UNIVERSIDADE FEDERAL DO PARANÁ

GESSICA CAROLINA APARECIDA BISEWSKI

O GÊNERO *BERTOLONIA* RADDI (MELASTOMATACEAE, BERTOLONIEAE) NO ESTADO DA BAHIA, BRASIL

CURITIBA

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Dissertação apresentado 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

Co-orientador: Prof. º Dr. André Márcio Araujo Amorim

Co-orientador: Dr. Lucas de Freitas Bacci

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"O GÊNERO BERTOLONIA RADDI (MELASTOMATACEAE, BERTOLONIEAE) NO ESTADO DA BAHIA, BRASIL" por

Gessica Carolina Aparecida Bisewski

Dissertação aprovada como requisito parcial para a obtenção do grau de mestre no Programa de Pós-graduação em Botânica pela comissão formada pelos doutores

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"Precisamos especialmente de imaginação nas ciências. Nem tudo é matemática e nem tudo é lógica simples, é também um pouco de beleza e poesia"

Maria Montessori

RESUMO

Melastomataceae compreende cerca de 5000 espécies distribuídas principalmente nas regiões tropicais e subtropicais do globo. *Bertolonia* possui 31 espécies endêmicas da Mata Atlântica e muitas delas restritas a um ou dois estados brasileiros. O hábito herbáceo, as inflorescências escorpióides e os frutos do tipo cápsula obtriqueta (tipo bertolonídio) são os principais caracteres utilizados para delimitação do grupo. O estado da Bahia é considerado o centro de diversidade de *Bertolonia* com 12 espécies listadas para o estado até o momento, 9 delas endêmicas. O objetivo deste trabalho é descrever a diversidade de espécies do gênero no estado da Bahia. Este estudo é baseado nas análises de espécimes de herbário, bancos de dados on-line, bibliografia específica e coletas em campo. A dissertação está dividida em dois capítulos. O primeiro tem como objetivo descrever três novas espécies do gênero, todas endêmicas no estado da Bahia. O segundo capítulo apresenta o tratamento taxonômico para as 15 espécies de *Bertolonia* que ocorrem na Bahia. O tratamento inclui chave de identificação, descrição completa, mapas de distribuição e ilustrações para as espécies.

Palavras-chave: Bertolonieae. Endemismo. Mata Atlântica. Taxonomia.

ABSTRACT

Melastomataceae comprises about 5000 species distributed mainly in tropical and subtropical regions of the world. *Bertolonia* has 31 species, endemic to the Atlantic forest, many of them restricted to one or two Brazilian states. The herbaceous habit, scorpioid inflorescences and the obtriquetrous capsules (bertolonidium-type) are the main diagnostic features for this group. The state of Bahia is considered the center of diversity of *Bertolonia,* with 12 species listed for the state until now, 9 of them endemic to the state. The study aims to describe the diversity of the species of *Bertolonia* occurring in the state of Bahia. This study is based on the analyses of herbarium specimens, online databases, specific bibliography, and collections in the field. This dissertation is divided in two main chapters. The first describes three new species of the genus, all endemic to the state of Bahia. The second chapter presents the taxonomic treatment for the 15 species in the genus in Bahia. The treatment includes an identification key, complete descriptions, distribution maps, and illustrations for the species. This dissertation provides an important contribution to the knowledge of Melastomataceae, as well as for the Atlantic Forest endemic flora.

Key words: Atlantic forest. Bertolonieae. Endemism. Taxonomy.

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INTRODUÇÃO E JUSTIFICATIVA

Melastomataceae Juss. pertence a ordem Myrtales e é monofilética (APG IV, 2016). A família possui distribuição pantropical (GOLDENBERG et al., 2012), porém é mais diversa na região tropical do globo, com cerca de 5000 espécies distribuídas em 150-166 gêneros (REGINATO et al., 2016a; RENNER et al., 2017). O porte das espécies varia consideravelmente podendo ser desde árvores até ervas, permitindo a ocupação de condições ambientais distintas (CLAUSING & RENNER, 2001) A maioria de suas espécies possuem folhas simples e opostas com venação acródroma; inflorescências do tipo cimosa ou paniculada com flores bissexuais e radialmente simétricas; os estames são falciformes, com conectivos prolongados e anteras poricidas (CLAUSING & RENNER, 2001; RENNER, 1989, 1993). No Brasil, Melastomataceae é considerada uma das maiores famílias de angiospermas, com 68 gêneros e cerca de 1500 espécies (FLORA DO BRASIL 2020, em construção), presentes desde a Amazônia, no Cerrado e na Mata Atlântica, não ocorrendo na Caatinga senso estrito e nem nos pampas (GOLDENBERG et al., 2012). A família apresenta alto grau de endemismo, sendo que 19 gêneros e aproximadamente 900 espécies ocorrem de forma exclusiva no território brasileiro (FLORA DO BRASIL 2020, em construção).

Na última revisão completa de Melastomataceae, Cogniaux (1891), baseando-se em Triana (1871), subdividiu a família em 13 tribos, principalmente de acordo com a morfologia das anteras, frutos e sementes: Astronieae, Bertolonieae, Dissochateeae, Merianieae, Miconieae, Microlicieae, Mouririeae, Osbeckieae, Oxysporeae, Pleromeae, Pyxidantheae, Rhexieae e Sonerileae. A tribo Bertolonieae *sensu lato* compreendia *Bertolonia* Raddi., *Diolena* Triana, *Diplarpea* Triana, *Macrocentrum* Hook. F., *Monolena* Triana ex Benth & Hook. F., *Salpinga* Mart. Ex DC e *Triolena* Naudin (COGNIAUX, 1891), com *Diolena e Diplarpea* sinonimizados sob *Triolena* por Wurdack (1964). Os gêneros *Boyania* Wurdack, *Maguireanthus* Wurdack, *Opisthocentra* Hook. f. e *Tateanthus* Gleason foram adicionados posteriormente a este grupo por Renner (1993). Esta tribo tinha por característica comum plantas com hábito herbáceo e frutos do tipo cápsulas angulares, ovários com escamas apicais ao redor do estilete e (frequentemente) inflorescências escorpioides (COGNIAUX 1891; CLAUSING & RENNER 2001). Bertolonieae s.l., como proposta por Cogniaux (1891), não é monofilética e foi informalmente dividida por Goldenberg et al. (2012) em dois grupos monofiléticos. O primeiro, "Bertolonieae 1", com apenas *Bertolonia*, e –Bertolonieae 2", com os gêneros *Diplarpea*, *Monolena* e *Triolena*. A partir de análises filogenéticas, Bacci et al. (2019) confirmaram o polifiletismo da tribo e propuseram uma nova circunscrição,

com a tribo Bertolonieae contendo somente o gênero *Bertolonia*, segregada da tribo Trioleneae, com os gêneros *Monolena* e *Triolena.* Apesar de compartilharem o hábito herbáceo e frutos triquetras, as espécies de Bertolonieae e Trioleneae diferem principalmente pela orientação dos apêndices dos conectivos das anteras (geralmente dorsais em Bertolonieae e ventrais em Trioleneae) (BACCI et al., 2019). O estudo mostra ainda que as características anteriormente utilizadas para reunir esses gêneros em apenas uma tribo (combinação de hábito herbáceo e cápsulas angulares) evoluíram mais de uma vez na família Melastomataceae.

Bertolonia possui 31 espécies encontradas exclusivamente no bioma da Mata Atlântica, geralmente em formações de Floresta Ombrófila Densa (BACCI et al., 2018). São distribuídas, no Brasil, nos estados do Sul (Paraná e Santa Catarina), Sudeste (Espírito Santo, Minas Gerais, Rio de Janeiro e São Paulo) e Nordeste (Alagoas, Bahia, Pernambuco) (BACCI et al., 2018). Muitas das espécies ocorrem de forma restrita a um ou dois estados (FLORA DO BRASIL 2020, em construção; BACCI et al., 2018). Duas espécies foram citadas como ocorrências extra-brasileiras (BAUMGRATZ, 1990; BERRY, 2001; WURDACK, 1973), *Bertolonia venezuelensis* Wurdack e uma espécie não publicada. *Bertolonia venezuelensis* provavelmente não pertence a *Bertolonia*, e foi citada como *Bertolonia* insertae sedis por Bacci et al. (2019) até que mais dados estejam disponíveis. Outra espécie de *Bertolonia* com suposta ocorrência fora do Brasil é citada como *Bertolonia sp A* por Berry et al. (2001) que estaria, segundo o autor, em processo de publicação por F. Michelangeli, sob o nome *Bertolonia repens*. Tanto *B. venezuelensis* quanto a espécie não descrita diferem das espécies de *Bertolonia* que ocorrem no Brasil pela morfologia da inflorescência, hipanto e fruto (BACCI et al., 2019).

As espécies de *Bertolonia* possuem hábito herbáceo e ocorrem, em geral, em ambiente úmido e em locais com relevo acidentado, em médias altitudes, frequentemente próximos a cursos d'água. Muitas vezes, elas crescem em solos rasos, fixadas a rochas ou também em troncos (BAUMGRATZ, 1990). Possuem folhas simples e opostas, raramente alternas, como em *B. alternifolia* Baumgratz, Amorim & A. Jardim e *B. michelangeliana* Bacci & R. Goldenb., ou algumas vezes rosuladas em decorrência da redução do caule. A lâmina foliar possui formato váriável, desde elíptica, orbicular, lanceolada a ovada, com superfície levemente ondulada ou visivelmente bulada. A nervação é acródroma basal, raramente suprabasal, com três a nove nervuras principais convergindo em direção ao ápice. O caule, pecíolos, lâminas e inflorescências possuem indumento glanduloso-pontuado

(tricomas com menos de 0,1 mm de comprimento) ou glanduloso-viloso. As inflorescências são cimeiras escorpiódes com flores pentâmeras (BAUMGRATZ, 1990). O hipanto geralmente tubuloso e algumas espécies possuem o cálice com duas porções da sépalas distintas e opostas entre si, formando um cálice duplo (BASSO- ALVES et al., 2017). Os estames são inclusos ou exertos, as anteras têm um poro único, e o conectivo é dorsalmente apendiculado ou inapendiculado (BAUMGRATZ, 1990; BACCI et al., 2018). Os frutos são cápsulas obtriquetras, denominadas "bertolonídeos" por Baumgratz (1983-1985). Estes frutos desenvolvem-se a partir do ovário subtriangular, e possuem três deiscências superiores, em vista polar (BAUMGRATZ, 1983-1985). A dispersão das sementes ocorre quando a gotas de água atingem a parte superior do fruto, forçando as sementes para fora, na direção dos ângulos da cápsula triangular, e são consequentemente liberadas pelas extremidades (PIZO & MORELLATO, 2002).

A última revisão taxonômica de *Bertolonia* foi publicada em 1990, com 17 espécies e duas variedades (BAUMGRATZ, 1990), a maioria delas ocorrendo na região sul da Mata Atlântica, principalmente no estado do Rio de Janeiro. Nos últimos sete anos foram descritas 14 novas espécies (BAUMGRATZ et al., 2011; BACCI et al., 2016a; BACCI et al., 2016b; BACCI et al., 2017; SILVA-GONÇALVES et al., 2016; BACCI et al., 2018), sendo oito delas provenientes da Bahia, quatro do Espírito Santo e uma do Rio de Janeiro. As espécies recém descritas indicam que a região central da Mata Atlântica, principalmente no sul do estado da Bahia, possui alta diversidade de espécies (BACCI et al., 2018). Estes mesmos autores indicaram uma mudança na compreensão sobre centros de diversidade de *Bertolonia*: a região central da Mata Atlântica parece abrigar uma maior riqueza de espécies no gênero, ao contrário da informação vigente até poucos anos atrás, que indicava a porção sul da Mata Atlântica como o principal centro de diversidade para o grupo.

Atualmente, mesmo com perdas de áreas significativas, a Mata Atlântica possui grande amplitude latitudinal, estendendo-se ao longo de 3500 km da costa brasileira (SAMBUICHI & HARIDASAN, 2007). O bioma possuía área original que se estendia dos estados do Rio Grande do Sul até o Rio Grande do Norte, com extensões interioranas até o leste do Paraguai e nordeste da Argentina (OLIVEIRA-FILHO & FONTES, 2000). No início deste século, estudos apontaram que restavam apenas cerca de 7 a 8% da sua área original (SOS Mata Atlântica, 2008; GALINDO-LEAL & CÂMARA, 2003). Alguns anos depois houve, aparentemente, um aumento na área de cobertura, para aproximadamente 11 a 16% da área inicial (RIBEIRO et al., 2009). A situação da Mata Atlântica é vista com ainda mais

otimismo pelas pesquisas recentes: segundo Rezende et al. (2018), análises revelam uma cobertura vegetal atual de 28%, ou 320.000 km² de vegetação nativa. A Mata Atlântica comporta cerca de 8000 espécies de plantas endêmicas, número que representa 2,7% do total de espécies de plantas conhecidas do planeta (MYERS et al., 2000). O bioma apresenta heterogeneidade em relação a composição florística; esta variabilidade está fortemente correlacionada com o regime de chuvas e com as variações de temperatura. As transições entre as composições florísticas ao longo deste bioma podem ocorrer desde maneira gradual até de forma abrupta (OLIVEIRA-FILHO & FONTES, 2000). O bioma possui três principais regiões determinadas por endemismo e distribuição de espécies. São eles: Corredor da Biodiversidade do Nordeste, Corredor Central da Mata Atlântica e Corredor da Serra do Mar (WERNECK et al., 2011; THOMAS et al., 1998). O Corredor Central da Mata Atlântica recobre cerca de 86000 km² (AGUIAR, 2003) e se estende do norte do Espírito Santo ao sul da Bahia. (THOMAS et al., 1998), nele encontram-se alto índice de espécies endêmicas (WERNECK et al., 2011) em contraste com baixas taxas de coleta, pricipalmente em regiões de altitude elevada (BACCI *et al.,* 2018).

Aproximadamente 600 espécies de 32 gêneros de Melastomataceae ocorrem em regiões de Mata Atlântica (FLORA DO BRASIL 2020, em construção), como observado em estudos florísticos locais (AMORIM et al., 2009; GOLDENBERG et al., 2009; JARDIM, 2010; MEIRELLES & GOLDENBERG, 2012; SILVA-GONÇALVES, 2016; ALVES, 2015). Dentre as numerosas espécies da família que ocorrem no bioma, muitas são endêmicas (GOLDENBERG, 1999; GOLDENBERG & REGINATO, 2007; CAMARGO & GOLDENBERG, 2011; REGINATO, 2016b; IGLESIAS et al., 2016), e até mesmo alguns gêneros são endêmicos de Mata Atlântica, como é o caso de *Physeterostemon* (GOLDENBERG & AMORIM, 2006; AMORIM et al., 2014) e, do nosso objeto de estudo, *Bertolonia* (BACCI et al., 2016a).

Como Melastomataceae é uma das principais famílias de Angiospermas do Brasil, pela extensão de ocorrência e número de espécies, acreditamos que tratamentos regionais são importantes para um levantamento preciso de informações taxonômicas; estes tratamentos também são importantes como ferramentas que possibilitam a identificação das espécies. *Bertolonia* é endêmica da Mata Atlântica, e também tem citadas seis espécies na Lista Vermelha de espécies ameaçadas de extinção, sendo três destas (*B. angustifolia* Cogn., *B. formosa* Brade e *B. hoehneana* Brade) encontradas em situação crítica de perigo (MARTINELLI & MORAES, 2013). Tratamentos taxônomicos para *Bertolonia* já foram

realizados para quatro estados: Santa Catarina (WURDACK, 1962), São Paulo (BAUMGRATZ, 2009), Paraná (GOLDENBERG et al., 2016) e Espírito Santo (BACCI et al., 2017); faltam, portanto, tratamentos para os estados da Bahia e do Rio de Janeiro. Nossa proposta busca, portanto, contribuir para o conhecimento da flora do estado da Bahia e também fornecer dados para estudos relacionados à proteção de áreas de Mata Atlântica.

O objetivo geral deste projeto é descrever a diversidade das espécies do gênero *Bertolonia* ocorrentes no estado da Bahia. Especificamente, procura-se:

- Identificar, listar e analisar os espécimes de *Bertolonia* depositados em herbários;
- Descrever e ilustrar características dos táxons;
- Elaborar chave de identificação para as espécies de *Bertolonia* ocorrentes no estado;
- Descrever novas espécies identificadas em materais de herbário;
- Identificar padrões de distribuição das espécies no estado;
- Fornecer dados sobre morfologia, ecologia e status de conservação para as espécies estudadas.

A dissertação está dividida em dois capítulos. No primeiro são descritas três novas espécies do gênero, todas endêmicas do estado da Bahia. O segundo capítulo apresenta o tratamento taxonômico para as 15 espécies de *Bertolonia* que ocorrem na Bahia. O tratamento inclui chave de identificação, descrição completa, mapas de distribuição e ilustrações para as espécies.

MATERIAL E MÉTODOS

Área de Estudo

O estado da Bahia está situado na região Nordeste do Brasil, com área total de aproximadamente 564.732,450 km², sendo o estado com maior área da região (IBGE, 2012). Está localizado entre os paralelos 08° 31’ 58”S e 18° 20’ 55”S e os meridianos 46° 37’ 02”W e 37° 20’ 28”W. O estado da Bahia é formado por 417 municípios, e seus limites são formados pelo Oceano Atlântico ao leste, os Estados de Sergipe, Alagoas, Pernambuco e Piauí ao norte, Tocantins e Goiás a oeste, Minas Gerais e Espírito Santo ao sul (IBGE, 2012).

O estado apresenta climas diversos em resposta às diferentes formas de relevo no território e ao efeito da continentalidade. Podem ser encontrados quatro tipos de climas: clima super úmido, de ocorrência no sudeste da Bahia; clima úmido, de ocorrência na área litorânea; clima sub-úmido, de ocorrência principalmente na Chapada Diamantina e no oeste; e clima semi-árido, com elevada deficiência hídrica, de ocorrência nas áreas de depressões interplanálticas (GIULIETTI et al., 2006).

Em relação às fitofisionomias do estado, a Mata Atlântica está presente em 18% da área total, o Cerrado recobre 16 % e a maior parte do território da Bahia é coberto pela Caatinga (64%). As áreas de Mata Atlântica estão distribuídas em diferentes regiões da Bahia: na Chapada Diamantina-Oeste ocorre a Floresta Estacional Decidual Montana; já nas regiões do Litoral Norte, Sul, e Extremo-Sul, ocorrem Floresta Estacional Semidecidual Submontana, Floresta Estacional Decidual e Floresta Ombrófila Densa e áreas de Restinga e Manguezais (VELOSO, 1991; OLIVEIRA-FILHO & FONTES, 2000) Essas regiões apresentam características ecológicas e exploração antrópicas distintas (GIULIETTI *et al.*, 2006).

O estado da Bahia possui alto grau diversidade de ecossistemas e flora, porém apresenta deficiência em áreas de conservação, com apenas 37.915 km² de área preservada. Há 39 áreas de proteção ambiental (APA), 29 reservas particulares do patrimônio natural (RPPN), 24 parques, oito reservas ecológicas, duas reservas biológicas e um cinturão verde (BAHIA, 2006). Muitas dessas áreas são vigentes apenas em legislação, porém com fiscalizações e plamos de ações deficientes (GIULIETTI et al., 2006).

Análise dos Materiais

Os materiais analisados provêm de coletas realizadas na Bahia e depositadas principalmente nos herbários ALCB, CEPEC, HUEFS, HUESB, HUFU, HURB, MBML, NY, RB, UEC, UESC, UPCB, UFP (acrônimos segundo THIERS, 2020), sendo analisados aproximadamante 250 espécimes. Quanto à terminologia morfológica, seguimos Radford *et al*. (1976) e Hickey & King (2002). Foram realizadas coletas em campo em localidades do estado com ocorrência significativa das espécies do gênero, principalmente de espécies novas, para observação de habitat, formas de crescimento e características morfológicas *in vivo*. Maior detalhamento sobre a metodologia utilizada está disponível nos tópicos de materias e métodos dos dois capítulos da dissertação.

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CAPÍTULO 1: NOVELTIES IN *BERTOLONIA* (MELASTOMATACEAE) FROM NORTHEASTERN BRAZIL

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Gessica C. A. Bisewski [1,6], Lucas F. Bacci [2, 5], André M. Amorim [3, 4] & Renato Goldenberg [5]

[1] Programa de Pós-graduação em Botânica, Departamento de Botânica, Universidade Federal do Paraná, Curitiba, Paraná, Brazil; e-mail: gebisewski@gmail.com.

[2] Departamento de Biologia Vegetal, Universidade Estadual de Campinas, Campinas, SP, 13083-862, Brazil

[3] Departamento de Ciências Biológicas, Universidade Estadual de Santa Cruz, Ilhéus, Bahia, 45622-900, Brazil; amorim.uesc@gmail.com

[4] Herbário CEPEC, Centro de Pesquisas do Cacau, Postal Code 07, Itabuna, Bahia, 45600-970, Brazil.

[5] Departamento de Botânica, Universidade Federal do Paraná, Centro Politécnico, Postal Box 19031, Curitiba, Paraná, 81531-970, Brazil.

