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Tetrapterys Cav. (Malpighiaceae) from Brazilian Midwest

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ABSTRACT

We present a floristic survey of the genus *Tetrapterys* (Malpighiaceae) from the Brazilian Midwest, including morphological descriptions, keys, comments on taxonomy and phenology, illustrations, and distribution maps for all species. Nine species were found in the studied area: *T. ambigua*, *T. crispa*, *T. discolor*, *T. hassleriana*, *T. jussieuana*, *T. microphylla*, *T. mucronata*, *T. racemulosa*, and *T. ramiflora*. The distribution of species shows a collection gap mostly in northern States of Mato Grosso and southeastern Mato Grosso do Sul. Only *T. ambigua* and *T. ramiflora* were found in all federal units within the Brazilian Midwest, and three species were recorded for just one, *T. hassleriana* and *T. racemulosa* in Mato Grosso do Sul, and *T. microphylla* in Goiás, restricted to the Chapada dos Veadeiros.

Keywords: Cerrado, Floristic Survey, Malpighiaceae, Taxonomy, *Tetrapterys*

Introduction

Malpighiaceae is a monophyletic family of flowering plants comprising approximately 77 genera and 1300 species distributed within the tropics (Cameron *et al.* 2001, Davis & Anderson 2010), of which 85% are restricted to the Neotropics (Davis *et al.* 2001). Its species are commonly found within open habitats, such as savannas, gallery forests, and rainforests, with a few species occupying xeric habitats (Anderson 1979).

Tetrapterys is a genus of Malpighiaceae comprising 69 species (Anderson *et al.* 2006), occurring from Mexico to Argentina (Anderson 1998). They are recognized by sepals not covering the floral bud before anthesis and a schizocarpic fruit splitting into three samaroid mericarps with lateral wings in the shape of an "X," often with a reduced dorsal wing (Mamede 1987; Anderson 2006). In Brazil, 25 species have been found, of which 16 are regarded as endemic (Mamede 2014).

The genus is paraphyletic, being divided into two well-supported clades belonging to an informal group called Tetrapteroids. One of the clades is the sister-group of *Heteropterys* and mostly comprises climbing species from forest edges, while the other clade is the sister-group of *Niedenzuella* and comprises shrubs to subshrubs from open habitats, such as the Cerrado (Davis & Anderson 2010). *Niedenzuella* includes 16 species previously regarded as belonging to a section of *Tetrapterys*, but differing from it by having sepals longer than petals on the floral bud during anthesis (Anderson 2006).

The group has been the subject of just a few taxonomic studies in Brazil, mostly floristic surveys of Malpighiaceae and general checklists. Among studies regarding species of *Tetrapterys* (in a broad sense, including *Niedenzuella*) in Brazil, we can highlight the surveys undertaken at Fontes do Ipiranga State Park (SP) of two species (Mamede 1984), at Serra do Cipó (MG) of five species (Mamede 1987), and at Ducke Reserve (AM) of two species (Vicentini & Anderson 1999). Within checklists, we can highlight the studies at States of Mato Grosso and Mato Grosso do Sul of nine species of *Tetrapterys* (Anderson 1998), at Cerrado Biome of 15 species (Mendonça *et al.* 2008), and at Federal District of six species (Cavalcanti & Ramos 2001).

Due to the few studies conducted for the group in Brazil, it was important to undertake a survey of *Tetrapterys* from the Brazilian Midwest. This poorly known floristic region, including 18.2% of national territory (IBGE 2009), only has knowledge about the genus in the form of checklists. Thus, the goal of this study was to perform a floristic survey and to present the species distribution of *Tetrapterys* from the Brazilian Midwest region.

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Material and methods

We performed 13 field expeditions in order to collect specimens, capture photographs, and observe populations of *Tetrapterys* Cav. in their natural habitat. Field collections were conducted in different regions of the States of Mato Grosso do Sul, Mato Grosso, and Goiás, collecting specimens with flowers and/or fruits. All collected specimens were preserved according to standard botanical techniques (Bridson & Forman 1992), and vouchers were incorporated into the CGMS herbarium, with duplicates sent to UFMT and UFG herbaria (acronyms are defined according to Thiers 2014).

Herbaria holding collections from the Brazilian Midwest were consulted (CEN, CGMS, COR, CPAP, HERBAM, HAPN, HEPH, IBGE, NX, UB, UFMT, and UFG), in addition to herbaria holding important collections of *Tetrapterys* from the studied area that would add relevant information to the study (INPA, HUEFS, MBM, RB, R, SP, and USZ).

We elaborated on standardized descriptions for each species and made additional comments, including information about habitat, phenology, taxonomic comments, and geographic distribution. Maps were elaborated using Diva software, and specimens without geographic coordinates were represented by their locality coordinate retrieved from SpeciesLink (2010).

Morphological descriptions were based on Radford *et al.* (1974). Inflorescence descriptions were based on Weberling (1989) and Anderson (1981), and the remaining characters were based on traditional terminology used for Malpighiaceae morphology. Descriptions of pedicels were based on Anderson (1981), Mamede (1990), and Anderson (1997); trichome morphology was based on Gates (1982). Within species descriptions, we described hair morphology by shape [(Y), (T) or (V)] and conducted measurements using a stereoscopic microscope STUDARlab with a micrometric barrel Me Opta. Valid names and synonyms were verified in Anderson *et al.* (2006) and authors names in Brummitt & Powel (1992).

We also elaborated a key and illustrations for all species found in the studied area, providing detailed evidence for their distribution, habit, leaves, inflorescence, flowers, fruits, and structures to help species identification. Species not illustrated here can be found in Niedenzu (1928).

Results and discussion

***Tetrapterys* Cav.** in Monadelphiae Classis Dissertationes Decem9: 433, t. 260.1790.
Type: *Tetrapterys inaequalis* Cav.

Subshrubs, shrubs, and lianas. Leaves opposite, rarely subopposite or verticillate; laminas lanceolate to obovate, margin plane or revolute, glands at one or both sides, on the margin or between primary vein and margin; petioles glandular or eglandular; stipules interpetiolar or intrapetiolar. Inflorescence simple, racemose terminating in umbels or cincinii, sessile to pedunculate; pedicels pedunculate or sessile; foliose bracts; bracts, bracteoles, and peduncle glandular or eglandular. Sepals five, connate, glabrous, or sericeous, hairs brownish; glands (when present) disposed in pairs at each sepal, usually absent on the anterior sepal, adpressed or stalked. Floral buds orange to yellowish, with sepals not covering petals before anthesis. Petals five free (one posterior and four lateral), unguiculate, yellow, posterior glabrous, margin entire or indented. Stamens ten, connate at base. Ovary tricarpellate, trilocular, glabrous, sericeous or tomentose, lateral wings usually present; styles three, erect, slightly lyrate outwards; styles alike, subequal or anterior style longer than the posterior ones; stigma apical, slightly bent towards the center of the flower. Samaroid mericarps with two to four lateral wings, dorsal wing smaller or as long as the lateral ones, sometimes with outgrowths between the lateral and dorsal wings.

The Brazilian Midwest is a region with few collections of Malpighiaceae, mostly from the States of Mato Grosso and Mato Grosso do Sul (WR Anderson unpubl. res.). Nine species of *Tetrapterys* have been found: *T. ambigua*, *T. crispa*, *T. discolor*, *T. hassleriana*, *T. jussieuana*, *T. microphylla*, *T. mucronata*, *T. racemulosa* and *T. ramiflora*. Besides these species, *T. chamaecerasifolia, T. phlomoides* and *T. salicifolia* have also been cited for the Midwest (Mamede 2014). However, there are no specimens to confirm their occurrence within the studied area, and the records are represented by misidentified specimens. Only four species were found in the field and this is related to the difficulty of finding these species in their natural habitat because they are not abundant. Consequently, some species are only represented in old collections.

Key for species of Tetrapterys from the Brazilian Midwest

1. Shrub, subshurub or scandent subshrub; stipules intrapetiolar; foliar laminas with glands on the margin; inflorescence simple racemose or a raceme of cincinii.
   2. Inflorescence a raceme of cincinii, sessile, congested at stem (cauliflorous) ..... 9. ***T. ramiflora***
   2. Inflorescence a simple raceme, pedunculate, lax
      3. Samaroid mericarps with two or four lateral wings, similar to the dorsal wing
         4. Samaroid mericarps with four lateral wings ..... 8. ***T. racemulosa***
         4. Samaroid mericarps with two lateral wings
            5. Foliar lamina villous to lanose, on both sides; hairs with base up to 0.2 mm long and branches up to 2.0 mm long ..... 1. ***T. ambigua***

5. Foliar lamina sericeous abaxially and slightly scabrous adaxially; hairs with base up to 0.1 mm long and branches up to 1.2 mm long ..... 5. ***T. jussieuana***

3. Samaroid mericarps with four lateral wings differing from the dorsal wing.

6. Shrubs; abaxial surface of lamina sericeous; restricted to highland *cerrado rupestre* and *campos rupestres* ..... 6. ***T. microphylla***

6. Scandent subshrub; abaxial surface of lamina glabrescent; restricted to lowland flooded fields in the Pantanal and Araguaia River ..... 4. ***T. hassleriana***

1. Liana; stipules interpetiolar, foliar lamina with glands between the primary vein and the margin; inflorescence racemose ending in umbels.

