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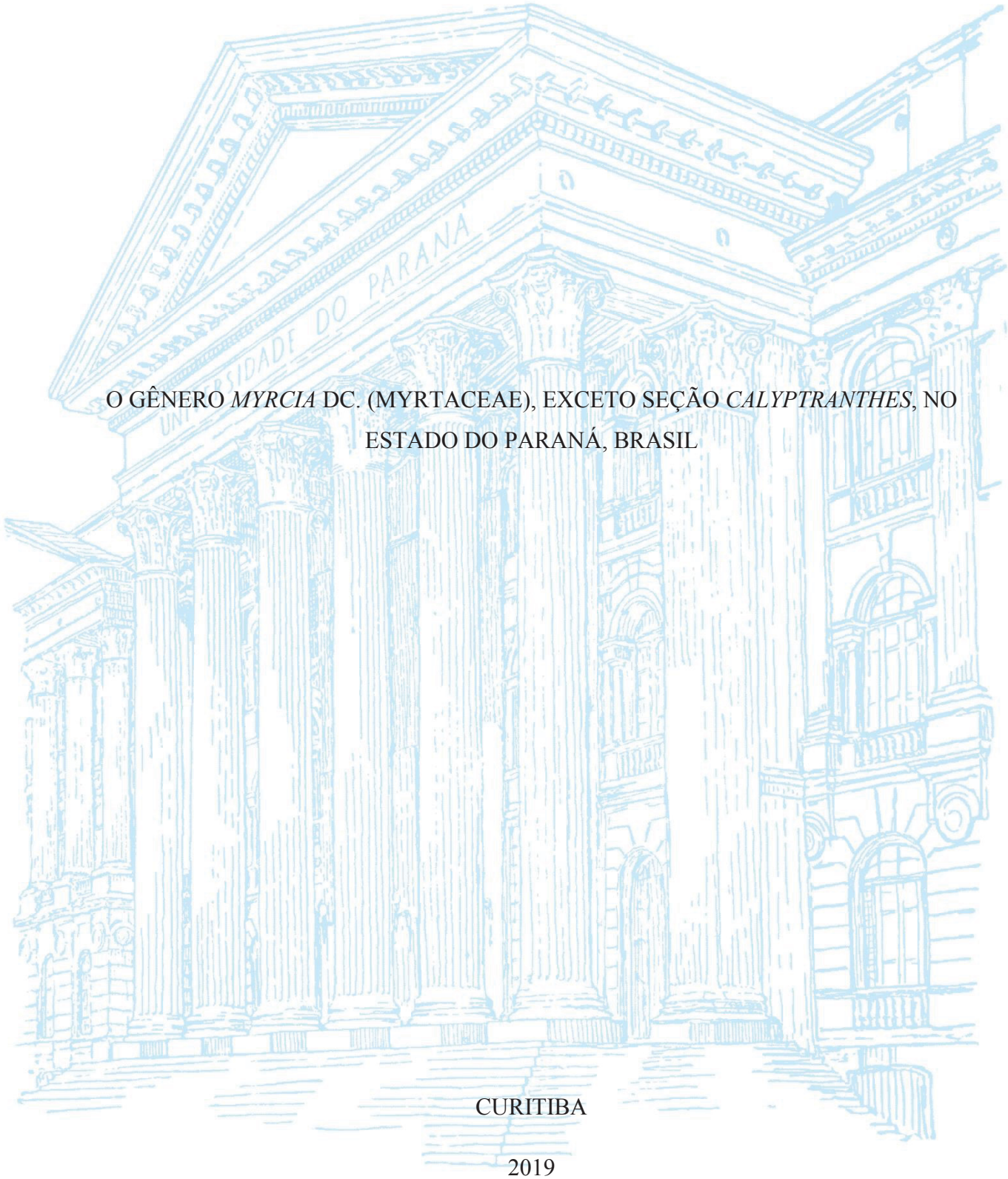

O GÊNERO *MYRCIA* DC. (MYRTACEAE), EXCETO SEÇÃO *CALYPTRANTHES*, NO ESTADO DO PARANÁ, BRASIL

CURITIBA

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Dissertação apresentada ao curso de Pós-Graduação em Botânica, Setor de Ciências Biológicas, Universidade Federal do Paraná, como requisito parcial à obtenção do título de Mestre em Botânica.

Orientador: Prof.º Dr. Renato Goldenberg
Coorientadora: Dra. Duane Fernandes Lima

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Setor de Ciências Biológicas
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O gênero *Myrcia* DC. (Myrtaceae), exceto seção *Calyptranthes*, no estado do Paraná, Brasil

por

Laura Calderan de Lannoy

Dissertação aprovada como requisito parcial para obtenção do grau de Mestre no Programa de Pós-Graduação em Botânica, pela Comissão formada pelos doutores

Renato Goldenberg

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Se seu corpo ficasse marcado

por características diagnósticas,

eeeu saberia,

o-ra-vai-Myr-cia,

à que espécie você pertencia...

"Mora na Taxonomia", adaptação da autora. Original "Mora na Filosofia", Caetano Veloso.

RESUMO

Myrtaceae é uma das famílias com maior número de espécies da ordem Myrtales e uma das mais ricas do Brasil. O gênero *Myrcia* é o quarto maior gênero da família, com aproximadamente 770 espécies, distribuídas da América Central e Caribe ao sul da América do Sul. Nele recentemente foram sinonimizados os tradicionais gêneros *Calyptranhtes*, *Gomidesia* e *Marlierea*, formando um grupo monofilético e dividido em nove seções, de acordo com dados moleculares e morfológicos. No Brasil ocorrem 393 espécies de *Myrcia*, das quais 304 são endêmicas. O tratamento taxonômico de *Myrcia* seção *Calyptranthes* para o estado do Paraná já foi realizado, contando com oito espécies. Nós complementamos este primeiro trabalho e realizamos o tratamento taxonômico das outras seções de *Myrcia* para o estado do Paraná, contribuindo para o projeto 'Flora do Estado do Paraná'. Foram realizadas análises morfológicas dos espécimes, consultas em bases *online* e em referências bibliográficas. A dissertação está dividida em dois capítulos. O primeiro capítulo trata de tipificações e proposta de sinonimização de *Myrcia lajeana* e *Myrcia laruotteana* sob *Myrcia selloi*. O segundo é o tratamento taxonômico descrito acima. O estado conta com 46 espécies de *Myrcia*, exceto seção *Calyptranthes*, distribuídas em todos os domínios fitogeográficos. Vinte nomes de *Myrcia* e seus gêneros aliados foram excluídos de listas prévias de espécies ou listados como duvidosos; duas novas espécies foram encontradas, mas ainda não publicadas.

Palavras-chave: *Calyptranthes*. *Gomidesia. Marlierea*. Myrteae. Taxonomia. Tipificação.

ABSTRACT

Myrtaceae is one of the largest family within the Myrtales and one of the richest families in Brazil. *Myrcia* is the fourth largest genus of Myrtaceae, with approximately 770 species distributed from Central America and Caribbean to southern South America. The traditional genera *Calyptranthes*, *Gomidesia* and *Marlierea* were recently synonymized under *Myrcia*, in order to recognize a monophyletic group, and is now divided in nine sections that agree with molecular and morphological data. In Brazil, *Myrcia* has 393 species, from which 304 are endemic. The taxonomic treatment of *Myrcia* section *Calyptranthes* in the state of Paraná has already been done, including eight species. We complement that work and present a taxonomic treatment of all other sections of *Myrcia* in Paraná, contributing to the project 'Flora of the State of Paraná'. This study was performed through analyses of herbarium specimens, online databases and bibliography, and it is divided in two chapters. The first one comprises typifications and the synonymizations of *Myrcia lajeana* and *Myrcia laruotteana* under *Myrcia selloi*. The second chapter is the taxonomic treatment, as described above. The state of Paraná has 46 species of *Myrcia*, except section *Calyptranthes,* distributed in all vegetation types. Twenty names of *Myrcia* and related genera were excluded from previous lists of species or listed as doubtful species; in addition, two new species were found.

Keywords: *Calyptranthes*. *Gomidesia. Marlierea*. Myrteae. Taxonomy. Typification.

SUMÁRIO

INTRODUÇÃO

Myrtaceae Juss. é monofilética e apresenta um dos maiores número de espécies dentre as famílias da ordem Myrtales, com ca. de 5500 em 144 gêneros (BERGER et al., 2016; VASCONCELOS et al., 2017). Austrália, sudeste da Ásia e América do Sul são os centros de diversidade do grupo (WILSON et al*.,* 2001). É uma das famílias mais ricas do Brasil, com 23 gêneros e 1026 espécies ocorrentes em todos os estados e domínios fitogeográficos, das quais 786 são endêmicas (FLORA DO BRASIL 2020). Myrtaceae são árvores ou arbustos caracterizados pelo córtex geralmente esfoliante, folhas opostas, alternas (neste caso, principalmente em gêneros não nativos do Brasil) ou raramente verticiladas, simples, com margem inteira, glândulas oleíferas e fequentemente com nervura marginal coletora. A inflorescência é geralmente cimosa e às vezes reduzida a apenas uma flor; as flores são vistosas, geralmente brancas, bissexuadas, actinomorfas e comumente diclamídeas, com cálice e corola (3–)4–5(–6)-meros, estames numerosos e vistosos e ovário ínfero. O fruto pode ser baga, drupa, cápsula ou núcula (WILSON et al*.,* 2001; SOUZA & LORENZI, 2012). Antigamente, a família Myrtaceae era dividida em duas subfamílias: Myrtoideae, com frutos carnosos, e Leptospermoideae, com frutos capsulares. Entretanto, estudos moleculares apontam que táxons com frutos carnosos não formam um grupo monofilético (WILSON et al*.,* 2001; 2005). Desta forma, estes mesmos autores propõem uma nova classificação de Myrtaceae em duas subfamílias: Psiloxyloideae, com plantas dioicas de folhas espiraladas e base cromossômica x=12, e Myrtoideae, com flores bissexuais, folhas espiraladas ou opostas, e base cromossômica x=11. Psyloxyloideae é composta por duas tribos: Psiloxyleae e Heteropyxideae; e Myrtoideae por 15 tribos: Xanthostemoneae, Lophostemoneae, Osbornieae, Melaleuceae, Kanieae, Backhousiineae, Metrosidereae, Tristanieae, Syzigieae, Myrteae, Eucalypteae, Syncarpieae, Lindsayomyrteae, Leptospermeae e Chamaleucieae (WILSON et al*.,* 2005). Todos os gêneros de Myrtaceae nativos das Américas pertencem à tribo Myrteae, exceto por uma espécie andina da tribo Metrosidereae, *Metrosideros stipularis* (Hook. & Arn.) Hook.f. (LUCAS et al., 2005; PILLON et al*.,* 2015).

Myrteae compreende 49 gêneros e cerca de 2500 espécies de árvores ou arbustos com distribuição pantropical. É caracterizada por folhas opostas; inflorescência axilar, às vezes paniculada; perianto livre ou cálice caliptrado; flores dialipétalas, 4–5 meras (raramente sem pétalas); anteras com deiscência longitudinal por fendas; ovário geralmente com 2 ou 3 lóculos; fruto indeiscente, carnoso; sementes frequentemente numerosas (WILSON et al*.,* 2005). Análises moleculares com dados nucleares e plastidiais combinados suportam a

formação de dez grupos em Myrteae, informalmente nomeados grupos *Plinia, Myrcia, Myrceugenia, Myrteola, Pimenta, Eugenia, Psidium, Blepharocalyx, Myrtus* e Australasiano (LUCAS et al*.,* 2007; VASCONCELOS et al*.,* 2017). O grupo de *Myrcia*, também chamado de *Myrcia sensu lato*, é caracterizado por cotilédones foliáceos com testa macia, média de 5 óvulos por ovário, óvulos inseridos ao longo do comprimento do septo e frequentemente abaixo da sua metade, e ausência de placas escalariformes. Neste grupo estão inseridos os tradicionais gêneros *Calyptranthes* Sw*., Gomidesia* O.Berg*., Marlierea* Cambess. e *Myrcia sensu stricto* DC., que se mostraram não monofiléticos em relação uns aos outros em estudos recentes (LUCAS et al., 2007, LUCAS et al. 2011). Morfologicamente, *Calyptranthes* seria distinto dos demais pelos lobos do cálice fundidos, abrindo-se como uma caliptra na antese; *Gomidesia* seria distinguido pelas anteras subquadrangulares posicionadas em alturas levemente diferentes entre si; *Marlierea* seria frequentemente reconhecido pelos lobos do cálice fusionados no botão e abrindo-se irregularmente, com flores geralmente 4-meras e tricomas dibraquiados; por fim *Myrcia* teria cinco lobos do cálice livres entre si desde o botão floral. Atualmente, todos os gêneros acima estão sinonimizados em *Myrcia*, formando um grupo monofilético (LUCAS et al., 2018; FLORA DO BRASIL 2020). Neste cenário, *Myrcia* é dividido em nove seções de acordo com dados moleculares e morfológicos: *Myrcia* seção *Aguava* (Raf.) D.F.Lima & E.Lucas, seção *Aulomyrcia* (O.Berg) Griseb., seção *Calyptranthes* (Sw.) A.R.Lourenço & E.Lucas, seção *Eugeniopsis* (O.Berg) M.F.Santos & E.Lucas, seção *Gomidesia* (O.Berg) B.S.Amorim & E.Lucas, seção *Myrcia*, seção *Reticulosae* D.F.Lima & E.Lucas, seção *Sympodiomyrcia* M.F.Santos & E.Lucas e seção *Tomentosae* E.Lucas & D.F.Lima (LUCAS et al., 2018).

Myrcia s.l. (daqui em diante chamado simplesmente de *Myrcia*) é exclusivamente neotropical, quarto maior gênero da família e segundo maior entre as Myrtaceae Neotropicais, com aproximadamente 770 espécies (GOVAERTS et al*.,* 2019; LUCAS et al., 2007, 2018). A maior riqueza de espécies é encontrada no Cerrado e diferentes ambientes do bioma Mata Atlântica brasileiros, mas também há uma grande diversidade de espécies na Amazônia e no Caribe (LUCAS et al., 2018). O último estudo taxonômico completo feito para os gêneros que compõem *Myrcia* foi realizado na Flora Brasiliensis (BERG, 1857-1859) e, atualmente, diferentes grupos de *Myrcia* têm sido revisados (e.g. SANTOS, 2014; LUCAS et al*.,* 2016; AMORIM, 2017; LIMA, 2017; LIMA et al., 2018; FERNANDES et al., in prep.). No Brasil, ocorrem 393 espécies de *Myrcia* distribuídas em todos os estados e domínios fitogeográficos; 304 espécies são endêmicas (FLORA DO BRASIL 2020). Alguns estados brasileiros já

contam com tratamentos taxonômicos dos tradicionais gêneros que compõem *Myrcia* (*Calyptranthes*, *Myrcia* s.s., *Marlierea* e *Gomidesia*): Distrito Federal (DE-CARVALHO, 2007), Goiás (ROSA, 2015), Mato Grosso do Sul (PROENÇA et al., 2018), campos rupestres de Minas Gerais (ROSA & ROMERO, 2012), Rio Grande do Sul (SOBRAL, 2003), Santa Catarina (LEGRAND & KLEIN, 1967, 1969, 1971a, 1971b), São Paulo (CALIARI, 2013), Sergipe (PROENÇA et al*.,* 2013) e Tocantins (ROSA, 2015).

O estado do Paraná conta com 24 gêneros e 268 espécies de Myrtaceae, das quais 231 são nativas e 37 exóticas (SOBRAL, 2014). Dentre estes, *Eugenia* L. (SOBRAL, 2011) e *Campomanesia* Ruiz & Pav. (LIMA et al*.,* 2011) possuem tratamentos taxonômicos para o estado. Além de *Eugenia*, o estado ainda tem trabalhos para alguns dos gêneros mais diversos de angiospermas (e.g. *Miconia* Ruiz & Pav. [GOLDENBERG, 2004] e *Ocotea* Aubl. [BROTTO et al*.,* 2013]), mas ainda não conta com um tratamento taxonômico para *Myrcia*.

Os gêneros mais ricos em espécie da família Myrtaceae são taxonomicamente instáveis (LUCAS et al., 2011) e tratamentos regionais são de grande importância para o levantamento de informações e ferramentas de identificação para estes gêneros grandes e complexos. Fazendo uma busca por *Myrcia* (exceto seção *Calyptranthes*) no Paraná, são encontrados números diferentes de registros de espécies (por exemplo, 50 espécies segundo Sobral [2014] ou 55 espécies segundo Flora do Brasil 2020), o que também indica a necessidade de um estudo aprofundado do gênero. O território paranaense é limite de muitas formações vegetacionais que, em conjunto com outros fatores, contribui para uma grande diversidade ambiental (LABIAK, 2014). Assim sendo, estudos taxonômicos podem auxiliar a encontrar espécies ainda desconhecidas, assim como melhorar o entendimento de espécies pouco conhecidas. O estudo taxonômico de *Myrcia* seção *Calyptranthes* já foi realizado e mostrou que o Paraná conta com oito espécies desta seção, distribuídas por todas as fitofisionomias, mas com maior riqueza na região leste do estado (OLIVEIRA, 2018). As outras oito seções de *Myrcia* ainda não possuem tratamento. A presente dissertação busca contribuir para o conhecimento da Flora do Estado do Paraná, bem como subsidiar estudos futuros sobre a família e o gênero em diversos campos da botânica e ecologia.

O objetivo geral deste trabalho é o tratamento taxonômico das espécies do gênero *Myrcia*, exceto seção *Calyptranthes*, ocorrentes no estado do Paraná. Especificamente, procurou-se:

- identificar e analisar exsicatas depositadas em herbários;

- descrever, ilustrar e confeccionar chave de identificação para as espécies ocorrentes no estado;
- construir mapas de distribuição geográfica;
- fornecer dados sobre morfologia e ecologia (habitat e fenologia) para as espécies estudadas;
- resolver problemas taxonômicos que porventura sejam encontrados.

Durante o estudo, surgiu a necessidade de resolver um problema taxonômico envolvendo espécies ocorrentes no estado, cujo detalhamento demandava uma abordagem mais aprofundada sobre a taxonomia destas espécies. Deste modo, esta dissertação foi organizada em dois capítulos. No primeiro capítulo é apresentada a proposta de sinonimização de *Myrcia lajeana* e *M. laruotteana* sob *M. selloi*, três espécies com registros para o Paraná e cuja distinção já vinha sendo discutida desde LIMA (2013, 2015). O capítulo 2 apresenta a flora do gênero *Myrcia*, exceto seção *Calyptranthes*, no estado do Paraná.

CAPÍTULO 1. TAXONOMIC REARRANGEMENTS AND TYPIFICATIONS IN *MYRCIA* SECT. *TOMENTOSAE* (MYRTEAE, MYRTACEAE)

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Abstract

Myrcia sect. *Tomentosae* is morphologically easily distinguished from the other sections of *Myrcia* by the buds constricted below the ovary and calyx lobes reflexed at anthesis, but the specific limits within the group are not always clear. Inside this section, *Myrcia lajeana*, *M. laruotteana*, *M. selloi* and *M. tomentosa* form a species complex distributed mainly in central, southeastern and southern Brazil, but with some specimens collected in neighboring countries. Characters such as indumentum density, leaf shape, size and venation, bracteoles size, and persistence or not of the calyx lobes in the fruits are used to distinguish these species, but are highly variable and many individuals with intermediate states can be found. Recent genetic studies showed this complex as separated in two major genetic pools, one containing only *M. tomentosa* and the other with *M. lajeana*, *M. laruotteana* and *M. selloi* mixed together. Based on these results and additional morphological and literature analyses, we propose here a new taxonomic arrangement of the complex with the synonymization of *M. laruotteana* and *M. lajeana* under *M. selloi*. Additionally, 16 lecto- and 3 neotypes are here selected, and notes on morphology are presented.

Introduction

Myrcia De Candolle (1827: 406) is a monophyletic genus that currently includes *Calyptranthes* Swartz (1788: 5, 79), *Gomidesia* O.Berg (1855–1856: 6) and *Marlierea* Cambessèdes (1832–1833: 373). In this sense, *Myrcia* is the fourth largest genus of Myrtaceae, with ca. 800 species (Lucas *et al.* 2011, 2018). *Myrcia* is exclusively and widely distributed in the Neotropics, with centers of diversity in the Caribbean, Guiana Highlands, and the Brazilian *Cerrado* and Atlantic Forest (Govaerts *et al.* 2018, Santos *et al.* 2017). Molecular data show *Myrcia* divided in nine strongly supported clades that agree with combinations of morphological characters (Lucas *et al.* 2011, Santos *et al.* 2017). Each of these clades was recently proposed as formal sections (Lucas *et al.* 2018).

Including ca. 10 species, *Myrcia* sect. *Tomentosae* E. Lucas & D.F. Lima (in Lucas *et al.* 2018: 9) is morphologically well-defined and easily distinguished from the other sections of *Myrcia* by the buds constricted below the ovary, hypanthium prolonged above the ovary and glabrous inside, calyx lobes strongly reflexed at anthesis and star-shaped in the fruits, and frequently congested branchlets (Lucas *et al.* 2018). On the other hand, morphological boundaries among species inside the group are not always clear, such as the case of the species complex composed by *Myrcia lajeana* D.Legrand (1961: 291)*, M. laruotteana* Cambessèdes (1832–1833: 311), *M. selloi* (Spreng.) N.Silveira (in Mattos *et al.* 1986: 5) and *M. tomentosa* (Aubl.) De Candolle (1828: 245), informally called "*M. laruotteana* complex" by Lima (2013). This complex is distributed from Panamá to Paraguay and Argentina (Flora do Brasil 2020, Legrand & Klein 1969, Kawasaki 1989, Rotman 1994) and the state of Paraná, in southern Brazil, is the only site where the four taxa co-occur. These four species have been barely distinguished from each other by the indumentum density, leaf shape and size, and persistence or not of the calyx lobes in the fruits, but these characters are highly variable and many individuals with intermediate states can be found (Legrand & Klein 1969,

Lima 2013, Rosa 2015, Soares-Silva 2000, Sobral 2003). This species complex was recently subject of populational studies using molecular markers (Lima *et al.* 2015), where the authors found two major genetic groups: the first one containing all sampled populations of *M. tomentosa* and the second one with mixed populations of *M. lajeana*, *M. laruotteana* and *M. selloi*.

Based on the genetic studies of Lima *et al.* (2015) and through morphological studies (Lannoy *et al.* in prep.), we aim to clarify the taxonomy of *M. lajeana*, *M. laruotteana*, *M. selloi* and *M. tomentosa*. We propose herein the recognition of only two species, *M. selloi* and *M. tomentosa*, and the synonymization of *M. lajeana*, *M. laruotteana* (along with all its varieties and previous synonyms accoring to Govaerts *et al.* 2018 and Flora do Brasil 2020) and *M. triflora* Cambessèdes (1832–1833: 327) under the former. Additionaly, 16 lectotypifications and 3 neotypifications are provided, as well as detailed notes on morphology.

Material & Methods

We analyzed materials from the following herbaria: ALCB, BHCB, BM, BR, C, EFC, ESA, FLOR, G, G-DC, HCF, HBR, HUEFS, HUEM, ICN, K, MBM, MBML, P, PACA, R, RB, SP, SPF, U, UB, UEC, UPCB and W (acronyms follow Thiers 2018). Additional images from other herbaria were analyzed online through JSTOR Global Plants (https://plants.jstor.org/), Reflora Virtual Herbarium (http://reflora.jbrj.gov.br/reflora/) or herbaria websites. Lecto- and neo-types were selected when necessary according to the International Code of Nomenclature for Algae, Fungi and Plants (Turland *et al.* 2018). The rationale for the typification of names published by Berg (1857–1859), Cambessèdes (1832–1833) and De Candolle (1828) follows Lima *et al.* (2018). Saint-Hilaire's collection numbers follow Pignal *et al.* (2013). Remaining

syntypes can be made available upon request to the authors. Lists of Selected specimenss were shortened to represent the wide geographical distribution of each taxa.

Taxonomy

1. *Myrcia selloi* (Spreng.) N.Silveira (in Mattos *et al.* 1986: 5). Figures 1A-G; 2A-C; 3A.

≡ *Myrtus selloi* Sprengel (1825: 482). *Aulomyrcia selloi* (Spreng.) Kausel (1966: 350). Type:—BRAZIL. "Brasil", *Sellow s.n.* (holotype unknown). BRAZIL. "Brasilia", *Sellow s.n.* (neotype K 000344138! designated here). **Notes**:—According to Stafleu & Cowan (1985), Sprengel's herbarium was sold in parts after his death to many different herbaria. No material that could be interpreted either as the holotype or other type-collection of *Myrtus selloi* has been found. The neotype selected, *Sellow s.n.* (K000344138) matches well the morphology described in the protologue of *Myrtus selloi*. This material was previously identified as *Aulomyrcia ramulosa* var. *triflora* (a synonym of *Myrcia selloi*) by Berg, but it is not a type of that variety, as recorded in the specimen (see comments under *Myrcia triflora*).

= *Myrcia ramulosa* De Candolle (1828: 250). *Aulomyrcia ramulosa* (DC.) O.Berg (1855–1856: 36). Type:—BRAZIL. São Paulo: "Prov. S. Pauli" (on the label), *Martius s.n.* (holotype M 0136885 [image!]).

= *Myrcia ramulosa* var. *multiflora* De Candolle (1828: 250). Type:—BRAZIL. São Paulo: "Prov. S. Pauli" (on the label), *Martius s.n.* (holotype M 0136888 [image!]).

= *Myrcia laruotteana* Cambessèdes (1832–1833: 311). *Aulomyrcia laruotteana* (Cambess.) O.Berg (1855–1856: 53). *Aulomyrcia laruotteana* var. *genuina* O.Berg (1857–1859: 90). Type:—BRAZIL. Minas Gerais: "In pascuis prope Bora (prov. Minas Geraes)", *Saint-Hilaire 648* (lectotype P 00161425! designated here, isolectotype P 00161426!, P 00161427!), *syn.*

nov. **Notes:** In the protologue of *Myrcia laruotteana*, Cambessèdes cited a Saint-Hilaire's collection with a note made by Laruotte. Two materials bearing the information "Bora" in Laruotte's writing were found at P. One of them (P00161425) bears Cambessèdes' identification and was selected as lectotype.

= *Myrcia laruotteana* var. *glabriuscula* Cambessèdes (1832–1833: 311). *Aulomyrcia laruotteana* var. *glabriuscula* (Cambess.) O.Berg (1857–1859: 90). Type:—BRAZIL. Goiás: "Ad rivulum prope tugurium vulgò Sitio do Riacho in parte australi provinciae Goyaz proxima prov. Minas Geraes.", *Saint-Hilaire C1-917* (lectotype MPU 010940 [image!] designated here, isolectotypes F 0065511 [image!], P 00161421!, P 00161422!, P 00161423!, P 00161424!), *syn. nov.*

= *Myrcia laruotteana* var. *impunctata* Cambessèdes (1832–1833: 311). *Aulomyrcia laruotteana* var. *impunctata* (Cambess.) O.Berg (1857–1859: 90). Type:—BRAZIL. São Paulo: "Ad viam prope praedium vulgò Fazenda d'Araracuara in parte septentrionali prov. S.Pauli proxima prov. Minas Geraes, necnon ad rivulum prope villan Ubà", *Saint-Hilaire C1-1009* (lectotype MPU 010941 [image!] designated here, isolectotypes F 0065512 [image!], P 00161418!, P 00161419!, P 00161420!), *syn. nov.*

= *Myrcia triflora* Cambessèdes (1832–1833: 327). *Aulomyrcia ramulosa* var. *triflora* (Cambess.) O.Berg (1857–1859: 62). Type:—BRAZIL. Rio de Janeiro: "In sepibus prope Rio de Janeiro", *Saint-Hilaire C2-115* (lectotype MPU 010969 [image!] designated here, isolectotypes P 00161361!, P 00161362!, P 00161363!), *syn. nov.* **Notes:** *Myrcia triflora* was unexpectedly cited as synonym of *Myrcia graciliflora* Sagot (1885: 185) by Govaerts *et al.* (2018), but it was likely an error, as these two species are morphologically quite different. On the other hand, there are no differences between *Myrcia triflora* and *M. selloi*; the synonymization is therefore proposed here. When describing *Aulomyrcia ramulosa* var.

triflora, Berg cited other gatherings in addition to the type of the basionym (*Saint-Hilaire C2-115*). Some of these other collections are mistakenly marked as types in herbaria (e.g. W0037076, K000344138).

= *Aulomyrcia acutata* O.Berg (1857–1859: 71). Type:—BRAZIL. Minas Gerais: "Ad Freguezia Bertioga, in prov. Minas Geraes", *Sellow s.n.* (holotype B†, lectotype LE 00007015 [image!] designated here, isolectotypes K 000342538!, P 00161323!), *syn. nov.* **Notes:** The holotype of *Aulomyrcia acutata* was destroyed at B, and three further duplicates with exactly the same morphology were found at K, LE and P. The most complete material, with Berg's identification on the label, is chosen as lectotype.

= *Aulomyrcia acutifolia* O.Berg (1857–1859: 89). *Aulomyrcia acutifolia* var. *acutifolia* (Described as *A. acutifolia* var. *villosa* O.Berg, 1857–1859: 89). Type: —BRAZIL. Minas Gerais: "Ad urbem Barbacena, prov. Minas Geraes", *Sellow s.n.* (holotype B†, lectotype P 00161324! designated here), *syn. nov.* **Notes:** The holotype of *Aulomyrcia acutifolia* was housed and subsequently destroyed at B ("hb. Berol." in the protologue). There is no precise information about the collection event in the material found at P, but it bears an identification in Berg's handwriting and matches the protologue perfectly. This material is selected as lectotype.

= *Aulomyrcia acutifolia* var. *pubescens* O.Berg (1857–1859: 90). Type: —BRAZIL. Minas Gerais: "Ad praedium Jozé Gonzales in ejusdem provinciae parte dicta Minas Novas", 1837, *Pohl 1070* (lectotype W 0028187! designated here, isolectotypes BR 0000005280704!, F 0064676 [image!], K 000343483!, K 000343484!, M 0136805! [image!], W 0028186!), *syn. nov.* **Notes:** Berg cited *Pohl 1070* deposited in "hb. Vindob. Mart. et Zuccar." as syntypes of *Aulomyrcia acutifolia* var. *pubescens*. Several sheets were found in different herbaria. A

duplicate at W (W0028187) is the most complete one, bearing the collection number and locality, as well as Berg's identification, and is here chosen as lectotype.

= *Aulomyrcia dimorpha* O.Berg (1857–1859: 101). Type:—BRAZIL. Minas Gerais: "Ad urbem Barbacena prov. Minarum", *Sellow s.n.* (holotype B†, lectotype BR 0000005230501! designated here, isolectotypes F 0064710 [image!], K 000342837!, LE 00007058 [image!], P 00161522!, P 00161523!, W 0032622!), *syn. nov.* **Notes:** *Sellow s.n.* at B was cited as the holotype of *Aulomyrcia dimorpha*. However, this specimen was destroyed and consequently the duplicate at BR bearing the author's identification on the label is chosen as lectotype. This specimen also bears the number 1040 on its label. The numbers presented in some Sellow's collections are actually not his collection number, but a numbering used in B, as reported by Santos *et al.* (2016).

= *Aulomyrcia laruotteana* var. *membranacea* O.Berg (1857–1859: 90). Type:—BRAZIL. Rio de Janeiro: "In arenosis ad Rio Belmonte", *Princ. Neuwied s.n.* (lectotype MEL 1540441 [image!] designated here, isolectotypes BR 0000005280384!, BR 0000005281039!), *syn. nov.* **Notes:** Berg cited two herbaria in the protologue of *Aulomyrcia laruotteana* var. *membranacea* ("hb. Sonder. et Mart."). These herbaria are nowadays housed respectively at MEL and BR (Stafleu & Cowan 1981, 1985). The most complete duplicate bearing Berg's identification is selected as lectotype.

= *Aulomyrcia laruotteana* var. *opaca* O.Berg (1857–1859: 90). Type:—BRAZIL. Minas Gerais: "In fruticetis ripariis ad Vargem do Carmo et Paula Grassa", *Sellow s.n.* (holotype B†, lectotype W 0033304! designated here, isolectotypes K 000343478!, LE 00007089 [image!], P 00161221!, P 00161222!), *syn. nov.* **Notes:** The holotype of *Aulomyrcia laruotteana* var. *opaca* was destroyed at B, and several duplicates were found in other herbaria. Among these,

a complete material bearing Berg's handwriting at W is designated as lectotype. This specimen also bears the number 195, which is probably a numbering used at B.

= *Aulomyrcia laruotteana* var. *punctata* O.Berg (1857–1859: 90). Type:—BRAZIL. Minas Gerais: "In prov. Minas Geraes ad Caldas", 1861 62, *Regnell II 121* (lectotype MEL 1540444 [image!] designated here, isolectotype LE 00007091 [image!]), *syn. nov.* **Notes:** Berg cited the syntypes *Widgren 552*, *Regnell 137*, *Regnell 121*, *Miquel s.n.* and *Sellow 4952*, deposited in the "hb. Berol. et Sonder.", when describing *Aulomyrcia laruotteana* var. *punctata*. Among these materials, only *Miquel s.n.* was not found. *Regnell 121* at MEL bears complete information about the collection event and the identification in Berg's writing; this material is therefore designated as lecotype.

= *Aulomyrcia ramulosa* var. *acutata* O.Berg (1857–1859: 62). *Myrcia ramulosa* var. *acutata* (O.Berg) Mattos (1974: 3). *Myrcia selloi* var. *acutata* (O.Berg) N.Silveira in Mattos *et al.* (1986: 6). Type:—BRAZIL. Rio de Janeiro: "In prov. Rio de Janeiro", *Pohl s.n.* (lectotype BR 0000005239900! designated here, isolectotypes M 0136886 [image!], MEL 1007452 [image!]). **Notes:** Berg cited *Pohl s.n.* in "hb. Mart. Sonder. et Zuccar." as syntypes in the protologue. All the duplicates found present Berg's handwriting on the labels, and the most complete one is selected as lectotype.

= *Aulomyrcia ramulosa* var. *colorata* O.Berg (1857–1859: 62). Type:—BRAZIL. Rio de Janeiro: "Prov. Rio de Janeiro", *Gaudichaud s.n.* (holotype B†). BRAZIL. Rio de Janeiro: Sebastianópolis, *Schüch s.n.* (neotype M 0136893 [image!] designated here). **Notes:** The holotype cited for *Aulomyrcia ramulosa* var. *colorata*, *Gaudichaud s.n.*, was destroyed at B and no duplicates have been found elsewhere. The neotype selected here, *Schüch s.n.*, bears Berg's identification on the label, despite not being cited as a type. This material exactly

matches the protologue and was collected in the same region of the holotype in the state of Rio de Janeiro.

= *Aulomyrcia ramulosa* var. *panicularis* O.Berg (1857–1859: 63). Type:—BRAZIL. São Paulo: "In prov. S. Pauli", *Martius s.n.* (lectotype MEL 1540700 [image!] designated here, isolectotypes M 0136888 [image!], MEL 1540701 [image!]). **Notes:** Berg cited two collections, *Schott 5882* and *Martius s.n.*, as syntypes of *Aulomyrcia ramulosa* var. *panicularis*. The first one has not been located. Three duplicates of *Martius s.n.* were found and the most complete one (MEL1540700), with Berg's identification and collection locality on the label, is designated as lectotype. The sheet housed at M has two branches and two labels with Berg's identification as *Aulomyrcia ramulosa* var. *panicularis* and *A. ramulosa* var. *pauciflora*. The last identification is likely an error, since the same label presents the note "Brasilia prov. S. Pauli", the place where *A. ramulosa* var. *panicularis* was collected (*A. ramulosa* var. *pauciflora* was collected in "prov. Rio de Janeiro" according to the protologue).

= *Aulomyrcia ramulosa* var. *pauciflora* O.Berg (1857–1859: 62). *Myrcia ramulosa* var. *pauciflora* (O.Berg) Kiaerskou (1893: 80). Type:—BRAZIL. Rio de Janeiro: "prov. Rio de Janeiro", *Martius s.n.* (lectotype MEL 1007451 [image!] designated here). **Notes:** Berg cited syntypes for *Aulomyrcia ramulosa* var. *pauciflora*: *Martius s.n.* and *Pohl s.n.* in "hb. Mart. Sonder. et Zuccar.". *Martius s.n.* at MEL (MEL 1007451) is chosen as lectotype because it presents complete information on the collector and locality, besides the identification in Berg's handwriting. Another material at MEL (MEL 1540699) is annotated as a type of *A. ramulosa* var. *pauciflora*, but there are no infomations about the collector, collection locality, or Berg's identification. This material is therefore not considered a duplicate of the type collection.

= *Aulomyrcia ramulosa* var. *subcordata* O.Berg (1857–1859: 62). Type:—BRAZIL. Rio de Janeiro: "in nemorosis montis Corcovado prov. Rio de Janeiro", *Beyrich s.n.* (lectotype K-000344139! designated here, isolectotypes P-00161133!, P-00161137!). **Notes:** *Schott 5876* and *Beyrich s.n.* were cited as syntypes of *Aulomyrcia ramulosa* var. *subcordata*. No material of the first collector has been found. Duplicates of *Beyrich s.n.* were found at K and P; the sheet selected as lectotype bears Berg's identification. Three other specimens at P (00161134, 00161135 and 00161136) were identified as *A. ramulosa* var. *subcordata* by Berg, but the collector is missing in all of them. Hence, these materials are not considered duplicates of the type collection.

= *Aulomyrcia undulata* O.Berg (1857–1859: 89). *Myrcia lajeana* D.Legrand (1961: 291). Type:—BRAZIL. "Ad Lages, ad fines prov. Rio Grande do Sul et S. Catharinae", *Sellow s.n.* (holotype B†). Rio Grande do Sul, Bom Jesus, entre os distritos de Silveira e São José dos Ausentes, 5 February 1985, *Silveira, Frosi & Schinoff 2014* (neotype RB 00312706! designated here), *syn. nov.* **Notes:** The holotype of *Aulomyrcia undulata* was destroyed at B and no duplicates have been found. Although the selected neotype has flowers instead of fruits (as it was *Sellow s.n.*), it is a good match for the original description of *A. undulata*, presenting the main characteristics of branches, leaves and inflorescences.

= *Aulomyrcia ramulosa* var. *australis* O.Berg (1859: 544). *Myrcia selloi* var. *australis* (O.Berg) N.Silveira in Mattos *et al.* (1986: 7). Type:—"In banda oriental, ad. fluv. Uruguay, *Tweedie s.n.* (holotype LE).

= *Aulomyrcia laruotteana* var. *paraguayensis* O.Berg (1861: 661) *Myrcia laruotteana* var. *paraguayensis* (O.Berg) D.Legrand (in Legrand & Klein 1969: 321). Type:—PARAGUAY. "In Paraguay", *Rengger s.n.* (holotype unkown), *syn. nov.*

= *Myrcia assumptionis* Morong (in Morong & Britton 1893: 106). *Aulomyrcia assumptionis* (Morong) Kausel (1966: 350). Type:—PARAGUAY. "In copses. Asuncion", 9 December 1888, *Morong 260* (lectotype NY 00405387 [image!] designated here, isolectotypes E 00285741 [image!], F 0065438 [image!], G 00073642!, GH 00071074 [image!], MO 313560 [image!], NY 00405385 [image!], NY 00405386 [image!], PH 00018859 [image!], US 00117735 [image], US 00956146 [image!]), *syn. nov.* **Notes:** According to Stafleu & Cowan (1981), Morong's types are housed at NY. Three duplicates were found in that herbarium, and the most complete one is selected as lectotype.

= *Myrcia laruotteana* var. *macrophylla* Kiaerskou (1893: 75). Type:—BRAZIL. "Brasil", *Regnell III 551* (holotype C, isotypes S 13-18975 [image!], S 17-10776 [image!], S 17-36835 [image!]), *syn. nov.*

= *Myrcia ramulosa* var. *leptophylla* Kiaerskou (1893: 80). Type:—BRAZIL. Minas Gerais: "Ad Lagoa Santa in silvis", September–October 1864, *Warming s.n.* (holotype C 10015886!).

= *Myrcia hassleriana* Barbosa Rodrigues (1903: 2). Type:—PARAGUAY. "in campis regione fluminis Carimbatay, ad Paraguay", September 1898-1899, *Hassler 4565* (holotype G 00073700!).

= *Myrcia corrientinensis* Barbosa Rodrigues (1907: 802), *nom. nud.*

= *Myrcia perorebimi* Barbosa Rodrigues (1907: 802), *nom. nud.*

= *Myrcia microsiphonata* D.Legrand (1961: 295). *Myrcia ramulosa* var. *microsiphonata* (D.Legrand) D.Legrand (in Legrand & Klein 1969: 312). *Myrcia selloi* var. *microsiphonata* (D.Legrand) N.Silveira (in Mattos *et al.* 1986: 7). Type:—BRAZIL. Santa Catarina: Curral Falso, Bom Jardim, S. Joaquim, 1500 m, 10 December 1958, *Reitz & Klein 7776* (holotype MVM, isotype HBR 0024828!).

= *Myrcia smithii* D.Legrand (1961: 290). Type:—BRAZIL. Santa Catarina: Pilões, Palhoça, 50–500 m, 29 November 1956, *Smith & Klein 8009* (holotype MVM, isotypes HAS 55107 [image!], HBR 0019659!, NY 00616369 [image!], R 000114575!, US 02859740 [image!]).

= *Myrcia ramulosa* var. *megapotamica* D.Legrand (1968: 22). *Myrcia selloi* var. *megapotamica* (D.Legrand) N.Silveira (1988: 3). Type:—URUGUAY. Artigas: Santa Rosa, November 1927, *Herter 82659* (lectotype MVM [image!], designated here). **Notes:** Legrand cited many materials in the protologue of *Myrcia ramulosa* var. *megapotamica* without indicating a specific type.

= *Myrcia laruotteana* var. *australis* D.Legrand (in Legrand & Klein 1969: 317). Type:—BRAZIL. Paraná: Tijucas do Sul, Tabatinga, 5 November 1956, *Hatschbach 3402* (holotype MVM, isotype MBM!), *syn. nov.*

Specimens selected:—ARGENTINA. Misiones: Guaraní, *H.A. Keller 3340* (HUEFS!). Corrientes: Mercedes, *L.R. Landrum 4322* (MBM!, RB!). BOLIVIA. Santa Cruz: Florida, *R. Mello-Silva 2045* (UPCB!). BRAZIL. Bahia: Tucano, *E. Melo 4260* (HUEFS!). Espírito Santo: Santa Teresa, *H.Q. Boudet Fernandes 1213* (MBML!, RB!). Goiás: Alto Paraíso de Goiás, *G. Hatschbach 54767* (MBM!, MO). Maranhão: Mirador, *G.M. Conceição 335* (RB!, UB!). Mato Grosso: Nova Xavantina, *B.S. Marimon 373* (UB!). Mato Grosso do Sul: Bonito, *G. Hatschbach 74156* (BHCB!, MBM!). Minas Gerais: São Sebastião do Paraíso, *Irmão Theodoro 739* (RB!). Paraná: Londrina, *D.F. Lima 295* (RB!, UEC!, UPCB!). Rio Grande do Sul: São José dos Ausentes, *M. Sobral 9429* (MBM!). Santa Catarina: São Francisco do Sul, *D.F. Lima 337* (RB!, UEC!, UPCB!). São Paulo: Campinas, *D.F. Lima 334* (RB!, UPCB!). Sergipe: *Lagarto, D.S. Melo 24* (ASE). Tocantins: Almas, *R.C. Mendonça 5716* (RB!, UB!). PARAGUAI. Central: Tavarory, *E.M. Zardini 23435* (RB!). URUGUAI. Artigas: Artigas, *S.J. Longhi s.n.* (HDCF 4594).

General notes: *Myrcia lajeana* and *M. laruotteana* along with all their previous synonyms are here included in the circunscription of *M. selloi*. Although *Myrcia laruotteana* is the most widely used name, *M. selloi* is the oldest one and therefore has priority (Turland *et al.* 2018). Each of these species were based on single collections that we now interpreted as morphological extremes of a unique taxon, since several individuals with intermediate morphology have been found.

Overall, these three species have been poorly distinguished by indumentum, leaf, inflorescence and bracteoles size and persistence or not of the hypanthium and calyx lobes in the fruits (Berg 1857–1859, Legrand 1968, Legrand & Klein 1969, Soares-Silva 2000, Sobral 2003). These differences seem to be continuous and fail to diagnose the taxa in a clear way. Taxonomic studies have evidenced morphological similarities among *Myrcia lajeana*, *M. laruotteana* and *M. selloi* and consequently how difficult it is to distinguish each other, especially in areas where these species were sympatric. As an exemple, Legrand & Klein (1969) presented detailed descriptions for each species, including some varieties, but still did not truly characterized them. The same authors also mentioned the possible existence of hybrids.

Lima *et al.* (2015) showed no clear genetic discontinuities among the sampled populations of *Myrcia lajeana*, *M. laruotteana* and *M. selloi*. Based on these results, and also morphological characteristics, the same authors informally suggested the recognition of *Myrcia laruotteana* (including *M. lajeana*) and *M. selloi*. This last species was taken as a divergent taxon due to its caducous hypanthium and calyx lobes in the fruits (Lima *et al.* 2015). Nevertheless, there are many specimens presenting flowers and fruits either with or without persistent hypanthium and calyx (Fig. 1F-G), as already pointed out by Legrand (1968) when describing *Myrcia ramulosa* var. *megapotamica* ("*Al mismo tiempo la flor sufre a veces la circuncisión de su hipantio como en* M. ramulosa*, mientras que en* M. laruotteana

el tubo casi inexistente no sufre nunca ablación.", p. 23). He considered this variety as a possible hybrid between *Myrcia ramulosa* and *M. laruotteana* var. *paraguayensis* (both included here in the synonymy of *M. selloi*).

In this broader circunscription, *Myrcia selloi* is widely distributed from the Brazilian states of Maranhão, Piauí and Bahia to southern Brazil and Bolivia, Paraguay, Uruguay and Argentina (Figure 3A). This species has young branches, petioles and leaves glabrous to pubescent. Petioles are nearly absent to about 10 mm long. Leaves vary greatly from elliptic or lanceolate to ovate with acute to acuminate apex and acute to rounded, rarely subcordate or attenuate base; the marginal vein is formed by archs of the secondary veins. Inflorescences are very delicate panicles, glabrous or slightly pubescent, sometimes reduced to 3-5 flowers. Bracteoles are linear or lanceolate, up to 2 mm long. Flowers are glabrous with ciliate calyx lobes, but specimens from Rio Grande do Sul may present whitish trichomes on the ovary (see *Myrcia lajeana* in Sobral 2003). Calyx lobes are triangular and strongly reflexed at anthesis, persistent or not in the globose fruits. Some individuals from northern areas, mainly in Cerrado, may resemble *Myrcia tomentosa*. See the comments under this species.

Excluded names:

Aulomyrcia laruotteana var. *peruviana* O.Berg (1857–1859: 91):—It is a synonym of *Myrcia multiflora* De Candolle (1828: 244), according to McVaugh (1958).

Myrcia ochracea O.Berg (1857–1859: 190):—It was listed as a synonym of *M. laruotteana* by Govaerts *et al.* (2018), likely due to the existence of two different materials with the same collector and collection number (*Claussen 522*). The first one is the type of *M. ochracea*, deposited at BR (00000855210), and identified in Berg's writing. Examination of the protologue and the specimen showed that this material is not related to any species in *Myrcia* sect. *Tomentosae* and has otherwise a morphology that suggests its placement in *Myrcia* sect.

Myrcia. The second *Claussen 522* is deposited at BM (001191668) and is indeed a specimen of *M. selloi* (typical morphotype of *M. laruotteana*).

2. *Myrcia tomentosa* (Aubl.) De Candolle (1828: 245). Figures 1H-K; 2D; 3B.

≡ *Eugenia tomentosa* Aublet (1775: 504). *Myrtus aubletii* Sprengel (1825: 486). *Aguava tomentosa* (Aubl.) Rafinesque (1838: 107). *Cumetea tomentosa* (Aubl.) Rafinesque (1838: 106). *Aulomyrcia tomentosa* (Aubl.) Amshoff (1942: 153). Type:—FRENCH GUIANA. "Habitat ad ripam fluvii Sinemariensis tribus milliaribus à maris littore", 1775, *Aublet s.n.* (holotype BM 000953642!).

For the complete synonym list see Flora do Brasil 2020 and Govaerts *et al.* (2018).

Specimens selected:—BOLIVIA. Santa Cruz: Velasco, *J.R.I. Wood 26494* (K!). BRAZIL. Bahia: Campo Formoso, *F.B. Ramalho 38* (HST, IPA, RB!). Ceará: Meruoca, *F.S. Cavalcanti 436* (RB!). Espírito Santo: Ibiraçu, *A.P. Fontana 2805* (RB!). Goiás: Mineiros, *G. Hatschbach 35005* (MBM!, MO). Mato Grosso: Rio Brilhante, *G. Hatschbach 25092* (RB!, K!, UPCB!). Mato Grosso do Sul: Campo Grande, *E. Seramim 158* (RB!). Minas Gerais: Prados, *D.F. Lima 300* (RB!, UEC!, UPCB!). Pará: Canaã dos Carajás, *N.F.O. Mota 1181* (RB!). Paraná: Rio Brano do Sul, *D.F. Lima 338* (RB!, UEC!, UPCB!). Pernambuco: Igarassu, *B.S. Amorim 419* (RB!). Roraima: Serra Sabang, *B. Maguire 40268* (US!). São Paulo: Corumbataí, *K.D. Barreto 1556* (ESA!, HUEM!, SP!). Tocantins: Almas, *R.C. Mendonça 6277* (RB!). COLOMBIA. Cundinamarca: Fusagasugá, *J. Triana 4130* (K!). FRENCH GUIANA. Cayenne, *C. Delnatte 535* (K!). GUYANA. Potaro-Siparuni: Paramakatoi, *A.H.G. Alston 502* (K!). PANAMA. *C.O.Erianson 284* (K!). SURINAME. Brokopondo, *R. Tjon Lim Sang 16257* (K!). TRINIDAD AND TOBAGO. Trinidad: Port-of-Spain, *R.O. Williams 11174* (K!). VENEZUELA. Falcon: Bolivar, *O. Huber 10829* (K!).

General notes:—*Myrcia tomentosa* is one of the most widely distributed species of *Myrcia*, from Panama, Colombia, Venezuela, Trinidad and Tobago and Guianas to southern Brazil in the state of Paraná (Figure 3B). Plants of *Myrcia tomentosa* are subshrubs to trees generally with dense yellowish or whitish indumentum in the young parts and inflorescences. Leaves are obovoid, sometimes elliptic to ovate, with acute to rounded apex and acute to obtuse base. Secondary venation is lax, raised abaxially and not always clearly visible adaxially. Inflorescences are usually completely covered with trichomes, as well as the buds. Specimens from central Brazil are the most variable ones and may be quite similar to a morphotype of *Myrcia selloi* (as considered here). They are distinguished through the young branches and inflorescences densely covered with trichomes in *Myrcia tomentosa* (vs. glabrous to slightly pubescent in *M. selloi*) and leaves usually obovoid (vs. elliptic to ovate). The molecular results of Lima *et al.* (2015) showed *Myrcia tomentosa* genetically separated from *Myrcia selloi*. Nonetheless, they also found few potentially hybrid individuals mainly between the states of Goiás and São Paulo, where the morphological overlap is most often seen.

Excluded species:

Calyptromyrcia puberula O.Berg (1857–1859: 57) and *C. venosa* O.Berg (1857–1859: 57):—Both species were listed as synonyms of *Myrcia tomentosa* by Govaerts *et al.* (2018). Each of these species were based on a single collection of *Sellow s.n.*, deposited and destroyed at B, and no duplicates have been found. Berg also cited an illustration of a leaf of *C. puberula* ("Tab. II, fig. 23") in *Flora Brasiliensis*. According to this illustration and the protologue, the morphology of *C. puberula* does not match either *M. tomentosa* or other species of *Myrcia* sect. *Tomentosae*. Similarly, *C. venosa* also does not match the morphology of *M. tomentosa* or related species.

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Figures

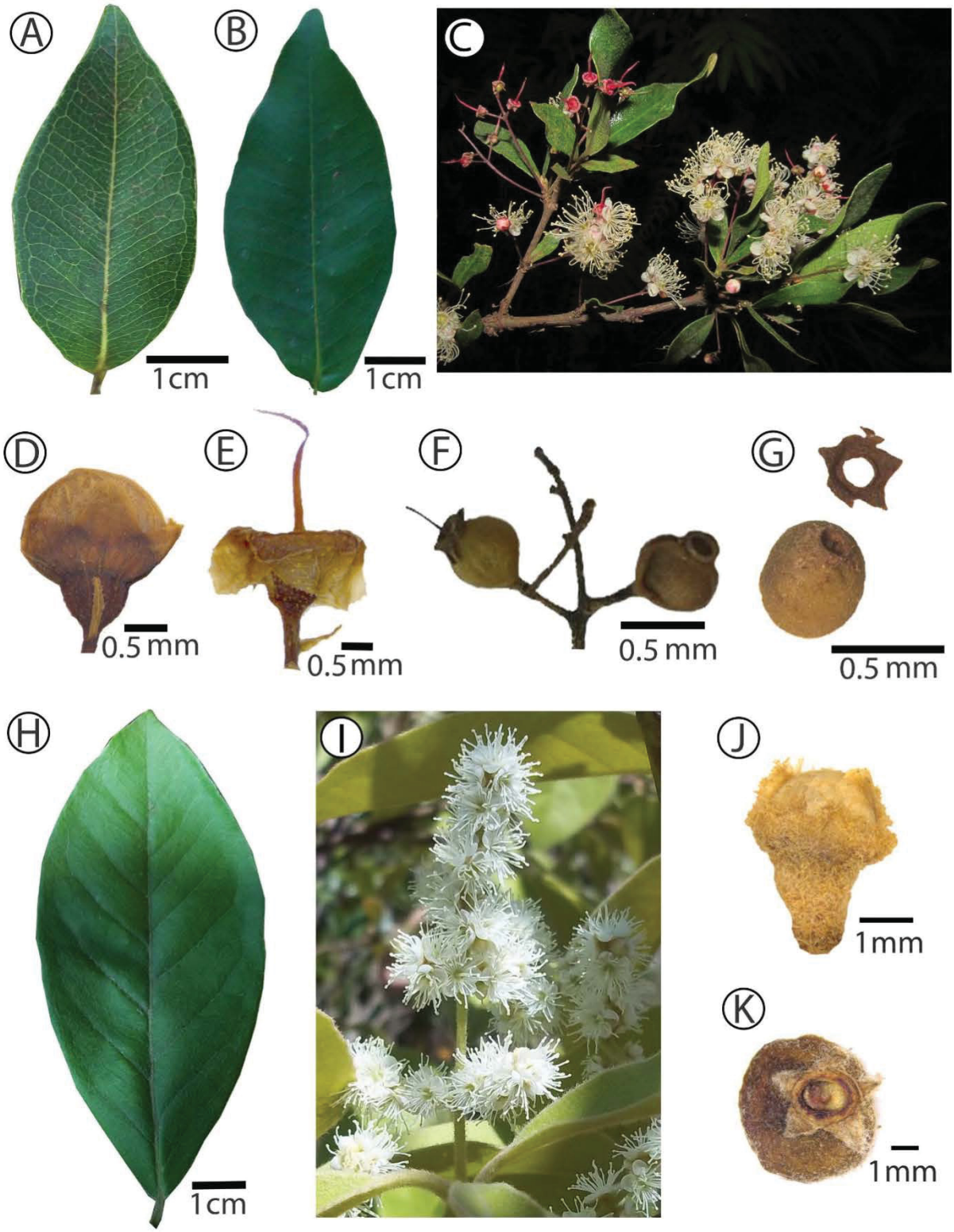

Figure 1. *Myrcia selloi* (A-G). (A) Leaf abaxial surface (*Lima 334*), (B) Leaf adaxial surface (*M. laruotteana* morphotype; *Lima 299*), (C) Inflorescence (*Meyer 2557*), (D) Floral bud (*Borgo 117*), (E) Flower (*Borgo 117*), (F) Fruits (*Chaddad Jr. 112*), (G) Fruits and its caducous calyx (*Chaddad Jr. 112*). *Myrcia tomentosa* (H-K). (H) Leaf adaxial surface (*Lima 338*), (I) Inflorescence (*Lima 300*), (J) Floral bud (*Hatschbach 19191*), (K) Fruit (*Lima 338*). Photo: F.S.Meyer (C).

