



Flora of Espírito Santo, Brazil

Flora of Espírito Santo: *Mimosa* (Leguminosae: Caesalpinioideae: mimosoid clade)

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Abstract

This paper is a taxonomic treatment of the species of *Mimosa* (Leguminosae) in the state of Espírito Santo, Brazil. The analyses were from herbarium specimens and field expeditions between April 2014 and July 2015. The genus is represented by 22 species, including seven new species records for the Flora of Espírito Santo list. We provide an identification key, morphological descriptions, distribution maps, illustrations and comments on the taxonomy and geographic distribution.

Key words: Atlantic Forest, Caesalpinioideae, Fabaceae, mimosoid clade, taxonomy.

Resumo

Este trabalho consiste no tratamento taxonômico das espécies de *Mimosa* (Leguminosae) no estado do Espírito Santo, Brasil. Foram analisados espécimes de herbário e coletados em campo entre Abril de 2014 e Julho de 2015. O gênero é representado por 22 espécies, incluindo sete novos registros de espécies para a lista da Flora do Espírito Santo. Apresentamos a chave de identificação, descrições morfológicas, mapas de distribuição, ilustrações e comentários sobre a taxonomia e distribuição geográfica.

Palavras-chave: Floresta Atlântica, Caesalpinioideae, Fabaceae, clado Mimosoide, taxonomia

Introduction

Veloso (1964) considered Espírito Santo state as one of the four high biodiversity centers of endemism in the Atlantic Forest domain. In a special volume of “Flora do Espírito Santo” published by Rodriguésia in 2017, there are several floristic and taxonomic studies comprising 21 families, 60 genera and 290 species of ferns and angiosperms (Carrizo & Mansano 2017), as well as 80 new records of taxa for the state (Freitas & Alves-Araújo 2017; Martins *et al.* 2017; Silva *et al.* 2017; Bacci *et al.* 2017; Flores *et al.* 2017; Lírio & Peixoto 2017; Luber *et al.* 2017; Carrizo *et al.* 2017; Sossai & Alves-Araújo 2017; Souza & Alves-Araújo 2017; Pena & Alves-Araújo 2017; Souza *et al.* 2017; Iglesias & Dutra 2017). This

shows the importance of new studies about the Flora of Espírito Santo. Further, there is a lack of knowledge about the species of many taxonomic groups in the state. For example, for Leguminosae there is only one published study about the entire family, which was conducted in the *restinga* of Parque Municipal de Jacarenema (Silva *et al.* 2018). Among the studies of Leguminosae subfamilies are those about Papilionoideae in *restinga* (Weiler Jr. 1998), Caesalpinioideae (*sensu* De Candolle 1825) in Parque Estadual Paulo César Vinha (Chagas *et al.* 2014; Peterle *et al.* 2015) and Caesalpinioideae (*sensu* De Candolle 1825) in Parque Nacional do Caparaó (França 2014). The first floristic-taxonomic study of tribe Mimosae for Flora do Espírito Santo (Silva *et al.* 2017)

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included *Anadenanthera*, *Leucaena*, *Neptunia*, *Parapiptadenia*, *Parkia*, *Piptadenia*, *Plathymenia*, *Pseudopiptadenia* and *Stryphnodendron* (Silva *et al.* 2017). The tribe Ingeae was also studied in Espírito Santo, by Chagas *et al.* (2017).

The third most species-rich family in Espírito Santo is Leguminosae with 384 species and 114 genera (Dutra *et al.* 2015). This is also the richest family in the flora of Brazil (2,854 spp.) and the second richest family in the Atlantic Forest domain (945 spp.) (Stehmann *et al.* 2009; BFG 2018). Now positioned in the Caesalpinioideae subfamily (the same clade defined, by Doyle (2011), as the MCC clade), *Mimosa* is one of the largest mimosoid clade genera (equivalent of all former Mimosoideae, *sensu* de Candolle, genera plus *Chidlowia*), and the largest genus of tribe Mimoseae (Lewis *et al.* 2005; LPWG 2017), including 40 species in the Old World and more than 500 species in the New World, which are mostly neotropical (Barneby 1991; Simon *et al.* 2011). These species inhabit forests, savannas and grasslands and exhibit many growth form adaptations for these environments (Barneby 1991). In Brazil, there are 374 *Mimosa* species, of which 274 are endemic (Dutra *et al.* 2020) and 12–15 are cited for Espírito Santo (Dutra *et al.* 2015, 2020).

Mimosa is monophyletic (Bessega *et al.* 2008; Simon *et al.* 2011), exhibits huge diversity of growth-forms, from herbs to trees, and has armed or unarmed branches, different types of indumentum, bipinnaete leaves, sessile leaflets, with the first pair on each pinna often modified as paraphyllidia, 3–6-merous, isostemonous or diplostemonous flowers, whitish, pinkish or yellowish filaments that are free or shortly fused at the base, and craspedium or sacellus fruits (Barneby 1991; Dutra & Garcia 2014).

The present work is a taxonomic treatment of *Mimosa* in Espírito Santo. An identification key, morphological descriptions, distribution maps, illustrations, and distribution and taxonomic comments are provided. With this work, the Mimoseae florula for the state is complete.

Methods

The Espírito Santo state has 46,078 km² and three main terrain types: coastal plains, coastal tablelands and a mountain range (IJSN 2012). The vegetation is formed by dense ombrophilous forest, open ombrophilous forest, seasonal semideciduous forest, pioneer formations (areas under fluvial-marine influence, *restinga*, mangrove) and “refúgio ecológico” (Garbin *et al.* 2017).

The floristic-taxonomic study is based on specimens collected during 29 field expeditions, in 15 conservation units and on eight private properties, between April 2014 and July 2015. Additionally, herbarium specimens at CVRD, MBML, VIES, CEPEC, ESA, HUEFS and RB were studied (acronyms according to Thiers, continuously updated) and specimens at K and NY were consulted via virtual herbaria. The collected samples were processed using standard techniques (Fidalgo & Bononi 1989) and deposited in the VIES herbarium at the Universidade Federal do Espírito Santo.

For each taxon, morphological descriptions, illustrations and comments about their geographic distribution, preferred habitats, reproductive phenology, morphological variation and taxonomy are provided. The terminology follows Radford *et al.* (1974), Jordão (2020) for trichomes, Barroso *et al.* (1999) for fruits and seeds, and Melo *et al.* (2010) and Fernandes (2011) for extrafloral nectaries. For the descriptions, the leaf and fruit measurements were made with an analog caliper. The flowers were studied using a Leica EZ4 stereomicroscope with a camera and the software LAS EZ 3.0. Pinna length measurements were made from the median pinnae.

The maps are based on georeferencing during fieldwork, data from herbarium specimens and the Herbário Virtual INCT-HVFF database (<<http://inct.splink.org.br/>>). When absent, the coordinates of the center of the municipality or those suggested by the geoLoc tool were used (<<http://splink.cria.org.br/geoloc?criaLANG=pt>>). Additional specimens from Minas Gerais state were also examined, as some specimens were collected in the Parque Nacional do Caparaó, located in Minas Gerais and Espírito Santo.

Results and Discussion

In Espírito Santo, *Mimosa* is represented by 23 taxa belonging to 22 species, which is 51.1% of the Mimoseae species in the state (Silva *et al.* 2017) and 17.9% of the *Mimosa* species in the Atlantic Forest domain (BFG 2018). *Mimosa* is associated with grassland formations (“campestres”) and disturbed areas (Dutra & Garcia 2014) and is well represented in all Brazilian biomes (Simon & Proença 2000; Dutra & Garcia 2014). Most taxa occur in more than one type of vegetation. Seven taxa occur exclusively in dense ombrophilous forest, including all the herbs and the three vines recorded in this work. In pioneer formations

under fluvial-marine influence, all plant habits occur except vines. All shrubs and treelets occur in seasonal semideciduous forest, except *Mimosa xanthocentra* Mart. var. *xanthocentra*.

Seven species were added to the angiosperm list for Espírito Santo (Dutra *et al.* 2015, 2020): *Mimosa aurivillus* Martius (1838), *M. caesalpiniifolia* Benth (1841), *M. debilis* Humb. & Bonpl. ex Willdenow (1806), *M. invisita* Mart. ex Colla (1834), *M. medioxima* Barneby (1985), *M. scabrella* Benth (1841) and *M. selloi* (Benth 1841) Benth (1875). Among the species cited by authors as occurring in the state, *M. artemisiana* Heringer & Paula (1979) is currently a synonym of *M. schomburgkii* Benth (1840) (Santos-Silva *et al.* 2015) and *M. miranda* Barneby (1985) is only known from one specimen collected in Itaúnas, which could not be studied and needs to be analyzed because it might be *M. elliptica*. These new records are known from one or two specimens deposited in herbarium collections. This reinforces the need to increase the sampling efforts in Espírito Santo and a thorough examination of those not identified specimens deposited in herbarium. For instance, only specimens of *Mimosa pigra* var. *pigra* were indeed collected during our field expeditions, and for all the other species, the specimens were

already deposited in herbarium with no correct identification.

The *Mimosa* species in Espírito Santo are distinct from the rest of tribe Mimoseae because they have a craspedium fruit and lack extrafloral nectaries, except for *M. extensa* Benth., that differs from the rest of Mimoseae of Espírito Santo by its armed branches, leaf pinnae with a pair of falcate leaflets, and globose inflorescences (Silva *et al.* 2017). The most important characteristics for species identification are pinna number, presence or absence of prickles, an extrafloral nectary and interpinnal spiniform spicules, trichome type, and the arrangement of prickles on the branches.

***Mimosa* L., Sp. Pl. 1: 516. 1753.**

Herbs, vines, shrubs, treelets or trees. Branches glabrous, puberulent or pubescent, with prickles or unarmed. Stipules caducous or persistent; extrafloral nectary present or absent; pinnae in 1–12 pairs; interpinnal spiniform spicules present or absent; paraphyllidia present or absent; leaflets in 1–43 pairs. Inflorescences capituliform or spiciform, erect. Flowers 3–5-merous, isostemonous or diplostemonous, sessile; filaments whitish, yellow, purple or pinkish. Craspedium glabrous to tomentose; seeds 1–12.

Key to the taxa of *Mimosa* in Espírito Santo state, Brazil

1. Pinnae in 1 pair 2
 2. Leaflets in 2 pairs 3
 3. Rachis terminal projection 1.9–2.8 mm long; calyx 0.3–1.51 mm long 4
 4. Abaxial surface of leaflets sparse-puberulent; calyx 0.3–0.7 mm long, lobes denticulate, 0.15–0.4 mm long 21. *Mimosa velloziana*
 - 4'. Abaxial surface of leaflets dense-puberulent to pubescent; calyx 1–1.51 mm long, lobes setiform, 0.51–0.72 mm long 20. *Mimosa sensitiva* var. *sensitiva*
 - 3'. Rachis terminal projection 5–5.6 mm long; calyx ca. 0.1 mm long 8. *Mimosa debilis* var. *debilis*
 - 2'. Leaflets in 5–40 pairs 5
 5. Branches unarmed 6
 6. Leaflets with fasciculate trichomes; petiole 9–15 mm long 1. *Mimosa aurivillus* var. *aurivillus*
 - 6'. Leaflets with trichomes filiform; petiole 21–28 mm long 7. *Mimosa* aff. *cubatanensis*
 - 5'. Branches armed with prickles 22. *Mimosa xanthocentra* var. *xanthocentra*
- 1'. Pinnae in 2 or more pairs 7
 7. Extrafloral nectary present 11. *Mimosa extensa*
 - 7'. Extrafloral nectary absent 8
 8. Interpinnal spiniform spicules present 9

9. Branches armed with prickles in a series; leaflets 3–4.26 × 0.6–1.27 mm; inflorescences spiciform 12. *Mimosa invis* var. *invisa*
- 9'. Branches armed with scattered prickles; leaflets 5.2–8.5 × 1–1.3 mm; inflorescences capitate 10
10. Branches with trichomes setiform; rachis 36–54 mm long; craspedium 21.7–35.5 mm long 10. *Mimosa elliptica*
- 10'. Branches with trichomes patent filiform and setiform-barbellate; rachis 83–200 mm long; craspedium 57–70 mm long 15. *Mimosa pigra*
- 8'. Interpinnal spiniform spicules absent 12
11. Capitate-setiform trichomes present on branches 14. *Mimosa paludosa*
- 11'. Capitate-setiform trichomes absent on branches 13
12. Branches or craspedium with stellate or trichomes dendritic 14
13. Leaf rachis 7–27 mm long 15
14. Branches only with stellate trichomes; petiole 9–15 mm long; pinnae in 1–2 pairs; craspedium with dendritic and stellate trichomes 1. *Mimosa aurivillus* var. *aurivillus*
- 14'. Branches with dendritic, stellate-lepidote and stellate trichomes; petiole 17–18 mm long; pinnae in 4–5 pairs; craspedium with dendritic and verruciform trichomes.. 17. *Mimosa scabrella*
- 13'. Leaf rachis 30–90 mm long 18. *Mimosa schomburgkii*
- 12'. Branches or craspedium glabrous or only with trichomes filiform 16
15. Pinnae in 2–4 pairs 17
16. Prostrate or erect herbs, vines, shrubs or scandent shrubs 18
17. Flowers 3-merous; filaments whitish 19
18. Leaflets 6–14 mm wide, median leaflets oblong, elliptic or obovate. Peduncle 17–21 mm long 20
19. Rachis 10–17 mm long; leaflets in 1 pair 13. *Mimosa medioxima*
- 19'. Rachis 24–60 mm long; leaflets in 2 pairs 6. *Mimosa ceratonia* var. *pseudo-obovata*
- 18'. Leaflets 20–24 mm wide, the median wide-ovate-depressed or wide-ovate. Peduncle 6.6–9.3 mm long 5. *Mimosa carvalhoi*
- 17'. Flowers 4-merous; filaments pinkish 21
20. Pinnae in 2–3 pairs; petiole 28–42 mm long 22
21. Branches armed with scattered prickles. Petiole 28–33 mm long; interpinnal segments 0.9–1 mm long; craspedium 10–19 mm long; seeds 1–4 16. *Mimosa pudica* var. *hispida*
- 21'. Branches armed with prickles along the ribs. Petiole 40–42 mm long; interpinnal segments 9–13 mm long; craspedium linear-tetragonal, 34–113 mm long; seeds 15–24 4. *Mimosa candollei*
- 20'. Pinnae in 3–4 pairs; petiole 50–59 mm long 19. *Mimosa selloi*
- 16'. Shrubs or trees, 2–12 m tall 23
22. Pinnae 30–75 mm long; median pinnae leaflets in 4–11 pairs; inflorescences capitate 7. *Mimosa* aff. *cubatanensis*
- 22'. Pinnae 75–90 mm long; median pinnae leaflets in 3 pairs; inflorescences spiciform 3. *Mimosa caesalpiniifolia*
- 15'. Pinnae in 5–8 pairs 24
23. Herbs, 0.5–1.7 m tall; branches with prickles in a series; flowers 4-merous; filaments pinkish 9. *Mimosa diplotricha* var. *diplotricha*
- 23'. Shrubs or treelets, 2–7 m tall; branches with prickles scattered; flowers 5-merous; filaments whitish 2. *Mimosa bimucronata* var. *bimucronata*