[6]Author for correspondence

Abstract: We describe here three new species of *Bertolonia*: *B. igrapiuna*, *B. riocontensis* and *B. violacea*. They were recognized during a taxonomic study for the genus in the state of Bahia. We present descriptions, taxonomic comments, illustrations and conservation status assignments for the new species. The first is categorized as vulnerable (VU), and the others as data deficient (DD).

Keywords: Atlantic Forest, Bertolonieae, endemism, IUCN.

1 Introduction

Bertolonia Raddi is a medium-sized genus of Melastomataceae with 31 species and two varieties restricted to eastern Brazil, ranging from the state of Santa Catarina, in the south, to Pernambuco, in the north, and usually distributed along the Brazilian coastal states (Bacci et al. 2018; Flora do Brasil 2020, under construction). *Bertolonia* belongs to tribe Bertoloniaeae, and are recognized by the herbaceous habit, scorpioid inflorescences, and obtriquetrous capsules, and they inhabit moist, hilly and shaded areas of the Atlantic Forest (Baumgratz 1983-1985, 1990). The species within the genus can be distinguished mainly by leaf shape and surface, indument, the sepals undivided or with two portions (an internal lamina and an external tooth; see Basso-Alves et al. 2017), petals colour, pore position in the anthers and presence or absence of a connective appendage (Baumgratz et al. 2011; Bacci et al. 2016a, 2016b, 2017, 2018; Silva-Gonçalves et al. 2016).

About 45% of the currently known diversity of *Bertolonia* was described in the last seven years (Baumgratz et al. 2011; Bacci et al. 2016a, 2016b, 2017, 2018; Silva-Gonçalves et al. 2016). Bacci et al. (2018) described six new species of *Bertolonia* from Bahia that changed the current knowledge of diversity centers and endemism of the genus, moving it from the Southern to the Central Atlantic Forest, mainly in Southern Bahia (currently with 16 species,

12 of them endemic). The Central Atlantic Forest, which extends from northern Espírito Santo to southern Bahia, has a high number of endemic species of vascular plants (Thomas et al. 1998; Werneck et al. 2011). Despite recent advances, there are still species to be found in the Atlantic Forest, mainly because of the historical gap of collections in Central and Northern Atlantic Forest, and the microendemic nature of the species of *Bertolonia* that occur in this area (Bacci et al. 2018).

We present here three new species of *Bertolonia* that are endemic to the state of Bahia. They were found during field expeditions and after consulting several herbarium collections. We provide morphological descriptions, comments on the new species and its boundaries, figures, distribution maps and data on conservation status.

2 Material and methods

The authors have been collecting *Bertolonia* in the state of Bahia since 1992. Illustrations and morphological data were obtained from herbarium specimens and from fresh material collected in the field and conserved in ethanol. Comments about the relations of the new species were based on specific literature (Baumgratz 1990, Baumgratz et al. 2011; Bacci et al. 2016b, 2018) and in the analysis of specimens at ALCB, CEPEC, HUEFS, HUESB, HUFU, HURB, MBML, NY, RB, UEC, UESC, UPCB, UFP, and US (acronyms according to Thiers 2019). The morphological descriptions followed Radford et al. (1976), Hickey & King (2002) and Bacci et al. (2018). Data on phenology and habitat were obtained from specimens' labels. The conservation status assessments followed IUCN criteria (2017), based on the Extent of Occurrence (EOO) and Occupancy Area (AOO), calculated in GeoCAT (Bachman 2011). Illustrations were made with photographs taken from dried (and sometimes rehydrated) material. Distribution maps were made in QGIS 3.2.0 (QGIS Development Team 2018).

3 Results and Discussion

Bertolonia igrapiuna **Bisewski, Bacci & R. Goldenb., sp. nov. Type.** – BRASIL. Bahia: Arataca, Rod. Arataca-Una entrada a direita do assentamento Santo Antônio 9.5 km, vicinal para a Fazenda Palmeira 8.9 km da estrada, Serra do Peito de Moça, RPPN Palmeira/IESB. 15°10'27"S, 39°20'22"W, 450 m, fl. & fr., 17 Dec 2005, *JG Jardim, JL Paixão, MM Lopes, LCJ Gomes 4820* (Holotype: UPCB–0009942! Isotypes: CEPEC!, NY–1262244 [photo!]). – Figure 1, 2.

Diagnosis — *Bertolonia igrapiuna* is similar to *Bertolonia leuzeana* (Bonpl.) DC. Both have flat, ovate or elliptic leaf blades with non-cordate bases and sparse ciliate margins. *Bertolonia igrapiuna* differs by the leaf blades covered with only glandulose-punctate (vs. leaf blades abaxial surface also glandulose-villose in *B. leuzeana*), apiculate petals with a gland head topping this apiculum (vs. not apiculate petals) and anthers with an extrorse pore (vs. introrse).

Description — Herbs 20–30 cm tall, terrestrial or epiphytic. Stem 5–8 mm wide, rounded, densely glandulose-punctate (trichomes less than 0.1 mm long). Leaves with petioles 2.7–15 cm long, quadrangular, moderately to densely glandulose-punctate; blade 8.4–23 × 5.5–16.5 cm, flat, widely ovate or elliptic, base shortly attenuate or obtuse, asymmetric, apex cuspidate or acute, seldom rounded, margins entire or denticulate in the upper half, sparsely ciliate, adaxial surface green, sparsely to moderately glandulose-punctate (trichomes less than 0.1 mm long, brownish), abaxial surface light green, moderately glandulose-punctate punctate (trichomes less than 0.1 mm long, brownish), main veins 5 or 3, plus one pair that do not reach the leaf apex, basal, seldom suprabasal (up to 3–9.8 mm above the base). Inflorescence terminal, 7–19 cm long (15.2–27 cm long in old infrutescences), peduncle moderately glandulose-punctate when young, sparsely glandulose-punctate when old. Bracts 2–3 mm long, sessile, obovate, apex acute, both surfaces glandulose-punctate, margins glandulose-villose; bracteoles 0.8–1.7 mm long, sessile, lanceolate, apex acute, both surfaces glandulose-

punctate. Hypanthium 2.2–2.9 × 3–3.4 mm, obconic, glandulose-punctate and glandulose-villose. Calyx membranaceous, sepals 5, not divided into an inner lamina and a dorsal tooth, elliptic to ovate, apex acute, margins entire, glandulose-villose, both surfaces glandulose-punctate. Petals 5, 6.4–8.7 × 3.5–4.7 mm long, pink, obovate, base cuneate, apex apiculate (ca. 0.5 mm long), the apiculum with a caducous gland head, margins entire, papillose, both surfaces glabrous. Stamens 10, 4.5–6.5 mm long; filaments 1.7–3.1 mm long; anthers 2.4–3.2 mm long, cream colored, lanceolate, slightly undulate, pore extrorse, non-thickened margins; connective shortly prolonged (ca. 0.2 mm), dorsally thickened, unnappendaged. Ovary glabrous; style 4.3–6.4 mm long, curved at the apex, slightly capitate, glabrous. Fruits 0.5–0.6 × 0.8–1.2 cm. Seeds fusiform tuberculate.

Phenology — *Bertolonia igrapiuna* was collected with flowers from November to March and fruits from December to June.

Distribution and Ecology — *Bertolonia igrapiuna* is found exclusively at the mountain complex of Serra das Lontras, in southeastern Bahia (Fig. 3). Most of its area is protected by a federal conservation unit, the "Parque Nacional da Serra das Lontras", created in 2010, and covering about 11,300 ha. It comprises the most significant remnants of Atlantic rain forest in southern Bahia. The forest is well preserved at the highest points, alternating with a mosaic of areas with conditions determined by different human historical interventions, such as subsistence agriculture, cocoa plantations and pastures (Amorim et al. 2009). It was collected between 600 and 1000 m high, notably on the "Peito de Moça" peak.

Conservation status — *Bertolonia igrapiuna* has an EOO (Extent of Occurrence) of 28 km² and AOO (Area of Occupancy) of 16 km². Despite the fact that most populations known for this species occur inside a conservation unit (see previous section), it can be classified as "Critically Endangered" (CR), following IUCN (2017).

Etymology — The specific epithet is an indigenous name for small rivers with dark water. It is locally used to refer to people born in the cocoa region of Bahia, Brazil.

Remarks — *Bertolonia igrapiuna* is characterized by the branches, petiole and leaf blades covered only with sessile and short-stalked glands (trichomes less than 0.1 mm long), and also by the elliptic or ovate blades with shortly attenuate or obtuse, occasionally asymmetric base and stamens with an extrorse pore. As mentioned before, *Bertolonia igrapiuna* is similar to *B. leuzeana*. Despite sharing morphological overall appearance, the latter has a much southern distribution, occurring in Rio de Janeiro state (Baumgratz 1990). This species was previously mentioned in a survey of Melastomataceae in the Serra das Lontras National Park (Jardim 2010), as an undetermined species. Two other species of *Bertolonia* were described for the same locality, *B. alternifolia* Baumgratz, Amorim & A. Jardim and *B. bullata* Baumgratz, Amorim & A. Jardim (Baumgratz et al. 2011). The new species differs from them because of its bigger leaf blades lacking long-stalked glands. In addition, *Bertolonia igrapiuna* differs from *B. alternifolia* by the opposite leaves (vs. alternate in *B. alternifolia*), and from *B. bullata* by the leaves with a cordate base and a bullate surface (vs. leaves with attenuate or obtuse base and flat surface).

Additional Specimens Examined — BRASIL: BAHIA: Mun. Arataca, Serra das Lontras, Peito de Moça, 15°10'25"S, 39°20'30"W [-15.173611°, -39.341667°], 1000m, 12 Feb 2005, *J.G. Jardim et al. 4366* (CEPEC); 12 Feb 2005, *J.G. Jardim 4392* (CEPEC); 14 May 2005, *A.M. Amorim et al. 4984* (CEPEC, NY); 15°09'40"S, 39°20'38"W [-15.161111°, -39.343889°], 700-850m, 19 Jan 2006, *W.W. Thomas et al. 14581* (CEPEC); 15 Jun 2006, *A.M. Amorim 6089* (CEPEC); 15°10'27"S, 39°20'22"W [-15.174167°, -39.339444°], 400-936m, 25 Nov 2006, *A.M.A. Amorim et al. 6583* (CEPEC, UESC); 19 Jan 2007, *A.M. Amorim 6667* (CEPEC); 23 Sep 2007, *A.B. Jardim 13* (CEPEC, UESC); 15°11'22"S, 39°23'07"W [-15.189444°, -39.385278°], 900-1000m, 30 Mar 2008, *A.B. Jardim et al. 24* (CEPEC); 30 Mar

2008, *A.B. Jardim 25* (CEPEC); 20 Dec 2008, *A.B. Jardim et al. 146* (CEPEC); 6 Feb 2009, *A.B. Jardim et al. 222* (CEPEC, RB, UESC); 15°08'56"S, 39°19'03"W [-15.148889°, -39.317500°], 600-950m, 15 Mar 2012, *A.M. Amorim 8066* (CEPEC, RB); 9 June 2016, *L.F. Bacci et al*. 380 (CEPEC). Mun. Una, Serra das Lontras, Ribeirão das Pratinhas, 15°16'55"S, 39°05'17"W [-15.281897°, -39.087924°], alt: 400-450 m, 11 Mar 1986, *E.B. dos Santos et al. 4251* (CEPEC, UEC, US).

Bertolonia riocontensis **Bisewski, Bacci & R. Goldenb., sp. nov. Type:** – BRASIL. Bahia: Itacaré, Fazenda Bom Jesus, Serra dos Vinháticos. 14º17'27"S, 39º14'43"W, 400 m, fl. & fr., 10 Aug 1998, *JG Jardim and EF da Silva 1823* (Holotype: CEPEC! isotypes: RB–0515770!, NY–2499190 [photo!]) – Fig. 4, 5.

Diagnosis— *Bertolonia riocontensis* is similar to *Bertolonia maculata* DC. and *Bertolonia marmorata* (Naudin) Naudin. They all have branches, petioles, leaf blades, hypanthium and sepals covered with sessile and short-stalked glands (less than 0.1 mm long) and long-stalked glands (0.9–4 mm long), ovate or widely ovate leaf blades with cordate bases, hypanthia with similar sizes (2.3–2.7 × 3.7–4 mm in *B. riocontensis*, 2.4–3.1 × 3–3.7 mm in *B. maculata* and 1.8–2.9 × 1.6–2.5 in *B. marmorata*) and petals with an apiculate apex. *Bertolonia riocontensis* differs from *B. maculata* by the leaf blades with denticulate and densely ciliate margins (vs. entire and moderately ciliate in *B. maculata*) and stamens with an extrorse pore with non-thickened margins (vs. introrse pore with thickened margins). *Bertolonia riocontensis* differs from *B. marmorata* by the leaf blades with an acuminate apex (vs. rounded or obtuse in *B. marmorata*) and stamens with an extrorse and rounded pore (vs. introrse and triangular).

Description—Herbs ca. 20 cm tall, terrestrial or rupiculous. Stem 5–12 mm wide, quadrangular, densely glandulose-punctate (trichomes less than 0.1 mm long) and densely glandulose-villose (trichomes 2–3.5 mm long). Leaves with petioles 3.3–9 cm long, quadrangular, moderately to densely glandulose-punctate and moderately to densely

glandulose-villose (trichomes 1.5–3 mm long); blade 9.6–15 × 5–11.5 cm, flat, ovate or widely ovate, base cordate, apex acuminate, margins denticulate, densely ciliate, adaxial surface light green, moderately glandulose-punctate, moderately glandulose-villose (trichomes 0.9–1.5 mm long, brownish), abaxial surface light green, sparsely glandulose-punctate and moderately glandulose-villose (trichomes 1.7–2.8 mm long, brownish) main veins 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 8–12 cm long (ca. 13 cm long in old infrutescences), peduncle moderately glandulose-punctate and moderately glandulose-villose when young, sparsely glandulose-punctate and sparsely glandulose-villose when very old. Bracts and bracteoles not seen. Hypanthium 2.3–2.7 × 3.7–4 mm, obconic, glandulose-punctate and glandulose-villose. Calyx membranaceous, sepals 5, not divided into an inner lamina and a dorsal tooth, ovate, apex acute, margins entire, glandulose-villose, both surfaces glandulose-punctate and glandulose-villose. Petals 5, ca. 9 × 4 mm long, pink, ovate, base cuneate, apex apiculate (trichome ca. 0.9 mm long), the apiculum with a gland head, margins entire, papillose, both surfaces glabrous. Stamens 10, 7–8 mm long; filaments 3.1–3.9 mm long; anthers 3.9–4.2 mm long, cream colored, lanceolate, undulate, pore extrorse, non-thickened margins; connective shortly prolonged (less than 0.1 mm), dorsally thickened, unnappendaged. Ovary glabrous; style ca. 8 mm long, straight, slightly capitate, glabrous. Fruits 0.7–0.8 × 0.4–0.6 cm. Seeds reniform, tuberculate.

Phenology—*Bertolonia riocontensis* was collected with flowers in August and fruits in August to September.

Distribution and Ecology— *Bertolonia riocontensis* has only two gatherings, both from the same locality been collected few times. The area is a private property surrounded by montane Atlantic Forest (Floresta Ombrófila Densa Montana, according to the Brazilian official classification system; Veloso et al. 1991) (Fig. 3). Both populations usually occur on rocky outcrops surrounded by forests on swampy areas.

Conservation status—Since the new species has been collected only twice at similar localities, we suggest that it should be considered data Deficient (DD) following IUCN (2017) categories.

Etymology —The specific epithet refers to its occurrence on the basin of Rio de Contas, Bahia, Brazil.

Remarks—*Bertolonia riocontensis* is recognized by the branches, petioles, leaf blades, hypanthium and sepals covered with sessile and short-stalked glands (less than 0.1 mm long) and long-stalked glands (0.9–3.5 mm long), thick stems (5–12 mm long), membranaceous and light green leaf blades with a markedly cordate base, and denticulate, densely ciliate margins. Furthermore, this species has the petals with an apiculate apex and stamens with extrorse pores. This species is similar to *B. maculata* and *B. marmorata* as described above, and also has leaf shape and margins similar to *B. reginatoi*, from which it differs by the length of the petals (ca. 9 mm in *B. riocontensis* vs. 5–8.3 mm in *B. reginatoi*) and the extrorse pore (vs. introrse in *B. reginatoi*).

Additional Specimens Examined—BRASIL: BAHIA: Mun. Itacaré, próximo ao Rio de Contas, Fazenda Bom Jesus, 14°19'03"S, 39°15'39"W [-14.317500°, -39.260833°], 80 m, fr., 5 Sep 2015, *L.F. Bacci et al. 191* (CEPEC, UPCB).

Bertolonia violacea **Bisewski, Bacci & R. Goldenb., sp. nov. Type.** – BRASIL. Bahia: Guaratinga, Córrego Jacutinga 16°38'27"S, 39°47'54"W, 369 m, fl. & fr., 23 Apr 2009, *AP Fontana, L Kollmann, E Leme and C Esgario 5909* (Holotype: MBML!; Isotype: CEPEC!). – Fig. 6, 7.

Diagnosis— *Bertolonia violacea* is similar to *Bertolonia marmorata* (Naudin) Naudin. They share the widely elliptic or widely ovate leaf blades, and also the branches, petioles, leaf blades, hypanthium, and sepals covered by sessile and short-stalked glands (trichomes less than 0.1 mm long) and long-stalked glands (trichomes 1–2.5 mm long). However, *Bertolonia violacea* differs from *B. marmorata* by the leaves with an acute apex and revolute margins

(vs. rounded apex and entire margins in *B. marmorata*), the purplish colour of the leaf trichomes (vs. brownish in *B. marmorata*), and the anthers with an extrorse pore (vs. introrse in *B. marmorata*).

Description—Herbs 5–8 cm tall, terrestrial. Stem 2.5–5 mm wide, terete, densely glandulose-punctate (trichomes less than 0.1 mm long) and moderately glandulose-villose (trichomes 1–2.4 mm long). Leaves with petioles 1.4–3.3 cm long, terete, sparsely to moderately glandulose-punctate and sparsely to moderately glandulose-villose (trichomes 1.5–2 mm long); blade 3–5 × 2.5–4.3 cm, flat, widely elliptic, base cordate, apex rounded, margins revolute, moderately ciliate, adaxial surface dark green, sparsely glandulose-punctate and sparsely to moderately glandulose-villose (trichomes 1.2–1.5 mm long, purplish), abaxial surface purple, seldom dark green, sparsely glandulose-punctate and sparsely glandulose-villose (trichomes ca. 1 mm long, purplish), main veins 5, plus one pair that do not reach the leaf apex, basal. Inflorescence terminal, 6.2–9 cm long (10.8–13 cm long in old infrutescences), peduncle sparsely glandulose-punctate and moderately to densely glandulose-villose when young, sparsely glandulose-punctate and sparsely glandulose-villose when old. Bracts not seen; bracteoles 1.1–1.2 mm long, sessile, lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 1.6–2.1 × 2–2.3 mm, shortly terete, glandulose-punctate and glandulose-villose. Calyx membranaceous, sepals 5, not divided into an inner lamina and a dorsal tooth, elliptic to ovate, apex acute, margins entire, glandulose-villose, both surfaces glandulose-punctate and glandulose-villose. Petals 5, 4–6.5 × 2.5–3 mm., pink, elliptic, base cuneate, apex apiculate (ca. 0.6mm long), the apiculum with a caducous gland head, margins entire with long-stalked glands (trichomes 0.2–0.3 mm long), papillose, both surfaces glabrous. Stamens 10, 5.7–5.9 mm long; filaments 3.2–3.4 mm long; anthers 2.4–2.5 mm long, cream colored, lanceolate, slightly undulate, pore extrorse, non-thickened margins; connective shortly prolonged (less than 0.1 mm), dorsally thickened, unnappendaged. Ovary

glabrous; style 5.5–7.3 mm long, straight, slightly capitate, glabrous. Fruits 0.5–0.6 × 0.8–1 cm. Seeds reniform, tuberculate.

Phenology—*Bertolonia violacea* was collected with flowers and fruits in April and May.

Distribution and Ecology— *Bertolonia violacea* has been collected only twice at the same locality in the municipality of Guaratinga (Fig. 3). This species has been cultivated in green house of Museu de Biologia Mello Leitão in the state of Espirito Santo, where it got spread, weedy-like, in a vegetation house.

Conservation status—*Bertolonia violacea* has few specimens collected, some of them cultivated in greenhouses. Given the available information, we suggest the species should be considered Data Deficient (DD) following IUCN (2017) categories.

Etymology —The epithet refers to the purplish colour of the leaf trichomes, one of the diagnostic features of the new species.