7. Stipules free; foliose bracts lanceolate; sepals with glands stalked, auriculate or absent ..... 7. ***T. mucronata***

7. Stipules connate; foliose bracts obovate to widely elliptic; sepals with glands adpressed, elongate.

8. Petiole glabrous; samaroid mericarps with outgrowths between dorsal and lateral wings ..... 3. ***T. discolor***

8. Petiole sericeous; samaroid mericarps without outgrowths between dorsal and lateral wings ..... 2. ***T. crispa***

Species descriptions

1. ***Tetrapterys ambigua*** (A.Juss.) Nied**.** in Das Pflanzenreich 141: 168. 1928.
Figs. 1 and 2A–H

Subshrub 0.1–0.6 m, stem villous to lanose (T). Leaves opposite, rarely subopposite or verticillate; foliar lamina 1.8–8.5 cm long, 0.8–3.8 cm wide, narrow-elliptic, elliptic to obovate, base cuneate, apex acute, retuse to slightly cuspidate, margin plane to slightly revolute, with glands on the margin at base, villous to lanose on both sides, hairs long, base up to 0.2 mm long and branches up to 2.0 mm long (T); petiole 1.5–5.0 mm long, villous to lanose (T), glands rarely disposed on the apex; stipules 0.7–1.3 mm long, intrapetiolar, triangular. Inflorescence a simple raceme, lax; bracts 2.2–3.3 mm, elliptic; peduncles 1.2–10.0 mm long, villous to lanose (T); bracteoles 2.3–2.6 mm long, glandular at base or eglandular; pedicels 2.3–8.0 mm long, villous to lanose (T). Sepals 2.7–3.3 mm long, 1.5–2.3 mm wide, ovate, sericeous (T), with 8–9 glands 1.8–2.3 mm long, 1.1–1.3 mm wide, adpressed elongated. Floral buds orange to yellowish. Petals slightly indented at margin, sometimes main veins orange, lateral petals, limb 6.0–6.7 mm long, 4.2–5.5 mm wide, claw 1.5–2.0 mm long, posterior petal, limb 5.0–6.7 mm long., 3.0–4.5 mm wide, claw 2.0–2.2 mm long. Stamens heteromorphic; filaments 2.2–2.6 mm long; anthers 1.0–1.2 mm long. Ovary 0.9–1.5 mm long, villous to lanose (T and V), lateral wings present; styles 2.5–3.0 mm long, alike. Samaroid mericarps with two lateral wings, alike dorsal wing, glabrous, lateral wings 6.0–9.0 long, 15.0–19.0 mm wide, dorsal wing 7.0–10.0 mm long, 13.0–16.0 mm wide; nut villous to lanose (V and Y).

Specimens examined: **BRAZIL. Distrito Federal**: Brasília, 7/XI/2002, fl., A.A. Santos *et al.* 1603 (IBGE); 6/IX/1960, fl., A.G. Andrade & M. Emmerich 410, 402 (R); 29/IX/2001, fl., G. Pereira-Silva 5474 (CEN); 3/VIII/1976, fl., J.A. Ratter *et al.* 3347 (UB); 12/VIII/1980, fl., L. Fiedler 111 (MBM); 3/X/2002, fl. fr., M. Aparecida da Silva 5395 (IBGE, UB); 29/VII/2008, fl. fr., S.C. Cappellari 2280 (IBGE, UB); 14/X/2003, fr., V.F. Paiva & L.C. Milhomens 155 (HEPH). Planaltina, 28/IX/1994, fr., J.C. Silva 752 (UB). **Goiás**: Alto Paraíso de Goiás, 15/X/2010, fl., A. Francener *et al.* 1012 (CGMS, UFG); 15/X/2010, fr., A. Francener *et al.* 1023 (CGMS, UFG); 19/IV/1998, fl., H.D. Ferreira 3562 (UFG); 7/X/1972, fr., J.A. Rizzo 8451 (UFG). Aparecida de Goiânia, 1/XII/2002, fl. fr., J.F.B. Pastore 36 (CEN). BR-020, 17/VIII/1990, fl. T.B. Cavalcanti *et al.* 813 (CEN). Campinaçu, 6/VII/1995, fl., B.M.T. Walter *et al.* 2669 (CEN). Campos Belos, 22/X/2001, fl. fr., M.L. Fonseca *et al.* 3019 (IBGE). Cavalcante, 9/XI/2000, fr., B.M.T. Walter *et al.* 4656 (CEN). Corumbá de Goiás, 18/IV/1996, fl., H.D. Ferreira 3593 (UFG). Jataí, 20/IX/1973, fl., J. A. Rizzo 9299 (UFG). Luziânia, 1/IV/1984, fl., F.B. Magalhães 4 (UB). Minaçu, 9/X/1991, fl., T.B. Cavalcanti *et al.* 877 (CEN). Mineiros, 14/X/1995, fl., J.P. Oliveira 207 (UFG). Mossâmedes, 17/VI/1994, fl. fr., J. A. Rizzo *et al.* 11481 (UFG). Niquelândia, 13/VIII/1996, fl., M.L. Fonseca *et al.* 1079 (IBGE); 18/X/1996, fr., R. Marquete *et al.* 2662 (IBGE); 20/X/1996, fl., R. Marquete *et al.* 2715 (IBGE); 13/VIII/1996, fr. R.C. Mendonça *et al.* 2542 (IBGE). Padre Bernardo, 21/IX/1972, fl. fr., J.A. Ratter *et al.* 2462 (UB). Piracanjuba, 26/IX/1975, fl. fr., G. Hatschbach 37155 (MBM). São João da Aliança, 30/X/1979, fr., E.P. Heringer *et al.* 2634 (IBGE). **Mato Grosso**: 300 Km from Cuiabá to Porto Velho, 28/IX/1963, fl., J.M. Pires 56908 (UB). Água Boa, 16/IX/1984, fl., L. Coradin *et al.* 7320 (CEN). Alto Araguaia, 22/IX/1988, fl. fr., R. Kral & M.G.L. Wanderley 75016 (SP). Alto Paraguai, 23/X/1995, fl., B. Dubs 1897 (UFMT). Barra do Garças, 15/IX/1968, fl., G. Eiten & L.T. Eiten 8755 (SP). Cuiabá, 30/IX/1980, fl., A.L. Prado 186 (UFMT); 21/X/1980, fr., A.L. Prado 207 (UFMT); 30/IX/1977, fl. fr., M. Macedo *et al.* 982 (UFMT). Garapú, 2/X/1964, fl., H.S. Irwin & T.R. Soderstrom 6606 (R). Nova Xavantina, 6/V/2001, fl., G.P. Freitas 55 (NX); 10/X/2001, fl., T.M.E.S. Pinto 9 (IBGE, NX). Novo Santo Antônio, 30/X/2005, fr., M.C. Moresco *et al.* 115 (NX, SP). Primavera do Leste, 6/X/1988 fl., R. Kral & M.G.L. Wanderley 75169 (SP). **Mato Grosso do Sul**: Serra do Rio Preto, 18/XI/1965, fr., H.S. Irwin *et al.* 10456 (UB). Bela Vista, 23/X/1987, fr., G. Hatschbach. & J.M. Silva 51576 (MBM). Corumbá,