1. *Mimosa aurivillus* Mart. var. *aurivillus*. Flora 21(2, Beibl.): 52. 1838. Fig. 1a-b

Treelets, ca. 5 m tall. Branches cylindrical, sulcate, unarmed, pubescent, trichomes dendritic. Stipules caducous, 4–6 × 1.5 mm, triangular, pubescent, trichomes dendritic; petiole 9–15 mm long; rachis 7–27 mm long, interpinna segments 4–8 mm long; pinnae in 1–2 pairs, 39–45 mm long, terminal projection 1.5–2 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 5–7 pairs, 8.5–11 × 4.3–5 mm, median leaflets elliptic, apex rounded to obtuse, margin entire, upper leaflets obovate, margin entire, pubescent, trichomes fasciculate, brownish; extrafloral nectary absent. Inflorescences 11–13 × 9–13 mm, capitate, globose; peduncle 10–12 mm long; bracteoles 2.4–2.7 mm long, persistent. Flowers 4-merous, isostemonous; calyx ca. 0.3 mm long, glabrous, except on the apex that has filiform trichomes, lobes absent; corolla 2.3–2.7 mm long, pubescent, trichomes stellate-lepidote, lobes ca. 0.7 mm long, tube 1.1–1.4 mm long; filaments 4.8–5.2 mm long, yellow; ovary ca. 1 mm long, stipe ca. 0.5 mm long, pubescent at apex, trichomes stellate. Craspedium 12–17 × 5.7–7.3 mm, stipe 1–2 mm long, pubescent, trichomes stellate and dendritic; seeds not observed. **Specimens examined:** MINAS GERAIS (ESPÍRITO SANTO): Alto Caparaó, trilha de acesso ao Pico da Bandeira, Terreirão, 3.XII.2010, fl., *L. Daneu et al.* 507 (MBML, RB, SPF).

Mimosa aurivillus. var. *aurivillus* is endemic to Brazil and occurs in the states of Bahia and Minas Gerais in rocky fields and high-altitude grasslands, at 1,000–2,000 m elevation, in Cerrado and the Atlantic Forest domain (Dutra & Garcia 2014; Dutra *et al.* 2020). During this study, we noted that the general collection location for a specimen from Parque Nacional do Caparaó was cited as Minas Gerais state; however, according to the geographic coordinates on the label it is actually from Espírito Santo. This is the first record of this taxon for Espírito Santo, where it occurs in high-altitude grasslands at 2,585 m elevation (Fig. 2a). It was collected with flowers in December. Among the species of *Mimosa* in Espírito Santo, it is characterized by its unarmed branches with dendritic trichomes, leaves with fasciculate trichomes, fruits with stellate and dendritic trichomes, flowers with yellow filaments and corolla covered with stellate-lepidote trichomes. It differs from *M. scabrella* by the fewer pinna pairs (1–2 vs. 4–5 in *M. scabrella*) and larger leaflets (8.5–11 × 4.3–5 mm vs. 4–6.8 × 1–1.8 mm in *M. scabrella*).

2. *Mimosa bimucronata* (DC.) Kuntze var. *bimucronata*, Revis. Gen. Pl. 1: 198. 1891. Fig. 3g

Shrubs to treelets, 2–7 m tall. Branches cylindrical, slightly flexuous, puberulent, trichomes filiform, with prickles scattered. Stipules persistent, 2.8–4.6 × 0.3–0.7 mm, triangular to lanceolate, densely puberulent, trichomes filiform and granular; petiole 7.6–10 mm long; rachis 30–70 mm long, interpinna segments 4.1–10.7 mm long; pinnae in 5–8 pairs, 51–58 mm long, terminal projection 28–52 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 22–24 pairs, 7–9 × 1–1.5 mm, median leaflets lanceolate, apex mucronulate, margin entire, upper leaflets elliptic, margin entire, margin glabrous or with trichomes filiform; extrafloral nectary absent. Inflorescences 9.5–12.6 × 9.5–12.6 mm, capitate, globose; peduncle 3.5–14.4 mm long; bracteoles 0.3–0.4 mm long, persistent. Flowers 5-merous, diplostemonous; calyx 0.45–0.7 mm long, glabrous, lobes 0.5–0.1 mm long; corolla 2.38–2.58 mm long, glabrous, lobes 0.87–1.13 mm long, tube 1.25–1.72 mm long; filaments 7.5–8.4 mm long, whitish; ovary 0.6–0.7 mm long, stipe 0.05–0.4 mm long, pulverulent, trichomes filiform. Craspedium 4.4–4.9 × 5.8–6.6 mm, stipe 10–16 mm long, glabrous; seeds 7–8, rhombic to quadrate rhombic.

Specimens examined: Conceição da Barra, Parque Estadual de Itaúnas, trilha do Buraco do Bicho, 10.IV.2013, fr., *J.O. Machado et al.* 57 (VIES). Iúna, Serra do Valentim, estrada para as torres de comunicação, 12.IV.2014, fl., *J.P.F. Zorzanelli & L. Bacci 1006* (VIES). Serra, Mestre Álvaro, trilha principal, 15.II.2013, fl., *A.D. Firmino et al.* 10 (VIES). Vila Velha, Parque Natural Municipal de Jacarenema, 30.V.2012, fl. and fr., *L.A. Silva 171* (VIES); 28.VI.2012, fr., *L.A. Silva 157* (VIES); 27.X.2012, fl., *L.A. Silva 279* (VIES); 16.II.2013, fl., *L.A. Silva 345* (VIES); 21.II.2014, fl., *L.A. Silva 368* (VIES).

Mimosa bimucronata var. *bimucronata* occurs in Paraguay, Argentina and Brazil, and is cultivated in Guiana and naturalized in Jamaica, Singapura, China and tropical Africa (Barneby 1991). In Brazil, it occurs in the states of Alagoas, Bahia, Ceará, Maranhão, Pernambuco, Sergipe, Goiás, Mato Grosso do Sul, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Rio Grande do Sul, Santa Catarina, and the Distrito Federal, in Caatinga, Cerrado and the Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs on dense ombrophilous forest, seasonal semideciduous forest, pioneer formation areas under fluvial-marine influence and *restinga*,

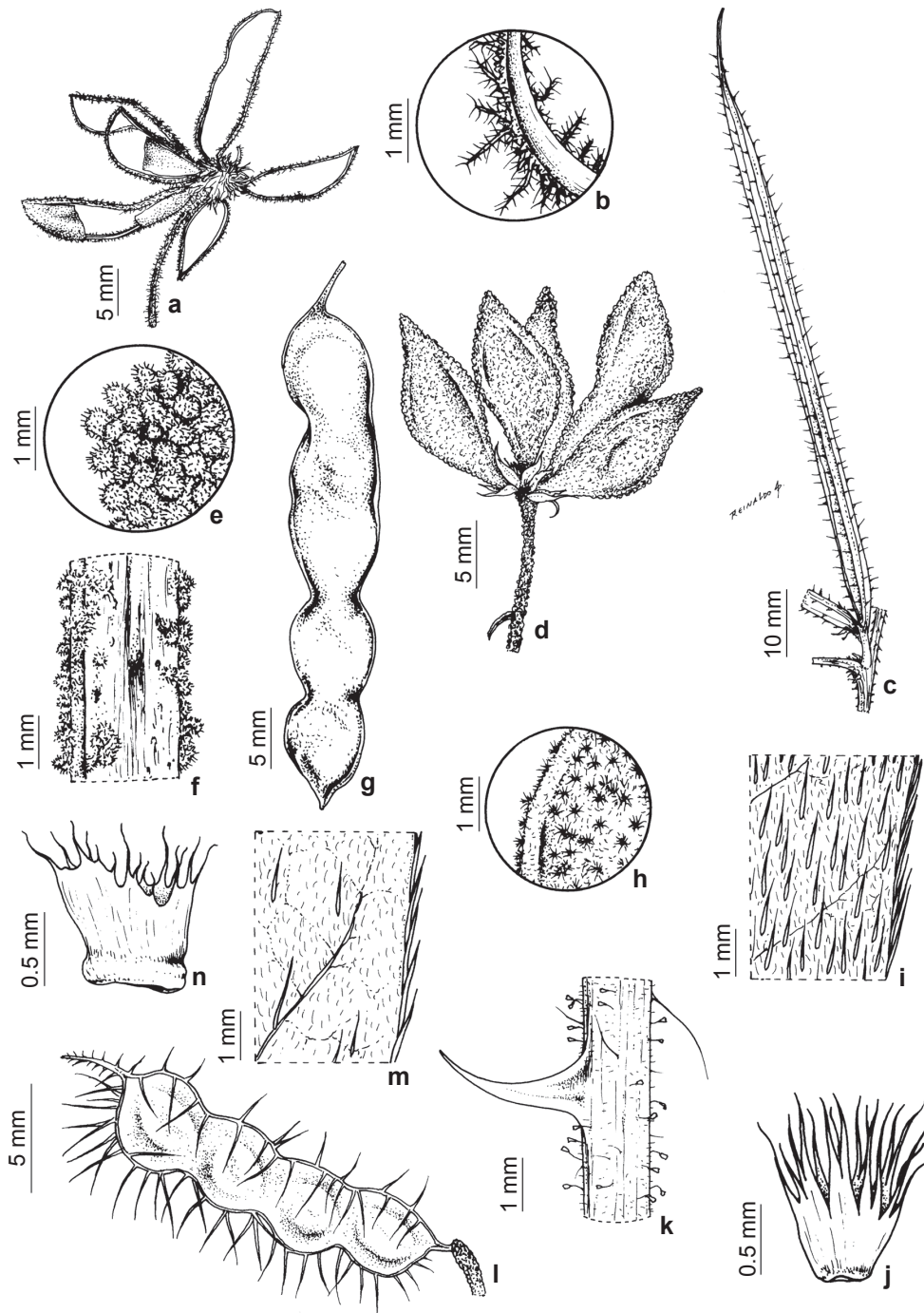


Figure 1 – a-b. *Mimosa aurivillus* var. *aurivillus* – a. craspedium; b. detail of stellate trichome of a craspedium. c. *M. candolei* – linear-tetragonal craspedium. d-e. *M. scabrella* – d. craspedium; e. verruciform trichomes of fruit. f-h. *M. schomburgkii* – f. stellate trichome of a branch; g. craspedium; h. floccose trichome of a craspedium. i-j. *M. sensitiva* var. *sensitiva* – i. densely pubescent indument on abaxial surface of leaflets; j. calyx lobes with setae. k. *M. paludosa* – capitulate-setiform trichomes on branches. l. *M. pudica* var. *hispida* – craspedium. m-n. *M. velloziana* – m. sparsely pubescent indument on abaxial surface of leaflets; n. calyx lobes with setae. (b. V.F. Dutra 355; c. P.L. Peterle 40; e. T.B. Flores 1470; h. R.M. Pizziolo 173; j. P.L. Peterle 50; k. R.C. Britto 103; l. P.H.D. Barros 142; n. L.A. Silva 485).

at 3–452 m elevation (Fig. 2a). It has been collected with flowers in February, April, May and October and with fruits from April to June. *Mimosa bimucronata* can be identified among the species of *Mimosa* in Espírito Santo by its shrubby/arboreal habit, flowers with whitish filaments, arranged in capitate inflorescences disposed in panicles, and glabrous craspedium. The flowers are melliferous (Barneby 1991). It is usually called maricá.

3. *Mimosa caesalpiniiifolia* Benth., J. Bot. (Hooker) 4(31): 392. 1841.

Shrubs to trees, 2–12 m tall. Branches cylindrical, glabrous to puberulent, trichomes filiform and granular, with prickles scattered. Stipules caducous, 4–10 × 0.7–1 mm, linear-triangular to lanceolate, glabrous or puberulent, trichomes filiform; petiole 18–34 mm long, rachis 47–52 mm long, interpinna segments 24–30 mm long; pinnae in 2–3 pairs, 75–90 mm long, terminal projection 2.4–3 mm long; spiniform interpinna spicules absent; paraphyllidia present; leaflets in 3 pairs, 16–42 × 12–27 mm, median leaflets elliptic, apex rounded, margin entire, upper leaflets oblong, margin entire, glabrous, abaxial surface with trichomes filiform congested at the base; extrafloral nectary absent. Inflorescences 22–37 × 5–9 mm, spiciform; peduncle 8–10 mm long; bracteoles 0.5–1 mm long, caducous. Flowers 3-merous, diplostemonous; calyx 0.5–0.66 mm long, glabrous, lobes 0.05–0.1 mm long; corolla 1.88–2.53 mm long, glabrous, lobes 1.17–1.3 mm long, tube 0.7–0.94 mm long; filaments 6.9–8.8 mm long, whitish; ovary 0.5–1 mm long, stipe 0.2–0.5 mm long, glabrous. Craspedium 89–92 × 10–11 mm, stipe 25–39 mm long, glabrous; seeds 5–8, not observed.