Remarks —*Bertolonia violacea* is characterized by glandular trichomes with a remarkable purplish colour. The new species has one of the smallest leaves in the genus (about 2.5–7 cm long), together with *B. angustipetala* Bacci & R. Goldenb.*, B. alternifolia* and *B. kollmannii* Bacci & R. Goldenb. *Bertolonia violacea* also resembles *B. maculata* by the size of the leaves, and hypanthia covered by long-stalked glands and petals with an apiculate apex. However, *Bertolonia violacea* differs from *B. maculata* mainly by the rounded leaf apex (vs. acute in *B. maculata*). This species is similar to *Bertolonia ovata* DC., cited by Baumgratz (1990) as a doubtful species. *Bertolonia ovata* was described by De Candolle in 1828, based on a specimen collected by Martius in the state of Bahia and deposited at the Geneva Herbarium (G-DC). The specimen has only fruits and an unreadable herbarium label. From the image of the specimen it is possible to observe the leaves in similar dimensions as *Bertolonia violacea*. However, from the analysis of the holotype image it is possible to observe the rounded apex of the leaf blade (vs. acute in *B. violacea*) and its greenish colour

(vs. purplish, which can be observed even in herborized material of *B. violacea*).

Additional Specimens Examined—BRASIL: BAHIA: Mun. Guaratinga, Córrego Jacutinga, 16°38'26"S, 39°47'54"W [-16.640556°, -39.798444°], 369m, 23 Apr 2009, *L. Kollmann et al.* 11578 (MBML). ESPÍRITO SANTO (CULTIVATED): Mun. Santa Teresa: Cultivada no viveiro do MBML, 20°12'29"S, 40°54'54"W [-20.208056°, -40.915000°], 10 May 2015, *L.F. Bacci et al.* 160 (NY, UPCB). PARANÁ (CULTIVATED): Mun. Curitiba: Cultivada no Laboratório de Sistemática de Plantas Vasculares, 25°26'51"S, 49°13'58"W [-25.447607°, -49.232740°], 01 Nov 2019, *G.C.A. Bisewski* 60 (UPCB).

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Authors contribution All authors collected material and contributed to the study conception and design. Material preparation and analyses were performed by GB. The first draft of the manuscript was written by GB and LFB, but all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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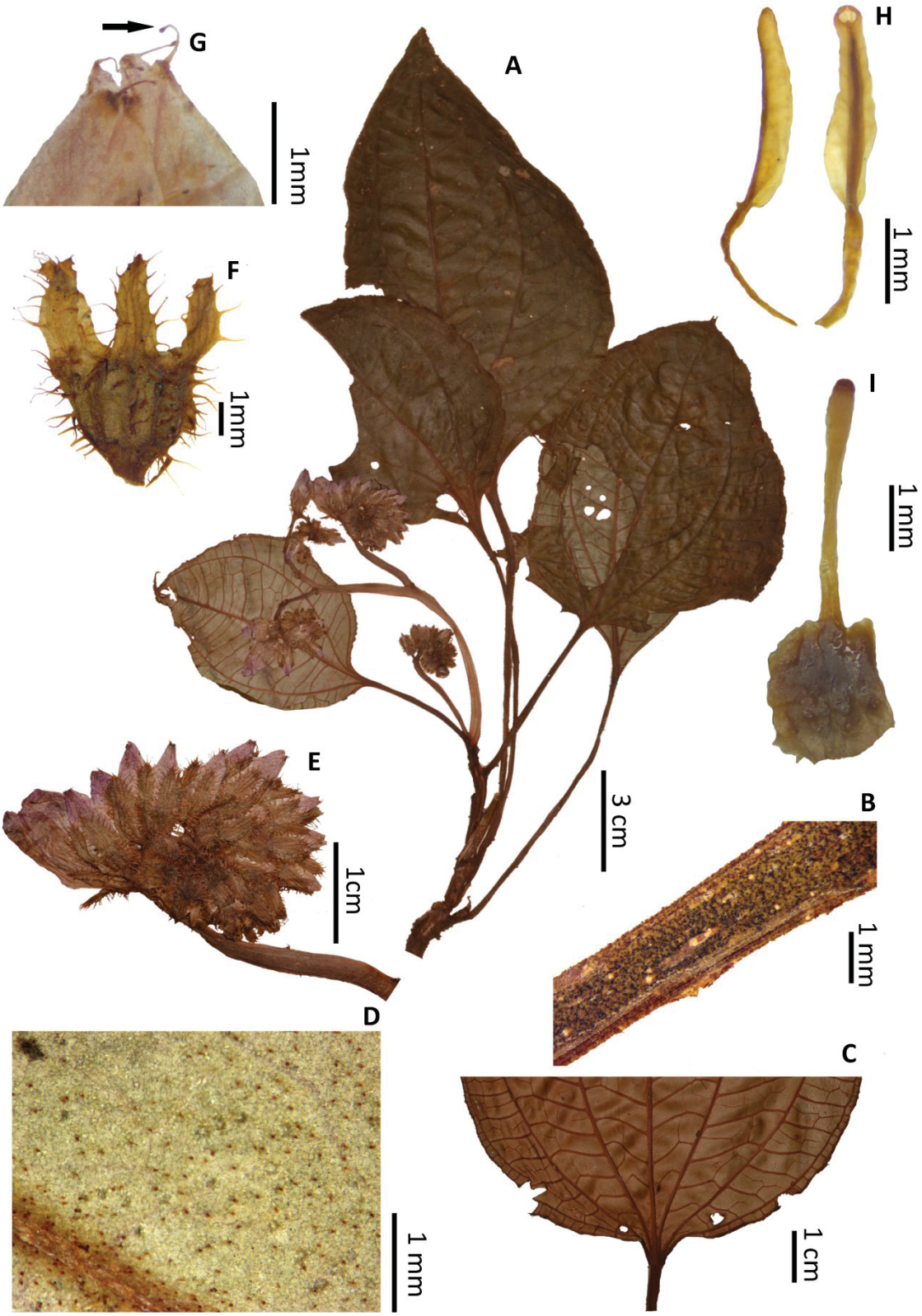

FIG. 1 *Bertolonia igrapiuna*; A: fertile branch; B: trichomes on the petiole; C: leaf base, abaxial surface; D: short-stalked glandular trichomes on the abaxial leaf surface; E: inflorescence; F: hypanthium and calyx, abaxial surface; G: Petals apex showing the apiculum with glands (arrow); H: stamen; lateral (left) and dorsal (right) views, note the extrorse pore on dorsal view.; I: ovary and style. [A, B, D, F and I: *Amorim 6583* (CEPEC), C, F and G: *Jardim 4820* (CEPEC), D: *Jardim 24* (CEPEC)].

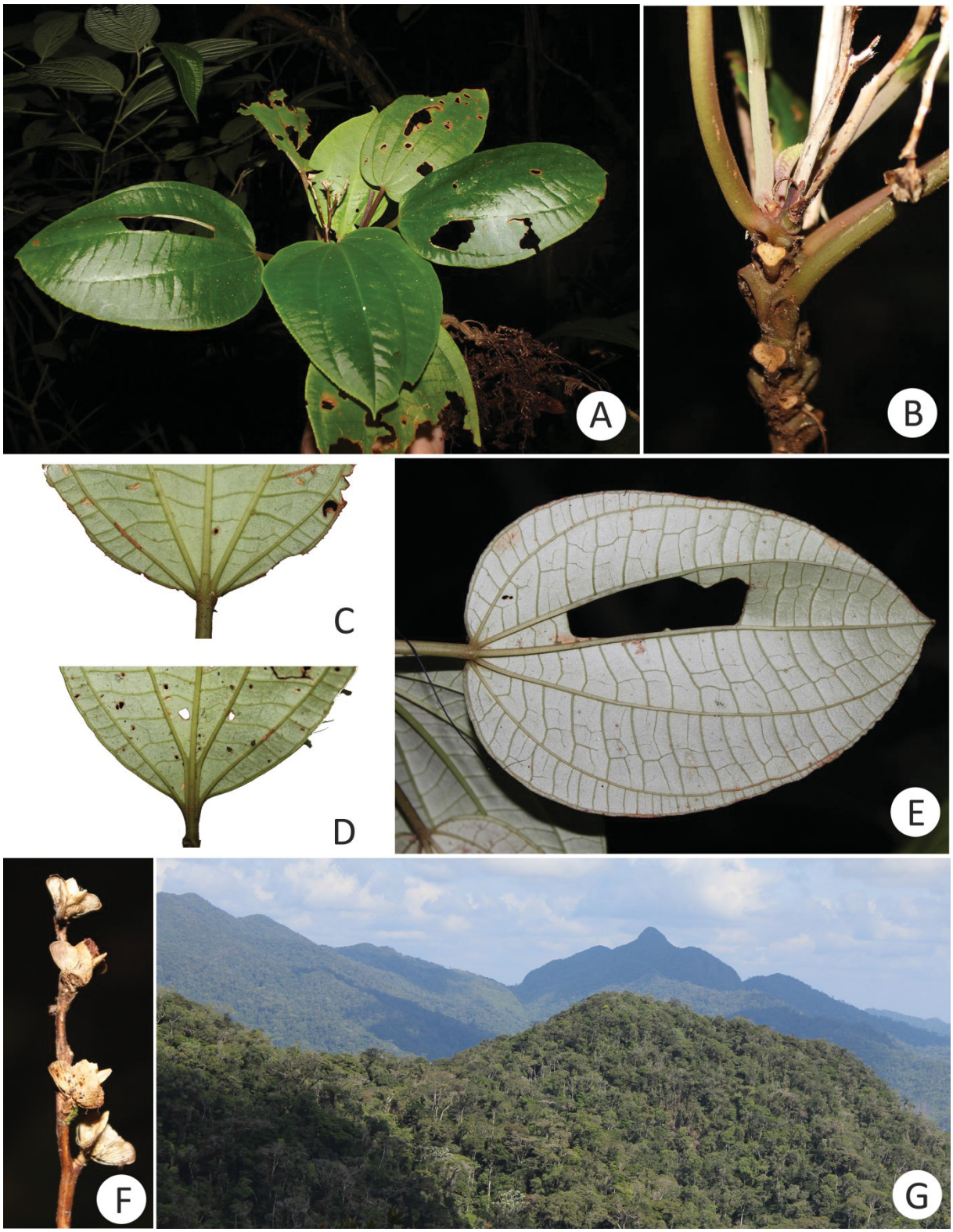

FIG. 2 *Bertolonia igrapiuna*; A: habit; B: branch and petioles; C, D: leaf base, abaxial surface; E: leave, abaxial surface; F: old fruits; G: Vegetation of Serra das Lontras, Bahia, Brazil. Photos by L.F. Bacci.

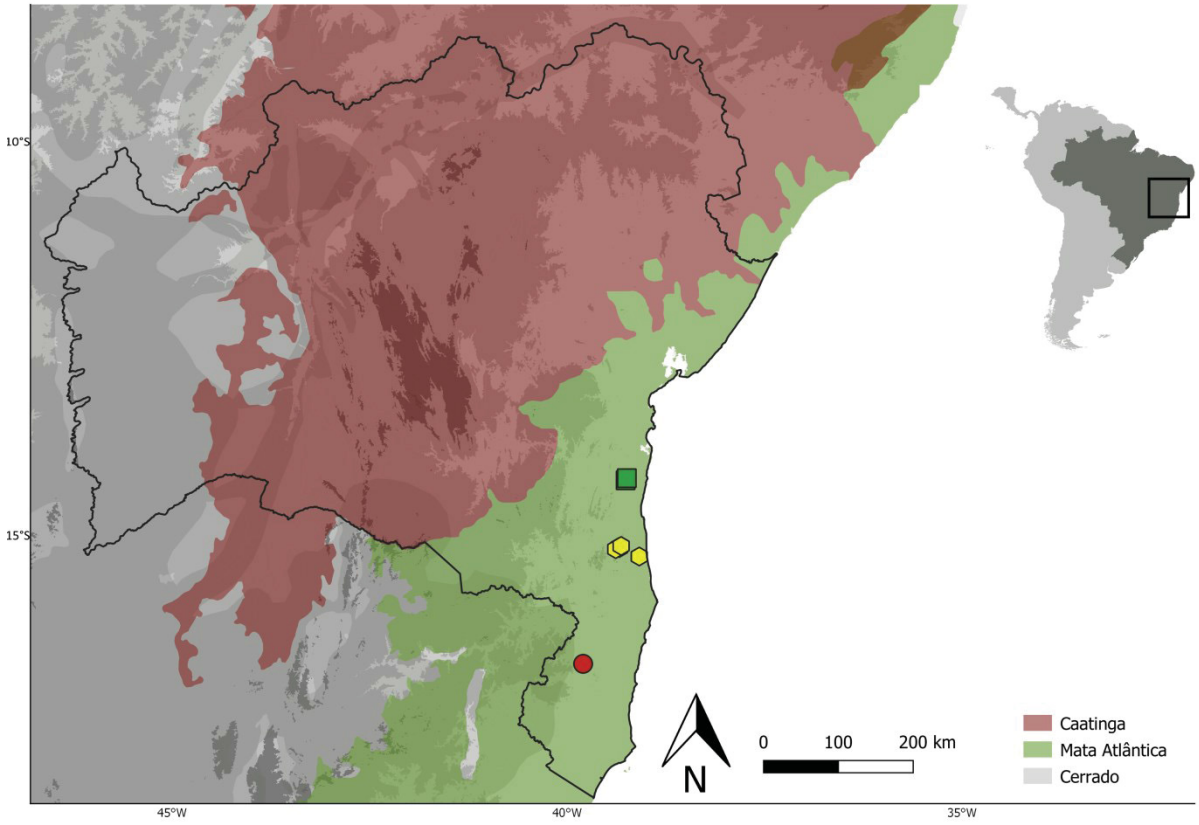

FIG. 3 Distribution map of new species of *Bertolonia* in the state of Bahia: *Bertolonia igrapiuna* (yellow hexagons); *Bertolonia riocontensis* (green squares); *Bertolonia violacea* (red circle).

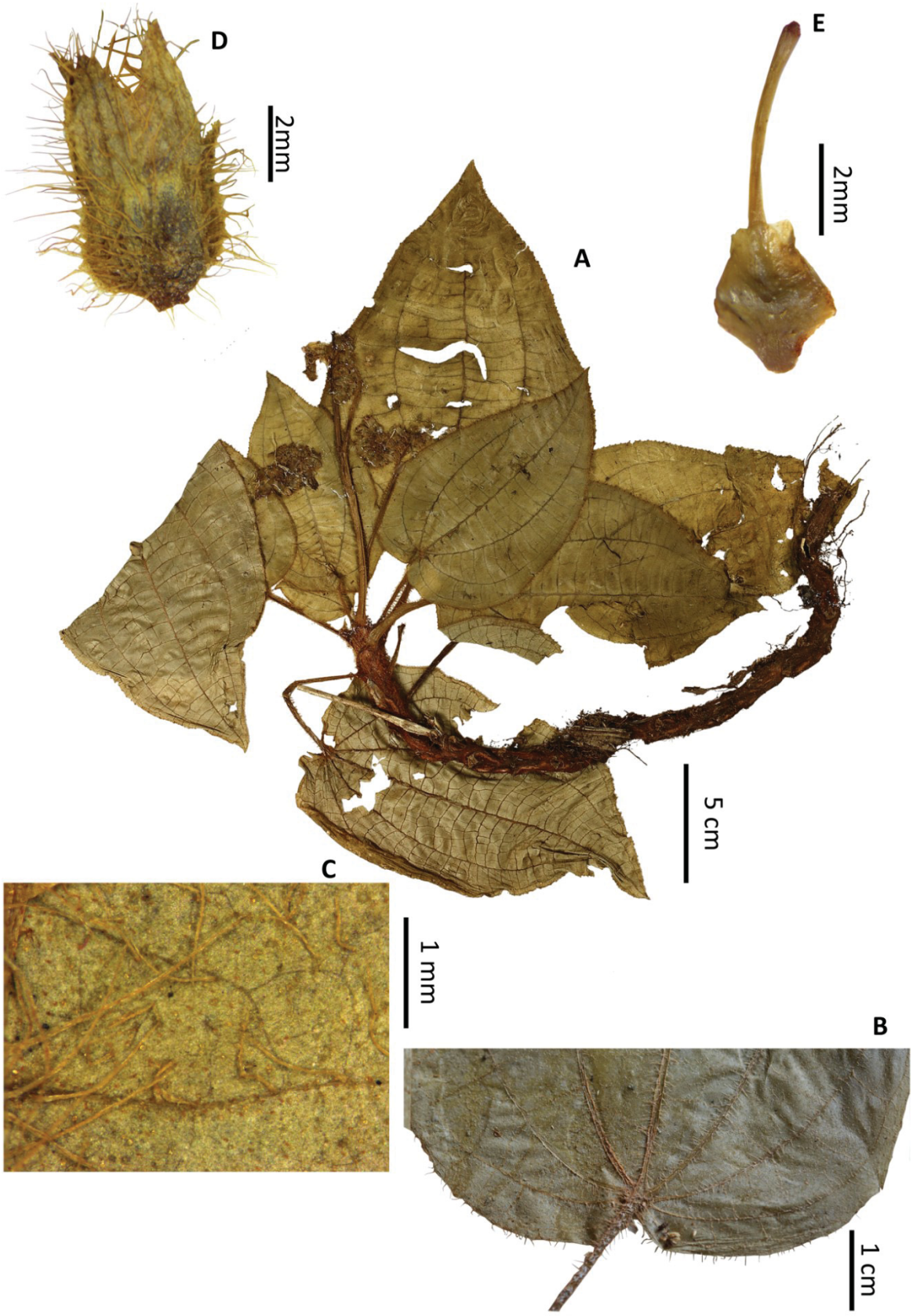

FIG. 4 *Bertolonia riocontensis;* A: fertile branch; B: leaf base, abaxial surface; C: short and long stalked glandular trichomes on the abaxial leaf surface; D: hypanthium and calyx, abaxial surface; E: ovary and style. [A, C, D and E: *Jardim 1823* (CEPEC), B: *Bacci 191* (CEPEC)].

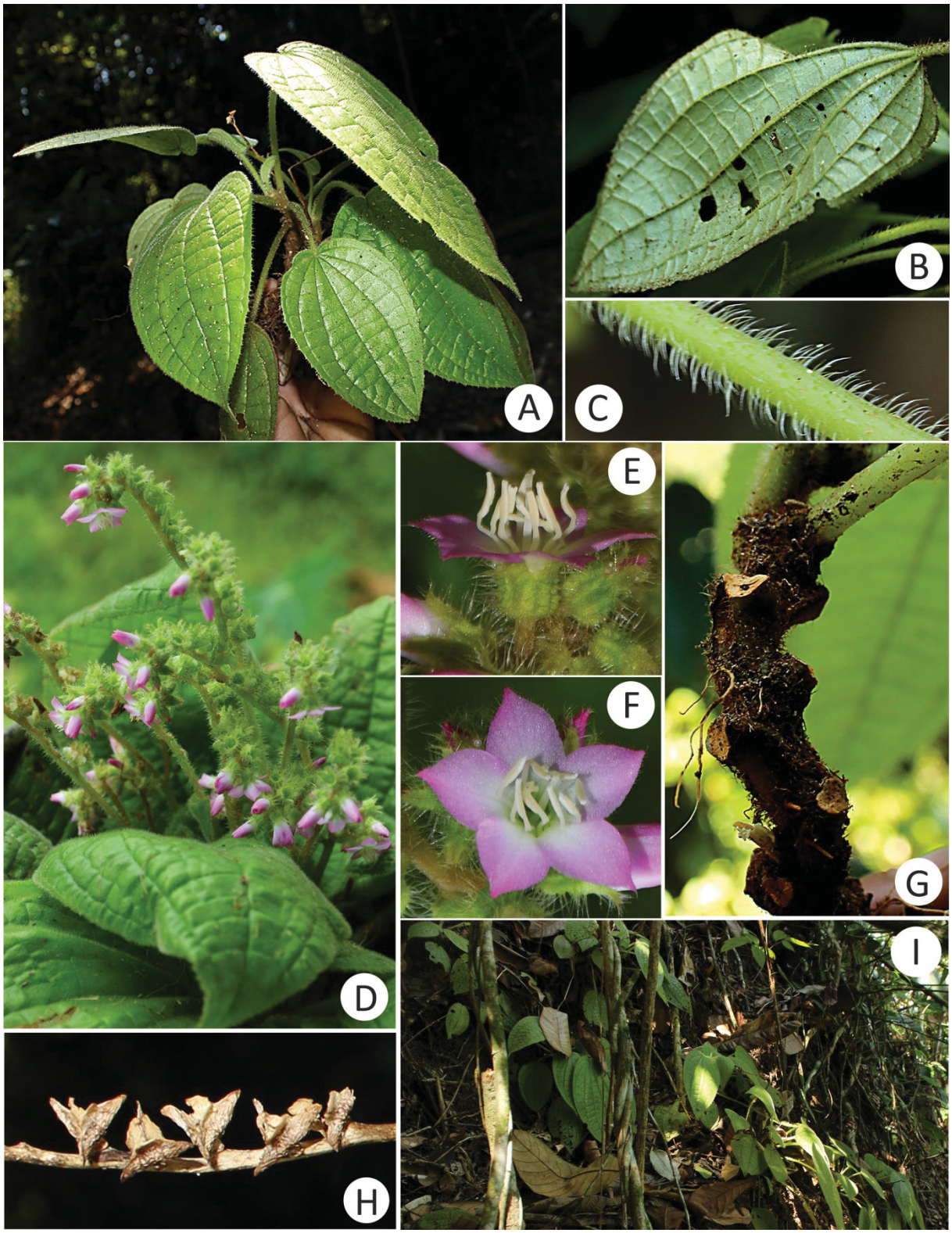

FIG. 5 *Bertolonia riocontensis*; A: habit; B: trichomes on the abaxial leaf surface; C. trichomes on the petiole; D: inflorescence; E: flower, lateral view and young fruits; F: flower, top view showing the apiculate apex of petals; G: branch and petioles; H: old fruits; I: rocky outcrop with plants of *B. riocontensis*. Photos: A, B, C, G, H and I by L.F. Bacci; D, E and F by J.G. Jardim.