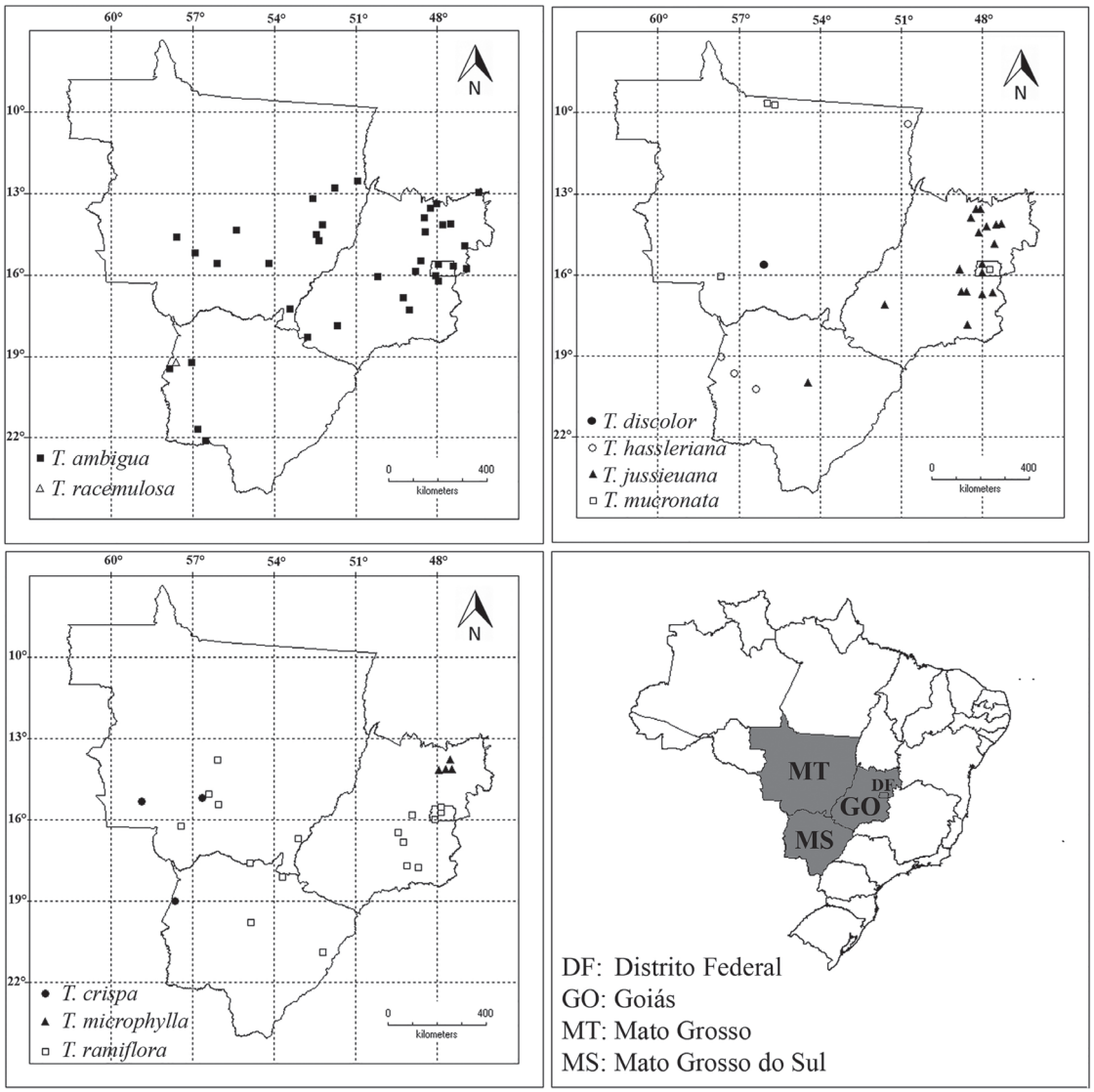

Figure 1. Distribution map of *Tetrapterys* species from the Brazilian Midwest.

09/X/1995, fl., G.A. Damasceno-Júnior *et al.* 924 (SP); 10/XI/1995, fr., I.M. Bortolotto 115 (SP); 24/X/1988, fl., M.L. Gasparini 45 (CPAP, SP). Porto Murtinho, 26/IX/1996, fr., J.A. Ratter *et al.* 7552 (UB).

Tetrapterys ambigua is common in Cerrado *sensu lato* areas in Brazil, extending to Bolivia, flowering mostly after fires during the dry season. It shows an underground xylopodium, which allows it to resprout after fires. The only similar species is *T. jussieuana*, differing mostly on leaf indumentum. *T. ambigua* shows a foliar lamina villous to lanose (T), hairs with base and branches long (bases up to 0.2 mm long and branches up to 2.0 mm long), whereas *T. jussieuana* shows a foliar lamina sericeous (T) abaxially, and hairs with base and branches short (bases up to 0.1 mm long and branches up to 1.2 mm long). In the Midwest, T. *T. ambigua* flowers from April to December and fruits from May to December.

2. *Tetrapterys crispa* A.Juss. in Ann. Sci. Nat. 2 Ser. Bot. 13: 265. 1840.
Figs. 1 and 3E–H

Liana, stem glabrous or pubescent (T) on branches near the inflorescence. Leaves opposite; foliar lamina 6.2–8.3 cm long, 3.0–4.0 cm wide, elliptic, base subcordate, apex acuminate, margin plane, with glands between primary vein and margin on both sides up to the middle of the lamina, abaxial surface pubescent (T) and sericeous (T) on primary vein, adaxial surface pubescent (T), mostly near veins; petiole 7.0–10.0 mm long, sericeous (T), eglandular; stipules 1.2–2.1 mm long, interpetiolar, connate, triangular, deciduous, most nodes retain a scar. Inflorescence a raceme ending in umbels; foliose bracts 9.0–18.0 mm long, 8.0–12.0 mm wide, obovate to widely elliptic; bracts approximately 2.0 mm, lanceolate; peduncle 2.5–4.0 mm long, tomentose

(T); bracteoles 1.8–2.0 mm long, eglandular; pedicel 3.2–4.0 mm long, tomentose (T). Sepals 2.0–2.7 mm long, 1.5–1.8 mm wide, rounded, glabrous, 8-glandular, glands 2.5–3.8 mm long, 1.0–1.7 mm wide, adpressed, elongate. Floral buds yellow. Petals entire at margin, lateral petals, limb 5.0–8.0 mm long, 4.5–6.0 mm wide, claw 0.9–1.2 mm long, posterior petal, limb 5.0–5.1 mm long, 3.5–3.6 mm wide, claw 1.5–2.0 mm long. Stamens heteromorphic; filaments 1.8–2.5 mm long; anthers 1.1–1.3 mm long. Ovary 1.4–1.6 mm long, sericeous (T), lateral wings present; styles 2.6–2.9 mm long, subequal. Samaroid mericarps with four lateral wings, differing from the dorsal wing, pubescent (V), superior lateral wings 17.0–20.0 mm long, 7.0–8.5 mm wide, inferior lateral wings 8.0–10.0 mm long, 4.0–5.5 mm wide, dorsal wing 3.0–5.0 mm long, 6.0–9.0 mm wide; outgrowths between dorsal and lateral wings absent; nut floccose (V).

Specimens examined: **BRAZIL. Mato Grosso**: Jauru. no date, fl., G. Hatschbach *et al.* 62456 (HUEFS); 8/V/1995, fl., G. Hatschbach *et al.* 62481 (MBM). Serra das Araras, 1/IV/1996, fl., B. Dubs 2159 (UFMT). **Mato Grosso do Sul**: Corumbá, 14/III/1990, fr., L.F. Boabaid 2 (SP).

Tetrapterys crispa occurs on forest edges, from South Brazil to northern South America, extending to southeast and northeast Brazil. Shows interpetiolar stipules connate, foliose bracts obovate to widely elliptic, petiole sericeous (T) and lacks outgrowths between dorsal and lateral wings of samaroid mericarps. It resembles *T. discolor*, which also shows interpetiolar stipules connate and foliose bracts obovate to widely elliptic. However, in *T. discolor* the petiole is glabrous and the outgrowths between dorsal and lateral wings of samaroid mericarps are present. In the Midwest it flowers from May to April and fruits in March.

3. *Tetrapterys discolor* (G. Mey.) DC. in Prodr. 1: 587. 1824. Figs 1 and 3A–D

Liana, stem glabrous, smooth or slightly sulcate. Leaves opposite; foliar lamina 7.7–12.4 cm long, 2.5–4.0 cm wide, narrow-elliptic to lanceolate, base acute, apex acuminate, margin plane, with glands between the primary vein and margin abaxially, glabrous on both sides; petiole 5.0–8.2 mm long, glabrous, eglandular; stipules approximately 2.0 mm long, interpetiolar, connate, triangular, deciduous, older nodes retain a scar. Inflorescence racemose ending on umbels; foliose bracts 5.0–15.0 mm long, 3.0–12.0 mm wide, obovate to widely elliptic; bracts 1.2–1.5 mm long, lanceolate; peduncle 3.0–5.0 mm long, glabrous to glabrescent (T); bracteoles 1.0–1.4 mm long, eglandular; pedicel 3.0–5.0 mm long, glabrous to glabrescent (T). Sepals 2.0–2.5 mm long, 1.5–2.2 mm wide, ovate, sericeous (T and V), 8-glandular, glands 1.5–2.4 mm long, 0.8–1.0 mm wide, adpressed, elongate. Floral buds yellow. Petals slightly indented at margin, lateral petals, limb 3.0–3.5 mm long, 2.0–2.8 mm wide, claw 1.2–2.0 mm long, posterior petal, limb 3.0–3.2 mm long, 2.0–3.0 mm wide, claw 1.8–2.0 mm long. Stamens heteromorphic; filaments 1.6–2.0 mm long; anthers 1.0–1.2 mm long. Ovary 1.3–1.5 mm long, tomentose (T and V); styles 1.8–2.0 mm long, subequal. Samaroid mericarp with four lateral wings, differing from the dorsal wing, glabrous, superior lateral wings 12.0–17.0 mm long, 6.0–8.0 mm wide, inferior lateral wings 7.0–10.0 mm long, 4.5–5.0 mm wide, dorsal wing 1.9–2.0 mm long, 7.0–11.0 mm wide, with outgrowths between dorsal and lateral wings, nut floccose (T).

Specimens examined: **BRAZIL. Mato Grosso**: Cuiabá, 14/VI/1902, fr., G.O. Malme 1739 (R); 16/V/1979, fl., M. Macedo *et al.* 1134 (UFMT); Livramento, 23/VI/1995, fr., M. Macedo & R. Godinho 4246 (UFMT).

Additional specimens examined: **BRAZIL. Maranhão**: Carolina, 06/VII/1993, fr., J.A. Ratter *et al.* 6771 (UB). **Tocantins:** Araguatins, 27/IV/1961, fr., E. Oliveim 1596 (UB).

Tetrapterys discolor occurs at the forest edges of Bolivia, State of Mato Grosso, extending from the Brazilian Amazon to Guatemala and the West Indies and shows petiole glabrous, foliose bracts and presence of outgrowths between dorsal and lateral wings. It resembles *T. crispa*, but it shows a sericeous petiole and the outgrowths between the dorsal and lateral wings are absent. In the Midwest it flowers on May and fruits from April to July.