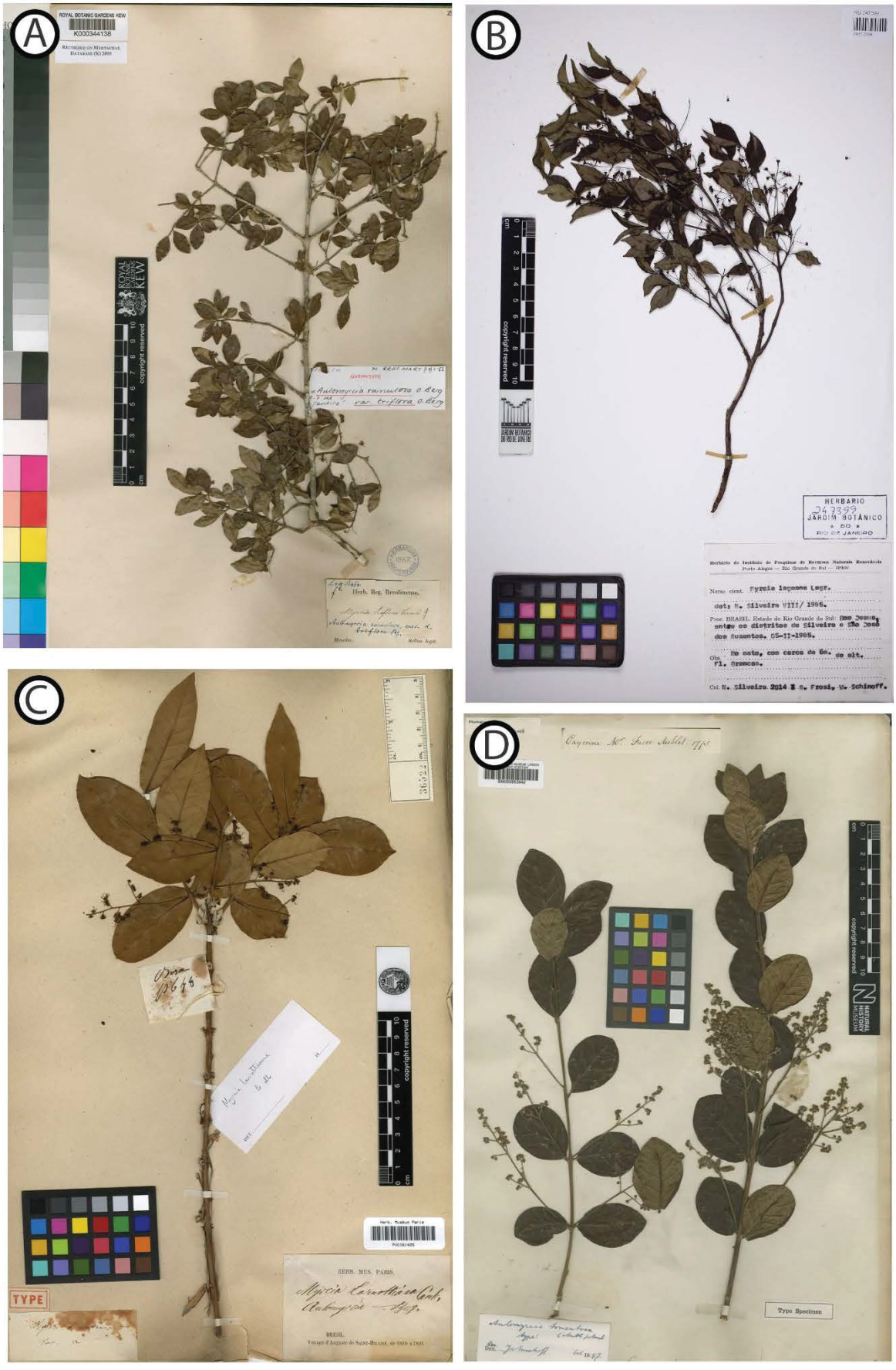

Figure 2. (A) Lectotype of *Myrcia selloi*. (B) Neotype of *Myrcia lajeana,* (C) Lectotype of *Myrcia laruotteana*, (D) Holotype of *Myrcia tomentosa*.

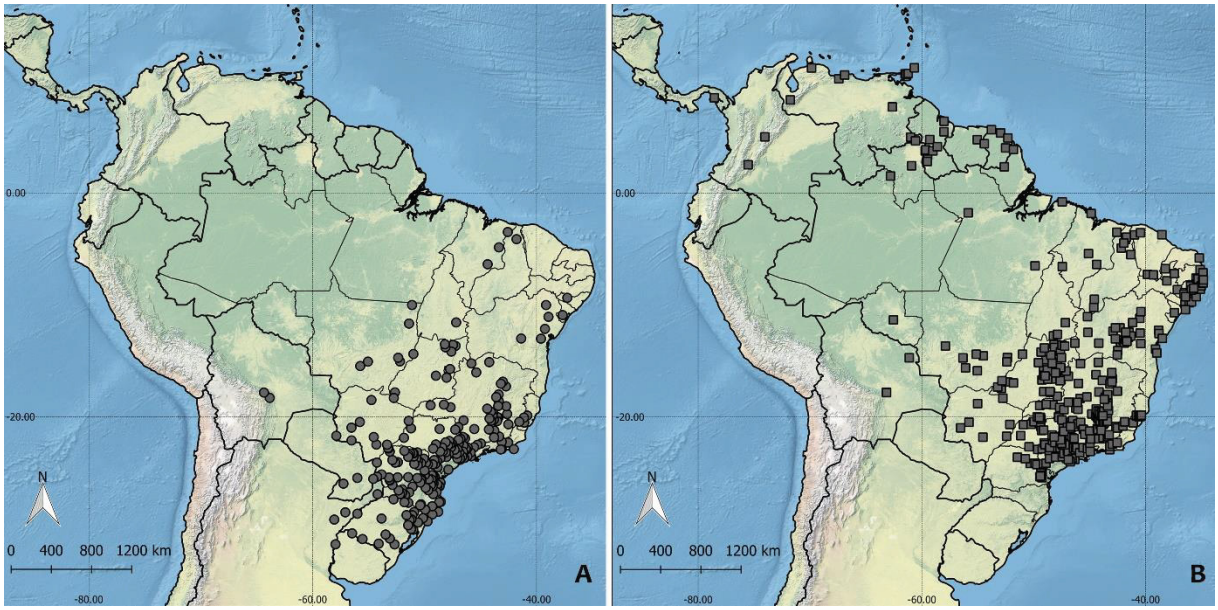

Figure 3. Distribution maps of (A) *Myrcia selloi* and (B) *Myrcia tomentosa*.

CAPÍTULO 2. THE GENUS *MYRCIA* DC. (MYRTACEAE), EXCEPT SECT. *CALYPTRANTHES*, IN THE STATE OF PARANÁ, BRAZIL [1]

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[1] Este capítulo e a monografia de Oliveira (2018), "*Myrcia* sect. *Calyptranthes* (Myrtaceae) no estado do Paraná.", serão submetidos para publicação como um único artigo intitulado "The genus *Myrcia* DC. (Myrtaceae) in the state of Paraná, Brazil."

Abstract

Myrtaceae is one of the largest family in number of species within the order Myrtales and one of the richest families in Brazil. *Myrcia* is the fourth largest genus of Myrtaceae, with approximately 770 species distributed from Central America and Caribbean to southern South America. The formerly recognized genera *Calyptranthes*, *Gomidesia* and *Marlierea* are currently synonymized under *Myrcia*, together in a monophyletic group divided in nine sections that agree with molecular and morphological data. In Brazil, *Myrcia* has 393 species, from which 304 are endemic. The taxonomic treatment of *Myrcia* section *Calyptranthes* in the state of Paraná has already been done, including eight species. In the present study, we complement that first work and present the taxonomic treatment for all other sections of *Myrcia* in Paraná. This study was performed through the analyses of herbarium specimens, online databases and bibliography. The state of Paraná has 46 species of *Myrcia*, except section *Calyptranthes,* distributed in all vegetation types. Twenty names of *Myrcia* and related genera were excluded from previous lists of species or listed as doubtful species; in addition, two undescribed species were found. None of the species is endemic to Paraná, but this state is the southern and northern limit of distribution of five and one species, respectively. We present an identification key, taxonomic descriptions, figures, maps and comments on phenology, habitat and morphology for each species.

Keywords: *Calyptranthes*. *Gomidesia. Marlierea*. Myrteae. Taxonomy.

Introduction

Myrtaceae includes ca. 140 genera and 4,600 species with pantropical distribution (Govaerts *et al.* 2019). In Brazil, Myrtaceae is one of the richest families with 23 genera and 1,026 species occuring in almost all biomes; 786 of these species are endemic to Brazil (Flora do Brasil 2020). The tribe Myrteae is one of the 15 tribes of subfamily Myrtoideae (Wilson *et al.,* 2005) and comprises all the native American Myrtaceae, except for a single species from Andes, *Metrosideros stipularis* (Hooker & Arnott 1833: 316) Hooker.f. (1846: 275) (Lucas *et al*. 2005, Pillon *et al.* 2015).

Among the ten monophyletic groups of Myrteae is the "*Myrcia* group" (Lucas *et al.* 2007, Vasconcelos *et al.* 2017), that includes the traditional and non-monophyletic genera *Calyptranthes* Swartz (1788: 5, 79), *Gomidesia* O.Berg (1855: 6), *Marlierea* Cambessèdes (1833: 373) and *Myrcia* De Candolle (1827: 406). In order to recognize a single monophyletic group, the first three genera were recently synonymized under *Myrcia* and nine monophyletic sections were proposed (Lucas *et al.* 2018): *Myrcia* sect. *Aguava* (Rafinesque 1838: 107) D.F.Lima & E.Lucas (2018: 7), sect. *Aulomyrcia* (O.Berg 1855: 5) Grisebach (1864: 234), sect. *Calyptranthes* (Swartz 1788: 79) A.R.Lourenço & E.Lucas (2018: 3), sect. *Eugeniopsis* (O.Berg 1855: 5) M.F.Santos & E.Lucas (2018: 5), sect. *Gomidesia* (O.Berg 1855: 6) B.S.Amorim & E.Lucas (2018: 6), sect. *Myrcia*, sect. *Reticulosae* D.F.Lima & E.Lucas (2018: 8), sect. *Sympodiomyrcia* M.F.Santos & E.Lucas (2016: 768) and sect. *Tomentosae* E.Lucas & D.F.Lima (2018: 8).

Myrcia can be recognized by the inflorescences frequently paniculiform, floral buds with open or closed calyx, numerous stamens, 2–3-locular ovary with ca. 5 ovules, soft seed coat, foliaceous cotyledons and long hypocotyl (Lucas *et al.* 2011, 2018; see "Fig. 2" in Landrum & Kawasaki 1997). The nine sections of *Myrcia* can be distinguished mainly by

floral characteristics such as calyx deciduity, number of lucules in the ovary, hypanthium length and indumentum; but some vegetative characters are also used, like the color and type of trichomes, branching pattern, leaf glandular dots density and size, and leaf venation (Lucas *et al.* 2018).

Myrcia as currently circumscribed has ca. 770 species, being the second largest genus of Neotropical Myrtaceae, after *Eugenia* with more than 1,000 species (Govaerts *et al.* 2019, Lucas *et al.* 2007, 2018). In Brazil, *Myrcia* has 393 species, with 304 endemic ones (Flora do Brasil 2020). Taxonomic studies on *Myrcia* (including *Calyptranthes*, *Gomidesia* and *Marlierea*) have been done at a regional scale, such as Distrito Federal (De-Carvalho 2007), Goiás (Rosa 2015), Mato Grosso do Sul (Proença *et al.*, 2018), campos rupestres de Minas Gerais (Rosa & Romero 2012), Rio Grande do Sul (Sobral 2003), Santa Catarina (Legrand & Klein 1967, 1969, 1971a, 1971b), São Paulo (Caliari 2013), Sergipe (Proença *et al.* 2013) and Tocantins (Rosa 2015). Also, some sections of the genus have been taxonomically reviewed (e.g. Lucas *et al.* 2016; Amorim 2017; Lima 2017; Santos *et al.* 2018).

All the richest genera of Myrtaceae are known to be taxonomically complex, including *Myrcia* (Lucas *et al.* 2011). In this context, taxonomic works within delimited geographic regions are very important to increase the understanding of these large and complex groups. The southern Brazilian state of Paraná sits on the limits of different types of vegetation in Brazil that, in addition to the climate, geomorphology and hydrography, results in a vast environmental diversity (Labiak 2014). Lists of species of *Myrcia* occurring in Paraná mention 62 and 63 species, respectively (Flora do Brasil 2020, Sobral 2014), but formal taxonomic studies on this genus have never been done in the state, except the treatment of *Myrcia* sect. *Calyptranthes* (Oliveira 2018). This work presents a taxonomic

treatment for all sections of *Myrcia*, except sect. *Calyptranthes*, occurring in the state of Paraná. Taxonomic descriptions, maps, figures and an identification key are provided.

Methods

The state of Paraná is located between 22º29'30"S-26º42'59"S and 48°02'24"W-54°02'24"W, in southern Brazil, with an area of ca. 201,203 km². This territory is mostly inside the subtropical climatic zone, with a small part in the tropical climatic zone (Maack 2012). Forests are the predominant vegetation type covering the state: "Floresta Atlântica" (cited here as Atlantic Rainforest), "Floresta com Araucária" (Araucaria forest) and "Floresta Estacional Semidecidual" (Semideciduous forest); nevertheless "Campos" (Grasslands) and "Cerrados" can also be found in more restricted regions (Labiak 2014). It is estimated that at least 6,524 vascular plant species occur in Paraná, distributed in 1,280 genera and 182 families (Kaehler *et al.* 2014). Unfortunately, the natural vegetation coverage of Paraná has been suffering a drastic decrease, mainly due to the expansion of urban and agricultural areas. Moreover, only a few protected areas can be found in the state (IPARDES 2016).

Specimens of *Myrcia* collected in the state of Paraná were analyzed from the following herbaria: EFC, FLOR, FUEL, HCF, HUEM, MBM, RB, UPCB (acronyms according to Thiers 2018). Online databases such as JSTOR Global Plants (https://plants.jstor.org/), Reflora Virtual Herbarium (http://reflora.jbrj.gov.br /reflora/) and Species Link (http://www.splink.org.br/) were also searched. The description of the genus *Myrcia* was made according to the species studied in the state of Paraná. A single material per municipality was cited as "Selected specimens". A complete collector list is also provided (Appendix 1). In order to complete the taxonomic descriptions of some species with insuficient fertile parts, materials from other states were consulted and listed as "Additional

specimens". Data on phenology, geography, ecology and *in vivo* characteristics were taken from the specimen's labels. Morphological terminology follows Gonçalves & Lorenzi (2011) and Radford *et al.* (1998). Maps were built using QGIS 2.14.3 (QGIS Development Team 2016). The descriptions of the species were made in an individual/specimen basis, were built in Microsoft Excel spreadsheets and converted into text by Mail Merge in Microsoft Word. A list with collectors was built in *monographaR* (Reginato 2016). Complete synonymy lists can be found in Flora do Brasil 2020 and Govaerts *et al.* (2019).

Reproductive structures were rehydrated in order to be measured. Measurements follow the format length × width; when only one measurement is presented, this is the length. Leaves width were measured in the wider portion of the blade. Indumentum is considered dense when the trichomes cover the whole surface of the structure; moderate when there are several trichomes, but these do not completely cover the surface (the surface can be seen under the trichomes); and sparse when there are few trichomes and large spaces among them. In the gland dots description, "homogeneous" was used when all the glands are similar in size and "heterogeneous" was used when two or more sizes of glands can be seen. Only mature fruits were used for the measurements, unless otherwise specified. In the identification key, *Myrcia* sp. 1 and *Myrcia* sp. 2 have four and three entries, respectively, due to incomplete material (i.e. lacking some floral features).

Results and Discussion

We found 46 species of *Myrcia*, except sect. *Calyptranthes*, in Paraná, represented by about 3200 specimens. Eighteen names that were listed in the preliminary survey were excluded, mostly due to incorrect determinations; two were listed as doubtful and two new species were found. Two species have a single collection in the state (*M. bicarinata* and *M. neosuaveolens*). The lack of diagnostic characters among some species in Paraná points the

need for more indepth studies about specific delimitation. This is the case for *Myrcia aethusa* and *M. oligantha*, and *M. reitzii* and *M. racemosa*.

With the addition of the species listed in *Myrcia* section *Calyptranthes* (Oliveira 2018), the state has a total of 54 species representing all the nine sections of the genus. For the complete characterization of the sections of *Myrcia* see Lucas *et al.* (2018). The state has 2 species of sect. *Aguava*, 3 of sect. *Tomentosae*, 4 of sect. *Reticulosae*, 4 of sect. *Sympodiomyrcia*, 5 of sect. *Myrcia*, 6 of sect. *Eugeniopsis*, 10 of sect. *Aulomyrcia*, and 10 of sect. *Gomidesia*.

None of the species is endemic to the state of Paraná, but this is the southern limit for *M. bicarinata, M. hexasticha, M. isaiana, M. plusiantha* and *M. tomentosa*; and the northern limit for *M. hatschbachii*. The genus *Myrcia,* except sect. *Calyptranthes*, is distributed throughout the state, but there is a greater abundance of collections in its eastern portion. 26% of the species occur only in the Atlantic rainforest (i.e. *M. costeira* [except a single record in Araucaria forest], *M. dichrophylla*, *M. flagellaris, M. glabra, M. hexasticha, M. isaiana, M. neoriedeliana, M. neosuaveolens, M. racemosa, M. spectabilis, M. strigipes* and *M.* sp. 1) and 17% were found only in Araucaria forest, Semideciduous forest, grasslands and/or cerrado (*M. anomala, M. bicarinata, M. hatschbachii, M. oblongata, M. retorta, M. tomentosa, M. undulata* and *M. venulosa*), of which only *M. anomala* and *M. undulata* were found in a single vegetation type (grasslands and Araucaria forest, respectively). The other species (57%) are found both in the Atlantic rainforest and other vegetation types. Semideciduous forest and cerrado presents lower number of species (7 and 6, respectively). *Myrcia guianensis*, *M. multiflora, M. selloi* and *M. splendens* occurs in all phytogeographic biomes.

Myrcia De Candolle (1827: 406). Figure 1.

Trees, treelets, shrubs or sub-shrubs with monopodial or sympodial growth; glabrous or covered with simple or dibrachiate trichomes; young branches not keeled or rarely so (*M. bicarinata* and *M. costeira*). Leaves opposite, rarely verticillate (*M. hexasticha*); petiolate to rarely sessile. Inflorescences paniculiform, rarely racemiform or a dichasium. Flowers with hypanthium flat or prolonged above the ovary; calyx completely open in the buds, with 5 free

lobes, rarely 4 free lobes (*M. diaphana* and *M. rupicola*), or closed in the bud, opening as a calyptra or irregularly in 5–4–lobes; anthers with symmetric and asymmetric thecae; ovary 2–4-locular. Fruits generally crowned by the hypanthium and calyx lobes or their remants. Seeds generally rounded, 1–4, with myrcioid embryo (foliaceous cotyledons encircled by a narrow hypocotyl [Landrum & Kawasaki 1997; Lucas *et al.* 2018]).

Identification key of *Myrcia*, except sect. *Calyptranthes*, in Paraná, Brazil

1. Young twigs keeled 2

1'. Young twigs not keeled..... 3

2. Leaves 0.7–0.8 cm wide, with gland dots inconspicuous and secondary veins 1.5–2 mm distant from each other; fruits 6.4–7.5 × 9–9.4 mm .....*Myrcia bicarinata*

2. Leaves 1–1.6 cm wide, with gland dots 5–6 per mm² and secondary veins 2–3.5 mm distant from each other; fruits 4–4.5 × 4.2–4.6 mm.....*Myrcia costeira*

3. Vegetative branches with sympodial branching..... 4

3'. Vegetative branches with monopodial branching 6

4. Petioles 1.7–8 mm long; leaves with tertiary veins sparsely reticulated (Fig. 1L) .. …… .....*Myrcia subcordata*

4'. Petioles 10–22 mm long; leaves with tertiary veins densely reticulated (Fig. 1K)..... 5

5. Young twigs and petioles densely to moderately covered with trichomes (Fig. 47F); petioles sulcate; staminal ring with trichomes.....*Myrcia* sp. 2

5'. Young twigs and petioles glabrous (Fig. 30F); petioles semiterete; staminal ring glabrous .. ..*Myrcia plusiantha*

6. Staminal ring always with trichomes..... 7

6’. Staminal ring always glabrous 34

7. Floral disc completely covered with trichomes..... 8

7’. Floral disc glabrous or with trichomes only on the style base 22

8. Anthers thecae asymmetrical (Fig. 1A)..... 9

8’. Anthers thecae symmetrical (Fig. 1B) 18

9. Inflorescence a dichasium 10

9’. Inflorescence paniculiform or racemiform..... 11

10. Inflorescence main axis 17–30 × 0.7–1.3 mm; calyx lobes 0.8–1 mm long; leaves with 9–17 secondary veins ..... *Myrcia squamata*

10’. Inflorescence main axis 40–55 × 0.4–0.5 mm; calyx lobes 1.2–1.7 mm long; leaves with 17–24 secondary veins ..... *Myrcia flagellaris*

11. Calyx lobes 1.6–2 mm long; trichomes 0.8–1.3 mm long on the twigs .....

..... *Myrcia anacardiifolia*

11’. Calyx lobes 0.4–1.5 mm long; trichomes 0.2–0.7 mm long on the twigs..... 12

12. Vegetative branches with appressed trichomes..... 13

12’. Vegetative branches with erect trichomes..... 17

13. Leaves with up to 14 secondary veins..... 14

13’. Leaves with 16 or more secondary veins 16

14. Inflorescence main axis 55–115 mm long..... *Myrcia freyreissiana*

14’. Inflorescence main axis 15–50 mm long..... 15

15. Leaves with revolute margin ..... *Myrcia hartwegiana*

15’. Leaves with not revolute margin.....*Myrcia palustris*

16. Petioles 0.7–1.5 mm wide; leaves elliptic to oblong; inflorescence main axis 0.6–0.8 mm wide .....

..... *Myrcia tijucensis*

16’. Petioles 2–3 mm wide; leaves narrow-elliptic; inflorescence main axis 1.3–3 mm wide ....

..... *Myrcia spectabilis*

17. Leaves with 15–22 secondary veins; bracts and bracteoles caducous.....*Myrcia hebepetala*

17’. Leaves with 10–14 secondary veins; bracts and bracteoles persistent.....*Myrcia trichantha*

18. Twigs and abaxial leaves with dibrachiate trichomes (Fig. 1D); leaves apex abruptly acuminate..... *Myrcia undulata*

18’. Twigs and abaxial leaves with simple trichomes (Fig. 1C); leaves apex acute to rounded or acuminate, in this case never abruptly 19

19. Leaves 5–11 cm wide, secondary veins 7.6–22.8 mm distant from each other; calyx lobes 1.8–3.6 mm long .....*Myrcia isaiana*

19’. Leaves 0.4–4 cm wide, secondary veins 0.5–7.5 mm distant from each other; calyx lobes 0.4–1.5 mm long 20

20. Inflorescence a dichasium or rarely paniculiform and very reduced, main axis 0.2–0.4 mm wide ……..……..…… *Myrcia rupicola*

20’. Inflorescence paniculiform or rarely racemiform, main axis 0.5–1.8 mm wide..... 21

21. Leaves with the adaxial midvein sulcate, 9–11 secondary veins ..... *Myrcia retorta*

21’. Leaves with the adaxial midvein flat to raised, 19–35 secondary veins when conspicuous. ..... *Myrcia splendens*

22. Ovary 2-locular (Fig. 1E) 23

22’. Ovary 3-locular (Fig. 1F) 30

23. Floral bud with the calyx closed, or almost so and with 4 small teeth in the apex 24

23’. Floral bud with an open calyx 28

24. Vegetative branches with pale yellow trichomes ..... *Myrcia* sp. 1

24’. Vegetative branches with brown to ferrugineous trichomes 25

25. Fruits with the hypanthium remnants filled with a mass of ovary tissue (Fig. 1H) …… ..... *Myrcia* sp. 2

25’. Fruits with the hypanthium remnants hollow (Fig. 1G) 26

26. Floral bud globose, externally glabrous ..... *Myrcia eugeniopsoides*

26’. Floral bud clavate or obovoid, externally densely to moderately covered with trichomes... 27

27. Twigs, petioles, abaxial leaves and fruits densely to moderately covered with trichomes when mature ..... *Myrcia ferruginosa*

27’. Twigs, petioles, abaxial leaves and fruits glabrous to sparsely covered with trichomes when mature ..... *Myrcia reitzii*

28. Petioles 10–22 mm long; calyx caducous in fruits …….. *Myrcia* sp. 2

28’. Petioles 2.3–6 mm long; fruits crowned by remnants of the calyx 29

29. Leaves oblong with tertiary veins sparsely reticulated (Fig. 1L); inflorescence glabrous or sparsely covered with trichomes..... *Myrcia oblongata*

29'. Leaves elliptic or slightly ovate with tertiary veins densely reticulated (Fig. 1K); inflorescence densely to moderately covered with trichomes ..... *Myrcia tenuivenosa*

30. Floral buds with a closed calyx .....*Myrcia* sp. 1

30'. Floral buds with an open calyx 31

31. Hypanthium 1.8–2.5 mm prolonged above the ovary; leaves with subcordate base.....

.....*Myrcia heringii*

31'. Hypanthium 0.5–1.4 mm prolonged above the ovary; leaves with attenuate, acute or rounded base 32

32. Twigs with dibrachiate trichomes (Fig. 1D); inflorescence 75–150 mm long; hypanthium 1.2–1.4 mm prolonged above the ovary ..... *Myrcia pubipetala*

32'. Twigs with simple trichomes (Fig. 1C); inflorescence 17–55 mm long; hypanthium 0.5–1 mm prolonged above the ovary 33

33. Mature twigs terete; petioles sulcate; leaves with attenuate base.....*Myrcia aethusa*

33'. Mature twigs flat; petioles semiterete; leaves with acute to rounded base .....

.....*Myrcia venulosa*

34. Flowers with constricted ovaries and strongly reflexed calyx lobes at anthesis 35

34'. Flowers with not constricted ovaries and not reflexed calyx lobes at anthesis.....37

35. Petioles 6–14 mm long; inflorescence densely covered with trichomes ...*Myrcia tomentosa*

35'. Petioles lacking or up to 4.2 mm long; inflorescence moderately covered with trichomes to glabrous 36

36. Inflorescence moderately covered with trichomes; calyx lobes 1.8–3.6 mm long.....

.....*Myrcia anomala*

36’. Inflorescence glabrous or sparsely covered with trichomes; calyx lobes 0.3–1.4 mm long.

.....*Myrcia selloi*

37. Ovary 3-locular (Fig. 1F) 38

37’. Ovary 2-locular (Fig. 1E)..... 40

38. Leaves 11.5–24.5 cm long.....*Myrcia* sp. 1

38’. Leaves 3–10 cm long..... 39

39. Inflorescence 0.6–1.6 mm wide; bracteoles elliptic, glabrous .....*Myrcia glabra*

39’. Inflorescence 0.2–0.5 mm wide; bracteoles linear, moderately to sparsely covered with trichomes ..... *Myrcia guianensis*

40. Vegetative branches with brown to ferrugineous trichomes .....*Myrcia hatschbachii*

40’. Vegetative branches with yellowish, hyaline or whitish trichomes 41

41. Calyx closed in the floral bud, opening irregularly at the anthesis 42

41’. Calyx open, with distinct lobes in the floral bud..... 46

42. Staminal ring pilose.....*Myrcia* sp. 1

42. Staminal ring glabrous..... 43

43. Inflorescence racemiform, main axis ca. 0.3 mm wide; bracts glabrous; ovary externally glabrous ……... *Myrcia neosuaveolens*

43’. Inflorescence paniculiform, main axis 0.8–2.4 mm wide; bracts densely to sparsely covered with trichomes; ovary externally densely to sparsely covered with trichomes 44

44. Petioles 2.2–4 mm wide; leaves 6.2–17.5 cm wide.....*Myrcia strigipes*

44'. Petioles 1–2 mm wide; leaves 3.2–5.7 cm wide 45

45. Young twigs densely covered with yellowish or golden trichomes 0.6–1.2 mm.....

.....*Myrcia neoriedeliana*

45'. Young twigs sparsely covered with hyaline trichomes up to 0.5 mm …. *Myrcia excoriata*

46. Petioles 8.5–13.8 mm long; leaves verticillate, 13–21 cm long..... *Myrcia hexasticha*

47'. Petioles 1.6–7.6 mm long; leaves opposite, 2–9.6 cm long 48

48. Calyx and ovary externally densely covered with trichomes.....*Myrcia racemosa*

48'. Calyx and ovary externally glabrous to rarely sparsely covered with trichomes.....49

49. Leaves strongly discolorous .....*Myrcia dichrophylla*

49'. Leaves concolorous or slightly discolorous 50

50. Flowers with 4 calyx lobes (sometimes flowers with 5 lobes are also present, but always amid flowers with 4 lobes) …….. *Myrcia diaphana*

50'. Flowers with 5 calyx lobes.....51

51. Twigs with erect, white or hyaline trichomes; leaves with 14–25 heterogeneous gland dots per mm² (Fig. 1J) .....*Myrcia multiflora*

51'. Twigs with adpressed, yellowish trichomes; leaves with inconspicuous or up to 14 homogeneous gland dots per mm² (Fig. 1I).....*Myrcia amazonica*

1. *Myrcia aethusa* (O.Berg 1857: 112) N.Silveira (1985: 67). (≡*Aulomyrcia aethusa* O.Berg).

Figure 2.

Trees or treelets to 14 m high. Trichomes simple, appressed to rarely erect, hyaline to rarely brown, 0.2–0.7 mm long. Young twigs flat to terete, not keeled, densely to moderately covered with trichomes; mature twigs terete, glabrescent or sparsely to rarely moderately covered with trichomes; branching monopodial. Leaves opposite, with petioles 2–10.3 × 0.7–1.5 mm, sulcate, with dense to moderate trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic, 1.4–8.7 × 0.6–3.5 cm, concolorous or discolorous when dry, apex acute or acuminate, base attenuate, margins slightly revolute, secondary veins 12–25 at each side, 0.8–5.2 mm apart, one to rarely two marginal veins, the first one 0.3–1.7 and the second when present 0.3–0.6 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 2–5(10) per mm², homogeneous; adaxial surface with scattered trichomes to glabrous when young and mature, these denser on the midvein, midvein flat or slightly sulcate; abaxial surface with moderate to scattered trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 to rarely 2 pairs per node, main axis 18–43 × 0.3–1 mm, flat to terete, densely to moderately to rarely sparsely covered with trichomes; bracts not seen; bracteoles 1.5 mm, narrow-elliptic, sparsely covered with trichomes, caducous. Floral buds obovoid, base not constricted; hypanthium 0.8–1 mm prolonged above the ovary, externally moderately covered with trichomes to glabrous; calyx open, not reflexed, 5 lobes, 0.4–1 × 1.7–2 mm, externally sparsely covered with trichomes to rarely glabrous, internally densely to moderately covered with trichomes; floral disc glabrous with trichomes only on the style base, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 3-locular. Fruits 7.7–9.7 mm, globose, reddish, glabrous to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Campina Grande do Sul, *Hatschbach 8640* (UPCB!, MBM!). Cerro Azul, *Hatschbach 11842* (MBM!). Guaraqueçaba, *Hatschbach*

18655 (UPCB!, MBM!, FUEL!). Guaratuba, *Santos 1074* (UPCB!). Jaguariaíva, *Hatschbach 31096* (MBM!). Morretes, *Kummrow 2534* (MBM!). Piraquara, *Brotto 1691* (MBM!, EFC!, RB!). Ponta Grossa, *Hatschbach 12100* (MBM!). Quatro Barras, *Roderjan 1085* (UPCB!, MBM!). São José dos Pinhais, *Landrum 2281* (MBM!). Tijucas do Sul, *Kummrow 1600* (MBM!).

This species is distributed from Minas Gerais and Espírito Santo to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs predominantly in Atlantic rainforest and Araucaria forest, but can also be found in transitional areas between Araucaria forest and grasslands. A single specimen (*Hatschbach 31096*) was found in the border between grasslands and cerrado. Collected with flowers from November to January and fruits from July to November. *Myrcia aethusa* belongs to *Myrcia* sect. *Reticulosae* (Lima 2017) and can be recognized by the branches covered with appressed trichomes, leaves with densely reticulated veins and small flower buds (ca. 2 mm) with a relatively long hypanthium (up to 1 mm).

2. *Myrcia amazonica* De Candolle (1828: 250). Figure 3.

Shrubs, treelets or trees to 27 m high. Trichomes simple and dibrachiate, appressed, hyaline or yellowish, 0.2–0.7 mm long. Young twigs flat to terete, not keeled, moderately to sparsely covered with trichomes; mature twigs terete, glabrous; branching monopodial. Leaves opposite, with petioles 1.7–7.6 × 0.7–2.5 mm, sulcate to semiterete, with moderate to scattered trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic, 3–9.6 × 1.6–3.3 cm, slightly discolourous when dry, apex acute to acuminate, base attenuate to rarely acute, margins flat to rarely revolute to the base, secondary veins 12–20 at each side, 1.7–6.3 mm apart, one or two marginal veins, the first one 1–2.5 and the second 0.2–1 mm from the margin, tertiary veins densely to sparsely reticulate, gland dots

incospicuous to conspicuous, 5–14 per mm², homogeneous; adaxial surface with moderate to scattered trichomes when young, scattered to glabrous when mature, these denser near the midvein, midvein flat to rarely raised; abaxial surface with moderate to scattered trichomes when young, moderate to glabrescent when mature, these denser on the midvein, midvein slightly raised. Inflorescences paniculiform, 1 pair per node, main axis 40–80 × 0.5–1 mm, flat to terete, moderately to sparsely covered with trichomes; bracts 1.3–6.6 mm, linear or lanceolate, sparsely covered with trichomes, caducous; bracteoles 0.7–0.8 mm, linearglabrous, caducous. Floral buds obovoid, base not constricted to rarely slightly constricted; hypanthium 0.3–0.5 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.3–0.8 × 0.5–1 mm, externally glabrous, internally moderately covered with trichomes; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 3.3–6 × 3.5–7 mm, globose, reddish or black, glabrous or sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Balsa Nova, *Landrum 2454* (MBM!). Campina Grande do Sul, *Hatschbach 17806* (MBM!). Colombo, *Pegoraro 134* (MBM!). Contenda, *Hatschbach 30646* (MBM!). Curitiba, *Imaguire 5412* (MBM!). Garuva, *Cervi 8726* (MBM!). Guaratuba, *Lucas 191* (MBM!). Irati, *Antonio 57* (HUEM!, FUEL!). Morretes, *Kuniyoshi 515* (EFC!, MBM!). Piên, *Hatschbach 9546* (MBM!). Pinhais, *Vicentini 50* (EFC!). Piraquara, *Lacerda 265* (UPCB!, MBM!). Quatro Barras, *Silva 560* (MBM!). São José dos Pinhais, *Cordeiro 176* (MBM!). Sapopema, *Soares-Silva 575* (FUEL!). Tijucas do Sul, *Kummrow 1604* (MBM!).

This species is distributed from Central America and Caribbean Islands to Bolivia and Brazil, from the states of Amazonas to Pernambuco and to Santa Catarina (Flora do Brasil 2020, Govaerts *et al.* 2019). In Paraná, it occurs in Araucaria forest and less frequently in Atlantic rainforest and grasslands. Collected with flowers from July to March and fruits from

November to April. *Myrcia amazonica* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). It has always brown leaves when dry, inflorescences with alternate secondary branches, and frequently simple and dibrachiate trichomes occurring together in the same structure.

3. *Myrcia anacardiifolia* Gardner (1843: 354). (≡*Gomidesia anacardiifolia* [Gardner] O.Berg 1855: 7). Figure 4.

Shrubs, treelets or trees to 10 m high. Trichomes simple, erect, hyaline to yellowish, 0.3–1.3 mm long. Young twigs flat to terete to rarely quadrangular, not keeled, densely to sparsely covered with trichomes; mature twigs terete to rarely flat, glabrescent to rarely sparsely covered with trichomes; branching monopodial. Leaves opposite, with petioles 2.6–5.7 × 1.5–2.2 mm, sulcate to terete, with dense to moderate trichomes when young, with dense to moderate to rarely scattered trichomes when mature; blades elliptic to slightly obovate, 4–20 × 2.8–9.8 cm, concolorous to discolorous when dry, apex acute to rounded, base acute to rounded, margins flat or slightly revolute, secondary veins 8–16 at each side, 3.2–23 mm apart, two marginal veins, the first one 1.5–3.5 and the second 0.5–0.8 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 5–8 per mm², homogeneous; adaxial surface with scattered trichomes to glabrous when young, glabrous when mature, these denser on the secondary and midveins, midvein slightly sulcate; abaxial surface with moderate to scattered trichomes when young and mature, these denser on the secondary and midvein, midvein raised. Inflorescences paniculiform or racemiform, 1 pair per node, main axis 15–67 × 1–1.6 mm, flat to terete to rarely quadrangular, moderately to sparsely covered with trichomes; bracts 5–5.3 mm, elliptic, densely covered with trichomes, caducous; bracteoles 1.3–2.8 mm, elliptic, densely to moderately covered with trichomes, caducous. Floral buds

globose, base not constricted; hypanthium 1 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 1.6–2 × 2.4–4.0 mm, externally densely to moderately covered with trichomes, internally moderatelly; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 3-locular. Fruits 7.2–12.5 × 7.3–13.5 mm, globose, reddish, purple or black, moderately to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Barbosa 3965* (MBM!). Guaratuba, *Hatschbach 18170* (MBM!). Matinhos, *Roderjan 610* (EFC!). Morretes, *Lindeman 4640* (MBM!). Ortigueira, *Michelon 1546* (MBM!, RB!). Paranaguá, *Hatschbach 19252* (MBM!). São José dos Pinhais, *Hatschbach 15960* (MBM!). Telêmaco Borba, *Lozano 914* (MBM!). Tijucas do Sul, *Roher s.n.* (MBM 397405!). Ventania, *Estevan 717* (FUEL!).

This species is distributed from Rio de Janeiro to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs predominantly in the Atlantic rainforest and Araucaria forest. Collected with flowers from November to April and fruits from March to December. *Myrcia anacardiifolia* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). This species is similar to *Myrcia hebepetala*, but is distinguished by the tertiary venation just sparsely reticulated (*vs.* densely reticulated in *M. hebepetala*), and 8–16 secondary veins, weakly marked (*vs.* 15–22, strongly marked).

4. *Myrcia anomala* Cambessèdes (1832: 328). Figure 5.

Subshrubs or shrubs to 0.8 m high. Trichomes simple, erect, hyaline, yellowish or white, 0.2–1.8 mm long. Young twigs flat, not keeled, moderately covered with trichomes to rarely glabrous; mature twigs flat to terete, moderately covered with trichomes to glabrous; branching monopodial. Leaves opposite, lacking petioles or these up to 2(4.2) × 1–1.4 mm,

semiterete, with dense to moderate trichomes to rarely glabrous when young, with moderate trichomes to rarely glabrous when mature; blades elliptic to ovate, 1.5–4.2 (6.2)× 0.7–2.8 cm, concolorous or discolorous when dry, apex acute to short acuminate, base subcordate, margins slightly revolute, secondary veins 11–16 at each side, 1.4–7.7 mm apart, one to rarely two marginal veins, the first one 0.5–1.4 and the second 0.3 mm from the margin, tertiary veins densely reticulate, gland dots incospicuous to conspicuous, 5–12 per mm², homogeneous; adaxial surface with moderate to scattered trichomes to rarely glabrous when young, moderate to glabrous when mature, midvein flat to slightly raised; abaxial surface with moderate trichomes to rarely glabrous when young, moderate to scattered to rarely glabrous when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform very reduced, 1 pair per node, flowers sessile or main axis up to 20 (50) × 0.6–1 mm, flat, moderately covered with trichomes; bracts 3.4–7.8 mm, lanceolate, moderately covered with trichomes, persistent to rarely caducous; bracteoles 2–4.3 mm, lanceolate, moderately covered with trichomes to rarely glabrous, persistent to rarely caducous. Floral buds clavate, base constricted; hypanthium 0.8–1.6 mm prolonged above the ovary, externally densely to sparsely covered with trichomes; calyx open, reflexed, 5 lobes, 1.8–3.6 × 0.8–2 mm, externally moderately covered with trichomes to glabrous, internally glabrous; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 2.8–3.5 × 3.4–3.8 mm, globose, brown, moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Balsa Nova, *Kozera 2742* (MBM!, EFC!). Campo Mourão, *Hatschbach 7693* (MBM!). Curitiba, *Dombrowski 5761* (MBM!). Lapa, *Hatschbach 14054* (MBM!). Ponta Grossa, *Dombrowski 6757* (MBM!). Tibagi, *Vieira 381* (FUEL!). Tuneiras do Oeste, *Caxambu 3623* (HCF!).

Additional specimens:— BRAZIL. Mato Grosso do Sul: Corumbá, *Silva 112* (UEC).

This species is distributed in Bolivia, Argentina, Paraguay and Brazil, from the states of Goiás to Rio Grande do Sul (Flora do Brasil 2020; Govaerts *et al.* 2019). In Paraná, it occurs mainly in grasslands, but some specimens were found in Araucaria forest. Collected with flowers from October to March and fruits in January and April. *Myrcia anomala* belongs to *Myrcia* sect. *Tomentosae* (Lima 2017). This species is easily recognizable in Paraná due to the sessile or almost sessile leaves; panicles quite reduced with numerous bracts and bracteoles, sometimes resembling a glomerule; and the calyx lobes are long, reaching half the lenght of the floral bud. Other *Myrcia* species in Paraná generally have longer petioles and inflorescences, and the calyx lobes are always shorter than half the lenght of the floral bud. A single specimen (*Silva 769*) with petioles, leaves and inflorescences longer than usual was found; yet, this collection has the calyx lobes as described above for *Myrcia anomala*.

5. *Myrcia bicarinata* (O.Berg 1857: 118) D.Legrand (1961: 298). (≡*Aulomyrcia bicarinata* O.Berg). Figure 6.

Shrubs. Trichomes dibrachiate, appressed, ferrugineous, 0.2 mm long. Young twigs flat, keeled, moderately covered with trichomes; mature twigs flat, glabrescent; branching monopodial. Leaves opposite, with petioles 2.2–4.8 × 0.7–0.8 mm, sulcate, glabrous when young and mature; blades narrow-elliptic, 3.2–4.8 × 1–1.6 cm, slightly discolorous when dry, apex rounded to acute, base attenuate, margins flat, secondary veins 16 at each side, 1.7–2.2 mm apart, one marginal vein 0.6 mm from the margin, tertiary veins sparsely reticulate to inconspicuous, gland dots inconspicuous; adaxial surface glabrous when young and mature, midvein slightly sulcate; abaxial surface with scattered trichomes when mature, these denser at the base, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis (20.2) 42.6–50 × 0.5–1 mm, flat, sparsely covered with trichomes to glabrous; bracts and bracteoles

not seen. Floral buds obovoid, base not constricted; hypanthium 1 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.4–1 × 0.5–1 mm, externally glabrous or very sparsely covered with trichomes and internally moderately covered with trichomes; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 6.4–7.5 × 9–9.4 mm, globose, black, glabrous, hypanthium remnants hollow, calyx remnants caducous.

Selected specimens:—BRAZIL. Paraná: Jaguariaíva, *Hatschbach 18974* (MBM!).

Additional specimens:—BRAZIL. Distrito Federal: *Azevedo 301* (RB!), *Heringer 623* (RB!).

This species is distributed from Goiás to Santa Catarina (Flora do Brasil 2020). In Paraná, this species is know from only one collection, occurring in a transitional area between grasslands and cerrado. Collected with flowers in October and fruits in March. *Myrcia bicarinata* belongs to *Myrcia* sect. *Sympodiomyrcia* (Santos *et al.* 2018). This species, together with *Myrcia costeira*, are the only species in Paraná with keeled young branches. However, the first species is distinguished by the leaves with inconspicuous glands (*vs.* conspicuous glands, 5–6 per mm^2 in *Myrcia costeira*), 0.7–0.8 mm wide (*vs.* 1–1.6 mm), secondary veins 1.5–2 mm distant from each other (*vs.* 2–3.5 mm), tertiary veins sparsely reticulated (*vs.* inconspicuous) and fruits 6.4–7.5 × 9–9.4 mm (*vs.* 4–4.5 × 4.2–4.6 mm). Additionally, *Myrcia bicarinata* occurs in the interior of Paraná, while *M. costeira* occurs in coastal Paraná. The state is the southern limit of *Myrcia bicarinata* (Flora do Brasil 2020, Santos *et al.* 2018).

6. *Myrcia costeira* M.F.Santos (2015: 165). Figure 7.

Shrubs, treelets or trees to 10 m high. Trichomes dibrachiate, appressed, ferrugineous, smaller than 0.1 mm long. Young twigs flat, keeled, moderately to sparsely covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial to sympodial. Leaves opposite, with petioles 1.8–3.5 × 1–1.6 mm, sulcate, glabrous when young and mature ; blades elliptic, 3–5.5 × 1.5–2.4 cm, discolorous to rarely concolorous when dry, apex rounded to acute, base acute to attenuate, margins revolute to the base, secondary veins 13–14 at each side, 2–3.5 mm apart, onde marginal vein 0.6–1 mm from the margin, tertiary veins inscospicuous, gland dots conspicuous, 5–6 per mm², homogeneous; adaxial surface glabrous when young and mature, midvein sulcate to the base; abaxial surface with moderate trichomes to glabrous when young and mature, these occasionaly denser on the midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 25–45 × 0.6–1.2 mm, flat, glabrous; bracts 0.8–1 mm, triangular, glabrous, caducous; bracteoles 0.5–0.7 mm, linear to triangular, glabrous, caducous. Floral buds obovoid, base not constricted; hypanthium 0.7–1 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.4–0.6 × 0.7 mm, externally glabrous, internally moderately covered with trichomes; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 4–4.6 × 4.2–4.6 mm, globose, glabrous, hypanthium remnants hollow, calyx remnants caducous.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Hatschbach 31837* (MBM!, FLOR!). Morretes, *Roderjan 1344* (EFC!). Paranaguá, *Kuniyoshi 6236* (EFC!). Piraquara, *Ribas 5868* (MBM!).

This species is distributed from São Paulo to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs mainly in the Atlantic rainforest, except for a single specimen from Araucaria forest (*Ribas 5868*). Collected with flowers from October to April and fruits from January to November. *Myrcia costeira* belongs to *Myrcia* sect. *Sympodiomyrcia* (Santos *et al.*

2018). This species was recently described based on several specimens previously identified as *M. bicarinata* (Santos et al. 2015). These two species share some characteristics, but can be easily distinguised (see comments under *M. bicarinata*). So far, only one material of *Myrcia costeira* was known from Paraná (the holotype, *Hatschbach 31837*). However, our study have found seven new records in the state, all them were misidentified as *M. bicarinata* or *M. subcordata*.

7. *Myrcia diaphana* (O.Berg 1857: 82) N.Silveira (1985: 66). (≡*Aulomyrcia diaphana* O.Berg). Figure 8.

Treelets or trees to 9 m high. Trichomes simple and dibrachiate, appressed, hyaline, 0.2–0.6 mm long. Young twigs flat to terete, not keeled, moderately to sparsely covered with trichomes; mature twigs flat to terete, sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 3.4–6.5 × 0.5–1 mm, sulcate, with scattered trichomes when young, with very scattered trichomes to glabrous when mature; blades elliptic, 3.2–8 × 1.3–2.6 cm, slightly discolorous when dry, apex acuminate, base acute, margins flat, secondary veins 17–22 at each side, 1.7–4.4 mm apart, one or two marginal veins, the first one 0.7–1.5 and the second 0.2–0.3 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 4–9 per mm², homogeneous; adaxial surface with very scattered trichomes to glabrous when young and mature, midvein slightly raised; abaxial surface with scattered trichomes when young, glabrescent when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 40–95 × 0.5–1 mm, flat, glabrous; bracts 0.8–2.3 mm, elliptic, densely to sparsely covered with trichomes, persistent or caducous; bracteoles 0.5 mm, lanceolate, sparsely covered with trichomes, caducous. Floral buds obovoid or turbinate, base slightly constricted; hypanthium

0.4–0.8 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 4-lobes, 0.4–1 × 0.5–1.3 mm, externally glabrous, internally densely to moderately covered with trichomes; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 5–7 × 6–7 mm, globose, pinkish to black, glabrous, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaratuba, *Hatschbach 13386* (UPCB!, MBM!). São Jerônimo da Serra, *Francisco s.n.* (MBM 346079!, FUEL 22660!). Telêmaco Borba, *Mattos s.n.* (UPCB 2472!).

Additional specimens:—BRAZIL. Rio de Janeiro: Itatiaia, *Carrara 24* (RB).

This species is distributed from Minas Gerais to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and Araucaria forest. Collected with flowers from September to December and fruits in October. *Myrcia diaphana* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). This species always has 4-merous flowers, but sometimes a few 5-merous flowers can also be found mixed to the 4-merous ones in the same individual. Lucas et al. (2016) indicated that *Myrcia diaphana* can be possibly considered as synonym of *M. multiflora*, but we found consistent morphological differences between these two species: *M. diaphana* has appressed trichomes (*vs.* erect in *M. multiflora*), simple and dibrachiate hairs (*vs.* only simple), leaves with 4–9 homogeneous gland dots per mm² (*vs.* 14–25, heterogeneous), flowers frequently 4-merous (*vs.* always 5-merous), calyx lobes 0.4–1 mm long (*vs.* 0.2–0.4 mm) and hypanthium 0.4–0.8 mm prolonged above the ovary (*vs.* 0.2–0.4 mm). Most specimens of *Myrcia diaphana* from Paraná were misidentified as *M. multiflora*, *M. leptoclada* De Candolle (1828: 244; synonym of *M. amazonica*) and *M. cymosopaniculata* Kiaerskou (1893: 90; synonym of *M. guianensis*).

8. *Myrcia dichrophylla* Legrand (1961: 294). Figure 9.

Trees to 10 m high. Trichomes simple and dibrachiate, appressed, hyaline, yellowish or white, 0.2–0.4 mm long. Young twigs flat, not keeled, sparsely covered with trichomes to glabrous; mature twigs flat or terete, glabrous; branching monopodial. Leaves opposite, with petioles 3.2–6.4 × 0.7–1.7 mm, sulcate, with scattered to rarely moderate trichomes when young, glabrescent when mature; blades elliptic to elliptic-obovate, 3.3–9.3 × 1.5–4 cm, strongly discolorous when dry, apex acuminate to rarely acute, base attenuate, margins slightly revolute, secondary veins 13–21 at each side, 2.2–6.2 mm apart, one to rarely two marginal veins, the first one 0.6–2.2 and the second 0.3–0.6 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 23–33 per mm², homogeneous; adaxial surface with scattered trichomes when young, glabrous when mature, these denser on the midvein, midvein flat to slightly sulcate; abaxial surface with scattered or very scattered trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 40–55 × 0.6–1.2 mm, flat, moderately to sparsely covered with trichomes; bracts not seen; bracteoles 0.5 mm, elliptic, sparsely covered with trichomes, caducous. Floral buds globose to obovoid, base not constricted; hypanthium 0.7–0.8 mm prolonged above the ovary, externally sparsely covered with trichomes to glabrous; calyx open, not reflexed, 5 lobes, 0.3–0.5 × 0.8–1.3 mm, externally and internally glabrous; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 7.2–12 × 8.4–14.8 mm, globose, yellowish to rarely black, glabrous, hypanthium remnants hollow, calyx remnants caducous or persistent.

Examined material:—BRAZIL. Paraná: Guaraqueçaba, *Scheer 503* (UPCB!, MBM!). Guaratuba, *Silva 1015* (MBM!). Matinhos, *Svolenski 526* (EFC!). Paranaguá, *Silva s.n.* (UPCB 32151!).

This species is distributed from Rio de Janeiro to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs predominantly in the Atlantic rainforest. Collected with flowers from December to January and fruits in May. *Myrcia dichrophylla* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). and can be promptly recognized by the strongly discolorous leaves.

9. *Myrcia eugeniopsoides* (D.Legrand & Kausel in D.Legrand 1962a:194) Mazine (2014: 98). (≡*Calyptranthes eugeniopsoides* D.Legrand & Kausel; ≡*Marlierea eugeniopsoides* [D.Legrand & Kausel] D.Legrand [1975: 7]). Figure 10.

Shrubs, treelets or trees to 5 m high. Trichomes simple and dibrachiate, erete to rarely appressed, brown to ferrugineous, 0.1–1 mm long. Young twigs flat to rarely quadrangular, not keeled, densely to moderately covered with trichomes; mature twigs terete, sparsely covered with trichomes to glabrous; branching monopodial. Leaves opposite, with petioles 3.2–10.6 × 1.1–2.7 mm, sulcate to rarely semiterete, with dense to moderate trichomes when young, with moderate to scattered trichomes or glabrescent when mature; blades elliptic, 7–17 × 2.8–7 cm, discolorous when dry, apex acuminate or abruptly acuminate to rarely acute, or rounded, base acute to attenuate, margins flat to rarely revolute to the base, secondary veins 15–30 at each side, 2.5–8.7 mm apart, two marginal veins, the first one 0.8–2.3 and the second 0.3–0.6 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 2–7 per mm², homogeneous; adaxial surface with scattered trichomes to glabrous when young and mature, midvein slightly sulcate; abaxial surface with moderate to scattered trichomes when young and mature, these denser on the margin and midvein, midvein slightly raised. Inflorescences paniculiform, 1 pair per node, main axis 20–76 × 0.6–1.3 mm, flat to rarely terete, sparsely covered with trichomes to glabrous; bracts not seen; bracteoles 1.3 mm,

narrow-elliptic, sparsely covered with trichomes, caducous. Floral buds globose, base not constricted; hypanthium 1.2–2.4 mm prolonged above the ovary, externally glabrous; calyx closed, opening irregularly, not reflexed , externally glabrous, internally moderately covered with trichomes to rarely glabrous; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 12.6–17.5 × 13–18 mm, globose, purple, glabrous or sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Silva 9505* (MBM!). Antonina, *Hatschbach 13186* (UPCB!, MBM!). Bocaiúva do Sul, *Silva 4026* (MBM!, RB!). Campina Grande do Sul, *Hatschbach 7817* (MBM!). Guaraqueçaba, *Roderjan 365* (MBM!, EFC!). Guaratuba, *Hatschbach 9890* (UPCB!, MBM!). Matinhos, *Ziller 75* (EFC!, MBM!). Morretes, *Hatschbach 13407* (UPCB!, MBM!). Paranaguá, *Kozera 677* (UPCB!).

This species is distributed from São Paulo to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and Araucaria forest. Collected with flowers from November to March and fruits in May and September. *Myrcia eugeniopsoides* belongs to *Myrcia* sect. *Eugeniopsis* (Lucas *et al.* 2011). This species is similar to *Myrcia reitzii*, from which it is separated mainly by the globose, glabrous and completely closed floral buds in *M. eugeniopsoides* (*vs.* clavate, pilose and not totally closed in *M. reitzii*). Secondarily, they can be also distinguished by the shorter and wider petioles of the former species (3.2–10.6 × 1.1–2.7 mm *vs.* 8–25 × 1–2 mm), although there are some individuals with intermediate states.

10. *Myrcia excoriata* (Martius 1837: 88) E.Lucas & C.E.Wilson (2016: 664). (≡*Marlierea excoriata* Mart.). Figure 11.

Trees to 15 m high. Trichomes simple and dibrachiate, appressed, hyaline to yellowish, 0.2–0.7 mm long. Young twigs flat to terete, not keeled, sparsely covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles 4.3–8.8 × 1–1.7 mm, sulcate to rarely semiterete, with moderate to scattered trichomes when young, glabrescent when mature; blades narrow-elliptic to elliptic, 5.3–13.5 × 2–5.2 cm, discolorous when dry, apex acuminate, base acute to attenuate, margins flat or slightly revolute, secondary veins 15–26 at each side, 4.7–9.8 mm apart, one to rarely two marginl veins, the first one 0.7–4.2 and the second 0.6–1.2 mm from the margin, tertiary veins densely to sparsely reticulate, gland dots conspicuous, 8–11 per mm², homogeneous or heterogeneous; adaxial surface with scattered trichomes when young and mature sparsely covered with trichomes when young and mature, these denser on the midvein, midvein flat; abaxial surface with moderate to scattered trichomes when young and mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 2–4 terminal branches, main axis 30–140 × 1–1.6 mm, flat to slightly terete, moderately to very sparsely covered with trichomes; bracts 0.7–4.2 mm, elliptic, elliptic-lanceolate or triangular, sparsely covered with trichomes, persistent; bracteoles 0.4–0.7 mm, elliptic or triangular, sparsely covered with trichomes, persistent. Floral buds obovoid or globose, base not constricted; hypanthium 0.7–1.7 mm prolonged above the ovary, externally sparsely to rarely moderately covered with trichomes; calyx closed, opening irregularly, not reflexed, internally and externally glabrous to rarely externally very sparsely covered with trichomes; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2–4-locular. Fruits 10.3–13.7 × 10.4–14 mm, globose, purple, sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Brotto 1866* (MBM!). Bocaiúva do Sul, *Hatschbach 50794* (MBM!, RB!). Campina Grande do Sul, *Oliveira 857*

(MBM!, RB!). Guaratuba, *Caxambu 3556* (MBM!). Morretes, *Hatschbach 20193* (MBM!). São José dos Pinhais, *Oliveira 681* (MBM!). Tunas do Paraná, *Silva 2197* (MBM!, FUEL!).

This species is distributed from Tocantins and Pernambuco to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs predominantly in the Araucaria forest, but can also be found in transitional areas between this vegetation and Atlantic rainforest. Collected with flowers from October to December and fruits in January. It belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016) and can be recognized by the leaves becoming greyish when dry and the terminal inflorescence with persistent bracts and bracteoles (see Lucas *et al.* 2016).

11. *Myrcia ferruginosa* Mazine (2014: 98). (≡*Eugenia sylvatica* Gardner [1843: 352]; ≡*Marlierea sylvatica* [Gardner] Kiaerskou [1893: 51]). Figure 12.

Treelets or trees to 10 m high. Trichomes simple and dibrachiate, erect, ferrugineous, 0.1–1 mm long. Young twigs flat to quadrangular, not keeled, densely covered with trichomes; mature twigs terete to slightly flat, densely to moderately covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 10–14.3 × 2–2.6 mm, sulcate, with dense trichomes when young, with dense trichomes when mature; blades elliptic to narrow-elliptic, 9.5–19.5 × 4.5–8 cm, discolorous when dry, apex acuminate, base acute or attenuate, margins slightly revolute or revolute to the base, secondary veins 22–26 at each side, 3.4–13.3 mm apart, two marginal veins, the first one 1.3–3 and the second 0.2–0.6 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous to rarely conspicuous, 8–10 per mm², homogeneous; adaxial surface with scattered trichomes when young, glabrescent when mature, these denser on the midvein, midvein slightly sulcate or flat; abaxial surface with dense to moderate trichomes when young and mature, these denser on the

secondary, marginal and midveins, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 50–80 × 1.6–3 mm, flat to terete, densely covered with trichomes; bracts not seen; bracteoles 1.4 mm, elliptic, densely covered with trichomes, caducous. Floral buds obovoid, base not constricted; hypanthium 1.2–1.4 mm prolonged above the ovary, externally densely covered with trichomes; calyx closed, opening irregularly, not reflexed , externally and internally densely covered with trichomes; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 11.8–23.5 × 13.4–23 mm, globose, black, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Hatschbach 53116* (UPCB!, MBM!). Guaraqueçaba, *Hatschbach 16494* (MBM!). Guaratuba, *Hatschbach 51207* (UPCB!, MBM!). Morretes, *Hatschbach 25995* (UPCB!, MBM!). Paranaguá, *Hatschbach 9838* (UPCB!, MBM!). São José dos Pinhais, *Ribas 1906* (FUEL!, MBM!).

This species is distributed from Bahia to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest, and less frequently in Araucaria forest. Collected with flowers from December to January and fruits from April to July. *Myrcia ferruginosa* belongs to *Myrcia* sect. *Eugeniopsis* (Santos *et al.* 2017) and can be recognized by the vegetative and reproductive branches covered with ferrugineous trichomes.