Specimens examined: Conceição da Barra, Parque Estadual de Itaúnas, 19.V.2015, fl., *L.A. Silva* 427 (VIES). Guarapari, Parque Estadual de Setiba, formação de Mata Seca, 6.VI.1991, fl. and fr., *L. Rosa* 107 (VIES). Ibraçu, Estação Ecológica Morro da Vargem, 29.V.1990, fl. and fr., *J.M.L. Gomes* 1165 (VIES). Linhares, Reserva Natural Vale, estrada do Flamengo, 8.IV.2006, fl., *G.O. Romão et al.* 1285 (CVRD); Nativo do contorno do Roxinho para a sede, Nativo, 17.IV.2011, fl., *D.F. Lima et al.* 189 (CVRD). Pedra Menina, Parque Nacional do Caparaó, beira da estrada, 20.XI.2015, fl., *L.A. Silva et al.* 672 (VIES). Serra, APA Praia Mole, Cidade Continental, 21.V.2009, fl., *O.J. Pereira* 7828 (VIES); Parque Ecológico da C.S.T., área de tabuleiro, Bosque dos Jacarandás, 21.IV.1995, fl., *I. Weiler Jr.* 164 (VIES). Vila Velha, Parque Natural Municipal de Jacarenema, 29.VIII.2012, fl., *L.A. Silva* 246b (VIES).

Mimosa caesalpiniiifolia is endemic to Brazil and native in the states of Alagoas, Ceará, Maranhão, Paraíba, Pernambuco, Piauí, and Rio Grande do Norte, in Caatinga, and subsynchronous in the states of Amazonas, Rondonia, Pará, Mato Grosso do Sul, Goiás, Bahia, Espírito Santo, Rio de Janeiro, Minas Gerais, São Paulo, Paraná, and Santa Catarina (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest, semideciduous forest, pioneer formation areas under fluvial-marine influence and *restinga*, at 0–296 m elevation (Fig. 2a). It has been collected with flowers from April to June and in August and November and with fruits in May and June. It can be identified among the species of *Mimosa* in Espírito Santo by its pinnae that usually have three pairs of leaflets, flowers with whitish filaments, arranged on a spiciform inflorescence, and congested trichomes at the leaflet base on the abaxial surface. It is used to recuperate degraded areas and as a windbreak. It is usually called sabiá or unha-de-gato.

4. *Mimosa candollei* R. Grether, Novon 10(1): 34. 2000. Fig. 1c

Herbs prostrate to scandent subshrubs. Branches tetragonal, sparse-pubescent to puberulent, trichomes filiform and granular, with prickles along the ribs. Stipules persistent, 4.5–5 × 0.15–0.2 mm, linear-triangular, sparse-pubescent, trichomes filiform at the base; petiole 40–42 mm long; rachis 6–24 mm long, interpinna segments 9–13 mm long; pinnae in 2–3 pairs, 34–36 mm long, terminal projection 1–1.3 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 17–22 pairs, 9–10 × 2 mm, median leaflets ovate, apex mucronulate to rounded, margin entire, upper leaflets obovate, margin entire, both surfaces glabrous to sparse-puberulent, trichomes filiform and granular, whitish to yellowish, extrafloral nectary absent. Inflorescences 6–10 × 6–10 mm, capitate, globose; peduncle 7.5–8.5 mm long; bracteoles 0.66–0.7 mm long, caducous. Flowers 4-merous, diplostemonous; calyx 0.3–0.6 mm long, glabrous, lobes ca. 0.15 mm long; corolla 1.8–2.3 mm long, glabrous, lobes 0.7–1.2 mm long, tube 0.7–0.9 mm long; filaments 4.5–6 mm long, pinkish; ovary 1.1–1.4 mm long, stipe ca. 0.05 mm long, glabrous. Craspedium linear-tetragonal 34–113 × 3 mm, stipe 0.05–0.8 mm long, glabrous, trichomes granular; seeds 15–24, oblong.

Specimens examined: Anchieta, Belo Horizonte, 10.V.1988, fl., *J.M.L. Gomes* 585 (VIES). Guarapari,

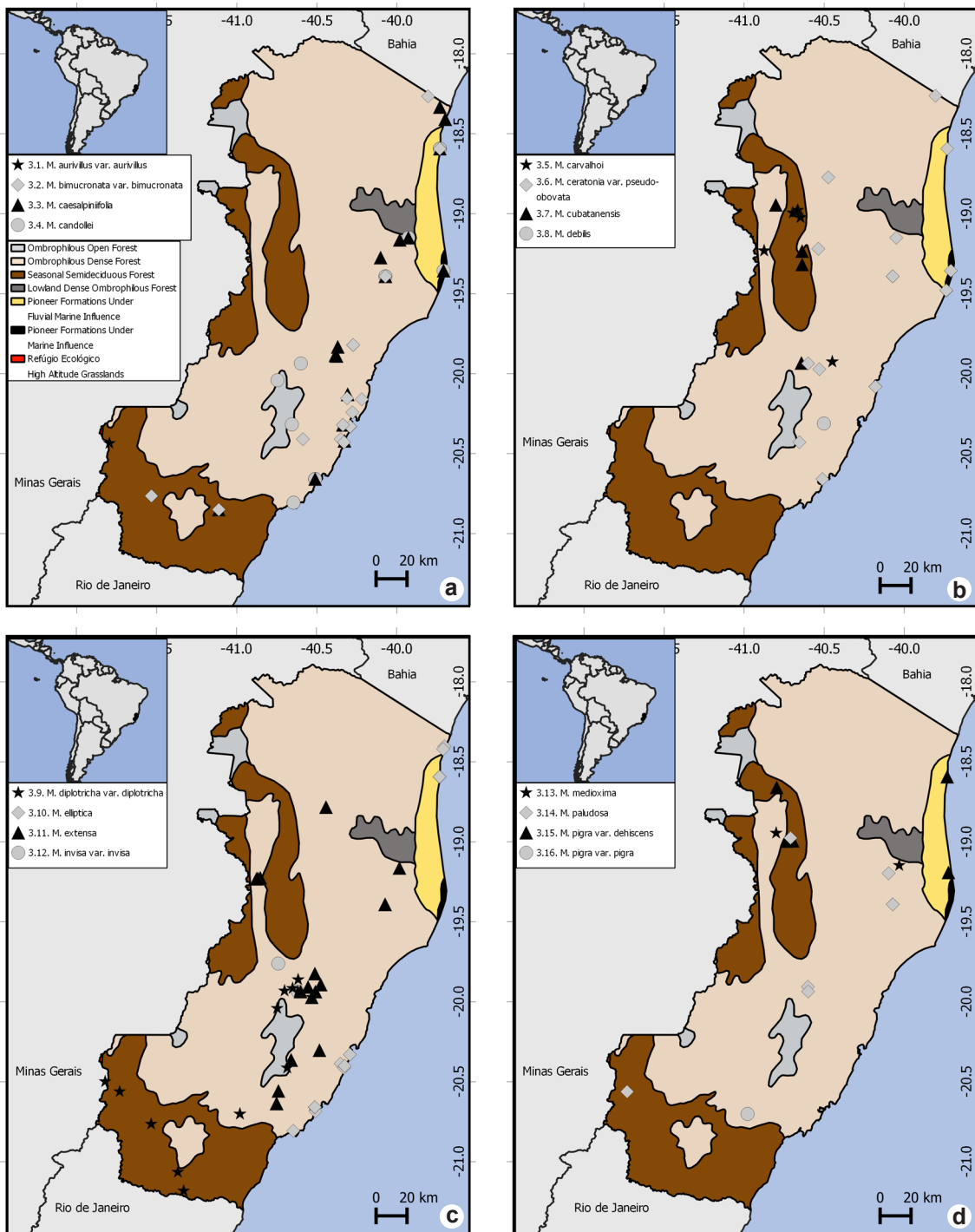


Figure 2 – a-d. Geographic distribution of *Mimosa* species in the state of Espírito Santo – a. *Mimosa aurivillus* var. *aurivillus* (★), *M. bimucronata* var. *bimucronata* (◇), *M. caesalpinifolia* (▲), *Mimosa candollei* (○); b. *M. carvalhoi* (★), *M. ceratonia* var. *pseudo-obovata* (◇), *M. aff. cubatanensis* (▲), *M. debilis* var. *debilis* (○); c. *M. diplotricha* var. *diplotricha* (★), *Mimosa elliptica* (◇), *M. extensa* (▲), *M. invisa* var. *invisa* (○); d. *M. medioxima* (★), *M. paludosa* (◇), *M. pigra* var. *dehiscens* (▲), *M. pigra* var. *pigra* (○).

Parque Estadual Paulo César Vinha, formação herbácea inundável próximo à trilha principal, 25.IV.2009, fl., *P.L. Peterle et al. 51* (VIES); 14.III.2009, fr., *P.L. Peterle 40* (VIES); trilha principal, borda do brejo, 30.VIII.2008, fl. and fr., *P.L. Peterle et al. 03* (VIES); 28.III.2009, fl. and fr., *P.L. Peterle 41* (VIES). Linhares, Reserva Natural da CVRD, 9.IV.2003, fl. and fr., *D.A. Folli 4493* (CVRD); 5.XII.1996, fl., *D.A. Folli 2858* (CVRD, VIES, RB). Piúma, Ilha dos Cabritos, 8.IV.2006, fl., *F.L. Santos 18* (MBML). Santa Maria of Jetibá, Garrafão, Sítio Renascer, 12.10.2008, fl., *T.S. Lorencini 87* (VIES).

Mimosa candollei occurs in Mexico, Panama, Nicaragua, Belize, Venezuela, Guiana, Porto Rico, Colombia, Brazil and Paraguay (Barneby 1991). In Brazil, it is found in most of the country (except for Rio Grande do Sul state), in the Amazon domain, Caatinga, Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs on dense ombrophilous forest, pioneer formation areas under fluvial-marine influence, pioneer formation areas under marine influence, *restinga* and secondary vegetation where there is agricultural activity, at 2–753 m elevation (Fig. 2a). It has been collected with flowers from March to May and in August, October and December and with fruits in March, April and August. *Mimosa candollei* can be identified among the species of *Mimosa* in Espírito Santo by its tetragonal craspedium.

5. *Mimosa carvalhoi* Barneby, *Brittonia* 37(2): 141. 1985. Fig. 4a

Shrubs to scandent shrubs. Branches cylindrical or pentagonal, glabrescent, trichomes granular, in series prickles. Stipules persistent, 1.97–4.5 × 0.41–0.7 mm, lanceolate, glabrous; petiole 34–41 mm long; rachis 13.4–80 mm long; pinnae in 2–4 pairs, 27–40 mm long, terminal projection 0.5–0.6 mm long; interpinnal spiniform spicules absent; paraphyllidia present; leaflets in 1 pair, 19–26 × 20–24 mm, median leaflets wide-ovate-depressed or wide-ovate, apex retuse, margin entire, upper leaflets widely depressed ovate or widely ovate, apex retuse, margin entire, glabrous, extrafloral nectary absent. Inflorescences 8–13.4 × 8–11.9 mm, capitate, globose; peduncle 6.6–9.3 mm long; bracteoles ca. 0.8 mm long, persistent. Flowers 3-merous, diplostemonous; calyx ca. 0.6 mm long, glabrous, lobes ca. 0.05 mm long; corolla 1.6–2.4 mm long, glabrous, lobes 0.8–1.2 mm long, tube ca. 1.3 mm long; filaments ca. 8 mm long, whitish; ovary 0.4–0.5 mm long, stipe ca. 0.15 mm long, glabrous. Craspedium 54 × 20 mm, stipe ca. 4 mm long, glabrous; seeds 6 to 7, immature.

Specimens examined: Águia Branca, Córrego Taquaral,

Santa Luzia, propr. José Rochinha, 2.IV.2007, fl., *V. Demuner et al. 3445* (MBML, RB); propr. Ciro Ferreira, 4.VII.2007, fr., *R.R. Vervloet et al. 2786* (MBML, RB). São Pedro, Pedra do CEIER, 26.IV.2006, fl., *V. Demuner et al. 2232* (MBML, RB). Pancas, Pontões Capixabas, 7.VII.2015. fr., *L.A. Silva et al. 688* (VIES).

Mimosa carvalhoi is endemic to Brazil where it is only known from the state of Bahia and Espírito Santo, in the Atlantic Forest domain (Dutra *et al.* 2015, 2020). In Espírito Santo, it occurs in dense ombrophilous forest and seasonal semideciduous forest, at 131–326 m elevation (Fig. 2b). It has been collected with flowers in April and with fruits in July. *Mimosa carvalhoi* resembles *M. ceratonia* and *M. medioxima* but differs from them by the number of pinnae that ranges from 2–4 pairs (vs. 2 pinnae pairs in *M. medioxima* and 3–4 pinnae pairs in *M. ceratonia* var. *pseudo-obovata*). Despite being originally described by Barneby (1991) as shrubby and armed only on the petiole, the specimens *R.R. Vervloet et al. 2786* (MBML, RB) and *V. Demuner et al. 2232* and *3445* (MBML, RB) have branches with prickles and a scandent habit.

6. *Mimosa ceratonia* var. *pseudo-obovata* (Taub.) Barneby, *Mem. New York Bot. Gard.* 65: 258. 1991. Figs. 3f; 4b

Vines to scandent shrubs. Branches pentagonal, sparse-pubescent or glabrous, trichomes filiform and granular, with prickles along the ribs. Stipules persistent, 3–4 × 0.5 mm, lanceolate, glabrous; petiole 19–22 mm long; rachis 24–60 mm long, interpinnal segments 14–17 mm long; pinnae in 3–4 pairs, 32–43 mm long, terminal projection 0.25–0.4 mm long; interpinnal spiniform spicules absent; paraphyllidia present; leaflets in 2 pairs, 12–18 × 6–10.5 mm, median leaflets oblong, apex rounded, margin entire, upper leaflets orbicular or oblong, margin entire or slightly revolute, glabrous except on the margin that has filiform and setiform trichomes; extrafloral nectary absent. Inflorescences 10–12 × 10–12 mm, capitate, globose; peduncle 17.5–21 mm long; bracteoles ca. 0.7 mm long, persistent or caducous. Flowers 3-merous, diplostemonous; calyx 0.4–1 mm long, glabrous, lobes 0.05–0.31 mm long; corolla 2.1–3 mm long, glabrous, lobes 0.94–1.5 mm long, tube 1.1–1.4 mm long; filaments 6.2–10 mm long, whitish; ovary 0.55–0.9 mm long, stipe 0.1–0.21 mm long, glabrous. Craspedium 46–58.9 × 16–18 mm, stipe 3.2–3.5 mm long, glabrous, trichomes granular, undivided; seeds 8, immature.