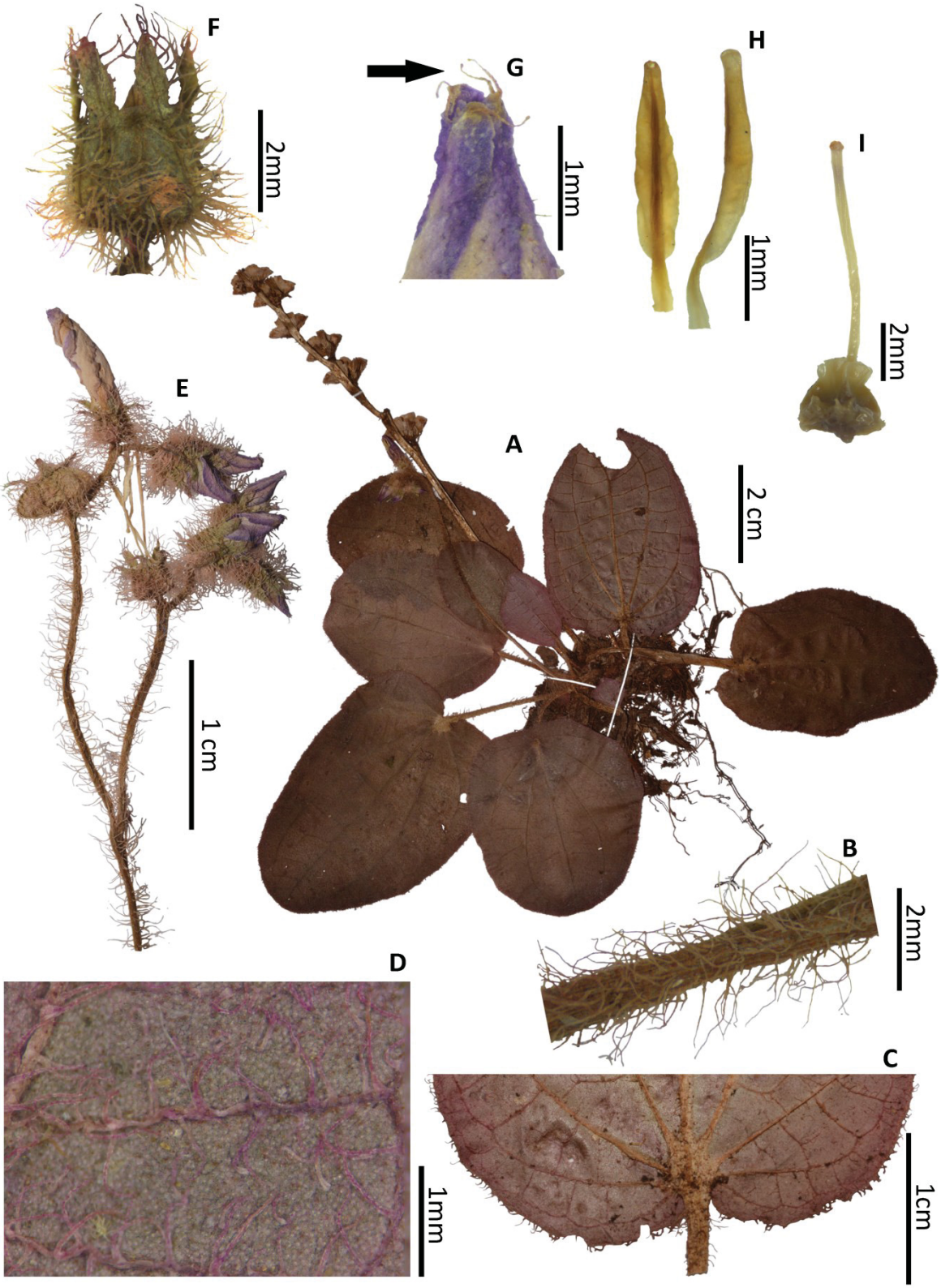

FIG. 6 *Bertolonia violacea*; A: fertile branch. B: trichomes on the petiole. C: leaf base, abaxial surface. D: purplish trichomes on the abaxial leaf surface. E: inflorescence. F: Hypanthium and calyx, abaxial surface. G: petals apex showing the apiculum with glands (arrow). H: Stamen, dorsal (left) and lateral (right) views, note the extrorse pore on dorsal view. I: Ovary and style. [A, C and I: *Kollmann 11578* (MBML); B, D, E, F, G and H: *Fontana 5909* (MBML)].

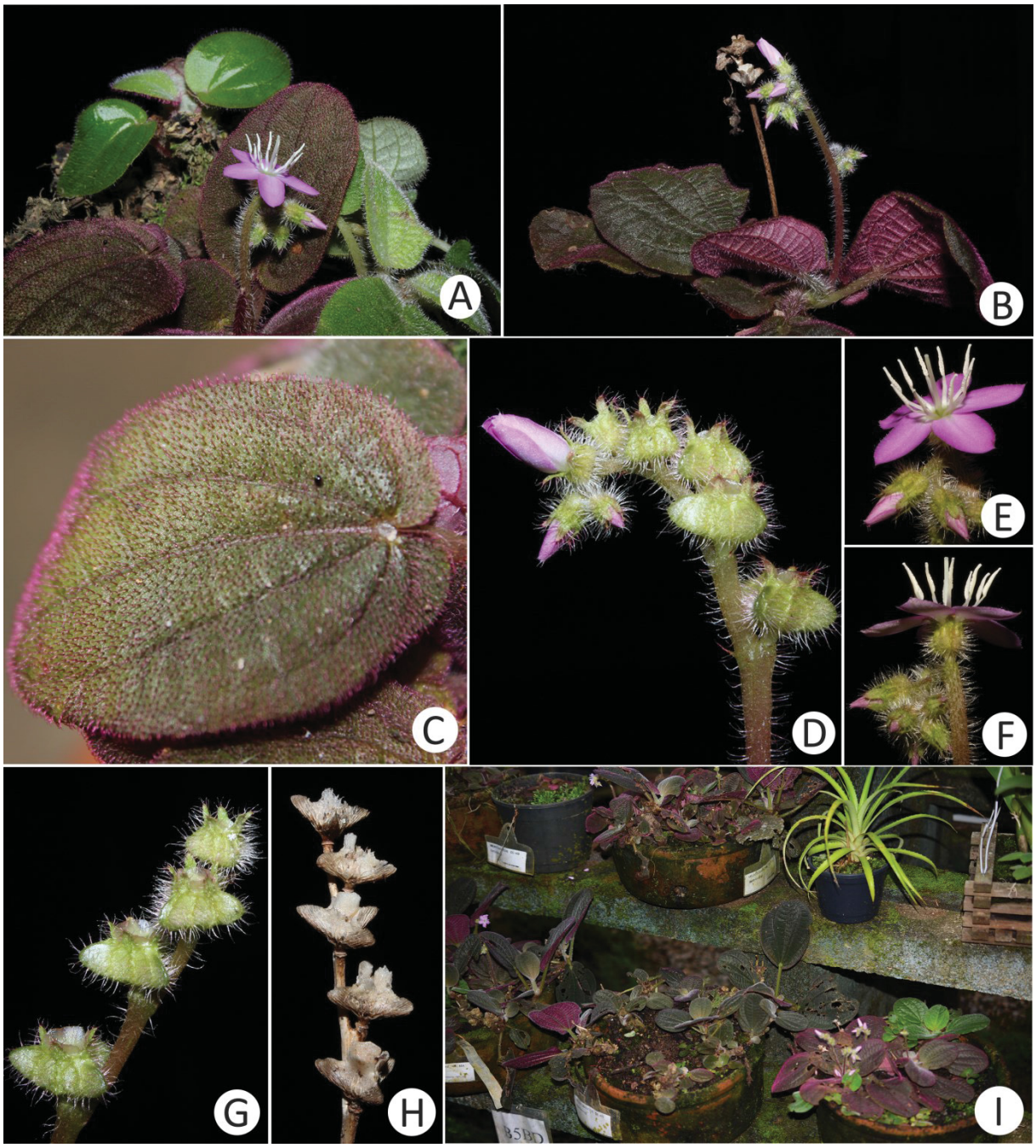

FIG. 7 *Bertolonia violacea*; A, B: habit; C: leaf blade covered with purple trichomes; D: inflorescence with young fruits; E, F: flowers, lateral views. G: young fruits; H: old fruits; I: cultivated individuals in MBML (Santa Teresa, Espírito Santo). Photos: A, B and I by L.F. Bacci; C by G.C.A. Bisewski; D–H by R. Goldenberg; all photos from cultivated plants.

CAPÍTULO 2 – THE GENUS *BERTOLONIA* RADDI (MELASTOMATACEAE), IN THE STATE OF BAHIA, BRAZIL

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Gessica C.A. Bisewski [1, 5], Lucas F. Bacci[2], André M. Amorim [3,4] & Renato Goldenberg[2]

[1] Programa de Pós-graduação em Botânica, Departamento de Botânica, Universidade Federal do Paraná, Curitiba, Paraná, Brazil; e-mail: gebisewski@gmail.com.

[2] Departamento de Botânica, Universidade Federal do Paraná, Centro Politécnico, Postal Box 19031, Curitiba, Paraná, 81531-970, Brazil.

[3] Herbário CEPEC, Centro de Pesquisas do Cacau, Postal Code 07, Itabuna, Bahia, 45600-970, Brazil.

[4] Departamento de Ciências Biológicas, Universidade Estadual de Santa Cruz, Ilhéus, Bahia, 45622-900, Brazil; amorim.uesc@gmail.com

[5]Author for correspondence

Abstract

Bertolonia has 34 species endemic to the Atlantic Forest, many of them with restricted distribution. The plants are characterized by the herbaceous habit, scorpioid inflorescence and the obtriquetrous capsules (bertolonidium-type). The state of Bahia is considered the center of diversity of *Bertolonia* with the occurrence of 15 species, 12 of them endemic to the state. We present here a taxonomic treatment of the genus in the state of Bahia. Identification key, complete descriptions, distribution maps and illustrations for all the 15 species were elaborated based on the analyses of herbarium specimens, online databases and bibliography. Into the Bahian Atlantic Rainforest, *Bertolonia* species are distributed in four vegetation subtypes: ten species occur in Montane Rain Forest, four in Lowland Rain Forest, two in Tabuleiro Forest and one in Cloud Forest. Of the 15 species of *Bertolonia* that occur in Bahia, eight are classified as Critically Endangered (CR), four as Endangered (EN), one as Vulnerable (VU) and two as Least Concern (LC).

Keywords: Atlantic forest, Bertolonieae, endemism, floristics, taxonomy.

Introduction

Melastomataceae is a monophyletic group with pantropical distribution, but highly diverse on the Neotropics, has about 5100 species distributed in 150-166 genera, (APG IV 2016, Goldenberg et al. 2012, Reginato et al. 2016, Renner et al. 2017). The family is recognized by the opposite leaves with acrodromous nerves, stamens with poricidal anthers and connective often prolonged below the thecae (Clausing & Renner 2001). Melastomataceae is considered one of the largest families in Brazil, with around 1500 species distributed along almost all its territory, throughout different vegetation types (Goldenberg et al. 2012). In the Atlantic Forest, Melastomataceae has 560 species distributed in more than 40 genera (Goldenberg et al. 2009; Flora do Brasil 2020), with several species and also some genera endemic of this domain, such as *Physeterostemon* Goldenberg & Amorim (2006: 966) and *Bertolonia* Raddi (1820: 384).

Bertolonia has 34 species and two varieties endemic to the Atlantic Forest, from the state of Pernambuco, in the north, to Santa Catarina, in the south (Bacci et al. 2018). Despite being widely distributed in the domain, most of its species have microendemic distributions

(Baumgratz et al. 2015, Bacci et al. 2018). The plants are herbs with scorpioid inflorescences and obtriquetrous capsules, and the seeds are dispersed by water (Pizo & Morellato 2002). In the taxonomic revision of *Bertolonia*, Baumgratz (1990) recognized 17 species and two varieties, most of them distributed in the southern Atlantic Forest, mainly in the state of Rio de Janeiro. In the last seven years, 14 new species have been described, from which 13 are from the central Atlantic Forest, in the states of Bahia and Espírito Santo. These discoveries changed the center of diversity of the genus to the central portion of the Atlantic Forest, mainly in southern Bahia (Bacci et a. 2018). Historically, the central portion of the Atlantic Forest has been poorly collected when compared to the southern counterpart, especially in medium and high elevations (Goldenberg et al. 2016). In order to fill this taxonomic and distributional gap, we continue to explore the diversity of *Bertolonia* in the central Atlantic Forest, providing a taxonomic treatment for all species that occur in the state of Bahia, with morphological descriptions, comments, illustrations and an identification key.

Material & Methods

The study area comprises the state of Bahia, located in northeastern Brazil. Bahia is the largest state of the northeast region with around 564.732,450 km² (IBGE 2012). Most of Bahia was originally covered by the Caatinga biome (64% of the total area of the state), the Atlantic Forest represented 18% and the Cerrado covered 16%. According to the Brazilian official classification system (Veloso et al. 1991), in the Atlantic Forest biome, five different vegetation subtypes can be found: Atlantic Rain Forest ("Floresta Ombrófila Densa", Submontane Seasonal Forest ("Floresta Estacional Semidecidual Submontana"), Deciduous Seasonal Forest ("Floresta Estacional Semidecidual"), Mangrove ("Manguezais") and Restinga Forest ("Restinga"). The Atlantic Rain Forest, can be divided into different subtypes according to altitudinal ranges: Lowland Rain Forest ("Floresta de Tabuleiros"), Submontane Rain Forest, Montane Rain Forest and Cloud Forest (Veloso 1991).

The analyzed gatherings came from collections made in Bahia and deposited mainly in the herbaria ALCB, BAH, CEPEC, HUEFS, HUFU, HURB, MBM, MBML, MO, NY, RADAM, RB, SP, SPF, UEC, UESC, UFP, UPCB, US (acronyms according to THIERS, 2019), additional specimens were analyzed online through speciesLink (http://splink.cria.org.br/) and Reflora Virtual Herbarium (http://reflora.jbrj.gov.br /reflora/). We used the types to confirm the identification of specimens. From the examined material, we made a morphological analysis of the vegetative and reproductive structures, with the aid

of a stereoscope microscope with a digital camera attached to it. The information obtained was tabulated, by individual and by species. The measurements of the structures were taken with a digital caliper rule. General morphological terminology followed Radford et al. (1976) and Hickey & King (2002). We chose the characteristics measured for each specimen based on other works published for the genus Bertolonia (BAUMGRATZ, 1990; BAUMGRATZ *et al.*, 2011; BACCI *et al.*, 2016b; BACCI *et al.,* 2018). We excluded some measurements traditionally used in descriptions of Melastomataceae because they are not useful for the recognition of species in *Bertolonia*, such as the dimensions of sepals, connective appendages and seeds. We obtained the information about habitat, vegetation, and characteristics of living material from herbarium labels and also from our experience with the plants in the field. Our illustrations were based on photographs taken from herborized material. Since we opted to list all examined specimens (i.e., not only selected ones), we do not present a collectors lists. We used QGIS 3.2.0 to build geographic distribution maps (QGIS Development Team, 2018). Conservation status assessments followed IUCN criteria (2017), based on the Extent of Occurrence (EOO) and Occupancy Area (AOO), calculated on the GeoCAT tool (Bachman et al. 2011). For this calculation, we use the geographic data captured by the databases of the consulted herbaria. For species that also occur in other states, EOO and AOO were calculated with all geographical points, within and outside of Bahia. We carried out field collections in locations with significant occurrence of species of the genus, for observation of habitat, growth forms and morphological characteristics *in vivo*.

Results and Discussion

Bertolonia Raddi (18: 384)

Herbs, terrestrial, epiphytic or rupiculous. Stem, branches, leaves, bracts, bracteoles, hypanthium and calyx always glandulose-punctate sometimes also glandulose-villose or glandulose-pilose. Stem rounded, seldom quadrangular. Leaves opposite, seldom alternate (*Bertolonia alternifolia)*; petioles rounded to quadrangular, sometimes also glandulose-villose or glandulose-pilose, seldom glandulose-hirsute (*B. hirsutissima* and *B. violacea*) or glandulose-strigose (*B. reginatoi*); leaf blade surfaces flat or bullate, elliptic, ovate, obovate, rarely lanceolate (*B. linearifolia*), base cordate, rounded, obtuse or attenuate, apex rounded, obtuse, acute, acuminate, seldom cuspidate, margins entire to denticulate (in the upper half or throughout), crenate or crenulate, eciliate to sparsely and densely ciliate, adaxial surface sometimes also glandulose-villose or glandulose-pilose, abaxial surface sometimes also

glandulose-villose, glandulose-hirsute or glandulose-pilose, main veins 3 or 5, plus one or two additional pairs that do not reach the leaf apex. Inflorescence terminal, seldom pseudo-lateral, scorpioid, branches sometimes also glandulose-villose or glandulose-pilose. Bracts sessile, widely obovate to obovate, elliptic, ovate or lanceolate, apex obtuse, acute or acuminate, margins eciliate or ciliate, both surfaces sometimes also glandulose-villose or glandulose-hirsute; bracteoles sessile, narrow lanceolate to lanceolate, elliptic to obovate, apex acute or acuminate, both surfaces sometimes also glandulose-villose. Flowers 5-merous, hypanthium obconic or short-terete, sometimes also glandulose-villose. Calyx membranaceous, sepals not divided into an inner lamina and a dorsal tooth (see Basso-Alves et al. 2017), widely ovate to ovate or elliptic, apex rounded, obtuse, acute or acuminate, margins entire, seldom fimbriate (*B. kollmannii*), eciliate to ciliate, both surfaces sometimes also glandulose-villose. Petals white or pink, seldom lilac, apex acuminate or apiculate, the apiculum ending in a glandular trichome. Stamens 10; anthers cream-colored or yellow, lanceolate, seldom oblong, flat or undulate, pore rounded, rarely triangular (*B. marmorata*), with or without thickened margins, introrse or extrorse; connective prolonged below the thecae; dorsally thickened, dorsally bilobed or unnappendaged. Ovary inferior, glabrous; style straight or curved at the apex, glabrous, minutely capitate. Fruits capsular, obtriquetrous. Seeds fusiform or reniform, tuberculate.