12. *Myrcia flagellaris* (D.Legrand 1961: 279) Sobral (2008: 109). (≡*Gomidesia flagellaris* D.Legrand). Figure 13.

Shrubs, treelets or trees to 5 m high. Trichomes simple, appressed, hyaline, yellowish or white, 0.3–1 mm long. Young twigs flat to quadranglar, not keeled, densely covered with trichomes; mature twigs terete, moderately to sparsely covered with trichomes; branching

monopodial. Leaves opposite, with petioles 2.4–4.6 × 1–1.8 mm, semiterete, with dense trichomes when young, with moderate to rarely dense trichomes when mature; blades elliptic to rarely narrow-elliptic, 5.7–14.8 × 2–4.5 cm, discolorous when dry, apex acuminate, base acute, margins flat, secondary veins 17–24 at each side, 3.4–10 mm apart, one to rarely two marginal veins, the first one 1–2.7 and the second 0.4 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 2–4 per mm², homogeneous; adaxial surface with moderate to scattered or rarely dense trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein flat; abaxial surface with moderate trichomes when young and mature, these denser on the midvein, midvein slightly raised. Inflorescences a dichasium, 1 pair per node, main axis 40–55 × 0.4–0.5 mm, flat, densely covered with trichomes; bracts not seen; bracteoles 1–4 mm, elliptic, densely to moderataly covered with trichomes, persistent. Floral buds globose, base not constricted; hypanthium 0.8–1.2 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 1.2–1.7 × 2–3 mm, externally and internally moderately covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae assymmetrical; ovary 4-locular. Fruits 9.3–12.3 × 9.8–14.8 mm, globose, black, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Hatschbach 34779* (MBM!). Guaraqueçaba, *Hatschbach 18116* (MBM!). Guaratuba, *Hatschbach 18643* (UPCB!, MBM!). Morretes, *Kozera s.n.* (MBM 284531!). Paranaguá, *Hatschbach 9825* (MBM!).

This species is distributed from São Paulo to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs only in Atlantic rainforest. Collected with flowers from November to February and July and fruits from July to August and November. *Myrcia flagellaris* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). *Myrcia flagellaris* and *M. squamata* are the only species in Paraná and in sect. *Gomidesia* with a dichasium. The former however, has more

delicate inflorescences (40–55 × 0.4–0.5 mm *vs.* 17–30 × 0.7–1.3 mm). Besides, *M. flagellaris* is distinguished from *M. squamata* by the longer calyx lobes (1.2–1.7 mm *vs.* 0.8–1 mm) and leaves with 17–24 secondary veins (*vs.* 9–17), as also observed by Amorim (2017).

13. *Myrcia freyreissiana* (O.Berg 1857: 19) Kiaerskou (1893: 102). (≡*Gomidesia freyreissiana* O.Berg). Figure 14.

Shrubs, treelets or trees to 15 m high. Trichomes simple, appressed, hyaline, yellowish or white to rarely brown, 0.2–0.5 mm long. Young twigs flat to quadrangular, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles 3–8 × 1.2–1.6 mm, sulcate, with moderate trichomes when young, with moderate to scattered trichomes when mature; blades elliptic, obovate-elliptic to rarely large-elliptic, 3.5–10 × 1.7–5 cm, concolorous or discolorous when dry, apex acute, rounded or acuminate, base acute or attenuate to rarely rounded, margins flat to slightly revolute, secondary veins (7) 10–14 at each side, 2.8–11 mm apart, one to rarely two marginal veins, the first one 0.5–3.2 and the second 0.2–0.8 mm from the margin, tertiary veins densely reticulate, gland dots incospicuous to conspicuous, 6 per mm², homogeneous; adaxial surface with moderate to scattered trichomes or rarely glabrous when young, scattered to glabrous when mature, these denser on the midvein, midvein flat to rarely sulcate; abaxial surface with dense to moderate trichomes when young, moderate to scattered when matureyoung densely to moderately covered with trichomes; mature moderately to sparsely covered with trichomes, these denser on the secondary and midvein, midvein slightly raised. Inflorescences paniculiform, 1 pair per node, main axis 55–115 × 0.7–1.5 mm, flat, densely or moderately to rarely sparsely covered with trichomes; bracts 4–

8.3 mm, elliptic, moderately to sparsely covered with trichomes, caducous; bracteoles 1.2–3 mm, elliptic, moderately covered with trichomes, caducous. Floral buds globose, base not constricted; hypanthium 0.7–1.2 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.7–1.2 × 1.3–2.5 mm, externally and internally densely to moderately covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 2 or 4-locular. Fruits 4–12.2 × 5.5–12.3 mm, globose, black, purple or brown, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Brotto 2377* (MBM!). Antonina, *Hatschbach 56169* (UPCB!, MBM!). Bocaiúva do Sul, *Hatschbach 53730* (MBM!). Campina Grande do Sul, *Silva 328* (MBM!). Cerro Azul, *Hatschbach 23438* (UPCB!, MBM!, RB!). Dr Ulysses, *Hatschbach 66535* (MBM!). Guaraqueçaba, *Ziller 792* (FUEL!, MBM!). Guaratuba, *Borgo 588* (UPCB!, EFC!). Inácio Martins, *Martins 2* (FUEL!). Matinhos, *Roderjan 376* (EFC!, MBM!). Morretes, *Roderjan 488* (EFC!, MBM!). Paranaguá, *Hatschbach 52559* (UPCB!, FUEL!, MBM!). Piraquara, *Reginato 507* (UPCB!). Pontal do Paraná, *Carneiro 1304* (MBM!). Quatro Barras, *Silva 613* (MBM!, FUEL!, RB!). Tunas do Paraná, *Silva 3232* (HCF!, MBM!, RB!).

This species is distributed from Bahia to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and Araucaria forest. Collected with flowers from October to April and fruits from January to November. *Myrcia freyreissiana* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). Although still not formally synonymized, we follow the interpretation of Amorim (2017) and consider *Myrcia freyreissiana* and *M. brasiliensis* Kiaerskou (1893: 102) (≡*Gomidesia schaueriana* O.Berg 1857: 18) as heterotypic synonyms. However, Amorim (2017) treated *M. freyreissiana* under *M. brasiliensis*, which is not in agreement with the Code (Art. 11.4 and Ex. 17; Turland *et al.* 2018), since, in this case,

Myrcia freyreissiana has priority. Some collections from Paraná (e.g. *Hatschbach 18630*, *Reginato* 657, *Silva 613*) are morphologically slightly different from the typical *Myrcia freyreissiana*: their leaves apex are more acuminate, the inflorescences are a bit smaller, with fewer and smaller floral buds then other collections assigned here to the latter. These collections need further investigation and may be interpreted as a new species in the future. *Myrcia freyreissiana* is morphologically similar to *M. trichantha*, but can be distinguished by the appressed trichomes (*vs.* erect in *M. trichantha*), leaves frequently with thinner petioles (1.2–1.6 *vs.* 1.6–3 mm), sulcate (*vs.* semiterete), bracts and bracteoles caducous (*vs.* persistent), and fruits generally larger (4–12.2 × 5.5–12.3 *vs.* 2.6–6.2 × 4–6.6 mm).

14. *Myrcia glabra* (O.Berg 1857: 119) D.Legrand (1961: 298). (≡*Aulomyrcia glabra* O.Berg). Figure 15.

Trees or rarely shrubs to 15 m high. Trichomes simple and dibrachiate, erect, hyaline to reddish, 0.2 mm long. Young twigs flat to terete, not keeled, glabrous to rarely very sparsely covered with trichomes; mature twigs terete, glabrous; branching monopodial. Leaves opposite, with petioles 2.4–8.8 × 1–4.5 mm, semiterete to sulcate, with scattered trichomes to glabrous when young and mature; blades elliptic-obovate, 3–10 × 1.5–5 cm, concolorous to slightly discolorous when dry, apex rounded to acute, base acute to attenuate, margins revolute, secondary veins 9–13 at each side, 2–8.3 mm apart, one marginal vein to rarely two, the first one 0.4–3 and the second 0.2 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 7–12 per mm², homogeneous; adaxial surface glabrous to rarely with very scattered trichomes when young, glabrous when mature, midvein flat; abaxial surface glabrous to rarely with very scattered trichomes when young, glabrous when mature, midvein slightly raised. Inflorescences paniculiform, 1 pair per node, main axis 20–66 × 0.6–1.6 mm,

flat to rarely terete, glabrous; bracts not seen; bracteoles 0.3–0.6 mm, elliptic, glabrous, caducous to rarely persistent. Floral buds globose, base not constricted; hypanthium 0.7–1 mm prolonged above the ovary, externally sparsely covered with trichomes to glabrous; calyx open, not reflexed, 5 lobes, 0.5–0.5 × 0.8–1.5 mm, externally glabrous, internally moderately covered with trichomes to glabrous; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 3-locular. Fruits 4.6–7.4 × 5–9.7 mm, globose, black, glabrous to rarely sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Silva 4313* (MBM!). Guaraqueçaba, *Jaster s.n.* (UPCB 22924!). Guaratuba, *Hatschbach 8922* (MBM!). Morretes, *Dombrowski 7377* (MBM!). Paranaguá, *Souza 701* (UPCB!).

This species is distributed from Rio de Janeiro to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in the Atlantic rainforest. Collected with flowers in August and from November to May and fruits from April to July. *Myrcia glabra* belongs to *Myrcia* sect. *Aguava* (Lima 2017). This species is frequently glabrous, except for the inner calyx lobes, but individuals with sparse trichomes on the young branches, leaves and inflorescences can be found. The leaves frequently have revolute margins when dry.

15. *Myrcia guianensis* (Aublet 1775: 506) De Candolle (1828: 245). (≡*Eugenia guianensis* Aubl.). Figure 16.

Shrubs, treelets or trees to 14 m high. Trichomes simple to rarely dibrachiate, erect to rarely appressed, hyaline, yellowish, golden, ferrugineous or brown, 0.1–0.6 mm long. Young twigs flat to terete, not keeled, densely to sparsely covered with trichomes to glabrous; mature twigs flat to terete, moderately or sparsely covered with trichomes to glabrous; branching

monopodial. Leaves opposite, with petioles 1–6 × 0.5–1.2 mm, semiterete to sulcate, with dense to scattered trichomes when young, with moderate trichomes to glabrous when mature; blades elliptic, narrow-elliptic, elliptic obovate, obovate or oblonge, 1.3–6.5 × 0.5–2.3 cm, discolorous to concolorous when dry, apex acute to rounded or acuminate, base acute to attenuate or rounded, margins slightly revolute or revolute to the base, secondary veins 10–20 at each side, 1.2–5.2 mm apart, one marginal vein 0.3–1.4 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 5–17 per mm², homogeneous to heterogeneous; adaxial surface with moderate to scattered trichomes or glabrous when young, scattered to glabrous when mature, these denser on the midvein, midvein flat to rarely slightly sulcate; abaxial surface with moderate to scattered trichomes when young, scattered to glabrescent when mature, these denser on the margin and midvein, midvein slightly raised. Inflorescences paniculiform to rarely racemiform, 1 pair per node, main axis 10–70 × 0.2–0.5 mm, flat, moderately to sparsely covered with trichomes or glabrous; bracts 3–6.3 mm, elliptic, moderately covered with trichomes, caducous; bracteoles 0.6–1.6 mm, linear, moderately to sparsely covered with trichomes, caducous to rarely persistent. Floral buds globose or turbinate, base not constricted; hypanthium 0.4–1.1 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.5–0.8 × 0.6–1.3 mm, externally sparsely covered with trichomes to glabrous, internally densely to sparsely; floral disc entirely glabrous, staminal ring glabrous to rarely sparsely covered with trichomes, anthers thecae symmetrical; ovary 3-locular. Fruits 4–12.4 × 4.5–8.8 mm, globose, pinkish to reddish, purple or black, glabrous to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Silva 4527* (MBM!). Amaporã, *Goetzke 193* (MBM!). Antonina, *Blum 2132* (EFC!). Arapoti, *Hatschbach 8568* (UPCB!). Balsa Nova, *Hatschbach 18710* (MBM!). Bocaiúva do Sul, *Ribas 5802* (MBM!,

RB!). Campina Grande do Sul, *Hatschbach 7661* (UPCB!). Campo Largo, *Hatschbach 8327* (MBM!). Campo Magro, *Silva 3689* (MBM!). Campo Mourão, *Hatschbach 12984* (UPCB!). Carambeí, *Engels 1775* (MBM!). Castro, *Soares-Silva 628* (FUEL!). Clevelândia, *Hatschbach 22698* (MBM!). Colombo, *Possete 586* (UPCB!). Contenda, *Landrum 2435* (MBM!). Cornélio Procópio, *Francisco s.n.* (UPCB 51293!, FUEL 28267!). Cruzeiro do Oeste, *Lange 13* (MBM!). Curitiba, *Hatschbach 44447* (UPCB!, MBM!). Curiúva, *Soares-Silva 614* (FUEL!). Diamante do Norte, *Romagnolo 3181* (HUEM!). Guarapuava, *Hatschbach 7421* (UPCB!). Guaraqueçaba, *Scheer 641* (UPCB!). Guaratuba, *Santos 765* (UPCB!, MBM!). Honório Serpa, *Brotto 528* (UPCB!). Imbituva, *Hatschbach 22503* (UPCB!). Ipiranga, *Hatschbach 22358* (MBM!). Irati, *Carvalho 107* (MBM!). Jaguariaíva, *Hatschbach 18936* (UPCB!). Lapa, *Guimarães s.n.* (UPCB 19039!). Mandirituba, *Landrum 3896* (MBM!, RB!). Mangueirinha, *Hatschbach 72395* (UPCB!, MBM!). Morretes, *Motta 617* (MBM!). Palmas, *Hatschbach 68716* (UPCB!, MBM!). Palmeira, *Landrum 3969* (MBM!). Paranavaí, *Lemos s.n.* (HUEM 28433!). Pien, *Hatschbach 53605* (UPCB!). Pinhais, *Kuniyoshi 5439* (EFC!). Pinhão, *Ribas 331* (MBM!). Piraí do Sul, *Soares-Silva 655* (FUEL!). Piraquara, *Ribas 17671* (UPCB!). Ponta Grossa, *Cervi 2073* (UPCB!). Quatro Barras, *Hatschbach 14742* (UPCB!). Querência do Norte, *Almeida 177* (MBM!). Reserva, *Paiva s.n.* (MBM 322526!, FUEL 22147!). Ribeirão do Pinhal, *Carneiro 253* (MBM!). Rio Branco do Sul, *Cruz 210* (MBM!). Rio Negro, *Hatschbach 3414* (MBM!). Sabáudia, *Borges Júnior s.n.* (MBM 391522!). Santa Cecília, *Ribeiro 210* (EFC!). São Jerônimo da Serra, *Soares-Silva 551* (FUEL!). São João do Triunfo, *Hatschbach 17791* (MBM!). São José dos Pinhais, *Hatschbach 18159* (UPCB!). São Manoel do Paraná, *Januzzi s.n.* (MBM 392959!). São Mateus do Sul, *Hatschbach 68667* (UPCB!). Sengés, *Dias 369* (FUEL!). Teixeira Soares, *Dias 17* (FUEL!). Telêmaco Borba, *Filipaki s.n.* (UPCB 33134!). Terra Rica, *Thatiane s.n.* (HUEM 29353!). Tibagi, *Vieira 29* (UPCB!). Tijucas do Sul, *Blum 10-085* (UPCB!). Turneiras do Oeste, *Siqueira 500* (MBM!).

Turvo, *Alves 66* (MBM!). Ventania, *Chagas e Silva 2128* (FUEL!). Vila Alta, *Ziller 1123* (MBM!, EFC!).

This species is distributed from Trinidad and Tobago, Panama and Ecuador to Paraguay and, in Brazil, occurring throughout the country (Flora do Brasil 2020; Govaerts *et al.* 2019). In Paraná, it occurs in all vegetation types in Paraná. Collected with flowers from May to March and fruits from July to May. *Myrcia guianensis* belongs to *Myrcia* sect. *Aguava* (Lima 2017). This is one of the most morphologically variable species of *Myrcia*, with several morphotypes along its wide distribution in tropical South America (Lima 2017, Lima *et al.* 2018). In Paraná, specimens of *Myrcia guianensis* have been widely determined in herbaria as its synonym *Myrcia obtecta* (O.Berg 1857: 117) Kiaerskou (1893: 89). These plants frequently have elliptic-obovoid leaves with attenuate bases and acute to acuminate apices.

16. *Myrcia hartwegiana* (O.Berg 1857: 22) Kiaerskou (1893: 109). (≡*Gomidesia hartwegiana* O.Berg). Figure 17.

Shrubs, treelets or trees to 9 m high. Trichomes simple, appressed, hyaline, yellowish, golden or white, 0.2–0.8 mm long. Young twigs flat to rarely terete, not keeled, densely to moderately covered with trichomes; mature twigs flat or terete, sparsely covered with trichomes to glabrous; branching monopodial. Leaves opposite, with petioles 2–5(7.5) × 0.7–3.8 mm, sulcate to semiterete, with moderate trichomes when young, glabrescent when mature; blades elliptic to rarely elliptic-obovate, 1.5–7 × 0.8–3.2 cm, concolorous or discolorous when dry, apex rounded to rarely slightly acute, base acute or attenuate, margins revolute, secondary veins 5–12 at each side, 1.7–5 mm apart, one to rarely two marginal veins, the first one 0.5–1.3 and the second 0.2 mm from the margin, tertiary veins densely

reticulate, gland dots incospicuous to conspicuous, 6–9 per mm², homogeneous or heterogeneous; adaxial surface with moderate to scattered trichomes when young, scattered to glabrescent to rarely moderate when mature, these denser on the midvein, midvein slightly sulcate to rarely flat; abaxial surface with moderate to scattered trichomes when young and mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 15–50 × 0.6–1 mm, flat, densely to moderately to rarely sparsely covered with trichomes; bracts 2.8–8.3 mm, elliptic, densely to moderately covered with trichomes, caducous; bracteoles 0.8–2.5 mm, linear, densely covered with trichomes, caducous. Floral buds globose, base not constricted; hypanthium 0.7–1 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.5–1 × 0.8–1.4 mm, externally and internally densely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 2-locular. Fruits 4–17 × 4.6–8 mm, globose, yellowish, reddish, purple or black, moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent to rarely caducous.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Isernhagen 292* (UPCB!). Antonina, *Bizarro 57* (EFC!). Araucária, *Holsbach 10* (EFC!, MBM!). Bituruna, *Liebsch s.n.* (MBM 299382!). Bocaiúva do Sul, *Ribas 5778* (UPCB!, FUEL!, MBM!, RB!). Campina Grande do Sul, *Silva 7049* (MBM!). Campo do Tenente, *Hatschbach 18482* (MBM!). Campo Largo, *Tiepolo 709* (MBM!, EFC!). Campo Mourão, *Caxambu 34* (HCF!, MBM!). Cascavel, *Borges 96* (MBM!, RB!). Colombo, *Hatschbach 9660* (MBM!). Curitiba, *Pereira 8319* (RB!). Foz do Iguaçu, *Lindeman 3360* (MBM!, RB!). General Carneiro, *Hatschbach 13703* (UPCB!, MBM!). Guarapuava, *Hatschbach 18338* (MBM!). Guaraqueçaba, *Scheer 326* (UPCB!, MBM!). Guaratuba, *Hatschbach 6696* (UPCB!). Imbituva, *Hatschbach 22506* (MBM!). Inácio Martins, *Hatschbach 67507* (MBM!). Irati, *Soares-Silva 535* (FUEL!). Jaguariaíva, *Souza s.n.* (UPCB 43200!). Laranjeiras do Sul, *Lindeman 4706* (MBM!).

Mangueirinha, *Motta 4470* (MBM!, RB!). Morretes, *Rocha 69* (EFC!). Nova Aurora, *Sekine 224* (MBM!). Palmeira, *Oliveira 296* (MBM!). Pinhão, *Hatschbach 64503* (EFC!, MBM!). Piraquara, *Hatschbach 2225* (UPCB!, MBM!). Pitanga, *Bianek 318* (HCF!, MBM!). Ponta Grossa, *Silva 8385* (MBM!). Quatro Barras, *Roderjan 955* (UPCB!, EFC!, MBM!). Roncador, *Iszczuk s.n.* (MBM 350119!). Santa Cecília, *Ribeiro 214* (EFC!). São José dos Pinhais, *Landrum 2302* (MBM!). São Mateus do Sul, *Britez 1293* (MBM!). Teixeira Soares, *Soares-Silva 699* (FUEL!). Telêmaco Borba, *Filipaki s.n.* (UPCB 33095!). Tibagi, *Chagas e Silva 1678* (FUEL!, MBM!). Tijucas do Sul, *Barbosa 539* (MBM!, RB!). Turvo, *Caxambu 2467* (HCF!, MBM!). União da Vitória, *Koczicki 7* (UPCB!, MBM!).

This species is distributed from Minas Gerais to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest, Araucaria forest, Semideciduous forest and grasslands. Collected with flowers from June to April and fruits along the whole year. *Myrcia hartwegiana* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). Individuals growing in grasslands generally have larger leaves, shorter and thicker petioles, and curled trichomes. *Myrcia hartwegiana* is similar to *M. palustris*, but it can be distinguished by the leaves with revolute margins and petioles shorter and thicker in the first species (*vs.* flat margins and longer and thinner petioles in the last species). In general, *M. hartwegiana* has larger leaves than *M. palustris*.

17. *Myrcia hatschbachii* D.Legrand (1961: 293). Figure 18.

Trees to 25 m high. Trichomes simple and dibrachiate, between appressed and erect, hyaline to brown, 0.1–0.8 mm long. Young twigs terete to slightly flat, not keeled, densely to moderately covered with trichomes; mature twigs terete, sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 3–6 × 1–1.8 mm,

semiterete to sulcate, with moderate to rarely dense trichomes when young, glabrescent to rarely with scattered trichomes when mature; blades elliptic, 4.3–14 × 1.4–4.5 cm, discolorous to rarely concolorous when dry, apex acute or slightly rounded, base acute or slightly attenuate, margins slightly revolute, secondary veins 18–23 at each side, 2–7.6 mm apart, one to rarely two marginal veins, the first one 0.6–2 and the second 0.2–0.3 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, more than 20 per mm² when homogeneous and 6–7 per mm² when heterogeneous; adaxial surface with scattered to moderate trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein flat or slightly sulcate; abaxial surface with moderate to scattered trichomes to rarely glabrous when young and mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node to 4 terminal branches, main axis 35–140 × 0.7–1 mm, flat, densely to moderately covered with trichomes; bracts not seen; bracteoles 0.7–1.2 mm, elliptic, moderately to sparsely covered with trichomes, caducous. Floral buds clavate, base not constricted; hypanthium 1–1.5 mm prolonged above the ovary, externally moderately covered with trichomes; calyx open, not reflexed, 5 lobes, 0.6–1 × 0.7–1.3 mm, externally and internally moderately to sparsely covered with trichomes; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 3.4–8.4 × 3.3–8 mm, globose, purple or black, moderately to sparsely covered with trichomes to glabrous, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Almirante Tamandaré, *Blum 10-143* (UPCB!). Araucária, *Carrião 2358* (UPCB!). Bateias, *Possete s.n.* (MBM 301654!). Bocaiúva do Sul, *Hatschbach 7611* (MBM!). Colombo, *Maschio 38* (HUEM!, FUEL!). Curitiba, *Nascimento 79* (MBM!, RB!). Guaratuba, *Kummrow 1648* (MBM!). Imbituva, *Hatschbach 20475* (UPCB!, MBM!, RB!). Ipiranga, *Silva s.n.* (FUEL 9169!, MBM 230726!). Lapa, *Hatschbach 30964* (MBM!, RB!). Mandirituba, *Kuniyoshi 4611* (MBM!). Mauá da Serra,

Chagas e Silva 2122 (FUEL!). Palmeira, *Hatschbach 13490* (UPCB!, MBM!). Paulo Frontin, *Koczicki 12* (UPCB!, MBM!). Piraquara, *Imaguire 2582* (MBM!). Ponta Grossa, *Ramos 23* (UPCB!). Prudentópolis, *Caxambu 4447* (FUEL!, MBM!). São José dos Pinhais, *Hatschbach 12078 A* (UPCB!). São Mateus do Sul, *Silva 820* (MBM!). Tijucas do Sul, *Kummrow 1602* (MBM!, RB!). Turvo, *Caxambu 2540* (MBM!).

This species is distributed in Uruguay and Brazil, from the states of Paraná to Rio Grande do Sul (Flora do Brasil 2020, Govaerts *et al.* 2019). In Paraná, it occurs mainly in Araucaria forest and less frequently in grasslands. Collected with flowers from May to March and fruits from January to April. *Myrcia hatschbachii* belongs to *Myrcia* sect. *Eugeniopsis* (Santos *et al.* 2017) and can be characterized by the hypanthium deeper than the other species (considering the total lenght of the flower) and the panicles always with two pairs of secondary branches at the base. This is the only species of section *Eugeniopsis* in Paraná with a glabrous staminal ring. The state is the northern limit of *Myrcia hatschbachii* (Flora do Brasil 2020).

18. *Myrcia hebepetala* De Candolle (1828: 246). (≡*Gomidesia hebepetala* [DC.] O.Berg [1857: 18]). Figure 19.

Treelets, trees or rarely shrubs to 10 m high. Trichomes simple, erect, hyaline, yellowish or golden, 0.2–1 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs terete to slightly flat, moderately to sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 4–11.2 × 1–3.4 mm, semiterete to slightly sulcate, with dense to moderate trichomes when young, with moderate to scattered trichomes to rarely glabrescent when mature; blades elliptic or narrow-elliptic, 5.5–11 × 2–4.7 cm, discolorous when dry, apex acute to rarely rounded or slightly acuminate,

base acute to slightly rounded or attenuate, margins revolute, secondary veins 15–22 at each side, 3–11 mm apart, one marginal vein, 0.8–2.8 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous; adaxial surface with moderate to scattered trichomes when young, moderate to scattered or glabrescent when mature, these denser on the midvein, midvein sulcate; abaxial surface with moderate trichomes when young and mature, these denser on the secondary and midvein, midvein raised. Inflorescences paniculiform to rarely racemiform, 1–2 pairs per node, main axis 25–80 × 0.8–1.3 mm, flat, densely to moderately covered with trichomes; bracts to 10.3 mm, elliptic, densely covered with trichomes, caducous; bracteoles 1.7–3.7 mm, elliptic, densely covered with trichomes, caducous. Floral buds globose, base not constricted; hypanthium 1–1.3 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.8–1.4 × 2.2–3.6 mm, externally and internally densely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 2–3-locular. Fruits 9.6–15.5 × 9–16 mm, globose, reddish or purple, moderately to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Apucarana, *Queiroz 8* (FUEL!). Balsa Nova, *Dombrowski 11181* (MBM!). Barracão, *Hatschbach 39917* (MBM!). Bituruna, *Liebsch s.n.* (UPCB 50558!). Bocaiúva do Sul, *Hatschbach 52134* (UPCB!, MBM!). Campo Largo, *Cervi 3116* (UPCB!). Cerro Azul, *Hatschbach 1465* (MBM!). Clevelândia, *Lindeman 1187* (MBM!, RB!). Colombo, *Maschio 501* (UPCB!, MBM!). Lapa, *Ribeiro 173* (EFC!). Mangueirinha, *Enderli s.n.* (HCF 3843!, MBM 350514!). Mauá da Serra, *Dall Agnol 73* (FUEL!, MBM!). Palmeira, *Hatschbach 5583* (MBM!). Paranaguá, *Silva 811* (UPCB!, MBM!). Pinhão, *Silva 959* (MBM!). Piraquara, *Dombrowski 7124* (MBM!). Quatro Barras, *Oliveira 560* (MBM!, RB!). Rio Bonito do Iguaçu, *Poliquesi 336* (MBM!). Rolândia, *Francisco s.n.* (FUEL 28247!). São Jerônimo da Serra, *Hatschbach 24808* (UPCB!, MBM!). São José dos Pinhais,

Hatschbach 29641 (MBM!). São Mateus do Sul, *Hatschbach 21669* (MBM!). Tamarana, *Pavão s.n.* (FUEL 28178!). Teixeira Soares, *Silva 822* (UPCB!, MBM!). Tijucas do Sul, *Silva 842* (MBM!). Tunas do Paraná, *Silva 1959* (MBM!, RB!).

This species is distributed from Minas Gerais to Paraná (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest, Araucaria forest, Semideciduous forest and grasslands. Collected with flowers from October to May and fruits from April to December. *Myrcia hebepatala* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). It is recognized by the leaves with well-marked secondary venation and abaxially pilose, but with the trichomes always denser on the veins. The leaves are sometimes shiny adaxially. Following Amorim (2017), we considered *Myrcia catharinensis* (D.Legrand 1967: 13) Nic Lughadha (2012: 240) under *M. hebepetala*. This species is similar to *M. freyreissiana* (see comments under that species).

19. *Myrcia heringii* D.Legrand (1961: 298). Figure 20.

Shrubs or treelets to 4 m high. Trichomes simple, appressed, hyaline, yellowish or white, 0.2–0.8 mm long. Young twigs flat, not keeled, moderately to sparsely covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles lacking or these up to 1.6–2 × 1.8 mm, semiterete, with dense to moderate trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic or narrow-elliptic to rarely ovate, 9.5–16.5 × 5–8.5 cm, concolorous or slightly discolorous when dry, apex acute to acuminate, base subcordate, margins slightly revolute, secondary veins 19–27 at each side, 4.8–13 mm apart, two to rarely three marginal veins, the first one 2.4–5.3, the second 0.5–1.4 and the third 0.4 mm from the margin, tertiary veins sparsely to rarely densely reticulate, gland dots conspicuous, 1–2 per mm², homogeneous or heterogeneous; adaxial surface glabrous to rarely with scattered trichomes when young, glabrous when mature, these

denser on the midvein, midvein sulcate; abaxial surface with scattered trichomes when young, glabrescent when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform to rarely racemiform, 1 pair per node, main axis 55–135 × 1–1.7 mm, flat, very sparsely covered with trichomes to glabrous; bracts and bracteoles not seen. Floral buds globose, base not constricted; hypanthium 1.8–2.5 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.8–1.6 × 1.2–3.3 mm, externally glabrous, internally densely covered with trichomes; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 3-locular. Fruits 10–12 × 12 mm, globose, purple, glabrous, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Hatschbach 47148* (MBM!). Campina Grande do Sul, *Hatschbach 13064* (UPCB!, MBM!). Guaratuba, *Hatschbach 9818* (UPCB!, MBM!). Morretes, *Hatschbach 20194* (UPCB!, MBM!, RB!). Paranaguá, *Hatschbach 9445* (UPCB!, MBM!).

Additional specimens:—BRAZIL. São Paulo: Campinas, *Toniato 33670* (UEC). Cananéia, *Urbanetz 388* (UEC).

This species is distributed from São Paulo to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and less frequently in Araucaria forest. Collected with flowers from October to November and fruits in November. *Myrcia heringii* belongs to *Myrcia* sect. *Reticulosae* (Fernandes *et al.* in prep.) and can be easily recognized by the almost sessile leaves with subcordate bases and large gland dots visible even through naked eyes.

20. *Myrcia hexasticha* Kiaerskou (1893: 72). Figure 21.

Trees to 12 m high. Trichomes simple and dibrachiate, appressed, yellowish to brown, 0.1–0.4 mm long. Young twigs terete, not keeled, glabrous to rarely moderately covered with trichomes; mature twigs terete, glabrous; branching monopodial. Leaves verticillate, with petioles 8.5–13.8 × 1.6–2.7 mm, semiterete to slightly sulcate, with scattered trichomes when young, with very scattered trichomes to glabrescent when mature; blades narrow-elliptic, 13–21 × 3–5 cm, concolorous to rarely slightly discolorous when dry, apex rounded to acute, base acute, margins revolute or slightly so, secondary veins 27–28 at each side, 4.8–12 mm apart, one to rarely two marginal veins, the first one 1.4–2.7 and the second 0.8 mm from the margin, tertiary veins sparsely reticulate, gland dots inconspicuous to rarely conspicuous, 3 per mm², homogeneous; adaxial surface with very scattered trichomes or glabrous when young and mature, midvein flat; abaxial surface with very scattered trichomes to rarely moderate when young, glabrescent when mature, midvein raised. Inflorescences paniculiform, 4–8 terminal branches, main axis 90–300 × 0.8–2.3 mm, flat to terere, moderately or sparsely covered with trichomes; bracts 0.6–13.4 mm, narrow-elliptic, densely to moderately covered with trichomes, persistent; bracteoles 0.3–0.6 mm, elliptic, moderately to sparsely covered with trichomes, persistent. Floral buds globose, obovoid, base not constricted; hypanthium 0.5–0.8 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.4–1 × 0.4–1 mm, externally glabrous, internally moderately covered with trichomes; floral disc glabrous to rarely very sparsely covered with trichomes only on the style base, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 5.3–8.5 × 6.6–9.8 mm, globose, black, glabrous, hypanthium remnants hollow, calyx remnants persistent or caducous.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Hatschbach 25824* (MBM!, RB!). Matinhos, *Dunaiski Jr. 861* (MBM!). Paranaguá, *Hatschbach 50835* (UPCB!, MBM!, RB!).

Additional specimens:— BRAZIL. São Paulo: Iguape, *Kozera 832* (UEC).

This species is distributed from Rio de Janeiro to Paraná (Flora do Brasil 2020). In Paraná, it occurs only in Atlantic rainforest. Collected with flowers from October to December and fruits in January and April. *Myrcia hexasticha* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). This is the only species of *Myrcia* in Paraná with verticillate leaves, these always long and narrow-elliptic. Some specimens were misidentified as *Myrcia insularis* Gardner (1842: 536) in herbaria, but this species has opposite leaves. The inflorescences are always terminal and whorled. The bracts are much larger than in the other species. The state is the southern limit of *Myrcia hexasticha* (Flora do Brasil 2020, Lucas *et al.* 2016).

21. *Myrcia isaiana* G.M.Barroso & Peixoto (1990: 8). Figure 22.

Treelets, trees or rarely shrubs to 9 m high. Trichomes simple, erect, hyaline to yellowish, 0.2–1.6 mm long. Young twigs flat to quadrangular, not keeled, densely covered with trichomes; mature twigs flat to terete, densely covered with trichomes or glabrescent; branching monopodial. Leaves opposite, with petioles 8.2–13.5 × 1.4–3.6 mm, semiterete to rarely sulcate, with dense trichomes when young, with dense to rarely moderate or scattered trichomes when mature; blades elliptic to ovate, 6.8–17(26.6) × 5–11 cm, slightly discolorous when dry, apex slightly acuminate, base acute to attenuate or rounded, margins flat to slightly revolute, secondary veins 12–17 at each side, 7.6–22.8 mm apart, one or two to rarely three marginal veins, the first one 2–6.6, the second 0.3–2 and the third 0.5 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous to rarely cospicuous, 2–4 per mm², homogeneous; adaxial surface with dense to moderate trichomes when young, scattered to glabrous when mature, these denser on the midvein, midvein flat; abaxial surface with dense

to moderate trichomes when young, moderate when mature, these denser on the secondary and midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 23–140 × 0.8–2.5 mm, flat to quadrangular, densely covered with trichomes; bracts 3.2–8.7 mm, elliptic, densely to moderately covered with trichomes, persistent; bracteoles 2–5.8 mm, elliptic, densely covered with trichomes, persistent. Floral buds globose to rarely obovoid, base not constricted; hypanthium flat, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 1.8–3.6 × 2.3–4 mm, externally and internally densely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 12–16.8 × 9.3–12.8 mm, globose to slightly obovoid, reddish to black, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Ziller 1379* (HUEM!, MBM!). Guaratuba, *Cervi 8742* (MBM!, RB!). Matinhos, *Kuniyoshi 5373* (EFC!, MBM!). Morretes, *Lindeman 2628* (MBM!, RB!). Paranaguá, *Hatschbach 59753* (MBM!). Pontal do Paraná, *Weiss 59* (UPCB!, RB!). Pontal do Sul, *Muelbert 20* (UPCB!, RB!).

This species is distributed from Pernambuco to Paraná (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest. Collected with flowers from July to November and fruits from April to May and November to December. *Myrcia isaiana* belongs to *Myrcia* sect. *Myrcia* (Lucas *et al.* 2011). Specimens of *Myrcia isaiana* were frequently misidentified as *Myrcia pubipetala*, because of the resemblance of the first species with *M. grandiflora* [O.Berg 1857: 113] Niedenzu [1895:76], a synonym of *M. pubipetala*. They are promptly distinguished by the floral disc completely pilose in *M. isaiana* (*vs.* floral disc pilose only on the style base, and also on the staminal ring), the 3-locular ovaries (*vs.* 2-locular) and leaves green when dry (*vs.* brown when dry). The state is the southern limit of *Myrcia isaiana* (Flora do Brasil 2020).

22. *Myrcia multiflora* (Lamarck 1789: 202) De Candolle (1828: 244). (≡*Eugenia multiflora* Lam.). Figure 23.

Shrubs, treelets or trees to 8 m high. Trichomes simple, erect, hyaline to white, 0.1–0.6 mm long. Young twigs flat, not keeled, glabrous or moderately covered with trichomes; mature twigs flat to terete, moderately covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 1.6–5.6 × 0.4–1 mm, sulcate to semiterete, with moderate to rarely scattered trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic to obovate, 2–7.7 × 1–2.8 cm, concolorous or slightly discolorous when dry, apex acuto to acuminate or rounded, base acute to attenuate, margins revolute to the base, secondary veins 11–20 at each side, 0.8–7 mm apart, one or two marginal veins, the first one 0.3–1 and the second 0.2 mm from the margin, tertiary veins densely to sparsely reticulate, gland dots conspicuous, 14–25 per mm², heterogeneous; adaxial surface with moderate to scattered trichomes or rarely glabrous when young, scattered to glabrescent when mature, these denser on the midvein, midvein flat to rarely slightly sulcate; abaxial surface with moderate to scattered trichomes when young, scattered to glabrescent when mature, these denser on the margin and midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 18–70 × 0.3–1.2 mm, flat to terete, moderately to sparsely covered with trichomes or rarely glabrous; bracts 1–5.5 mm, linear or narrow-elliptic, moderately to sparsely covered with trichomes, persistent or caducous; bracteoles 0.4–1 mm, linear to narrow-elliptic, moderately to sparsely covered with trichomes, caducous to persistent. Floral buds obovoid, base not constricted to slightly constricted; hypanthium 0.2–0.4 mm prolonged above the ovary, externally glabrous; calyx open, not reflexed, 5 lobes, 0.2–0.4 × 0.6–1 mm, externally glabrous, internally densely covered with trichomes to rarely glabrous; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits

4.2–7 × 3.8–6.8 mm, globose, purple or black, glabrous, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Hatschbach 44494* (MBM!). Arapoti, *Hatschbach 8521* (UPCB!, MBM!). Assaí, *Ziller 1652* (MBM!, EFC!). Balsa Nova, *Caxambu 3515* (MBM!). Bituruna, *Liebsch s.n.* (MBM 299380!). Bocaiúva do Sul, *Silva 2880* (MBM!). Cambé, *Soares-Silva 635* (FUEL!). Campo Mourão, *Hatschbach 8815* (MBM!). Castro, *Kummrow 1732* (MBM!). Cerro Azul, *Hatschbach 9439* (UPCB!, MBM!). Curiúva, *Soares-Silva 572* (FUEL!). Guaíra, *Hatschbach 10505* (UPCB!). Guaraqueçaba, *Bonaldi 709* (MBM!). Guaratuba, *Silva 1070* (UPCB!, MBM!). Ibiporã, *Rosisco 3* (FUEL!). Imbituva, *Kuniyoshi 5118* (EFC!). Ipiranga, *Vieira 371* (FUEL!). Irati, *Saueressig 1483* (EFC!). Itaperuçu, *Cordeiro 1251* (MBM!). Jaguariaíva, *Linsingen 16* (MBM!). Jundiaí do Sul, *Carneiro 1010* (MBM!). Lapa, *Braga 1019* (UPCB!). Londrina, *Camacho s.n.* (FUEL 20595!). Matinhos, *Hatschbach 51737* (MBM!). Mauá da Serra, *Cotarelli 391* (FUEL!, MBM!). Morretes, *Hatschbach 35742* (MBM!). Ortigueira, *Lima 74* (MBM!). Palmeira, *No collector s.n.* (FUEL 13333!). Paranaguá, *Borgo 529* (UPCB!, EFC!). Piraquara, *Vieira 102* (EFC!). Pitanga, *Hatschbach 76777* (MBM!). Ponta Grossa, *Jaster 112* (MBM!). Pontal do Paraná, *Brotto 1547* (MBM!). Pontal do Sul, *Kuniyoshi 5393* (MBM!, EFC!). Reserva, *Francisco s.n.* (FUEL 24587!). São José dos Pinhais, *Silva 3902* (MBM!). Sapopema, *Kinupp 530* (UPCB!, FUEL!). Sengés, *Hatschbach 5331* (MBM!). Telêmaco Borba, *Filipaki s.n.* (UPCB 33089!). Tibagi, *Batista s.n.* (FUEL 12278!). Tijucas do Sul, *Ribas 21* (MBM!). Tunas do Paraná, *Silva 4537* (MBM!). Turvo, *Caxambu 2888* (MBM!). Ventania, *Damineli s.n.* (FUEL 20433!).

This species is distributed from Trinidad and Tobago to Uruguay and in Brazil from the state of Amazonas to Rio Grande do Sul (Flora do Brasil 2020, Govaerts *et al.* 2019). In Paraná, it occurs in all vegetation types in Paraná. Collected with flowers from September to

February and fruits from September to June. *Myrcia multiflora* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). This species usually has small elliptic leaves that remain green when dry, with acuminate apices, attenuate bases, and revolute margins at the base. The panicles are always multi-flowered. *Myrcia multiflora* can be similar to *M. selloi*, however the flowers of *M. multiflora* do not have a constriction in the ovary and reflexed calyx lobes, as does *M. selloi*.

23. *Myrcia neoriedeliana* E.Lucas & C.E.Wilson (2016: 680). (≡*Eugeniopsis riedeliana* O.Berg [1859: 561]; ≡*Marlierea riedeliana* [O.Berg] D.Legrand [1962b: 31]). Figure 24.

Treelets or trees to 8 m high. Trichomes simple and dibrachiate, appressed to erect, yellowish, golden or white, 0.3–1.2 mm long. Young twigs flat, not keeled, densely covered with trichomes; mature twigs flat to terete, moderately covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 5.2–9.2 × 1.2–2 mm, sulcate to semiterete, with dense to moderate trichomes when young, with scattered trichomes to glabrescent when mature; blades narrow-elliptic, 9.5–17.5 × 3.2–5.7 cm, discolorous when dry, apex acuminate to abruptly acuminate, base acute, margins flat, secondary veins 12–21 at each side, 4.2–12.2 mm apart, one or two marginal veins to rarely incospicuous, the first one 1.3–2.6 and the second 0.5–0.8 mm from the margin, tertiary veins sparsely reticulate to rarely incospicuous, gland dots inconspicuous to conspicuous, 3–8 per mm², homogeneous; adaxial surface with moderate to scattered trichomes when young, scattered when mature, midvein flat to rarely slightly sulcate; abaxial surface with dense to moderate trichomes when young, moderate to scattered when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 30–120 × 0.8–1.6 mm, flat, densely covered with trichomes; bracts 15–50 mm or 1.4–5.8 mm, lanceolate to narrow-elliptic,

densely covered with trichomes, persistent or caducous; bracteoles 0.4–0.8 mm, narrow-elliptic, densely to moderately covered with trichomes, persistent. Floral buds globose, base not constricted; hypanthium 0.5–0.7 mm prolonged above the ovary, externally densely to rarely sparsely covered with trichomes; calyx closed, opening irregularly, not reflexed , externally sparsely covered with trichomes, internally glabrous; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 8–10.2 × 8.7–11.5 when immature mm, globose, black, sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Barbosa 768* (UPCB!, FUEL!, MBM!). Guaratuba, *Borgo 270* (UPCB!, EFC!). Matinhos, *Svolenski 528* (EFC!). Morretes, *Bonaldi 521* (MBM!). Paranaguá, *Hatschbach 14455* (UPCB!).

This species is distributed from Bahia to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in the Atlantic rainforest. Collected with flowers from November to February and fruits from March to July. *Myrcia neoriedeliana* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). It is recognized by the long, pale yellow trichomes on the vegetative and reproductive branches. Bracts and floral buds are glabous or nearly so. For a long time, specimens of *Myrcia neoriedeliana* from southern Brazil have been misidentified as *Marlierea obscura* O.Berg (1857: 36; Lucas *et al.* 2016). This latter species however, seems to be restricted to the states of Bahia and Minas Gerais (Lucas *et al.* 2016).

24. *Myrcia neosuaveolens* E.Lucas & C.E.Wilson (2016: 682). (≡*Marlierea suaveolens* Cambessèdes [1832: 374].). Figure 25.

Trees to 8 m high. Trichomes dibrachiate, appressed, hyaline to yellowish, smaller than 0.1 to 0.8 mm long. Young twigs flat to terete, not keeled, sparsely covered with trichomes; mature

twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles 2–5.6 × 0.5–1 mm, sulcate to semiterete, with scattered trichomes to glabrous when young, glabrescent when mature; blades elliptic, 4.5–7.5 × 1–2.7 cm, discolorous when dry, apex acuminate to long acuminate, base attenuate, margins flat to slightly revolute, secondary veins 15–18 at each side, 1.8–6.8 mm apart, one or two marginal veins, the first one 0.5–2.5 and the second 0.2–0.3 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 2–6 per mm², homogeneous; adaxial surface with very scattered trichomes to glabrous when young, glabrous when mature, midvein flat; abaxial surface with scattered trichomes to glabrous when young and mature, these denser on the midvein, midvein raised. Inflorescences racemiform or a dichasium, 1 pair per node, main axis 20–30 × 0.3 mm, flat, very sparsely covered with trichomes; bracts 0.3 mm, triangular, glabrous, persistent; bracteoles not seen. Floral buds globose, base not constricted; hypanthium 0.5–0.7 mm prolonged above the ovary, externally glabrous; calyx closed, opening irregularly, not reflexed; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 11.3–11.7 × 11.5–13 when immature mm, globose, purple to black, glabrous, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Paranaguá, *Hatschbach 9539* (UPCB!).

Additional specimens:—BRAZIL. São Paulo: Itaquera-Açu, *Ivanauskas 222* (MBM!, ESA). Sete Barras, *Almeida-Scabbia 1401* (MBM!). Sete Barras, *Sampaio 156* (MBM!). Rio de Janeiro: Nova Friburgo, *Peron 858* (MBM!).

This species is distributed from Espírito Santo to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest. Collected with flowers from December to January and fruits from May to August. *Myrcia neosuaveolens* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016) and can be recognized by the reduced inflorescences and

small elliptic leaves with acuminate apices. *Myrcia neosuaveolens* is a rare species in Paraná, known from only one collection.

25. *Myrcia oblongata* De Candolle (1828: 251). Figure 26.

Shrubs or trees to 10 m high. Trichomes simple and dibrachiate, appressed, brown to hyaline, smaller than 0.1 to 0.3 mm long. Young twigs flat, not keeled, sparsely to rarely densely covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles 2.3–5 × 1–1.6 mm, sulcate, with moderate to scattered trichomes when young, glabrescent when mature; blades oblonge, 4.4–10 × 1.5–3 cm, discolorous when dry, apex acute to rounded, base slightly attenuate, margins slightly revolute, secondary veins 17–26 at each side, 2–5 mm apart, one marginal vein 0.7–1.6 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 8–25 per mm², homogeneous; adaxial surface with scattered trichomes when young, glabrescent when mature, these exclusively on the midvein, midvein slightly sulcate; abaxial surface with moderate to scattered trichomes when young, scattered to glabrescent when mature, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 50–130 × 0.6–1 mm, flat, glabrous to rarely sparsely covered with trichomes; bracts not seen; bracteoles 0.7 mm, elliptic or triangular, sparsely covered with trichomes, caducous to rarely persistent. Floral buds obovoid, base not constricted; hypanthium 0.8–1.2 mm prolonged above the ovary, externally very sparsely covered with trichomes to glabrous; calyx open, not reflexed, 5 lobes, 0.5–1 × 1–2 mm, externally glabrous to rarely moderately covered with trichomes, internally densely to moderately; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 4–9 × 3.4–7 mm, globose to obovoid,

black, glabrous or very sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent to rarely caducous.

Selected specimens:—BRAZIL. Paraná: Balsa Nova, *Kummrow 2607* (MBM!). Califórnia, *Bonaldi 502* (UPCB!, MBM!). Canta Galo, *Silva 8149* (MBM!). Cascavel, *Borges 137* (HUEM!). Curiúva, *Soares-Silva 615* (FUEL!). Doutor Ulysses, *Hatschbach 61476* (UPCB!, MBM!). Laranjeiras do Sul, *Hatschbach 20600* (MBM!). Mauá da Serra, *Silva 8058* (MBM!). Ortigueira, *Bonaldi 8* (MBM!). Ponta Grossa, *Uejima s.n.* (FUEL 10151!). Santa Helena, *Hatschbach 40522* (MBM!). Sapopema, *Soares-Silva 579* (FUEL!). Telêmaco Borba, *Ariati 627* (MBM!). Tibagi, *Soares-Silva 455* (FUEL!). Tuneiras do Oeste, *Caxambu 4487* (MBM!).

This species is distributed in Argentina and Brazil, from Minas Gerais to Rio Grande do Sul (Flora do Brasil 2020, Govaerts *et al.* 2019). In Paraná, it occurs predominantly in Araucaria forest, but can also be found in grasslands or Semideciduous forest. Collected with flowers from September to April and fruits from December to April. *Myrcia oblongata* belongs to *Myrcia* sect. *Eugeniopsis* (Santos *et al.* 2017) and can be recognized by the consistently oblong leaves, tertiary veins sparsely reticulated, and inflorescence glabrous or sparsely covered with trichomes. Specimens of *Myrcia oblongata* from Paraná have been identified in herbaria as its synonyms *Myrcia bombycina* (O.Berg 1857: 66) Niedenzu (1893: 75).

26. *Myrcia palustris* De Candolle (1828: 246). (≡*Gomidesia palustris* [DC.] Kausel [1967: 348]). Figure 27.

Shrubs, treelets or trees to 9 m high. Trichomes simple, appressed, hyaline to white, 0.2–1.2 mm long. Young twigs flat, not keeled, densely covered with trichomes; mature twigs flat to

terete, densely to sparsely covered with trichomes; branching monopodial. Leaves opposite, with petioles 1.7–2.5 × 0.7–1.2 mm, seiterete to sulcate, with dense trichomes when young, with dense to moderate trichomes when mature; blades elliptic to obovate, 2–5.7 × 0.6–2.5 cm, discolorous when dry, apex acute or rounded, base acute, margins flat, secondary veins 8–12 to rarely inconspicuous at each side, 2.4–6.4 mm apart, one marginal vein 0.7–1.2 mm from the margin, tertiary veins sparsely to rarely densely reticulate or incospicuous, gland dots inconspicuous to rarely conspicuous, 3 per mm², homogeneous; adaxial surface with moderate trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein flat to slightly sulcate; abaxial surface with dense to moderate trichomes when young, moderate when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 20–50 × 0.5–0.7 mm, flat, densely to moderately covered with trichomes; bracts 8 mm, narrow-elliptic, densely covered with trichomes, caducous; bracteoles 1.7–3 mm, narrow-elliptic, densely covered with trichomes, persistent or caducous. Floral buds globose, base not constricted; hypanthium 0.6–1 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.4–1.4 × 1–1.7 mm, externally and internally densely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 2–3-locular. Fruits 3.2–4.7 × 3.4–5 mm, globose, reddish, moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Agudos do Sul, *Marinero 115* (MBM!). Almirante Tamandaré, *Hatschbach 3582* (MBM!). Antonina, *Silva 4328* (MBM!). Arapongas, *Ferreira Jr. 16* (FUEL!). Campina Grande do Sul, *Dunaiski Jr. 525* (MBM!). Campo Largo, *Hatschbach 40718* (MBM!). Colombo, *Carvalho 288* (MBM!). Curitiba, *Schimmelpfeng s.n.* (EFC 594!). Curiúva, *Francisco s.n.* (FUEL 24268!). Guaraqueçaba, *Zakrzewski s.n.* (UPCB 22920!). Guaratuba, *Silva 303* (MBM!). Imbituva, *Kuniyoshi 5132* (MBM!). Ipiranga,

Hatschbach 31788 (MBM!). Jaguariaíva, *Linsingen 208* (MBM!). Jardianópolis, *Lindeman 3415* (MBM!). Lapa, *Hatschbach 18214* (MBM!). Laranjeiras do Sul, *Hatschbach 20607* (MBM!). Luziana, *Caxambu 3364* (MBM!). Mamborê, *Lindeman 5320* (MBM!). Matinhos, *Svolenski 527* (EFC!). Morretes, *Ribas 951* (MBM!). Ortigueira, *Michelon 1334* (MBM!, EFC!, RB!). Palmeira, *Souza 51* (FUEL!, MBM!). Paranaguá, *Silva 1524* (FUEL!, MBM!). Piên, *Hatschbach 13469* (UPCB!, MBM!). Piraí do Sul, *Hatschbach 12328* (MBM!). Piraquara, *Tramujas 463* (EFC!, MBM!). Ponta Grossa, *Soares-Silva 689* (FUEL!). Pontal do Paraná, *Ferreira 130* (MBM!). Porto Amazonas, *Hatschbach 10801* (UPCB!, MBM!). Quatro Barras, *Silva 895* (MBM!). Reserva, *Chagas e Silva 2195* (FUEL!). São Jerônimo da Serra, *Furtado 187* (MBM!, RB!). São José dos Pinhais, *Hatschbach 12079* (UPCB!, MBM!). São Mateus do Sul, *Gurgel 592* (RB!). Sapopema, *Chagas e Silva 2131* (EFC!, FUEL!). Teixeira Soares, *Soares-Silva 694* (FUEL!). Tijucas do Sul, *Ribas 2279* (FUEL!, MBM!). União da Vitória, *Koczicki 44* (MBM!). Wenceslau Braz, *Soares-Silva s.n.* (FUEL 5902!).

This species is distributed in Argentina and Brazil, from the states of Mato Grosso and Bahia to Rio Grande do Sul (Flora do Brasil 2020; Govaerts *et al.* 2019). In Paraná, it occurs in Atlantic rainforest, Araucaria forest, grasslands, and Semideciduous forest. Collected with flowers from October to July and fruits in September and from January to June. *Myrcia palustris* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). This species may resemble *M. hartwegiana* (see comments under that species). When conspicuous, the gland dots may form a line at the margin of the leaf blade.

27. *Myrcia plusiantha* Kiaerskou (1893: 66). Figure 28.

Treelets or trees to 30 m high. Trichomes dibrachiate, appressed to erect, hyaline, yellowish or white, 0.2–0.5 mm long. Young twigs flat to terete, not keeled, glabrous; mature twigs

terete, glabrous; branching sympodial. Leaves opposite, with petioles 12–20 × 2.4–3.4 mm, semiterete, with scattered trichomes to glabrous when young, glabrous when mature; blades elliptic, 13–20 × 5–9.5 cm, slightly discolorous when dry, apex acute to acuminate, base acute, margins flat, secondary veins 20–24 at each side, 6–14.8 mm apart, two to rarely three marginal veins, the first one 2.8–4.5, the second 1–1.4 and the third 0.5 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 5–7 per mm², homogeneous; adaxial surface with scattered trichomes or glabrous when young, glabrous when mature, these denser near the midvein, midvein slightly sulcate; abaxial surface with moderate to scattered trichomes when young, scattered when mature, these denser near the midvein, midvein raised. Inflorescences paniculiform, 2–4 terminal branches, main axis 70–110 × 1.5–3 mm, flat, very sparsely covered with trichomes; bracts 1 mm, elliptic, sparsely covered with trichomes, caducous; bracteoles not seen, caducous. Floral buds clavate, base not constricted to slightly constricted; hypanthium 1.3 mm prolonged above the ovary, externally glabrous or sparsely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.6–1 × 1–1.4 mm, externally very sparsely covered with trichomes, internally moderately; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 7.8–8.6 × 7.6–10 mm, globose, yellowish, glabrous to very sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants caducous to persistent.

Selected specimens:—BRAZIL. Paraná: Bocaiúva do Sul, *Hatschbach 52136* (MBM!, RB!). Campina Grande do Sul, *Hatschbach 20947* (MBM!). Colombo, *Antonio 21* (HUEM!, FUEL!). Guaraqueçaba, *Kuniyoshi 4844* (MBM!, EFC!, RB!). Quatro Barras, *Hatschbach 26605* (MBM!).

This species is distributed from Bahia to Paraná (Flora do Brasil 2020). In Paraná, it occurs predominantly in Araucaria forest, but can also be found in Atlantic rainforest. Collected with flowers from December to March and fruits from March to June. *Myrcia*

plusiantha belongs to *Myrcia* sect. *Sympodiomyrcia* (Santos *et al.* 2018). As usually found in section *Sympodiomyrcia*, *Myrcia plusiantha* has sympodial branches, but it is the only species with large and glabrous leaves and petioles within this section in Paraná. The state is the southern limit of *Mrycia plusiantha* (Flora do Brasil 2020, Santos *et al.* 2018).

28. *Myrcia pubipetala* Miquel (1846: 441). Figure 29.