Specimens examined: Conceição da Barra, FLONA Rio Preto, trilha da Lagoa Seca, 2.IV.2018, fr., *T.*

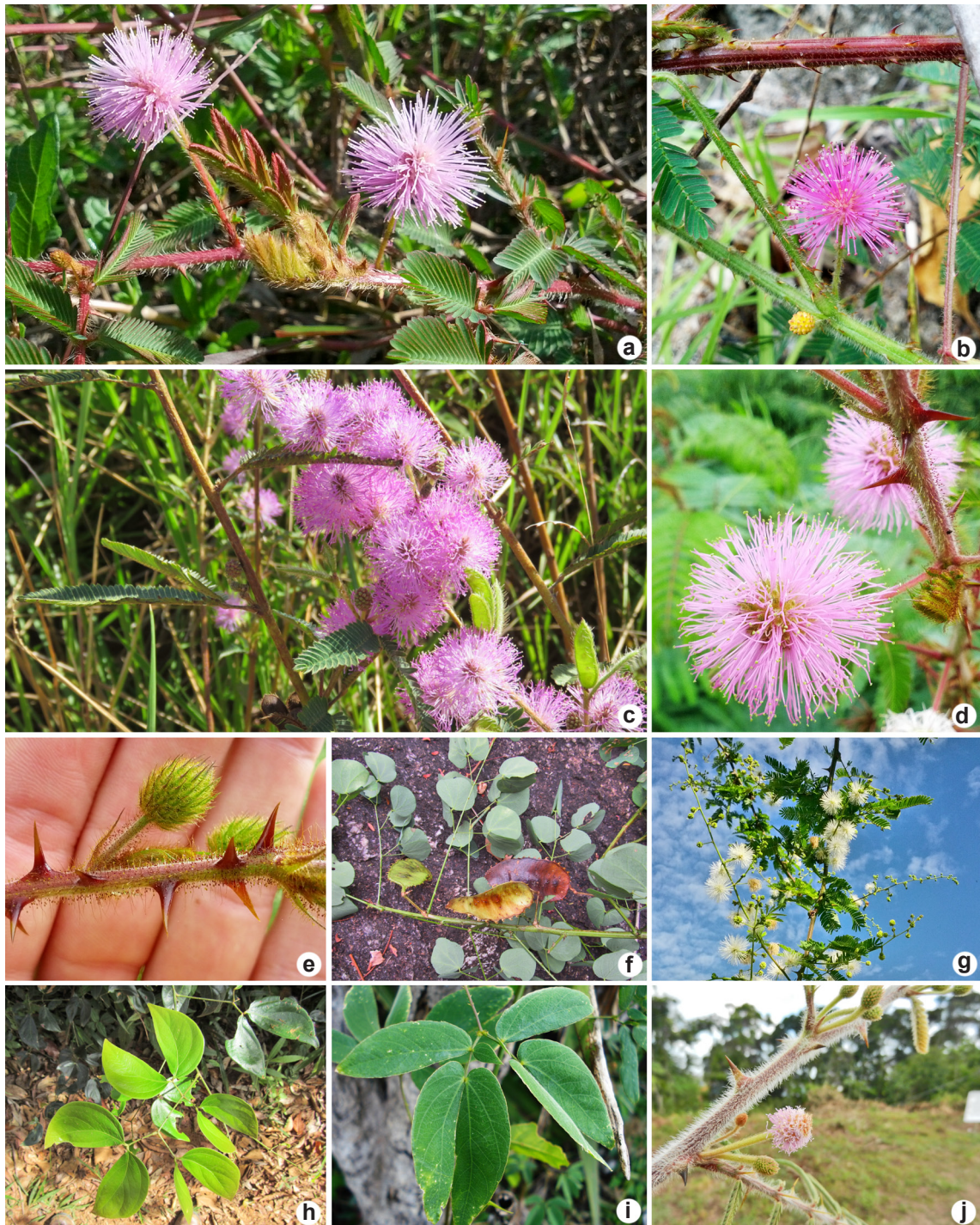


Figure 3 – a. *Mimosa elliptica* – branches and inflorescences. b. *M. diplotricha* var. *diplotricha* – branches and inflorescence. c. *M. xanthocentra* var. *xanthocentra* – inflorescences and pinnae in 1 pair. d-e. *M. paludosa* – d. branches and inflorescence; e. branch with capitate-setiform trichomes. f. *M. ceratonia* var. *pseudo-obovata* – leaves and fruits. g. *M. bimucronata* var. *bimucronata* – branches and inflorescences. h. *M. extensa* – pinnae pairs of leaf. i. *M. sensitiva* var. *sensitiva* – pinna pairs of leaf. j. *M. pigra* var. *pigra* – setiform trichomes on branches and inflorescence.

Souza *et al.* 89 (VIES). Governador Lindemberg, Córrego Dependência, igreja da Imaculada Conceição, 15.XI.2006, fl., *V. Demuner et al. 3084* (MBML, VIES). Guarapari, Parque Natural Morro da Pescaria, 8.IX.2013, fr., *A.C.S. Dal Col 133* (VIES). Linhares, Fazenda Santa Maria, área pertencente ao senhor Odair, 15.III.2007, fr., *R.D. Ribeiro 805* (RB). Santa Teresa, Estação Biológica de Santa Teresa, trilha do Tapinoã, 30.XII.1999, fl., *V. Demuner 430* (MBML, VIES). Serra, Rod. ES-10, 2 km antes de Nova Almeida, fragmento de mata degradada em formação barreira, 3.IV.2007, fr., *H.C. de Lima 6584* (RB, CEPEC, HUEFS, VIC); Serra de Cima, fl., *A.P. Duarte 4005* (RB).

Mimosa ceratonia var. *pseudo-obovata* is endemic to Brazil and occurs in the states of Alagoas, Bahia, Ceará, Maranhão, Pernambuco, Espírito Santo, Rio de Janeiro and Santa Catarina, in the Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest, pioneer formation areas under fluvial-marine influence, pioneer formation areas under marine influence and *restinga*, at 3–716 m elevation (Fig. 2b). It has been collected with flowers in November and December and with fruits in March, April and September. In Espírito Santo, it has the following group of characters: prickles in a series, median pinnae leaflets in 2 pairs, apical pinnae leaflets in 3 pairs, and undivided craspedium. It differs from *M. medioxima* by the longer rachis (10–17 mm in *M. medioxima* vs. 24–60 mm in *M. ceratonia* var. *pseudo-obovata*) and more pinna pairs (2 in *M. medioxima* vs. 3–4 in *M. ceratonia* var. *pseudo-obovata*).

7. *Mimosa* aff. *cubatanensis* Hoehne, Bol. Inst. Brazil. Sci. 2: 246, t.2. 1926. Fig. 4c

Trees, 9–10 m tall. Branches cylindrical, glabrous to puberulent, trichomes filiform and granular, unarmed. Stipules caducous, 1–2 × 0.35–0.4 mm, triangular, puberulent to pubescent, trichomes filiform; petiole 14–28 mm long; rachis 21–46 mm long, interpinna segments 8–21 mm long; pinnae in (1)2–4 pairs, 30–75 mm long, terminal projection 0.3–0.75 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 4–11 pairs, 11–17.5 × 4–7 mm, median leaflets elliptic, apex acute to rounded, margin entire, slightly revolute, upper leaflets obovate, margin entire, slightly revolute, sparse-pubescent, abaxial surface with trichomes congested at the base, trichomes filiform, whitish; extrafloral nectary absent. Inflorescences 6.8–8.5 × 6.8–8.5 mm, capitate, globose; peduncle 8–16 mm long; bracteoles 0.59–1.4 mm long, persistent. Flowers

4-merous, diplostemonous; calyx 0.7–0.86 mm long, glabrous, lobes 0.08–0.15 mm long; corolla 2.2–2.3 mm long, trichomes filiform or glabrous, lobes 0.5–0.99 mm long, tube 1.4–2.3 mm long, filaments 4–5.1 mm long, pinkish; ovary 0.8–0.86 mm long, stipe 0.2–0.4 mm long, glabrous. Craspedium 67–86 × 9.5–11.5 mm, stipe 3–12.8 mm long, glabrescent, trichomes filiform; seeds 6–8, obovate.

Specimens examined: Águia Branca: Santa Luzia, propr. Ciro Ferreira, Fundo de Vale, 7.IV.2006, fr., *V. Demuner 2265* (RB, MBML). Colatina, Jequitibá, Torre 45/2 - LT 230 kv Mascarenhas x Verona, 15.VII.2008, fr., *A.M. Assis et al. 1702* (MBML, VIES). Santa Teresa, estrada Valão de São Pedro, 30.III.2016, fr., *D.A. Folli 7471* (CVRD, RB, VIES); beira de estrada, 8.IV.2017, fr., *L.A. Silva et al. 718* (VIES); 8.IV.2017, fr., *L.A. Silva et al. 720* (VIES); 26.XI.2017, fl., *L.A. Silva 730* (VIES).

Mimosa aff. *cubatanensis* occurs in seasonal semideciduous forest from 193 to 762 m elevation (Fig. 2b). It has been collected with flowers in November and with fruits in March, April and July. Among the species of *Mimosa* in Espírito Santo, *M. aff. cubatanensis* and *M. caesalpinifolia* are the tallest (up to 12 meters), but *M. aff. cubatanensis* differs from the latter by its smaller stipules (1–1.58 mm long vs. 4–10 mm long), smaller rachis (21–46 mm long vs. rachis 47–52 mm long), smaller pinnae (ca. 30 mm long vs. 75–90 mm long) and more leaflets (4–11 pairs vs. 3 pairs). Specimens of *M. aff. cubatanensis* from Espírito Santo have morphologically different leaves than *Mimosa cubatanensis* from other states. The number of pinna pairs [(1)2–4] is smaller than that recorded in previous studies (3–8 pairs) (Hoehne 1926; Barneby 1991; Jordão *et al.* 2018). The same was observed for the number of leaflet pairs for pinnae, which was 4–11 pairs while the literature mentions 8–17 pairs, and are bigger in size, 11–17.5 × 4–7 mm while the literature mentions 7–13 × 2–8 mm (Hoehne 1926; Barneby 1991; Jordão *et al.* 2018). Additionally, we observed a glabrous ovary while the literature reports an ovary with indumentum (Barneby 1991; Jordão *et al.* 2018). An analysis of more specimens, especially from the Colatina and Águia Branca regions, is necessary to confirm the identity of these specimens. The present study increased the collection effort in these regions to look for more individuals but was not successful. Considering the aforementioned, we have chosen to identify this species as *M. aff. cubatanensis*, based mainly on how different these specimens are from the *typus*.

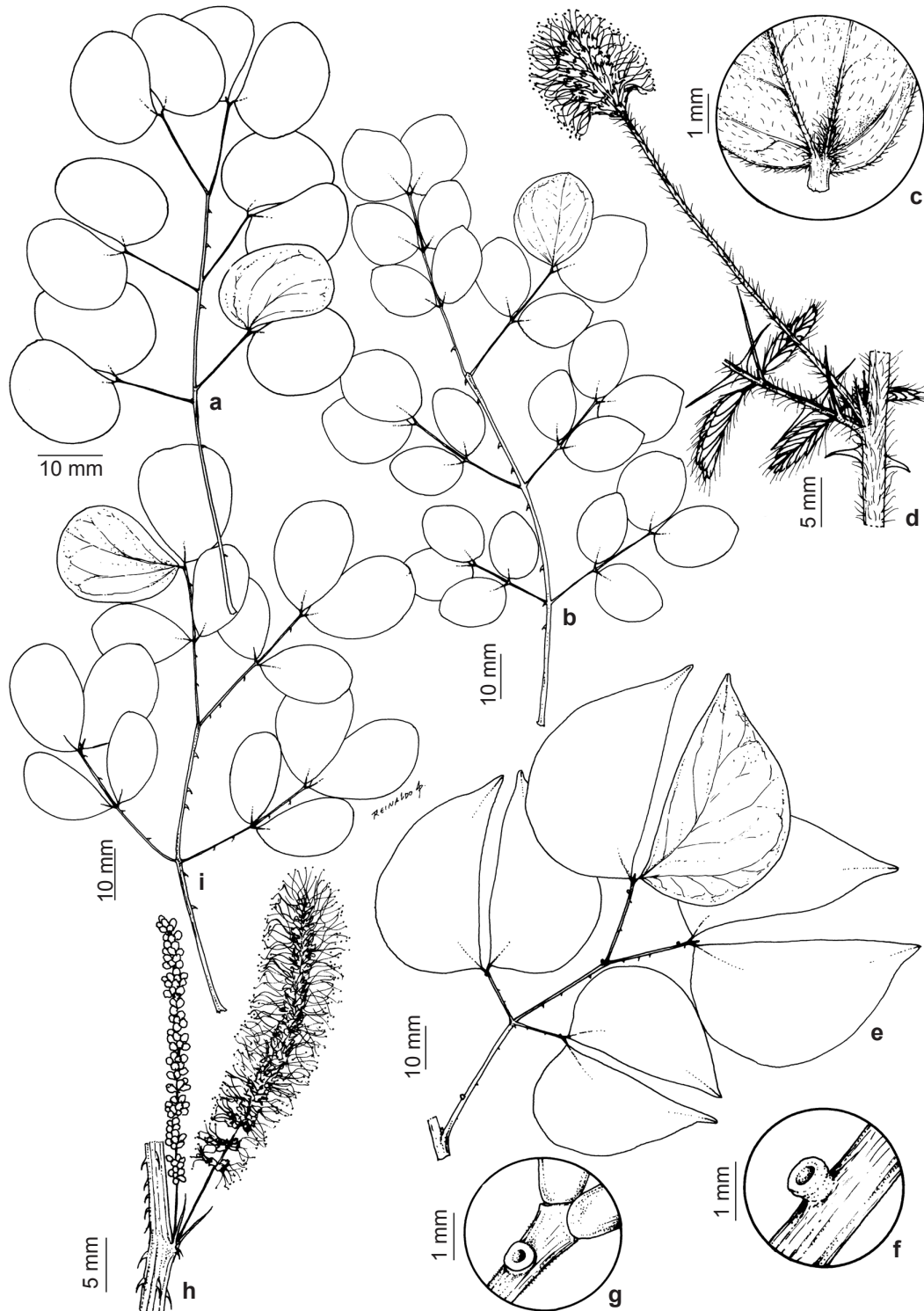


Figure 4 – a. *Mimosa carvalhoi* – leaf. b. *M. ceratonia* var. *pseudo-obovata* – leaf. c. *Mimosa* aff. *cubatanensis* – congested trichomes on abaxial surface of leaflet. d. *M. elliptica* – inflorescence and interpinnal aculei. e-g. *M. extensa* – e. leaf; f. petiolar extrafloral nectary; g. rachis extrafloral nectary. h. *M. invisita* var. *invisita* – inflorescence. i. *M. medioxima* – leaf. (a. L.A. Silva 688; b. A.C. Dal Col 133; c. A.M Assis 1702; d. L.A. Silva 369; g. L.A. Silva 706; h. W. Boone 12; i. D.A. Folli 4146).