4. *Tetrapterys hassleriana* Nied. in Bull. Herb. Boiss. 2. Ser. 7: 285. 1907. Figs. 1 and 4D
Figs. 1 and 4D

Scandent subshrub, stem glabrous to glabrescent on older branches and sericeous (T) on younger branches, lenticels sometimes present. Leaves opposite; foliar lamina 1.8–4.3 cm long, 0.5–1.5 cm wide, elliptic to obovate, base acute, apex acute to acuminate, margin revolute, with glands on the margin, mostly near base, abaxial surface glabrescent (T), adaxial face glabrous; petiole 1.3–2.5 mm long, sericeous (T), eglandular, stipules 0.2–0.5 mm long, intrapetiolar, triangular. Inflorescence a simples raceme; bracts approximately 0.5 mm long, triangular; peduncle 2.0–9.0 mm long, sericeous (T); bracteoles 1.5–5.0 mm long, glandular; pedicels 5.0–9.0 mm long, sericeous (T). Sepals ovate, sericeous (T), 8-glandular, adpressed, elongated. Floral buds yellow. Petals slightly indented at margin. Stamens heteromorphic; filaments approximately 2.0 mm long; anthers approximately 0.8 mm long. Ovary tomentose (V); styles approximately 3.0 mm long, alike or subequal. Samaroid mericarps with four lateral wings, differing from the dorsal wing, glabrescent (T), superior lateral wings 7.5–8.0 mm long, 1.7–2.2 mm wide, inferior lateral wings 7.5–9.0 mm long, 1.9–2.8 mm wide, dorsal wing 2.4–3.0 mm long, 5.4–6.5 mm wide; nut glabrescent to pubescent (T).

Specimens examined: **BRAZIL. Mato Grosso:** Santa Terezinha, 10/XI/1985, fl., J. Pirani 1176 (INPA)**. Mato Grosso do Sul**: Corumbá, 23/II/1996, fl. fr., A. Pott 7654 (SP); 15/XII/1986, fl., C.N. da Cunha 2169 (SP). Miranda, 13/V/1976, fl., G. Hatschbach 38636 (MBM).

Tetrapterys hassleriana occurs on flooded lowland in the Pantanal region of Brazil and Paraguay, and in the Araguaia River (Mato Grosso). This species resembles *T. microphylla* an erect shrub, abaxial surface of lamina sericeous and restricted to highland *cerrados* and *campos rupestres* on Chapada dos Veadeiros (Goiás). *T. hassleriana* is a scandent shrub, abaxial surface of lamina glabrescent occurring in the Pantanal (Mato Grosso do Sul). In the Midwest it flowers from May to December and fruits in February.

5. ***Tetrapterys jussieuana*** Nied. in Das Pflanzenreich 141: 169. 1928.
Figs. 1 and 4C

Subshrub, 0.2–0.5 m, stem sericeous (T). Leaves opposite, rarely subopposite. Foliar lamina 2.1–8.0 cm long, 0.5–2.5 cm wide, elliptic to obovate, base acute, apex acute to slightly cuspidate, margin plane to slightly revolute with glands on the margin at base, abaxial surface sericeous (T), adaxial surface slightly scabrous (T), hairs short, base up to 0.1 mm long and branches up to 1.2 mm long; petiole 2.5–3.0 mm long, sericeous (T), glands rarely at apex; stipules 0.7–1.2 mm long; intrapetiolar, triangular. Inflorescence a simple raceme, lax; bracts 0.8–1.6 mm long, elliptic; peduncle 2.5–3.5 mm long, sericeous (T); bracteoles 1.2–2.3 mm long, glandular at base; pedicels 2.1–4.0 mm long, sericeous (T). Sepals 2.5–3.0 mm long, 1.3–2.2 mm wide, ovate, sericeous (T), 8-glandular, 2.0–2.3 mm long, 1.1–1.5 mm wide, adpressed, elongate. Flower buds orange to yellow. Petals slightly indented at margin, sometimes orange at primary veins, lateral petals, limb 4.5–5.6 mm long, 3.2–4.5 mm wide, claw 1.5–2.5 mm long, posterior petal, limb 5.0–6.0 mm long, 3.0–4.0 mm wide, claw 1.5–2.7 mm long. Stamens heteromorphic; filaments 1.3–2.5 mm long, anthers 1.0–1.3 mm long. Ovary 1.0–1.2 mm long, tomentose (T and V), with lateral wings; styles 2.2–3.6 mm long, alike. Samaroid mericarps with two lateral wings, alike the dorsal wing, sericeous (T), lateral wings 6.0–11.0 mm long, 14.0–23.0 mm wide, dorsal wing 6.0–11.0 mm long, 11.0–20.0 mm wide; nut sericeous (T).

Specimens examined: **BRAZIL. Distrito Federal**: Brasília, 18/X/2003, fl. fr., F.F.O. Pereia *et al.* 2 (UB); 25/IX/2003, fl., G.A. Pereira *et al.* 18 (UB); 3/XI/2005, fl., G.H. Rua 662 (CEN); 9/VI/1999, fl., J.G. Faria & J.B. Ferreira 177 (CEN); 16/X/2007, fr., P.S. Carvalho & C.A.S Correia 345 (UB); 16/X/2007, fr., P.S. Carvalho & C.A.S Correia 346 (UB); 1/XI/2002, fr., R. Rodrigues-da-Silva *et al.* 736 (HEPH). Brazlândia, 28/IX/2004, fl., A.H. Salles *et al.* 3143 (HEPH). Taguatinga, 14/X/1996, fl., S.M. Gomes & R.G. Tostes 161 (CEN). **Goiás**: Alto Paraíso de Goiás, 15/X/2010, fl., A. Francener 1020 (UFG, CGMS); 30/VIII/1998, fr., K.A.C. Rosa *et al.* 11 (HEPH). Caiapônia, 17/XI/2007, fr., S.S. Silva *et al.* 484 (IBGE). Caldas Novas, 22/IX/1993, fr., G.P. da Silva & O. Fumagali 1936 (CEN). Cavalcante, 13/X/2000, fl., F. Bucci 1463 (UFG). Chapada dos Veadeiros, 7/X/1972, fr., J. A. Rizzo 8451 (UFG); 20/VII/1994, fl. fr., M. Aparecida da Silva *et al.* 2174 (IBGE). Cristalina, 15/VIII/1980, fl., G. Hatschbach 43129 (MBM). Leopoldo Bulhões, 28/IX/1993, fr., J.T. Chaves-Filho *et al.* 5 (UFG); Luziânia, 23/X/ 2007, fl., C.H.G. Cezare & A. Machado-Neto 287 (UB). Minaçu, 9/X/1991, fr., T.B. Cavalcanti *et al.* 876 (CEN). Niquelândia, 17/IX/1998, fl., E.L. Jacques *et al.* 800 (CEN, SP); 6/X/1995, fr., T.B. Cavalcanti *et al.* 1794 (CEN). Região do Maranhão Superior, 01/IX/1892, fr., E. Ule s/n (R). Pirenópolis, 4/VIII/1971, fl., J.A. Rizzo & A. Barbosa 6604 e 5853 (UFG); 18/IX/2010, fr., R.D. Sartin 89 (UFG); 18/IX/2010, fl. fr., R.D. Sartin 90 *et al.* (UFG); 9/X/2010, fr., R.D. Sartin, 112 (UFG); 9/X/2010, fr., R.D. Sartin 113 (UFG); 09/X/2010, fr., R.D. Sartin 114 (UFG). São João d'Aliança, 12/X/2006, fl., H.D. Ferreira 4509 (UFG). **Mato Grosso do Sul**: Campo Grande, 4/IX/1936, fl., W.A. Archer & A. Gehrt s/n (SP).

Tetrapterys jussieuana is restricted to the Brazilian Cerrado (*cerrado sensu strictu*, *campo rupestre* and *cerrado rupestre*), from Parana to both Tocantins and Bahia States, usually after fires. Its foliar lamina is sericeous (T), resembling *T. microphylla*, but differing by being a subshrub up to 0.6 m tall (from 0.7 to 2.0 m tall in *T. microphylla*), and samaroid mericarps with two lateral wings alike the dorsal wing (four lateral wings in *T. microphylla*). It is most easily misidentified as *T. ambigua*, but differs from it by the abaxial surface of laminas sericeous (T), and adaxially scabrous (T) (villous to lanose (T) in *T. ambigua*), hairs with base and branches short (base up to 0.1 mm long, and branches 1.2 mm long) (hairs with base and branches long, up to 0.2 mm long at base, and 2.0 mm long at branches). In the Midwest, it flowers from July to November and fruits from July to December.