Trees to rarely treelets to 15 m high. Trichomes simple and dibrachiate, appressed, hyaline, yellowish or white, 0.2–0.7 mm long. Young twigs flat to terete to rarely quadrangular, not keeled, densely covered with trichomes; mature twigs flat to terete, moderately to sparsely covered with trichomes; branching monopodial. Leaves opposite, with petioles 7.5–13 × 1–1.8 mm, sulcate, with dense trichomes when young, with moderate to scattered trichomes when mature; blades elliptic to rarely rounded or ovate, 4.5–22.5 × 2.2–10.7 cm, discolorous when dry, apex slightly acuminate, base attenuate, margins slightly revolute, secondary veins 15–18 at each side, 5–20 mm apart, one or two marginal veins, the first one 1–3.8 and the second 0.3–6 mm from the margin, tertiary veins densely reticuate, gland dots inconspicuous; adaxial surface with scattered trichomes when young, glabrescent when mature, these denser on the midvein, midvein flat to rarely slightly sulcate; abaxial surface with dense to moderate trichomes when young, moderate to scattered when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 75–150 × 1.2–2.5 mm, flat, densely to moderately covered with trichomes; bracts 3–5.2 mm, narrow-elliptic, moderately covered with trichomes, persistent or caducous; bracteoles 2–3.5 mm, narrow-elliptic, densely covered with trichomes, persistent. Floral buds turbinate or globose, base not constricted; hypanthium 1.2–1.4 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 1–1.3 × 1.3–1.6 mm, internally and

externally densely to moderately covered with trichomes; floral disc glabrous with trichomes only on the style base, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 3-locular. Fruits 7.8–17.5 × 5–15 mm, globose, reddish, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Silva 9662* (MBM!). Antonina, *Hatschbach 13542* (MBM!). Bocaiúva do Sul, *Lucas 152* (HUEM!). Campina Grande do Sul, *Hatschbach 20955* (UPCB!, MBM!). Cerro Azul, *Hatschbach 42742* (MBM!). Doutor Ulysses, *Hatschbach 66527* (MBM!). Guaraqueçaba, *Athayde 220* (UPCB!, MBM!). Guaratuba, *Hatschbach 18644* (UPCB!, MBM!). Matinhos, *Ziller 842* (MBM!, EFC!). Morretes, *Hatschbach 56366* (MBM!). Paranaguá, *Souza 1930* (FUEL!). Pontal do Paraná, *Ferreira 133* (MBM!). Tunas do Paraná, *Silva 4338* (MBM!).

This species is distributed from Bahia to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in the Atlantic rainforest and Araucaria forest. Collected with flowers from December to April and fruits from March to November. *Myrcia pubipetala* belongs to *Myrcia* sect. *Reticulosae* (Lucas *et al.* 2011). It is a quite distinctive species, with usually large elliptic leaves, always with reticulate venation and inconspicous gland dots. Young branches, inflorescences and flowers are covered with hyaline, yellowish or whitish trichomes. In Paraná, the fruits are generally costate.

29. *Myrcia racemosa* (O.Berg 1857: 88) Kiaerskou (1893: 72). (≡*Aulomyrcia racemosa* O.Berg). Figure 30.

Treelets to trees to 7.5 m high. Trichomes simple, erect to rarely appressed, hyaline or white, 0.2–1.8 mm long. Young twigs flat to rarely terete, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, moderately to sparsely covered with trichomes to

glabrescent; branching monopodial. Leaves opposite, with petioles 3–6.8 × 0.7–1 mm, semiterete, with dense to moderate trichomes when young, with moderate to scattered to rarely dense trichomes when mature; blades oblonge, 5.5–9.5 × 1.8–3.7 cm, slightly discolorous when dry, apex long acuminate, base acute, margins slightly revolute, secondary veins 11–15 at each side, 3.3–10 mm apart, one or rarely two marginal veins, the first one 1.3–2.6 and the second 0.3–0.8 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous to rarely incospicuous, 3–4 per mm², homogeneous; adaxial surface with moderate to scattered trichomes when young, scattered when mature, these denser on the midvein, midvein flat to slightly raised; abaxial surface with moderate to scattered trichomes when young and mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 40–85 × 0.6–1 mm, flat, densely to moderately covered with trichomes; bracts 1.7–2.8 mm, linear or lanceolate, moderately covered with trichomes, caducous to rarely persistent; bracteoles 1–1.4 mm, linear or lanceolate, moderately covered with trichomes, caducous to rarely persistent. Floral buds turbinate, base not constricted; hypanthium 0.4–0.8 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.6–1 × 0.6–1 mm, externally densely covered with trichomes, internally moderately; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 4.4–8 × 4.8–9 mm, globose, black, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Hatschbach 29146* (MBM!). Guaratuba, *Brotto 1565* (MBM!, RB!). Matinhos, *Ribas 807* (MBM!). Morretes, *Silva 1639* (MBM!). Paranaguá, *Ziller 687* (FUEL!, MBM!). Pontal do Paraná, *Bonaldi 629* (MBM!, EFC!).

This species is distributed from Pernambuco to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest. Collected with flowers in September and from January to April and fruits from February to November. *Myrcia racemosa* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). This species is characterized by the elliptic leaves that remain green when dry, with long acuminate apices. Whitish to hyaline trichomes cover young branches, leaves, inflorescences and fruits.

30. *Myrcia reitzii* (D.Legrand 1961: 284) Mazine (2014: 98). (≡*Marlierea reitzii* [D.Legrand]). Figure 31.

Shrubs, treelets or trees to 20 m high. Trichomes dibrachiate, appressed, ferrugineous to brown, smaller than 0.1 to 0.4 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles 8–25 × 1–2 mm, sulcate, with dense trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic-oblonge to slightly ovate, 6.5–15.5 × 2.5–6 cm, discolorous when dry, apex acuminate to abruptly acuminate, base acute to attenuate, margins slightly revolute, secondary veins 22–34 at each side, 1.8–5.3 mm apart, onde to rarely two marginal veins, the first one 0.3–2 and the second 0.4–0.5 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 3–7 per mm², homogeneous to heterogeneous; adaxial surface with scattered trichomes when young, glabrescent when mature, these denser on the midvein, midvein slightly sulcate; abaxial surface with dense to moderate trichomes when young, scattered to glabrescent when mature, these occasionaly denser on the midvein, midvein raised. Inflorescences paniculiform, 1 to rarely 2 pairs per node, main axis 35–105 (190) × 0.7–3 mm, flat, densely to moderately covered with trichomes; bracts 2.3–6.8 mm, lanceolate, moderately covered with trichomes, caducous;

bracteoles 0.2–2.2 mm, lanceolate to triangular or elliptic, densely to moderately covered with trichomes, caducous to rarely persistent. Floral buds clavate, base not cosntricted to slightly constricted; hypanthium 0.8–2 mm prolonged above the ovary, externally densely covered with trichomes; calyx slightly open with 4 small teeth in the apex, opening irregularly, not reflexed, externally and internally moderately covered with trichomes; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 9.6–12.4 × 10.5–16.2 mm, globose, reddish to brown, glabrous or sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent or absent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Souza 1258* (RB!). Bocaiúva do Sul, *Hatschbach 31025* (UPCB!, MBM!). Campina Grande do Sul, *Hatschbach 9514* (UPCB!, MBM!). Guaraqueçaba, *Hatschbach 35507* (MBM!). Guaratuba, *Silva 1287* (MBM!). Ilha do Mel, *Royer 9* (UPCB!). Matinhos, *Völtz 831* (EFC!). Morretes, *Nicolack 117* (MBM!). Paranaguá, *Hatschbach 10169* (MBM!). Piraquara, *Silva 2249* (FUEL!, MBM!). Pontal do Paraná, *Bonaldi 611* (MBM!). Quatro Barras, *Hatschbach 52152* (MBM!). Rio Branco do Sul, *Hatschbach 41855* (MBM!).

This species is distributed from São Paulo to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and Araucaria forest. Collected with flowers from October to March and fruits from January to July. *Myrcia reitzii* has never been formally assigned to a section, but it probably belongs to *Myrcia* sect. *Eugeniopsis*. This species is similar to *Myrcia eugeniopsoides* (see comments under that species), and also to *Myrcia* sp. 2 due to its ferrugineous and dibrachiate trichomes and leaves with long petioles and similar venation, in addition to other vegetative characters. They are distinguished by the fruits crowned by a persistent hollow hypanthium, and often with remnants of the calyx lobes in *Myrcia reitzii* (*vs.* fruits crowned only by the hypanthium, but this filled with ovary tissue and always caducous calyx lobes in *Myrcia* sp. 2). Specimens from Paraná (e.g. *Galvão 21*,

Tiepolo 751 and *Barddal 42*) previously identified as *Marlierea racemosa* (Vellozo 5: 213) Kiaerskou (1893: 51) cannot be properly distinguished from *Myrcia reitzii*. As a result, we considered all these collections under the circunscription of *Myrcia reitzii.*

31. *Myrcia retorta* Cambessèdes (1832: 322). Figure 32.

Shrubs, treelets or trees to 8 m high. Trichomes simple, erect to rarely appressed, golden or gray, 0.3–1 mm long. Young twigs flat to rarely quadrangular, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete to rarely quadrangular, glabrescent to rarely sparsely covered with trichomes; branching monopodial. Leaves opposite, with petioles 2–4 × 1–1.5 mm, sulcate to semiterete, with dense trichomes when young, with moderate trichomes when mature; blades elliptic to rarely narrow-elliptic or elliptic-obovate, 2.5–8 × 1.2–3.5 cm, slightly discolorous when dry, apex acute to slightly rounded, base acute to rounded, margins slightly revolute, secondary veins 9–11 at each side, 3–6.5 mm apart, one marginal vein 1–2.3 mm from the margin, tertiary veins incospicuous to rarely densely or sparsely reticulate, gland dots inconspicuous to conspicuous, 5–10 per mm², homogeneous; adaxial surface with moderate trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein sulcate; abaxial surface with dense trichomes when young and mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 35–73 × 0.6–1.2 mm, flat, densely to moderately covered with trichomes; bracts not seen; bracteoles 0.8–1.6 mm, elliptic, densely covered with trichomes, persistent. Floral buds globose to obovoid, base not constricted; hypanthium flat, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.8–1.5 × 1–2.2 mm, externally densely to sparsely covered with trichomes, internally densely to moderately; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae

symmetrical; ovary 2-locular. Fruits 5.5–8.2 × 4.2–7.8 mm, ellipsoid to obovoid, black, purple or reddish, sparsely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Balsa Nova, *Lucas 142* (MBM!). Bocaiúva do Sul, *Ribas 5780* (FUEL!, MBM!). Campina Grande do Sul, *Cordeiro 1392* (FUEL!, MBM!). Campo Largo, *Ribeiro 10* (EFC!). Carambeí, *Engels 1877* (MBM!). Castro, *Dias s.n.* (FUEL 20573!). Colombo, *Antonio 46* (FUEL!). Inácio Martins, *Martins 4* (FUEL!). Jaguariaíva, *Lima 87* (UPCB!). Ortigueira, *Caxambu 5606* (HCF!). Piraí do Sul, *Hatschbach 53575* (UPCB!, MBM!). Piraquara, *Marinero 347* (MBM!). Pitanga, *Hatschbach 33489* (UPCB!, MBM!). Ponta Grossa, *Hatschbach 17378* (UPCB!, MBM!). Quatro Barras, *Lucas 187* (HUEM!). Reserva, *Francisco s.n.* (FUEL 24625!, RB 437129!). São José dos Pinhais, *Hatschbach 20799* (UPCB!, MBM!). Tibagi, *Lucas 179* (HUEM!). Ventania, *Francisco s.n.* (MBM 257128!).

This species is distributed from Minas Gerais to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Araucaria forest, grasslands and cerrado. Collected with flowers from September to December and fruits in September and from December to January. *Myrcia retorta* belongs to *Myrcia* sect. *Myrcia* (Lucas *et al.* 2011). This species may resemble *Myrcia venulosa*, but it is distinguished by the floral disc completely pilose and 2-locular ovaries (*vs.* floral disc pilose only on the style base and 3-locular ovaries in *M. venulosa*). Specimens of *Myrcia retorta* from Paraná have been identified in herbaria as its synonym *Myrcia arborescens* Cambessèdes (1832: 322).

32. *Myrcia rupicola* D.Legrand (1961: 289). Figure 33.

Shrubs, or rarely subshrubs, treelets or trees to 5 m high. Trichomes simple, appressed, hyaline, yellowish or white, 0.3–0.8 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, moderately covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 2–4.8 × 0.6–1 mm, sulcate, with moderate trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic, 2.5–6.5 × 0.8–2 cm, discolorous when dry, apex slightly acuminate, base attenuate, margins revolute to the base, secondary veins 13–15 at each side, 1–4.8 mm apart, one marginal vein 0.5–0.7 mm from the margin, tertiary veins densely to sparsely reticulate or incospicuous, gland dots conspicuous, 2–7 per mm², homogeneous; adaxial surface with moderate trichomes when young, glabrescent when mature, midvein slightly sulcate; abaxial surface with moderate trichomes when young, scattered when mature, these denser on the midvein, midvein raised. Inflorescences a dichasium to rarely paniculiform, 1 pair per node, main axis 10–28 × 0.2–0.4 mm, flat, moderately covered with trichomes; bracts 1–2 mm, elliptic, sparsely covered with trichomes, caducous; bracteoles 1–1.4 mm, lanceolate, sparsely covered with trichomes, caducous. Floral buds obovoid, base not constricted; hypanthium flat, externally densely covered with trichomes; calyx open, not reflexed, 5 to rarely 4-lobes, 0.8–1.5 × 1–1.6 mm, externally and internally sparsely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 7.2–8.8 × 4.2–6.8 mm, ellipsoid, black, sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaratuba, *Santos 355* (UPCB!, MBM!). Morretes, *Dala Rosa 45* (UPCB!). Piraquara, *Ribas 5728* (MBM!). Quatro Barras, *Cordeiro 578* (MBM!). São José dos Pinhais, *Cordeiro 385* (MBM!). Tijucas do Sul, *Ribas 2220* (MBM!).

This species is distributed from Minas Gerais to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs predominantly in Araucaria forest, but can also be found in transitional areas between it and Atlantic rainforest. Collected with flowers from October to January and fruits from December to February. *Myrcia rupicola* has never been formally assigned to a section, but it probably belongs to *Myrcia* sect. *Myrcia*, and can be characterized by the inflorescences in a delicate dichasium. Most flowers have five calyx lobes, but some may eventually have four.

33. *Myrcia selloi* (Sprengel 1825: 482) N.Silveira (1986: 5). (≡*Myrtus selloi* Spreng.). Figure 34.

Subshrubs, shrubs, treelets or trees to 7 m high. Trichomes simple, erect, hyaline to white, 0.1–1.3 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, glabrescent to rarely moderately covered with trichomes; branching monopodial. Leaves opposite, subsessile or with petioles up to 0.7–4 × 0.4–1.4 mm, sulcate to semiterete, with moderate to scattered to rarely dense trichomes when young, with moderate trichomes to glabrescent when mature; blades elliptic, narrow-elliptic or ovate to rarely lanceolate or obovate, 1.5–10.8 × 1–4.8 cm, concolorous to discolorous when dry, apex acute to acuminate, base acute, rounded, subcordate or rounded-obtuse, margins flat to slightly revolute, secondary veins 8–20 at each side, 2.5–10 mm apart, one marginal vein 0.7–2 mm from the margin, tertiary veins densely to sparsely reticulate, gland dots conspicuous, 4–13 per mm², homogeneous; adaxial surface glabrous to rarely with scattered trichomes when young, glabrous when mature, these denser on marginal and midveins, midvein flat to rarely sulcate; abaxial surface with moderate to scattered to rarely dense trichomes when young, scattered to glabrous when mature, these denser on the margin

and midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 5–75 × 0.4–0.6 mm, flat, sprsely covered with trichomes to glabrous; bracts 0.5–3 mm, linear, moderately to sparsely covered with trichomes to rarely glabrous, persistent or caducous; bracteoles 0.4–1.6 mm, linear, moderately to sparsely covered with trichomes to rarely glabrous, caducous to persistent. Floral buds obovoid, base constricted; hypanthium 0.3–0.8 mm prolonged above the ovary, externally glabrous to rarely moderately covered with trichomes; calyx open, reflexed, 5 lobes, 0.3–1.4 × 0.6–1.4 mm, externally and internally glabrous; floral disc glabrous or with very scattered trichomes, staminal ring glabrous to rarely sparsely covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 2.5–7 × 2.8–6.4 when immature mm, globose, reddish to black, glabrous to sparsely or rarely moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Apucarana, *Milaneze-Gutierre 1041* (HUEM!). Arapongas, *Soares-Silva 603* (FUEL!). Arapoti, *Hatschbach 18846* (UPCB!). Araucária, *Pacheco 22* (EFC!). Barra do Chopim, *Borgo 112* (UPCB!, MBM!). Bocaiúva do Sul, *Hatschbach 43331* (MBM!). Cambé, *Lima 296* (MBM!, UPCB!, RB!). Campina Grande do Sul, *Hatschbach 8351* (UPCB!). Campo Mourão, *Hatschbach 72330* (MBM!). Capanema, *Forzza 7387* (RB!). Capitão Leônidas Marques, *Silva 3037* (MBM!). Carambeí, *Engels 1892* (MBM!). Cascavel, *Cruz 172* (FUEL!). Castro, *Britez 2047* (MBM!). Cerro Azul, *Landrum 4085* (MBM!). Céu Azul, *Sobral 8578* (UPCB!, MBM!). Colombo, *Ziller 1264* (MBM!, EFC!). Congonhinhas, *Chagas e Silva 2001* (FUEL!). Cornélio Procópio, *Pavão s.n.* (UPCB 43449!, FUEL 28255!). Cruzeiro do Iguaçu, *Silva 3021* (MBM!). Curitiba, *Silva 405* (MBM!). Curiúva, *Pavão s.n.* (FUEL 27467!). Dois Vizinhos, *Siqueira s.n.* (MBM 350124!). Farol, *Martius s.n.* (MBM 314283!). Figueira, *Kozera 3450* (MBM!). Foz do Iguaçu, *Hatschbach 49574* (MBM!). Guaíra, *Pereira 7891* (MBM!, RB!). Guarapuava, *Pedersen 10987* (MBM!). Guaratuba, *Silva 3277* (MBM!, FUEL!). Ibiporã, *Soares-Silva 371* (FUEL!).

Itaperuçu, *Cordeiro 1261* (MBM!). Jaboti, *Hatschbach 59416* (MBM!). Jacarezinho, *Carneiro 1536* (MBM!). Jaguariaíva, *Lindeman 3068* (MBM!, RB!). Jataizinho, *Soares-Silva 650* (FUEL!). Jundiaí do Sul, *Carneiro 714* (MBM!). Laranjeiras do Sul, *Hatschbach 19827* (MBM!). Leópolis, *Chagas e Silva 1940* (FUEL!). Londrina, *Soares-Silva 372* (FUEL!). Mandirituba, *Landrum 4303* (RB!). Matelândia, *Caxambu 7084* (HCF!). Mato Rico, *Caxambu 7914* (HCF!). Nova Aurora, *212* (HCF!). Ortigueira, *Siqueira 1213* (HCF!). Palmas, *Hatschbach 30753* (MBM!). Piên, *Cordeiro 2385* (MBM!). Pinhão, *Jurandir s.n.* (MBM 364494!). Piraí do Sul, *Lozano 1947* (MBM!). Piraquara, *Vicentini 99* (MBM!, EFC!). Ponta Grossa, *Cervi 5961* (UPCB!, FUEL!). Pontal do Paraná, *Caxambu 4322* (HCF!, MBM!). Porto Amazonas, *Hatschbach 10250* (UPCB!, MBM!). Porto Rico, *Romagnolo 635* (UPCB!). Rancho Alegre, *Soares-Silva 641* (FUEL!). Santa Cecília, *Ribeiro 219* (EFC!). Santa Fé, *Silva 641* (MBM!). Santa Mônica, *Bidá 546* (UPCB!). Santa Tereza do Oeste, *Caxambu 6948* (HCF!). São Jerônimo da Serra, *Soares-Silva 451* (FUEL!). São João do Triunfo, *Hatschbach 17727* (MBM!). São José da Boa Vista, *Hatschbach 67122* (MBM!). São José dos Pinhais, *Lucas 154* (MBM!). São Mateus do Sul, *Britez 1236* (MBM!). São Miguel do Iguaçu, *Buttura 675* (MBM!). Sapopema, *Medri 355* (FUEL!). Tamarana, *Dias 322* (FUEL!). Telêmaco Borba, *Marinero 386* (MBM!). Terra Rica, *Cristine s.n.* (HUEM 29211!). Tibagi, *Colli s.n.* (FUEL 7806!). Tijucas do Sul, *Hatschbach 3402* (MBM!). Tomazina, *Lindeman 3135* (MBM!). Três Barras do Paraná, *Borgo 117* (UPCB!). Tuneiras do Oeste, *Siqueira 932* (MBM!, FUEL!). Ventania, *Estevan 825* (MBM!, FUEL!).

This species is distributed in Bolivia, Paraguay, Argentina, Uruguay and Brazil, from the states of Maranhão, Piauí and Bahia to Rio Grande do Sul (Flora do Brasil 2020; Govaerts *et al.* 2019). In Paraná, it occurs in all vegetation types. Collected with flowers from April to February and fruits in the whole year. *Myrcia selloi* belongs to *Myrcia* sect. *Tomentosae* (Lucas *et al.* 2011). It can be recognized by the flowers with a constriction in the ovary apex

and the calyx lobes internally and externally glabrous, strongly reflexed at anthesis and with acute apices. The calyx is either persistent and star-shaped in the fruits or caduous, leaving a circular scar. According to the circunscription adopted here, *Myrcia selloi* now includes *M. lajeana* and *M. laruotteana* (see Chapter 1). Collections from western Paraná, growing in Semideciduous forests, tend to have shorter petioles and leaves with rounded to subcordate bases. Dried specimens may frequently present pinkish young branches and leaves.

34. *Myrcia spectabilis* De Candolle (1828: 248). (≡*Gomidesia spectabilis* [DC.] O.Berg [1855: 7]). Figure 35.

Treelets, trees or rarely shrubs to 8 m high. Trichomes simple and dibrachiate, appressed, hyaline to yellowish, farinaceous or 0.2–1.3 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat, moderately covered with trichomes; branching monopodial. Leaves opposite, with petioles 4–9 × 2–3 mm, sulcate, with dense to moderate trichomes when young, with scattered trichomes to glabrescent when mature; blades narrow-elliptic, 11–28.5 × 3.6–9 cm, discolorous when dry, apex acute to acuminate, base attenuate, margins revolute to the base, secondary veins 16–28 at each side, 4.2–16.68 mm apart, two marginal veins, the first one 2–4 and the second 0.3–1.3 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuas to conspicuous, 4–5 per mm², homogeneous or heterogeneous; adaxial surface with dense to moderate trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein slightly sulcate; abaxial surface with moderate trichomes when young and mature, these denser on the secondary and midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 30–90 × 1.3–3 mm, flat, densely covered with trichomes; bracts 2–7 mm, lanceolate to rarely ovate, densely to moderately covered with trichomes, persistent or caducous; bracteoles

0.4–2.6 mm, elliptic to lanceolate, densely covered with trichomes, persistent. Floral buds obovoid, base not constricted; hypanthium 1.2–1.6 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.8–1.5 × 2–2.3 mm, externally densely covered with trichomes, internally moderately; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 2–3-locular. Fruits 8–15 × 7.7–15 mm, globose, yellowish, moderately to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Hatschbach 13550* (UPCB!, MBM!). Campina Grande do Sul, *Hatschbach 9852* (UPCB!, MBM!). Guaraqueçaba, *Gatti 199* (UPCB!). Matinhos, *Roderjan 609* (EFC!). Morretes, *Kuniyoshi 4959* (EFC!). Paranaguá, *Hatschbach 9870* (UPCB!).

Additional specimens:— BRAZIL. Santa Catarina: Itapoá, *Völtz 140* (EFC!).

This species is distributed from Alagoas and Goiás to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs only in Atlantic rainforest. Collected with flowers from November to April and fruits from March to September. *Myrcia spectabilis* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017) and can be recognized by the long leaves covered with trichomes that have a farinaceous aspect. Young branches, petioles, inflorescences and fruits are somewhat wrinkled when dry (fresh specimens however, are smooth).

35. *Myrcia splendens* (Swartz 1788: 79) De Candolle (1828: 244). (≡*Myrtus splendens* Sw.). Figure 36.

Shrubs, treelets or trees to 20 m high. Trichomes simple, appressed to erect, hyaline, yellowish, white, golden or gray, 0.1–0.8 mm long. Young twigs flat, not keeled, densely to

moderately covered with trichomes; mature twigs flat, terete or slightly quadrangular, densely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 1.2–13.0 × 0.4–3 mm, sulcate, with dense to moderate trichomes when young, with dense trichomes to glabrescent when mature; blades lanceolate or ovate, 1.5–16.6 × 0.4–4 cm, discolorous to rarely concolorous when dry, apex acuminate, short acuminate or long acuminte, base acute to slightly attenuate or rounded, margins flat or revolute, secondary veins incospicuous or 19–35 at each side, incospícuas ou 0.5–7.5 mm apart, one to rarely two marginal veins, the first one 0.3–1.5 and the second 0.3–0.4 mm from the margin, tertiary veins densely reticulate, gland dots incospicuous to conspicuous, 17 per mm², homogeneous; adaxial surface with moderate to scattered trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein flat to raised; abaxial surface with dense to moderate trichomes when young, dense to scattered when mature, these occasionaly denser on the midvein, midvein raised. Inflorescences paniculiform to rarely racemiform, 1–2 pairs per node, main axis 13–120 × 0.5–1.8 mm, flat, densely to moderately covered with trichomes; bracts 2.2–8.5 mm, elliptic to lanceolate, densely to sparsely covered with trichomes, persistent; bracteoles 1–2.2 mm, elliptic to narrow-elliptic or lanceolate, densely to sparsely covered with trichomes, caducous or persistent. Floral buds obovoid to globose, base not constricted; hypanthium flat, externally densely to moderately covered with trichomes; calyx open, not reflexed, 5 lobes, 0.4–1.5 × 0.6–2.2 mm, externally densely to sparsely covered with trichomes, internally densely to glabrous; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 5.2–12 × 3.7–11 mm, ellipsoid, purple or black, densely to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Brotto 1778* (MBM!). Altônia, *Ziller 938* (MBM!). Amaporã, *Goetzke 192* (UPCB!, MBM!). Antonina, *Silva 192* (MBM!,

RB!). Arapoti, *Motta 1743* (MBM!). Araucária, *Gatti 149* (UPCB!). Balsa Nova, *Hatschbach 9550* (UPCB!, MBM!). Bocaiúva do Sul, *Cordeiro 1027* (MBM!). Campina Grande do Sul, *Paciornik 332* (MBM!). Campo Largo, *Hatschbach 7490* (UPCB!). Campo Mourão, *Januzzi 160* (HUEM!, MBM!). Castro, *Hatschbach 3220* (MBM!). Cerro Azul, *Brotto 1487* (MBM!, RB!). Cianorte, *Hatschbach 14276* (UPCB!, MBM!). Colombo, *Kummrow 1004* (MBM!). Colorado, *Rigon 299* (RB!). Cruzeiro do Oeste, *Braga 7035* (MBM!). Curitiba, *Fendrich 5* (MBM!). Curiúva, *Francisco s.n.* (FUEL 27468!). Diamante do Norte, *Landgraf 41* (HUEM!). Douradina, *Braga 103* (UPCB!, MBM!). Doutor Ulysses, *Bona 1109* (RB!). Fazenda Rio Grande, *Girardi s.n.* (MBM 349811!). Guaíra, *Buttura 289* (MBM!). Guaraqueçaba, *Isernhagen 211* (UPCB!, MBM!). Guaratuba, *Santos 715* (UPCB!, RB!). Imbituva, *Kuniyoshi 5121* (MBM!, EFC!). Ipiranga, *Hatschbach 25879* (MBM!). Irati, *Carvalho s.n.* (MBM 25160!). Itaperuçu, *Cordeiro 1265* (MBM!, RB!). Jaguariaíva, *Cervi 3520* (UPCB!, MBM!). Lapa, *Cordeiro 493* (UPCB!, MBM!). Mandirituba, *Landrum 3895* (MBM!). Maringá, *Martins s.n.* (UPCB 13300!). Matinhos, *Roderjan 742* (EFC!). Morretes, *Silva 6113* (MBM!, FUEL!). Ortigueira, *Ferreira s.n.* (FUEL 24281!). Palmeira, *Hatschbach 44456* (MBM!). Paranaguá, *Kuniyoshi 5704* (EFC!). Paranavaí, *Romagnolo 3046* (HUEM!). Piraí do Sul, *Hatschbach 8683* (UPCB!, MBM!). Piraquara, *Hatschbach 64002* (MBM!). Ponta Grossa, *Pereira 8113* (MBM!, RB!). Porto Amazonas, *Kummrow 3033* (MBM!). Porto Rico, *Vieira 403* (FUEL!). Presidente Castelo Branco, *Romagnolo 3278* (HUEM!). Quatro Barras, *Kuniyoshi 5441* (MBM!, EFC!). Querência do Norte, *Amancio 191* (MBM!). Quitandinha, *Hatschbach 29358* (MBM!). Reserva, *Kinupp 86* (UPCB!, FUEL!). Rio Branco do Sul, *Lima 340* (UPCB!, RB!). Sabáudia, *Borges Júnior s.n.* (MBM 391521!). São Jerônimo da Serra, *Medri 910* (UPCB!, FUEL!). São João do Triunfo, *Hatschbach 17771* (MBM!). São José dos Pinhais, *Hatschbach 7653* (MBM!). São Mateus do Sul, *Britez 1162* (MBM!). Sapopema, *Medri 537* (MBM!, FUEL!). Sengés, *Hatschbach 5334* (MBM!).

Teixeira Soares, *Soares-Silva s.n.* (FUEL 20699!). Telêmaco Borba, *Adenesky-Filho 78* (MBM!). Tibagi, *Mourão 312* (HUEM!). Tijucas do Sul, *Barbosa 808* (MBM!). Tunas do Paraná, *Silva 3228* (MBM!, RB!). Tuneiras do Oeste, *Caxambu 277* (HCF!, MBM!). União da Vitória, *Jenhevski s.n.* (MBM 388997!). Ventania, *Estevan 674* (MBM!, FUEL!).

This species is distributed from Mexico and the Caribbean Islands to Argentina; in Brazil, it occurs throughout the country (Flora do Brasil 2020, Govaerts *et al.* 2019). In Paraná, it occurs in all vegetation types. Collected with flowers from May to March and fruits from October to June. *Myrcia splendens* belongs to *Myrcia* sect. *Myrcia* (Lucas *et al.* 2011). As well as *Myrcia guianensis*, *M. splendens* has several different morphotypes along its distribution (Flora do Brasil 2020). In Paraná, this species can be usually recognized by the small lanceolate or ovate leaves covered with withish to hyaline trichomes. In Paraná, *Myrcia splendens* have been widely identified in herbaria as its synonyms *Myrcia fallax* (Richard 1792: 110) De Candolle (1828: 244), *M. rostrata* DC. (1828: 255) and *M. rufula* Miquel (1846: 440). The materials identified as this last name (e.g., *Hatschbach 50812* and *Kuniyoshi 4769*) occur mainly around the municipality of Bocaiúva do Sul and have thicker leaves and inflorescences, darker trichomes and costate, densely pilose fruits. *Myrcia splendens* may resemble *M. undulata*, but differs by the simple trichomes (*vs.* dibrachiate in *M. undulata*), and leaves lanceolate to ovate, with apices never abruptly acuminate (*vs.* elliptic, with apices always abruptly acuminate).

36. *Myrcia squamata* (Mattos & D.Legrand 1975: 14) Mattos (2008: 4). (≡*Gomidesia squamata* Mattos & D.Legrand). Figure 37.

Shrubs or treelets to 3 m high. Trichomes simple, appressed to rarely erect, yellowish, 0.4–1.3 mm long. Young twigs flat, not keeled, densely covered with trichomes; mature twigs flat to

terete, moderately to sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 1.4–3.5 × 1–7 mm, sulcate to semiterete, with dense trichomes when young, with dense to moderate trichomes when mature; blades elliptic to rarely obovate, 4–9.5 × 2–4 cm, discolorous when dry, apex slightly acuminate to acute, base acute or attenuate, margins revolute to the base, secondary veins 9–17 at each side, 3.2–9 mm apart, one to rarely two marginal veins, the first one 1–1.6 and the second 0.2 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous to conspicuous, 4–14 per mm², homogeneous or heterogeneous; adaxial surface with scattered trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein flat to sulcate; abaxial surface with moderate trichomes when young, scattered when mature, these denser on the marginal and midveins, midvein raised. Inflorescences a dichasium, 2 terminal branches, main axis 17–30 × 0.7–1.3 mm, flat, densely covered with trichomes; bracts 4.8 mm, elliptic, moderately covered with trichomes, persistent; bracteoles 3.2–6.6 mm, elliptic, densely covered with trichomes, persistent or caducous. Floral buds between globose and turbinated, base not constricted; hypanthium 1.3–1.7 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.8–1 × 1.3–2.2 mm, externally densely covered with trichomes, internally glabrous; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymetrical; ovary 2-locular. Fruits 7.4–13 × 8.5–14 when immature mm, globose, purple, densely to moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Campina Grande do Sul, *Völtz 926* (MBM!, EFC!). Guaratuba, *Ribas 1373* (MBM!). Morretes, *Lindeman 5698* (MBM!). Piraquara, *Reginato 203* (UPCB!, MBM!). Quatro Barras, *Hatschbach 16222* (MBM!). São José dos Pinhais, *Silva 2276* (MBM!).

This species is distributed from Minas Gerais to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Araucaria forest and Atlantic rainforest. Collected with flowers from February to March and fruits from in April, December and from July to September. *Myrcia squamata* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). *Myrcia squamata* and *M. flagellaris* are the only species of sect. *Gomidesia* occuring in Paraná with flowers in a dichasium (see comments under that species).

37. *Myrcia strigipes* Martius (1841: 108). (≡*Marlierea strigipes* [Mart.] O.Berg [1855:13]). Figure 38.

Trees to 5 m high. Trichomes simple and dibrachiate, appressed, hyaline to yellowish, 0.3–1.4 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat or terete, moderately to sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 7–23 × 2.2–4 mm, terete to semiterete, with dense trichomes when young, with moderate trichomes to glabrescent when mature; blades elliptic or narrow-elliptic, 17–38 × 6.2–17.5 cm, discolorous when dry, apex slightly acuminate, base acute to rarely rounded or obtuse, margins flat to slightly revolute, secondary veins 13–21 at each side, 6.7–24 mm apart, one or two to rarely three marginal veins, the first one 2.8–10.5, the second 0.8–3.8 and the third 0.4–1 mm from the margin, tertiary veins sparsely reticulate, gland dots inconspicuous or conspicuous, 2–5 per mm², homogeneous; adaxial surface with scattered trichomes when young, very scattered to glabrous when mature, midvein flat; abaxial surface with moderate to scattered trichomes when young and mature, these denser on the secondary and midvein, midvein raised. Inflorescences paniculiform, 2–4 terminal branches, main axis 90–215 × 1–2.4 mm, flat, densely covered with trichomes; bracts and bracteoles not seen. Floral buds globose, base not constricted; hypanthium 1–1.5 mm

prolonged above the ovary, externally densely covered with trichomes; calyx closed, opening irregularly, not reflexed, externally densely covered with trichomes, internally glabrous; floral disc entirely glabrous, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 10–10.3(23.7) × 12.6–14(27) mm, globose, reddish or black, moderately to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Antonina, *Lima 73* (UPCB!). Guaraqueçaba, *Gatti 240* (UPCB!, MBM!). Guaratuba, *Hatschbach 52770* (UPCB!, MBM!). Matinhos, *Svolenski 522* (EFC!). Morretes, *Brotto 2462* (MBM!). Paranaguá, *Kozera 1480* (UPCB!). Pontal do Paraná, *Siqueira 529* (HCF!, MBM!).

This species is distributed from Bahia to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest. Collected with flowers from March to September and fruits in March, July, October and November. *Myrcia strigipes* belongs to *Myrcia* sect. *Aulomyrcia* (Lucas *et al.* 2016). Specimens of *Myrcia strigipes* has been widely identified as its synonym *Marlierea tomentosa* (Cambessèdes [1832: 373]) (≡*Myrcia neotomentosa* E.Lucas & C.E.Wilson [2016: 628]) in herbaria. *Myrcia strigipes* has long leaves and inflorescences, covered with pale yellow trichomes. Individuals with less pubescence on the branches can be similar to *Myrcia* sp. 1, but they differ from it due to the calyx lobes internally glabrous (*vs.* pilose in *Myrcia* sp. 1) and fruits generally smaller.

38. *Myrcia subcordata* De Candolle (1828: 253). Figure 39.

Shrubs, treelets or trees to 7 m high. Trichomes dibrachiate, appressed, hyaline, yellowish or orangish to rarely white, 0.1–1 mm long. Young twigs flat to terete to rarely quadrangular, not keeled, densely to sparsely covered with trichomes; mature twigs terete, glabrescent; branching sympodial. Leaves opposite, with petioles 1.7–8 × 1–3.5 mm, sulcate to semiterete,

with dense to scattered trichomes when young, with moderte trichomes when mature to glabrescent; blades elliptic to elliptic-obovate or narrow-elliptic, 2.6–9 × 1–4.5 cm, concolorous to slightly discolorous when dry, apex acute to rounded to rarely acuminate, base acute, margins slightly revolute, secondary veins 13–17 at each side, 2–7.8 mm apart, one to rarely two marginal veins, the first one 0.5–4.3 and the second 0.7–1 mm from the margin, tertiary veins sparsely reticulate, gland dots conspicuous, 5–22 per mm², homogeneous; adaxial surface with moderate trichomes to rarely glabrous when young, scattered to glabrous when mature, midvein flat to slightly sulcate; abaxial surface with dense to moderate trichomes when young, moderate to glabrous when mature, these denser on the margin or midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 15–110 × 1–1.6 mm, flat, densely to moderately covered with trichomes; bracts not seen; bracteoles 0.6–1.3 mm, large elliptic to linear, moderately to sparsely covered with trichomes, caducous. Floral buds turbinate, base not constricted; hypanthium 0.8–1.5 mm prolonged above the ovary, externally moderately covered with trichomes to glabrous; calyx open, not reflexed, 5 lobes, 0.6–1 × 0.7–1.3 mm, externally densely to sparsely covered with trichomes, internally densely to moderately; floral disc entirely glabrous to rarely with trichomes only on the style base, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 11.6–14.3 × 11.2–15.5 mm, globose, purple, reddish or yellowish, glabrous, hypanthium remnants hollow, calyx remnants caducous.

Selected specimens:—BRAZIL. Paraná: Antonina, *Völtz 129* (EFC!). Balsa Nova, *Meyer 592* (UPCB!). Boa Ventura de São Roque, *Jenhevski s.n.* (MBM 394493!). Bocaiúva do Sul, *Ribas 6768* (MBM!). Campo Largo, *Hatschbach 17976* (UPCB!, FUEL!, MBM!). Castro, *Hatschbach 12117* (MBM!). Colombo, *Maschio 248* (HUEM!, FUEL!). Curiúva, *Cavalheiro s.n.* (FUEL 23855!). Guaratuba, *Kummrow 2005* (RB!). Jaguariaíva, *Ribas 8556* (FUEL!, MBM!, RB!). Lapa, *May 542* (MBM!). Morretes, *Dala Rosa 147* (UPCB!).

Ortigueira, *Silva 6479* (MBM!). Palmeira, *Dombrowski 14222* (MBM!). Paranaguá, *Ribas 4340* (MBM!). Piraí do Sul, *Chagas e Silva 2015* (FUEL!). Piraquara, *Ribas 5889* (MBM!, RB!). Ponta Grossa, *Ribas 2302* (FUEL!, MBM!). Porto Amazonas, *Gurgel 15066* (RB!). Quatro Barras, *Cordeiro 999* (MBM!). Reserva, *Ferreira s.n.* (FUEL 24619!). Rio Branco do Sul, *Hatschbach 35688* (UPCB!, MBM!). São Jerônimo da Serra, *Cavalheiro 33* (FUEL!). São José dos Pinhais, *Lucas 113* (MBM!). Sapopema, *Soares-Silva 432* (FUEL!). Telêmaco Borba, *Vieira 354* (FUEL!). Tibagi, *Lucas 173* (HUEM!). Tijucas do Sul, *Silva 2812* (MBM!, RB!). Ventania, *Cavalheiro 47* (FUEL!).

This species is distributed from Goiás and Minas Gerais to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Araucaria forest, grassslands, cerrado, and less frequently in Atlantic forest. Collected with flowers from October to February and fruits during the whole year. It belongs to *Myrcia* sect. *Sympodiomyrcia* (Santos *et al.* 2018). *Myrcia subcordata* was until recently being treated as *Myrcia pulchra* in Paraná and other states (Santos *et al*. 2016). This species is quite variable, especially the leaves, but can be characterized by the sympodial and not keeled branches, and fruits with persistent hypanthium and caducous calyx lobes.

39. *Myrcia tenuivenosa* Kiaerskou (1893: 84). Figure 40.

Trees to 10 m high. Trichomes simple and dibrachiate, erect, ferrugineous to brown, smaller than 0.1 to 0.5 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 2.7–6 × 0.8–1.2 mm, sulcate, with dense to moderate trichomes when young, with moderate to rarely scattered trichomes when mature; blades elliptic to rarely slightly ovate, 5.7–10.5 × 2–4 cm, discolorous when dry, apex

acuminate, base acute, margins slightly revolute, secondary veins 20–35 at each side, 1.4–3.8 mm apart, one to rarely two marginal veins, the first one 0.4–1.4 and the second 0.2 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 3–12 per mm², heterogeneous to rarely homogeneous; adaxial surface glabrous when young and mature to rarely with scattered trichomes when young, midvein sulcate; abaxial surface with moderate to rarely scattered trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 25–113 × 0.5–1.2 mm, flat, densely to moderately covered with trichomes; bracts 0.6–0.8 mm, lanceolate, moderately covered with trichomes, caducous; bracteoles 0.4 mm, lanceolate, densely covered with trichomes, caducous. Floral buds clavate to rarely obovoid, base slightly constricted; hypanthium 0.4–0.7 mm prolonged above the ovary, externally moderately to sparsely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.2–0.5 × 0.3–0.7 mm, externally and internally glabrous; floral disc entirely glabrous, staminal ring glabrous to sparsely covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 3.7–5.4 × 3.2–6.4 mm, globose, reddish, glabrous to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Ziller 658* (MBM!, FUEL!). Guaratuba, *Hatschbach 9469* (UPCB!, MBM!). Paranaguá, *Brotto 1346* (HCF!). Piraquara, *Lacerda 245* (UPCB!). Tunas do Paraná, *Silva 2193* (RB!).

This species is distributed from Minas Gerais and Espírito Santo to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and transition areas between this and Araucaria forest. Collected with flowers from September to January and fruits in December and March. *Myrcia tenuivenosa* belongs to *Myrcia* sect. *Eugeniopsis* (Santos *et al.* 2017). This species has elliptic leaves with acuminate apices and many secondary veins.

40. *Myrcia tijucensis* Kiaerskou (1893: 102). (≡*Gomidesia tijucensis* [Kiaersk.] D.Legrand [1958: 23]). Figure 41.

Treelets or trees to 18 m high. Trichomes simple to rarely dibrachiate, appressed, yellowish to rarely white or hyaline, 0.2–1 mm long. Young twigs flat to rarely quadrangular, not keeled, moderately to sparsely covered with trichomes; mature twigs flat to terete, moderately covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 3.7–8.7 × 0.7–1.5 mm, sulcate, with dense to moderate trichomes when young, with moderate to scattered trichomes when mature; blades elliptic to rarely oblonge, 5.3–12.5 × 2–4.6 cm, concolorous slightly discolorous when dry, apex abruptly long acuminate, base acute to attenuate, margins flat to slightly revolute, secondary veins 17–24 at each side, 2.6–7.5 mm apart, one to rarely two marginal veins, the first one 0.6–2.3 and the second 0.3 mm from the margin, tertiary veins densely to rarely sparsely reticulate, gland dots conspicuous, 3–7 per mm², homogeneous; adaxial surface with moderate to very scattered trichomes when young, moderate to glabrescent when mature, these denser on the midvein, midvein sulcate or slightly sulcate; abaxial surface with moderate trichomes when young, scattered when mature, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 18–65 × 0.6–0.8 mm, flat to to rarely quadrangular, densely to moderately covered with trichomes; bracts 7.5 mm, elliptic, sparsely covered with trichomes, persistent; bracteoles not seen. Floral buds obovoid, base not constricted; hypanthium 0.3–0.6 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.5–1 × 0.8–1.7 mm, externally and internally moderately covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae assimetrical; ovary 2-locular. Fruits 12.5–16 × 10–14.3 mm, obovoid to globose, black, sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Isernhagen 371* (UPCB!). Antonina, *Hatschbach 18489* (MBM!, FUEL!). Balsa Nova, *Hatschbach 42664* (MBM!, RB!). Campina Grande do Sul, *Hatschbach 20960* (MBM!). Guaraqueçaba, *Soares 105* (HUEM!, MBM!). Morretes, *Hatschbach 20879* (MBM!). Paranaguá, *Hatschbach 16375* (MBM!). Tijucas do Sul, *Hatschbach 40186* (MBM!).

This species is distributed in Bahia and from Rio de Janeiro to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest and seldom in Araucaria forest. Collected with flowers from December to March and fruits in April and from August to September. *Myrcia tijucensis* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017). This is the only species of *Myrcia* sect. *Gomidesia* in Paraná with an abruptly and long acuminate leaf apex.

41. *Myrcia tomentosa* (Aublet 1775: 504) De Candolle (1828: 245). (≡*Eugenia tomentosa* Aubl.). Figure 42.

Treelets or trees to 5 m high. Trichomes simple, erect, hyaline, yellowish, white or gray, 0.2–1.8 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, sparsely covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 6–14 × 0.8–2 mm, sulcate to semiterete, with dense trichomes when young, with dense to moderate trichomes when mature; blades elliptica to large elliptic or obovate, 6–10 × 4–7 cm, discolorous when dry, apex acute to acuminate, base acute to rarely rounded, margins flat, secondary veins 7–10 at each side, 6.6–22 mm apart, two marginal veins, the first one 2.3–6.8 and the second 1–1.5 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous to conspicuous, 7 per mm², homogeneous or heterogeneous; adaxial surface with moderate trichomes when young,

moderate to scattered when mature, these denser on the midvein, midvein flat; abaxial surface with dense to moderate trichomes when young, moderate when mature, these denser on the secondary and midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 25–90 × 0.6–1.5 mm, flat, densely covered with trichomes; bracts 4.2–14.7 mm, elliptic lanceolate, densely to moderately covered with trichomes, caducous; bracteoles 1.6–2.3 mm, linear, densely covered with trichomes, caducous. Floral buds turbinate, base constricted; hypanthium 0.4–0.8 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, reflexed, 5 lobes, 1.3–1.6 × 1 mm, externally densely covered with trichomes and internally moderately to glabrous; floral disc glabrous with very few trichomes only on the style base, staminal ring glabrous, anthers thecae symmetrical; ovary 2-locular. Fruits 4.7–7 × 5.8–8 mm, globose, yellowish, moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Apucarana, *Fontana s.n.* (FUEL 53733!). Itaperuçu, *Silva 3720* (MBM!, RB!). Jaguariaíva, *Hatschbach 12202* (MBM!). Rio Branco do Sul, *Hatschbach 19191* (UPCB!, FUEL!, MBM!). São Jerônimo da Serra, *Ferreira s.n.* (FUEL 31774!). Sengés, *Lozano 2109* (MBM!). Tibagi, *Lucas 180* (HUEM!). Ventania, *Estevan 875* (MBM!, FUEL!). Wenceslau Braz, *Ruas s.n.* (FUEL 5894!).

This species is distributed from Panama, Colombia, Venezuela, Trinidad and Tobago and Guianas to Brazil, throughout the country (Flora do Brasil 2020; Govaerts *et al.* 2019). In Paraná, it occurs in Araucaria forest, grasslands, cerrado and Semideciduous forest. Collected with flowers from September to January and from May to June and fruits from October to January. *Myrcia tomentosa* belongs to *Myrcia* sect. *Tomentosae* (Lucas *et al.* 2011). As well as *Myrcia selloi*, *M. tomentosa* has a constriction in the ovary and strongly reflexed calyx lobes, but the whole plant is more pilose. The leaves are usually larger and wider than those of *Myrcia selloi*. The state is the southern limit of *Myrcia tomentosa* (Flora do Brasil 2020).

42. *Myrcia trichantha* (Wawra 1879: 215) Sobral (2017: 199). (≡*Aulomyrcia trichantha* Wawra). Figure 41.

Shrubs, treelets or trees to 6 m high. Trichomes simple, erect, hyalineor white to rarely brown, 0.2–0.6 mm long. Young twigs flat, not keeled, densely to rarely moderately covered with trichomes; mature twigs flat to terete, moderately to sparsely covered with trichomes to rarely glabrescent; branching monopodial. Leaves opposite, with petioles 3.4–5.7 × 1.6–3 mm, semiterete, with dense trichomes when young, with dense to moderate trichomes when mature; blades elliptic or large elliptic, 4.2–11 × 3.3–6.5 cm, discolorous when dry, apex rounded, base rounded to attenuate, margins slightly revolute to flat, secondary veins 10–14 at each side, 4.2–13 mm apart, one to rarely two marginal veins, the first one 1.4–3.6 and the second 0.6–1.2 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous to rarely conspicuous, 3–4 per mm², homogeneous; adaxial surface with moderate trichomes when young, scattered or glabrescent when mature, these denser on the midvein, midvein flat to rarely slightly sulcate; abaxial surface with moderate trichomes when young, scattered to glabrescent when mature, these denser on the midvein, midvein slightly raised. Inflorescences paniculiform, 1 pair per node, main axis 55–150 × 0.8–1.8 mm, flat, densely covered with trichomes; bracts 2.7–5 mm, elliptic, densely covered with trichomes, persistent; bracteoles 1–2.2 mm, elliptic to rarely narrow-elliptic, densely covered with trichomes, persistent. Floral buds globose, base not constricted; hypanthium 0.5–0.7 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.7–1.3 × 1–2 mm, externally and internally densely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae asymmetrical; ovary 2–3-locular. Fruits 2.6–6.2 × 4–6.6 mm, globose, reddish, blue or black, moderately covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Guaraqueçaba, *Souza s.n.* (UPCB 43448!). Guaratuba, *Hatschbach 9786* (UPCB!, MBM!). Matinhos, *Hatschbach 1865* (MBM!). Paranaguá, *Silva s.n.* (UPCB 32099!). Pontal do Paraná, *Labiak 3153* (UPCB!).

This species is distributed from Bahia to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs in Atlantic rainforest, but can also be found in transitional areas between this vegetation and Araucaria forest. Collected with flowers from January to May and fruits in January and from April to August. *Myrcia trichantha* belongs to *Myrcia* sect. *Gomidesia* (Amorim 2017, Sobral 2017). *Myrcia trichantha* and *M. ilheosensis* Kiaerskou (1893: 109) (≡*Gomidesia fenzliana* O.Berg [1857: 20]) were recently synonymized (Sobral 2017). Several specimens from Paraná and other states still remain determined as *Myrcia ilheosensis* in herbaria. Its fruits are usually costate when young. This species is similar to *M. freyreissiana* (see comments under that species).

43. *Myrcia undulata* O.Berg (1857: 185). Figure 44.

Treelets or trees to 16 m high. Trichomes simple and dibrachiate, appressed, hyaline to white, 0.2–0.6 mm long. Young twigs flat, not keeled, moderately to sparsely covered with trichomes; mature twigs flat to terete, moderately covered with trichomes to glabrescent; branching monopodial. Leaves opposite, with petioles 4.6–9 × 0.7–1.4 mm, sulcate, with dense trichomes when young, with moderate trichomes when mature; blades elliptic, 6.3–13.5 × 1.5–3.7 cm, discolorous when dry, apex long and abruptly acuminate, base acute, margins revolute, secondary veins 12–22 at each side, 3–7.3 mm apart, one or rarely two marginal veins, the first one 1.2–2.7 and the second 0.2–0.5 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 3–5 per mm², heterogeneous; adaxial surface with scattered trichomes when young, scattered to glabrescent when mature, midvein sulcate;

abaxial surface with moderate trichomes when young, scattered when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1 pair per node, main axis 26–95 × 0.2–0.7 mm, flat, moderately covered with trichomes; bracts 1–2 mm, linear, densely covered with trichomes, caducous; bracteoles 0.7 mm, linear or elliptic, densely covered with trichomes, caducous. Floral buds obovoid, base not constricted; hypanthium 0.2 mm prolonged above the ovary, externally densely covered with trichomes; calyx open, not reflexed, 5 lobes, 0.7–1.3 × 0.8–1.4 mm, externally moderately covered with trichomes, internally densely covered with trichomes; floral disc entirely pilose, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 2-locular. Fruits 5.5–16 × 4.2–10 mm, ellipsoid, purple or reddish, moderately to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Balsa Nova, *Hatschbach 25953* (UPCB!, MBM!). Campina Grande do Sul, *Hatschbach 18187* (UPCB!, MBM!). Colombo, *Hatschbach 9692* (UPCB!, MBM!). Guaratuba, *Kuniyoshi 31* (MBM!). Piraquara, *Silva 1597* (MBM!). Quatro Barras, *Lucas 184* (MBM!). São José dos Pinhais, *Silva 3975* (FUEL!). Tijucas do Sul, *Ribas 409* (UPCB!, MBM!). União da Vitória, *Jenhevski s.n.* (MBM 388998!).

This species is distributed in Minas Gerais and from Paraná to Rio Grande do Sul (Flora do Brasil 2020). In Paraná, it occurs predominantly in Araucaria forest. Collected with flowers in May and from December to January and fruits from August to November. Specimens of *Myrcia undulata* from Paraná have been widely identified in herbaria as its synonym *Myrcia sosias* D.Legrand (1969: 244). *Myrcia undulata Myrcia* sect. *Myrcia* (Santos *et al.* 2019), and may resemble *Myrcia splendens* (see comments under that species). *Myrcia undulata* always has elliptic leaves with long, abruptly acuminate apices. In dried material, the leaf margins are somewhat repand.

44. ***Myrcia venulosa*** De Candolle (1828: 250). Figure 45.

Shrubs, treelets or trees to 6 m high. Trichomes simple, erect, hyaline, yellowish, ferrugineous or golden, 0.1–0.7 mm long. Young twigs flat, not keeled, densely covered with trichomes; mature twigs flat, densely to moderately covered with trichomes; branching monopodial. Leaves opposite, with petioles 1–4.4 × 0.6–1.6 mm, semiterete, with dense trichomes when young, with dense to moderate trichomes when mature; blades narrow-elliptic to elliptic-obovate, 2–8.5 × 1–3.5 cm, discolorous when dry, apex acute to rounded, base acute to rounded, margins revolute, secondary veins 11–17 at each side, 1.5–7.4 mm apart, one to rarely two marginal veins, the first one 0.3–1.4 and the second 0.2–0.5 mm from the margin, tertiary veins densely reticulate, gland dots conspicuous, 2–7 per mm², heterogeneous; adaxial surface with moderate to scattered trichomes when young, glabrescent when mature, these denser on the midvein, midvein flat; abaxial surface dense to moderate trichomes when young, moderate when mature, these denser on the midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 17–55 × 0.3–1 mm, flat, densely to moderately covered with trichomes; bracts 1.3–8 mm, narrow-elliptic, densely covered with trichomes, caducous; bracteoles 1–2.7 mm, linear, densely covered with trichomes, caducous. Floral buds turbinate, base not constricted; hypanthium 0.5–0.8 mm prolonged above the ovary, externally densely covered with trichomes or glabrous; calyx open, not reflexed, 5 lobes, 0.5–1 × 1–1.7 mm, externally sparsely covered with trichomes to glabrous, internally densely; floral disc glabrous with trichomes only on the style base, staminal ring covered with trichomes, anthers thecae symmetrical; ovary 3-locular. Fruits 3.6–7.4 × 4–8.8 mm, globose, black or purple, moderately to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Apucarana, *Soares-Silva 671* (FUEL!). Arapoti, *Hatschbach 6553* (MBM!). Araucária, *Gatti 150* (UPCB!, MBM!). Balsa Nova, *Hatschbach 9549* (MBM!). Bocaiúva do Sul, *Silva 6147* (UPCB!, MBM!, RB!). Campina Grande do Sul, *Hatschbach 8621* (UPCB!, MBM!). Campo do Tenente, *Hatschbach 18456* (MBM!, UPCB!). Castro, *Hatschbach 589* (MBM!). Cerro Azul, *Landrum 4068* (MBM!). Colombo, *Hatschbach 8569* (UPCB!, MBM!). Curitiba, *Kummrow 2832* (UPCB!, MBM!). Guarapuava, *Hatschbach 18337* (MBM!). Imbituva, *Hatschbach 23076* (UPCB!, MBM!). Jaguariaíva, *Cervi 3588* (UPCB!, MBM!). Lapa, *Barbola s.n.* (UPCB 18800!). Mandirituba, *Landrum 3904* (MBM!). Mauá da Serra, *Francisco s.n.* (FUEL 28268!). Ortigueira, *Pavão s.n.* (FUEL 24590!, MBM 346078!). Palmeira, *Landrum 3963* (MBM!). Pinhais, *Roderjan 900* (EFC!). Piraí do Sul, *Chagas e Silva 2022* (FUEL!, MBM!). Piraquara, *Hatschbach 64007* (MBM!). Pitanga, *Bianek 251* (HCF!). Ponta Grossa, *Hatschbach 13103* (UPCB!, MBM!). Porto Amazonas, *Chagas e Silva 2163* (FUEL!). Quatro Barras, *Hatschbach 29122* (MBM!). Reserva, *Chagas e Silva 2189* (FUEL!, MBM!). Rio Branco do Sul, *Hatschbach 41856* (MBM!). São José dos Pinhais, *Hatschbach 41301* (MBM!). Sengés, *Hatschbach 5130* (UPCB!, MBM!). Tibagi, *Soares-Silva 302* (FUEL!). Tunas do Paraná, *Lucas 166* (MBM!, RB!).

This species is distributed from Bahia and Goiás to Santa Catarina (Flora do Brasil 2020). In Paraná, it occurs in Araucaria forest, grasslands, cerrado, and less frequently in Semideciduous Forest. Collected with flowers from October to December and fruits from December to February. *Myrcia venulosa* belongs to *Myrcia* sect. *Reticulosae* (Lucas *et al.* 2011). It is characterized by the densely pubescent branches, inflorescences and young leaves; the trichomes are brown to ferrugineous. *Myrcia venulosa* may resemble *M. retorta* (see comments under that species).

45. *Myrcia* sp. 1 Figure 46.