8. *Mimosa debilis* Humb. & Bonpl. ex Willd. var. *debilis*, Sp. Pl., 4: 1029, 1806.

Herbs. Branches cylindrical, tomentose to sparse-tomentose, trichomes setiform and filiform, with prickles along the ribs. Stipules 7–7.5 × 1–1.4 mm, linear-triangular, tomentose to sparse-tomentose at apex, trichomes filiform at the base, setiform at apex and margin; petiole 44–52 mm long; rachis 3.2–7 mm long, interpinna segments 3–7.6 mm long; pinnae in 1 pair, 3.1–6.7 mm long, terminal projection 5–5.6 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 2 pairs, 45.1–61 × 18.5–24.2 mm, median leaflets elliptic to oblong, apex mucronulate, margin entire, upper leaflets elliptic to oblong, margin entire, adaxial surface puberulent, abaxial surface puberulent to pubescent, pubescent at main vein, trichomes setiform and filiform, but antorse and appressed setiform on margin, extrafloral nectary absent. Inflorescences 9–12 × 9–12 mm, capitate, globose; peduncle 5.9–11 mm long; bracteoles ca. 3.9 mm long, persistent. Flowers 4-merous, diplostemonous; calyx ca. 0.1 mm long, glabrescent, trichomes filiform, lobes ca. 0.05 mm long; corolla 1.5–2.4 mm long, glabrous, lobes 0.5–0.6 mm long, tube ca. 1.4 mm long; filaments 7–8 mm long, pinkish; ovary 0.4–0.8 mm long, stipe 0.1–0.2 mm long, glabrous. Craspedium not observed.

Specimens examined: Serra, APA Mestre Álvaro, vertente leste, acesso pelo Bairro Pitanga. 23.XII.2010, fl., R.M. Botelho et al. 101 (VIES).

Mimosa debilis var. *debilis* occurs from Costa Rica to Argentina (Morales & Fortunato 2010). In Brazil, it occurs in the states of Amazonas, Pará, Rondônia, Roraima, Tocantins, Bahia, Goiás, Mato Grosso do Sul, Mato Grosso, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, and the Distrito Federal, in the Amazon domain, Caatinga, Cerrado, and Atlantic Forest domain (Dutra et al. 2020). This is the first record of this taxon for Espírito Santo, where it was found in dense ombrophilous forest at 100 m elevation (Fig. 2b). It has been collected with flowers in December. The species is vegetatively similar to *Mimosa sensitiva* and *M. velloziana* because they all have four leaflets per pinna, of which one leaflet is reduced. *Mimosa debilis* var. *debilis* can be differentiated from these species by the terminal projection measuring 5–5.6 mm (vs. ca. 2 mm in *M. sensitiva* and ca. 2.8 mm in *M. velloziana*) and the smaller calyx measuring 0.1 mm long (vs. 0.3–0.7 mm long in *M. velloziana* and 1–1.4 mm long in *M. sensitiva*).

9. *Mimosa diplotricha* Wright ex Sauvalle var. *diplotricha*, Anales Acad. Ci. Med. Habana 5: 405–406. 1869. Fig. 3b

Herbs to scandent subshrubs, 0.5–1.7 m tall. Branches pentagonal, sparse-pubescent, trichomes filiform and granular, with prickles along the ribs. Stipules persistent, 3–4 × 0.1–0.48 mm, linear-triangular, sparse-pubescent, trichomes filiform; petiole 39–75 mm long; rachis 40–53 mm long, interpinna segments 6.8–11.7 mm long; pinnae in 7–8 pairs, 27–34 mm long, terminal projection 1–1.17 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 26–28 pairs, 3.2–7.4 × 1–1.7 mm, median leaflets elliptic, apex acute, margin entire, upper leaflets elliptic, margin entire, glabrous, sparse-puberulent at margin, trichomes filiform, whitish; extrafloral nectary absent. Inflorescences 7–13 × 7–12.16 mm, capitate, globose; peduncle 13–17.4 mm long; bracteoles 0.65–2.3 mm long, persistent, glabrous. Flowers 4-merous, diplostemonous; calyx 0.54–0.67 mm long, glabrous to puberulent, trichomes filiform, lobes 0.06–0.13 mm long; corolla 1.89–2.6 mm long, glabrous, lobes 0.86–2 mm long, tube 1.1–1.36 mm long; filaments 3.5–7.8 mm long, pinkish; ovary 0.5–0.75 mm long, stipe 0.18–0.7 mm long, glabrous to pubescent, trichomes filiform. Craspedium 29–32 × 5–6 mm, stipe 1–1.5 mm long, glabrous or sparse-tomentose, trichomes filiform, setiform and granular; seeds 5–7, piriform.

Specimens examined: Marechal Floriano, 4.IV.2008, fl., J.W. Calatrone et al. 66 (VIES). Santa Marta, proximidades do Parque Nacional do Caparaó, 29.IV.2015, fl. and fr., L.A. Silva et al. 671 (VIES). Santa Teresa, estrada para Colatina, 8.V.1984, fr., W. Boone 113 (MBML, RB); pátio do Museu de Biologia Mello Leitão, 2.IV.1984, fl., W. A. Hoffmann 02 (MBML); Reserva Biológica de Santa Lúcia, parte baixa da cachoeira do Rio Timbuí, 5.V.1999, fr., W.P. Lopes 632 (MBML, VIES), Vargem Alta, 25.IV.1984, fl., W. Pizzolo 42 (MBML, RB). Serra, Mestre Álvaro, 13.I.2015, fl., C.B. Vazzoler et al. 4 (VIES). Vargem Alta, beira da estrada, 4.II.2015, fl., L.A. Silva et al. 621 (VIES).

Additional specimens: BRAZIL. MINAS GERAIS: Parque Nacional do Caparaó, entre Casa do Pesquisador e Macieira, 28.IV.2015, fl. and fr., L.A. Silva et al. 593 (VIES).

Mimosa diplotricha var. *diplotricha* occurs in Mexico, Bolivia, Ecuador, Brazil, Peru, Argentina, Panama, El Salvador, Guatemala, Honduras, Costa Rica, Cuba, Porto Rico and Australia (Barneby 1991). It is found throughout most of Brazil (except the states of Acre, Amapá and Roraima)

in the Amazon domain, Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest, open ombrophilous forest and seasonal semideciduous forest, at 79–882 m elevation (Fig. 2c). It has been collected with flowers in January, February and April and with fruits in April and May. Vegetatively, the species resembles *Mimosa invisa* var. *invisa* and *Mimosa selloi*, mostly because of the prickles in a series on the branches. *Mimosa diplotricha* var. *diplotricha* can be differentiated from *M. invisa* var. *invisa* by the inflorescence type (capituliform in *M. diplotricha* var. *diplotricha* vs. spiciform in *M. invisa* var. *invisa*) and from *M. selloi* by the longer rachis (40–53 mm long vs. 18.9–20.6 mm long in *M. selloi*) and more pinnae (7–8 pairs vs. 3–4 pairs in *M. selloi*).

10. *Mimosa elliptica* Benth., J. Bot. (Hooker) 4(32): 400–401. 1842. Figs. 3a; 4d

Herbs to subscaudent shrubs, 0.2–1.2 m tall. Branches cylindrical, sparse-pubescent to puberulent, trichomes setiform, with prickles scattered. Stipules persistent, 3–5 × 1–1.4 mm, lanceolate, puberulent, trichomes setiform on margin; petiole 4–9 mm long, rachis 36–54 mm long, interpinna segments 5–12 mm long; pinnae in 6–11 pairs, 21–28 mm long, terminal projection 0.28–0.7 mm long; interpinna spiniform spicules present; paraphyllidia present; leaflets in 28–36 pairs, 5.2–7 × 1.1 mm, median leaflets elliptic, apex mucronulate, margin entire, upper leaflets elliptic, margin entire, glabrous to sparse-puberulent, trichomes filiform, setiform; extrafloral nectary absent. Inflorescences 13.5–16 × 10.5–11 mm, capitate, globose; peduncle 19–34 mm long; bracteoles 0.5–0.9 mm long, persistent. Flowers 4-merous, diplostemonous; calyx 0.45–1.10 mm long, sparse-setose at apex, trichomes setiform, lobes 0.05–0.22 mm long; corolla 1.4–2.76 mm long, glabrous, lobes 0.65–1.18 mm long, tube 1.3–1.8 mm long; filaments 6.1–7.8 mm long, pinkish; ovary 0.7–1 mm long, stipe 0.1–0.29 mm long, glabrous to puberulent, trichomes setiform. Craspedium 21.7–35.5 × 9.5–12 mm, stipe 3.2–6.79 mm long, sparse-puberulent, trichomes setiform; seeds 9, elliptic.

Specimens examined: Anchieta, Lagoa Mãe-Bá, floresta de tabuleiro em diferentes estágios de regeneração, brejo herbáceo, 29.I.2010, fl., J.M.L. Gomes *et al.* 3630 (VIES). Conceição da Barra, Itaúnas, Parque Estadual de Itaúnas, estrada das dunas, próximo à área alagada, 13.III.2010, fl., L.C.M. Lopes 162 (VIES); áreas abertas

do brejo, 24.VIII.2002, fl., O.J. Pereira *et al.* 6995 (VIES); trilha do Buraco do Bicho, 27.III.2013, fl. and fr., W.O. Sousa *et al.* (VIES). Guarapari, Parque Estadual Paulo César Vinha, brejo inundável próximo à trilha principal à esquerda, 14.II.2009, fr., P.L. Peterle 34 (VIES); 14.II.2009, fl. and fr., P.L. Peterle 33 (VIES); brejo inundável, 14.II.2009, fr., P.L. Peterle 30 (VIES); Lagoa do Carais, no afloramento rochoso, 15.XI.2008, fl., P.L. Peterle *et al.* 12 (VIES); trilha principal, borda da mata periodicamente inundada, 11.X.2008, fl., P.L. Peterle 07 (VIES); formação herbácea inundável próximo à trilha principal, 25.IV.2009, fr., P.L. Peterle *et al.* 52 (VIES); borda do brejo, 30.VIII.2008, fr., P.L. Peterle 05 (VIES); brejo herbáceo, 31.VIII.2006, fl., R.T. Valadares 224 (VIES); trilha principal, borda do brejo, 30.VIII.2008, fr., P.L. Peterle *et al.* 04 (VIES); brejo inundável próximo à trilha principal à esquerda, sentido sede - praia, 14.II.2009, fl. and fr., P.L. Peterle *et al.* 31 (VIES); 14.II.2009, fr., P.L. Peterle *et al.* 35 (VIES); área do brejo, formação herbácea inundável, 28.III.2009, fl., P.L. Peterle 43 (VIES); Lagoa do Milho, Setiba, Rodovia do Sol, km 32, restinga, 30.VIII.1982, fl. and fr., O.J. Pereira *et al.* 127 (VIES); Parque Natural Municipal Morro da Pescaria, trilha principal, 18.V.2013, fr., A.C.S. Dal Col 36 (VIES). Vila Velha, Interlagos, brejo herbáceo, 4.III.2008, fr., F.B.C. Souza 122 (VIES); Parque Natural Municipal de Jacarenema, área aberta no norte do parque, 17.II.2014, fl., L.A. Silva 366 (VIES); 21.II.2014, fl., L.A. Silva 369 (VIES); porção norte do parque, próximo à ponte sobre o Rio Jucu, 27.X.2012, fl., L.A. Silva 285 (VIES).

Mimosa elliptica occurs in Brazil, Argentina and Paraguay. In Brazil, it is found in the states of Bahia, São Paulo, Rio de Janeiro and Espírito Santo, in the Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest and restinga, at 2–24 m elevation (Fig. 2c). It has been collected with flowers from January to March, and in August, October and November, and with fruits from February to May and in August. *Mimosa elliptica* is one of the few species of *Mimosa* in Espírito Santo that has interpinna spiniform spicules. Morphologically, the most similar species is *M. pigra*; however, *M. elliptica* has a smaller petiole (4–9 mm long vs. 9–14 mm long), smaller rachis (36–54 mm long vs. 83–165 mm long), smaller median pinnae (21–28 mm long vs. 41–57 mm long) and smaller craspedium (31 mm long vs. 57–70 mm long). It is frequently mistaken for *M. pudica*, which has only 2 pinna pairs (vs. 6–11 pairs) and lacks interpinna spiniform spicules. Additionally, *M. pudica* has smaller prickles and a longer petiole (28–33 mm long vs. 4–9 mm long in *M. elliptica*).