6. ***Tetrapterys microphylla*** (A.Juss.) Nied. in Verz. Vorles. Lyc. W.-S. 1909/10: 5. 1909.
Figs. 1 and 5A–G

Shrubs 0.7–2.2 m tall, stem glabrous to glabrescent (T), presenting longitudinal clefts, mostly on distal nodes, away from the inflorescence. Leaves opposite; foliar lamina 1.5–3.9 cm long, 0.3–1.3 cm wide, narrow-elliptic, elliptic to obovate, base acute, apex acuminate to apiculate, margin revolute, glandular at margin abaxially, mostly near base, abaxial surface sericeous (T), adaxial surface glabrescent to sericeous (T); petiole 2.0–3.0 mm long, sericeous (T), eglandular; stipules 0.1–0.2 mm long, intrapetiolar, triangular. Inflorescence a simple raceme, slightly congested; bracts 3.0–3.5 mm long, lanceolate; peduncles 4.0–10.0 mm long, sericeous (T); bracteoles 1.5–4.0 mm long, glandular; pedicels 3.7–7.0 mm long, sericeous (T). Sepals 3.1–3.5 mm long, 1.2–2.0 mm wide, ovate, sericeous (T), 8-glandular, 2.0–2.5 mm long, 0.8–1.0 mm wide, adpressed, elongate. Flower buds yellow. Petals slightly indented at margin; lateral petals with limb 4.5–5.0 mm long, 3.1–3.9 mm wide, claw 1.0–1.3 mm long, posterior petal with limb 5.0–6.0

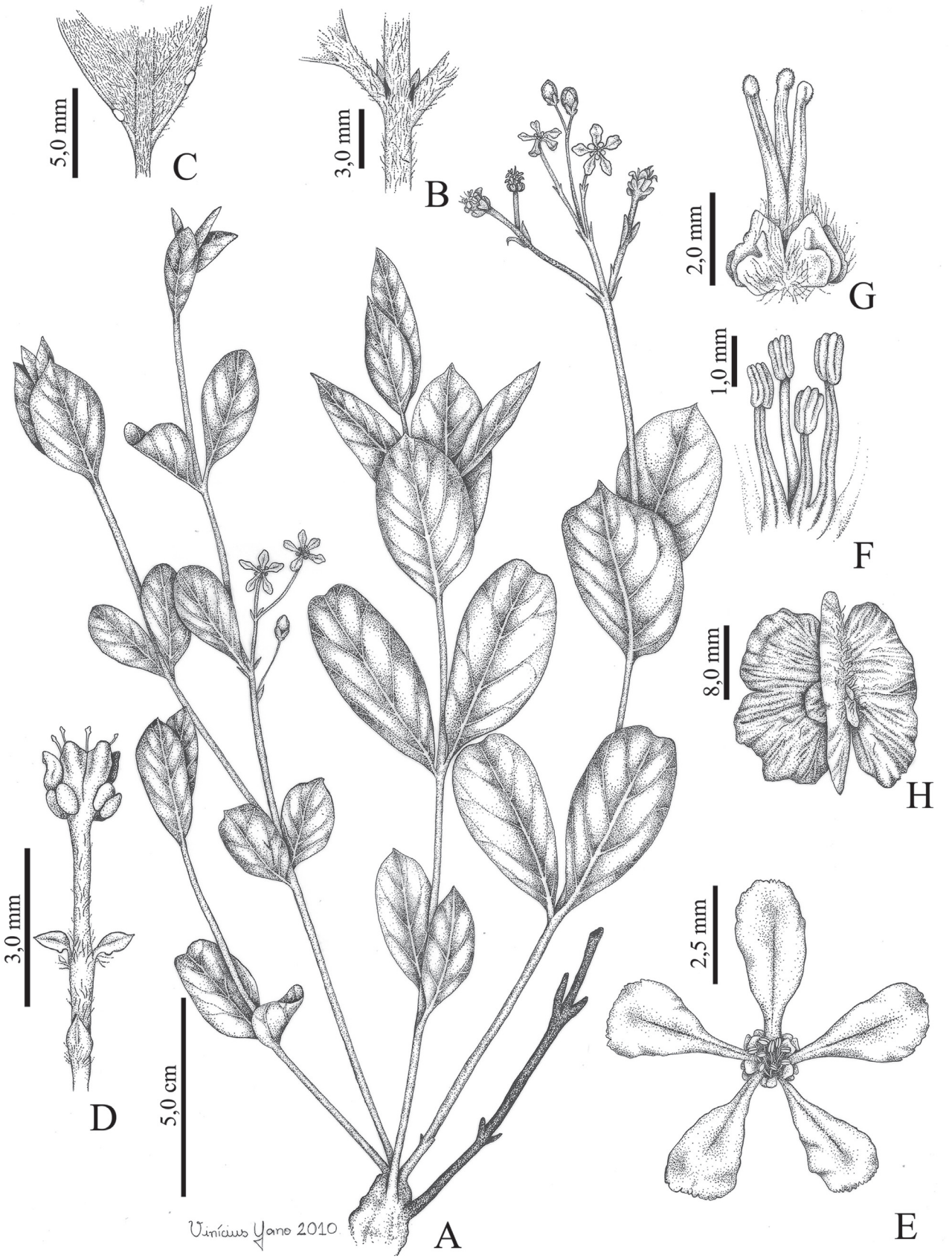

Figure 2. *Tetrapterys ambigua* A) Habit; B) Intrapetiolar stipules; C) Glands on the margin of foliar lamina; D) Bracts and bracteoles; E) Flower in frontal view; F) Stamens connate at base; G) Ovary with lateral wings; H) Samaroid mericarp in frontal view with four lateral wings, alike dorsal wing (A. Francener *et al.* 1023).

mm long, 3.0–3.8 mm wide, claw 1.5–2.0 mm long. Stamens heteromorphic; filaments 1.8–2.7 mm long; anthers 1.0–1.2 mm long. Ovary 0.9–1.4 mm long, tomentose (T), lateral wings; styles 2.0–3.3 mm long, anterior style the longest. Samaroid mericarps with four lateral wings, differing from the dorsal wing, glabrescent (T), superior lateral wings 4.0–5.0 mm long, 2.5–3.5 mm wide, inferior lateral wings 4.4–8.5 mm long, 3.5–5.0 mm wide, dorsal wing 1.5–3.0 mm long, 3.5–4.2 mm wide, rarely with outgrowths between dorsal and lateral wings; nut tomentose (T).

Specimens examined: **BRAZIL. Goiás**: Alto Paraíso de Goiás: A. Francener *et al.* 1028, 16/X/2010, fl. fr., (CGMS, UFG); 26/V/1994, fl., C. Munhoz *et al.* 162 (UB); 31/V/1997, fl., C. Munhoz *et al.* 409 (HEPH, UB); 10/VIII/2007, fl. fr., C. Proença & S.A Harris 3401 (UB); 10/X/1979, fl., E.P. Heringer *et al.* 2329 (IBGE); 30/XI/1998, fl. fr., R. Kral *et al.* 75763 (SP); 23/X/1996, fl. fr., R. Marquete *et al.* 2765 (IBGE); 16/VIII/1995, fl., R. Marquete *et al.* 2293-A (IBGE); 10/IX/1996, fl., R.C. Mendonça *et al.* 2626 (IBGE, UFG); 23/VIII/1993, fl., S. Splett 61 (UB); 3/VI/1999, fl. fr., T.B. Cavalcanti & R.M. Silva 2504 (CEN); 24/VI/1994, fl., V.L. Gomes-Klein *et al.* 2447 (UFG). Chapada dos Veadeiros, 18/VII/1964, fl., G.T. Prance & N.T. Silva s/n (UB); 21/X/1965, fl. fr., H.S. Irwin *et al.* 9389 (UB); 19/II/1969, fl., H.S. Irwin *et al.* 23538 (UB); 25/III/1971, fl. fr., H.S. Irwin *et al.* 33164 (UB); 8/II/1987, fl., J.R. Pirani *et al.* 1887 (SP); 21/XII/1968, fr., M. Graziela & A. José s/n (UB); 6/III/1973, fl., W. R. Anderson 6434 (UB); 15/VIII/1990, fl., T. B. Cavalcanti *et al.* 676 (CEN, HEPH, HUEFS, IBGE).

Tetrapterys microphylla is restricted to Brazil in highland *cerrados* and *campos rupestres* in Bahia, Goiás, Minas Gerais and Tocantins. In the Midwest, it is a shrub endemic to Chapada dos Veadeiros. It resembles *T. jussieuana*, but differs in its habit (a subshrub in *T. jussieuana*), and on the samaroid mericarps with four lateral wings differing from the dorsal wing (samaroid mericarps with just two lateral wings, alike the dorsal wing in *T. jussieuana*). In the Midwest it flowers and fruits from June to March.

7. *Tetrapterys mucronata* Cav. in Monadelphiae Classis Dissertationes Decem 9: 434, tab. 262: 2. 1790.
Figs. 1 and 6A–F

Liana, stem glabrous, sericeous to farinaceous (T), with small longitudinal clefts. Leaves opposite; foliar laminas 5.9–11.0 cm long, 2.4–7.0 cm wide, elliptic, base acute, apex cuspidate, margin revolute, glands between primary vein and margin, mostly near base, abaxial surface, glabrous, adaxial surface glabrous to glabrescent (T); petiole 8.0–15.0 mm long, glabrous to glabrescent, eglandular; stipules 0.4–0.6 mm long, interpetiolar, free, oblong. Inflorescence a raceme ending in umbels; foliose bracts 2.2–9.0 mm long, 1.5–2.0 mm wide, lanceolate, a pair of glands at base; bracts 0.6–1.2 mm, lanceolate; peduncle 2.0–3.0 mm long, glabrescent to sericeous (T); bracteoles 0.6–1.0 mm long, eglandular; pedicel 2.0–5.5 mm long, glabrescent to sericeous (T). Sepals 1.6–2.0 mm long, 1.5–1.8 mm wide, rounded, sericeous (T), 8-glandular, 2.0–2.2 mm long, 1.8–2.0 mm wide, stalked, auriculate to absent. Floral buds yellow. Petals entire at margin, lateral petals, limb 4.0–4.7 mm long, 2.5–3.6 mm wide, claw 1.4–2.0 mm long, posterior petal, limb 2.3–3.0 mm long, 2.2–2.5 mm wide, claw 2.1–2.5 mm long. Stamens near posterior petal smaller than others; filaments 1.0–3.0 mm long; anthers 1.3–1.9 mm long. Ovary 0.9–2.0 mm long, glabrous, with lateral wings; styles 2.9–5.5 mm long, unequal. Samaroid mericarps with four lateral wings, differing from the dorsal wing, glabrous, superior lateral wings 6.0–12.6 mm long, 1.7–3.3 mm wide, inferior lateral wings 4.2–5.6 mm long, 1.5–2.1 mm wide, dorsal wing 1.6–5.0 mm long, 4.0–5.0 mm wide, with outgrowths between the dorsal wing and lateral wings; nut glabrous.