Key to the species of *Bertolonia* in Bahia, Brazil

1. Leaf blades with the adaxial surface only glandulose-punctate.....2
1'. Leaf blades with the adaxial surface glandulose-punctate and also glandulose-villose or glandulose-pilose 8

2. Leaf blades with a suprabasal inner pair of veins.....3
2'. Leaf blades with a basal inner pair of veins.....4

3. Leaf blades widely ovate or elliptic; petals pink with an apiculate apex.....*B. igrapiuna*
3'. Leaf blades narrowly lanceolate to narrowly ovate; petals white, the apex not apiculate.....
…….....*B. vitoriana*

4. Leaf blades with the abaxial surface only glandulose-punctate.....5
4'. Leaf blades with the abaxial surface glandulose-punctate and also glandulose-villose or glandulose-hirsute.....7

5. Leaf blades 3.9–8 × 1.8–3.7 cm; petals linear-lanceolate……..…. *B. angustipetala*
5'. Leaf blades 7.3–23 × 3.9–16.5 cm; petals elliptic, ovate or obovate….....6

6. Leaf blades with the base shortly attenuate to obtuse; anthers dehiscing through an extrorse pore.....*B. igrapiuna*
6'. Leaf blades with the base rounded to seldom cordate; anthers dehiscing through an introrse pore.....*B. cuspidata*

7. Stem, branches and hypanthium only glandulose-punctate; leaf blades with the margins sparsely to moderately ciliate…….....*B. carmoi*
7'. Stem branches and hypanthium glandulose-punctate and also glandulose-villose, glandulose-pilose or glandulose-hirsute; leaf blades with the margins densely ciliate .....*B. reginatoi*

8. Leaf blades with a bullate surface.....9
8'. Leaf blades with a flat surface.....11

9. Leaf blade with a suprabasal inner pair of veins.....*B. bullata*
9'. Leaf blade with a basal inner pair of veins.....10

10. Petioles glandulose-punctate and densely glandulose-hirsute; sepals entire....*B. hirsutissima*
10'. Petioles glandulose-punctate and glandulose-pilose; sepals fimbriate.....*B. kollmannii*

11. Leaves alternate.....*B. alternifolia*
11'. Leaves opposite.....12

12. Leaf blades lanceolate, with a rounded or obtuse base.....*B. linearifolia*
12'. Leaf blades widely ovate to elliptic, with a cordate to subcordate base.....13

13. Leaf blade with entire margins; anthers dehiscing through an extrorse pore.....14
13'. Leaf blade with denticulate margins; anthers dehiscing through an introrse pore.....15

14. Leaves 3–5 × 2.5–4.3 cm; leaf blades with purplish trichomes.....*B. violacea*
14'. Leaves 9.6–15 × 5–11.5 cm; leaf blades with brownish trichomes.....*B. riocontensis*

15. Anthers dehiscing through a rounded pore with thickened margins.....*B. maculata*
15'. Anthers dehiscing through a triangular pore with non-thickened margins.....*B. marmorata*

1. ***Bertolonia alternifolia*** Baumgratz, Amorim & Jardim (2011: 273). Figures 1, 2a

Herbs 25–35 cm tall, epiphytic, rarely terrestrial. Stem 1–4 mm wide, rounded, sparsely to moderately glandulose-punctate (trichomes less than 0.1 mm long) and moderately to densely glandulose-villose (trichomes 2–4 mm long). Petioles 1.5–5.5 cm long, rounded, sparsely to moderately glandulose-punctate and moderately to densely glandulose-villose (trichomes 3–4 mm long); blade 3.4–7.3 × 2.2–5.8 cm, flat, widely ovate to circular, base cordate, apex obtuse to rounded, margins crenulate, densely ciliate, adaxial surface light green, sparsely glandulose-punctate and moderately to densely glandulose-villose (trichomes 1.5–1.7 mm long), abaxial surface vinaceous, sparsely glandulose-punctate and moderately to densely glandulose-villose (2.1–2.5 mm long), main veins 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 6.2–10 cm long (9.6–14.3 cm long in infrutescences), branches moderately glandulose-punctate and moderately glandulose-villose when young, sparsely glandulose-villose when old. Bracts 4–5 mm long, obovate, apex acute, margins ciliate, both surfaces glandulose-punctate and glandulose-villose; bracteoles 1.2–2.2 mm long, lanceolate, apex acute, both surfaces glandulose-punctate and glandulose-villose. Hypanthium 3.4–5.4 × 2.4–4 mm, obconic, glandulose-punctate and glandulose-villose. Sepals ovate, apex acute, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 11–18 × 7–10.5 mm, pink, elliptic to obovate, base cuneate, apex apiculate, the apiculum 0.6–0.8 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 6.6–9.9 mm long; filaments 5.2–6 mm long; anthers 4.2–5.5 mm long, cream colored, lanceolate, surface flat or slightly undulate, pore rounded, non-thickened margins, extrorse; connective shortly prolonged (less than 0.1 mm), unnappendaged. Style 7.5–11.4 mm long, straight, glabrous. Fruits 0.6–0.8 × 1–1.2 cm. Seeds fusiform.

Examined material:—BRAZIL. Bahia: Arataca, *Amorim 4981* (CEPEC); *Amorim 5299* (CEPEC); *Amorim 6408* (CEPEC); *Amorim 6751* (CEPEC, RB); *Baumgratz 1105* (CEPEC); *Jardim, A.B. 170* (CEPEC, RB, UESC); *Jardim, J.G. 4906* (CEPEC); *Jardim, J.G. 4679* (CEPEC); *Lopes 1206* (CEPEC); *Thomas 14586* (CEPEC).

Conservation Status:—*Bertolonia alternifolia* has an EOO of 8 km² and AOO of 8 km², suggested to be classified as "Critically Endangered" (CR), following IUCN (2017) categories. This species has been found in the "Serra do Peito de Moça" inside the "Parque Nacional Serra das Lontras" or in areas bordering the park.

Notes:—*Bertolonia alternifolia* is endemic to Bahia. This species occurs in Montane Rain

Forest and Cloud Forest (Figure 3a). Collected with flowers from September to April and fruits from September to May. *Bertolonia alternifolia* is characterized by the branches, petioles, leaf blades, hypanthium, and sepals densely glandulose-villose (trichomes 2–4 mm long), alternate leaves, blades 3.4–7.3 × 2.2–5.8 cm, flowers with long petals (11–18 mm) and long anthers (4–5 mm) with extrorse pores. Along with *Bertolonia angustipetala*, *B. kollmannii,* and *B. violacea, Bertolonia alternifolia* has the smallest leaves in the genus (about 2.5–7.3 cm long). A recently published species from the state of Espírito Santo, *Bertolonia michelangeliana* Bacci & Goldenberg (2017: 1670), also has alternate leaves and anthers with extrorse pores. They differ by the usually shorter, 1.5–5.5 cm long petioles in *B. alternifolia* (vs. longer, 3.2–13.6 cm, in *B. michelangeliana*), leaves with 3-5 main veins (vs. 7-9 main veins), flowers with only glandulose-punctate pedicels and bigger, 11–18 × 7–10.5 mm petals (vs. flowers with glandulose-punctate and also glandulose-villose pedicels and smaller, 10–13 × 6–7.2 mm petals). For more details see notes under *B. alternifolia* in Baumgratz et al. 2011.

2. ***Bertolonia angustipetala*** Bacci & R. Goldenb. in Bacci et al. (2018: 271). Figures 2b, 4

Herbs ca. 20 cm tall, epiphytic. Stem 2–3 mm wide, rounded, moderately glandulose-punctate (trichomes less than 0.1 mm long). Petioles 1–2.2 cm long, quadrangular, moderately glandulose-punctate and sparsely glandulose-pilose (trichomes ca. 0.5 mm long); blade 3.9–8 × 1.8–3.7 cm, flat, elliptic, base rounded to shortly attenuate, apex acute, margins entire, sparsely ciliate, adaxial surface dark green, sparsely glandulose-punctate, abaxial surface vinaceous, sparsely to moderately glandulose-punctate, main veins 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 6– 17 cm long (6.3–8.7 cm long in infrutescences), branches sparsely to densely glandulose-punctate when young, sparsely glandulose-punctate when old. Bracts not seen; bracteoles ca.1 mm long, narrow-lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 4–5 × 3.5–4 mm, short-terete, glandulose-punctate and glandulose-villose. Sepals elliptic, apex rounded to acute, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 7–8.5 × 1.5–2 mm, light pink, linear-lanceolate, base slightly uncinate, apex apiculate, the apiculum ca. 1 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 7–8 mm long; filaments 3.5–4 mm long; anthers 3.5–4 mm long, cream colored, oblong-subulate, surface smooth undulate, pore rounded, non-thickened margins, introrse; connective shortly prolonged (ca. 0.5 mm), unnappendaged. Style 5–7 mm

long, straight or curved at the apex, glabrous. Fruits ca. 0.6 × 0.8 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Wenceslau Guimarães, *Bacci 267* (UEC); *Goldenberg 2077* (HURB, UPCB); *Jardim, J.G. 5040* (CEPEC, NY, UPCB).

Conservation Status:—*Bertolonia angustipetala* has an EOO of 0.010 km² and AOO of 4.000 km², suggested to be classified as "Critically Endangered" (CR), following IUCN (2017) categories. This species has been collected only three times within the "Estação Ecológica Estadual Wenceslau Guimarães".

Notes:—*Bertolonia angustipetala* is endemic to Bahia. This species occurs in Montane Rain Forest (Figure 3b). Collected with flowers in December and fruits in May and December. *Bertolonia angustipetala* is characterized by the small (3.9–8 × 1.8–3.7 cm) and elliptic leaf blades, these sparsely glandulose-punctate, and linear-lanceolate and apiculate petals. It shares with *Bertolonia cuspidata* the membranaceous glandulose-punctate leaf blades with entire margins. However, *Bertolonia angustipetala* differs by the smaller, 3.9–8 × 1.8–3.7 cm leaf blades with an acute apex (vs. bigger, 7.3–12.2 × 3.9–6 cm leaf blades with a cuspidate apex in *B. cuspidata*) and linear-lanceolate petals (vs. elliptic or obovate petals; Bacci et al. 2018). For more details, see notes under *B. angustipetala* in Bacci et al. (2018).

3. ***Bertolonia bullata*** Baumgratz, Amorim & Jardim (2011: 276). Figures 2c, 5

Herbs 20–30 cm tall, epiphytic, rarely terrestrial. Stem 2–5 mm wide, rounded, densely glandulose-punctate (trichomes less than 0.1 mm long). Petioles 1.5–3.5 cm long, quadrangular, densely glandulose-punctate sometimes also moderately glandulose-villose (trichomes 0.5–1 mm long); blade 7.1–8.2 × 3–9.9 cm, bullate, ovate seldom elliptic, base cordate, apex acuminate, seldom acute, margins denticulate, moderately to sparsely ciliate, adaxial surface dark green, sparsely glandulose-punctate, and sparsely glandulose-villose (trichomes 1.5–3.5 mm long), one trichome above each slope, abaxial surface vinaceous, moderately glandulose-punctate (trichomes less than 0.1 mm long), main veins 5, plus two pairs that do not reach the leaf apex, suprabasal. Inflorescence terminal, 2.8 cm long (5.7–8.6 cm long in infrutescences), branches densely glandulose-punctate when young, moderately glandulose-punctate when old. Bracts 1–1.8 mm long, ovate, apex acute, margins ciliate, both surfaces glandulose-punctate; bracteoles ca. 0.5 mm long, elliptic to obovate, apex acute, both surfaces glandulose-punctate. Hypanthium 2.5–3.4 × 1.8–2.7 mm, obconic, glandulose-punctate. Sepals widely ovate, apex acute to obtuse, margins entire, eciliate, both surfaces glandulose-punctate. Petals 5.5–8 × 3–5.5 mm, white, ovate, base truncate, apex acuminate,

not apiculate, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 3.7–4.5 mm long; filaments 1.3–1.8 mm long; anthers 2.3–2.6 mm long, yellow, lanceolate, surface flat, pore rounded, non-thickened margins, introrse; connective prolonged (ca. 0.6 mm), dorsally thickened. Style 3.8–4.5 mm long, slightly curved, glabrous. Fruits 0.4– 0.6 × 0.6–0.8 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Arataca, *Amorim 5251* (CEPEC); *Amorim 5979* (CEPEC); *Amorim 6585* (CEPEC); *Amorim 6675* (CEPEC); *Jardim, A.B. 62* (CEPEC); *Jardim, A.B. 183* (CEPEC); *Jardim, J.G. 3959* (CEPEC); *Jardim, J.G. 4358* (CEPEC); *Jardim, J.G. 4715* (CEPEC); *Jardim, J.G.4823* (CEPEC); *Thomas 14073* (CEPEC). Barro Preto, *Amorim 4523* (CEPEC); *Amorim 4831* (CEPEC). Camacan, *Amorim 8000* (CEPEC, RB). Jussarí, *Amorim 2318* (CEPEC). Una, *Amorim 1702* (CEPEC, UEC).

Conservation Status:—*Bertolonia bullata* has an EOO of 1,977 km² and AOO of 32 km², suggested to be classified as "Endangered" (EN), following IUCN (2017) categories. This species has been collected within the "Reserva Particular do Patrimônio Natural Serra Bonita" and in the "Parque Nacional Serra das Lontras".

Notes:—*Bertolonia bullata* is endemic to Bahia. Occurs in the southeastern region at high altitudes, especially in humid and shady environments. This species occurs in Montane Rain Forest (Figure 3c). Collected with flowers in November and December and fruits from August to April. *Bertolonia bullata* is characterized by the leaf blade with the adaxial surface dark green, bullate, sparsely glandulose-punctate and glandulose-villose (trichomes 1.5–3.5 mm long), and by the stem, abaxial leaf surface, hypanthium and sepals only glandulose-punctate. *Bertolonia bullata* is similar *B. vitoriana*. They have the stem, abaxial leaf surface, hypanthium and sepals glandulose-punctate, petals with the apex not apiculate, anthers with an introrse pore and the connective prolonged below the thecae. *Bertolonia bullata* differs from *B. vitoriana* by the bullate leaf surface (vs. flat in *B. vitoriana*) and petioles and adaxial surface of the leaf blade glandulose-villose (vs. petioles and adaxial surface of the leaf blade only glandulose-punctate). For more details see notes under *B. bullata* in Baumgratz et al. 2011.

4. ***Bertolonia carmoi*** Baumgratz (1989: 120). Figures 2d, 6

Herbs 14–30 cm tall, terrestrial, rarely rupiculous. Stem 2–6 mm wide, rounded to quadrangular, moderately glandulose-punctate (trichomes less than 0.1 mm long). Petioles 1–12.4 cm long, rounded to quadrangular, moderately to densely glandulose-punctate

sometimes also glandulose-villose (trichomes 0.9–1.5 mm long); blade 3.9–17.2 × 2.5–11.5 cm, flat, widely ovate to elliptic, seldom lanceolate, base cordate to subcordate, apex acute to rounded, seldom acuminate, margins entire to slightly crenate, moderately to sparsely ciliate, adaxial surface dark green, sometimes white or light green along the primary vein, moderately to sparsely glandulose-punctate and sparsely glandulose-villose (trichomes ca. 1mm long, caducous), abaxial surface light green to vinaceous, sparsely to densely glandulose-punctate and sparsely glandulose-villose (0.6–1 mm long), main veins 3 or 5, plus one or two pairs that do not reach the leaf apex, basal. Inflorescence terminal or pseudo-lateral, 2.1–13 cm long (6–27 cm long in infrutescences), branches densely glandulose-punctate, seldom moderately glandulose-villose when young, glabrous when old. Bracts 2–3 mm long, lanceolate, apex acuminate, margins ciliate, both surfaces glandulose-punctate; bracteoles 0.7–0.9 mm long, lanceolate, apex acuminate, both surfaces glandulose-punctate. Hypanthium 1.7–4.4 × 1.2–3.3 mm, shortly terete to obconic, glandulose-punctate. Sepals ovate to widely ovate, seldom elliptic, apex acuminate, margins entire, ciliate, both surfaces glandulose-punctate. Petals 8–9.5 × 3.5–7 mm, pink, seldom lilac, elliptic, base cuneate, apex acuminate or acute, not apiculate, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 3.5–9.8 mm long; filaments 1.4–5.2 mm long; anthers 2–5 mm long, cream colored, narrowly oblong, lanceolate or sometimes slightly falciform, surface flat or sometimes slightly undulate, pore rounded, non-thickened margins, introrse; connective shortly prolonged (ca. 0.2 mm), dorsally bilobed. Style 6–12 mm long, straight or slightly curved, glabrous. Fruits 0.4–0.7 × 0.7–1.1 cm. Seeds widely fusiform.

Examined material:—BRAZIL. Bahia: Almadina, *Coelho 389* (CEPEC, UESC). Apuarema, *Aona 2227* (HURB, RB); *Aona 3286* (HURB, RB, UPCB). Arataca, *Santos, R.R. 109* (UESC); Camamú, *Jardim, J.G. 2734* (CEPEC, UPCB); *Jardim, J.G. 2764* (ALCB, CEPEC, HUEFS, NY, UESC, UPCB); *Paixão 287* (CEPEC, NY, RB); *Vinha 76* (CEPEC). Ibirapitanga, *Aona 2429* (HURB); *Aona 3515* (HURB). Ibirataia, *Aona 2837* (HURB). Igrapiúna, *Alves, L.J. 325* (ALCB); *Aona 2607* (HUEFS, HURB, UPCB); *Kollmann 12221* (MBML); *Oliveira 1565* (HUEFS); *Paixão 1837* (CEPEC, HUEFS, UESC). Ilhéus, *Fiaschi 2669* (CEPEC, NY, SPF); *Florêncio 42* (CEPEC, UESC); *Maas 7061* (CEPEC); *Thomas 10755* (CEPEC, UEC, US). Itabuna, *Mori 10079* (CEPEC, NY, US). Itacaré, *Jardim, J.G. 1139* (CEPEC, NY, UEC, US); *Mori 12017* (CEPEC, US); *Mori 12853* (CEPEC, US); *Ramos 270* (ALCB); *Santos, T.S. 3136* (CEPEC); *Santos, T.S. 3199* (CEPEC, US); *Snak 1060* (HUEFS, RB, UPCB). Ituberá, *Bispo 37* (ALCB); *Loureiro 419* (ALCB, CEPEC); *Loureiro 517* (ALCB, CEPEC); *Matos 3364* (HUEFS); *Valadão 495* (ALCB, CEPEC);

Valadão 551 (ALCB, CEPEC). Jaguaquara, *Pinheiro 1976* (CEPEC). Jussarí , *Kallunki 439* (CEPEC); *Thomas 10232* (CEPEC, NY). Maraú, *Mori 12751* (CEPEC). Tancredo Neves, *Amorim 5052* (CEPEC). Taperoá, *Hage 417* (CEPEC, HUEFS, RB, US). Ubaitaba, *Alves, M. 1967* (CEPEC, NY, RB, SP); Santos, T.S. *1044* (CEPEC, US). Una, *Amorim 1593* (CEPEC, NY, UEC); *Bacelar 21* (ALCB, CEPEC, UESC); *Jardim, J.G. 491* (CEPEC); *Mattos-Silva 3627* (ALCB, CEPEC, UESC); *Moraes 939* (CEPEC); *Mori 10186* (CEPEC, K, NY, RB, US); *Pinheiro 1678* (CEPEC, US). Uruçuca, *Amorim 3907* (CEPEC); *Bacci 246* (CEPEC); *Bacci 250* (CEPEC, RB); *Baumgratz 185* (RB); *Bisewski 65* (CEPEC, UPCB), *Carvalho 3456* (CEPEC, HUEFS, MBM, NY, RB); *Carvalho 4405* (CEPEC, MBM, NY); *Fiaschi 2046* (CEPEC, NY); *Hage 375* (CEPEC, US); *Maas 7082* (CEPEC); *Martinelli 8959* (CEPEC, RB); *Mattos-Silva 5159* (UESC); *Profice 105* (CEPEC). Valença, *Amorim 6262* (CEPEC); *Bacci 207* (CEPEC, UEC); *Fiaschi 2319* (CEPEC, SPF); *Fiaschi 2608* (CEPEC, MO, NY, SPF); *Ferreira 39* (ALCB). Wenceslau Guimarães, *Amorim 5079* (CEPEC); *Aona 2342* (CEPEC); *Aona 2702 (*HURB, RB); *Bacci 279* (CEPEC); *Goldenberg 1747* (CEPEC, HUFU, NY, RB, UPCB); *Goldenberg 2068* (CEPEC, HURB, NY, RB, UPCB); *Reginato 1293* (CEPEC, NY, RB); *Mattos-Silva 4460* (ALCB, BAH, CEPEC, HUEFS, NY, UESC); *Milliken 5059* (CEPEC, HURB, RB).

Conservation Status:—*Bertolonia carmoi* has an EOO of 17,259 km² and AOO of 180 km², suggested to be classified as "Vulnerable" (VU), following IUCN (2017) categories. This species has been found mainly in private properties, but also in the conservation units "Área de Proteção Ambiental do Pratigi", "Estação Ecológica Wenceslau Guimarães", "Parque Estadual Serra do Conduru", "Reserva Biológica de Una" and "Reserva Particular do Patrimônio Natural Água Branca".

Notes:—*Bertolonia carmoi* is endemic and widely distributed in Bahia. This species occurs in Lowland Rain Forest and Montane Rain Forest (Figure 3d). Collected with flowers from July to February and fruits from August to March. *Bertolonia carmoi* is characterized by the branches, petioles, leaf blades, hypanthium and sepals only glandulose-punctate, the adaxial surface sometimes glandulose-villose, and also by the anthers with a flat surface and an introrse pore. *Bertolonia carmoi* is similar to *B. maculata* and *B. marmorata*, and it can be distinguished by the stem, branches and hypanthium only glandulose-punctate (vs. stem, branches and hypanthium also glandulose-villose or glandulose-pilose in *B. maculata* and *B. marmorata*) and petals with the apex not apiculate (vs. apiculate with a caducous gland head).

5. ***Bertolonia cuspidata*** Bacci & Amorim in Bacci et al. (2018: 772). Figures 2e, 7

Herbs 15–30 cm tall, terrestrial, rarely epiphytic. Stem 3–6 mm wide, rounded or quadrangular, densely glandulose-punctate (trichomes less than 0.1 mm long) sometimes also sparsely glandulose-pilose (ca. 1.4 mm long). Petioles 2.6–9.1 cm long, quadrangular, sparsely to moderately glandulose-punctate; blade 7.3–12.2 × 3.9–6 cm, flat, elliptic, base obtuse to rounded seldom cordate, apex cuspidate, margins entire or slightly crenate, sparsely to moderately ciliate, adaxial surface dark green, sparsely glandulose-punctate, abaxial surface vinaceous, sparsely to moderately glandulose-punctate, main veins 3, plus one pair that do not reach the leaf apex, basal. Inflorescence terminal or pseudo-lateral in infrutescences, 6.5–11.6 cm long (9.8–17.7 cm long in infrutescences), branches moderately glandulose-punctate when young, glabrous when old. Bracts 0.9–2.8 mm long, elliptic, apex acute, margins ciliate, both surfaces glandulose-punctate and glandulose-villose; bracteoles 0.7–1 mm long, elliptic, apex acute, both surfaces glandulose-punctate. Hypanthium 2.1–3.9 × 2.15–4 mm, obconic or short terete, glandulose-punctate and glandulose-villose. Sepals elliptic to ovate, apex rounded, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 5.3–7.5 × 4.2–6.6 mm, light pink, elliptic or ovate, base cuneate, apex apiculate, the apiculum 0.5–0.6 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 4.4–5.9 mm long; filaments 2.2–2.9 mm long; anthers 2.1–3.1 mm long, cream colored, narrowly oblong, surface slightly undulate to rugose, pore rounded, non-thickened margins, introrse; connective shortly prolonged (ca. 0.3 mm), unappendaged. Style 3.6–5.4 mm long, straight to slightly curvate, glabrous. Fruits 0.5–0.8 × 0.8–1.2 cm. Seeds fusiform.