Trees to 12 m high. Trichomes dibrachiate, appressed to erect, pale yellow, 0.2–1 mm long. Young twigs flat, not keeled, moderately covered with trichomes; mature twigs flat to terete, glabrescent; branching monopodial. Leaves opposite, with petioles 8.3–17.7 × 1.5–2.7 mm, sulcate to semiterete, with scattered trichomes to glabrescent when mature; blades narrow-elliptic, 11.5–24.5 × 3.5–8.7 cm, discolorous when dry, apex short acuminate, base acute, margins revolute to the base, secondary veins 14–20 at each side, 6–21.5 mm apart, one to three marginal veins, the first one 1.7–7.5, the second 0.7–2 and the third 0.5–0.8 mm from the margin, tertiary veins densely to sparsely reticulate, gland dots inconspicuous or conspicuous, 3–4 per mm², homogeneous; adaxial surface glabrous when mature, not seen when young, midvein flat to slightly sulcate; abaxial surface with scattered trichomes when mature, these denser near the midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 70–120 × 1.5–2.3 mm, flat, moderately to sparsely covered with trichomes; bracts and bracteoles not seen. Floral buds not seen, staminal ring covered with trichomes. Fruits 8–20 × 9–20 mm, globose, purple to black, glabrous to sparsely covered with trichomes, hypanthium remnants hollow, calyx remnants persistent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Brotto 2561* (MBM!). Guaraqueçaba, *Hatschbach 16698* (MBM!). Guaraqueçaba, *Hatschbach 22469* (MBM!).

This species occurs in Atlantic rainforest. Collected with fruits in July and from October to December. This species probably belongs to *Myrcia* sect. *Aulomyrcia* due it is panicles with alternate branching, yellowish dibrachiate trichomes and calyx lobes probably closed in buds and opening irregularly, as seen by the remnants left in the fruits. *Myrcia* sp. 1 is similar to *Myrcia strigipes*, but differs by the calyx lobes internally pilose in the former species and glabrous in the second species. So far, this species is known only from the specimens collected in Paraná.

46. *Myrcia* sp. 2 Figure 47.

Trees to 15 m high. Trichomes dibrachiate, appressed, ferrugineous, to 0.2 mm long. Young twigs flat, not keeled, densely to moderately covered with trichomes; mature twigs flat to terete, sparsely covered with trichomes to glabrescent; branching monopodial or sympodial. Leaves opposite, with petioles 10–22 × 1–2 mm, sulcate, with dense to moderate trichomes when young, with scattered trichomes to glabrescent when mature; blades elliptic to elliptic-lanceolate, 5.5–14 × 2.4–6.5 cm, discolorous when dry, apex acuminate, base attenuate to acute, margins flat, secondary veins 13–38 at each side, 1.6–6.8 mm apart, one or two marginal veins, the first one 0.7–2 and the second 0.2–1.5 mm from the margin, tertiary veins densely reticulate, gland dots inconspicuous to conspicuous, 3–8 per mm², homogeneous; adaxial surface with scattered trichomes to glabrous when young and mature, these denser on the base, midvein sulcate; abaxial surface with moderate to scattered trichomes when young, scattered when mature, these occasionaly denser on the midvein, midvein raised. Inflorescences paniculiform, 1–2 pairs per node, main axis 40–75 × 1–1.5 mm, flat, densely to moderately covered with trichomes; bracts and bracteoles not seen. Floral buds not seen; hypanthium 1.8–2 mm prolonged above the ovary, externally densely to moderately covered with trichomes; calyx caducous, not seen; floral disc entirely glabrous, staminal ring covered with trichomes, anthers thecae not seen; ovary 2-locular. Fruits 14–17 × 14–18 mm, globose, black, glabrous to sparsely covered with trichomes, hypanthium remnants filled by a mass of ovary tissue, calyx remnants absent.

Selected specimens:—BRAZIL. Paraná: Adrianópolis, *Barbosa 4592* (MBM!). Adrianópolis, *Brotto 2434* (MBM!). Bocaiúva do Sul, *Silva 4336* (MBM!). Campina Grande do Sul, *Brotto 1715* (MBM!, EFC!, RB!). Guaraqueçaba, *Kuniyoshi 4834* (MBM!, EFC!). Quatro Barras, *Hatschbach 42996* (MBM!). Tunas do Paraná, *Silva 3358* (FUEL!, MBM!).

This species occurs in Atlantic rainforest and Araucaria forest. Collected with flowers in February and fruits in December and from March to July. *Myrcia* sp. 2 probably belongs to *Myrcia* sect. *Eugeniopsis* due to the ferrugineous and dibrachiate trichomes, monopodial or sympodial branching, fruits with persistent hypanthium and calyx lobes persistent or not (Lucas *et al.* 2018) and to the similarity to *Myrcia reitzii* (see comments under that species). *Myrcia* sp. 2 is the only species in Paraná that has a mass of tissue from the ovary apex filling the hypanthium, this resembling a beak at the fruit apex, which can be seen in old flowers and immature and mature fruits(Fig. 1H). All other species of *Myrcia* recorded for the state have a hollow hypanthium (Fig. 1G). So far, *Myrcia* sp. 2 is known only from collections from Paraná.

Doubtful names:

1. *Myrcia atropilosa* (O.Berg 1857: 101) N.Silveira (1985: 65).

The holotype of this species (*Sellow s.n.*) was collected in Paraná and deposited in the herbarium B, where it was likely destroyed during World War II. No further materials that may be part of the type collection have been found, neither other specimens that match the morphology described in the protologue.

2. *Myrcia multipunctata* Mazine (2014: 99).

A single record from Paraná (*Souza 7177*) identified with the old name *Marlierea laevigata* (De Candolle 1828: 283) Kiaerkou (1893: 51) has not been found in any herbaria.

Excluded names:

1. ***Marlierea clausseniana*** (O.Berg 1957: 145) Kiaerskou (1893: 51).

Two collections identified as such (*Hatschbach* 35507 and *Marinero 355*) actually belong to *Myrcia reitzii* and *M. eugeniopsoides,* respectively.

2. ***Myrcia bella*** Cambessèdes (1832: 322).

Two collections identified as such (*Cervi 4199* and *Hatschbach 43397*), actually belong to *Myrcia subcordata* and *Myrcia splendens*, respectively.

3. ***Myrcia catharinensis*** (D.Legrand 1967: 13) Nic Lughadha (2012: 240).

Considered here within the circunscription of *Myrcia hebepetala*, according to Amorim (2017).

4. ***Myrcia eriopus*** De Candolle (1828: 255)

The collection *Freire de Carvalho 130* was determined as *Myrcia eriopus*, but the correct identification is *Myrcia bracteata* (Richard 1792: 110) De Candolle (1828: 245) (M. Sobral pers. comm.). *Myrcia bracteata* is an amazonian species that does not occur in southern Brazil. This specimen likely has some error in its label, as it shows Curitiba, Paraná, as the collection locality.

5. ***Myrcia fenzliana*** O.Berg (1857: 196).

Two collections identified as such (*Beloni s.n.* [HCF 3755] and *Hatschbach 15273*) actually belong to *Myrcia hebepetala* and *Myrcia aethusa*, respectively.

6. *Myrcia grandifolia* Cambessèdes (1832: 298).

This species occurs from Minas Gerais to São Paulo (Amorim 2017) and the identification of the two records from Paraná were corrected to *Myrcia isaiana* (*Britez s.n.* [HUCP 3303] and *Britez s.n.* [HUCP 3608]).

7. *Myrcia insularis* Gardner (1842: 536).

Some specimens of *M. hexasticha* were misidentified as *M. insularis,* but this last species has opposite leaves (*vs.* verticillate in *M. hexasticha*).

8. *Myrcia itajuruensis* Cambessèdes (1832: 307).

A single collection from Paraná identified as such (*Hatschbach 35484*) actually belongs to *Myrcia isaiana.*

9. *Myrcia lajeana* D. Legrand (1961: 291).

As proposed in Chapter 1, this species is a synonym of *M. selloi*.

10. *Myrcia laruotteana* Cambessèdes (1832: 311).

As proposed in Chapter 1, this species is a synonym of *M. selloi*.

11. ***Myrcia mutabilis*** (O.Berg 1857: 70) N.Silveira (1985: 1).

This species occurs from Pernambuco to Minas Gerais (Flora do Brasil 2020, Santos *et al*. 2018). Two collections from Paraná identified as *Myrcia calyptranthoides* (O.Berg 1857: 67) Mattos (1966: 60), a synonym of *M. mutabilis*, are actually *M. subcordata.*

12. ***Myrcia neoobscura*** E.Lucas & C.E.Wilson (2016: 680).

For a long time this name has been misapplied to specimens of *Myrcia neoriedeliana Myrcia neoobscura* occurs only in Bahia and Minas Gerais (Lucas *et al.* 2016).

13. ***Myrcia oligantha*** O.Berg (1857: 184).

Specimens from Paraná identified as such cannot be fully distinguished from *Myrcia aethusa*, altough they usually have slightly smaller leaves, and therefore were treated here in the latter.

14. ***Myrcia pubescens*** De Candolle (1828: 247).

Three collections identified as such were found in Paraná. One of them is actually *Myrcia hartwegiana* (*Hatschbach 7558*), another is *M. palustris* (*Lindeman 5320*), and the third one has not been found.

15. *Myrcia pubiflora* De Candolle (1828: 249).

The single collection from Paraná identified as such (*Hatschbach 587*) actually belongs to *Myrcia subcordata.* Legrand & Klein (1969) treated *M. pubiflora* as its synonym *Myrcia calumbaensis* Kiaerskou (1893: 77), citing a single collection from Paraná (*Hatschbach 9522*). Nevertheless, this specimen is actually a Lauraceae, *Ocotea bicolor* Vattimo (1956: 302). A second material, *Hatschbach 9582*, was found with the same information as mentioned for *Hatschbach 9522* in Legrand & Klein (1969), so it was probably a typographical problem. This collection actually belongs to *Myrcia subcordata*.

16. *Myrcia reticulata* Cambessédes (1855: 101).

The two specimens identified as such (*Barbola s.n.* [UPCB 18800] and *Hatschbach 52659*) actually belong to *M. venulosa*.

17. *Myrcia reticulosa* Miquel (1850: 794).

All the specimens identified as *Myrcia reticulosa* in Paraná are in fact *M. venulosa*.

18. *Myrcia vellozoi* Mazine (2014: 98).

This species has an intermediate morphology between *Myrcia eugeniopsoides* and *M. reitzii.* The collections found from Paraná were here considered within *Myrcia reitzii*, except for a single one (*Hatschbach 13407*), considered as *Myrcia eugeniopsoides*.

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Figures

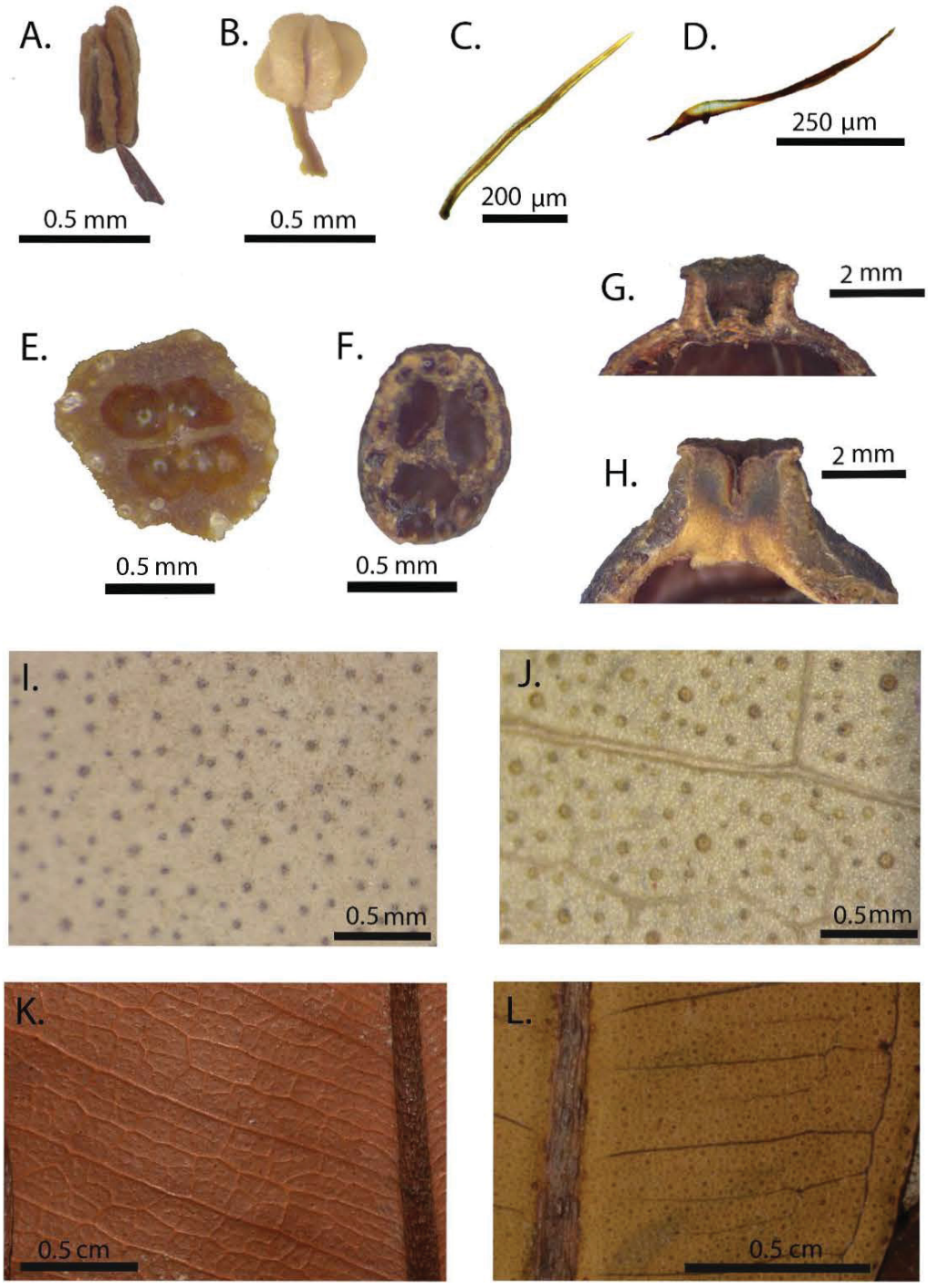

Figure 1. Ilustration of general characters in *Myrcia.* A: Asymmetrical anther thecae; B: Symmetrical anther thecae; C: Simple trichome; D: Dibrachiate trichome; E: 2-locular ovary; F: 3-locular ovary; G: Hypanthium persistent in the fruit, hollow; H: Hypanthium persistent in the fruit, beaked and filled by tissue; I. Homogeneous gland dots; J: Heterogeneous gland dots; K: Tertiary veins densely reticulated; L: Tertiary veins sparsely reticulated. (A: *Oliveira 841*; B: *Moreira 404*; C: *Lindeman 1640*; D: *Hatschbach 13407*; E: *Bonaldi 502*; F: *Hatschbach 8646*; G: *Silva 4334*; H: *Brotto 2434*; I: *Hatschbach 61476*; J: *Carrião s.n.* UPCB 28305; K: *Kuniyoshi 4844*; L: *Michelon 1327*).

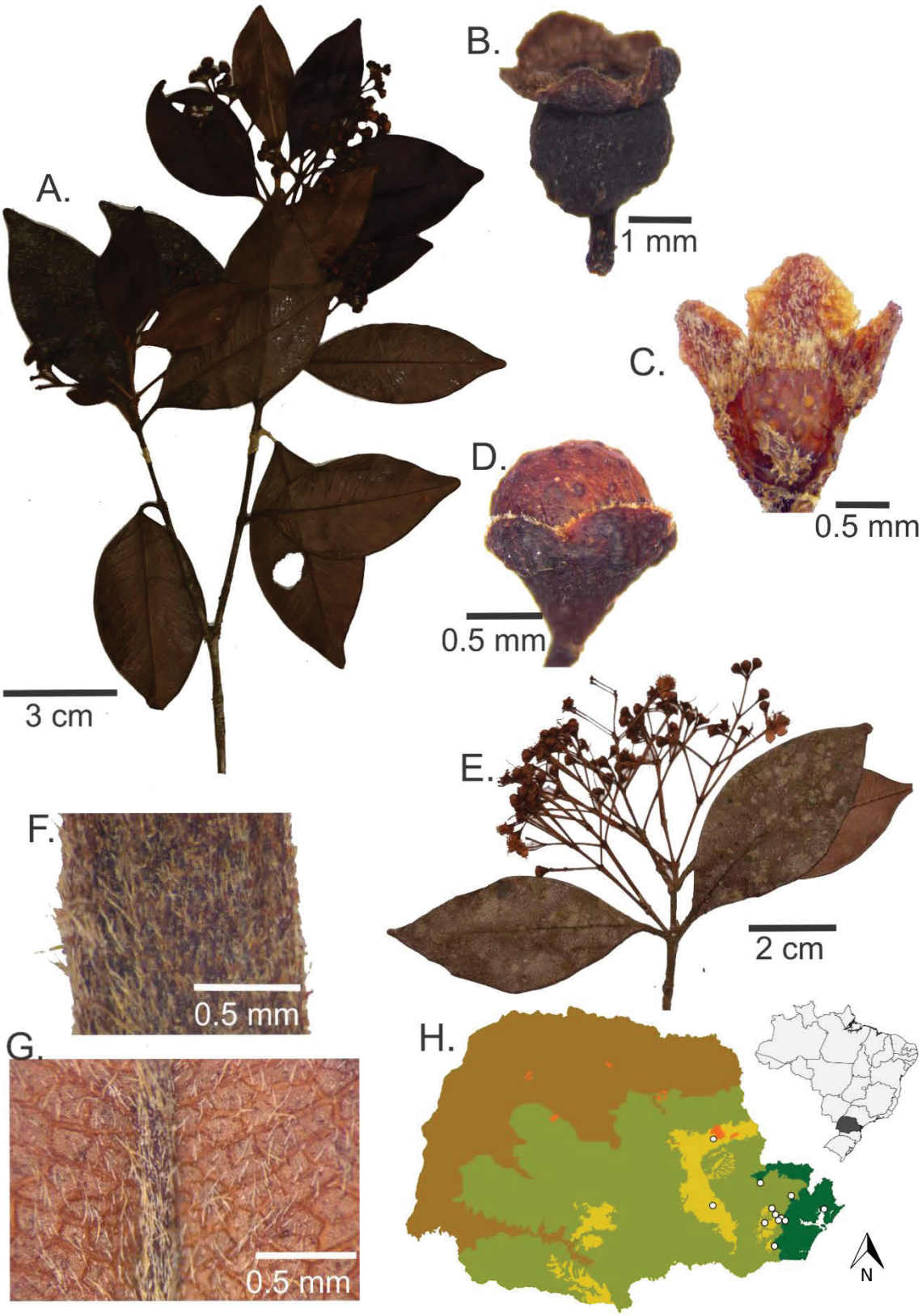

Figure 2. *Myrcia aethusa* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Hatschbach 18655*; B, F, G: *Roderjan 1085*; C, E: *Hatschbach 8640*; D: *Hatschbach 35776*).

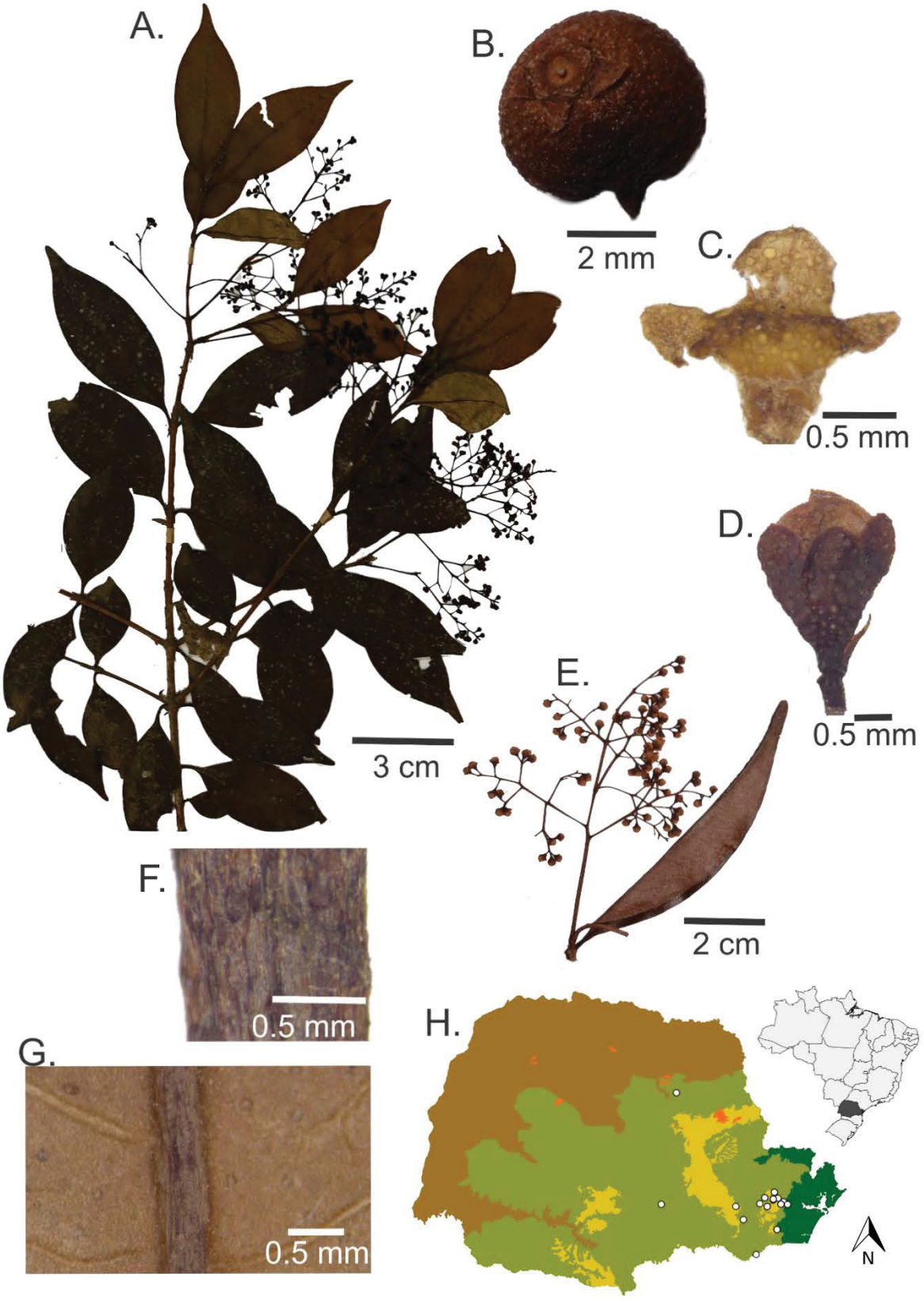

Figure 3. *Myrcia amazonica* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, D: *Cervi 8353*; B: *Cervi 8726*; C: *Hatschbach 11917*; E: *Hatschbach 17666*; F: *Lacerda 265*; G: *Lacerda 235*).

Figure 4. *Myrcia anacardiifolia* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B, E, G: *Silva 626*; C, F: *Hatschbach 18611*; D: *Martinello 1111*).

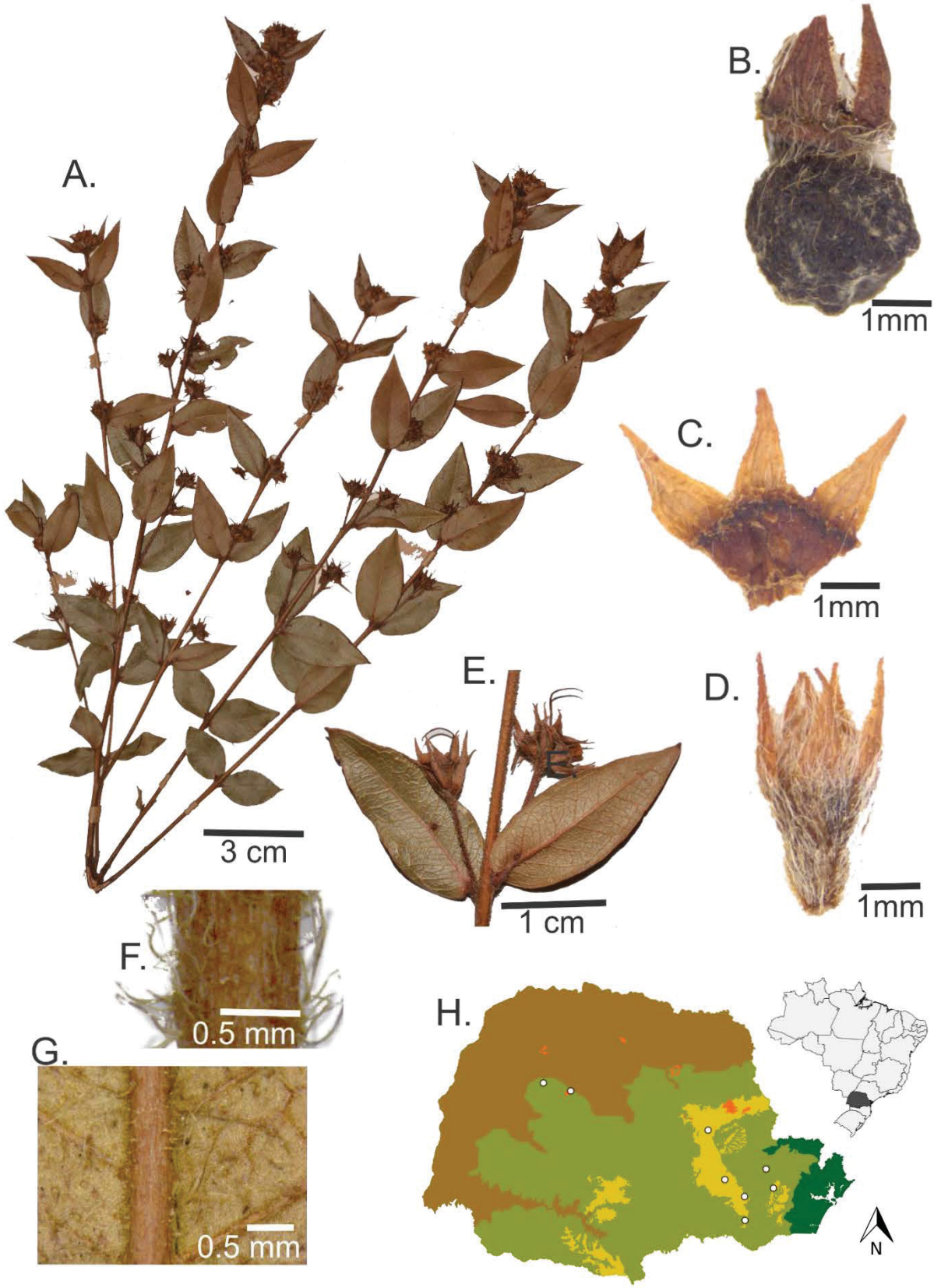

Figure 5. *Myrcia anomala* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, E, F, G: *Dombrowski 6794*; B: *Dombrowski 9577*; C, D: *Hatschbach 14054*).

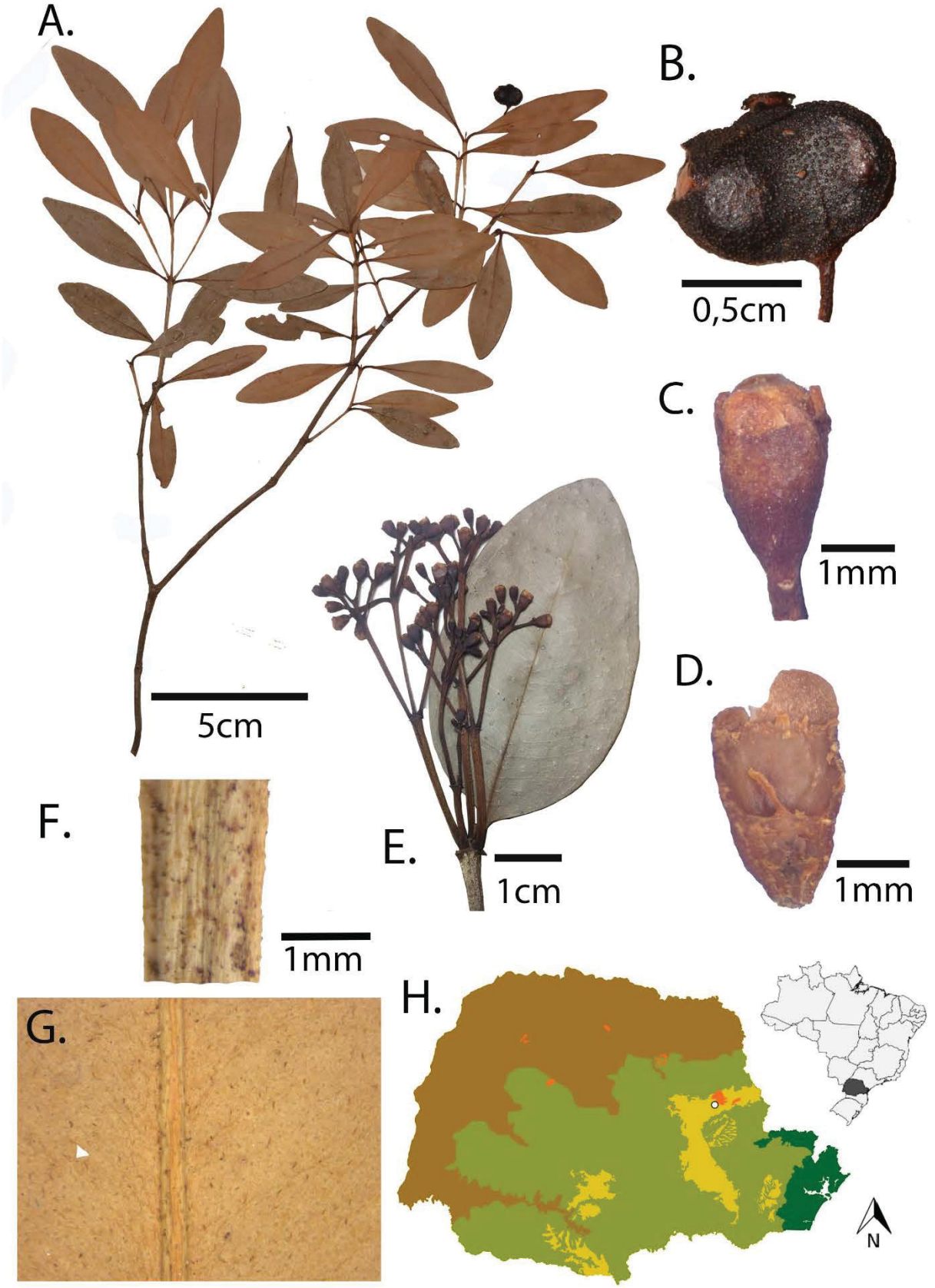

Figure 6. *Myrcia bicarinata* in the state of Paraná. A: Habit; B: Fruito; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B, F, G: *Hatschbach 18974*; C, D, E: *Azevedo 301*).

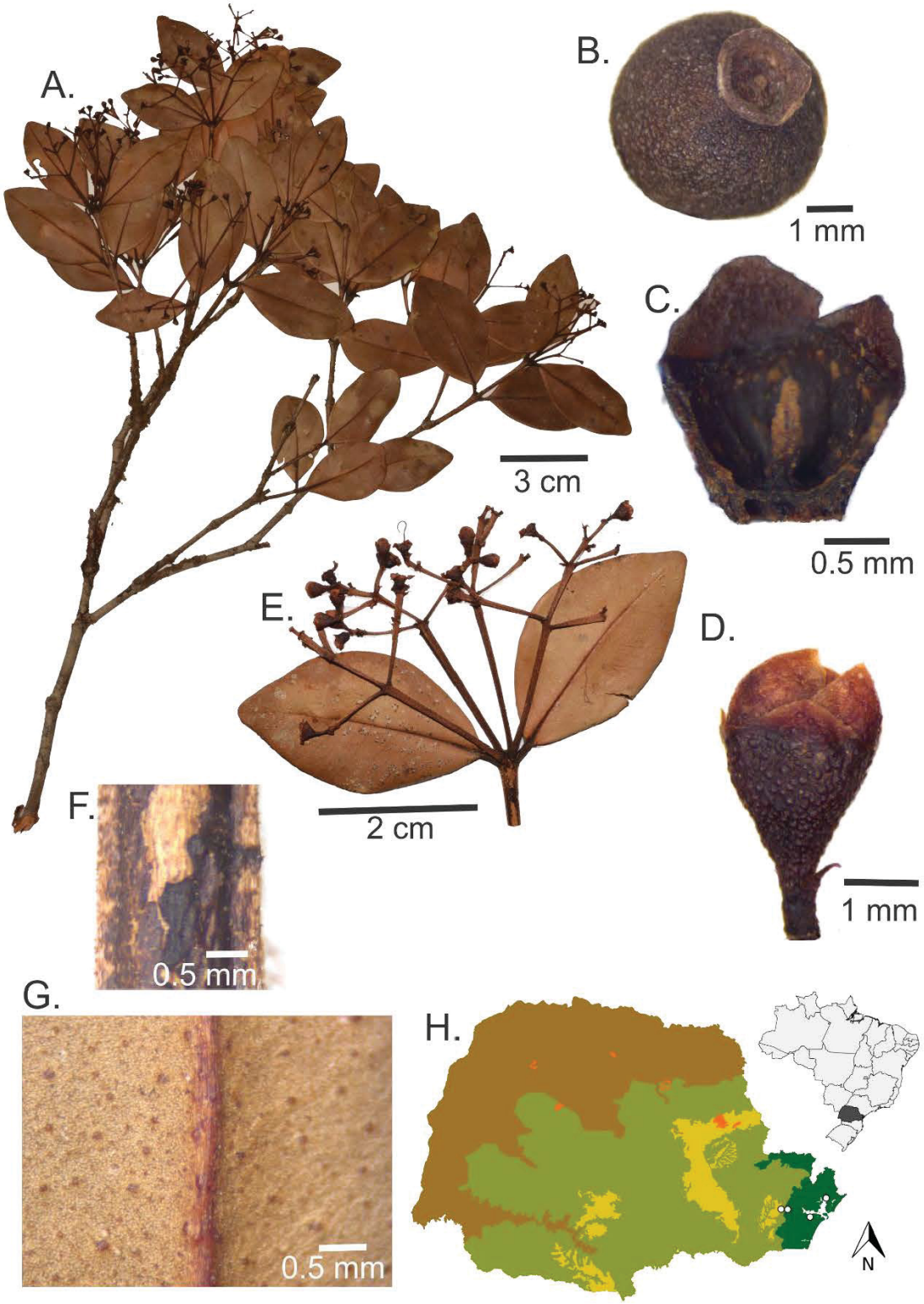

Figure 7. *Myrcia costeira* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, E, F, G: *Hatschbach 31837*; B: *Zakrzewski s.n.* UPCB 22923).

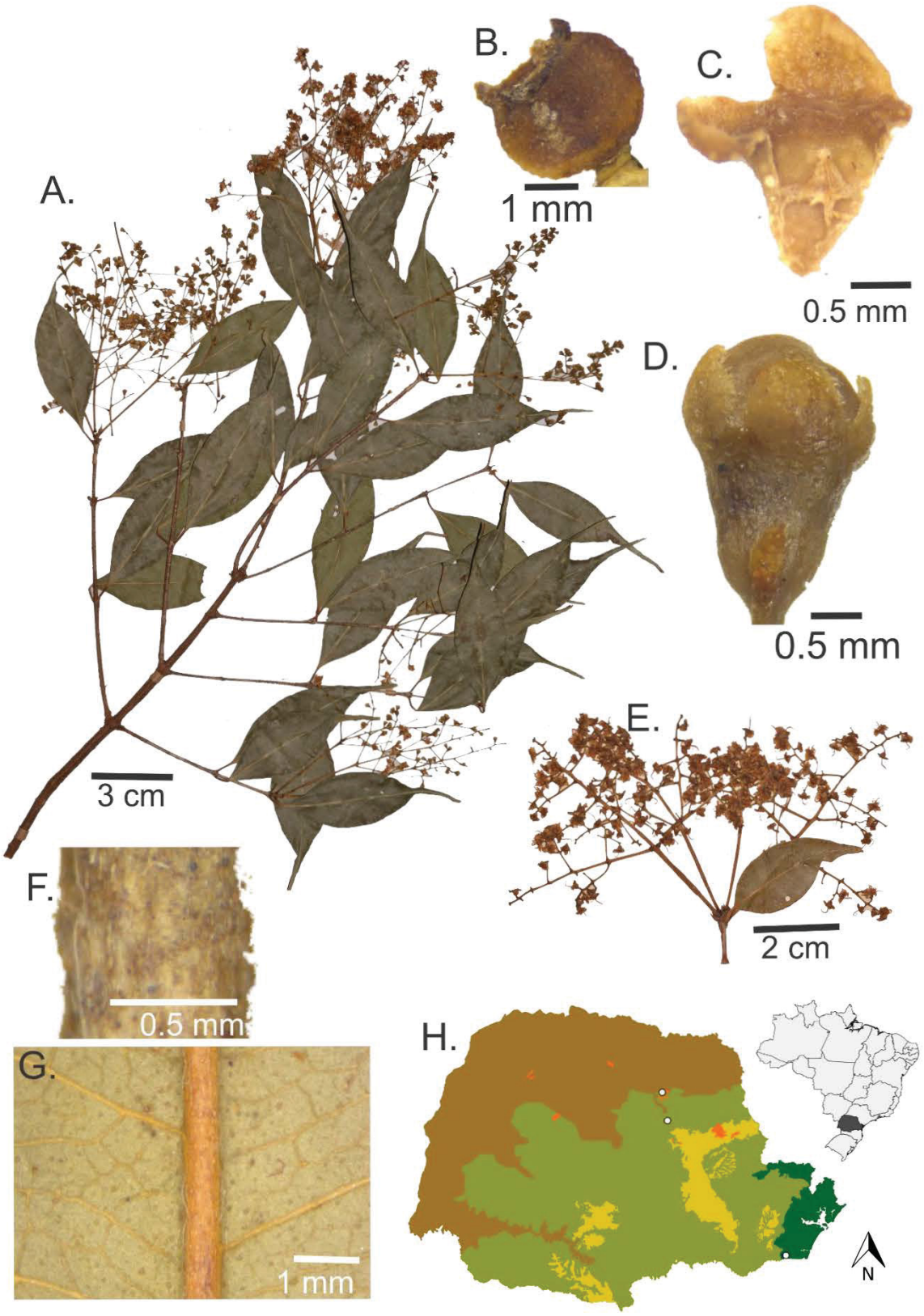

Figure 8. *Myrcia diaphana* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B, D: *Pavão s.n.* MBM 322528; C, E, F, G: *Mattos s.n.* UPCB 2472).

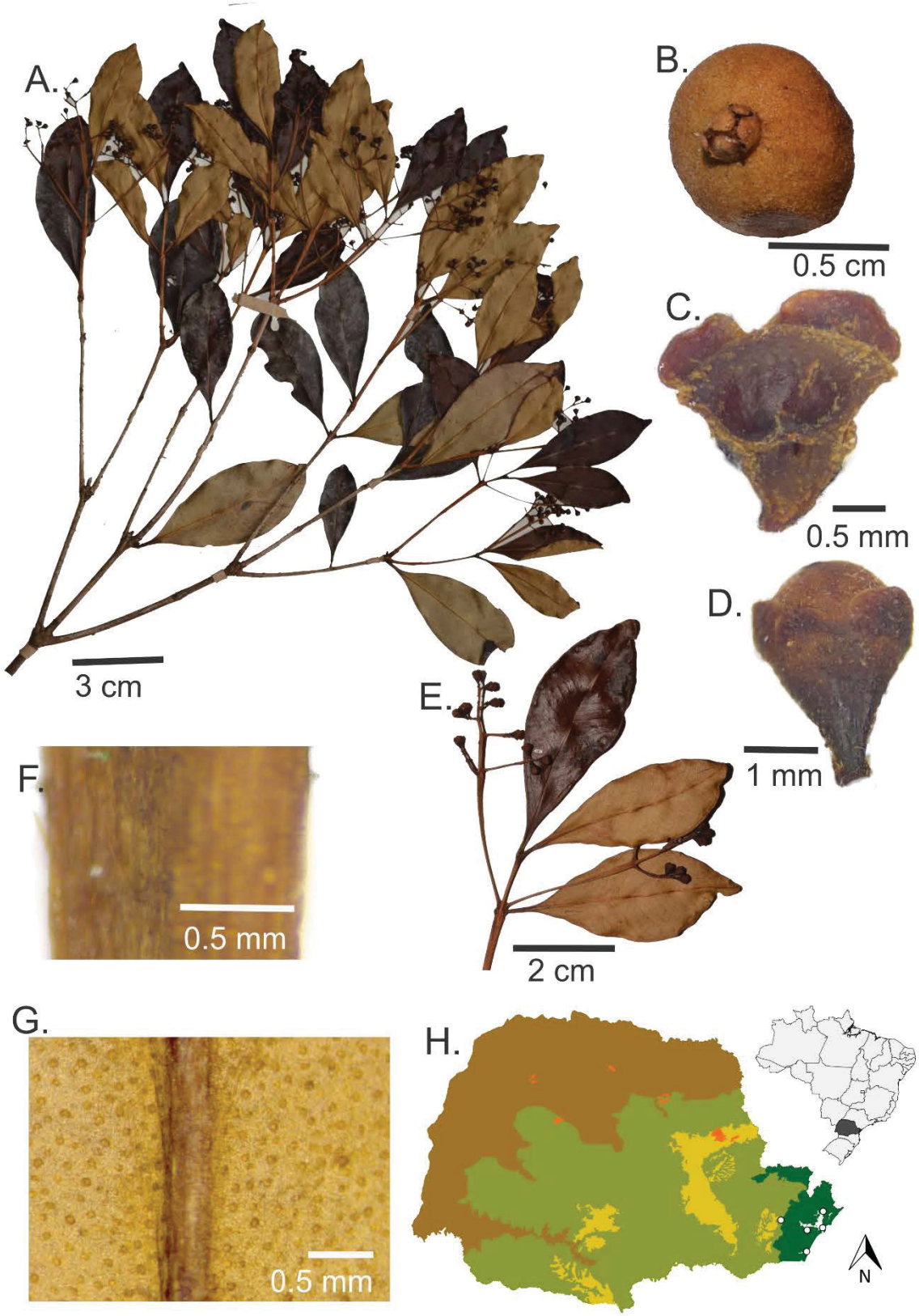

Figure 9. *Myrcia dichrophylla* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, E, F, G: *Hatschbach 23362*; B: *Silva 9355*).

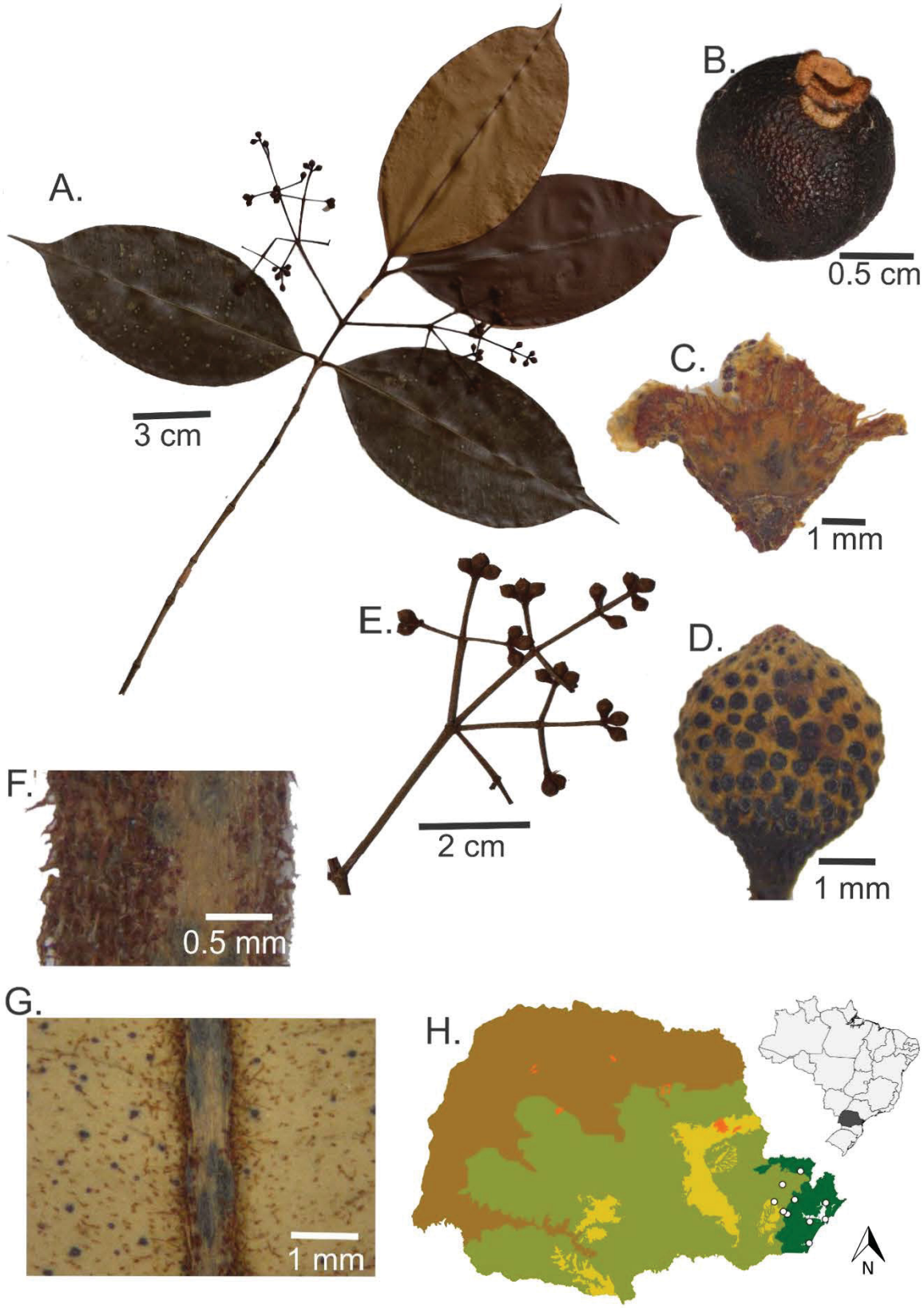

Figure 10. *Myrcia eugeniopsoides* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, E: *Kozera 677*; B: *Cunha s.n.* UPCB 41783; C: *Hatschbach 23348*; D, F, G: *Hatschbach 9890*).

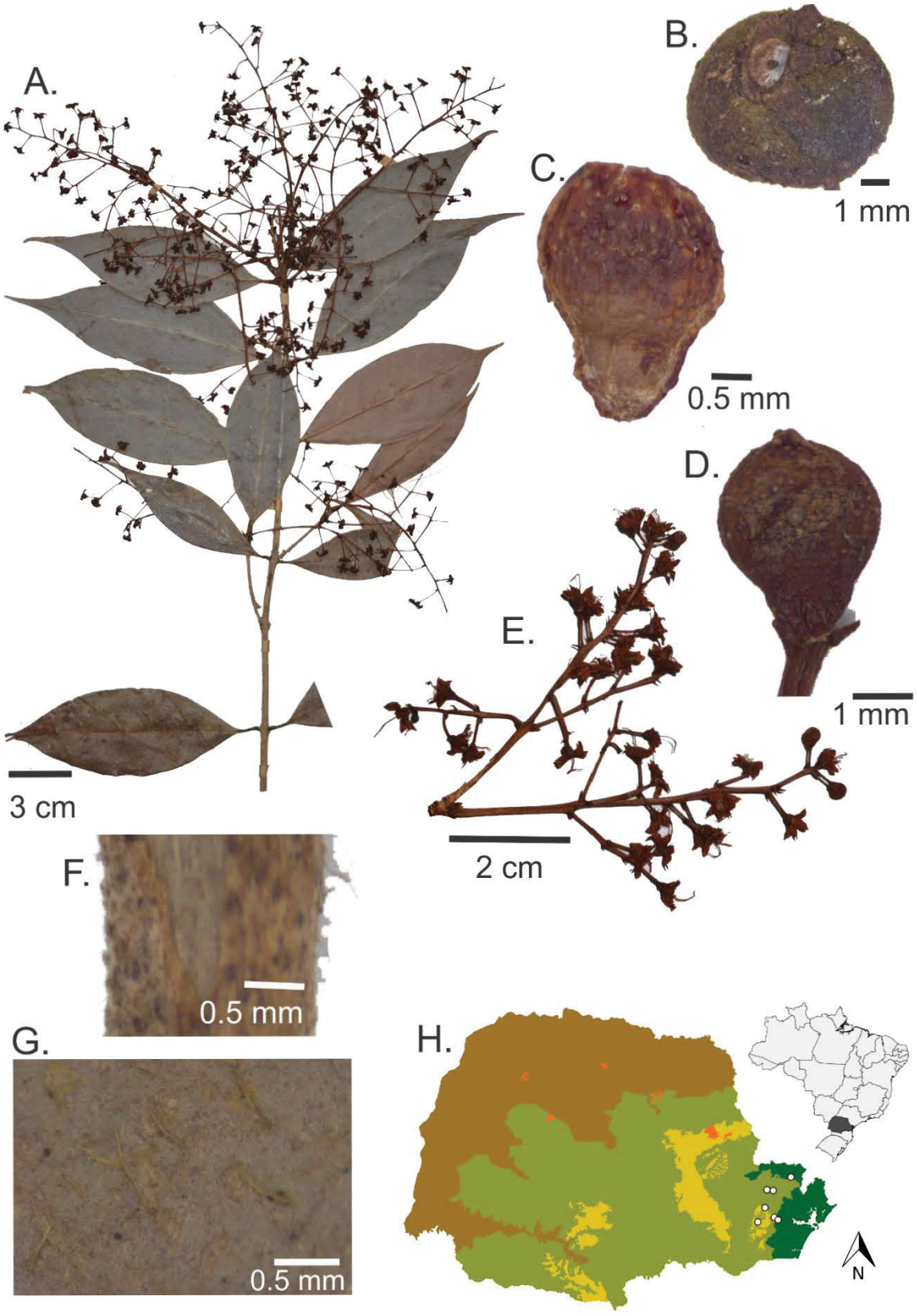

Figure 11. *Myrcia excoriata* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Hatschbach 50794*; B: *Brotto 1866*; C, D, F, G: *Moreira 404*; E: *Moreira 9509*).

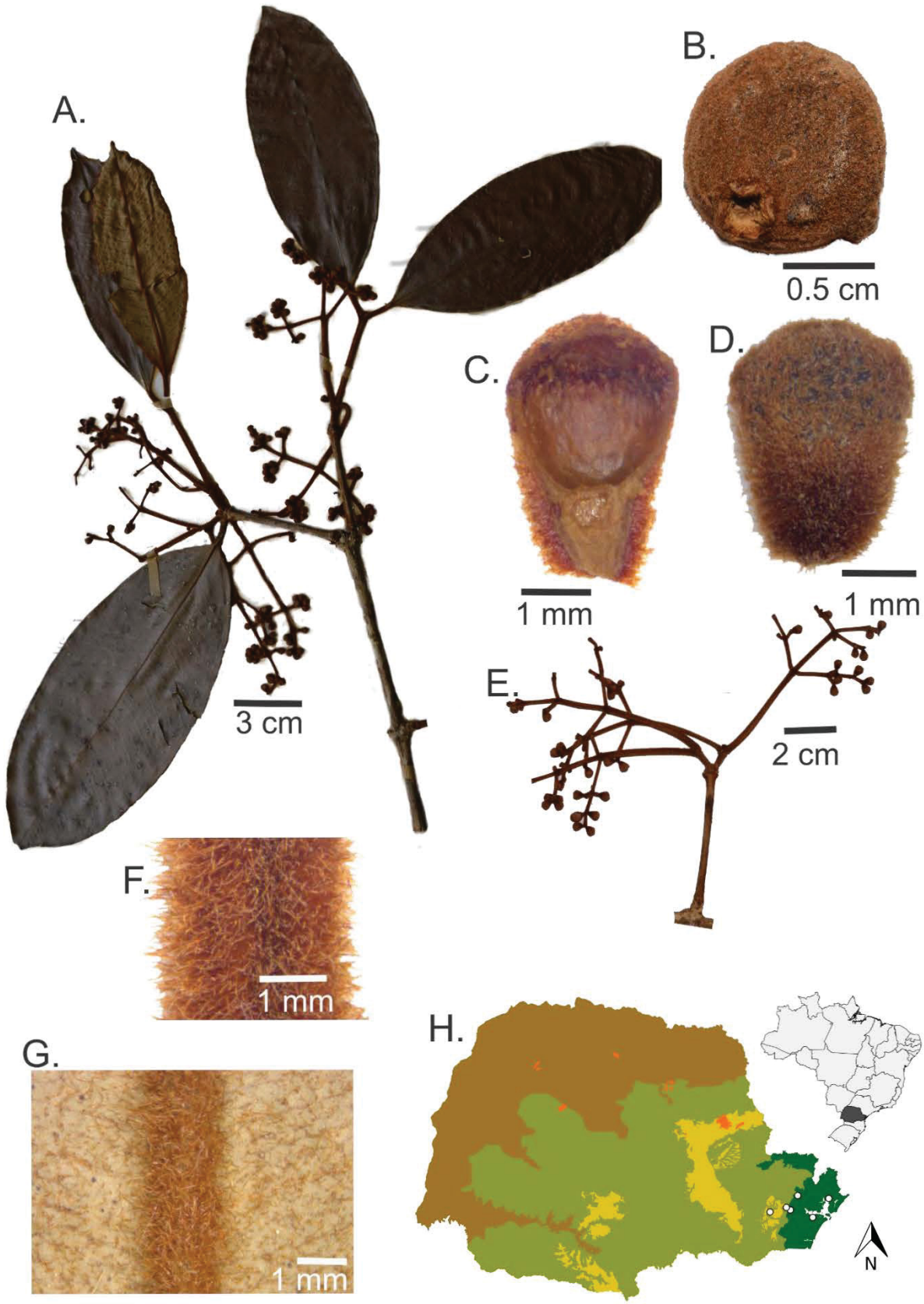

Figure 12. *Myrcia ferruginosa* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, E: *Hatschbach 9838*; B: *Hatschbach 51207*; C, D, F: *Hatschbach 25995*; G: *Hatschbach 53116*).

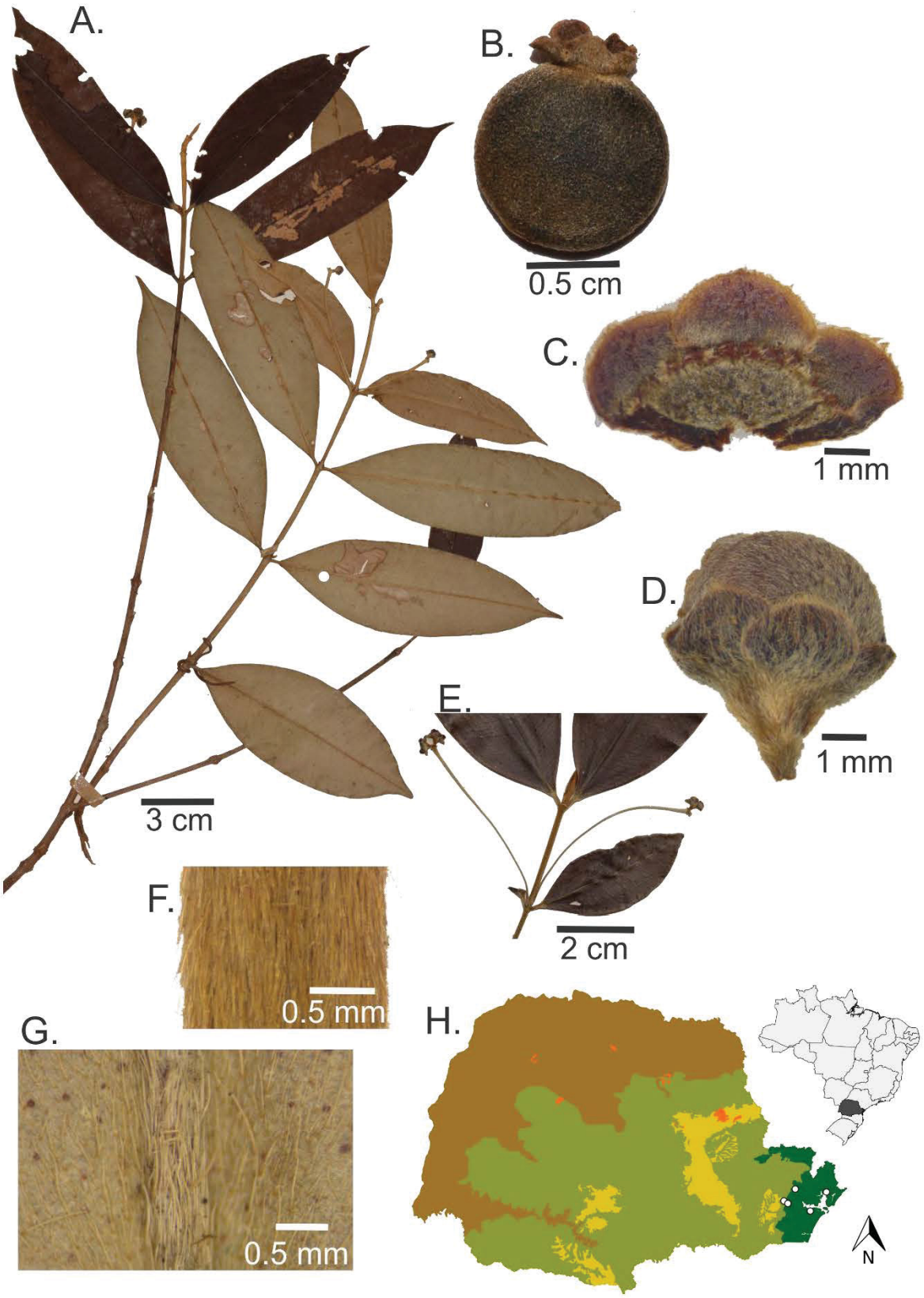

Figure 13. *Myrcia flagellaris* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Hatschbach 9885*; B*: Hatschbach 9825*; C, D, E, F, G: *Hatschbach 18643*).