11. *Mimosa extensa* Benth., J. Bot. (Hooker) 4(32): 393. 1842. Figs. 3h; 4e-g

Vines. Branches pentagonal, glabrous to puberulent, trichomes filiform and peltate, with prickles along the ribs. Stipules caducous, not observed; petiole 42–90 mm long, rachis 32–64 mm long, interpinnal segments 32–64 mm long; pinnae in 2 pairs, 37–113 mm long, terminal projection 0.5–4 mm long; interpinnal spiniform spicules absent; paraphyllidia absent; leaflets 1 pair, 40–114 × 21–60 mm, median leaflets falcate, ovate or elliptic, apex acute to acuminate-falcate, margin entire, upper leaflets falcate, margin entire, glabrescent, surface with trichomes lepidote, filiform congested at base; extrafloral nectary sessile, compressed, circular to cupuliform, at the base of petiole, and petiolule. Inflorescences 8–9 × 1–1.2 mm, capitate, globose, peduncle ca. 3 mm long; bracteoles 0.4–0.8 mm long, persistent. Flowers 5-merous, diplostemonous; calyx 0.6–1.8 mm long, glabrous, lobes 0.05–0.10 mm long; corolla 3.2–4.09 mm long, glabrous, lobes 1.2–1.93 mm long, tube 1.75–2.07 mm long; filaments 7–9 mm long, whitish; ovary 0.5–0.87 mm long, stipe 0.05–0.33 mm long, glabrous. Craspedium 65–146 × 10–29 mm, stipe 4–10 mm long, glabrate, trichomes peltate; seeds 8–12, obovate.

Specimens examined: Cariacica, Reserva Biológica Duas Bocas, 16.II.2008, fr., *A.M.A. Amorim 7150* (RB). Castelo, Forno Grande, 13.VIII.1948, fr., *A.C. Brade 19295* (RB). Colatina, 26.II.1965, fl., *A.P. Duarte 9012* (RB). Domingos Martins, estrada que sobe para a torre da Rádio Campinho, 18.I.1975, fl., *A. Luna Peixoto 443* (RB). Linhares, Reserva Natural Vale, estrada Gonçalves Alves, 25.II.2008, fl., *D.A. Follis 5959* (CVRD, VIES); 17.III.2014, *D.M. Neves 1796* (RB); estrada Oiticica, ant. 151, km 3100, lado esquerdo, 5.VIII.1985, fr., *D.A. Follis 593* (CVRD); ant. 151, km 3100, lado esquerdo, 2.II.1988, fl., *G.L. Farias 107* (CVRD). Pancas, trilha da Pedra da Colina, 9.VII.2015, fr., *L.A. Silva et al. 705* (VIES); 9.VII.2015, fr., *L.A. Silva et al. 706* (VIES). Santa Teresa, Rio Saltinho, 29.VIII.2001, fr., *L. Kollmann 4416* (RB); Reserva Biológica Augusto Ruschi, 26.IX.2001, fr., *L. Kollmann 4770* (RB).

Mimosa extensa is endemic to Brazil and occurs in the states of Bahia, Espírito Santo, and Rio de Janeiro, in the Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs on dense ombrophilous forest at 32–844 m elevation (Fig. 2c). It has been collected with flowers in January and February and with fruits in February and from July to September. *Mimosa extensa* can be easily recognized by its large falcate leaflets (40–78 × 21–40 mm) and for being the only species of *Mimosa* in Espírito Santo that has an extrafloral nectary,

which is a plesiomorphy of section *Mimadenia* (Simon *et al.* 2011). It is usually called arranha-gato or malícia.

12. *Mimosa invisá* Mart. ex Colla var. *invisá*, Herb. Pedem. ii. 255. 1834. Fig. 4h

Vines. Branches pentagonal, glabrous to pubescent, trichomes filiform and granular, with prickles along the ribs. Stipules persistent, 6–7 × 0.5 mm, narrowly-triangular, pubescent, trichomes filiform; petiole 10.5–28 mm long; rachis 60–85 mm long, interpinnal segments 6–7 mm long; pinnae in 6–10 pairs, 21–38 mm long, terminal projection 1.22–1.5 mm long; interpinnal spiniform spicules present; paraphyllidia present; leaflets in 25–30 pairs, 3–4.26 × 0.6–1.27 mm, median leaflets narrowly-elliptic, apex acute, margin entire, upper leaflets obovate, margin entire, glabrous, except on the margin puberulent, trichomes filiform, yellowish; extrafloral nectary absent. Inflorescences 36–40 × 11–14.7 mm, spiciform; peduncle 7–10 mm long; bracteoles 0.15–0.46 mm long, persistent. Flowers 5-merous, isostemonous; calyx 0.15–0.48 mm long, glabrous, except on the apex that has granular trichomes, lobes 0.05–0.06 mm long; corolla 1.52–1.93 mm long, glabrous, lobes 0.7–1.71 mm long, tube 0.66–1.15 mm long; filaments 5.5–7.5 mm long, purple to whitish; ovary 5–5.7 mm long, stipe 1.17–2 mm long, densely pubescent to sparse-tomentose. Craspedium not observed.

Specimens examined: Santa Teresa, 4.IV.1984, fl., *W. Boone 12* (MBML, RB). São Roque do Canaã, localidade Misterioso, Pedra dos Três Carneiros, Inselberg, 23.III.2005, fl., *A.P. Fontana et al. 1205* (MBML).

Mimosa invisá var. *invisá* occurs in Paraguay and Brazil. In Brazil, it is known from the states of Bahia, Ceará, Goiás, Minas Gerais and São Paulo, where it inhabits the Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). This is the first record of this taxon for Espírito Santo, where it occurs in dense ombrophilous forest at 262–716 m elevation (Fig. 2c). It has been collected with flowers in March and April. *Mimosa invisá* var. *invisá* can be differentiated from the other aculeate species by the glandular trichomes on the abaxial surface of the calyx and spiciform inflorescence.

13. *Mimosa medioxima* Barneby, Brittonia 37(2): 139. 1985 Fig. 4i

Vines. Branches pentagonal, glabrous, granular trichomes, prickles along the ribs. Stipules persistent, 2.4–3 × 0.4 mm, lanceolate, glabrous; petiole 21–40 mm long; rachis 10–17 mm long,

interpinnal segments 1.5–1.7 mm long; pinnae in 2 pairs, 25–29 mm long, terminal projection 0.4–1.22 mm long; interpinnal spiniform spicules absent; paraphyllidia present; leaflets in 1 pair, 16–21 × 11–14 mm, median leaflets elliptic or obovate, apex rounded to retuse, margin entire, upper leaflets elliptic or obovate, margin entire, glabrous; extrafloral nectary absent. Inflorescences 11–14 × 11–14 mm, capitate, globose; peduncle 17–21 mm long; bracteoles ca. 0.6–0.86 mm long, persistent. Flowers 3-merous, diplostemonous; calyx 0.5–0.92 mm long, glabrous, lobes 0.05–0.15 mm long; corolla 2.39–3.01 mm long, glabrous, lobes 1.59–1.7 mm long, tube ca. 0.8 mm long; filaments 5.1–7.5 mm long, whitish; ovary 0.6–0.78 mm long, stipe 0.2–0.32 mm long, glabrous. Craspedium 37–46 × 21–22 mm, stipe 2.5–4.5 mm long, glabrous, trichomes granular; seeds 6, immature.

Specimens examined: Águia Branca, Rochedo, propr. Arlindo Breda, 7.VI.2006, fr., *V. Demuner et al.* 2465 (MBML, VIES). Linhares, Reserva Natural Vale, 17.XII.2001, fl., *D.A. Folli 4146* (CVRD, VIES).

Mimosa medioxima is endemic to Brazil and its distribution was thought to be restricted to the state Bahia, in the Atlantic Forest domain (Dutra *et al.* 2020). This is the first record of this taxon for Espírito Santo. It is found in dense ombrophilous forest, in secondary vegetation, at 32–479 m elevation (Fig. 2d). It has been collected with flowers in December and with fruits in June. This species is vegetatively similar to *M. carvalhoi* and *M. ceratonia* var. *pseudo-obovata*. For differences, see the comments under these taxa. The apical pinnae of *M. medioxima* have two pairs of leaflets, unlike the median pinnae that only have one pair.

14. *Mimosa paludosa* Benth. J. Bot. (Hooker) 4: 400. 1842. Figs. 1k; 3d-e

Subshrubs to shrubs, 1–3 m tall. Branches cylindrical, pubescent, trichomes filiform and glandular capitate-setiform, with prickles along the ribs. Stipules persistent, 4.2–10.5 × 0.7–0.8 mm, triangular, pubescent to tomentose, trichomes filiform, setiform and glandular capitate-setiform; petiole 7–11 mm long, rachis 64–77 mm long, interpinnal segments 5.5–9 mm long; pinnae in 10–11 pairs, 9.7–10.3 mm long, terminal projection 3.47–3.65 mm long; interpinnal spiniform spicules absent; paraphyllidia present; leaflets in 18 pairs, 4–6.5 × 1–1.4 mm, median leaflets elliptic, apex mucronulate, margin entire, upper leaflets obovate, falcate, margin entire, sparse-pubescent, trichomes

filiform, setiform and glandular capitate-setiform, yellow; extrafloral nectary absent. Inflorescences 22–24 × 22–24 mm, capitate, globose; peduncle 2–2.1 mm long; bracteoles 1.5–3.97 mm long, caducous. Flowers 4-merous, diplostemonous; calyx 0.75–0.79 mm long, glabrous, lobes 0.12–0.26 mm long; corolla 3.5–4.93 mm long, glabrous, lobes 0.6–1.38 mm long, tube 2.5–2.65 mm long; filaments 11.5–14.8 mm long, pinkish; ovary 0.88–4.8 mm long, stipe 0.38–0.5 mm long, tomentose, glandular capitate-setiform. Craspedium 48–67 × 6.5–7.5 mm, stipe 14–22 mm long, puberulent; seeds 7–10, widely obovate.

Specimens examined: Linhares, Reserva Natural da Vale, 7.VII.2006, fr., *L.M. Borges 119* (CVRD); 6.VI.2007, fl., *G.S. Siqueira 318* (CVRD). Santa Marta, Parque Nacional do Caparaó, trilha do tecnotruta e estrada do entorno do Parque do Caparaó, 29.IV.2015, fl. and fr., *L.A. Silva et al.* 670 (VIES). Santa Teresa, Vale do Canaã, margem do Rio 5 de Novembro, próximo à entrada de Nova Valsugana, 4.VIII.2006, fl. and fr., *R.C. Britto 103* (MBML, HUEFS).

Mimosa paludosa is widely distributed in Paraguay and Brazil (Barneby 1991; Borges *et al.* 2017). In Brazil, it occurs in the states of Pará, Rondônia, Goiás, Mato Grosso do Sul, Espírito Santo (as *Mimosa setosa*), Minas Gerais, and the Distrito Federal, where it is distributed in the Amazon domain, Cerrado and Atlantic Forest domain (Dutra *et al.* 2015, 2020). In Espírito Santo, it occurs in dense ombrophilous forest and seasonal semideciduous forest, at 32–677 m elevation (Fig. 2d). It has been collected with flowers in April, June and August and with fruits in April, July and August. *Mimosa paludosa* can be differentiated from the other species in Espírito Santo by the presence of glandular trichomes on the branches and leaves with 10–11 pinna pairs and pinnae with 18 leaflet pairs.

15. *Mimosa pigra* L., Cent. Pl. I. 13. 1755.

Herbs erect to shrubs, 1–2.5 m tall. Branches cylindrical, sparse-pubescent, pubescent to tomentose, trichomes patent filiform and setiform-barbellate, with prickles scattered. Stipules persistent, 3–7.7 × 1.1–2 mm, triangular, dense-pubescent, trichomes filiform and setiform; petiole 9–14 mm long, rachis 83–200 mm long, interpinnal segments 7.5–19 mm long; pinnae in 7–12 pairs, 40–57 mm long, terminal projection 1–1.49 mm long or absent; interpinnal spiniform spicules present; paraphyllidia present; leaflets in 33–43 pairs, 7–8.5 × 1–1.3 mm, median leaflets narrowly-elliptic to elliptic, apex mucronulate, margin entire,

upper leaflets narrowly-elliptic to elliptic, margin entire, adaxial surface glabrous to puberulent, abaxial surface glabrous to sparse-pubescent, trichomes antrorse-appressed filiform, except on the margin that has setiform antrorse-barbellate trichomes, whitish or yellowish; extrafloral nectary absent. Inflorescences ca. 12 × 8 mm, capitate, elliptic, peduncle ca. 22 mm long; bracteoles ca. 1.8 mm long, persistent. Flowers 4-merous,

diplostemonous; calyx ca. 0.4 mm long, setose at apex, trichomes setiform-barbellate, lobes absent; corolla ca. 2 mm long, pubescent at apex, trichomes setiform-barbellate, lobes 0.7–0.9 mm long, tube 1.1–1.3 mm long; filaments 4.4–5.3 mm long, pinkish; ovary not observed. Craspedium 57–70 × 7.8–10 mm, stipe 24–30 mm long, tomentose, trichomes setiform-barbellate, articles dehiscent at maturity; seeds 12, elliptic.

Key to varieties of *Mimosa pigra* in Espírito Santo state, Brazil

1. Herbs erect. Branches pubescent to tomentose. Stipules 6.8–7.7 mm long; rachis 165–200 mm long. 15.2. *Mimosa pigra* var. *pigra*
- 1'. Shrubs. Branches sparse-pubescent. Stipules ca. 3 mm long; rachis 83–137 mm long. 15.1. *Mimosa pigra* var. *dehiscens*

15.1. *Mimosa pigra* var. *dehiscens* (Barneby) Glazier & Mackinder, Kew Bull. 52: 462. 1997.

Shrubs, 1–2.5 m tall. Branches sparse-pubescent. Stipules 3 × 1.1–1.35 mm, trichomes filiform; petiole 9–11 mm long, rachis 83–137 mm long, interpinnal segments 7.5–16.5 mm long; pinnae in 7–11 pairs, 41–46 mm long, terminal projection 1–1.49 mm long; leaflets in 33–37 pairs, 7–8.3 × 1–1.1 mm, median leaflets elliptic, upper leaflets elliptic, adaxial surface puberulent, abaxial surface sparse-pubescent, trichomes antrorse-appressed filiform, except on the margin that has setiform antrorse-barbellate trichomes, whitish.