Examined material:—BRAZIL. Bahia: Almadina, *Borges 461* (CEPEC, NY); *Cardoso 2137* (CEPEC, HUEFS); *Paixão 864* (CEPEC, UPCB). Barro Preto, *Amorim 4*775 (CEPEC); *Amorim 4521* (CEPEC, NY); *Bacci 232* (CEPEC); *Borges 475* (CEPEC); *Coelho 426* (CEPEC, UESC); *Ferreira 1478* (CEPEC); *Fiaschi 1556* (CEPEC); *Fiaschi 1809* (CEPEC, NY); *Lopes 332* (CEPEC, UPCB); *Lopes 693* (CEPEC, NY); *Thomas 14285* (CEPEC). Boa Nova, *Amorim 3602* (ALCB, CEPEC, UPCB); *Ferreira 1696* (CEPEC).Itajú do Colônia: *Amorim 4342a* (CEPEC).

Conservation Status:—*Bertolonia cuspidata* has an EOO of 3,595 km² and AOO of 24 km², suggested to be classified as "Endangered" (EN), following IUCN (2017) categories. This species has been found outside conservation units, mainly in the "Serra da Pedra Lascada" and "Serra do Corcovado".

Notes:—*Bertolonia cuspidata* is endemic to Bahia. This species occurs in Montane Rain

Forest (Figure 3e). Collected with flowers from July to February and fruits from August to March. *Bertolonia cuspidata* can be recognized by the widely elliptic and glandulose-punctate leaf blades with a cuspidate apex, hypanthium glandulose-punctate and also glandulose-villose and petals with an apiculate apex ending in a glandular head. It is similar to *B. angustipetala* as described above (for more details see notes under *B. angustipetala* or Bacci et al. 2018).

6. ***Bertolonia hirsutissima*** Bacci, Michelang. & R. Goldenb. in Bacci et al. (2016b: 251). Figures 2f, 8

Herbs 15–20 cm tall, rupiculous. Stem 4–5 mm wide, rounded, densely glandulose-punctate (trichomes less than 0.1 mm long) and moderately to densely glandulose-villose (trichomes 3.7–3.8 mm long). Petioles 2–5 cm long, rounded, sparsely glandulose-punctate and densely glandulose-hirsute (trichomes 3–5 mm long); blade 6.1–9.4 × 4.5–7.5 cm, bullate, widely elliptic to ovate, base cordate, apex obtuse to rounded, margins denticulate, moderately ciliate, adaxial surface green, sparsely glandulose-punctate, abaxial surface purplish, sparsely glandulose-punctate and sparsely glandulose-hirsute (trichomes 1.5–2.6 mm long), main veins 5, plus one pair that do not reach the leaf apex, basal. Inflorescence terminal, 5.3–9.3 cm long (5.3–7.5 cm long in infrutescences), branches moderately glandulose-punctate and sparsely glandulose-pilose when young, sparsely glandulose-punctate and sparsely glandulose-pilose when old. Bracts ca. 2.5 mm long, elliptic, apex acute, margins ciliate, both surfaces glandulose-punctate and glandulose-hirsute; bracteoles ca. 1.5 mm long, lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 2.2–2.8 × 2.2–2.6 mm, short terete, glandulose-punctate. Sepals elliptic, apex obtuse to rounded, margins entire, ciliate, both surfaces glandulose-punctate. Petals 8.5–10.5 × 4–5 mm, light pink, elliptic, base cuneate, apex apiculate, the apiculum ca. 0.7 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 5–6.5 mm long; filaments 3–3.4 mm long; anthers 2.1–3 mm long, cream colored, narrowly oblong, surface undulate, pore rounded, non-thickened margins, extrorse; connective prolonged (ca. 0.5 mm), unappendaged. Style 5.5–6.4 mm long, curved, glabrous. Fruits 0.4–0.6 × 0.6–0.9 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Wenceslau Guimarães, *Bacci 273* (CEPEC); *Goldenberg 1756* (CEPEC); *Thomas 9285* (CEPEC, NY, RB).

Conservation Status:—*Bertolonia hirsutissima* has an EOO of 7 km² and AOO of 12 km², suggested to be classified as "Critically Endangered'' (CR), following IUCN (2017)

categories. This species has been found inside the “Estação Ecológica Estadual Wenceslau Guimarães”.

Notes:—*Bertolonia hirsutissima* is endemic to Bahia. This species occurs Montane Rain Forest (Figure 3f). Collected with flowers in January and December and fruits in April. *Bertolonia hirsutissima* is characterized by the widely elliptic to ovate leaf blades with bullate surfaces, petioles densely glandulose-pilose (trichomes 3–5 mm long). It also has petals with an apiculate apex ending in a caducous glandular head and anthers dehiscing through an extrorse pore. It is sympatric to *B. reginatoi* and they share the wide ovate to cordiform leaf blades, petioles and abaxial leaf surfaces densely glandulose-punctate, and flowers with a light green hypanthium and pink petals. However, *B hirsutissima* differs by the bullate/foveolate leaf surfaces (vs. flat in *B. reginatoi*), hypanthium only glandulose-punctate (vs. hypanthium also glandulose-villose) and anthers dehiscing through an extrorse pore (vs. introrse). In the state of Bahia, *B. hirsutissima* have the same bullate/foveolate leaf blades as in *B. bullata* and *B. kollmannii*. From these, it differs mainly by the broader leaf blades, flowers with the hypanthium only glandulose-punctate and anthers dehiscing through an extrorse pore. For more details see notes under *B. hirsutissima* in Bacci et al. 2018.

7. ***Bertolonia igrapiuna*** Bisewski, Bacci & R. Goldenb. (submit.) Figures 9, 10a

Herbs 20–30 cm tall, terrestrial or epiphytic. Stem 5–8 mm wide, rounded, densely glandulose-punctate (trichomes less than 0.1 mm long). Petioles 2.7–15 cm long, quadrangular, moderately to densely glandulose-punctate; blade 8.4–23 × 5.5–16.5 cm, flat, widely ovate or elliptic, base shortly attenuate or obtuse, apex cuspidate or acute, seldom rounded, margins entire or denticulate in the upper half, sparsely ciliate, adaxial surface green, sparsely to moderately glandulose-punctate, abaxial surface light green, moderately glandulose-punctate, main veins 5 or 3, plus one pair that do not reach the leaf apex, basal or suprabasal (up to 3–9.8 mm above the base). Inflorescence terminal, 7–19 cm long (15.2–27 cm long in old infrutescences), branches moderately glandulose-punctate when young, sparsely glandulose-punctate when old. Bracts 2–3 mm long, obovate, apex acute, margins ciliate, both surfaces glandulose-punctate; bracteoles 0.8–1.7 mm long, lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 2.2–2.9 × 3–3.4 mm, obconic, glandulose-punctate and glandulose-villose. Sepals elliptic to ovate, apex acute, margins entire, ciliate, both surfaces glandulose-punctate. Petals 6.4–8.7 × 3.5–4.7 mm, pink, obovate, base cuneate, apex apiculate, the apiculum ca. 0.5 mm long, with a caducous gland head,

margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 4.5–6.5 mm long; filaments 1.7–3.1 mm long; anthers 2.4–3.2 mm long, cream colored, lanceolate, surface slightly undulate, pore rounded, non-thickened margins, extrorse; connective shortly prolonged (ca. 0.2 mm), unnappendaged. Style 4.3–6.4 mm long, curved at the apex, glabrous. Fruits 0.5–0.6 × 0.8–1.2 cm. Seeds fusiform.

Examined material:—BRAZIL. Bahia: Arataca, *Amorim 4984* (CEPEC, NY); *Amorim 6089* (CEPEC); *Amorim 6583* (CEPEC, UESC); *Amorim 6667* (CEPEC); *Amorim 8066* (CEPEC, RB); *Jardim, A.B. 13* (CEPEC); *Jardim, A.B. 24* (CEPEC); *Jardim, A.B. 25* (CEPEC); *Jardim, A.B. 146* (CEPEC, RB); *Jardim, A.B. 222* (CEPEC, UESC, RB); *Jardim, J.G. 4366* (CEPEC); *Jardim, J.G. 4392* (CEPEC); *Jardim, J.G. 4820* (CEPEC, NY, UPCB); *Thomas 14581* (CEPEC, UESC). Una, *Santos, E.B. 4251* (CEPEC, UEC, US).

C**onservation Status:**—*Bertolonia igrapiuna* has an EOO of 28 km² and AOO of 16 km². Despite the fact that most populations known for this species occur inside a conservation unit, it can be classified as "Critically Endangered" (CR), following IUCN (2017) categories. This species has been found exclusively in "Parque Nacional Serra das Lontras".

Notes:—*Bertolonia igrapiuna* is endemic to Bahia. This species occurs in Montane Rain Forest (Figure 3g). Collected with flowers from November to March and fruits from December to June. *Bertolonia igrapiuna* is characterized by the branches, petioles and leaf blades only glandulose-punctate and also by the elliptic or ovate leaf blades with shortly attenuate or obtuse or occasionally asymmetric base and anthers dehiscing through an extrorse pore. This species was previously mentioned in a survey of Melastomataceae in the "Parque Nacional Serra das Lontras" (Jardim 2010) as an undetermined species. *Bertolonia igrapiuna* is similar to *B. leuzeana* (Bonpland) De Candolle (1828: 113), from the state of Rio de Janeiro. Both have flat, ovate or elliptic leaf blades with non-cordate bases and sparse ciliate margins. *Bertolonia igrapiuna* differs by the leaf blades only glandulose-punctate (vs. the abaxial surface also sparsely glandulose-pilose in *B. leuzeana*), petals with apiculate apex ending in a glandular head (vs. petals not apiculate and without gland head) and anthers dehiscing through an extrorse pore (vs. introrse).

8. ***Bertolonia kollmannii*** Bacci & R. Goldenb. in Bacci et al. (2018: 775). Figure 11

Herbs 10–15 cm tall, rupiculous or terrestrial. Stem 1–2 mm wide, rounded, moderately to densely glandulose-punctate (trichomes less than 0.1 mm long) and sparsely to moderately glandulose-villose (trichomes 1.9–2.5 mm long). Petioles 1–4 cm long, quadrangular,

moderately glandulose-punctate and sparsely to moderately glandulose-villose (trichomes 1.2–1.7 mm long); blade 2.4–5.5 × 1.6–4.7 cm, bullate, ovate, base cordate, apex acute, margins crenate, moderately ciliate, adaxial surface green, sparsely to moderately glandulose-punctate and sparsely to moderately glandulose-villose (trichomes 2.5–2.8 mm long), abaxial surface vinaceous, sparsely to moderately glandulose-punctate and sparsely glandulose-villose (0.6–1 mm long), main veins 3, plus one pair that do not reach the leaf apex, basal. Inflorescence terminal, pseudo-lateral when old, 4.9–6.1 cm long (5.3–9.1 cm long in old infrutescences), branches sparsely glandulose-punctate and sparsely glandulose-villose when young, sparsely glandulose- punctate and sparsely glandulose-villose when old. Bracts 2–3.6 mm long, ovate, apex acute, margins ciliate, both surfaces glandulose-punctate and glandulose-villose; bracteoles 1–1.6 mm long, lanceolate, apex acute, both surfaces glandulose-punctate and glandulose-villose. Hypanthium 2.1–2.6 mm × 2.1–2.8 mm, short terete, glandulose-punctate and glandulose-villose. Sepals ovate, apex acute, margins fimbriate, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 5.5–7 × 2.5–3 mm, pink, obovate, base cuneate, apex rounded, not apiculate, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 3.2–4.7 mm long; filaments 1.4–2.3 mm long; anthers 1.9–2.4 mm long, cream colored, lanceolate, surface rugose or undulate, pore rounded, non-thickened margins, extrorse; connective prolonged (ca. 0.5 mm), dorsally bilobed. Style 3.4–5 mm long, slightly curved at the apex, glabrous. Fruits ca. 0.5 × 0.8 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Macarani, *Carvalho 6995* (ALCB, CEPEC, HUEFS, NY, UESC, UPCB).

Additional material:—BRAZIL. Minas Gerais: Santa Maria do Salto, *Amorim 5548* (CEPEC, NY); *Amorim 5845* (CEPEC); *Thomas 14624* (CEPEC).

Conservation Status:—*Bertolonia kollmannii* has an EOO of 82 km² and AOO of 16 km², suggested to be classified as "Critically Endangered" (CR), following IUCN (2017) categories. This species has been found in "Fazenda Duas Barras", an area of primary forest inside the "Parque Nacional Alto Cariri" (Bacci et al. 2018).

Notes:—*Bertolonia kollmannii* occurs in bordering region between the states of Bahia and Minas Gerais. This species occurs in Montane Rain Forest (Figure 3h). Collected with flowers in February and August and fruits in February, April and August. *Bertolonia kollmannii* can be recognized by the small, ovate and bullate leaf blades with an acute apex and crenate margins, flowers with fimbriate sepals, pink petals with the apex not apiculate and anthers dehiscing through an extrorse pore. *Bertolonia kollmannii* is similar to *B. wurdackiana* Baumgratz (1990:

125), from the state of Espírito Santo. *Bertolonia kollmannii* differs by the usually smaller leaf blades with an acute apex and crenate margins (vs. usually bigger leaf blades, with an obtuse or rounded apex and serrate margins in *B. wurdackiana*), pink, 5.5–7 mm long petals, with an obtuse apex (vs. white petals, 7.8–8.3 mm long, with an acute and dorsally apiculate apex) and cream-colored anthers dehiscing through an extrorse pore (vs. yellow anthers dehiscing through an introrse pore). For more details, see notes under *B. kollmannii* in Bacci et al. (2018).

9. ***Bertolonia linearifolia*** Bacci & Michelangeli in Bacci et al. (2018: 777). Figures 10b, 12

Herbs 10–25 cm tall, epiphytic or terrestrial. Stem 1–2 mm wide, rounded, moderately to densely glandulose-punctate (trichomes less than 0.1 mm long) and moderately glandulose-villose (trichomes 1–1.4 mm long). Petioles 0.9–4.4 cm long, quadrangular, moderately glandulose-punctate and sparsely glandulose-pilose (trichomes 0.9–1.9 mm long); blade 4.5–9.5 × 0.5–2 cm, flat, lanceolate, base rounded or attenuate, apex acute, margins entire, sparsely ciliate, adaxial surface green, sparsely to moderately glandulose-punctate and sparsely to moderately glandulose-pilose (trichomes 1–2 mm long), abaxial surface vinaceous, moderately glandulose-punctate and sparsely glandulose-villose (trichomes 0.8–1 mm long), main veins 1 or 3, plus one pair that do not reach the leaf apex, basal to slightly suprabasal. Inflorescence terminal, pseudo-lateral when old, 2.1–4.6 cm long (5.7–13.5 cm long in infrutescences), branches moderately glandulose-punctate and sparsely glandulose-pilose when young, moderately glandulose-punctate when old. Bracts 2.8–5.2 mm long, obovate, apex acute, margins ciliate, both surfaces glandulose-punctate and glandulose-villose; bracteoles 1.3–2.5 mm long, lanceolate, apex acute, both surfaces glandulose-punctate and glandulose-villose. Hypanthium 2.2–3.4 × 2.1–2.8 mm, short terete or obconic, glandulose-punctate and glandulose-villose. Sepals elliptic to ovate, apex acute, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 5.4–5.7 × 3–4.2 mm, pink, obovate or widely ovate, base truncate, apex apiculate, the apiculum ca. 0.4 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 4.3–5 mm long; filaments 2–2.6 mm long; anthers 2.2–2.3 mm long, cream colored, lanceolate, surface flat or slightly undulate, pore rounded, non-thickened margins, extrorse; connective shortly dorsally prolonged (ca. 0.3 mm), unappendaged. Style 5–5.5 mm long, straight to slightly curved, glabrous. Fruits 0.4–0.7 × 0.9–1.2 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Amargosa, *Cardoso 1543* (CEPEC, HUEFS); *Cardoso 1677* (CEPEC, HUEFS); *Paixão 1350* (CEPEC, HUEFS), *Perdiz 229* (CEPEC). Ubaíra, *Ferreira 28* (ALCB). Wenceslau Guimarães, *Aona 2780* (HURB); *Goldenberg 2045* (HURB, NY, UPCB); *Reginato1297* (CEPEC).

Conservation Status:—*Bertolonia linearifolia* has an EOO of 604 km² and AOO of 28 km², suggested to be classified as "Endangered" (EN), following IUCN (2017) categories. This species has been found in the conservation units "Refúgio da Vida Silvestre de Amargosa" and "Estação Ecológica Estadual Wenceslau Guimarães".

Notes:—*Bertolonia linearifolia* is endemic to Bahia. This species occurs in Montane Rain Forest (Figure 13a). Collected with flowers in January and November and fruits in January, August, October and November. *Bertolonia linearifolia* is easily distinguished from other species of the genus mainly because of its lanceolate, 0.5–2 cm wide leaf blades, but also by the rounded or attenuate leaf base and acute apex. Moreover, it has flowers with pink petals and anthers dehiscing through an extrorse pore. For more details, see notes under *B. linearifolia* in Bacci et al. (2018).

10. ***Bertolonia maculata*** De Candolle (1828: 114). Figure 14

Herbs 10–30 cm tall, terrestrial, epiphytic, rarely rupiculous. Stem 3–6 mm wide, rounded, densely glandulose-punctate (trichomes less than 0.1 mm long) and densely glandulose-villose (trichomes 2–4 mm long). Petioles 2–8.4 cm long, rounded or quadrangular, moderately to densely glandulose-punctate and moderately to densely glandulose-villose (trichomes 1.3–2.7 mm long); blade 3.4–14.5 × 2.5–8.9 cm, flat, elliptic to widely ovate, base cordate, seldom subcordate, apex acute or obtuse, seldom acuminate, margins entire, moderately ciliate, adaxial surface green, sparsely to moderately glandulose-punctate and moderately to densely glandulose-villose (trichomes 1.5–2 mm long), abaxial surface vinaceous, moderately to densely glandulose-punctate and sparsely glandulose-villose (trichomes 1.2–1.5 mm long), main veins 5, seldom 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 6–15 cm long (15.5–19.5 cm long in infrutescences), branches densely glandulose-punctate and densely glandulose-villose when young, glabrous when old. Bracts and bracteoles not seen. Hypanthium 2.4–3.1 × 3–3.7 mm, short terete or obconic, glandulose-punctate and glandulose-villose. Sepals ovate, apex acute, seldom rounded, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 6.5–9 × 2.5–4.5 mm, pink, elliptic, base cuneate, apex apiculate, the apiculum ca. 0.8

mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 3.6–6.3 mm long; filaments 1.2–3.7 mm long; anthers 2–2.7 mm long, cream colored, narrowly oblong, surface flat or slightly undulate, pore rounded, thickened margins, introrse; connective shortly dorsally prolonged (ca. 0.1 mm), unnappendaged. Style 3.3– 7.8 mm long, straight, glabrous. Fruits 0.4–0.7 × 0.9–1.2 cm. Seeds widely fusiform.

Examined material:—BRAZIL. Bahia: Eunápolis, *Almeida 33* (CEPEC, US); *Belém 2645* (CEPEC, US). Guaratinga, *Santos, T.S. 897* (CEPEC, RB, US). Itabuna, *Mello Filho 2993* (CEPEC). Itamaraju, *Amorim 6852* (CEPEC); *Jardim, J.G. 3941* (CEPEC, HUEFS, NY); *Martinelli 14824* (RB); *Mori 10686* (CEPEC, K, NY, RB, US). Porto Seguro, *Amorim 4254* (CEPEC, UPCB); *Carvalho 172* (CEPEC, MBML, RB); *Carvalho 357* (CEPEC); *Mello Filho 2947* (CEPEC); *Mello Filho 2989* (CEPEC); *Harley 16139* (CEPEC, NY, US, K)*; Lopes 917* (CEPEC); *Paixão 1889* (CEPEC, UESC); *Pereira 27* (ALCB, CEPEC); *Thomas 12049* (CEPEC). Santa Cruz de Cabrália, *Bonfim 511* (CEPEC, UEC, UPCB); *Eupunino 164* (CEPEC, US); *Guedes 6682* (ALCB); *Mori 10864* (CEPEC); *Santos, F.S. 355* (CEPEC, US); *Webster 25094* (CEPEC, MO). Una, *Martini 29* (CEPEC, UESC); *Martini 142* (CEPEC, UESC); *Mattos-Silva 1292* (CEPEC, HUEFS, US). Uruçuca, *Amorim 622* (CEPEC); *Bacci 239* (UEC); *Jardim, J.G. 4165* (CEPEC, HUEFS).