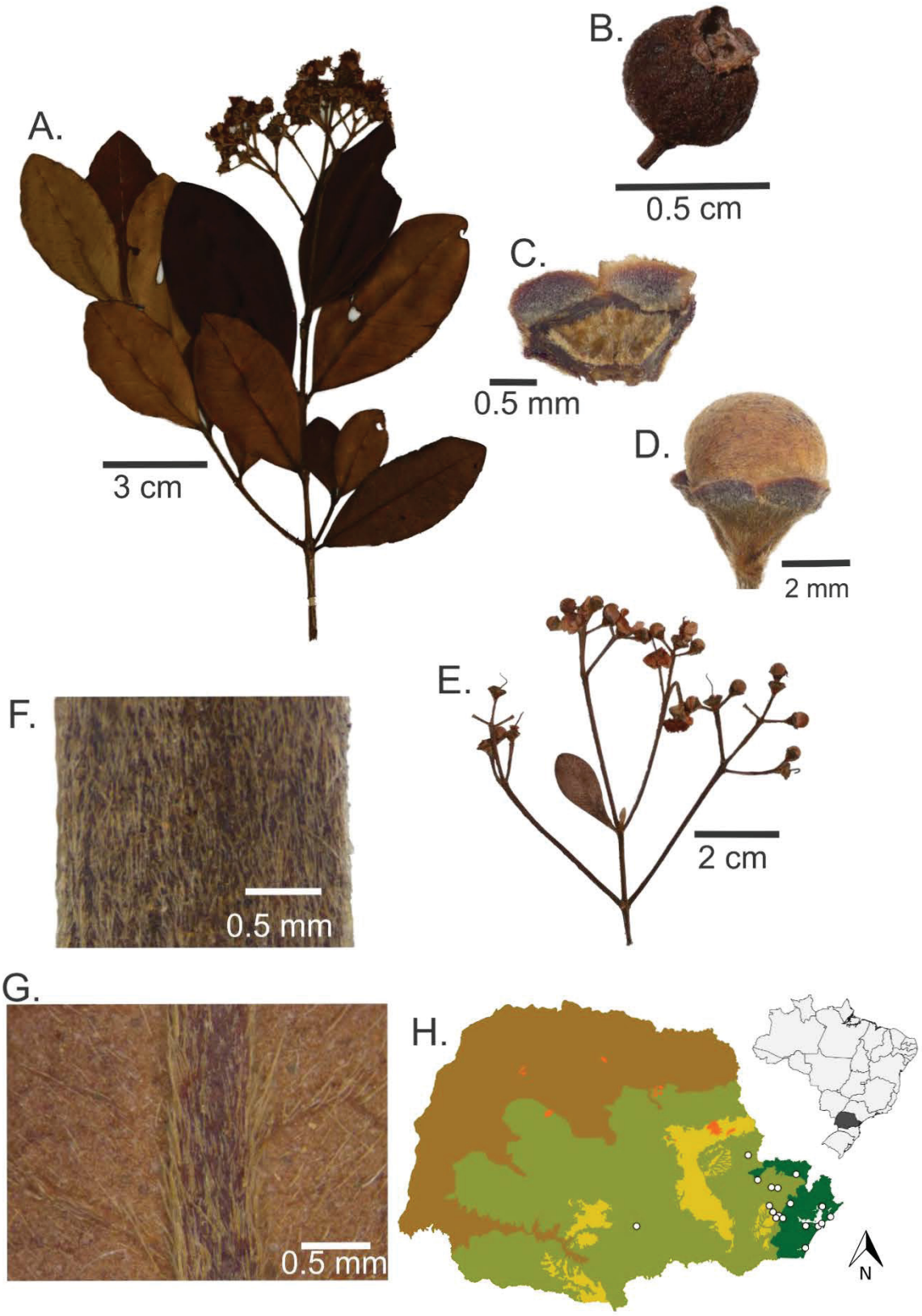

Figure 14. *Myrcia freyreissiana* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Borgo 588*; B: *Marques s.n.* UPCB 40837; C, D, E, F, G: *Oliveira 841*).

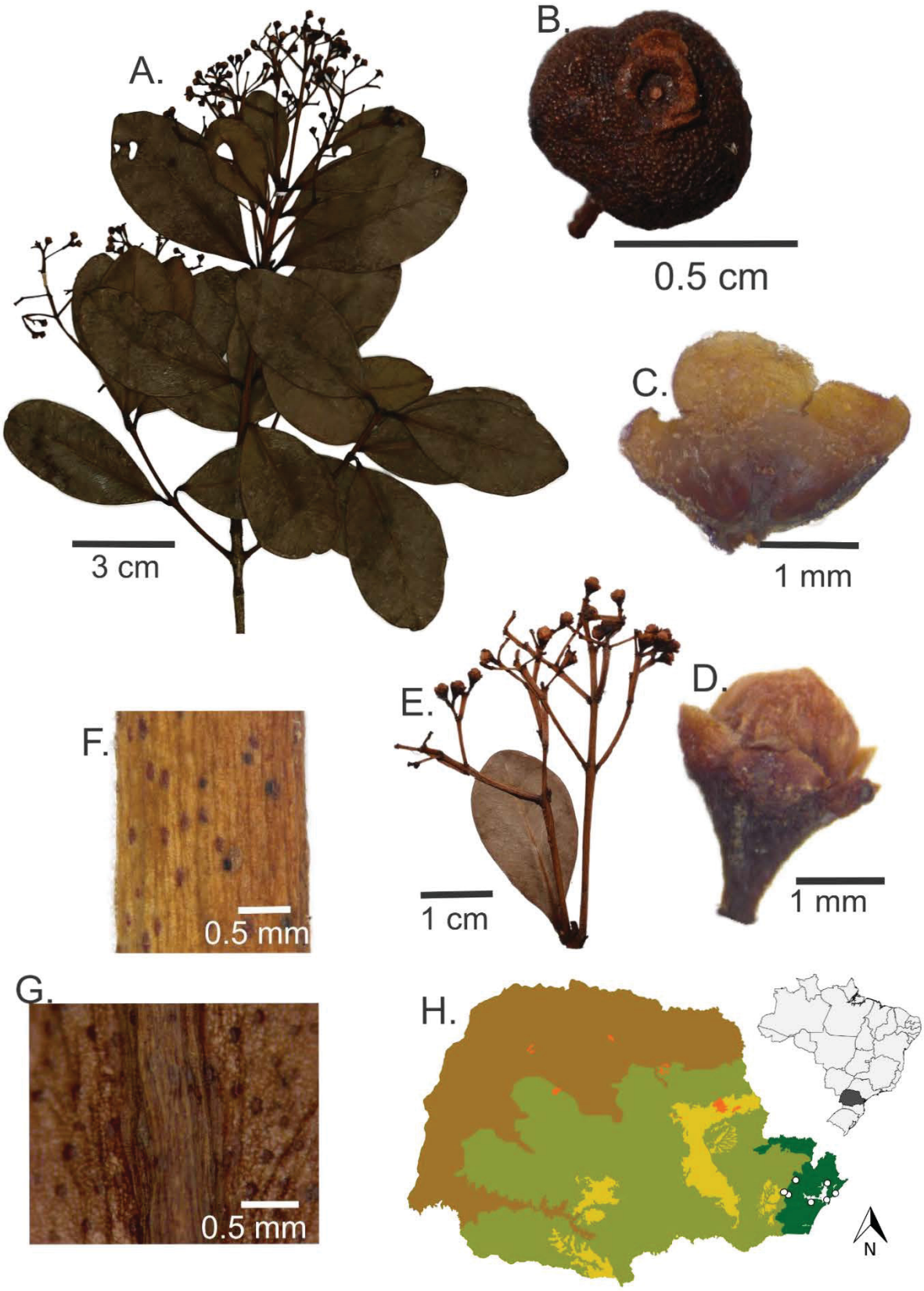

Figure 15. *Myrcia glabra* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, E: *Snak 375*; B: *Jaster s.n.* UPCB 22924; C, D, F, G: *Britez 1450*).

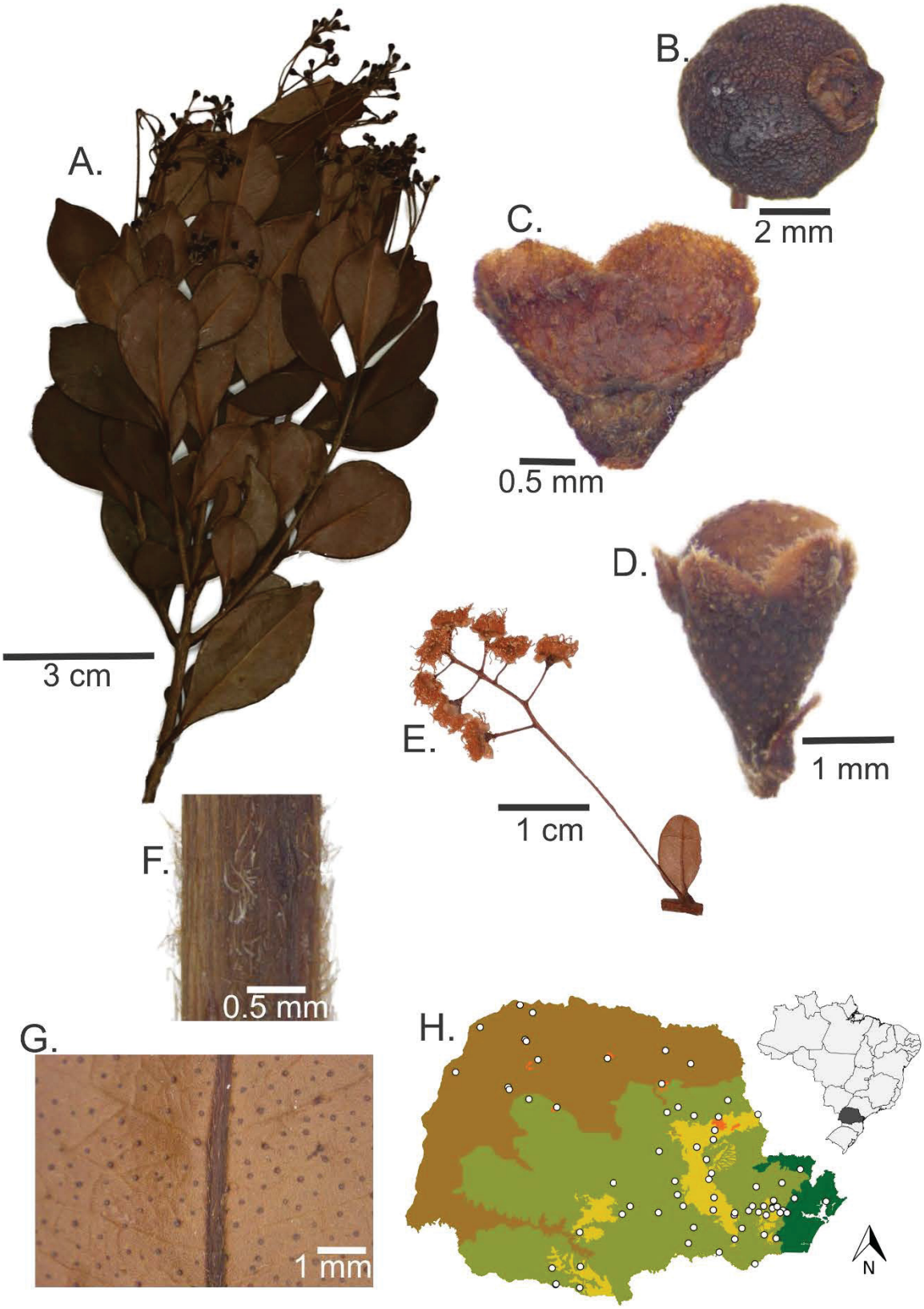

Figure 16. *Myrcia guianensis* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Blum 10-085*; B, D: *Hatschbach 68716*; C: *Braga 13*; E: *Caxambu 204*; F, G: *Goetzke 158*).

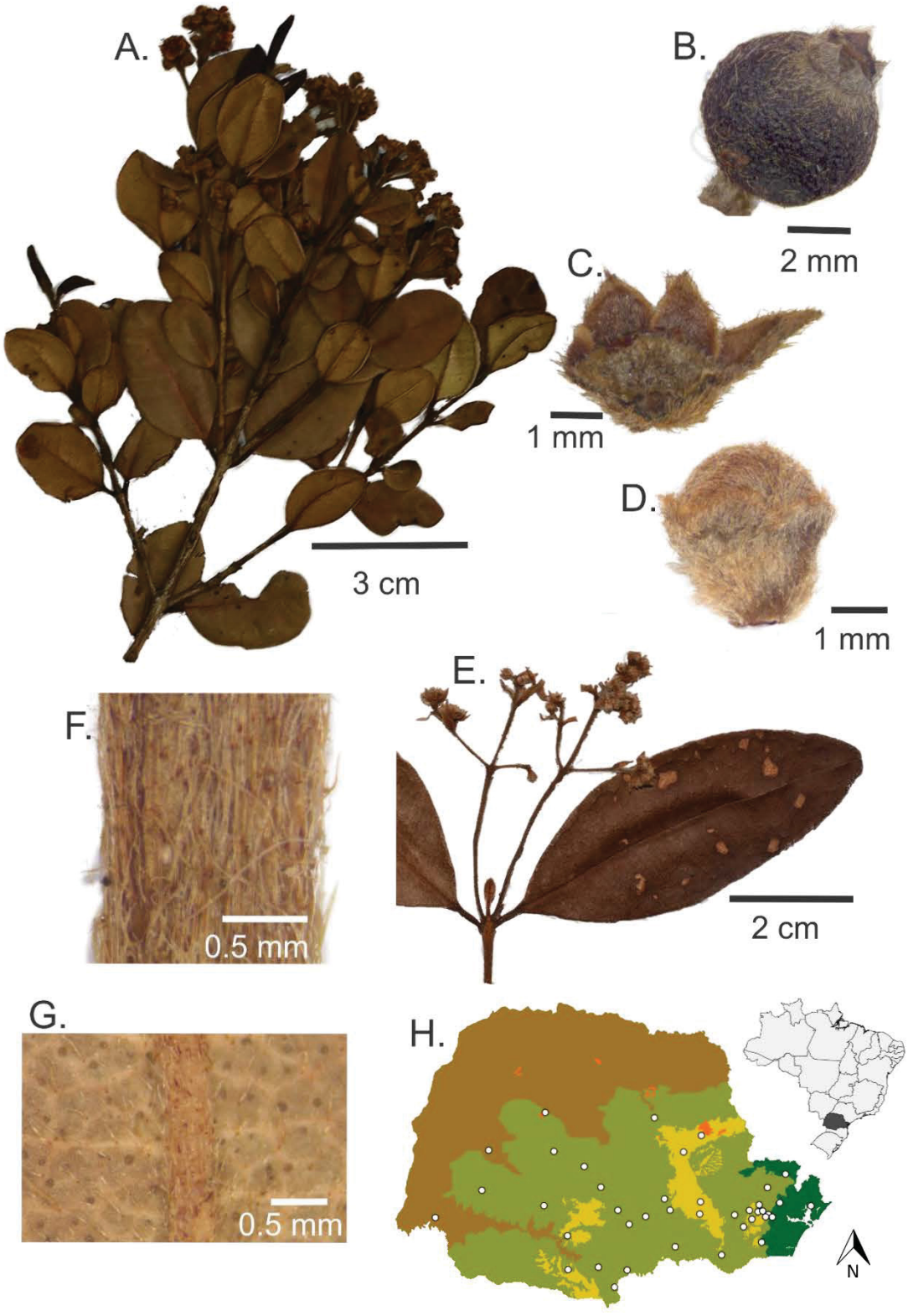

Figure 17. *Myrcia hartwegiana* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C: *Ribas 5778*; B: *Uhlmann 42* UPCB 24518; D, F, G: *Santos 437*; E: *Uhlmann s.n.* UPCB 33343).

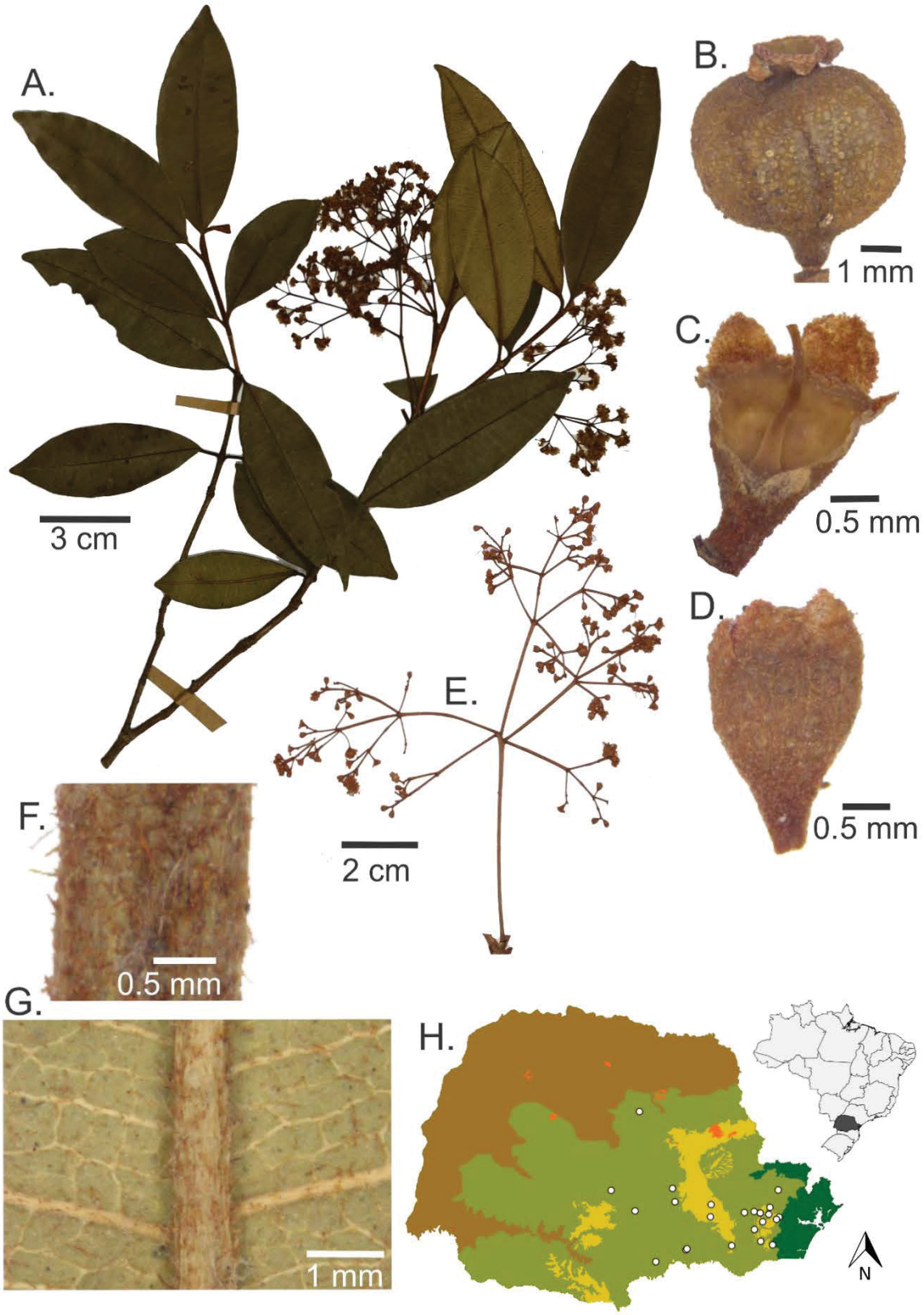

Figure 18. *Myrcia hatschbachii* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Ramos 23*; B: *Salimon 3*; C: *Hatschbach 9007*; D, F, G: *Dittrich 308*; E: *Kozera 85*).

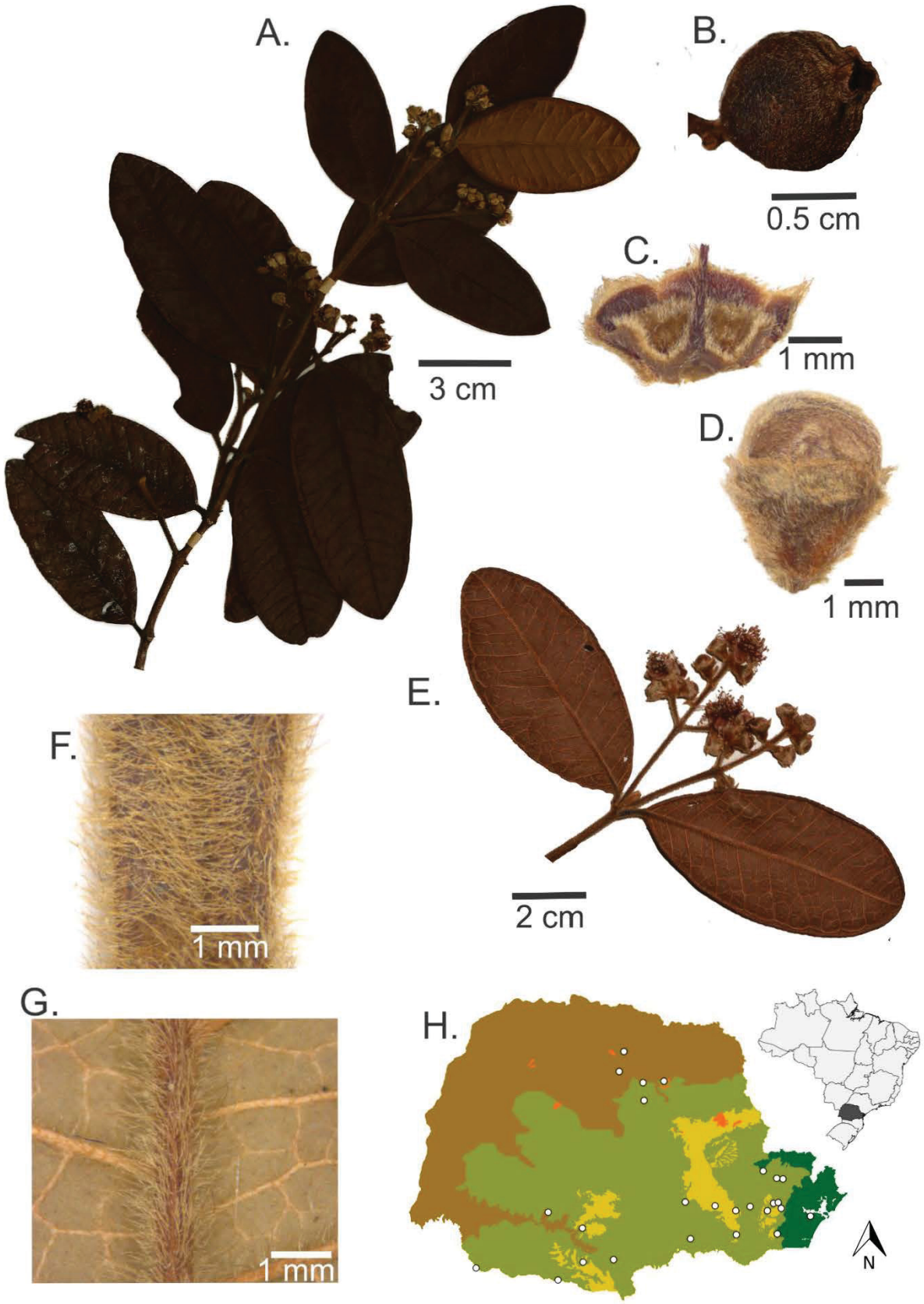

Figure 19. *Myrcia hebepetala* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, F, G: *Silva 81*; B: *Hatschbach 52134*; D: *Liebsch s.n.* UPCB 50558; E: *Salimon 2*).

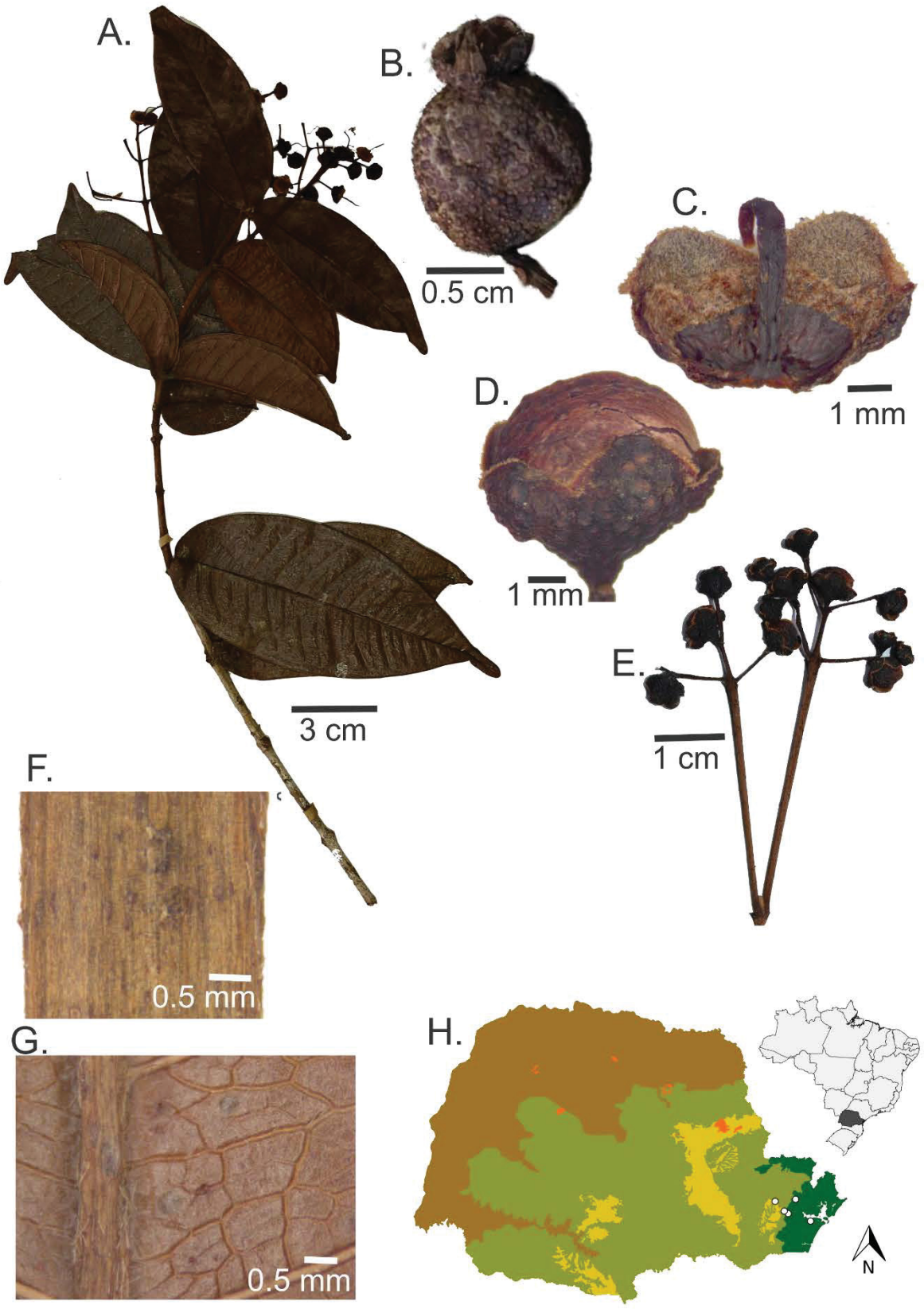

Figure 20. *Myrcia heringii* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, D, G: *Hatschbach 9818*; B: *Tonizato 33670*; C, E: *Hatschbach 9445*; F: *Hatschbach 20194*).

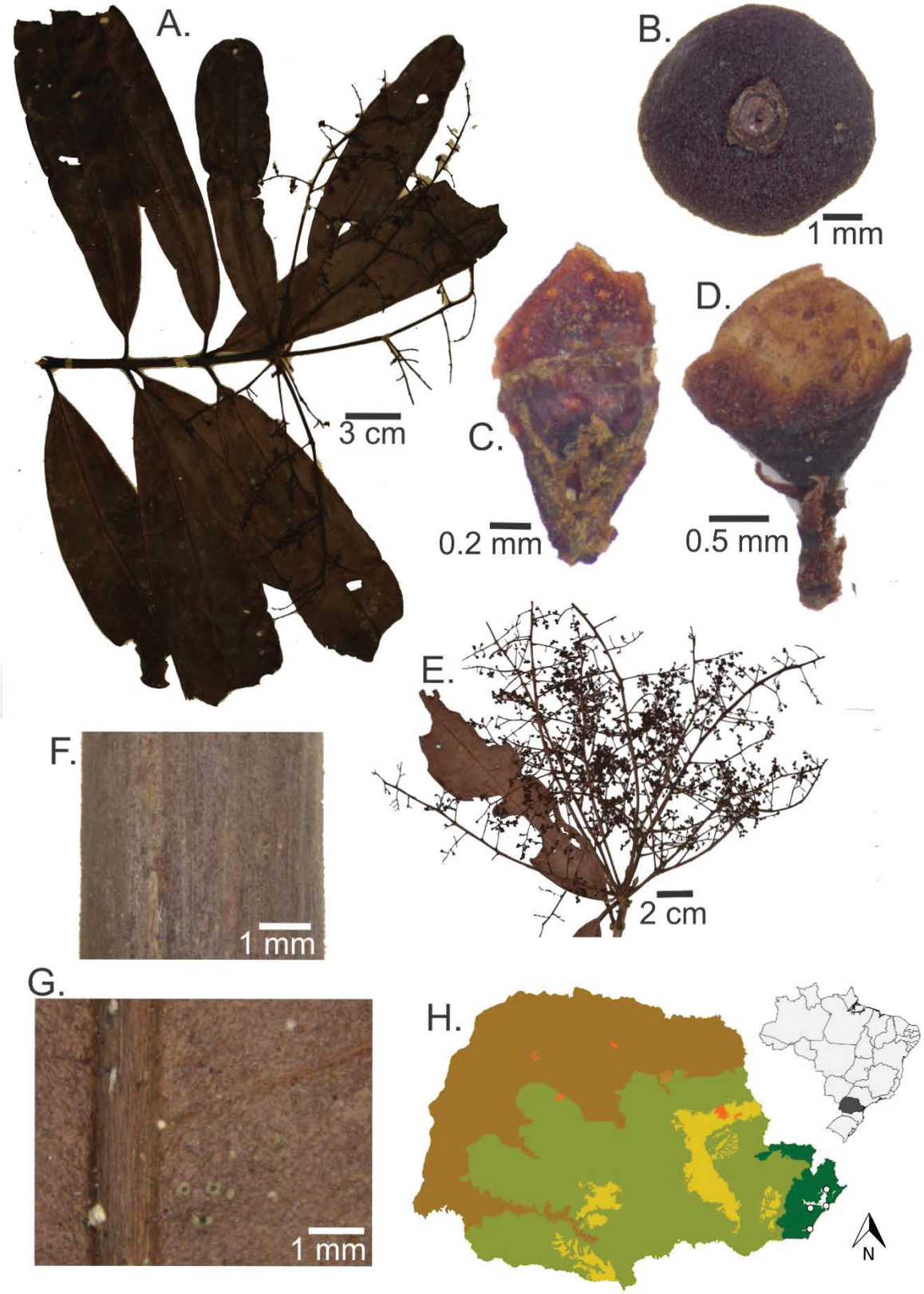

Figure 21. *Myrcia hexasticha* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Hatschbach 13139*; B: *Ziller 686*; C: *Hatschbach 45773*; D, F, G: *Hatschbach 50835*; E: *Silva s.n.* UPCB 27584).

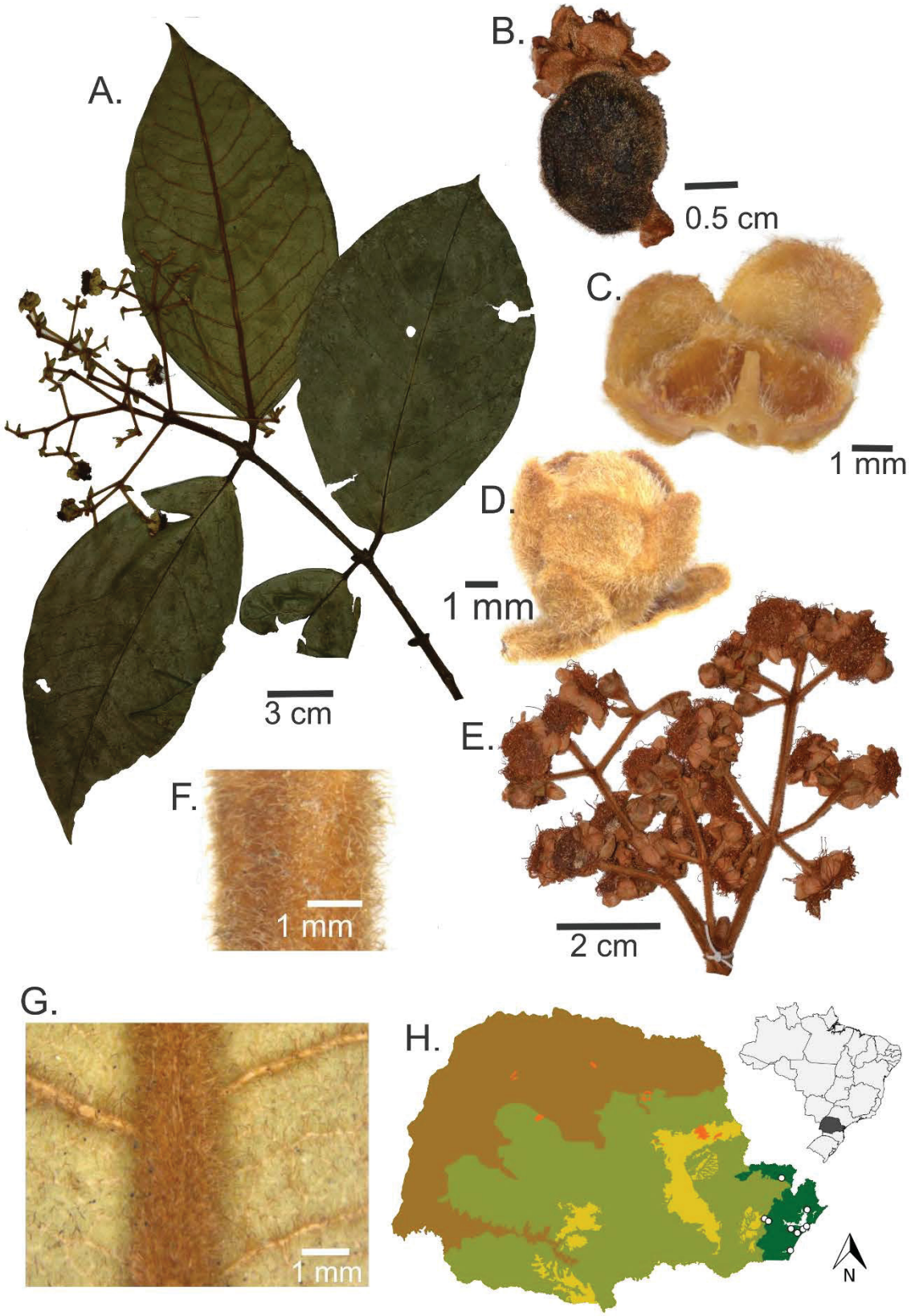

Figure 22. *Myrcia isaiana* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Völtz 1034*; B: *Hatschbach 59723*; C, D, F, G: *Brotto 1339*; E: *Silva 5023*).

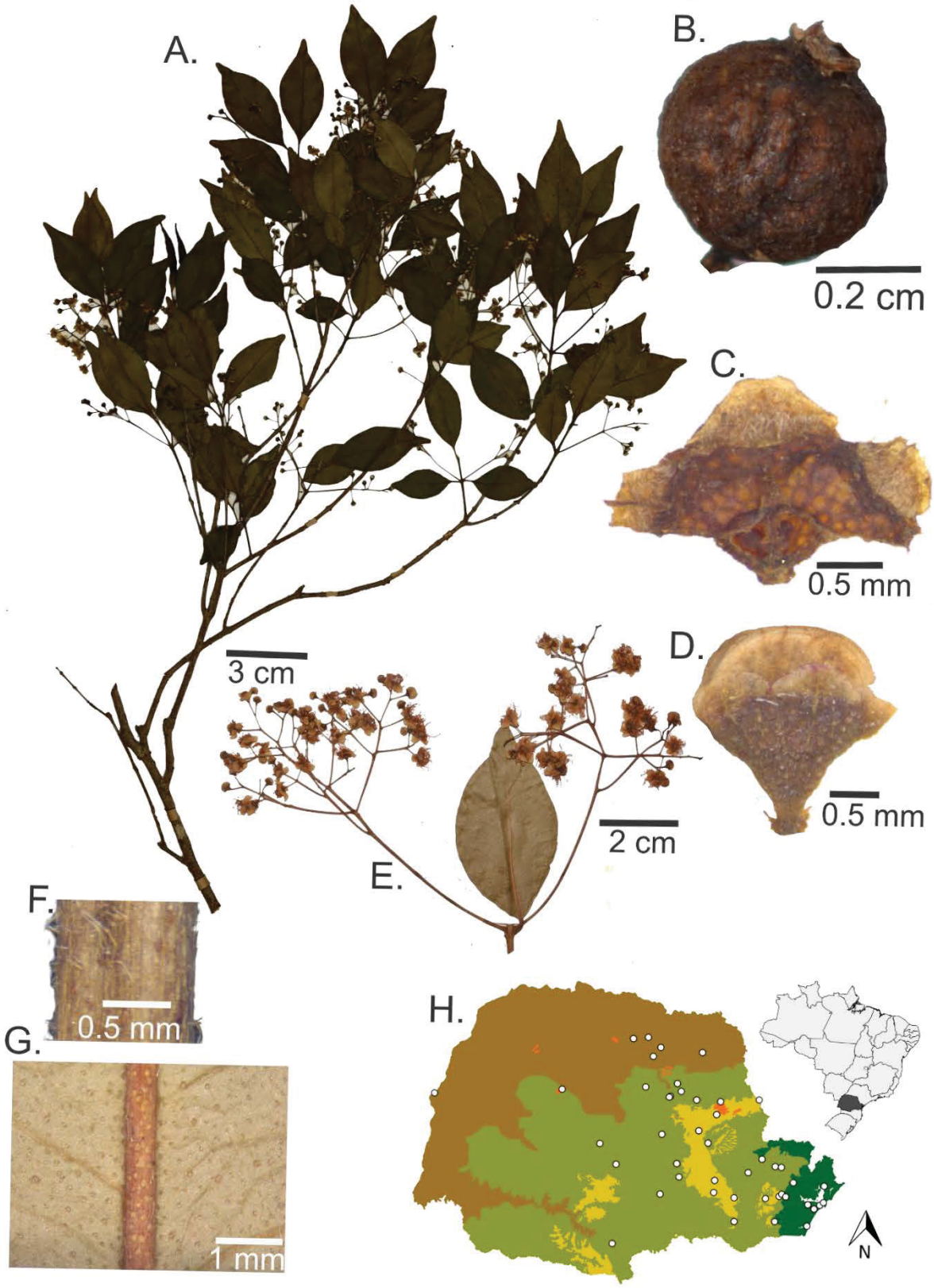

Figure 23. *Myrcia multiflora* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Cervi 8549*; B: *Carrião s.n.* UPCB 28305; C: *Hatschbach 10505*; D, E, F, G: *Braga 511*).

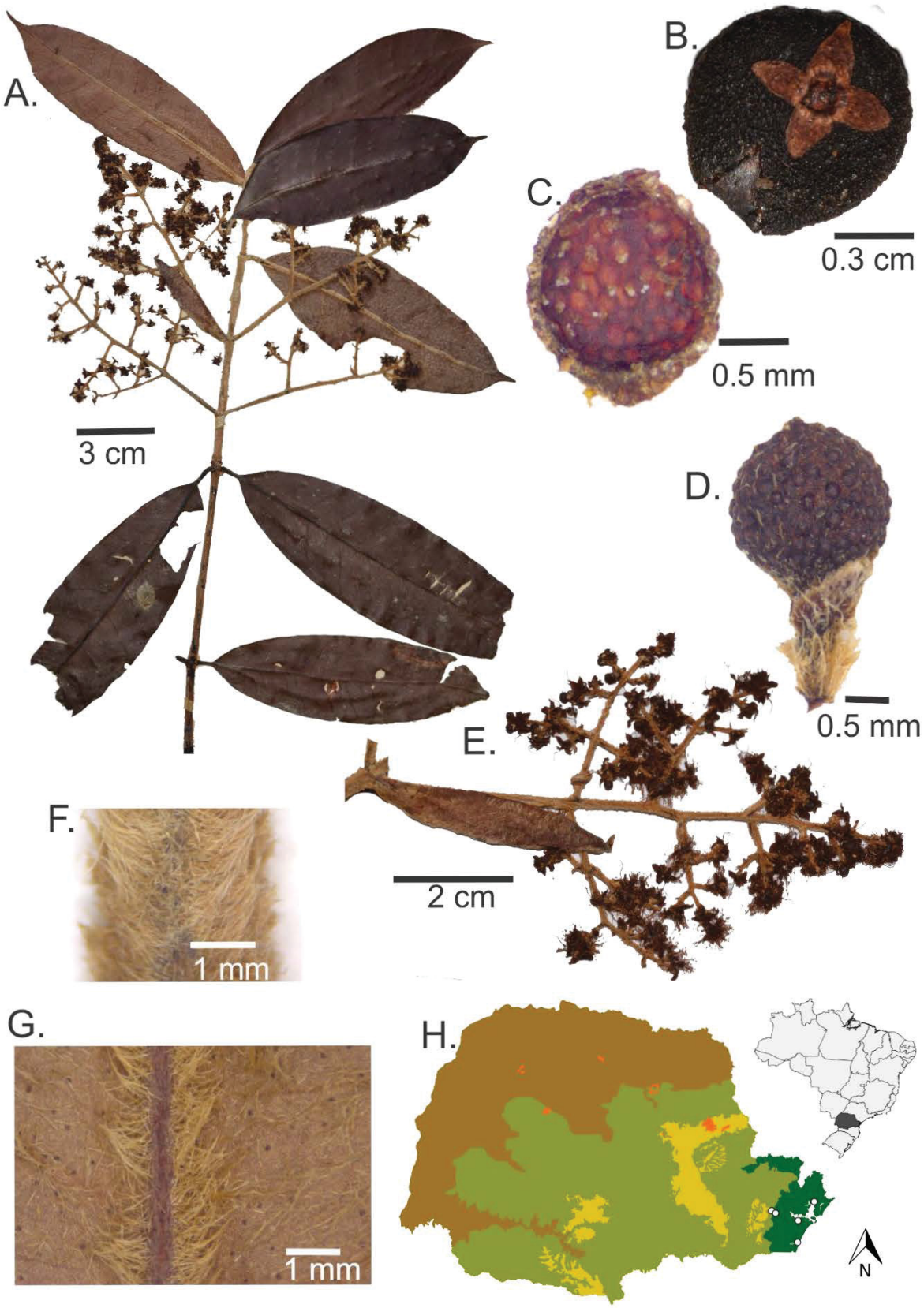

Figure 24. *Myrcia neoriedeliana* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, E: *Hatschbach 18701*; B: *Hatschbach 14455*; F, G: *Hatschbach 18491*).

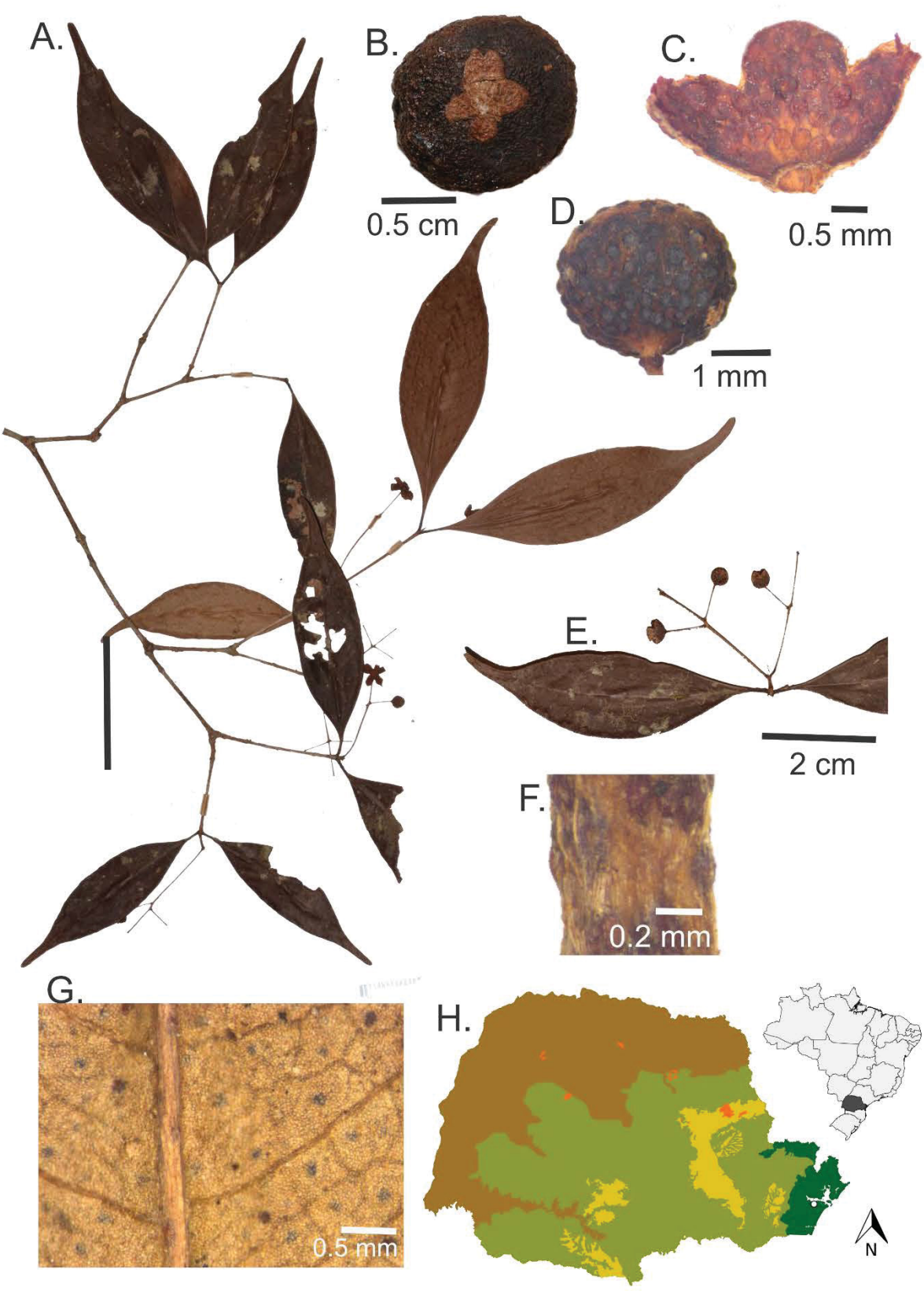

Figure 25. *Myrcia neosuaveolens* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, E, F, G: *Sampaio 156*; B: *Ivanauskas 222*; D: *Hatschbach 9539*).

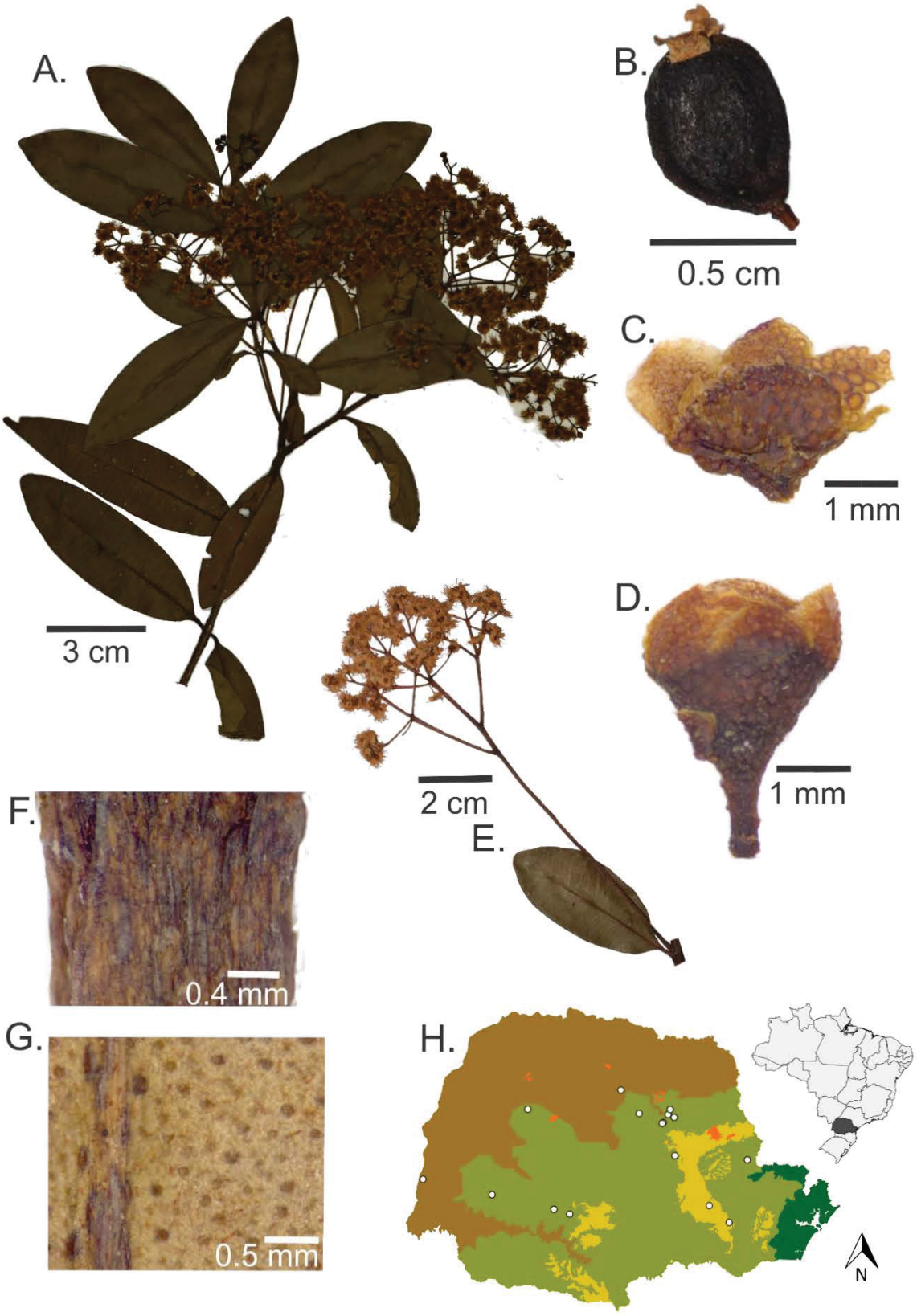

Figure 26. *Myrcia oblongata* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, F, G: *Hatschbach 61476*; B: *Cavalheiro s.n.* UPCB 23858; E: *Michelon 1327*).

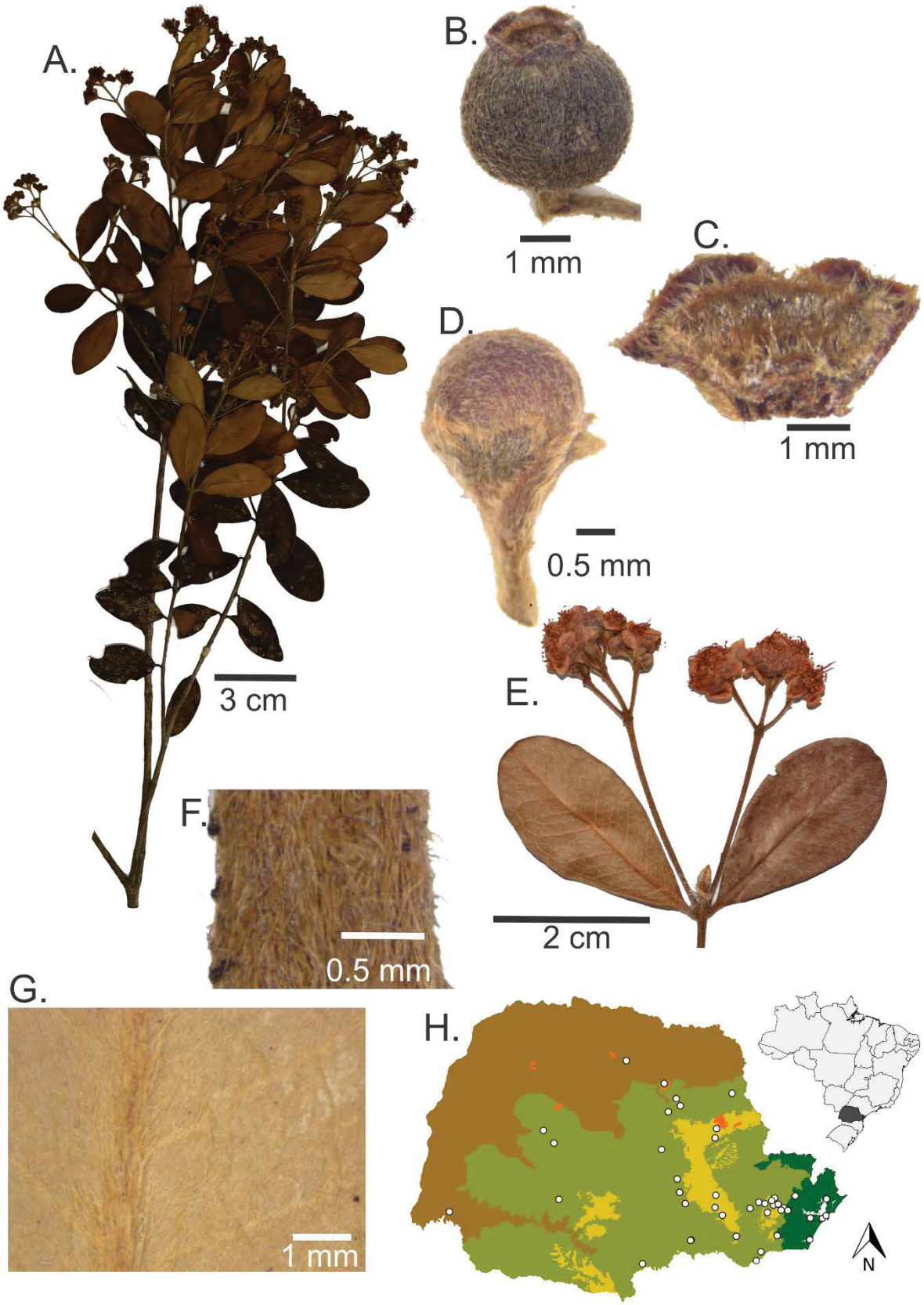

Figure 27. *Myrcia palustris* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Ribas 1046*; B, F: *Jaster s.n.* UPCB 22919; C: *Dunaiski s.n.* UPCB 30007; D, G: *Borgo 366*; E: *Hatschbach 10801*).

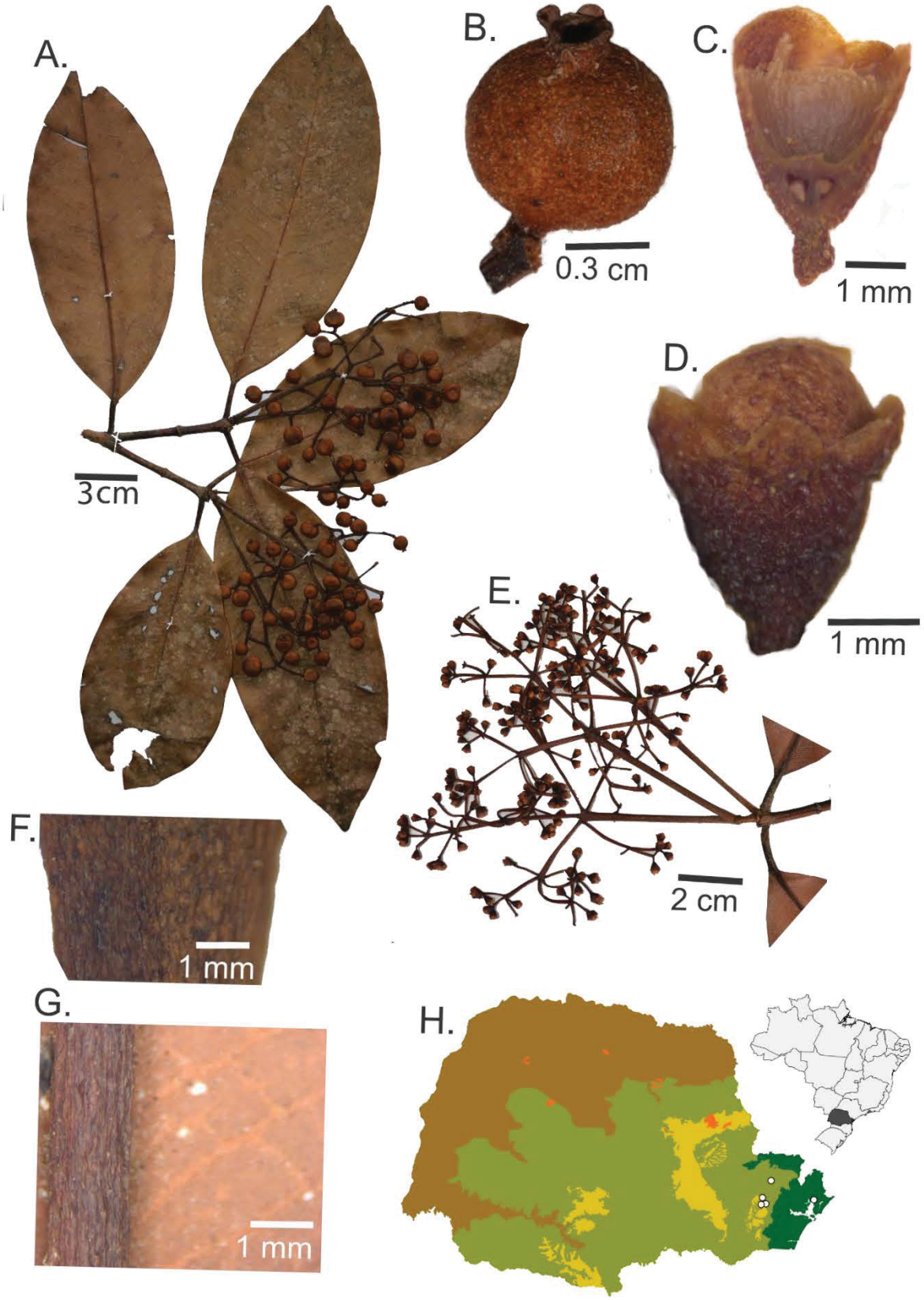

Figure 28. *Myrcia plusiantha* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B: *Silva 4334*; C, D, E, F, G: *Kuniyoshi 4844*).

