a vegetação sobre rochas em meio à Mata Atlântica, no Sudeste do Brasil. Natureza on line 6: 55-62.

Fraga CN & Feres F (2007) *Luxemburgia mysteriosa* (Ochnaceae), a new species from the Atlantic Rain Forest of Espírito Santo, Brazil. Harvard Papers in Botany 12: 405-408.

Fritsch PW, Almeda F, Renner SS, Martins AB & Cruz BC (2004) Phylogeny and circumscription of the near-endemic Brazilian tribe Microlicieae (Melastomataceae). American Journal of Botany 91: 1105-1114.

Fundação SOS Mata Atlântica/INPE (2002) Atlas dos remanescentes florestais da Mata Atlântica e ecossistemas associados no período de 1995-2000. Available at <http://mtc-m12.sid.inpe.br/col/sid.inpe.br/jeferson/2003/06.02.07.45/doc/RelatorioAtlas.pdf>. Access on 12 January 2021.

Garbin ML, Saiter FZ, Carrijo TT & Peixoto AL (2017)

Breve histórico e classificação da vegetação capixaba. Rodriguésia 68: 1883-1894.

Goldenberg R & Kollmann LJC (2010) A new species of *Miconia* (Melastomataceae: Miconieae) from Espírito Santo, Brazil. Blummea 55: 139-142.

Goldenberg R & Kollmann LJC (2016) Two new species of *Pleroma* (Melastomataceae) from Espírito Santo, Brazil. Brittonia 68: 37-45.

Goldenberg R & Reginato M (2006) Sinopse da família Melastomataceae na Estação Biológica de Santa Lúcia, Santa Teresa, Espírito Santo. Boletim do Museu Mello Leitão, Nova Série 20: 33-58.

Goldenberg R & Reginato M (2007) Three new species of Melastomataceae from the Southeastern Atlantic Forest of Brazil. Brittonia 59: 334-342.

Goldenberg R & Reginato M (2009) New species of *Behuria*, *Miconia*, and *Ossaea* (Melastomataceae) from Eastern Brazil. Journal of the Torrey Botanical Society 163: 293-301.

Goldenberg R & Reginato M (2013) A new reptant species of *Leandra* (Melastomataceae, Miconieae) from the Atlantic Forest, southeastern Brazil. Phytotaxa 94: 23-29.

Goldenberg R & Tavares RAM (2007) A new species of *Dolichoura* (Melastomataceae) and broadened circumscription of the genus. Brittonia 56: 989-993.

Goldenberg R, Bacci LF & Morais JW (2015) A tribo Microlicieae (Melastomataceae) no estado do Paraná. Rodriguésia 66: 155-165.

Goldenberg R, Baumgratz JFA, Michelangeli FA, Guimarães PJF, Romero R, Versiane AFA, Fidanza K, Völtz RR, Silva DN, Lima LFG, Silva-Gonçalves KC, Bacci LF, Fontelas JC, Pacifico R, Brito ES, Rocha MJR, Caddah MK, Meirelles J, Rosa P, Ferreira-Alves R, Santos AKA, Moreira KVC, Reginato M, Oliveira LFA, Freire-Fierro A, Amorim AMA, Martins AB, Koschnitzke C, Almeda F, Jesus JC, Hinoshita LKR & Kriebel R (2020a) Melastomataceae. *In*: Flora do Brasil 2020a. Instituto de Pesquisas Jardim Botânico do Rio de Janeiro. Available at <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB161>. Access on 12 January 2021.

Goldenberg R, Reginato R & Michelangeli FA (2020b) *Miconia lucenae* (Melastomataceae), a new species from montane Atlantic Forest in Espírito Santo, Brazil. PeerJ 8: e8752.

Guimarães PJF & Goldenberg R (2001) A new species of *Tibouchina* Aubl. (Melastomataceae) from Espírito Santo, Brazil. Kew Bulletin 56: 989-993.

ICMBio (2015) Chico Mendes de Conservação da Biodiversidade. Plano de manejo para Parque Nacional do Caparaó. Agência Comunica, Brasília. 517p. Available at <https://www.icmbio.gov.br/parnacaparao/images/stories/Download/Plano_de_Manejo_09_2019/PlanoManejo_PNC_completo_atualizado_Portaria_478_de_09_setembro_de_2019.pdf>. Access on 12 January 2021.

Iglesias DT, Dutra VF & Goldenberg R (2016) *Behuria mestrealvarensis* (Melastomataceae): a new species on an inselberg in Espírito Santo, Brazil. Phytotaxa 25: 281-286.