Specimens examined: Águia Branca, Córrego Taquaral, Santa Luzia, 2.IV.2007, fr., *V. Demuner et al.* 3448 (MBML, VIES). Barra de São Francisco, Vila Paulista, 24.VI.2012, fr., *G.S. Siqueira* 754 (CVRD, VIES). Conceição da Barra, Itaúnas, 14.XI.2006, fr., *D.A. Folli* 5402 (CVRD).

Mimosa pigra var. *dehiscens* occurs in Bolivia, Paraguay and Brazil (Barneby 1991). In Brazil, it is found in the states of Acre, Amazonas, Amapá, Bahia, Goiás, Mato Grosso do Sul, Mato Grosso, Minas Gerais, São Paulo, Espírito Santo, São Paulo, Paraná, Rio Grande do Sul, Santa Catarina, and the Distrito Federal, in the Amazon domain, Cerrado, Atlantic Forest domain and Pantanal (Dutra *et al.* 2020). In Espírito Santo, it is distributed in seasonal semideciduous forest, pioneer formation areas under fluvial-marine influence and *restinga*, at 2–271 m elevation (Fig. 2d). It has been collected with fruits in April, June and November. Similar to *M. elliptica*, it has interpinnal spiniform spicules, but *M. pigra* var.

dehiscens is an erect shrub and *M. elliptica* is an herb or scandent subshrub. In Brazil, there are two varieties of *M. pigra* that can be distinguished by their craspedium. *Mimosa pigra* var. *dehiscens* has an easily torn, membranous septum that makes the article dehiscent at maturity and the sparse-hirsute valves, with ascending or subappressed trichomes, while *M. pigra* var. *pigra* has a hard, resistant septum that makes the article indehiscent, with densely hispid valves (Glazier & Mackinder 1997; Jordão *et al.* 2018). In Espírito Santo, the varieties can be differentiated by stipule size (ca. 3 mm long in *M. pigra* var. *dehiscens* vs. 6.8–7.7 mm long in *M. pigra* var. *pigra*) and petiole size (9–11 mm long in *M. pigra* var. *dehiscens* vs. 12–14 mm long in *M. pigra* var. *pigra*).

15.2. *Mimosa pigra* L. var. *pigra*, Cent. pl. 1: 13. 1755. Fig. 3j

Herbs erect, ca. 1 m tall. Branches pubescent to tomentose. Stipules 6.8–7.7 × 1.4–2 mm, trichomes filiform and setiform; petiole 12–14 mm long; rachis 165–200 mm long, interpinnal segments 16–19 mm long; pinnae in 11–12 pairs, 40–57 mm long, terminal projection absent; leaflets in 36–43 pairs, 8.2–8.5 × 1–1.3 mm, median leaflets narrowly-elliptic, upper leaflets narrowly-elliptic, glabrous, except on the margin sparse-pubescent, trichomes antrorse-appressed filiform at surface and setiform-barbellate at margin, yellowish.

Specimens examined: Vargem Alta, Morro da Embratel, 3.II.2015, fl., *L.A. Silva* 618 (VIES).

Mimosa pigra var. *pigra* occurs from Mexico to South America (Barneby 1991). It is in all the

Brazilian states, except for Rio Grande do Sul, in the Amazon domain, Caatinga, Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest at 1,007 m elevation (Fig. 2d). It has been collected with flowers in February. *Mimosa pigra* var. *pigra* is similar to *M. pigra* var. *dehiscens*; to distinguish these taxa, see the comments under *M. pigra* var. *dehiscens*. *Mimosa pigra* is one of the 100 worst invasive species in the world (Lowe 2000).

16. *Mimosa pudica* var. *hispida* Brenan, Kew Bull. 1955(2): 186. 1955. Fig. 11

Herbs prostrate. Branches pentagonal, glabrous to sparse-tomentose, trichomes setiform and filiform, with prickles scattered. Stipules persistent, 4–8 × 2 mm, triangular sparse-tomentose to tomentose at margin; petiole 28–33 mm long; rachis 1–2 mm long, interpinna segments 0.9–1 mm long; pinnae in 2 pairs, 28–54 mm long, terminal projection 1–2 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 15–17 pairs, 6–19 × 2–4 mm, median leaflets oblong, apex acute, margin entire, upper leaflets obovate, margin entire, adaxial surface glabrous, abaxial surface sparse-tomentose to sparse-puberulent, trichomes filiform, setiform at margin, brownish; extrafloral nectary absent. Inflorescences 5–8 × 6.9–7.5 mm, capitate, globose or elliptic; peduncle 7–25 mm long; bracteoles 1.2–2 mm long, persistent. Flowers 4-merous, isostemonous; calyx 0.2–0.4 mm long, glabrous, lobes 0.05 mm long; corolla 1.5–2.5 mm long, pubescent, trichomes filiform, lobes ca. 2 mm long, tube 1.2 mm long; filaments 5–7 mm long, pinkish; ovary 5–7 mm long, stipe 5–7 mm long, glabrous. Craspedium 10–19 × 4–5 mm, stipe 1–1.6 mm long, sparse-tomentose, compressed; seeds 1–4, orbicular.

Specimens examined: Anchieta, estrada para Castellanos, próximo ao brejo, 2.II.2012, fl. and fr., *N.E. Oliveira Filho* 73 (VIES). Guarapari, Parque Estadual Paulo César Vinha, trilha principal, borda do brejo, 11.X.2008, fr., *P.L. Peterle et al.* 6 (VIES); mata periodicamente inundada, 23.XII.2008, fl., *P.L. Peterle et al.* 19 (VIES); formação herbácea inundável, 14.II.2009, fl., *P.L. Peterle et al.* 24 (VIES); formação herbácea inundável (brejo) próximo à trilha principal, 14.II.2009, fl. and fr., *P.L. Peterle et al.* 25 (VIES); formação herbácea inundável (trilha do tropical), 11.IV.2009, fl. and fr., *P.L. Peterle et al.* 47 (VIES). Serra, APA Mestre Álvaro, 15.II.2013, fl. and fr., *A.D. Firmino et al.* 09 (VIES); 10.III.2015, fl. and fr., *P.H.D. Barros et al.* 142 (VIES); 22.VI.2014, fr., *L.A.*

Silva & P.H.D. Barros 453 (VIES). Vila Velha, Morro do Moreno, 16.III.2012, fl., *W.C Cardoso* 131 (VIES); Parque Natural Municipal de Jacarenema, 17.II.2014, fl., *A.D. Firmino* 20 (VIES); 30.V.2012, fl. and fr., *L.A. Silva* 176 (VIES). Vitória, Campus da UFES - Goiabeiras, 26.X.1987, fl., *O.J. Pereira* 1229 (VIES).

Mimosa pudica var. *hispida* is widely distributed in North America, South American, Africa and Asia (Barneby 1991). In Brazil, it occurs in the states of Amazonas, Pará, Rondônia, Roraima, Bahia, Pernambuco, Mato Grosso do Sul, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Rio Grande do Sul, Santa Catarina, and the Distrito Federal, in the Amazon domain, Caatinga, Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest and *restinga* at 2–716 m elevation (Fig. 5a). It has been collected with flowers in February, May, October and December and with fruits from February to June and in October. *Mimosa pudica* var. *hispida* is easily identified by the leaf with two pinnae pairs, long petiole (28–33 mm long) and short interpinna segment (0.9–1 mm long). It is often called dormideira or sensitiva.

17. *Mimosa scabrella* Benth., J. Bot. (Hooker) 4: 387. 1841. Fig. 1d-e

Trees, ca. 6 m tall. Branches cylindrical, puberulent to pubescent, trichomes dendritic and stellate, unarmed. Stipules caducous, 2–5 × 0.5–1 mm, narrowly-triangular, pubescent, trichomes dendritic and stellate; petiole 17–18 mm long; rachis 18–21 mm long, interpinna segments 4–6.5 mm long; pinnae in 4–5 pairs, 19–35 mm long, terminal projection 0.5–0.7 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 17–21 pairs, 4–6.8 × 1–1.8 mm, median leaflets elliptic, apex rounded, margin entire, upper leaflets rhombic, margin entire, sparse-puberulent, trichomes fasciculate and granular, brownish; extrafloral nectary absent. Inflorescences 7–8 × 6–7 mm, capituliform, globose; peduncle 8–16 mm long; bracteoles ca. 1 mm long, persistent. Flowers 4-merous, isostemonous; calyx ca. 0.6 mm long, glabrous, lobes ca. 0.05 mm long; corolla ca. 2.25 mm long, puberulent, trichomes stellate-lepidote, lobes ca. 0.7 mm long, tube ca. 1.5 mm long; filaments ca. 6 mm long, yellow; ovary ca. 0.8 mm long, stipe 3.8–4.5 mm long, glabrous. Craspedium 14.5–25.0 × 5.5–6 mm, stipe 0.5–1 mm long, trichomes dendritic-verruciform; seeds 1–3, immature.

Specimens examined: Ibitirama, Pedra Roxa, 23.X.2012. fl. and fr., T.B. Flores *et al.* 1470 (MBML, ESA).

Mimosa scabrella is endemic to Brazil where it occurs in the states of Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Rio Grande do Sul and Santa Catarina, in the Atlantic Forest domain (Dutra *et al.* 2020). The species is not listed for Espírito Santo (Barneby 1991; Savassi-Coutinho 2009) and might have been introduced in the state because it is widely cultivated in Brazil for reforestation, timber and charcoal (Savassi-Coutinho 2009). The collection locality indicates it was found along a road near Parque Nacional do Caparaó. It occurs in seasonal semideciduous forest at 918 m elevation (Fig. 5a). It was collected with flowers and fruits in October. This species is characterized by the following set of characters: arboreal habit, stellate trichomes on branches, fasciculate trichomes on leaflets, yellow filaments and fruits with dendritic-verruciform trichomes.

18. *Mimosa schomburgkii* Benth., J. Bot. (Hooker) 2: 133. 1840. Fig. 1f-h

Trees, 4–7 m tall. Branches cylindrical, sulcate, pubescent, trichomes filiform and stellate, with prickles or unarmed. Stipules caducous, 1.6–10 × 0.5 mm, narrowly-triangular, pubescent, trichomes stellate; petiole 4–22 mm long; rachis 30–90 mm long, interpinnal segments 9–11 mm long; pinnae in 5–12 pairs, 45–82 mm long, terminal projection 0.6–1 mm long; interpinnal spiniform spicules absent; paraphyllidia present; leaflets in 10–18 pairs, 5–13 × 2–4.6 mm, median leaflets elliptic, apex rounded, mucronulate or acute, margin entire to slightly revolute, upper leaflets reniform or rhombic, margin slightly revolute, adaxial surface with peltate and stellate trichomes, whitish to amarelados, abaxial surface sparse-puberulent, trichomes stellate and filiform, whitish; extrafloral nectary absent. Inflorescence 73–82 × 10–12 mm, spiciform; peduncle 9–12.7 mm long; bracteoles not observed. Flowers 4-merous, diplostemonous; calyx 0.75–1.04 mm long, puberulent, trichomes stellate-lepidote, lobes 0.05–0.13 mm long; corolla 2.65–3 mm long, pubescent, trichomes stellate-lepidote, lobes 0.2–1.36 mm long, tube 1.47–2.8 mm long; filaments 5.5–7.6 mm long, whitish; ovary 0.5–0.89 mm long, stipe 0.05–0.19 mm long, puberulent, trichomes stellate. Craspedium 23–53 × 7–9 mm, stipe 3–7 mm long, pubescent, stellate trichomes; seeds 2–8, immature.

Specimens examined: Barra de São Francisco, Boa Sorte, 9.VII.1984, fr., R.M. Pizziolo 173 (MBML, RB).

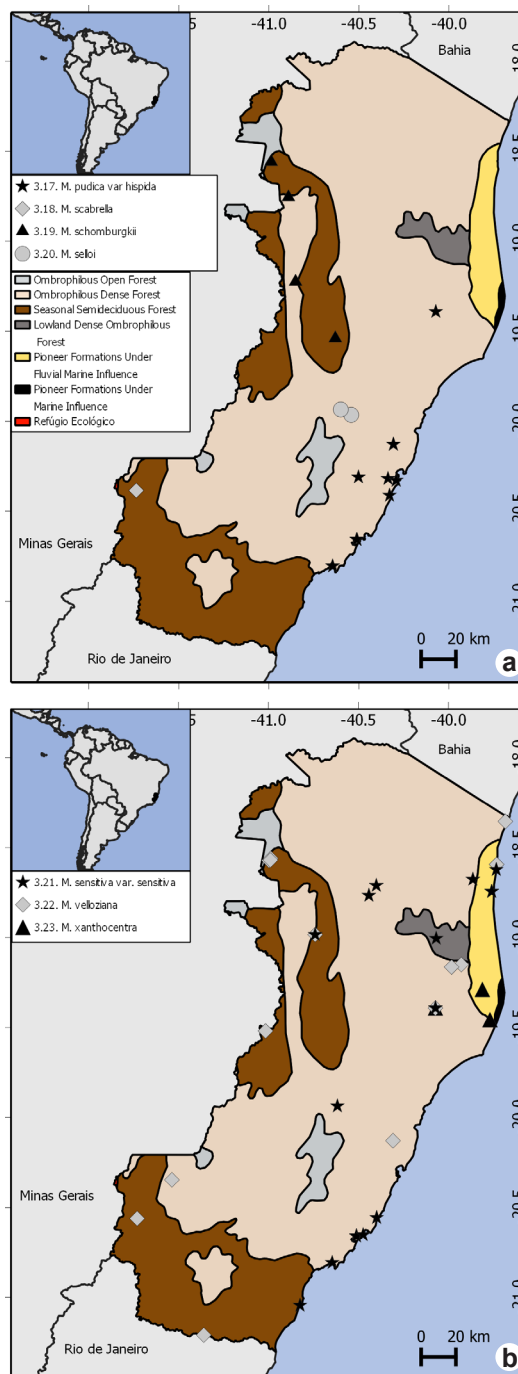


Figure 5 – a-b. Geographic distribution of *Mimosa* species in the state of Espírito Santo – a. *M. pudica* var. *hispida* (★), *Mimosa scabrella* (◇), *M. schomburgkii* (▲) and *M. seloi* (○); b. *Mimosa sensitiva* var. *sensitiva* (★), *M. velloziana* (◇) and *M. xanthocentra* var. *xanthocentra* (▲).