Specimens examined: **BRAZIL. Distrito Federal**: unkown locality, 17/X/1979, fl., O.A. Costa s/n (R). **Mato Grosso:** Cáceres, 1/VII/1911, fl., Comissão Rondon 4084 (R); 11/VIII/2002, fr., M. Schessl 6154 (HPAN). Mundo Novo, 27/VIII/2008, fr., D. Sasaki 2461 (HERBAM); 12/II/2009, fr., D. Zappi 1236 (HERBAM) São Luis de Cáceres, 21/VIII/1908, fl. fr., F.C. Hoehne 180 (R); São Luis de Cáceres, 21/VIII/1908, fl. fr., F.C. Hoehne 181 (R).

Additional specimens examined: **BRAZIL. Amazonas**: Reserva Florestal Ducke, 5/VI/1993, fl., J.E.L.S Ribeiro *et al.* 875 (UFMT). **Bahia**: Umburanas, 13/VIII/1999, fl., E. de Melo *et al.* 2790 (HUEFS); 13/VIII/1999, fl., E. de Melo *et al.* 2828 (HUEFS). **Espírito Santo**: Conceição do Castelo, 20/VIII/1987, fl. fr., G. Hatschbach *et al.* 51316 (UB). **Minas Gerais**: Marliéria, 19/IX/1975, fl. fr., E.P. Heringer & G. Eiten 15067 (UB). **Rio de Janeiro**: São Gonçalo a Laranjal, 26/VII/1876, fl., A.F.M. Glaziou 8585 (R).

Tetrapterys mucronata Cav. occurs in the forest in the entire Brazil, and in Bolivia extending to Panama and the lesser Antilles. It resembles *T. crispa* and *T. discolor* by the foliose bracts. However, *T. mucronata* differs from them by showing interpetiolar stipules free, and sepals with adpressed, auriculate glands (interpetiolar stipules connate and sepals with adpressed and elongate glands in *T. crispa* and *T. discolor*). In the Midwest it flowers from October to June and fruits from August to September.

8. *Tetrapterys racemulosa* A.Juss. in. Arch. Mus. III. 547. 1843.

Shrub 0.5–0.7 m, stem tomentose (T). Leaves opposite; foliar lamina 3.0–6.3 cm long, 1.2–3.0 cm wide, elliptic, base cuneate, apex acuminate, margin plane or slightly revolute, glandular at margin, mostly near base, abaxial surface tomentose (T), adaxial surface pubescent (T), mostly near veins; petiole 4.0–7.0 mm long, tomentose (T), eglandular; stipules 1.2–1.5 mm long, intrapetiolar, lanceolate. Inflorescence a simple raceme, lax; bracts 4.0–5.0 mm long, lanceolate; peduncles 3.0–7.0 mm long, velutinous to tomentose (T); bracteoles 2.0–3.0 mm long, glands at base or middle

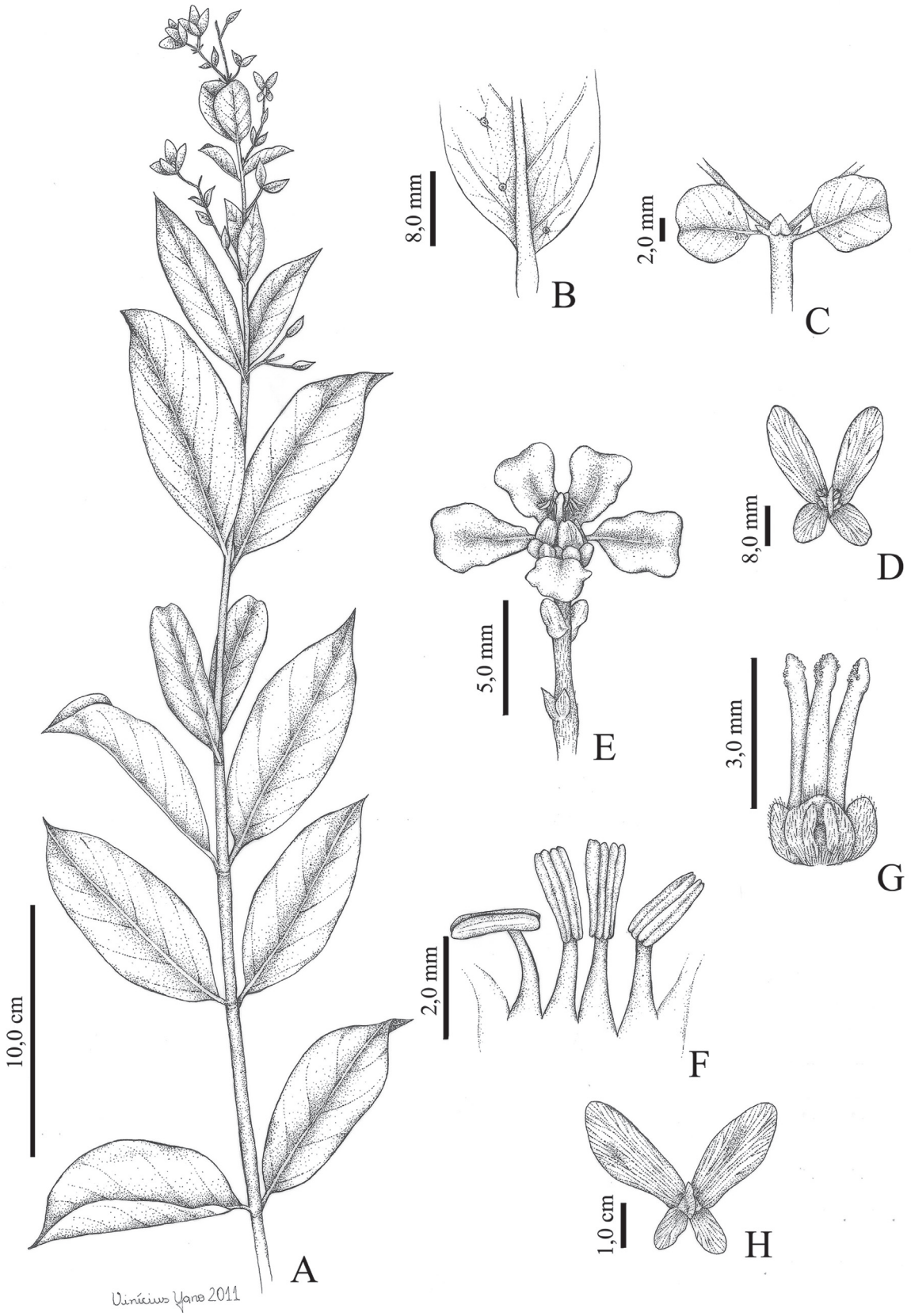

Figure 3. *Tetrapterys discolor* A) Habit; B) Glands on foliar lamina; C) Interpetiolar stipules connate; D) Samaroid mericarp in frontal view with outgrowths between dorsal and lateral wings (M. Macedo & R. Godinho 4246). *T. crispa* E) Flower with bracts and bracteoles; F) Stamens connate at base; G) Ovary with lateral wings; H) Samaroid mericarps in frontal view without outgrowths between dorsal and lateral wings (B. Dubs 2159).