Iglesias DT & Dutra VF (2017) Melastomataceae na Área de Proteção Ambiental Mestre Álvaro, Serra, Espírito Santo, Brasil. Rodriguésia 68: 1921-1937.

IUCN (2001) IUCN Red List Categories a 644 d Criteria: Version 3.1. Prepared by the IUCN Species Survival Commission. IUCN, Gland, Cambridge. 30p.

IUCN (2019) The IUCN Red List of Threatened Species, version 14. Available at <http://www.iucnredlist.org>. Access on 10 December 2020.

Kollmann LJC & Fontana AP (2008) A new species of *Begonia* (Begoniaceae) from the Atlantic Forest of Espírito Santo, Brazil. Rodriguésia 59: 761-764.

Martins AB & Almeda F (2017) A monograph of the Brazilian endemic genus *Lavoisiera* (Melastomataceae: Microlicieae). Phytotaxa 135: 1-194.

Meirelles J & Goldenberg R (2012) Melastomataceae do Parque Estadual do Forno Grande, Espírito Santo, Brasil. Rodriguésia 63: 831-855.

Meirelles J, Kollmann LJC & Goldenberg R (2012) *Tibouchina tedescoi*: a new species in *Tibouchina* sect. *Pleroma* (Melastomataceae) from Espírito Santo, Brazil. Kew Bulletin 67: 461-465.

Mendoza-Cifuentes H, Ariza W, Granados DE & Romero R (2019) A new species of *Microlicia* (Melastomataceae): first record of the genus for Colombia. PhytoKeys 122: 87-96.

Michelangeli F, Almeda F, Goldenberg R & Penneys D (2020) A guide to curating New World Melastomataceae collections with a linear generic sequence to World-Wide Melastomataceae. Preprints 2020, 2020100203 <DOI: 10.20944/preprints202010.0203.v1>.

MMA (2000) Avaliação e ações prioritárias para a conservação da biodiversidade da Mata Atlântica e Campos Sulinos. MMA/SBF, Brasília. 40p.

Moreira MM, Carrijo TT, Alves-Araújo AG, Rapini A, Salino A, Firmino AD, Chagas AP, Versiane AFA, Amorim AMA, Silva AVS, Tuler AC, Peixoto AL, Soares BS, Cosenza BAP, Delgado CN, Lopes CR, Silva C, Barbosa DEF, Monteiro D, Marques D, Couto DR, Gonzaga DR, Dalcin E, Lirio EJ, Meyer FS, Salimena FRG, Oliveira FA, Souza FS, Matos FB, Depiantti G, Antar GM, Heiden G, Dias HM, Sousa HCF, Lopes ITFV, Rollim IM, Luber J, Prado J, Nakajima JN, Lanna J, Zorzanelli JPF, Freitas J, Baumgratz JFA, Pereira JBS, Oliveira JRPM, Antunes K, Sylvestre LS, Pederneiras LC, Freitas L, Giacomin LL, Meireles LD, Silva LN, Pereira LC, Silva LAE, Menini Neto L, Monge M, Trovó MLO, Reginato M, Sobral MEG, Gomes M, Garbin ML, Morim MP, Soares ND, Labiak PHE, Viana PL, Cardoso PH, Moraes PLR, Schwartsburd PB, Moraes QS, Zorzanelli RF, Nichio-Amaral R, Goldenberg R, Furtado SG, Feletti T, Dutra VF, Bueno VR, Dittrich VAO & Forzza RC (2020) A list of land plants of Parque Nacional do Caparaó, Brazil, highlights the

presence of sampling gaps within this protected area. Biodiversity Data Journal 8: e59664 <https://doi.org/10.3897/BDJ.8.e59664>.

Pacifico R & Fidanza K (2020) *Trembleya*. *In*: Flora do Brasil 2020. Instituto de Pesquisas Jardim Botânico do Rio de Janeiro. Available at <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB9979>. Access on 12 January 2021.

Pacifico R, Almeda F & Fidanza K (2020b) Seven new species of *Microlicia* (Melastomataceae: Microlicieae) from Minas Gerais, Brazil. Systematic Botany 45: 277-293.

Pacifico R, Almeda F, Rodrigues LJG & Fidanza K (2020a) Novelties in *Microlicia* (Melastomataceae: Microlicieae) from the Bolivian Cerrado. Phytotaxa 433: 225-234.

Pacifico R, Almeda F & Fidanza K (2021) Two new species and new synonyms in Microlicieae (Melastomataceae) from Minas Gerais, Brazil. Brittonia 73: 106-115. <https://doi.org/10.1007/s12228-020-09649-2>.