Conservation Status:—*Bertolonia maculata* has an EOO of 73,894 km² and AOO of 112 km², suggested to be classified as "Least Concern" (LC), following IUCN (2017) categories. In Bahia, this species has been found in the conservation units "Estação Ecológica Pau-Brasil", "Reserva Particular do Patrimônio Natural Veracel" and "Reserva Biológica de Una" but also within private properties.

Notes:—*Bertolonia maculata* occurs in the states of Bahia and Espírito Santo. In Bahia, *B. maculata* is widely distributed along the central and southern coast, with some specimens also collected inland, in this case in the southern region of the state, in low elevation areas (100–450 m). This species occurs in Lowland Rain Forest and Tabuleiro Forest (Figure 13b). Collected with flowers and fruits between January and February, and June to November. *Bertolonia maculata* can be distinguished by the stem, petioles and hypanthium densely glandulose-villose (the trichomes 1.3–4 mm long), petals with an apiculate apex and anthers dehiscing through an introrse pore with thickened margins. It is closely related with *B. marmorata*, and they differ mainly by the morphology of the anthers. *Bertolonia maculata* has anthers with a flat or slightly undulate surface, and dehiscing through an introrse pore with thickened margins (vs. undulate anthers with pores that do not have thickened margins).

It is also similar to *Bertolonia carmoi* (for more details see notes under *B. carmoi* and *B. marmorata*).

11. ***Bertolonia marmorata*** (Naudin 1848: 381) Naudin (1851: 318). Figure 15

Herbs ca. 15 cm tall, terrestrial. Stem 2–6 mm wide, rounded, densely glandulose-punctate (trichomes less than 0.1 mm long) and moderately to densely glandulose-villose (trichomes 2.4–4 mm long). Petioles 0.7–4 cm long, rounded or quadrangular, moderately glandulose-punctate and sparsely to moderately glandulose-pilose (trichomes 1–2 mm long); blade 4–12.4 × 3–10.9 cm, flat, ovate or elliptic, seldom widely ovate, base cordate, seldom subcordate, apex obtuse or rounded, margins entire or crenate, seldom denticulate, sparsely to moderately ciliate, adaxial surface dark green, sparsely to moderately glandulose-punctate and sparsely to moderately glandulose-pilose (trichomes 1–2.4 mm long), abaxial surface vinaceous, sparsely to moderately glandulose-punctate and sparsely glandulose-pilose (1.1–1.8 mm long), main veins 5, seldom 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 6.4–17.8 cm long (10–24 cm long in infrutescences), branches densely glandulose-punctate when young, moderately glandulose-punctate and sparsely glandulose-villose when old. Bracts 2–3 mm long, lanceolate, apex acute, both surfaces glandulose-punctate and glandulose-villose, margins ciliate; bracteoles 0.8–1.5 mm long, lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 1.8–2.9 × 1.6–2.5 mm, short terete, glandulose-punctate and glandulose-villose. Sepals ovate or widely ovate, apex acute, seldom acuminate, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 3.8–7.3 × 1.9–3 mm, pink, elliptic or obovate, base cuneate, apex apiculate, the apiculum 0.2–0.5 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 3.5–5 mm long; filaments 1.5–3.1 mm long; anthers 1.6–2 mm long, cream colored, oblong or lanceolate, slightly falciform, surface undulate, pore triangular, non-thickened margins, introrse; connective prolonged (ca. 0.2 mm), dorsally thickened. Style 3–5.5 mm long, straight, glabrous. Fruits 0.6–0.7 × 0.9–1 cm. Seeds fusiform.

Examined material:—BRAZIL. Bahia: Amargosa, *Cardoso 1712* (CEPEC, HUEFS); *Paixão 1179* (CEPEC, HUEFS). Cairu, *Borges 728* (CEPEC); *Paixão 319* (CEPEC, NY); *Queiroz 13756* (HUEFS). Elísio Medrado, *Guedes 21075* (ALCB, HUFU). Itagibá, *Ramos 45* (ALCB). Jequié, *Souza, A.F. 3* (UPCB); *Thomas 13829* (CEPEC). Jussarí, *Thomas 11946* (CEPEC, NY, RB). Santa Teresinha, *Marinho 1440* (HUEFS). Valença, *Carvalho 820*

(CEPEC, HUEFS, US); *Matos 3354* (CEPEC, HUEFS).

Conservation Status:—*Bertolonia marmorata* has an EOO of 78,943 km² and AOO of 64 km², suggested to be classified as "Least Concern" (LC), following IUCN (2017) categories. In Bahia, this species has been found in the "Área de Proteção Ambiental Tinharé-Boipeba", but also within private properties.

Notes:—*Bertolonia marmorata* occurs in the states of Bahia, Alagoas and Pernambuco. This species occurs in Lowland Rain Forest, rarely in Montane Rain Forest. Some specimens were found in transition areas between Atlantic Forest and Caatinga (Figure 13c). Collected with flowers and fruits from October to February and July. *Bertolonia marmorata* is recognized by the leaves with a rounded apex and flowers with small anthers (1.6–2 mm long) dehiscing through a triangular, introrse pore. *Bertolonia marmorata* is similar to *B. carmoi* and *B. maculata,* and the limits between them is sometimes obscure (for more details, see the notes under both species). During this study we identified several specimens (Aona 1841; Bisewski 55, 63; Ferreira 1852; Fiaschi 2760; J.G. Jardim 4505; Thomas 3604, 12500, 12505, 12295) that might belong to this *B. maculata*/*B. marmorata* complex. They all share the branches, petioles, leaf blades, hypanthium and sepals covered with sessile or short-stalked glands (less than 0.1 mm long) and long-stalked glands (1–5 mm long), leaf blades with similar sizes (3–14.5 × 2.4–10.9 cm) and anthers with introrse pore (figure 10e). Moreover, these specimens share with *B. marmorata* the elliptic or widely ovate leaf blades with a rounded apex, similar anther size with an introrse, triangular pore. We are not sure about the inclusion of these specimens in the descriptions of *B. maculata* or *B. marmorata* mainly because of a partially tuberous, thickened stem with plagiotropic growth, that stays hidden beneath the leaf litter; it is invisible during the dry season, when the deciduous leaves fall. The foliar portion of the stem seems to be thicker in periods with water availability, probably making it a water reserve structure. The development of this structure seems to be related with the habitat of the specimens; they usually occur in drier places, such as Decidous Seasonal Forest introgressions within the Caatinga. These observations were made in the field and still require further studies, including on the anatomy of these stems, in order to decide whether these specimens belong to either *B. maculata* or *B. marmorata*, or even to one or more undescribed species. The whole *B. maculata*/*B. marmorata* complex deserves a detailed, population-based study, in order to solve the problems on the limits of these species.

12. ***Bertolonia reginatoi*** Bacci & Michelang. in Bacci et al. (2018: 783). Figures 10c, 16

Herbs 30–50 cm tall, terrestrial, rupiculous, rarely epiphytic. Stem 4–6 mm wide, rounded or quadrangular, densely glandulose-punctate (trichomes less than 0.1 mm long) and sparsely glandulose-pilose (trichomes 2–3 mm long). Petioles 5–15.5 cm long, quadrangular, densely glandulose-punctate and sparsely glandulose-strigose (trichomes 1.4–3.3 mm long); blade 8–12 × 6–9 cm, flat, ovate to widely ovate, base cordate, apex acuminate, seldom cuspidate, margins crenulate, densely ciliate, adaxial surface dark green, moderately to densely glandulose-punctate, abaxial surface light green, sparsely to moderately glandulose-punctate and sparsely glandulose-pilose (trichomes 0.9–1.8 mm long), main veins 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 9–12 cm long (11–14 cm long in infrutescences), branches moderately glandulose-punctate and moderately glandulose-hirsute when young, sparsely glandulose-punctate and sparsely glandulose-hirsute when old. Bracts 2–3 mm long, lanceolate, apex acute, margins ciliate, both surfaces glandulose-punctate and glandulose-villose; bracteoles 1–1.7 mm long, lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 1.5–2.8 × 2–3.6 mm, obconic, glandulose-punctate and glandulose-villose. Sepals ovate, seldom elliptic, apex acute, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 5–8.3 × 2.5–4.3 mm, pink, elliptic, base cuneate, apex apiculate, the apiculum 0.6–0.7 mm long, with a caducous gland head, seldom cuspidate, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 3.1–6 mm long; filaments 2–3 mm long; anthers 1.8–3 mm long, cream colored, narrowly oblong, surface undulate, pore rounded, non-thickened margins, introrse; connective shortly prolonged (less than 0.2 mm), unappendaged. Style 4.7–6.5 mm long, straight or slightly curved, glabrous. Fruits 0.4–0.5 × 0.7–0.9 cm. Seeds fusiform to widely fusiform.

Examined material:—BRAZIL. Bahia: Camacã, *Almeida 259* (CEPEC); *Bacci 209* (CEPEC, UEC); *Borges 341* (CEPEC, NY); *Lopes 418* (CEPEC); *Paixão 420* (CEPEC, NY); *Reginato 203* (CEPEC, NY, UPCB); *Reginato 1268* (CEPEC, NY, RB). Itapebi, *Fontana 2533* (RB). Santa Luzia, *Thomas 11384* (CEPEC, NY, UEC, US). Wenceslau Guimarães, *Amorim 5069* (CEPEC); *Bacci 272* (CEPEC); *Bacci 278* (CEPEC); *Goldenberg 1750* (CEPEC, HUFU, NY, UPCB); *Goldenberg 2062* (HURB, NY, UPCB).

Conservation Status:—*Bertolonia reginatoi* has an EOO of 1,898 km² and AOO of 24 km², suggested to be classified as "Endangered" (EN), following IUCN (2017) categories. This species has been found in the "Reserva Particular do Patrimônio Natural Serra Bonita", and "Estação Ecológica Estadual de Wenceslau Guimarães".

Notes:—*Bertolonia reginatoi* is endemic to Bahia. This species occurs in Montane Rain

Forest (Figure 13d). Collected with flowers from December to February and June, and with fruits in February, May, September, and December. *Bertolonia reginatoi* is recognized by the long petioles (5–15.5 cm long), ovate to widely ovate leaf blades with a cordate base and margins densely ciliate, flowers with pink and apiculate petals and anthers with an undulate surface and dehiscing though an introrse pore. It is similar to B. *hirsutissima,* with populations at Wenceslau Guimarães occurring sympatrically. For more details, see notes under *B. hirsutissima* or Bacci et al. (2018).

13. ***Bertolonia riocontensis*** Bisewski, Bacci & R. Goldenb. (submit.). Figure 17

Herbs ca. 20 cm tall, terrestrial or rupiculous. Stem 5–12 mm wide, quadrangular, densely glandulose-punctate (trichomes less than 0.1 mm long) and densely glandulose-villose (trichomes 2–3.5 mm long). Petioles 3.3–9 cm long, quadrangular, moderately to densely glandulose-punctate and moderately to densely glandulose-villose (trichomes 1.5–3 mm long); blade 9.6–15 × 5–11.5 cm, flat, ovate or widely ovate, base cordate, apex acuminate, margins denticulate, densely ciliate, adaxial surface light green, moderately glandulose-punctate, moderately glandulose-pilose (trichomes 0.9–1.5 mm long), abaxial surface light green, sparsely glandulose-punctate and moderately glandulose-pilose (trichomes 1.7–2.8 mm long) main veins 3, plus two pairs that do not reach the leaf apex, basal. Inflorescence terminal, 8–12 cm long (ca. 13 cm long in old infrutescences), branches moderately glandulose-punctate and moderately glandulose-pilose when young, sparsely glandulose-punctate and sparsely glandulose-pilose when old. Bracts and bracteoles not seen. Hypanthium 2.3–2.7 × 3.7–4 mm, obconic, glandulose-punctate and glandulose-villose. Sepals ovate, apex acute, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals ca. 9 × 4 mm, pink, ovate, base cuneate, apex apiculate, the apiculum ca. 0.9 mm long, with a caducous gland head, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 7–8 mm long; filaments 3.1–3.9 mm long; anthers 3.9–4.2 mm long, cream colored, lanceolate, surface undulate, pore rounded, non-thickened margins, extrorse; connective shortly prolonged (less than 0.1 mm), unnappendaged. Style ca. 8 mm long, straight, glabrous. Fruits 0.7–0.8 × 0.4–0.6 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Itacaré, *Bacci 191* (CEPEC); *Jardim, J.G. 1823* (CEPEC, NY, RB).

Conservation Status:—*Bertolonia riocontensis* has an AOO of 8 km², suggested to be classified as "Critically Endangered" (CR), following IUCN (2017) categories. It occurs only

in one locality, so it is not possible to calculate its Extent of Occurrence (EOO). This species has been found only in a private property.

Notes:—*Bertolonia riocontensis* is endemic to Bahia. The species occur in Lowland Rain Forest, usually on rocky outcrops surrounded by forests on swampy areas (Figure 13e). *Bertolonia riocontensis* was collected with flowers in August and fruits in August to September. It is recognized by the branches, petioles, leaf blades, hypanthium and sepals glandulose-punctate and also glandulose-villose (trichomes 0.9–3.5 mm long), thick stems (5–12 mm wide), membranaceous and light green leaf blades with a markedly cordate base and denticulate, densely ciliate margins. Furthermore, it has petals with an apiculate apex and stamens dehiscing through an extrorse pore. *Bertolonia riocontensis* is similar to *B. maculata* and *B. marmorata*. They all have branches, petioles, leaf blades, hypanthium and sepals glandulose-punctate and also glandulose-villose or glandulose-pilose (trichomes 0.9–4 mm long), ovate or widely ovate leaf blades with cordate bases, hypanthia with similar sizes (2.3–2.7 × 3.7–4 mm in *B. riocontensis*, 2.4–3.1 × 3–3.7 mm in *B. maculata* and 1.8–2.9 × 1.6–2.5 in *B. marmorata*) and petals with an apiculate apex. *Bertolonia riocontensis* differs from *B. maculata* by the leaf blades with denticulate and densely ciliate margins (vs. entire and moderately ciliate in *B. maculata*) and anthers dehiscing through an extrorse pore with non-thickened margins (vs. anthers dehiscing through an introrse pore with thickened margins). *Bertolonia riocontensis* differs from *B. marmorata* by the leaf blades with an acuminate apex (vs. rounded or obtuse in *B. marmorata*) and stamens dehiscing through an extrorse and rounded pore (vs. anthers dehiscing through an introrse and triangular pore).

14. ***Bertolonia violacea*** Bisewski, Bacci & R. Goldenb. (submit.). Figure 18

Herbs 5–8 cm tall, terrestrial. Stem 2.5–5 mm wide, terete, densely glandulose-punctate (trichomes less than 0.1 mm long) and moderately glandulose-villose (trichomes 1–2.4 mm long). Petioles 1.4–3.3 cm long, terete, sparsely to moderately glandulose-punctate and sparsely to moderately glandulose-hirsute (trichomes 1.5–2 mm long); blade 3–5 × 2.5–4.3 cm, flat, widely elliptic, base cordate, apex rounded, margins entire, moderately ciliate, adaxial surface purple, sparsely glandulose-punctate and sparsely to moderately glandulose-pilose (trichomes 1.2–1.5 mm long), abaxial surface purple, seldom dark green, sparsely glandulose-punctate and sparsely glandulose-pilose (trichomes ca. 1 mm long), main veins 5, plus one pair that do not reach the leaf apex, basal. Inflorescence terminal, 6.2–9 cm long (10.8–13 cm long in old infrutescences), branches sparsely glandulose-punctate and moderately to densely

glandulose-villose when young, sparsely glandulose-punctate and sparsely glandulose-villose when old. Bracts not seen; bracteoles 1.1–1.2 mm long, lanceolate, apex acute, both surfaces glandulose-punctate. Hypanthium 1.6–2.1 × 2–2.3 mm, shortly terete, glandulose-punctate and glandulose-villose. Sepals elliptic to ovate, apex acute, margins entire, ciliate, both surfaces glandulose-punctate and glandulose-villose. Petals 4–6.5 × 2.5–3 mm, pink, elliptic, base cuneate, apex apiculate, the apiculum ca. 0.6mm long, with a caducous gland head, margins entire with long-stalked glands (trichomes 0.2–0.3 mm long), both surfaces papillose, otherwise glabrous. Stamens 5.7–5.9 mm long; filaments 3.2–3.4 mm long; anthers 2.4–2.5 mm long, cream colored, lanceolate, surface slightly undulate, pore rounded, non-thickened margins, extrorse; connective shortly prolonged (less than 0.1 mm), unnappendaged. Style 5.5–7.3 mm long, straight, glabrous. Fruits 0.5–0.6 × 0.8–1 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Guaratinga, *Fontana 5909* (CEPEC, MBML); *Kollmann 11578* (MBML).

Additional material:—BRAZIL. Espírito Santo (Cultivated): Santa Teresa, *Bacci* 160 (NY, UPCB). Paraná (Cultivated): Curitiba, *Bisewski 60* (UPCB).

Conservation Status:—*Bertolonia violacea* has an AOO of 4 km², suggested to be classified as "Critically Endangered" (CR), following IUCN (2017) categories. It occurs only in one locality, so it is not possible to calculate its Extent of Occurrence (EOO). This species has been collected only twice at the same locality, a private property in the municipality of Guaratinga.

Notes:—*Bertolonia violacea* is endemic to Bahia. This species occurs in Tabuleiro Forest (Figure 13f). It has been cultivated in a greenhouse at the "Museu de Biologia Mello Leitão" in the state of Espirito Santo where it got spread, weedy-like. Collected with flowers and fruits in April and May. *Bertolonia violacea* is characterized by the remarkable purplish indumentum covering the plants. It has one of the smallest leaves in the genus (about 2.5–7 cm long), together with *B. alternifolia*, *B. angustipetala,* and *B. kollmannii*. *Bertolonia violacea* is similar to *B. marmorata;* they share the widely elliptic or widely ovate leaf blades, and also the branches, leaf blades, hypanthium and sepals glandulose-punctate (trichomes less than 0.1 mm long) and glandulose-villose or glandulose-pilose (trichomes 1–2.5 mm long). However, *Bertolonia violacea* differs by the leaves with an acute apex and revolute margins (vs. rounded apex and entire margins in *B. marmorata*), the purplish color of the leaf trichomes (vs. brownish in *B. marmorata*), and the anthers dehiscing through an extrorse pore (vs. introrse in *B. marmorata*).

15. ***Bertolonia vitoriana*** Bacci & Michelang. in Bacci et al. (2018: 788). Figures 10d, 19

Herbs 20–40 cm tall, terrestrial, seldom epiphytic. Stem 1–3 mm wide, quadrangular or rounded, densely glandulose-punctate (trichomes less than 0.1 mm long). Petioles 0.6–5.3 cm long, quadrangular, moderately to densely glandulose-punctate; blade 6.8–14.2 × 3.3–7 cm, flat, seldom slightly undulate, lanceolate to narrowly ovate, base rounded or obtuse, apex acute, margins denticulate, sparsely ciliate, adaxial surface dark green, sparsely glandulose-punctate, abaxial surface vinaceous, sparsely glandulose-punctate, main veins 3, plus two pairs that do not reach the leaf apex, suprabasal. Inflorescence terminal, pseudo-lateral when old, 5.5–9.5 cm long (6–11 cm long in infrutescences), branches moderately glandulose-punctate when young, glabrous when old. Bracts 1.3–1.7 mm long, elliptic, apex acute, margins eciliate, both surfaces glandulose-punctate; bracteoles 0.9–1 mm long, elliptic, seldom obovate, apex acute, both surfaces glandulose-punctate. Hypanthium 2.1–2.6 × 1.3–2, obconic, glandulose-punctate. Sepals ovate, apex acute, margins entire, eciliate, both surfaces glandulose-punctate. Petals 7–9.5 × 4.5–7 mm long, white, elliptic, base cuneate, apex acute, not apiculate, margins entire, eciliate, both surfaces papillose, otherwise glabrous. Stamens 4.2–6.1 mm long; filaments 1.6–3.5 mm long; anthers 2.1–2.7 mm long, yellow, lanceolate, slightly undulate; pore rounded, non-thickened margins, introrse; connective shortly prolonged (less than 0.4 mm), dorsally thickened. Style 3–6 mm long, curved, glabrous. Fruits 0.5–0.6 × 0.7–0.9 cm. Seeds reniform.

Examined material:—BRAZIL. Bahia: Camacã, *Alves-Araújo 1194* (UFP); *Amorim 4408* (CEPEC, NY); *Amorim 6659* (CEPEC); *Amorim 7201* (CEPEC); *Bacci 208* (CEPEC, UEC); *Borges 338* (CEPEC, NY, UPCB); *Fiaschi 2868* (CEPEC, NY, SPF); *Goldenberg* 832 (CEPEC, UPCB); *Lopes 419* (CEPEC); *Marinho 820* (CEPEC); *Perdiz 414* (CEPEC, RB); *Reginato 210* (CEPEC, UPCB); *Reginato 1266* (RB); *Reginato 1277* (NY, RB); *Santos, T.S. 366* (UESC); *Thomas 13781* (CEPEC, NY); *Thomas 14200* (CEPEC, NY).