Colatina, estrada que liga a Espírito Santo 080 a Pancas, km 2, lado esquerdo, em beira de estrada no pasto, 29.V.1990, fl., *M.S. Menandro 185* (CVRD, VIES). Pancas, próximo à estrada de Pancas, 21.VII.1993, fr., *D.A. Folli 1949* (CVRD).

Mimosa schomburgkii occurs in Brazil, Guiana, Honduras, Nicaragua and Venezuela (Santos-Silva *et al.* 2015). In Brazil, it is distributed in the states of Acre, Amazonas, Pará, Roraima, Bahia, Pernambuco, Espírito Santo, Minas Gerais and Rio de Janeiro (Santos-Silva *et al.* 2015; Dutra *et al.* 2020), where it inhabits the Atlantic Forest domain. In Espírito Santo, it occurs in dense ombrophilous forest and seasonal semideciduous forest at 76–334 m elevation (Fig. 5a). It has been collected with fruits in May and July. *Mimosa schomburgkii* is characterized by the following set of characters: leaves with 5–12 pairs of leaflets, stellate trichomes present on adaxial surface of leaflets, spiciform inflorescence with whitish filaments and craspedium with stellate trichomes.

19. *Mimosa selloi* (Benth.) Benth., Trans. Linn. Soc. London 30(3): 436. 1875.

Herbs, prostrate to scandent. Branches pentagonal, pubescent, trichomes filiform, with prickles along the ribs. Stipules persistent, 2.87–4.64 × 0.17–0.22 mm, linear-triangular, tomentose, glabrous to sparse-tomentose at apex, trichomes filiform; petiole 50–59 mm long; rachis 18.9–20.6 mm long, interpinna segments 8.2–11.1 mm long; pinnae in 3–4 pairs, 22.78–32.8 mm long, terminal projection 0.91–1.22 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 17–21 pairs, 5.2–6.6 × 1.2–1.6 mm, median leaflets narrowly-oblong, apex mucronulate, margin entire, upper leaflets narrowly-oblong, margin entire, adaxial surface glabrous, abaxial surface sparse-pubescent, except on at basal leaflets the pubescent and, trichomes filiform, whitish, extrafloral nectary absent. Inflorescences 8.76–11.3 mm, capitate, globose; peduncle 12.09–24.71 mm long; bracteoles 1–1.1 mm long, persistent. Flowers 4-merous, diplostemonous; calyx 0.6–0.7 mm long, glabrous, lobes ca. 0.3 mm long; corolla 2–2.2 mm long, glabrous, lobes 1.2–1.3 mm long, tube 0.8–0.9 mm long; filaments 5–5.6 mm long, pinkish; ovary 0.5–0.6 mm long, stipe ca. 0.1 mm long, glabrous. Craspedium 23.1–30.4 × 5.7–7 mm, stipe 1.4–2 mm long, glabrous; seeds 3–5, not observed.

Specimens examined: Santa Teresa, Estação Biológica de Santa Lúcia, 19.VI.1984, fr., *W.A. Hoffmann 158* (MBML, VIES); Mata Fria, 21. XI. 1985, fl., *W. Boone 920* (MBML, RB).

Mimosa selloi occurs in Brazil and Argentina (Jordão *et al.* 2018). In Brazil, it is found in the states of Goiás, Mato Grosso do Sul, Rio de Janeiro, São Paulo, Paraná, Rio Grande do Sul and Santa Catarina, in the Atlantic Forest domain (Dutra *et al.* 2020). This is the first record of this taxon for Espírito Santo, where it occurs in dense ombrophilous forest at 677–728 m elevation (Fig. 5a). It has been collected with flowers in November and with fruits in June. *Mimosa selloi* is vegetatively similar to *M. diplotricha* var. *diplotricha*; their differences are discussed under the latter taxon.

20. *Mimosa sensitiva* var. *sensitiva* L., Sp. Pl. 1: 518. 1753. Figs. 1i–j; 3i

Herbs to subscandent shrubs. Branches cylindrical, puberulent, trichomes filiform, antrorse-appressed setiform, granular, with prickles along the ribs. Stipules persistent, 2–3 × 1 mm, triangular, pubescent, trichomes filiform, setiform at margin; petiole 12–16 mm long; rachis ca. 8 mm long, interpinna segments 3–4 mm long; pinnae in 1 pair, 19–23 mm long, terminal projection ca. 2 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 2 pairs, 24–31.5 × 6–10 mm, median leaflets elliptic, apex acute, margin entire, upper leaflets acute, abaxial surface dense-pubescent a pubescent, adaxial glabrous, trichomes antrorse-appressed setiform, yellowish; extrafloral nectary absent. Inflorescences 8–9 × 8–9 mm, capitate, globose; peduncle 8–9 mm long; bracteoles 1.3–3.8 mm long, persistent, glabrous. Flowers 4-merous, isostemonous; calyx 1–1.51 mm long, glabrous, lobes setiform, 0.51–0.72 mm long; corolla 2.3–2.9 mm long, glabrous, lobes 0.5–0.88 mm long, tube 1.3–2.04 mm long; filaments 6–9.52 mm long, whitish; ovary 0.4–0.56 mm long, stipe 0.05–0.34 mm long, glabrous. Craspedium 16–18 × 7 mm, stipe ca. 0.5 mm long, hirsute, trichomes appressed setiform; seeds 1, wide-oblong.

Specimens examined: Anchieta, Belo Horizonte, V.1994, fl., *J.M.L. Gomes 590* (VIES). Guarapari, Parque Estadual Paulo César Vinha, 25.IV.2009, fl. and fr., *Peterle et al. 48* (VIES); 25.IV.2009, fl. and fr., *Peterle et al. 49* (VIES); 25.IV.2009, fl., *Peterle et al. 50* (VIES).

Mimosa sensitiva var. *sensitiva* occurs in Venezuela, Brazil and Paraguay (Barneby 1991). In Brazil, it is distributed in the states of Amazonas, Pará, Rondônia, Roraima, Tocantins, Alagoas, Bahia, Ceará, Maranhão, Pernambuco, Piauí, Rio Grande do Norte, Sergipe, Mato Grosso do Sul, Mato Grosso, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, and the Distrito

Federal, in the Amazon domain, Caatinga, Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it occurs in dense ombrophilous forest, seasonal semideciduous forest, lowland dense ombrophilous forest and *restinga*, at 2–716 m elevation (Fig. 5b). It has been collected with flowers in April and May and with fruits in April. *Mimosa sensitiva* var. *sensitiva* is vegetatively similar to *M. velloziana* in habit, leaflet shape, and presence of prickles on the branches and petiole (Barneby, 1991). It can be differentiated by the leaflet indument (dense-puberulent to pubescent vs. sparse-pubescent in *M. velloziana*), length of the calyx (1–1.4 mm long vs. 0.3–0.7 mm long in *M. velloziana*) and calyx lobe shape (setae, 0.5 mm long vs. denticulate, 0.15–0.4 mm long in *M. velloziana*).

21. *Mimosa velloziana* Mart., Flora 22(1, Beibl.): 9. 1839. Fig. 1m-n

Herbs to scandent herbs, 0.5–1 m tall. Branches cylindrical, glabrous to sparse-pubescent, filiform and retrorse setiform, with prickles along the ribs. Stipules persistent, 4.4–6.5 × 0.6–1 mm, narrowly-triangular, sparse-setose, trichomes filiform, except on the margin that has setiform trichomes; petiole 5.7–7 mm long; rachis 6–8 mm long, interpinna segments 6–8 mm long; pinnae in 1 pair, 2.6–4.6 mm long, terminal projection 1.9–2.8 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 2 pairs, 26–41 × 12 mm, median leaflets elliptic, margin entire, upper leaflets elliptic, margin entire, abaxial surface sparse-puberulent, trichomes filiform and setiform, trichomes yellowish, adaxial surface glabrous; extrafloral nectary absent. Inflorescences 8–12 × 8–12 mm, capitate, globose; peduncle 15–26 mm long; bracteoles 1.25–1.9 mm long, persistent. Flowers 4-merous, isostemonous; calyx 0.3–0.7 mm long, glabrous, lobes denticulate, 0.15–0.4 mm long; corolla 1.8–2.7 mm long, glabrous, lobes 0.44–0.66 mm long, tube 1.4–2.2 mm long; filaments 8–8.8 mm long, pinkish; ovary 0.4–0.64 mm long, stipe 0.05–0.11 mm long, sparse-pubescent, trichomes filiform. Craspedium 17–24 × 5.5–7 mm, stipe 14–22 mm long, puberulent, trichomes filiform and setiform; seeds 3, widely obovate to very widely obovate.

Specimens examined: Água Doce do Norte, estrada para Torre da Vivo, beira de estrada, 25.IX.2014, fr., *L.A. Silva 484* (VIES); 25.IX.2014, fl. and fr., *L.A. Silva 485* (VIES). Divino São Lourenço, Patrimônio da Penha, entorno do Parque Nacional do Caparaó, 29.IV.2015,

fl., *L.A. Silva 673* (VIES). Guarapari, Parque Estadual Paulo César Vinha, 11.VI.2009, fr., *P.L. Peterle et al. 58* (VIES). Iúna, Serra do Valentin, 30.V.2013, fl., *L. Kollmann 12735* (MBML, VIES). Linhares, 7.V.2009, fl., *A.L.S.S. Peres 320* (VIES). São Mateus, Universidade Federal do Espírito Santo, Campus do CEUNES, próximo ao prédio do DECH, 13.II.2014, fl. and fr., *L.A. Silva 504* (VIES). Serra, 13.V.1987, fl., *L.D. Thomaz 42* (VIES). Bicanga, 15.VI.1993, fr., *O.J. Pereira 4587* (VIES); Parque Ecológico da C.S.T. 22.IV.1995, fl., *I. Weiler Junior 217* (VIES). Sooretama, Reserva Biológica de Sooretama, estrada do Meio, borda da trilha, 26.X.2013, fl., *A. Alves-Araújo 1630* (VIES).

Mimosa velloziana is widely distributed in Mexico, Panama, Colombia, Peru, Costa Rica, Venezuela, Brazil, Bolivia, Paraguay and Argentina (Barneby 1991). In Brazil, it occurs in the states of Amazonas, Pará, Roraima, Alagoas, Bahia, Ceará, Pernambuco, Piauí, Sergipe, Goiás, Mato Grosso do Sul, Espírito Santo, Minas Gerais, Rio de Janeiro, São Paulo, Paraná, and the Distrito Federal, in the Amazon domain, Caatinga, Cerrado and Atlantic Forest domain (Dutra *et al.* 2020). In Espírito Santo, it is found in dense ombrophilous forest, seasonal semideciduous forest, pioneer formation areas under fluvial-marine influence and *restinga*, at 3–845 m elevation (Fig. 5b). It has been collected with flowers in February, April, May, September and October and with fruits in February, June and September. *Mimosa velloziana* is vegetatively similar to *M. sensitiva*. Their differences are discussed under the latter taxon.

22. *Mimosa xanthocentra* Mart. var. *xanthocentra*, Flora 21(2, Beibl.): 50. 1838. Fig. 3c

Shrubs, ca. 2 m tall. Branches cylindrical, sparse-pubescent to tomentose, setiform-barbellate trichomes, with prickles scattered. Stipules persistent, 24–34 × 1.3 mm, lanceolate, glabrate, pubescent at margin, trichomes filiform and setiform; petiole 1.5–12 mm long, rachis 36–59 mm long, interpinna segments absent; pinnae in 1 pair, 5.3–5.5 mm long, terminal projection 1–1.8 mm long; interpinna spiniform spicules absent; paraphyllidia present; leaflets in 26–40 pairs, 5.4–7.5 × 1.3–1.6 mm, median leaflets elliptic, apex mucronulate, margin entire, upper leaflets elliptic, margin entire, glabrous or tomentose, trichomes setose, brownish; extrafloral nectary absent. Inflorescences 11–12 × 11–12 mm, capitate, globose; peduncle 12–14 mm long; bracteoles 1.1–1.8 mm long, persistent. Flowers 4-merous, diplostemonous; calyx 0.9–1.1 mm long, glabrous, lobes 0.5–0.8 mm long; corolla 2–3.4 mm long,

puberulent at apex, trichomes setiform, lobes 0.7–1.3 mm long, tube 1.6–1.8 mm long; filaments 7–8 mm long, pinkish; ovary 0.3–0.5 mm long, stipe absent, glabrous. Craspedium 13.3–17 × 5–7.3 mm, stipe 14–22 mm long, puberulent, trichomes filiform, retrorse setiform-barbellate, setiform at margin; seeds 7–10, widely obovate, brownish.

Specimens examined: Linhares, área experimental da Reserva Natural Vale, banco de leguminosas, parcela 169, estrada BR-101, 16.I.2007, fl., *D.A. Folli 5457* (CVRD, RB, VIES); estrada Cacimbas, próximo a Cacimba Petrobras, 19.III.2008, fl., *D.A. Folli 5969* (CVRD, RB, HUEFS, VIES); ponto de amostragem 6, beira da estrada. 26.III.2019, fl. and fr., *J.C. Guarnier 175* (VIES).

Mimosa xanthocentra var. *xanthocentra* occurs in Colombia, Bolivia, Venezuela, Brazil and Argentina (Barneby 1991). In Brazil, it is distributed in the states of Pará, Rondônia, Tocantins, Ceará, Maranhão, Piauí, Goiás, Mato Grosso do Sul, Mato Grosso, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná, and the Distrito Federal, in the Amazon domain, Cerrado and Atlantic Forest domain (Dutra *et al.* 2015, 2020). In Espírito Santo, it is found in dense ombrophilous forest and pioneer formation areas under fluvial-marine influence, at 4–32 m elevation (Fig. 5b). It has been collected with flowers in January and March. *Mimosa xanthocentra* var. *xanthocentra* can be differentiated from the other *Mimosa* species in Espírito Santo by the paired and opposite prickles on the branches and leaves with only one pair of pinnae with around 40 pairs of leaflets.

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