R Core Team (2020) R: a language and environment for statistical computing. R Foundation for statistical computing. Available at <http://www.Rproject.org/>. Access on 12 January 2021.

Radford AE, Dickson WC, Massey JR & Bell CR (1986) Vascular plants systematic. Harper and Row, New York. 498p.

Reginato M & Goldenberg R (2013) Two new species of *Leandra s. str.* (Melastomataceae) from the Atlantic Forest in Espírito Santo, Brazil. Blumea Journal of Plant Taxonomy and Plant Geography 57: 210-214.

Reginato M, Vasconcelos TNC, Kriebel R & Simões AO (2020) Is dispersal mode a driver of diversification and geographical distribution in the tropical plant family Melastomataceae? Molecular Phylogenetics and Evolution 148: 106815.

Renner SS (1990) A revision of *Rhynchanthera* (Melastomataceae). Nordic Journal of Botany 9: 601-630.

Renner SS (1993) Phylogeny and classification of the Melastomataceae and Memecylaceae. Nordic Journal of Botany 13: 519-540.

Rocha MJR, Guimarães PJF, Michelangeli FA & Romero R (2016) Phylogenetic placement and a new circumscription of *Poteranthera* (Microlicieae; Melastomataceae). Phytotaxa 263: 219-232.

Rolim SG, Peixoto AL, Pereira OJ, Araujo DSD, Nadruz M, Siqueira G & Menezes LFT (2016) Angiospermas da Reserva Natural Vale, na Floresta Atlântica do norte do Espírito Santo. *In*: Rolim SG, Menezes LTF & Srbek-Araujo AC (eds.) Floresta Atlântica de Tabuleiro: diversidade e endemismos na Reserva Natural Vale. Ed. Rona, Belo Horizonte. Pp. 167-230.

Romero R (2003) Revisão taxonômica de *Microlicia* sect. *Chaetostomoides* (Melastomataceae). Revista Brasileira de Botânica 26: 429-435.

Romero R, Caetano APS, Santos KF & Versiane AFA (2021) Three new species of *Microlicia* (Melastomataceae) from Minas Gerais, Brazil, with notes on leaf anatomy. Systematic Botany 46: 109-121.

Romero R, Fontelas JC, Moreira KVC, Ferreira-Alves R, Oliveira LFA & Versiane AFA (2020) *Microlicia*. *In*: Flora do Brasil 2020. Instituto de Pesquisas Jardim Botânico do Rio de Janeiro. Available at <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB9782>. Access on 12 January 2021.

Romero R & Woodgyer E (2018) Six new species of *Microlicia* (Melastomataceae) from Bahia, Brazil. Kew Bulletin 73: 2-16.

Tavares RAM, Baumgratz JFA & Goldenberg R (2008) A new species of *Behuria* Cham. (Melastomataceae: Merianieae) from Brazil. Botanical Journal of the Linnean Society 158: 489-429.

Thiers B [continuously updated] Index Herbariorum: a global directory of public herbaria and associated staff. New York Botanical Garden's Virtual Herbarium. Available at <http://sweetgum.nybg.org/science/ih/>. Access on 12 January 2021.

Versiane AFA & Silva-Gonçalves KC (2020) *Rhynchanthera*. *In*: Flora do Brasil 2020. Instituto de Pesquisas Jardim Botânico do Rio de Janeiro. Available at <http://floradobrasil.jbrj.gov.br/reflora/floradobrasil/FB9860>. Access on 12 January 2021.

Versiane AFA, Silva DN & Romero R (2020) A new species of *Microlicia* (Melastomataceae) from Bolivia and Brazil, a new synonym, and an identification key for the genus in Mato Grosso, Brazil. Phytotaxa 455: 9-20.

Versiane AFA, Romero R, Reginato R, Welker CAD, Michelangeli FA & Goldenberg R (2021) Phylogenetic analysis of Microlicieae (Melastomataceae), with emphasis on the re-circumscription of the large genus *Microlicia*. Botanical Journal of the Linnean Society 197: 35-60. <https://doi.org/10.1093/botlinnean/boab011>.

Wurdack JJ (1958) Melastomataceae. *In*: Maguire B & Wurdack JJ (eds.) The botany of Guayana Highland - Part III. Vol. 10. Memoirs of the New York Botanical Garden, New York. Pp. 95-117.

Wurdack JJ (1986) Atlas of hairs for Neotropical Melastomataceae. Smithsonian Institute Press, Washington. 80p.

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