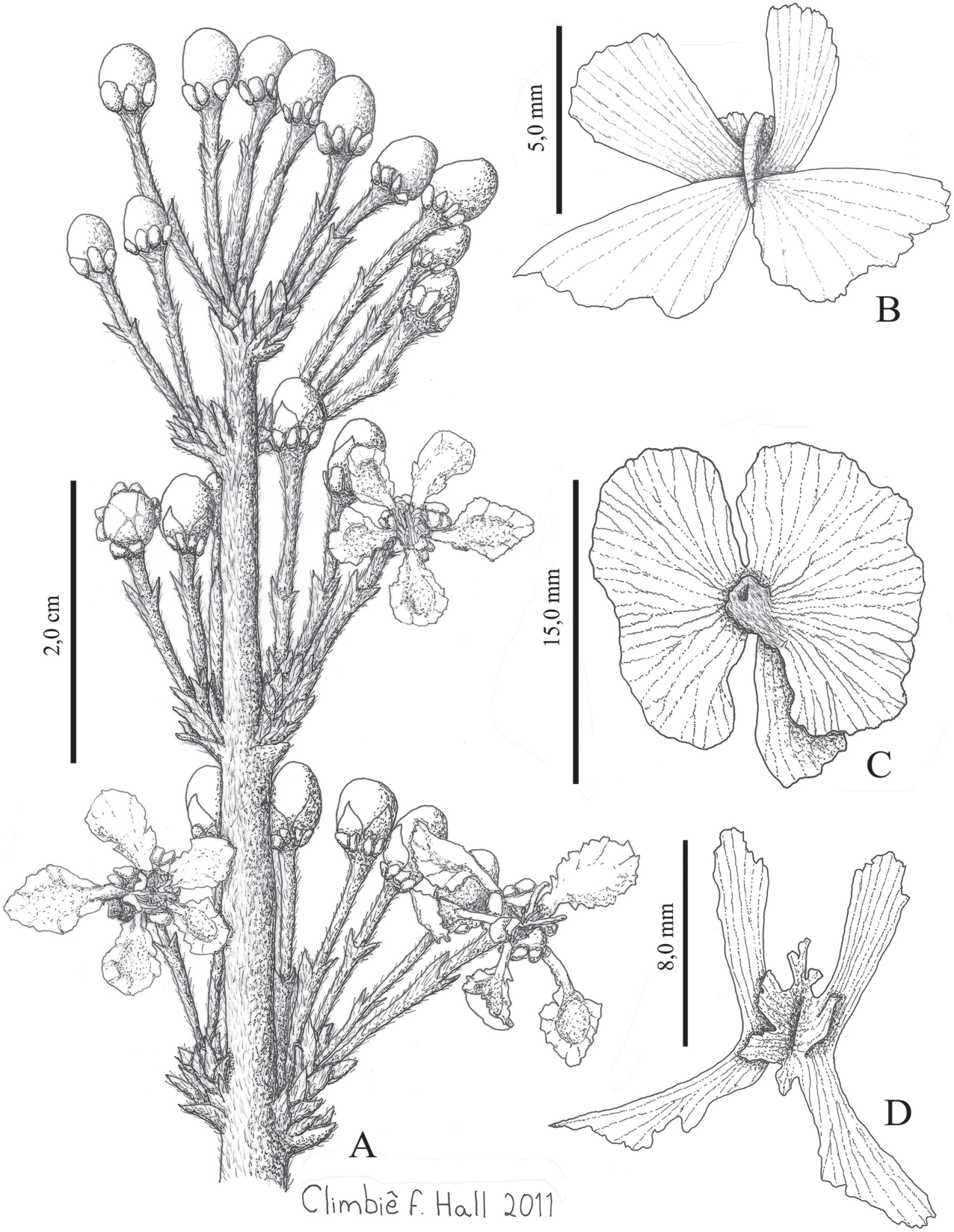

Figure 4. *Tetrapterys ramiflora* A) Habit (M.C. Andrade s/n); B) Samaroid mericarp in frontal view with lateral wings differing from the dorsal wing (R.D. Sartin 103); *T. jussieuana* C), Samaroid mericarp in frontal view with four lateral wings, alike the dorsal wing. (A. Francener *et al.* 1020). *T. hassleriana* D) Samaroid mericarp in frontal view with lateral wings differing from the dorsal wing (A. Pott 7654).

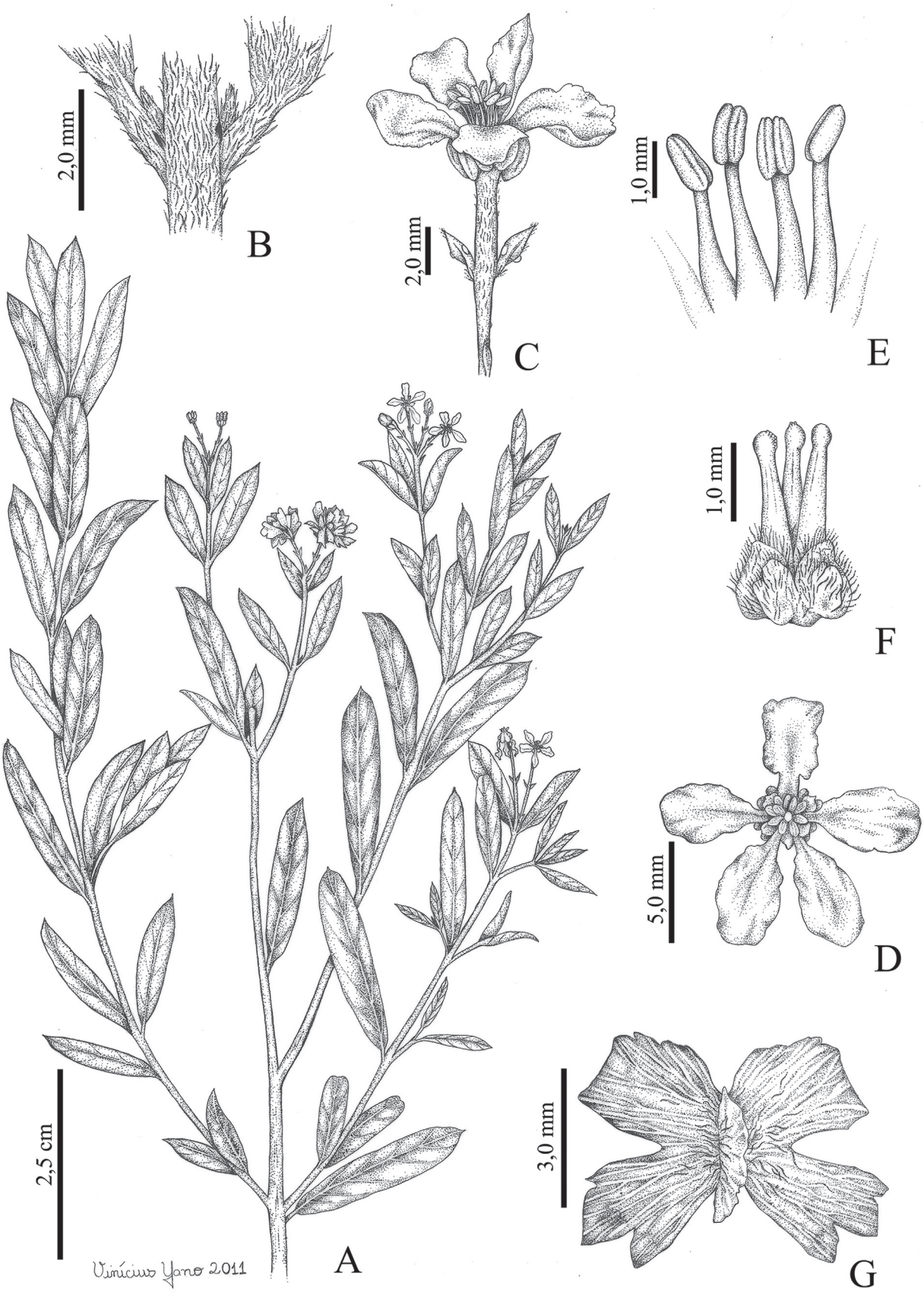

Figure 5. *Tetrapterys microphylla* A) Habit; B) Interpetiolar stipules; C) Flower with bracts and bracteoles; D) Flower in frontal view; E) Stamens connate at base; F) Ovary with lateral wings; G) Samaroid mericarp in frontal view with lateral wings differing from the dorsal wing (A. Francener *et al.* 1028).