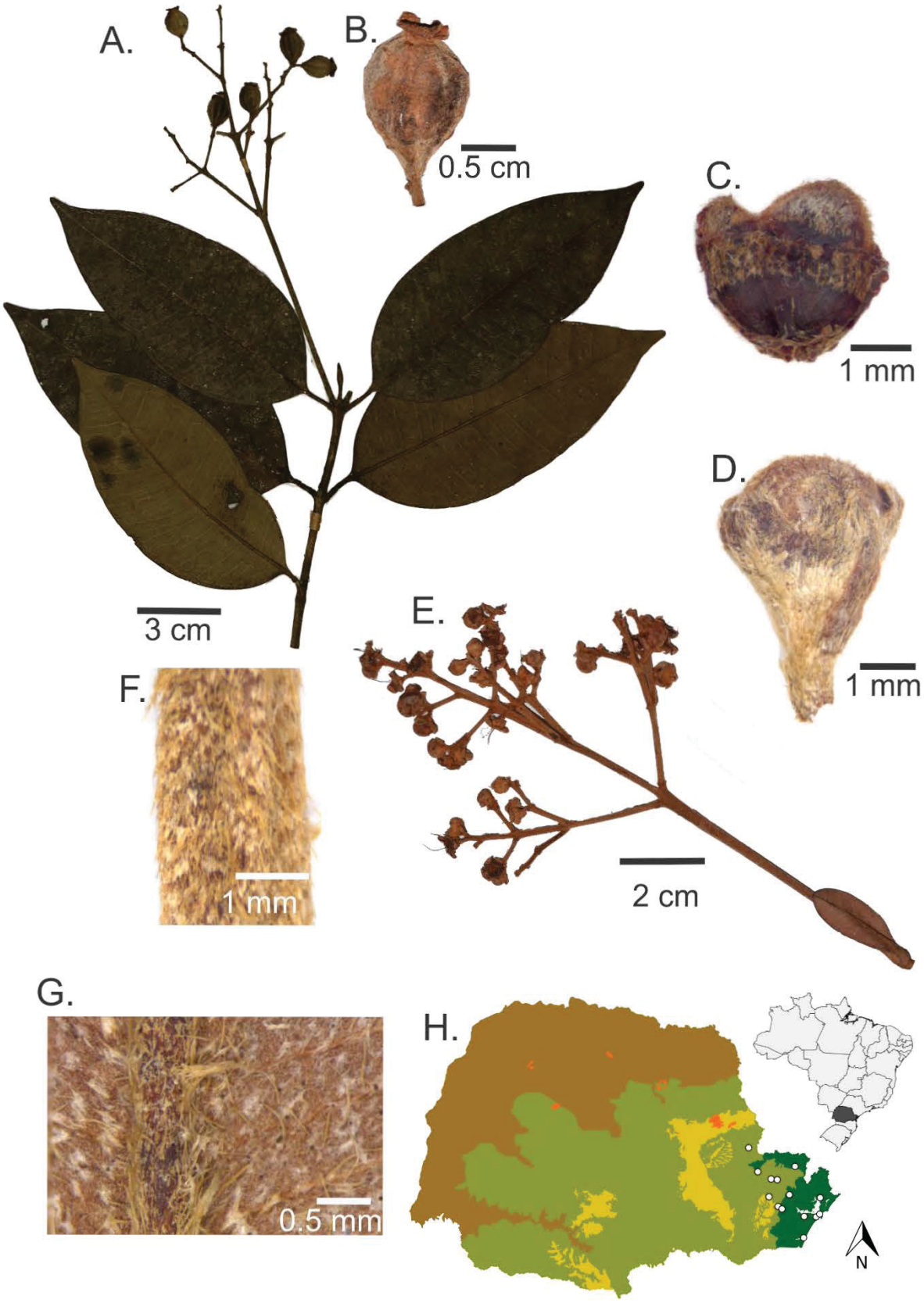

Figure 29. *Myrcia pubipetala* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Graff 37*; B: *Cordeiro 1327*; C, D, E, F, G: *Hatschbach 24039*).

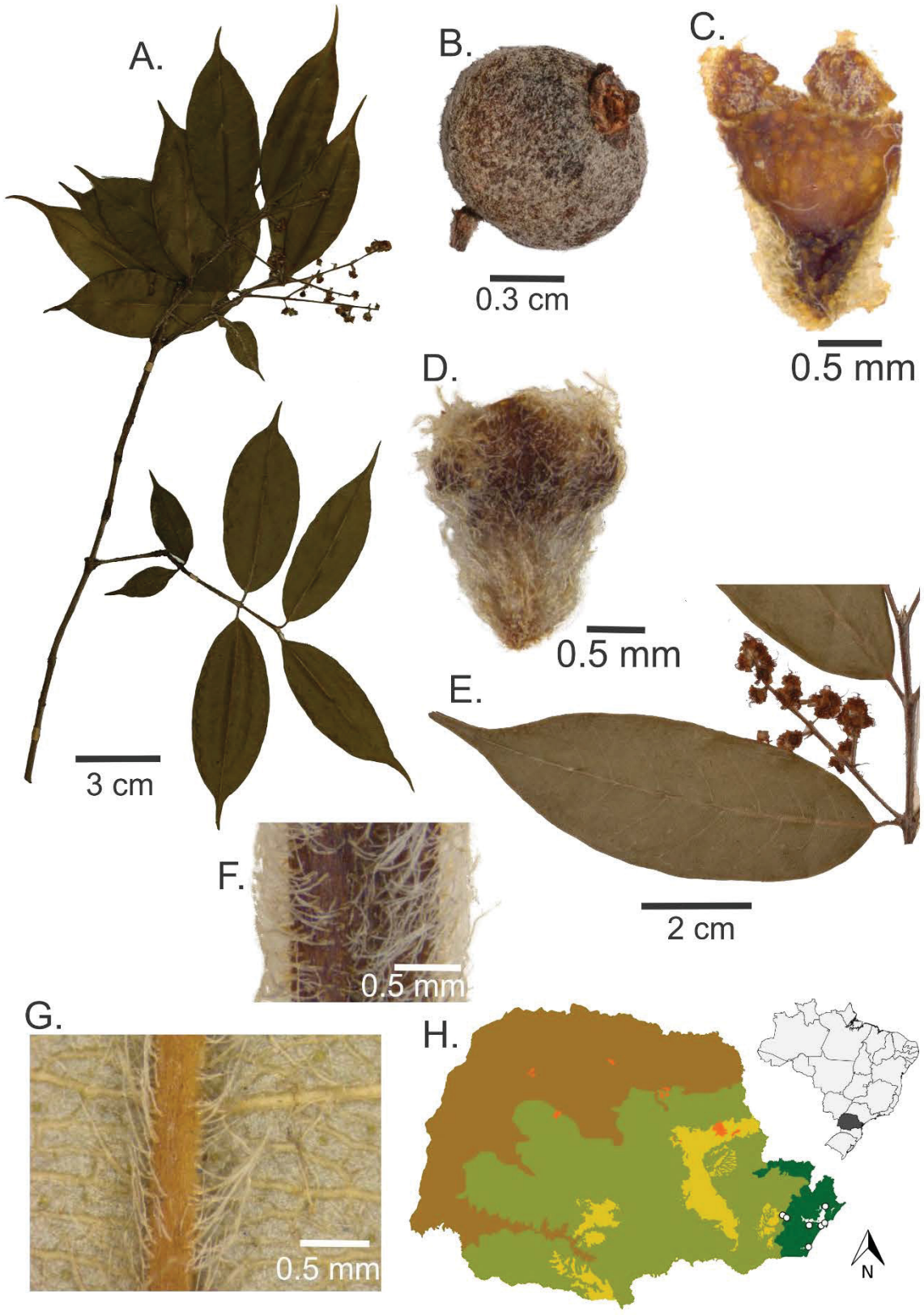

Figure 30. *Myrcia racemosa* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, D: *Dunaiski s.n.* UPCB 30663; B: *Kozera 1417*; C, E, F, G: *Hatschbach 26262*).

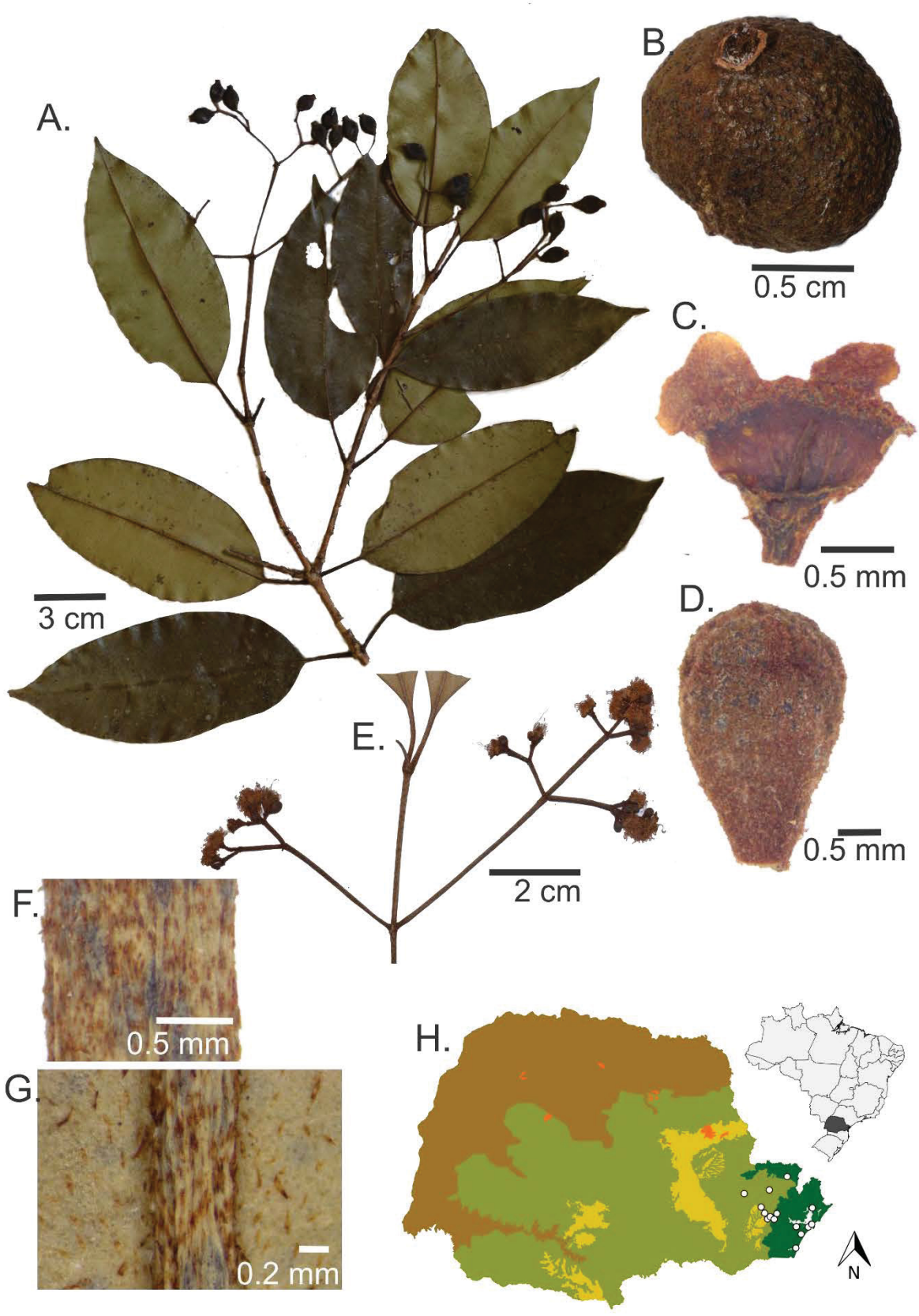

Figure 31. *Myrcia reitzii* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Reginato 201*; B, E, F, G: *Britez s.n.* UPCB 15084; C: *Hatschbach 9855*; D: *Lacerda 190*).

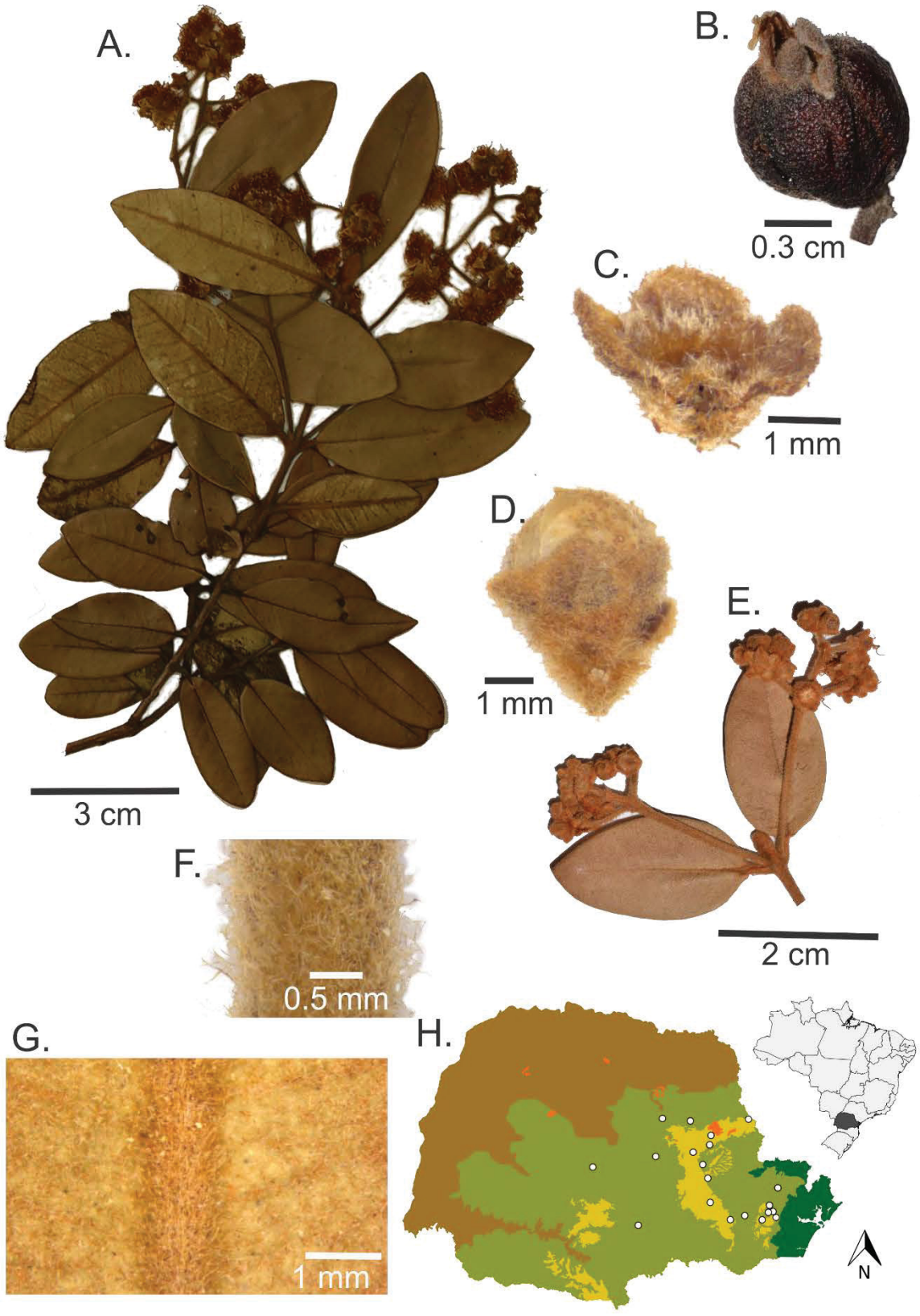

Figure 32. *Myrcia retorta* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, D: *Hatschbach 53575*; B: *Cervi 3608*; C: *Hatschbach 17378*; E: *Cervi 5975*; F, G: *Lima 87*).

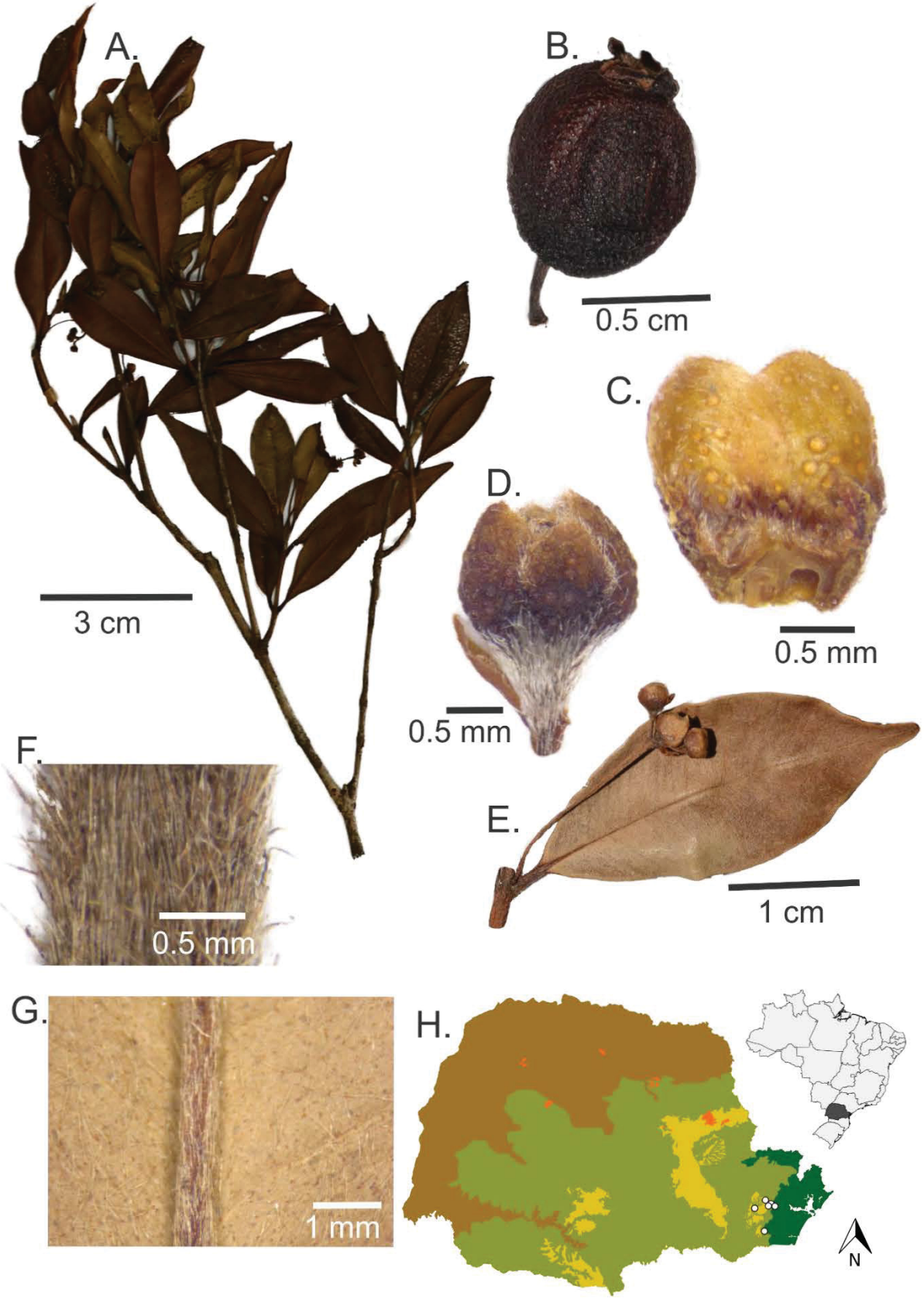

Figure 33. *Myrcia rupicola* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Santos 355*; B: *Ribas 2220*; C, D, F, G: *Dala Rosa 148*; E: *Dala Rosa 45*).

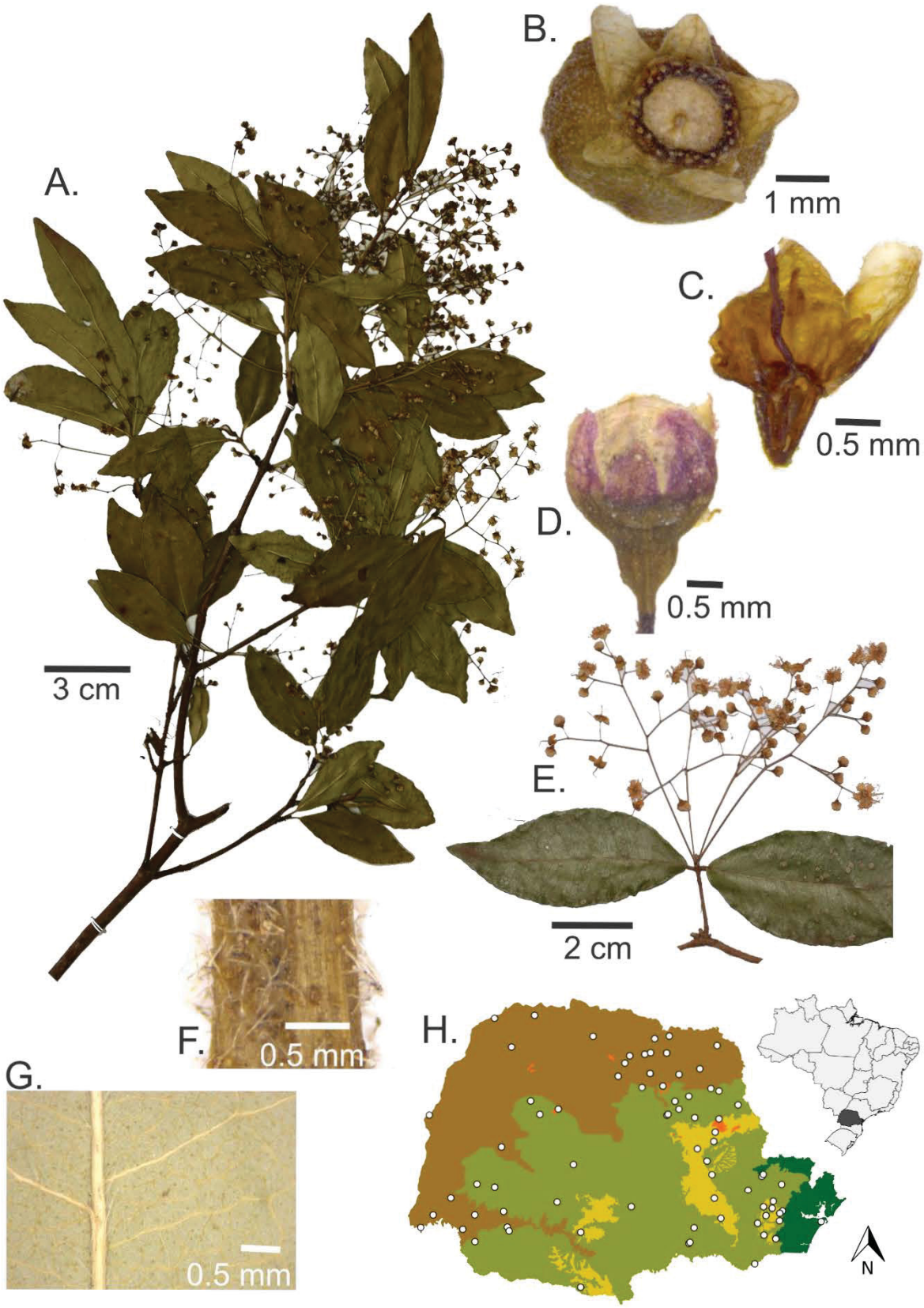

Figure 34. *Myrcia selloi* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Cordeiro 19*; B: *Pavão s.n.* UPCB 43449; C: *Borgo 117*; D: *Lima 295*; E: *Lima 296*; F, G: *Cervi 5961*).

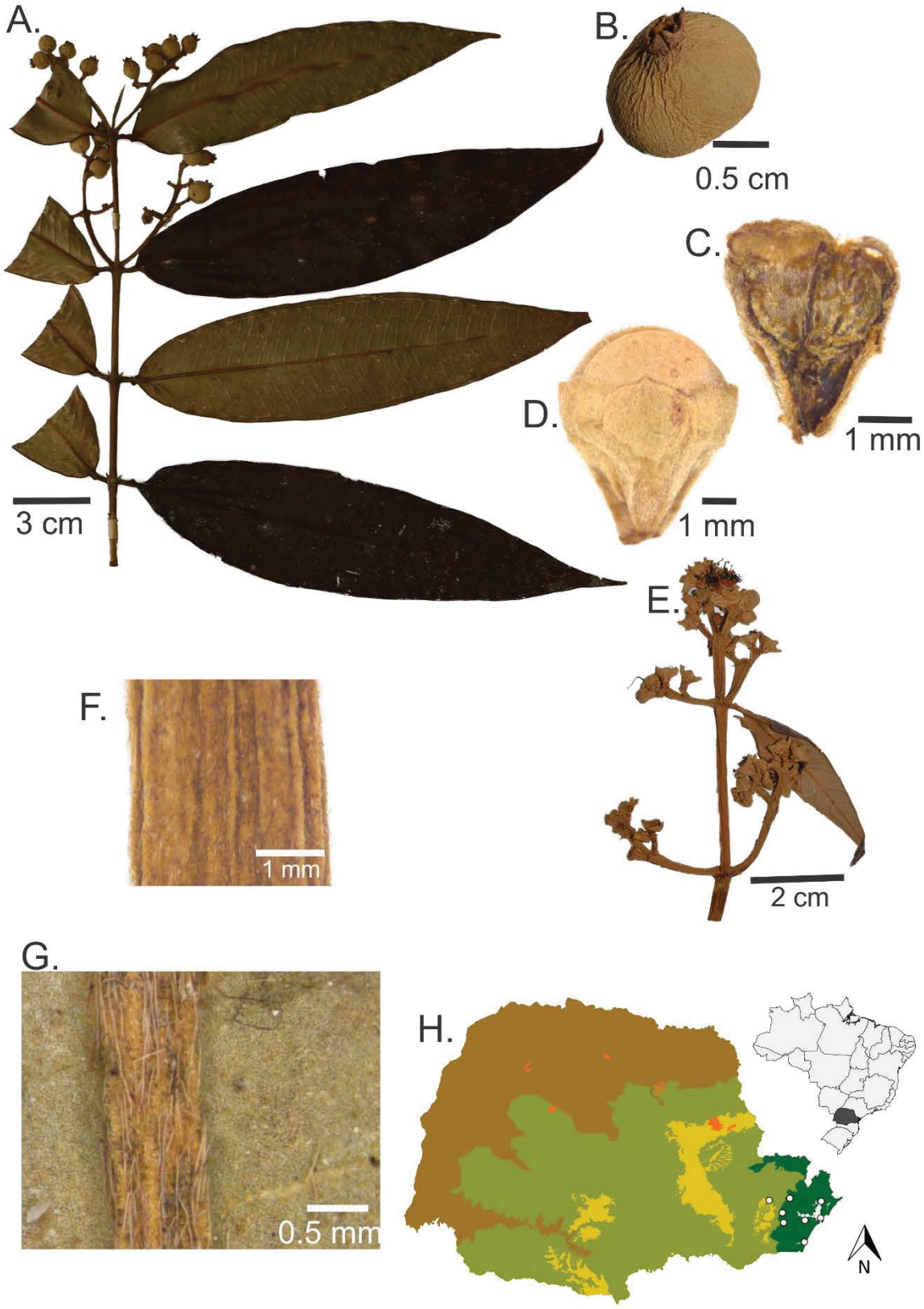

Figure 35. *Myrcia spectabilis* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B: *Gatti 199*; C: *Hatschbach 9852*; D, F, G: *Ribas 257*; E: *Hatschbach 9870*).

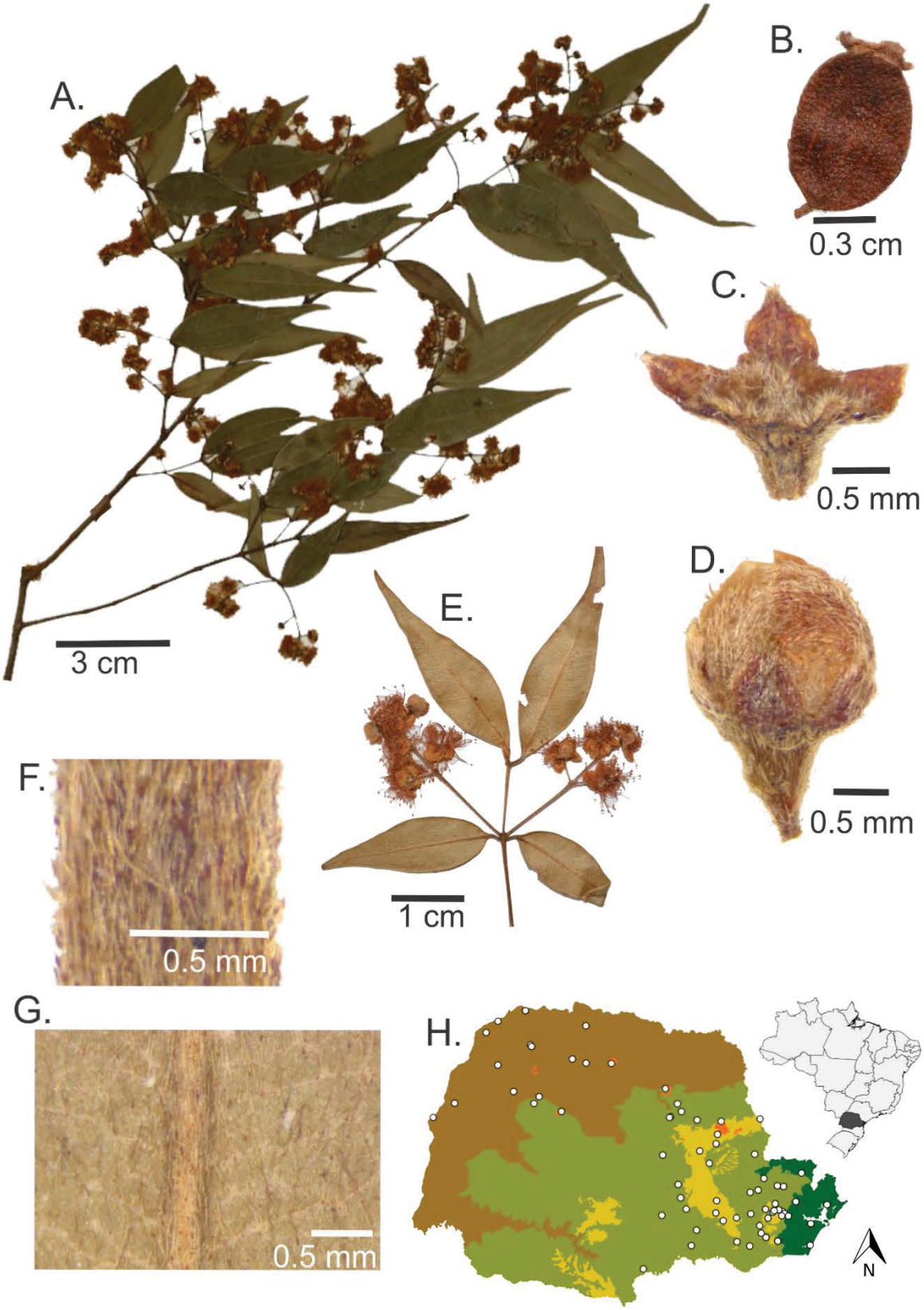

Figure 36. *Myrcia splendens* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Hatschbach 58461*; B: *Kummrow 3216*; C, D, F, G: *Braga 10*; E: *Hatschbach 17981*).

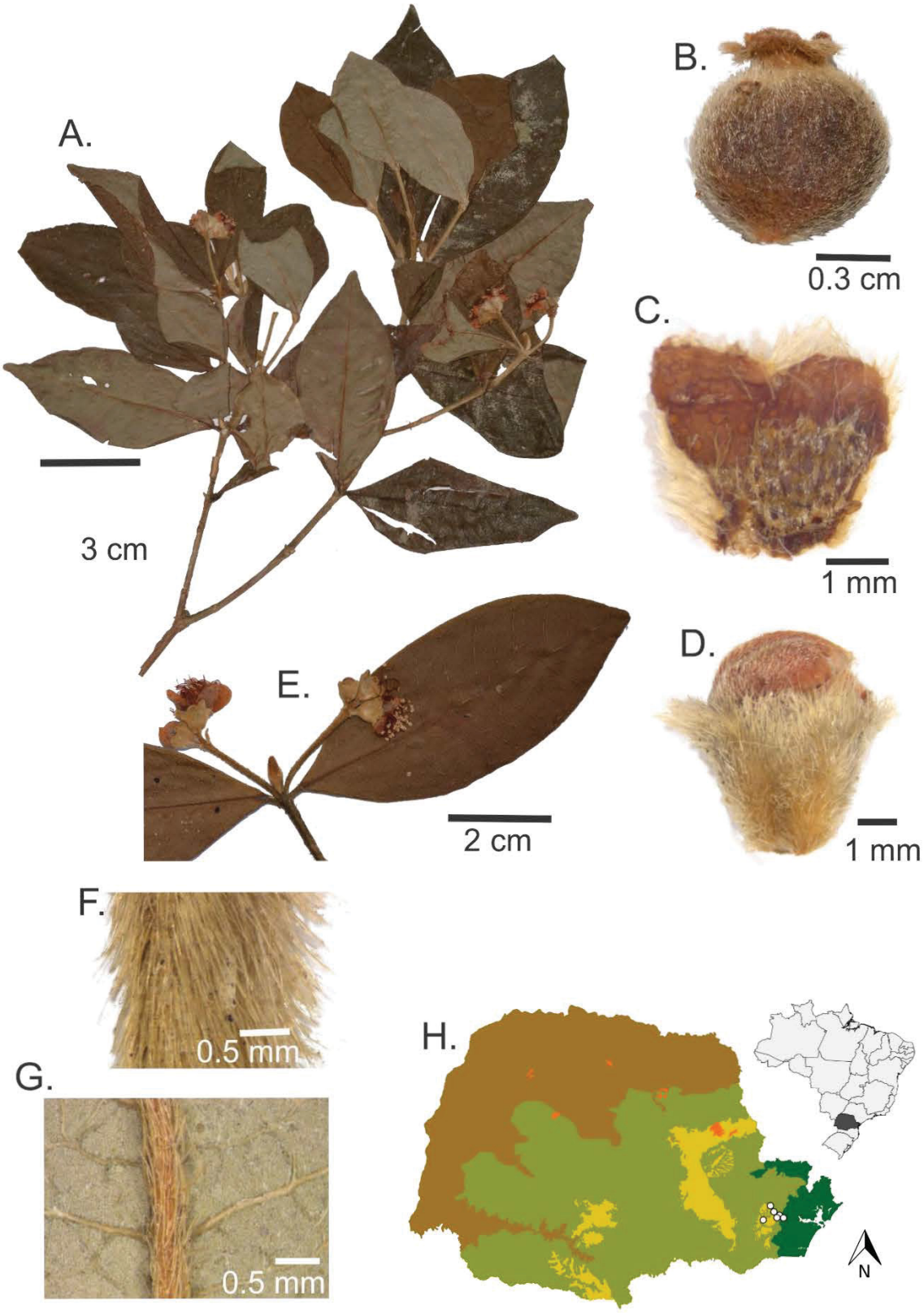

Figure 37. *Myrcia squamata* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, F: *Reginato 203*; B, G: *Reginato 697*; E: *Silva 4711*).

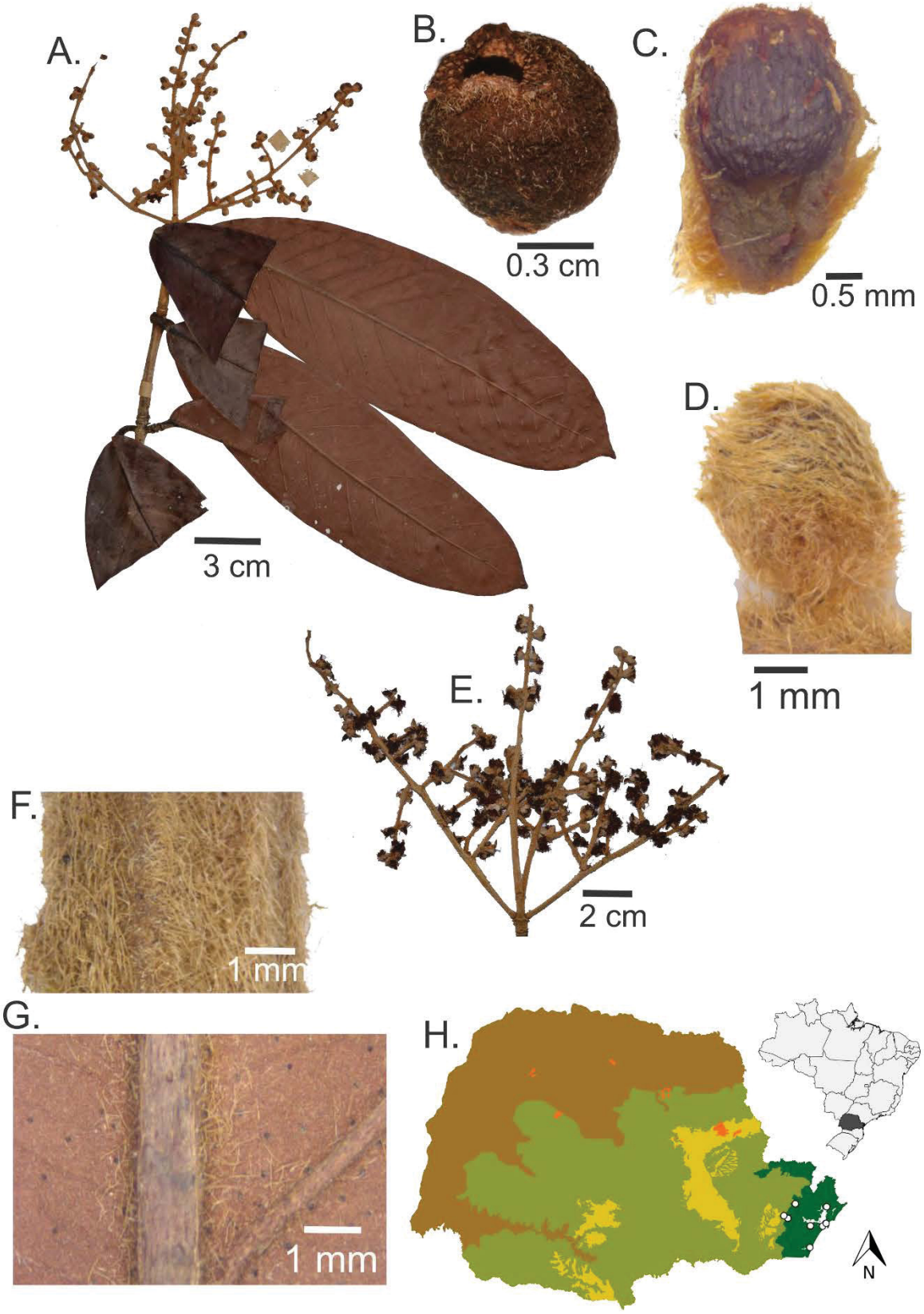

Figure 38. *Myrcia strigipes* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, G: *Kozera 1480*; B: *Athayde 115*; E: *Silva 1226*; F: *Silva 727*).

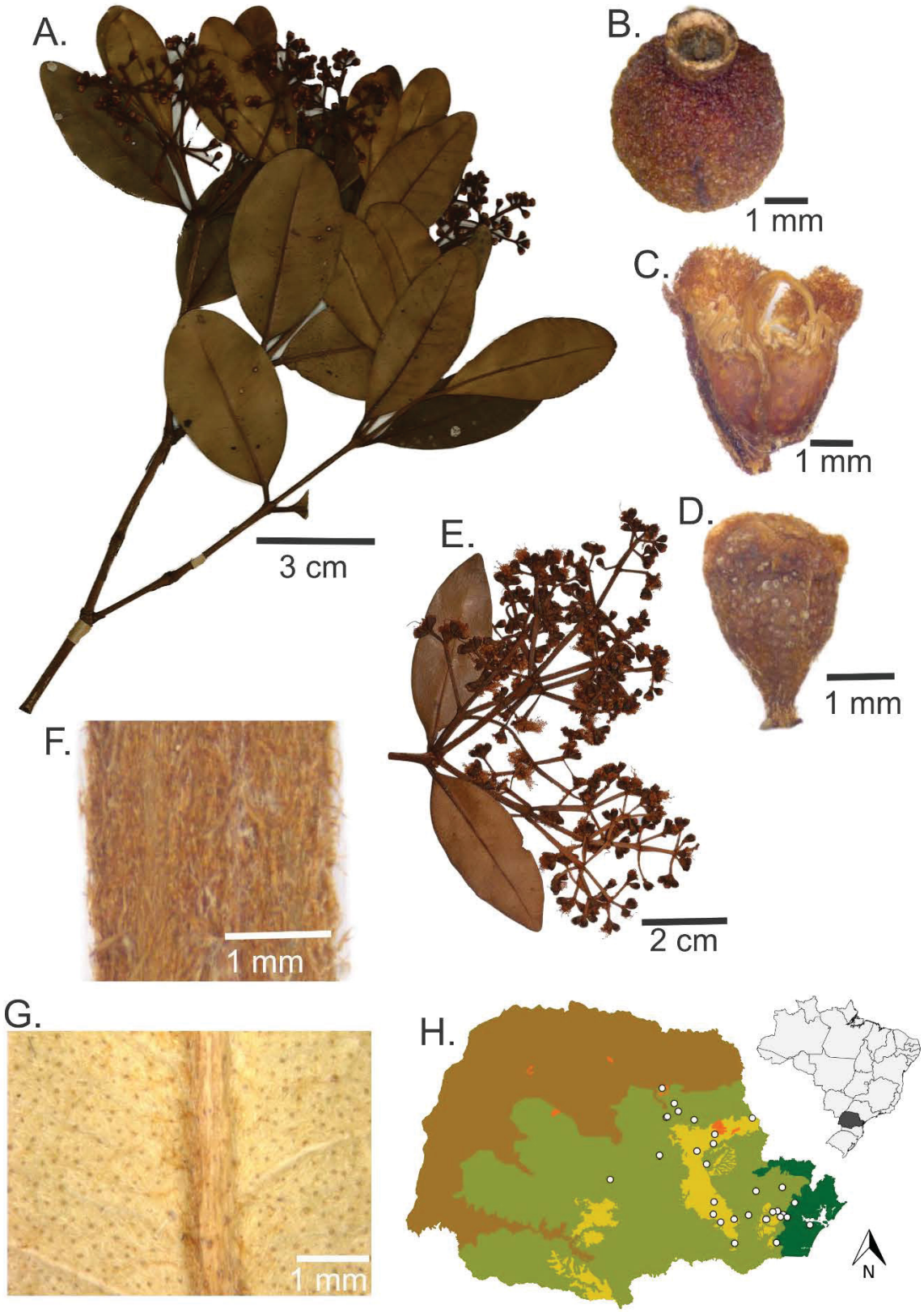

Figure 39. *Myrcia subcordata* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Silva s.n.* UPCB 33329; B: *Scheer 64*; C: *Hatschbach 12095*; D: *Souza s.n.* UPCB 43202; E: *Cervi 6059*; *Cervi 3264*; *Cervi 4016*).

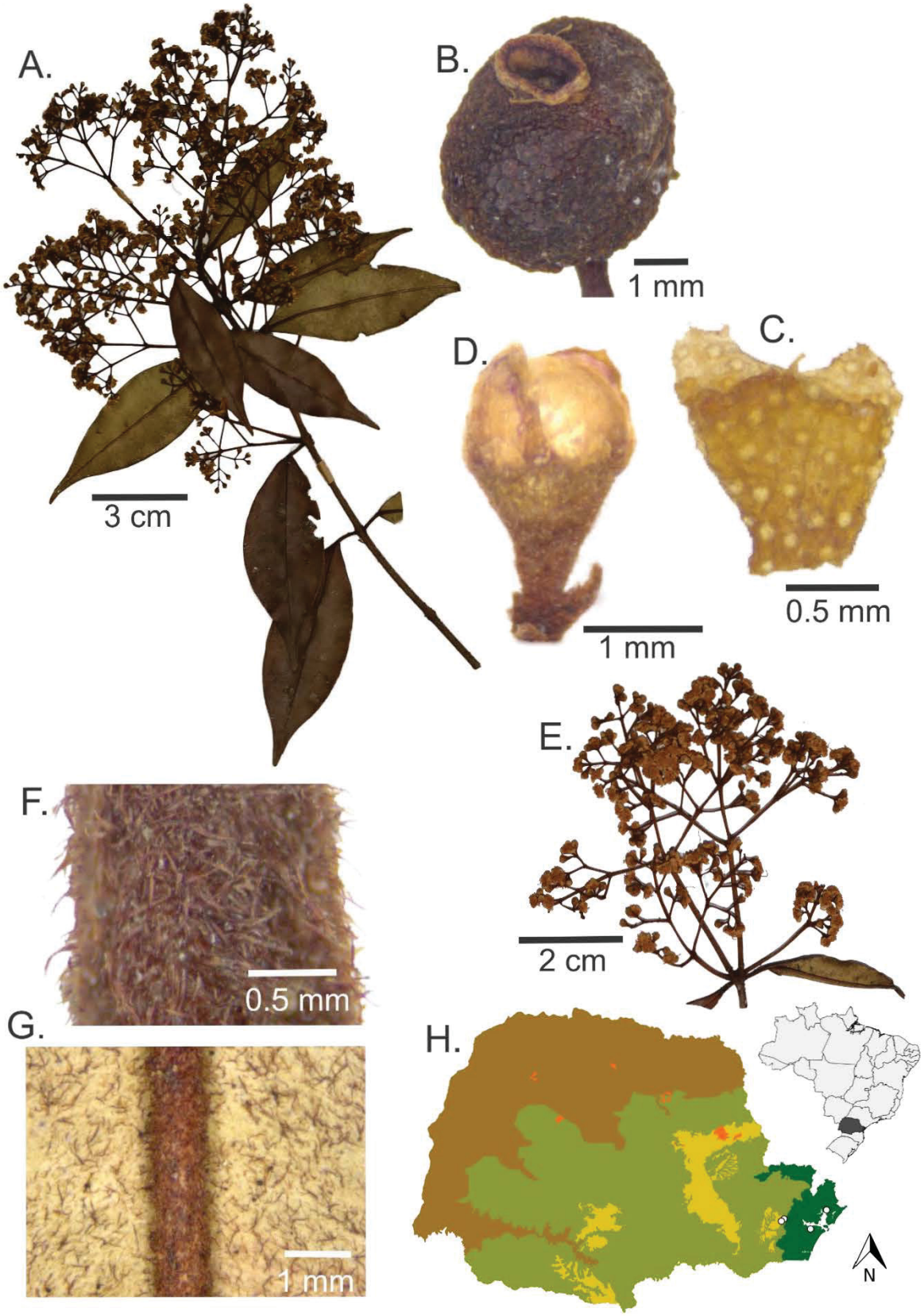

Figure 40. *Myrcia tenuivenosa* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, E, G: *Reginato 608*; B: *Ziller 658*; F: *Gatti 291*).

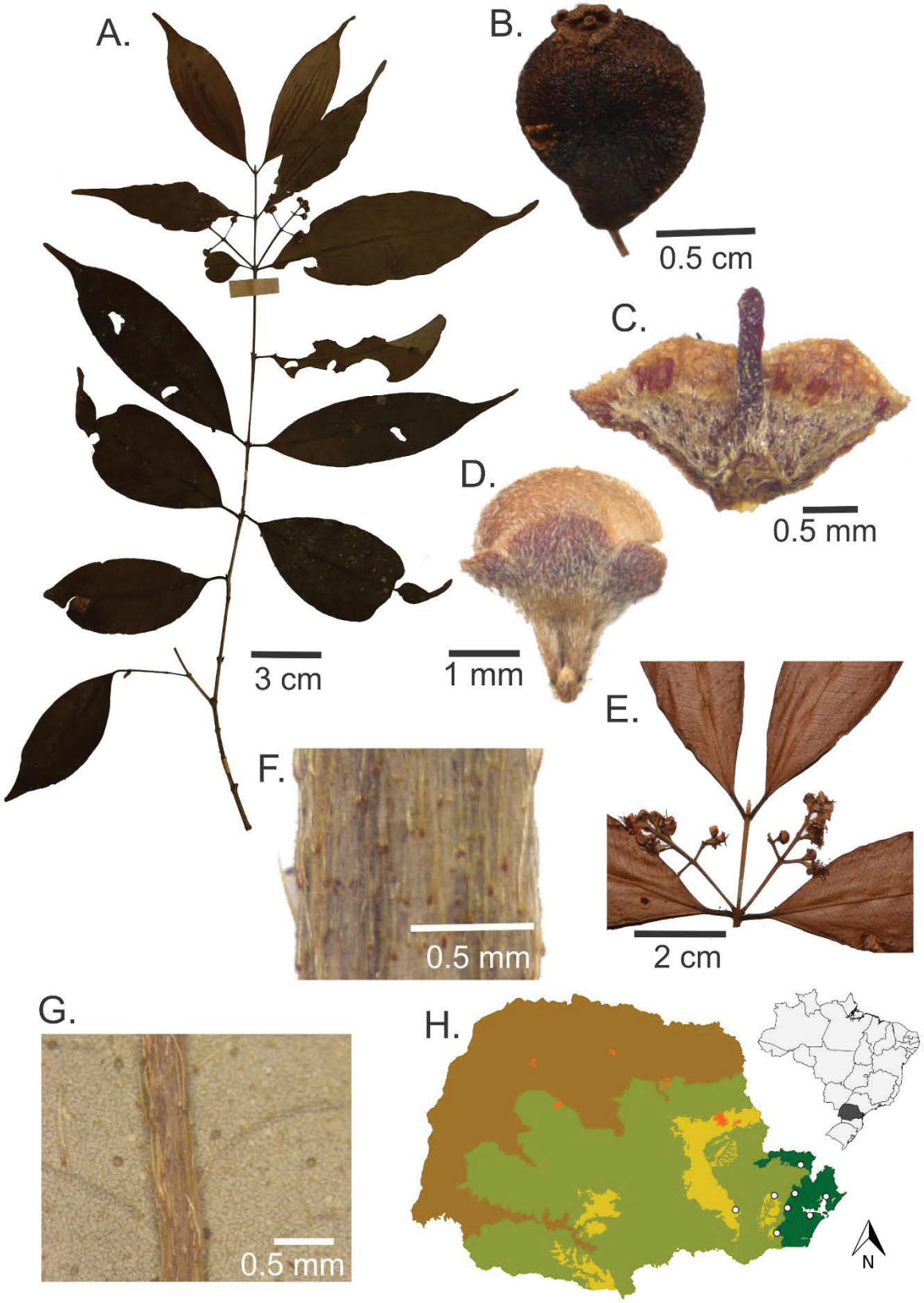

Figure 41. *Myrcia tijucensis* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, C, D, F, G: *Isernhagen 371*; B: *Hatschbach 40186*; E: *Hatschbach 13573*).

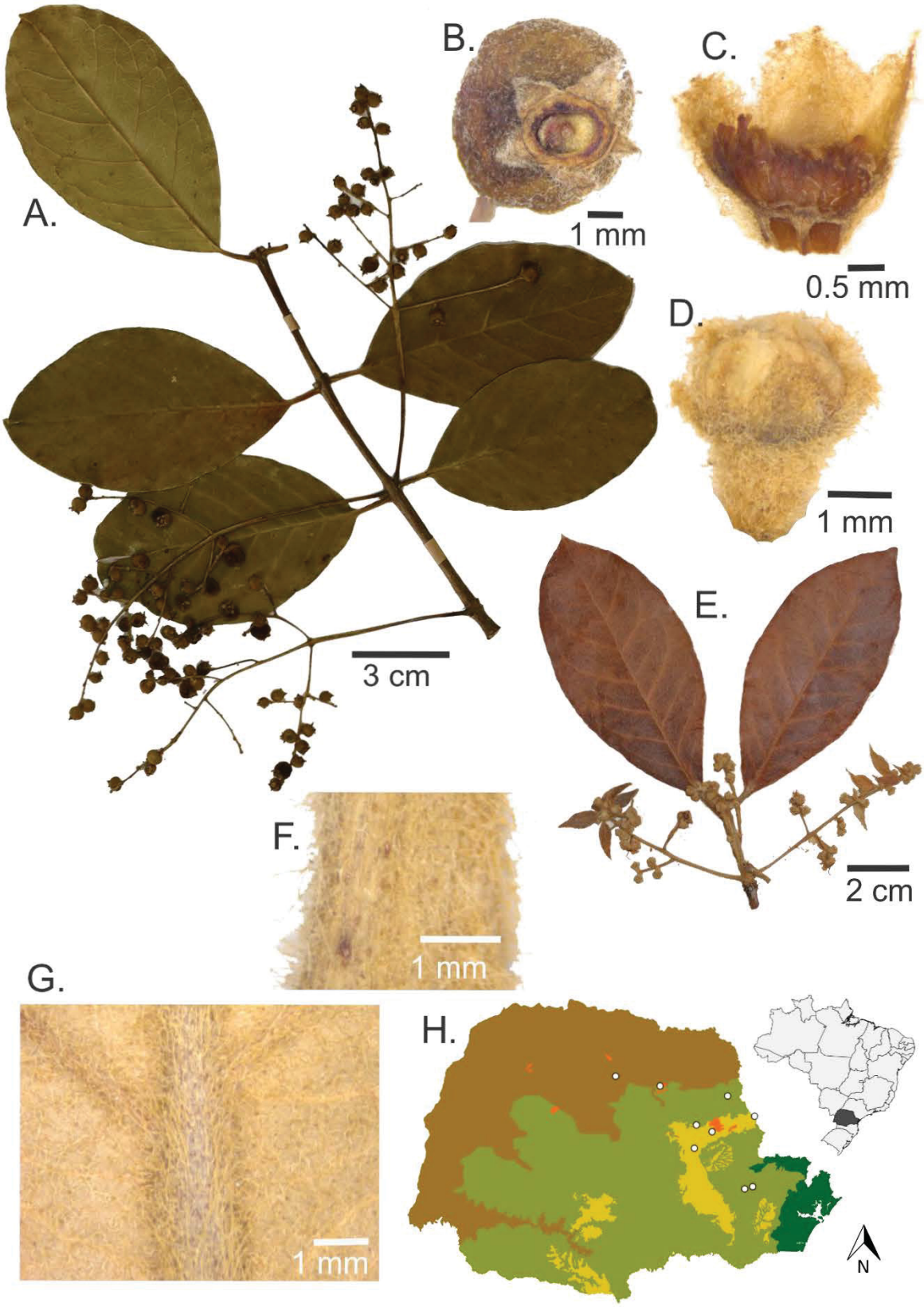

Figure 42. *Myrcia tomentosa* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B: *Lima 338*; C, D, E, F, G: *Hatschbach 19191*).

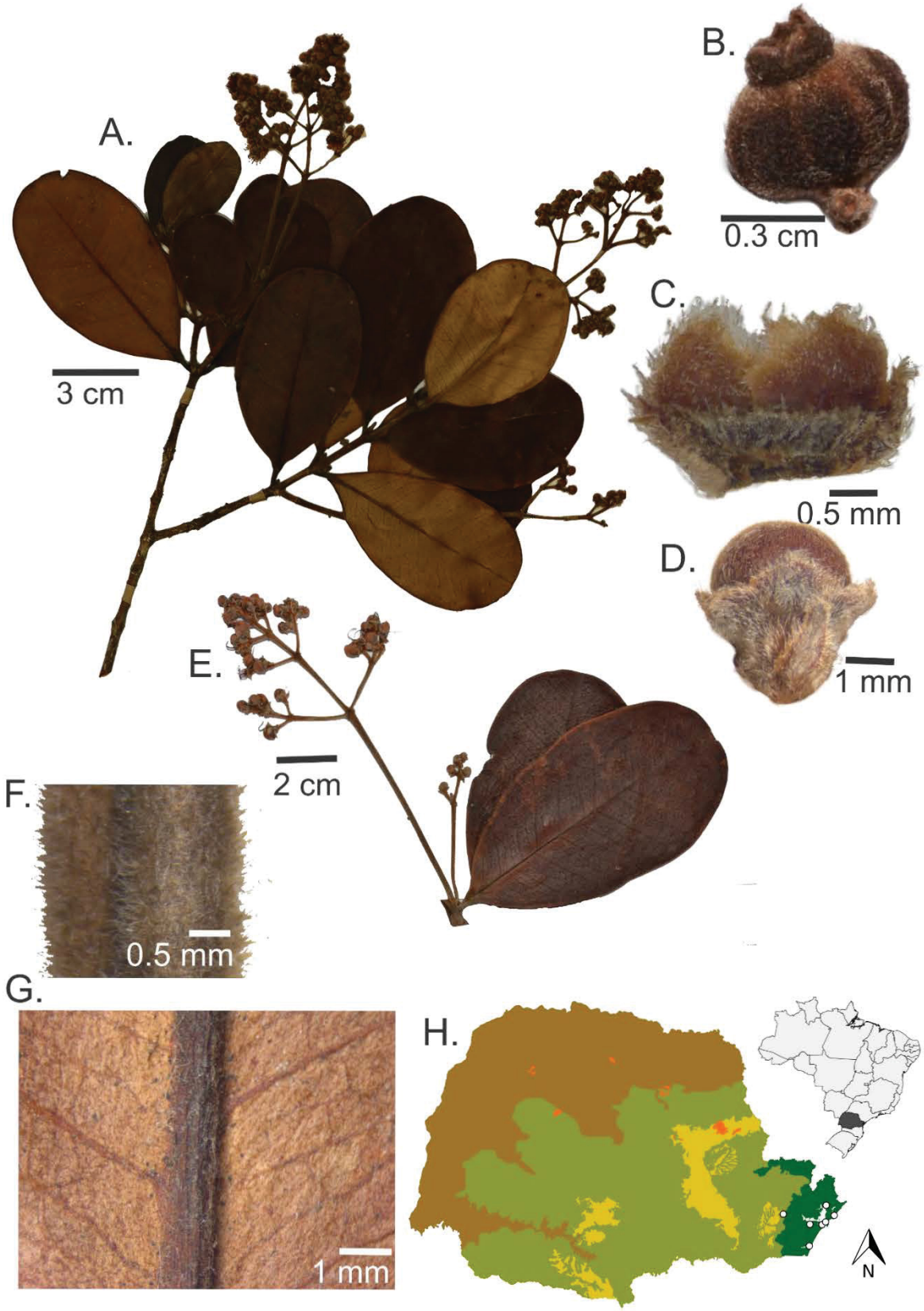

Figure 43. *Myrcia trichantha* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Souza 1221*; B: *Mellinger s.n.* UPCB 47902; C: *Labiak 3153*; D, E, F, G: *Prado 403*).