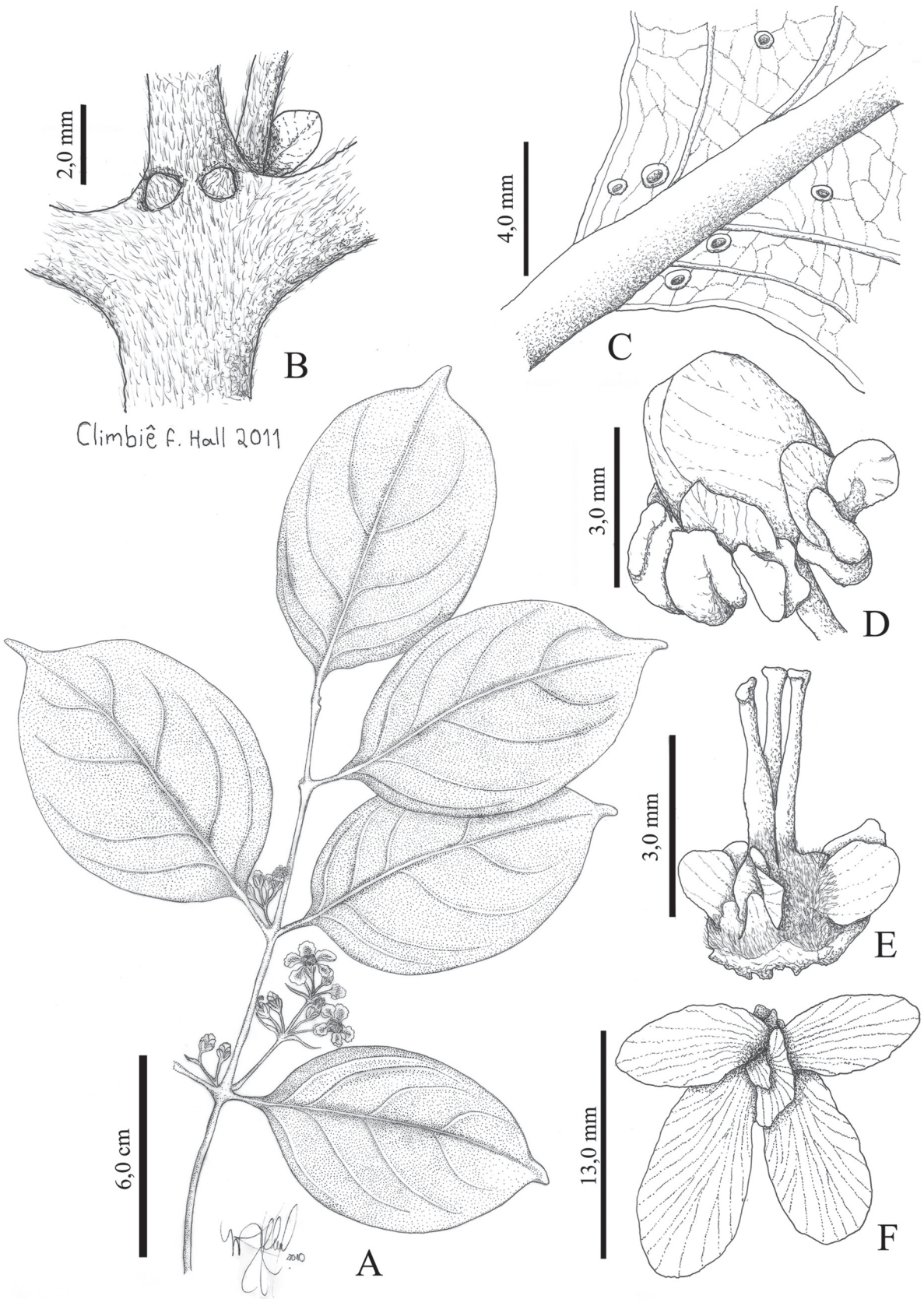

Figure 6. *Tetrapterys mucronata* A) Habit; B) Interpetiolar stipules free; C) Glands on foliar lamina; D) Glands pedunculate, auriculate at sepals; E) Ovary with lateral wings; F) Samaroid mericarp in frontal view with four lateral wings, differing from the dorsal wing (A, B and C: J.E.L.S, Ribeiro *et al.* 875) and (D, E and F: F.C. Hoehne 181).

when present; pedicels 7.0–10.0 mm long, velutinous to tomentose (T). Sepals 3.2–3.9 mm long, 1.4–1.5 mm wide, triangular, sericeous (T), 8-glandular, glands 1.8–2.2 mm long, 0.9–1.0 mm wide, adpressed, elongate. Flower buds yellow. Petals slightly indented at margin, lateral petals, limb 4.0–4.4 mm long, 3.0–3.7 mm wide, claw 0.5–1.2 mm long, posterior petal, limb 4.0–4.2 mm long, 2.9–3.0 mm wide, claw 1.4–1.5 mm long. Stamens heteromorphic; filaments 1.1–1.8 mm long; anthers 1.5–1.7 mm long. Ovary 1.0–1.4 mm long, velutinous (T), with lateral wings; styles 2.0–2.2 mm long, alike. Samaroid mericarps with four lateral wings, alike the dorsal wing, glabrescent to pilose (T), superior lateral wings 6.0–11.0 mm long, 6.0–9.0 mm wide, inferior lateral wings 7.0–10.0 mm long, 6.0–10.0 mm wide, dorsal wing 11.0–13.0 mm long, 6.7–9.0 mm wide, with lateral outgrowths; nut tomentose (T).

Specimens examined: **BRAZIL. Mato Grosso do Sul**: Corumbá. 31/X/2010, fl. fr., F.G.M. Caporal 1007 (CGMS).

Additional specimens examined: **BOLÍVIA. Provincia de Ñuflo de Chávez**: San Antonio. 12/XII/1993, fr., M. Toledo & G. Chuvé 333 (USZ).

Tetrapterys racemulosa occurs in wooded savanna and in Cerrado *sensu strictu* of Brazil and Bolivia. In Brazil is is only present in the State of Mato Grosso do Sul. It shows a lax racemose inflorescence, resembling *T. ambigua* and *T. jussieuana*, with all of them presenting samaroid mericarps with lateral wings alike the dorsal wing. However, *T. racemulosa* shows a samaroid mericarp with four lateral wings (two superior and two inferior wings), while *T. ambigua* and *T. jussieuana* show a samaroid mericarp with just two lateral wings. In the Midwest it flowers and fruits in October.

9. ***Tetrapterys ramiflora*** A.Juss. in. A. St-Hil. Fl. Bras. Mer. 3: 8. 1832.
Figs. 1 and 4A–B

Subshrub to shrub 1.0–2.2 m tall, stem glabrescent to tomentose (T), sometimes with scattered lenticels. Leaves opposite; foliar lamina 5.0–12.0 cm long, 1.5–5.3 cm wide, elliptic, base acute, apex acuminate, margin plane to revolute, with a par of glands at margin, mostly near base, abaxial surface glabrescent to tomentose (T), hairs most densely arranged near primary veins, adaxial surface tomentose (T); petiole 4.5–10.0 mm long, tomentose (T), eglandular or 1–2-glandular; stipules 1.3–4.0 mm long, intrapetiolar, triangular. Inflorescence a raceme of cincinii, sessile, congested at stem (cauliflorous); bracts 2.0–3.8 mm, triangular, sometimes with many glands; peduncle 2.5–10.8 mm long, tomentose (V and Y); bracteoles 2.3–3.3 mm long, glands usually at base or absent; pedicel 3.5–12.0 mm long, tomentose (V and Y). Sepals 2.8–4.5 mm long, 1.0–2.2 mm wide, ovate, sericeous (T), 8-glandular, glands 1.7–2.9 mm long, 0.8–1.3 mm wide, adpressed, elongate. Floral buds orange to yellow. Petals slightly indented at margin, sometimes with orange veins; lateral petals, limb 3.7–7.7 mm long, 3.3–4.6 mm wide, claw 0.8–1.7 mm long, posterior petal, limb 4.0–6.0 mm long, 3.0–4.0 mm wide, claw 1.5–2.5 mm long. Stamens heteromorphic; filaments 0.8–3.3 mm long; anthers 0.8–1.3 mm long. Ovary 1.2–1.8 mm long, tomentose (T and V), with lateral wings; styles 2.2–3.0 mm long, equal to subequal. Samaroid mericarps with four lateral wings, differing from the dorsal wing, glabrous, glabrescent to tomentose (V), superior lateral wings 3.2–8.6 mm long, 1.4–6.0 mm wide, inferior lateral wings 2.5–10.0 mm long, 2.7–6.0 mm wide, dorsal wing 1.5–4.0 mm long, 2.1–6.5 mm wide, sometimes with outgrowths between the dorsal and lateral wings; nut glabrescent (V and Y).

Specimens examined: **BRAZIL: Distrito Federal**: Brasília, 15/X/2003, fr., C. Proença *et al.* 2704 (UB); 26/VII/1990, fl. fr., L.B. Bianchetti *et al.* 912 (CEN); 13/IX/2008, fl. fr., M. Aparecida da Silva 6587 (IBGE); 17/VIII/2000, fl., M.G. Nobrega 1270 (HEPH); Gama, 17/IX/1996, fl. fr., S.M. Gomes *et al.* 72 (CEN). **Goiás**: Aparecida de Goiânia, 30/VI/2003, fl. fr., J.B.A. Bringel & J.F.B. Pastore 34 (CEN). Caldas Novas, 16/VIII/2008, fl. fr., A. Francener *et al.* 630 (UFG). Goiânia, 6/VIII/1968, fl., J. A. Rizzo & A. Barbosa 1912 (UFG); 27/IX/2010, fl. fr., R.D. Sartin 103 (UFG). Goiânira, 22/VIII/1970, fl., J.A. Rizzo 5436 (UFG). Morrinhos, 28/VIII/1970, fl., J. A. Rizzo 5469 (UFG). Pirenópolis, 22/IX/2008, fl. fr., A. Francener 663 (UFG); 18/IX/2010, fr., R.D. Sartin 92 (UFG). **Mato Grosso**: Acorizal, 24/VIII/1984, fr., L. Coradin *et al.* 6876 (CEN). Araguainha, 31/VII/2009, fl. fr., A. Francener *et. al.* 839 (CGMS, UFG). Barra do Garças, 15/IX/1968, fl., G. Eiten & L.T. Eiten 8789 (SP). Cáceres, 09/VI/2002, fl. Fr., M. Schessl 6022 (HPAN). Cuiabá, 30/IX/1980, fl., A.L. Prado *et al.* s/n (UFMT); 8/IX/1992, fl., G.L. Webster 29729 (UB). 20/IX/1968, fl. fr., R.M. Harley & R. Souza 10141 (UB). Nova Mutum, 12/VIII/2010, fl. fr., A. Francener & A.F.N. Gonzaga 996 (CGMS, UFG, UFMT). **Mato Grosso do Sul**: Alcinópolis, 11/X/2007, fl. fr., A. Pott 14586 (CGMS, UFG). Corguinho, 15/V/2009, fl., M.C. Andrade s/n (CGMS). Sonora, 5/VIII/2001, fl. fr., U.M. Resende & S. Aragaki 2681 (CGMS). Três Lagoas, 24/V/1993, fl., A.D. Caliente *et al.* 1152 (SP).

Additional specimens examined: **BRAZIL: São Paulo**: Botucatu, 22/X/1971, fl., I.S. Gottsberger, 2166 (UB).

Tetrapterys ramiflora is endemic to Brazil and mostly occurs in Cerrado areas. It is a shrubby species that loses its leaves when flowering and fruiting. It differs from all *Tetrapterys* species in the Midwest by the inflorescence in racemes of cincinii. In the Midwest, it flowers from May to October and fruits from June to October.

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