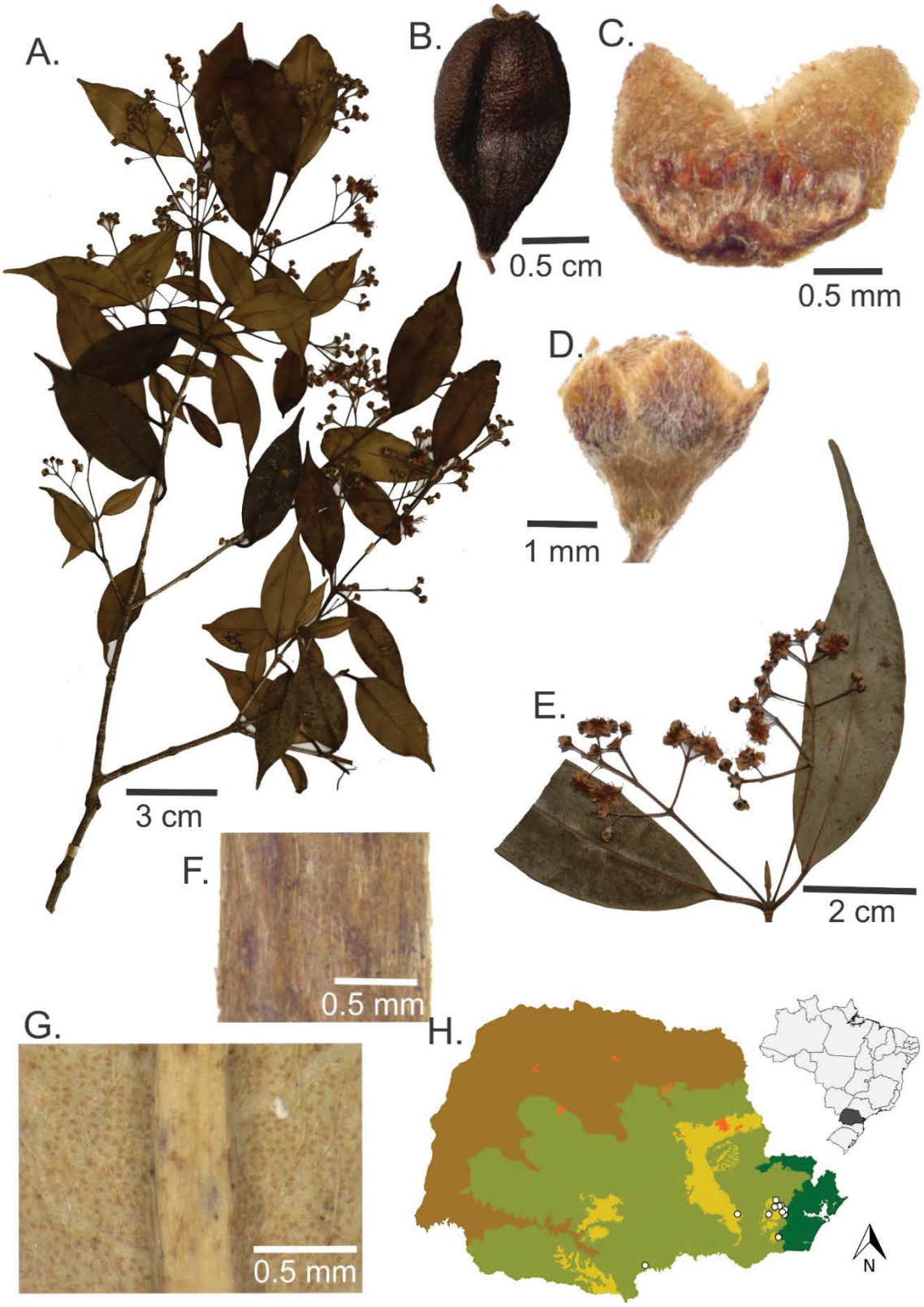

Figure 44. *Myrcia undulata* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Santos 709*; B: *Silva 8641*; C: *Lacerda 138*; D: *Hatschbach 18187*; E: *Carvalho 86*; F, G: *Hatschbach 25953*).

Figure 45. *Myrcia venulosa* in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Floral bud; E: Inflorescence; F: Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A: *Cervi 3588*; B: *Hatschbach 18456*; C, D, F, G: *Hatschbach 11934*; E: *Kummrow 2832*).

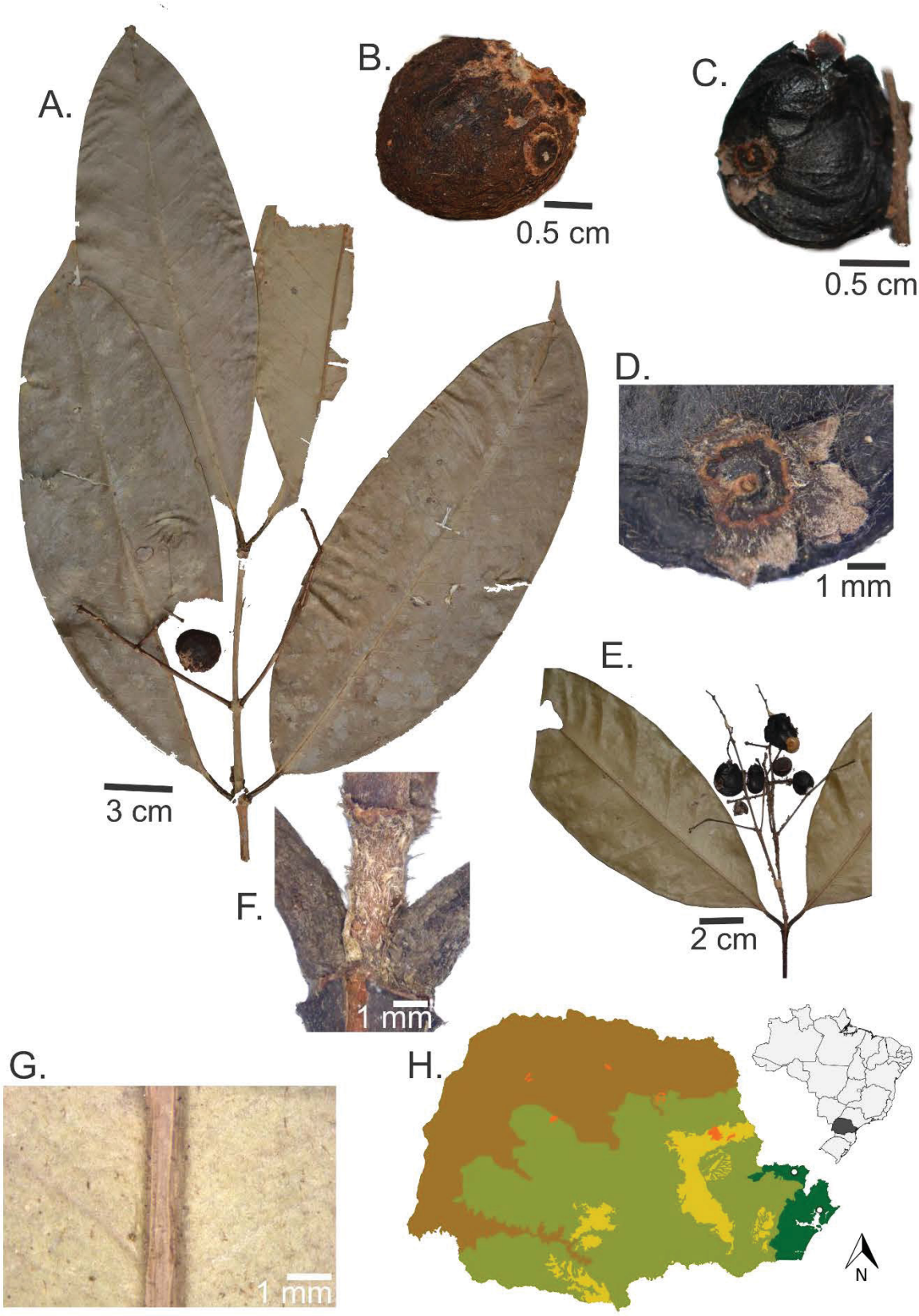

Figure 46. *Myrcia* sp. 1 in the state of Paraná. A: Habit; B-C: Fruits; D. Calyx indumentum in fruit: E: Infrutescence; F. Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B: *Hatschbach 16698*; C, D, E, F, G: *Brotto 2561*).

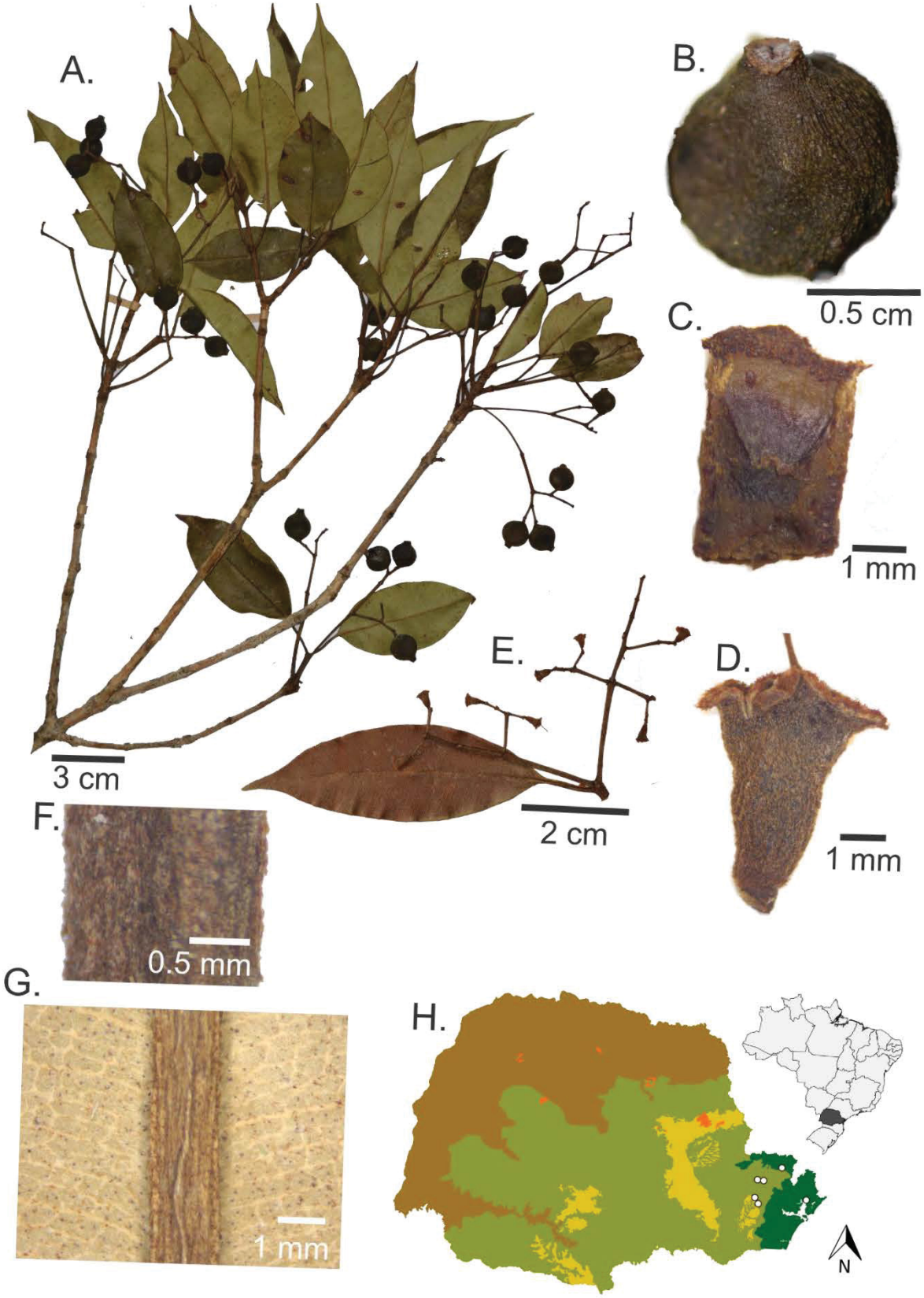

Figure 47. *Myrcia* sp. 2 in the state of Paraná. A: Habit; B: Fruit; C: Hypanthium, longitudinal section; D: Flower after anthesis; E: Inflorescence; F. Vegetative branch; G: Leaf abaxial surface; H: Distribution map. (A, B: *Brotto 2434*; C, D, E, F: *Kuniyoshi 4834*; G: *Hatschbach 42996*).

Appendix 1 – Collectors List

Abe, L.M. s.n. MBM 271585 (35); **Adenesky-Filho, E.** 77 (35), 78 (35), 79 (35); **Albino, U.B.** 49 (15); **Almeida-Scabbia, R.J.** 1401 (24); **Almeida, K.C.** 177 (15); **Alves, E.** 39 (16), 66 (15); **Alves, J.** s.n. FUEL 23887 (31); **Amancio, A.M.** 191 (35); **Amorim, J.S.** s.n. HUEM 19904 (15); **Ana, C.S.F.** s.n. FUEL 12281 (22); **Andrade, P.R.** s.n. MBM 297946 (2), MBM 297936 (35), MBM 297943 (15), MBM 297944 (38), MBM 297945 (33), MBM 297948 (15), MBM 298457 (15); **Andrade, S.F.** 3 (33); **Antonio** 21 (27), 32 (17), 34 (2), 46 (31), 47 (17), 56 (43), 57 (2), 78 (33), 102 (33); **Ariati, V.** 623 (25), 627 (25), 864 (3); **Assumpção, M.Z.** 11 (38); **Augusto-Silva, M.** s.n. MBM 397530 (38); **Athayde, S.F.** 115 (37), 183 (1), 213 (12), 220 (28), 320 (35), s.n. UPCB 28498 (35); **Azevedo, M.L.M.** 301 (5); **Bach Jr., R.** 253 (33), 3900 (44); **Barbola, I.F.** s.n. UPCB 18800 (44), UPCB 18801 (35), UPCB 29034 (37); **Barbosa, E.** 124 (37), 135 (35), 348 (18), 377 (10), 394 (35), 539 (16), 613 (15), 630 (10), 649 (38), 688 (16), 745 (37), 768 (23), 808 (35), 1022 (35), 1073 (38), 1169 (38), 1170 (15), 1181 (35), 1311 (38), 1670 (15), 3081 (3), 3965 (3), 4576 (28), 4592 (46), 4594 (28), 4596 (13); **Barddal, M.L.** 23 (42), 42 (30), 49 (37), 51 (13), 78 (33), 80 (16), s.n. EFC 7447 (34); **Batista, C.** s.n. FUEL 12278 (22); **Beloni, D.F.** s.n. HCF 3755 (18), MBM 350248 (18); **Beltrami, L.** s.n. MBM 390857 (35); **Bianek, A.E.** 6 (22), 9 (22), 105 (35), 125 (33), 126 (35), 190 (22), 250 (44), 251 (44), 307 (16), 318 (16); **Bidá, A.** 161 (35), 546 (33); **Bizarro, O.M.R.** 45 (16), 57 (16), 81 (15), 82 (2), 83 (44), 84 (35), 102 (38); **Blum, C.T.** 11-003 (35), 11-024 (35), 10-078 (38), 10-081 (33), 10-083 (33), 10-085 (15), 10-143 (17), 10-151 (17), 10-152 (35), 1094 (38), 1095 (15), 1104 (17), 1252 (32), 1372 (43), 1691 (16), 1698 (34), 1726 (38), 1735 (38), 1741 (16), 1743 (16), 2129 (16), 2132 (15); **Bolson, M.** 468 (33); **Bona, L.P.** 548 (15), 749 (44), 776 (33), 778 (33), 1109 (35); **Bonaldi, R.A.** 8 (25), 496 (25), 502 (25), 521 (23), 522 (29), 530 (21), 537 (26), 574 (35), 611 (30), 629 (29), 631 (22), 634 (26), 636 (9), 659 (34), 666 (34), 669 (9), 704 (12), 709 (22), 730 (28), 732 (42), 781 (30), 902 (42), 939 (30), 940 (29); **Bonatto, F.** 157 (43); **Borges, J.P.** 24 (33), 68 (25), 84 (25), 96 (16), 98 (25), 137 (25), 203 (16); **Borges Júnior, S.S.** s.n. HCF 10136 (15), MBM 391521 (35), MBM 391522 (15); **Borgo, M.** 112 (33), 117 (33), 259 (22), 270 (23), 366 (26), 529 (22), 588 (13), 2633 (35); **Bovini, M.G.** 3928 (43); **Braga, R.** 10 (35), 13 (15), 103 (35), 319 (33), 505 (22), 511 (22), 1019 (22), 7035 (35); **Britez, R.M.** 187 (33), 767 (29), 1137 (22), 1162 (35), 1184 (15), 1236 (33), 1293 (16), 1336 (35), 1377 (22), 1382 (28), 1386 (13), 1404 (28), 1446 (28), 1450 (14), 1522 (13), 1541 (34), 1825 (26), 1826 (29), 1841 (29), 2047 (33), 2095 (33), 12185 (22), s.n. RB 255664 (13), FUEL 9977 (22), HUCP 3303 (21), HUCP 3608 (21), MBM 230958 (15), UPCB 15084 (30), UPCB 15085 (22); **Brito, Y.C.T.** s.n. FUEL 6690 (34); **Brotto, M.L.** 82 (17), 171 (15), 205 (35), 528 (15), 842 (15), 850 (16), 1303 (23), 1305 (23), 1339 (21), 1346 (39), 1406 (1), 1487 (35), 1546 (26), 1547 (22), 1564 (42), 1565 (29), 1578 (28), 1630 (1), 1691 (1), 1715 (46), 1716 (28), 1778 (35), 1848 (16), 1853 (38), 1866 (10), 1880 (10), 1936 (38), 2036 (15), 2113 (35), 2364 (10), 2377 (13), 2434 (46), 2462 (37), 2487 (28), 2561 (45); **Budziak, C.** 38 (38), 40 (15), 41 (16); **Bufren, A.M.** 22 (44); **Buim, M.B.** s.n. FUEL 12280 (38); **Bujokas, W.** 34 (33); **Burda, T.M.** 30 (16); **Buttura, E.** 289 (35), 675 (33), 858 (33); **Camacho, L.** s.n. FUEL 20595 (22); **Camargo, E.** 44 (35), 46 (35); **Canestraro, B.K.** 209 (16), 690 (16); **Canoff, J.** 5 (15); **Canuto, L.** 35 (15), 61 (35); **Cardozo, A.P.** 19 (33); **Carmo, M.R.B.** 598 (44), 749 (22); **Carneiro, J.** 253 (15),

365 (33), 714 (33), 736 (15), 1010 (22), 1304 (13), 1305 (26), 1536 (33) **Carrara, M.R.** 24 (7); **Carrião, D.** 2 (33), 2358 (17), s.n. MBM 194356 (15), UPCB 26090 (15), UPCB 26091 (15), UPCB 28305 (22); **Carvalho, P.** 14 (15), 53 (31), 63 (2), 86 (43), 107 (15), 213 (15), 288 (26), 336 (33), s.n. MBM 25160 (35); **Cavalheiro, A.L.** 19 (35), 28 (35), 33 (38), 47 (38), s.n. FUEL 23855 (38), FUEL 24631 (26), UPCB 43447 (25); **Cavassani, A.** 6 (37); **Caxambu, M.G.** 34 (16), 169 (15), 204 (15), 236 (16), 277 (35), 298 (15), 338 (15), 872 (37), 957 (22), 1281 (35), 1495 (35), 1754 (15), 1820 (22), 1903 (33), 1956 (35), 2444 (15), 2467 (16), 2540 (17), 2705a (33), 2823 (15), 2886 (22), 2888 (22), 3364 (26), 3501 (38), 3515 (22), 3556 (10), 3560 (35), 3591 (33), 3623 (4), 3641 (15), 4237 (33), 4322 (33), 4383 (15), 4447 (17), 4484 (15), 4487 (25), 4973 (44), 4994 (31), 5073 (23), 5116 (37), 5580 (33), 5606 (31), 5658 (31), 6610 (33), 6794 (33), 6948 (33), 7084 (33), 7468 (33), 7861 (33), 7914 (33), s.n. MBM 292716 (15); **Ceccado, N.** 6 (26); **Ceccatto, G.** 44 (22); **Cervi, A.C.** 2073 (15), 2077 (15), 2296 (43), 2350 (34), 2380 (35), 2404 (34), 2457 (35), 2505 (35), 2816 (38), 2936 (15), 3011 (33), 3116 (18), 3264 (38), 3269 (22), 3479 (35), 3508 (35), 3520 (35), 3586 (44), 3588 (44), 3592 (22), 3593 (33), 3608 (31), 3610 (44), 3986 (35), 3989 (31), 4011 (44), 4016 (38), 4046 (35), 4199 (38), 4271 (44), 5961 (33), 5975 (31), 6054 (35), 6059 (38), 6383 (22), 6803 (15), 6868 (31), 8352 (2), 8375 (18), 8535 (44), 8549 (22), 8726 (2), 8742 (21), 9054 (21), 9117 (2), 9965 (38), s.n. UPCB 30912 (44), UPCB 60790 (31); **Chagas e Silva, F.** 598 (33), 1656 (38), 1678 (16), 1718 (33), 1727 (33), 1732 (33), 1748 (22), 1925 (33), 1939 (33), 1940 (33), 1964 (15), 1976 (15), 1981 (31), 2001 (33), 2008 (33), 2015 (38), 2021 (44), 2022 (44), 2023 (31), 2026 (31), 2041 (22), 2077 (38), 2078 (33), 2079 (33), 2084 (44), 2088 (22), 2089 (33), 2092 (15), 2095 (44), 2096 (15), 2097 (31), 2105 (15), 2110 (15), 2111 (22), 2114 (22), 2117 (44), 2122 (17), 2125 (44), 2128 (15), 2131 (26), 2137 (26), 2145 (26), 2163 (44), 2165 (26), 2167 (26), 2181 (44), 2183 (44), 2189 (44), 2190 (44), 2195 (26), 2197 (26), 22067 (44), s.n. FUEL 5892 (15), FUEL 7484 (33), FUEL 17795 (26), FUEL 17796 (26); **Chiari, L.** 37 (22); **Citadin, I.** s.n. EFC 2504 (37); **Cloclet, F.A.** 114 (33), s.n. FUEL 22148 (33); **Colli, S.** s.n. FUEL 7806 (33), FUEL 7811 (22), FUEL 7837 (38); **Cordeiro, J.** 79 (28), 176 (2), 180 (2), 267 (16), 385 (32), 493 (35), 578 (32), 999 (38), 1019 (38), 1027 (35), 1251 (22), 1261 (33), 1263 (35), 1265 (35), 1300 (17), 1327 (28), 1392 (31), 1393 (44), 1478 (29), 1966 (26), 2163 (38), 2353 (21), 2385 (33), 5224 (16); **Correa, G.T.** s.n. FUEL 24155 (33); **Costa Filho, S.V.S.** 14 (2); **Costa, E.F.** 9 (15), 23 (15), 52 (38), 56 (16), 135 (36); **Cotarelli, V.M.** 142 (18), 383 (44), 391 (22); **Cristine, A.** s.n. HUEM 29211 (33); **Cruz, J.** 83 (33), 172 (33), 179 (33), s.n. FUEL 4942 (33); **Cruz, J.M.** 19 (21), 36 (22), 195 (44), 210 (15), 294 (15); **Cruz, N.F.F.S.** s.n. HCF 10031 (33); **Dal Prá, B.V.** 17 (37); **Dala Rosa, S.** 45 (32), 49 (38), 62 (38), 67 (16), 147 (38), 148 (32); **Dall Agnol, R.F.** 7 (18), 73 (18); **Dall Agnol, R.T.** s.n. EFC 16050 (44), EFC 16139 (2); **Damineli, E.G.** s.n. FUEL 20433 (22), FUEL 20438 (33); **Dias, M.C.** 17 (15), 18 (22), 322 (33), 333 (33), 369 (15), 375 (31), 427 (33), 457 (33), 463 (22), s.n. FUEL 7650 (22), FUEL 8026 (22), FUEL 17832 (31), FUEL 19829 (33), FUEL 20336 (22), FUEL 20573 (31), FUEL 26592 (22), FUEL 28722 (22), RB 389254 (15); **Dittrich, V.A.O.** 308 (17); **Dombrowski, L.T.** 4463 (1), 5761 (4), 6757 (4), 6794 (4), 7124 (18), 7377 (14), 9577 (4), 10120 (15), 10227 (35), 10607 (28), 10666 (18), 10765 (35), 10789 (15), 11181 (18), 11877 (35), 11983 (15), 12059 (15), 12243 (38), 12774 (15), 12970 (15), 12985 (29), 14190 (22), 14222 (38), 14344 (35), 14528 (15), s.n. MBM 281546 (37); **Dunaiski Jr., A.** 14 (35), 41 (35), 525 (26), 861 (20), 1128 (38), 2251 (43), 2291 (3), 2355

(3), 3263 (17), 3896 (17), s.n. MBM 191799 (42), MBM 191801 (29), MBM 206936 (15), UPCB 29852 (15), UPCB 30005 (42), UPCB 30006 (42), UPCB 30007 (26), UPCB 30662 (35), UPCB 30663 (29), UPCB 30664 (17); **Dziewa, A.** 26 (34), 141 (9); **Enderli, A.S.** s.n. HCF 3843 (18); **Engels, M.E.** 1775 (15), 1877 (31), 1892 (33), 2306 (42); **Estevan, D.A.** 133 (33), 191 (31), 194 (22), 448 (15), 517 (22), 673 (15), 674 (35), 681 (3), 717 (3), 825 (33), 826 (31), 875 (41), 1144 (35); **Fabri, V.C.** 31 (17); **Fadelli, L.** 319 (22), 332 (25); **Favro, A.** 46 (35); **Felitto, G.** 70 (16), 431 (22), 561 (9), 580 (3), 582 (38); **Fendrich, R.** 5 (35); Ferreira Jr., M. 16 (26), 214 (18); **Ferreira, J.A.** s.n. FUEL 23886 (22), FUEL 24264 (22), FUEL 24265 (38), FUEL 24272 (38), FUEL 24274 (35), FUEL 24279 (38), FUEL 24280 (22), FUEL 24281 (35), FUEL 24586 (44), FUEL 24601 (25), FUEL 24617 (44), FUEL 24619 (38), FUEL 30179 (18), FUEL 31774 (41); **Ferreira, M.R.** s.n. FUEL 8178 (18); **Ferreira, P.C.** 82 (16), 130 (26), 133 (28), 150 (30); **Filipaki, S.A.** s.n. UPCB 33089 (22), UPCB 33095 (16), UPCB 33130 (22), UPCB 33134 (15), FUEL 53733 (41); **Forero, E.** 3764 (22); **Forzza, R.C.** 7387 (33); **Francisco, E.M.** 64 (33), s.n. FUEL 15057 (18), FUEL 22041 (18), FUEL 22660 (7), FUEL 23705 (35), FUEL 23882 (25), FUEL 23973 (35), FUEL 23992 (22), FUEL 24263 (38), FUEL 24268 (26), FUEL 24582 (38), FUEL 24587 (22), FUEL 24597 (15), FUEL 24624 (38), FUEL 24625 (31), FUEL 24630 (44), FUEL 24633 (26), FUEL 24656 (33), FUEL 24661 (35), FUEL 26422 (22), FUEL 26825 (26), FUEL 27468 (35), FUEL 27499 (25), FUEL 28233 (33), FUEL 28247 (18), FUEL 28267 (15), FUEL 28268 (44), FUEL 34699 (18), HCF 9547 (35), HCF 9549 (38), HCF 9567 (33), HCF 9985 (22), MBM 338094 (15), MBM 257128 (31), MBM 257130 (35), MBM 322527 (35), MBM 338099 (44), UPCB 43446 (18); **Freire de Carvalho, L.A.** 600 (15); **Furtado, P.P.** 187 (26); **Galvão, F.** 21 (30), 77 (8); **Gasper, A.L.** s.n. MBM 319494 (17), MBM 332929 (22), MBM 313778 (35); **Gatti, A.L.S.** 79 (34), 149 (35), 150 (44), 199 (34), 240 (37); **Gatti, G.** 9 (35), 21 (16), 28 (18), 84 (29), 101 (35), 116 (42), 129 (42), 151 (35), 159 (20), 253 (30), 291 (39), 528 (35), 771 (37); **Geraldino, H.C.L.** 73 (33), 182 (15), 189 (35); **Giraldi, C.** s.n. UPCB 36128 (38); **Girardi, L.** s.n. MBM 349811 (35); **Goetzke, S.** 158 (15), 192 (35), 193 (15), 607 (15); **Goldenberg, R.** 512 (43), 1697 (31); **Golono, M.A.** s.n. FUEL 20472 (33); **Gomes, R.S.** s.n. HCF 6014 (33), MBM 350128 (33); **Gonçalves, O.M.** s.n. FUEL 24654 (38); **Gouvea, M.F.** s.n. FUEL 8294 (33); **Graff, P.** 37 (28); **Grizzon, M.** 146 (35), 152 (16); **Grodzki, L.** s.n. EFC 9993 (42), EFC 9994 (30); **Guapiassú, M.** 152 (35), 175 (11), 180A (37), 180B (37), **Guapiassú, M.** s.n. MBM 161244 (28), MBM 162876 (12); **Gurgel, L.** 100 (30), 101 (43), 592 (26), 14586 (33), 14632 (15), 14633 (15), 14709 (17), 15066 (38), s.n. RB 37765 (35), RB 37768 (26), RB 37773 (35), RB 37778 (26), RB 59414 (38), RB 59415 (17), RB 458051 (26); **Hatschbach Sobrinho, A.** 136 (33); **Hatschbach, G.G.** 49 (33), 216 (26), 408 (15), 552 (16), 563 (35), 587 (38), 589 (44), 814 (44), 1050 (21), 1069 (33), 1465 (18), 1735 (16), 1775 (16), 1865 (42), 2225 (16), 2443 (37), 2463 (42), 2523 (15), 2607 (2), 2753 (34), 3217 (2), 3220 (35), 3402 (33), 3405 (31), 3406 (35), 3407 (15), 3409 (33), 3411 (15), 3413 (44), 3414 (15), 3417 (2), 3582 (26), 3583 (34), 3584 (3), 4157 (21), 4281 (32), 4284 (35), 4395 (35), 4750 (37), 5058 (35), 5130 (44), 5145 (15), 5173 (15), 5209 (15), 5219 (17), 5331 (22), 5334 (35), 5514 (29), 5515 (42), 5550 (16), 5583 (18), 6156 (37), 6353 (15), 6423 (44), 6427 (35), 6441 (31), 6447 (15), 6553 (44), 6688 (1), 6696 (16), 7331 (33), 7401 (15), 7421 (15), 7431 (31), 7433 (2), 7434 (44), 7454 (44), 7465 (35), 7490 (35), 7500 (38), 7513 (35), 7537 (11), 7540 (35), 7558 (16), 7611 (17), 7613 (16), 7647 (16), 7653 (35), 7661 (15),

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(22), UPCB 41154 (22), UPCB 41156 (22); **Jenheski, C.** s.n. MBM 388997 (35), MBM 388998 (43), MBM 394493 (38); **Junior, L.H.S.** 21 (15), 24 (38); **Jurandir** s.n. MBM 364494 (33); **Juski Jr., J.A.** 19 (30); **Kaehler, M.** 412 (15); **Kawasaki, M.L.** 905 (15), 912 (1), 915 (44), 936 (41), 937 (38); **Kinupp, V.F.** 86 (35), 254 (22), 271 (38), 530 (22), 562 (33), 701 (33), 805 (33), s.n. FUEL 20759 (33); **Koczicki, C.** 7 (16), 12 (17), 43 (16), 44 (26), 59 (16), 63 (16), 72 (2), 89 (18), 208 (9), 351 (35), 363 (33), 18482 (16); **Koehler, A.** 18 (18), 23 (26), 35 (37), 106 (1), 151 (38), 184 (38), 189 (16); **Kozera, C.** 85 (17), 233 (33), 256 (15), 301 (15), 371 (2), 403 (17), 558 (33), 677 (9), 832 (20), 1103 (9), 1163 (44), 1417 (29), 1421 (42), 1429 (29), 1439 (26), 1441 (22), 1444 (30), 1453 (30), 1460 (30), 1470 (30), 1480 (37), 2742 (4), 3450 (33), s.n. MBM 284531 (12); **Krieger, P.L.** 8123 (22), 11091/3 (22), 11199 (15), 11229 (35), 11296 (31), 11305 (22), 11335/3 (38); **Kummrow, R.** 120 (33), 695 (15), 1004 (35), 1006 (38), 1292 (17), 1445 (18), 1458 (13), 1600 (1), 1602 (17), 1604 (2), 1648 (17), 1649 (43), 1707 (1), 1732 (22), 1847 (35), 2005 (38), 2034 (33), 2067 (2), 2088 (31), 2173 (35), 2396 (15), 2405 (33), 2534 (1), 2542 (33), 2604 (38), 2607 (25), 2621 (15), 2646 (15), 2684 (16), 2720 (9), 2832 (44), 2848 (15), 2901 (34), 2906 (38), 2915 (15), 2980 (38), 3033 (35), 3216 (35), 3244 (43), 3370 (16); **Kuniyoshi, Y.S.** 31 (43), 515 (2), 1577 (35), 3705 (37), 3971 (35), 3994 (2), 4000 (36), 4498 (30), 4499 (2), 4521 (14), 4591 (26), 4611 (17), 4642 (28), 4674 (37), 4679 (29), 4747 (30), 4769 (35), 4779 (28), 4817 (15), 4826 (43), 4833 (28), 4834 (46), 4844 (27), 4845 (17), 4851 (30), 4924 (35), 4929 (35), 4956 (29), 4959 (34), 4965 (23), 5024 (35), 5118 (22), 5121 (35), 5132 (26), 5202 (29), 5204 (34), 5219 (21), 5224 (18), 5232 (33), 5254 (2), 5319 (22), 5335 (35), 5346 (37), 5355 (9), 5366 (37), 5373 (21), 5393 (22), 5439 (15), 5441 (35), 5459 (15), 5532 (3), 5572 (1), 5704 (35), 5899 (34), 5969 (20), 5994 (13), 6029 (30), 6030 (14), 6035 (34), 6059 (28), 6091 (20), 6123 (22), 6188 (13), 6236 (6), 6559 (33), s.n. EFC 7303 (9), EFC 9521 (38), EFC 13417 (38), EFC 13507 (38), MBM 230985 (18), MBM 283703 (18), MBM 345781 (17), MBM 345783 (14), MBM 345799 (37), MBM 345801 (37), MBM 353343 (18); **Labiak, P.H.** 3153 (42), 4764 (15), 4770 (15); **Lacerda, A.** 138 (35), 188 (35), 190 (30), 212 (43), 235 (2), 244 (18), 245 (39), 246 (35), 265 (2), 273 (39), 290 (13); **Landgraf, G.O.** 35 (15), 40 (35), 41 (35), 45 (35), 51 (15), 52 (15), 114 (15); **Landrum, L.R.** 2219 (33), 2222 (15), 2224 (33), 2225 (15), 2246 (2), 2250 (16), 2251 (44), 2281 (1), 2297 (32), 2302 (16), 2367 (15), 2413 (38), 2432 (35), 2435 (15), 2442 (43), 2451 (38), 2453 (31), 2454 (2), 2507 (35), 2543 (44), 2557 (38), 2856 (1), 2911 (43), 2935 (15), 3870 (44), 3871 (35), 3895 (35), 3896 (15), 3900 (35), 3904 (44), 3906 (33), 3917 (44), 3958 (44), 3961 (15), 3962 (38), 3963 (44), 3969 (15), 3999 (12), 4010 (15), 4011 (35), 4018 (15), 4025 (33), 4026 (35), 4028 (16), 4038 (44), 4040 (26), 4043 (17), 4047 (15), 4057 (41), 4068 (44), 4069 (35), 4070 (31), 4085 (33), 4095 (35), 4299 (35), 4303 (33); **Lange** 13 (15); **Lannoy, L.C.** 29 (33), 34 (22), 35 (22), 38 (22), 50 (22); **Laroca, S.** s.n. UPCB 4846 (33); **Lazaro, M.A.** s.n. FUEL 17409 (22); **Leccatto, G.** 49 (22); **Lemos, D.C.** 18 (22); **Lemos, F.** 3 (15); **Lemos, L.Z.** s.n. HUEM 28433 (15), HUEM 28434 (35); **Liebsch, D.** 1018 (16), 1155 (16), s.n. MBM 299379 (18), MBM 299380 (22), MBM 299381 (18), MBM 299382 (16), UPCB 50558 (18), UPCB 50576 (16); **Lima, A.** 94 (17); **Lima, D.F.** 58 (37), 73 (37), 87 (31), 107 (42), 111 (42), 295 (33), 296 (33), 297 (33), 298 (15), 338 (41), 340 (35), 354 (33); **Lima, J.M.** 41 (33), 48 (33); **Lima, M.R.** 74 (22); **Lima, R.X.** 42 (34), 72 (35), 89 (21), 149 (34), 245 (42), 266 (42), s.n. EFC 7958 (14); **Lindeman, J.** 117 (22), 131 (22), 274 (34), 947 (35), 960 (35), 1176 (15), 1187 (18), 1240 (15), 1307 (15), 1871 (35),

1899 (35), 2065 (35), 2178 (35), 2282 (35), 2364 (18), 2628 (21), 2818 (44), 2978 (31), 3068 (33), 3135 (33), 3360 (16), 3415 (26), 3813 (9), 3848 (12), 4640 (3), 4706 (16), 4781 (15), 5320 (26), 5698 (36), 5762 (37); **Linsingen, L.** 1 (31), 16 (22), 208 (26), 502 (44), 505 (33), 506 (22), 511 (26), 516 (35), 517 (22); **Longhi, S.J.** 1582 (8), 1584 (29); **Lorini, M.L.** s.n. MBM 300619 (13), MBM 300620 (13); **Los, M.M.** 64 (33); **Loughi, S.** 1 (15); **Lovato, M.C.** 121 (33), 283 (33); **Lozano, E.D.** 111 (38), 201 (16), 362 (16), 448 (15), 825 (25), 914 (3), 1019 (3), 1048 (16), 1068 (15), 1359 (15), 1947 (33), 1984 (38), 2034 (16), 2109 (41), 2111 (44), 2416 (38); **Lucas, E.J.** 110 (33), 113 (38), 114 (43), 116 (15), 120 (3), 124 (35), 127 (13), 129 (16), 130 (2), 135 (15), 136 (15), 141 (15), 142 (31), 150 (28), 151 (10), 152 (28), 153 (15), 154 (33), 155 (16), 156 (1), 158 (15), 159 (15), 160 (41), 163 (22), 166 (44), 169 (22), 170 (38), 173 (38), 176 (44), 179 (31), 180 (41), 181 (44), 182 (31), 184 (43), 186 (13), 187 (31), 188 (37), 189 (2), 190 (9), 191 (2), 192 (21); **Luz, B.B.** s.n. FUEL 20406 (31); **Macedo, C.R.** 10 (35); **Maieski, E.A.** 9 (22), 65 (15); **Maoski, D.J.** s.n. EFC 13418 (38); **Marinero, F.** 98 (22), 114 (38), 115 (26), 148 (38), 304 (38), 347 (31), 355 (9), 356 (12), 360 (34), 386 (33); **Marino Neto, F.** 25 (2); **Marques, M.C.M.** s.n. UPCB 37449 (22), UPCB 37551 (29), UPCB 38482 (30), UPCB 40644 (22), UPCB 40837 (13); **Marquesini, N.R.** s.n. UPCB 21878 (25); **Martin, V.C.** 31 (33); **Martinello** 1111 (3); **Martins, E.** 2 (13), 4 (31) s.n. FUEL 49804 (35); **Martins, L.F.V.** s.n. HCF 2982 (33); **Martins, S.S.** s.n. UPCB 13300 (35); **Martius, L.F.U.** s.n. MBM 314283 (33); **Maschio, W.** 38 (17), 43 (15), 66 (18), 152 (28), 153 (9), 154 (28), 213 (33), 226 (31), 243 (35), 248 (38), 375 (35), 500 (35), 501 (18); **Mattos, A.** s.n. RB 63324 (35), RB 63325 (22), UPCB 2472 (7); **Mattos, J.** 10703 (44), 26498 (31), 28672 (21); **May, D.** 541 (26), 542 (38); **Mazziero, F.F.F.** 743 (35), 744 (22); **Mazzuchetti, R.** s.n. HCF 53 (15); **Medri, C.** 355 (33), 358 (33), 537 (35), 640 (33), 752 (22), 830 (33), 910 (35), s.n. EFC 9543 (22), EFC 9547 (33), FUEL 23020 (33), FUEL 26444 (33), FUEL 26471 (22); **Medri, M.E.** s.n. FUEL 7982 (26); **Meijer, A.** 20 (35); **Melo, E.** 41 (35); **Mellinger, L.L.** s.n. UPCB 47902 (42); **Meurer, M.R.** s.n. HUEM 19907 (35); **Meyer, F.S.** 592 (38); **Michelon, C.** 1327 (25), 1334 (26), 1546 (3); **Milaneze-Gutierre, M.A.** 1041 (33); **Miller, D.Z.** 39 (35), 53 (26), 67 (17); **Miranda, A.C.L.** 22 (35), 316 (15); **Mocochinski, A.Y.** 263 (15); **Moreira, E.** 13 (22), 404 (10); **Moro, R.S.** 342 (15), 637 (22); **Motta, J.T.** 511 (15), 610A (16), 617 (15), 1015 (9), 1089a (16), 1316 (3), 1500 (38), 1721 (35), 1740 (33), 1743 (35), 1800 (17), 1973 (2), 2077 (15), 2453 (42), 4174 (35), 4383 (28), 4470 (16), s.n. MBM 348629 (26), RB 575820 (21); **Mourão, K.S.M.** 300 (38), 306 (44), 308 (38), 312 (35), 313 (22), 315 (22), 317 (35), 318 (22), 319 (15), 320 (15); **Muelbert, A.E.** 20 (21); **Muniz, J.R.** 39 (31); **Muniz, J.S.** 20 (35), 38 (31), s.n. EFC 6769 (35); **Nadolny, M.C.** s.n. UPCB 15729 (33); **Nakajima, J.N.** s.n. FUEL 7814 (44), FUEL 7839 (15); **Nakano, E.M.** s.n. FUEL 21294 (38), FUEL 22145 (31); **Nascimento, D.S.** 67 (2), 79 (17), 80 (35); **Nicolack, V.** 93 (31), 94 (2), 113 (38), 117 (30), 503 (8), 506 (29); **Nogueira, A.C.** 14 (37); **Oliveira, A.A.** 3626 (44); **Oliveira, P.I.** 112 (15), 117 (33), 157 (33), 198 (38), 228 (14), 249 (35), 296 (16), 348 (22), 369 (38), 370 (35), 560 (18), 651 (13), 660 (13), 681 (10), 703 (44), 713 (38), 717 (32), 779 (2), 787 (33), 824 (35), 841 (13), 857 (10), 927 (26), 933 (3); **Pacheco, G.** 22 (33), 23 (33), s.n. EFC 11609 (38), EFC 11610 (15); **Paciornik, E.F.** 278 (35), 332 (35); **Paiva, M.R.C.** s.n. FUEL 22147 (15), FUEL 23990 (44); **Pascotto, C.R.** 175 (35), 176 (15), s.n. HUEM 16471 (35); **Pauli, A.C.** s.n. UPCB 15714 (35); **Pavão, O.C.** s.n. FUEL 23873 (22), FUEL 24278 (25), FUEL 24590 (44), FUEL 26197 (3), FUEL 26964 (7),

FUEL 27465 (25), FUEL 27467 (33), FUEL 28178 (18), FUEL 28255 (33), FUEL 28257 (26), FUEL 30690 (22), FUEL 30692 (31), FUEL 30694 (35), FUEL 43029 (15); **Pedersen, T.M.** 10987 (33); **Pegoraro, A.** 134 (2); **Pera, C.** s.n. HUEM 24998 (33); **Pereira, E.** 6104 (15), 6910 (1), 6925 (35), 7891 (33), 8113 (35), 8132 (4), 8319 (16); **Peron, M.** 858 (24); **Perret, L.** 25 (26); **Pimenta, J.A.** s.n. FUEL 7737 (33); **Pinto, C.B.** s.n. EFC 7971 (29); **Pizani, A.J.** 13 (28); **Poliquesi, C.B.** 16 (15), 37 (15), 199 (16), 336 (18), 454 (15), 586 (15), 635 (15), 638 (15), 645 (15), 647 (33); **Ponciano, J.** 21 (33); **Possete, R.F.S.** 260 (15), 312 (15), 366 (2), 575 (33), 586 (15), 599 (17), s.n. MBM 301654 (17), MBM 301655 (33), UPCB 50492 (33); **Prado, J.** 403 (42); **Queiroz, L.E.** 8 (18); **Ramos, F.M.** 23 (17), 24 (35); **Rau, T.G.** 1 (21), 2 (37), 3 (34); **Reginato, M.** 161 (13), 187 (13), 194 (35), 201 (30), 203 (36), 424 (43), 480 (13), 490 (43), 507 (13), 555 (39), 559 (36), 608 (39), 630 (43), 657 (13), 696 (13), 697 (36); **Ribas, J.M.** 6768 (38); **Ribas, O.S.** 21 (22), 113 (38), 121 (15), 124 (16), 235 (16), 257 (34), 320 (15), 331 (15), 409 (43), 623 (16), 794 (26), 807 (29), 848 (15), 951 (26), 963 (9), 1046 (26), 1064 (26), 1067 (22), 1373 (36), 1454 (15), 1467 (15), 1468 (16), 1477 (1), 1530 (15), 1697 (31), 1827 (22), 1906 (11), 1948 (44), 2140 (15), 2220 (32), 2279 (26), 2302 (38), 3045 (35), 3151 (38), 3154 (16), 3212 (22), 3448 (38), 3532 (38), 4212 (9), 4309 (9), 4340 (38), 4342 (42), 5728 (32), 5778 (16), 5779 (15), 5780 (31), 5802 (15), 5805 (31), 5847 (16), 5849 (15), 5851 (16), 5863 (16), 5868 (6), 5881 (16), 5889 (38), 6868 (38), 7065 (43), 7071 (28), 7073 (35), 7167 (13), 7382 (33), 8020 (38), 8556 (38), 17671 (15); **Ribeiro, C.L.** 10 (31), 30 (15), 111 (16), 138 (38), 140 (26), 150 (38), 152 (15), 173 (18), 188 (38), 199 (34), 210 (15), 214 (16), 217 (35), 218 (38), 219 (33); **Rigon, L.G.C.** 299 (35); **Rocha, M.R.** 60 (1), 63 (16), 68 (15), 69 (16); **Roderjan, C.V.** 17 (31), 81 (13), 111 (2), 115 (31), 125 (31), 206 (34), 207 (37), 209 (29), 255 (3), 275 (28), 365 (9), 376 (13), 411 (35), 412 (38), 413 (31), 488 (13), 504 (13), 521 (37), 526 (14), 554 (21), 609 (34), 610 (3), 665 (16), 742 (35), 808 (16), 900 (44), 955 (16), 977 (1), 994 (15), 1001 (1), 1013 (15), 1029 (1), 1085 (1), 1086 (1), 1094 (1), 1102 (16), 1128 (1), 1146 (38), 1220 (21), 1344 (6), 1347 (16), 1351 (42), 1422 (16), 1424 (16), 1428 (35), 1509 (16), 1548 (2), 1685 (16), 1792 (38), 1803 (15), 1805 (38), 1806 (16), 6353 (42), 6455 (42), s.n. EFC 233 (43), EFC 5617 (38), EFC 7743 (15), EFC 10640 (15); **Roher, D.** s.n. MBM 397405 (3); **Romão, G.O.** 1661 (31), 1664 (15), 1668 (15), 1674 (16), 1675 (15), 1677 (16); **Romagnolo, M.B.** 598 (15), 635 (33), 2012 (15), 2069 (35), 2084 (15), 3046 (35), 3059 (15), 3082 (35), 3181 (15), 3199 (35), 3201 (15), 3236 (35), 3239 (15), 3244 (15), 3278 (35), 3327 (35), 3328 (15), 3389 (15), 3422 (15); **Rosa, C.I.L.F.** 38 (35), 98 (15); **Rosisco, J.R.** 3 (22); **Rotta, E.** 19 (15), 35 (35), 49 (17), 107 (15), 112 (33), 145 (38), s.n. EFC 9998 (29), MBM 65756 (43), MBM 65757 (2), MBM 65758 (44), MBM 65759 (38), MBM 65760 (43), MBM 65761 (2), MBM 65762 (35), MBM 65766 (38), MBM 65768 (38), MBM 65770 (31), MBM 65773 (18), MBM 65774 (43), MBM 65775 (2), MBM 65778 (15), MBM 65781 (33), MBM 65788 (15); **Royer, C.A.** 9 (30); **Ruas, P.M.** s.n. FUEL 5894 (41); **Sá, K.L.V.R.** 253 (33), 271 (33), 273 (33), 357 (33), 363 (33), 488 (26); **Sakuragui, C.M.** 1232 (15), 1258 (15); **Salimon, C.I.** 2 (18), 3 (17); **Sampaio, D.** 156 (24); **Santos, C.W.** 4 (33); **Santos, E.P.** 294 (33), 355 (32), 415 (15), 437 (16), 447 (16), 709 (43), 715 (35), 719 (16), 765 (15), 835 (15), 836 (1), 865 (1), 875 (16), 1074 (1); **Santos, S.P.** 5 (35); **Sasaki, E.Y.** s.n. FUEL 20513 (22); **Sato, S.** s.n. HUEM 422 (35); **Saueressig, D.** 1483 (22), 1642 (38); **Savarais, M.** 533 (33); **Schütz-Gatti, A.L.** 64 (13); **Scheer, M.** 5 (16), 64 (38), 65 (38), 205 (16), 230 (16), 270 (16), 298 (38), 319 (37),

326 (16), 377 (16), 380 (16), 439 (15), 503 (8), 641 (15); **Schimmelpfeng, L.C.** 36 (30), 40 (30), 45 (37), s.n. EFC 594 (26); **Schwartsburd, P.B.** 1262 (16); **Sekine, E.S.** 212 (33), 224 (16); **Selusniaki, M.** 2523 (38); **Serathiuk, R.E.** 4 (42), 9 (42), 10 (30), 18 (29), s.n. EFC 8362 (30); **Shepherd, G.J.** 6135 (31), 6136 (38), 6140 (15); **Silva, A.R.** 723 (33), 772 (33); **Silva, F.C.** 749 (11), 753 (12), 2074 (25), 2207 (44); **Shimabukuro, E.** s.n. FUEL 6398 (33); **Silva, C.T.** s.n. FUEL 20172 (15); **Silva, F.C.** s.n. FUEL 8671 (17), FUEL 8673 (15), RB 255000 (33), RB 255001 (26); **Silva, J.M.** 67 (11), 74 (38), 82 (17), 88 (35), 98 (17), 192 (35), 218 (33), 301 (42), 303 (26), 323 (28), 328 (13), 369 (33), 371 (33), 405 (33), 522 (16), 545 (21), 560 (2), 613 (13), 626 (3), 641 (33), 651 (16), 686 (15), 691 (15), 711 (35), 721 (15), 741 (15), 768 (41), 769 (4), 790 (38), 804 (15), 811 (18), 820 (17), 822 (18), 842 (18), 895 (26), 909 (43), 950 (25), 959 (18), 1015 (8), 1066 (13), 1070 (22), 1091 (38), 1168 (15), 1172 (33), 1202 (17), 1222 (38), 1238 (18), 1243 (26), 1266 (37), 1287 (30), 1298 (26), 1384 (28), 1409 (35), 1574 (35), 1581 (44), 1597 (43), 1600 (1), 1611 (38), 1615 (2), 1639 (29), 1715 (36), 1801 (22), 1836 (44), 1842 (15), 1849 (38), 1959 (18), 1984 (38), 2016 (43), 2035 (31), 2042 (1), 2118 (15), 2193 (39), 2197 (10), 2247 (17), 2249 (30), 2276 (36), 2303 (18), 2335 (16), 2440 (37), 2452 (35), 2621 (15), 2812 (38), 2880 (22), 2886 (16), 2996 (30), 3021 (33), 3037 (33), 3058 (21), 3068 (9), 3138 (38), 3148 (15), 3228 (35), 3232 (13), 3245 (35), 3277 (33), 3358 (46), 3547 (15), 3689 (15), 3720 (41), 3806 (16), 3835 (44), 3849 (31), 3902 (22), 3904 (33), 3924 (35), 3925 (33), 3946 (15), 3975 (43), 4004 (17), 4026 (9), 4191 (33), 4276 (16), 4283 (30), 4303 (38), 4313 (14), 4328 (26), 4332 (18), 4334 (27), 4336 (46), 4338 (28), 4360 (28), 4372 (3), 4379 (43), 4393 (35), 4444 (38), 4449 (31), 4517 (10), 4527 (15), 4528 (35), 4534 (17), 4537 (22), 4538 (10), 4549 (10), 4558 (35), 4643 (38), 4701 (13), 4703 (29), 4704 (15), 4711 (36), 4724 (17), 5023 (21), 5074 (31), 5080 (33), 5155 (38), 5433 (38), 5441 (44), 5979 (33), 6021 (41), 6113 (35), 6164 (35), 6197 (43), 6199 (35), 6224 (44), 6234 (41), 6306 (38), 6326 (22), 6361 (38), 6395 (28), 6479 (38), 6608 (38), 6948 (28), 6969 (16), 7049 (16), 7567 (14), 7630 (28), 7703 (29), 7733 (42), 8058 (25), 8097 (15), 8133 (44), 8149 (25), 8156 (35), 8157 (31), 8178 (42), 8208 (35), 8357 (2), 8385 (16), 8430 (30), 8448 (38), 8458 (18), 8459 (29), 8562 (3), 8611 (13), 8620 (33), 8641 (43), 8724 (38), 8731 (38), 8804 (38), 8862 (26), 9127 (38), 9128 (33), 9355 (8), 9356 (30), 9360 (42), 9505 (9), 9547 (15), 9575 (15), 9662 (28), 9712 (13); **Silva, J.S.** 589 (3); **Silva, R.A.G.** s.n. FUEL 23876 (22), MBM 257129 (22); **Silva, R.R.** 112 (4); **Silva, S.M.** 35 (42), 191 (42), 765 (37), 816 (22), 928 (42), 1221 (42), 1227 (29), 1323 (9), 1524 (26), 1526 (9), 1653 (15), 1654 (22), 1656 (33), 6147 (44), 7569 (42), s.n. FUEL 9169 (17), FUEL 7669 (22), FUEL 9100 (22), FUEL 10946 (22), FUEL 10999 (26), FUEL 12593 (26), FUEL 13328 (22), MBM 116664 (26), MBM 225197 (35), UPCB 15082 (26), UPCB 24267 (13), UPCB 24270 (21), UPCB 24271 (29), UPCB 24488 (30), UPCB 27584 (20), UPCB 27855 (38), UPCB 27855 (38), UPCB 31291 (9), UPCB 32099 (42), UPCB 32148 (28), UPCB 32151 (8), UPCB 33328 (35), UPCB 33329 (38), UPCB 33329 (38), UPCB 33609 (35), UPCB 49439 (38), UPCB 49439 (38), UPCB 79447 (26); **Silva, S.S.C.** 4 (16); **Silva, T.A.** s.n. HUEM 19906 (35), HUEM 19908 (35); **Silveira, M.** 86 (38); **Silveira, N.** 11868 (35), 11871 (13); **Siqueira, E.L.** 64 (33), 323 (38), 426 (44), 430 (22), 482 (15), 500 (15), 529 (37), 932 (33), 1213 (33), 1890 (33), s.n. MBM 350124 (33); **Snak, C.** 375 (14); **Soares-Silva, L.H.** 294 (33), 302 (44), 304 (38), 342 (22), 355 (22), 371 (33), 372 (33), 375 (15), 377 (33), 380 (33), 381 (15), 382 (22), 389 (18), 395 (15), 409 (15), 431 (22), 432 (38), 435 (33), 451 (33), 455 (25), 457 (31), 458 (22), 459

(38), 508 (26), 541 (42), 594 (15), 643 (34), 658 (39), 682 (13), 686 (20), 687 (29), 690 (13), 696 (30), 701 (18), 716 (13), 722 (13), 728 (42), 732 (29), 738 (18), 756 (30), 762 (22), 773 (30), 789 (11), 792 (13), 833 (42), 835 (12), 842 (28), 880 (37), 938 (35), 1123 (15), 1264 (33), 1379 (21), 1404 (35), 1527 (15), 1652 (22), 1728 (35), 1729 (38), 1780 (38). **Unknown collector** FUEL 10995 (17), FUEL 13333 (22), MBM 172968 (2).

CONSIDERAÇÕES FINAIS

Durante a análise dos espécimes de *Myrcia* no Paraná, surgiu a necessidade de resolver um problema taxonômico de um complexo de espécies de *Myrcia* sect. *Tomentosae* (*Myrcia lajeana, M. laruotteana, M. selloi* e *M. tomentosa*), haja visto que o estado do Paraná é o único em que estas quatro espécies coocorrem. Por isso, partimos para a resolução deste problema e propusemos a sinonimização de *M. lajeana* e *M. laruotteana* sob *M. selloi*, que tornou-se o capítulo 1 do presente trabalho, para então darmos prosseguimento ao estudo taxonômico das espécies de *Myrcia*, exceto seção *Calyptranthes*, no estado do Paraná, no capítulo 2. Este capítulo conta com chave de identificação, descrições, comentários, mapas de distribuição e ilustração das plantas de cada espécie ocorrente no estado. Das espécies constantes no tratamento taxonômico, há duas que aparentemente são novas, e deverão ser descritas e publicadas em breve, após novas coletas e um estudo mais detalhado. A carência de caracteres diagnósticos entre algumas espécies no Paraná mostra a necessidade de estudos mais aprofundados para a delimitação taxonômica entre *Myrcia aethusa* e *M. oligantha*, e *M. reitzii* e *M. racemosa*.

O estudo realizado torna completa a flora do gênero *Myrcia* no sul do Brasil. O tratamento taxonômico de um gênero grande e complexo como *Myrcia* é essencial para subsidiar outros tipos de trabalhos em outras áreas como, por exemplo, anatomia, ecologia e evolução.

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