Conservation Status:—*Bertolonia vitoriana* has an EOO of 3 km² and AOO of 8 km², suggested to be classified as "Critically Endangered" (CR), following IUCN (2017) categories. This species has been found in the "Reserva Particular do Patrimônio Natural Serra Bonita".

Notes:—*Bertolonia vitoriana* is endemic to Bahia. This species occurs in Montane Rain Forest (Figure 13g). Collected with flowers from November to January, and fruits from November to April and June. *Bertolonia vitoriana* can be distinguished by the stem, petioles, leaf blades and hypanthium only glandulose-punctate, leaves with flat surfaces and the

suprabasal inner pair of veins, and flowers with white petals and yellow anthers. *Bertolonia vitoriana* is similar to *B. bullata*. For more details see the notes under *B. bullata* or Bacci et al. (2018).

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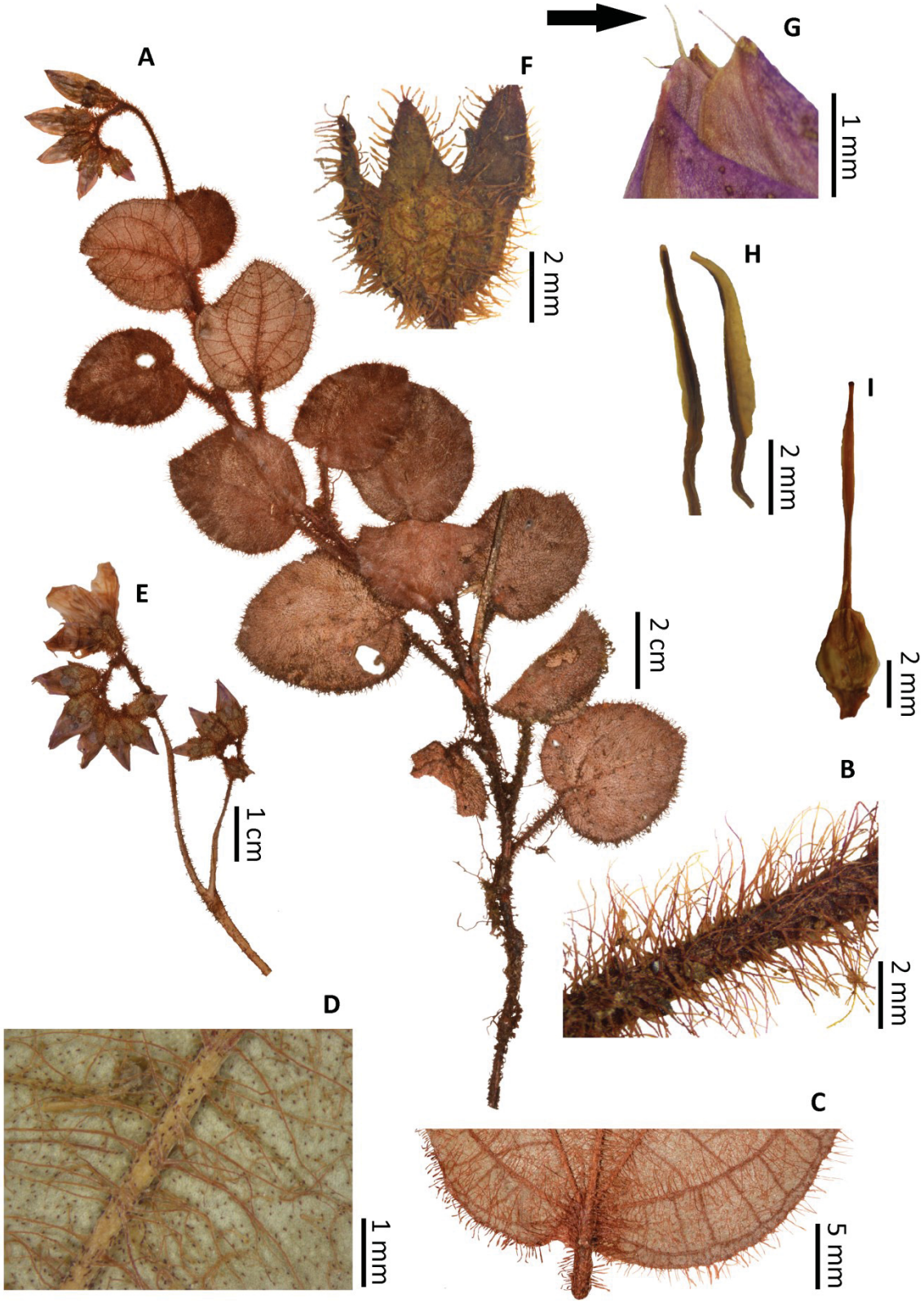

FIGURE 1. *Bertolonia alternifolia*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short and long-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex showing the apiculum with glands (arrow). H. Stamen, lateral (left) and dorsal (right) views. I. Ovary and style. [A,C: *Amorim 6408*; B: *Amorim 5299*; D*: Amorim 6751*; E, H: *Jardim, A.B. 170*; F: *Lopes 1206*; G,I: *Thomas 14586*].

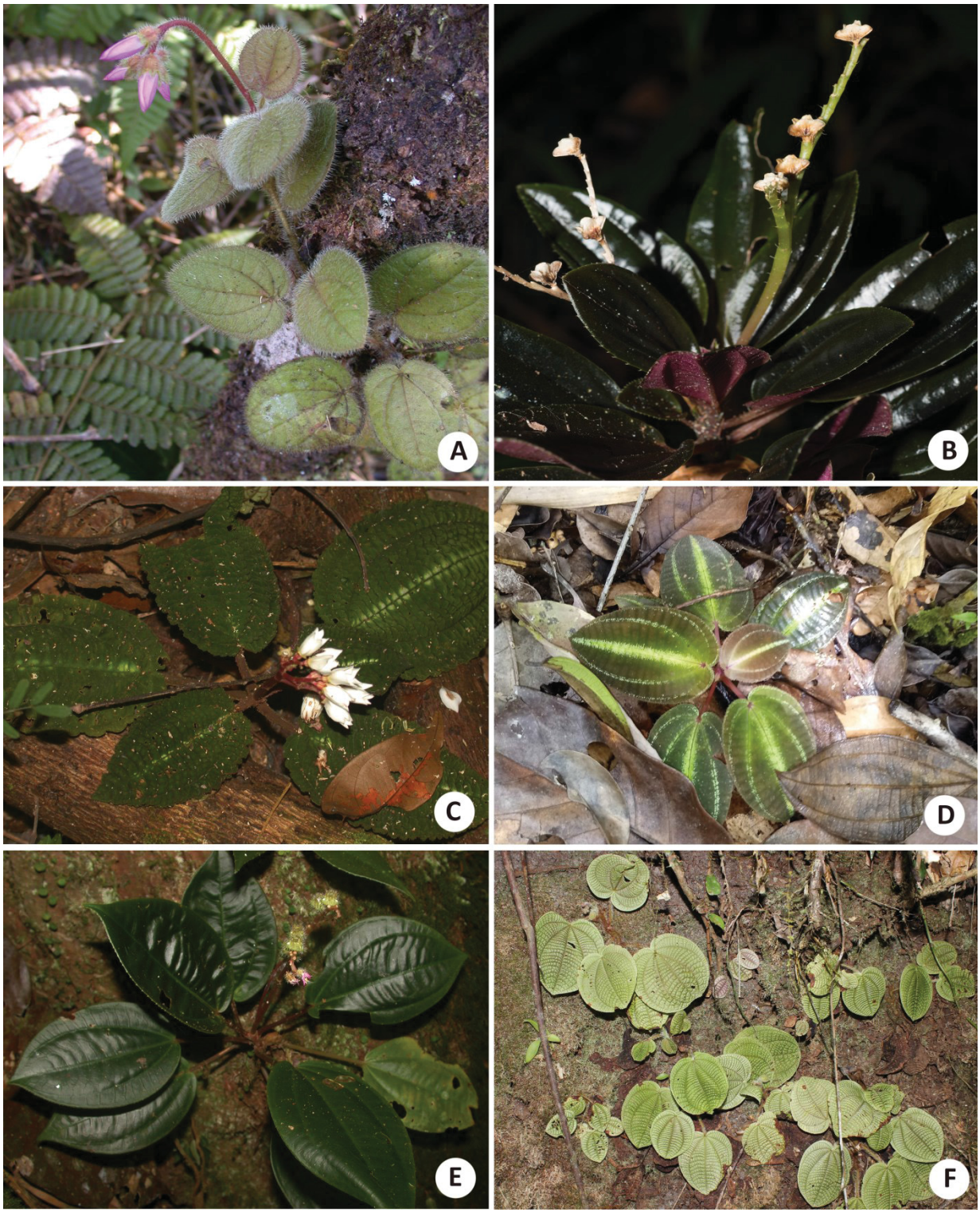

FIGURE 2. Specimens *in vivo*. A. *Bertolonia alternifolia*. B. *B. angustipetala*. C. *B. bullata*. D. *B. carmoi*. E. *B. cuspidata*. F. *B. hirsutissima*. Photos: A, C, and E by A. M. A. Amorim; B by R. Goldenberg; D by G. C. A. Bisewski; F by L. F. Bacci.

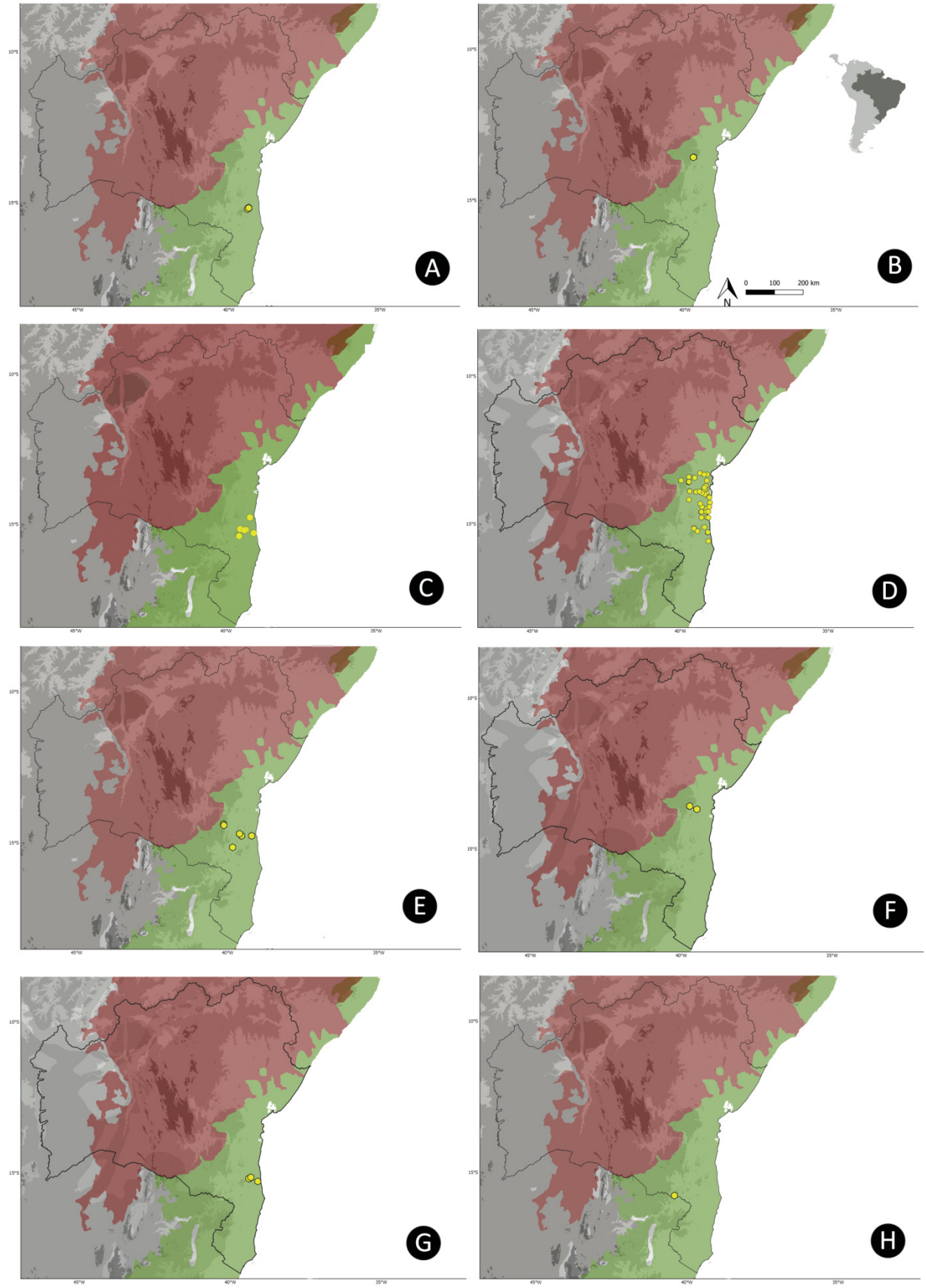

FIGURE 3. Distributions of species of *Bertolonia* in Bahia. A. *Bertolonia alternifolia*. B. *Bertolonia angustipetala*. C. *Bertolonia bullata*. D. *Bertolonia carmoi*. E. *Bertolonia cuspidata*. F. *Bertolonia hirsutissima*. G. *Bertolonia igrapiuna*. H. *Bertolonia kollmannii*.

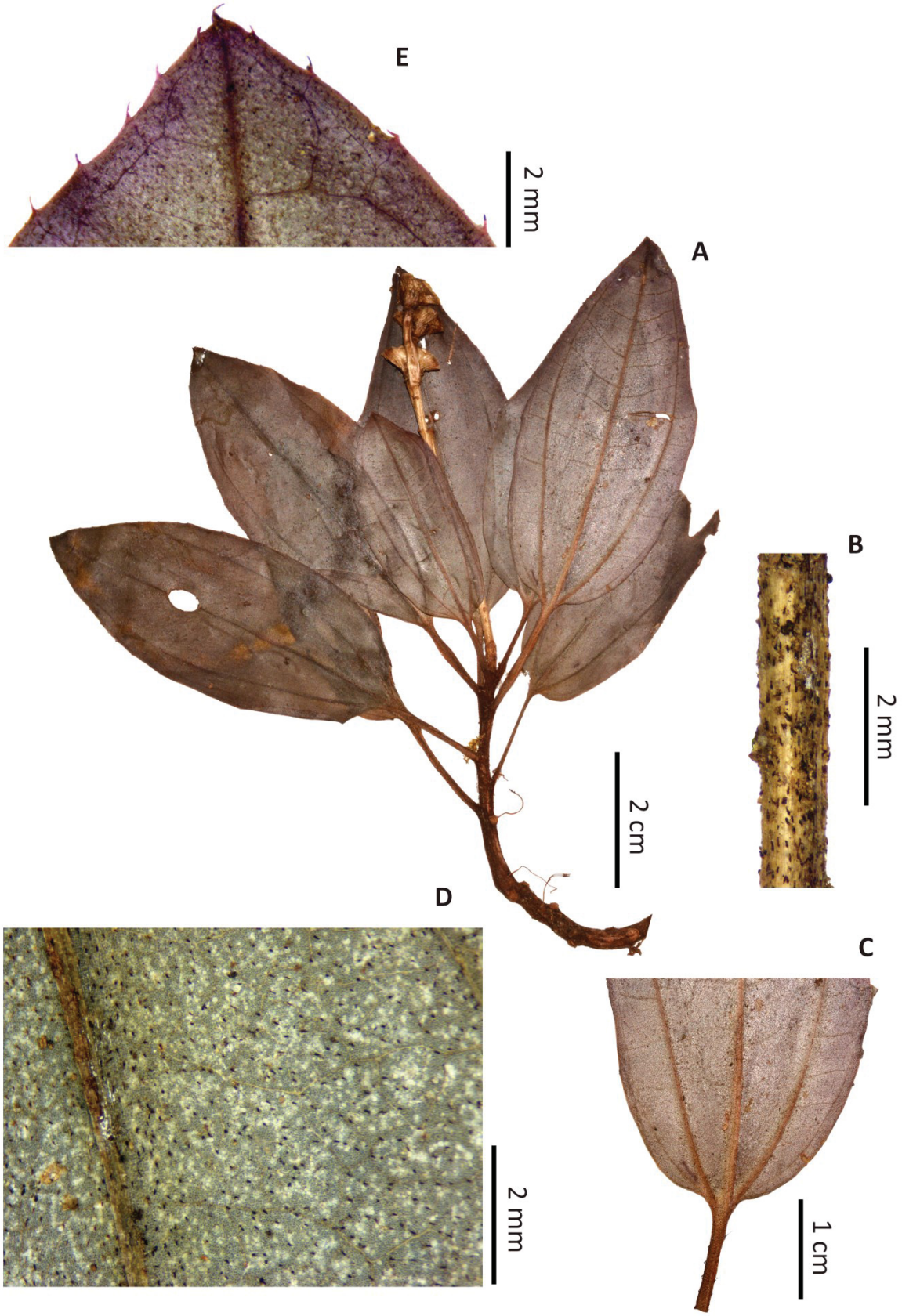

FIGURE 4. *Bertolonia angustipetala*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Leaf apex, abaxial surface [A, C, E: *Jardim 5040*; B, D: *Goldenberg 2077*].

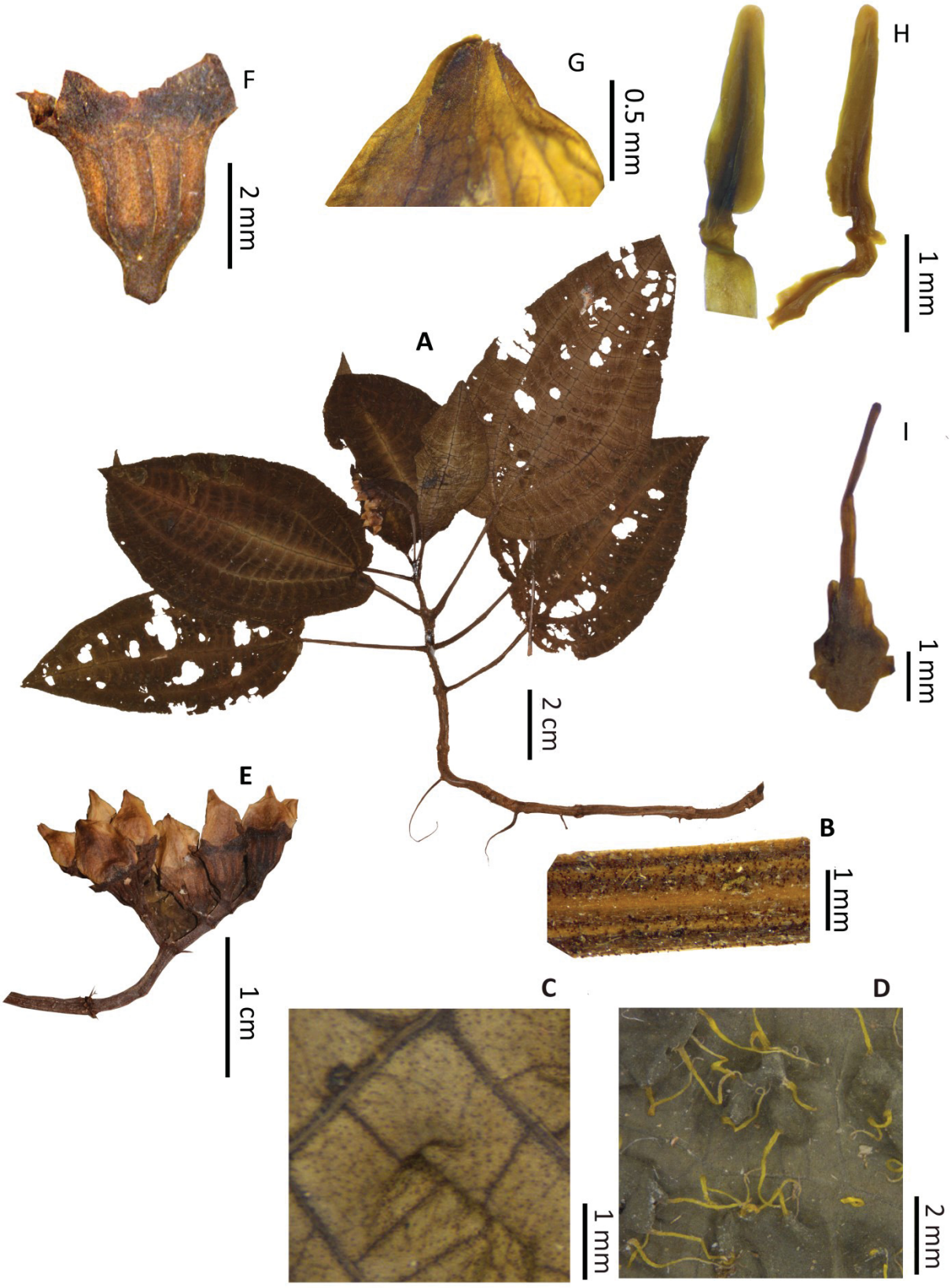

FIGURE 5. *Bertolonia bullata*. A. Fertile branch. B. Trichomes on the petiole. C. Short-stalked glandular trichomes on the adaxial leaf surface. D. long-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex. H. Stamen, dorsal (left) and lateral (right) views. I. Ovary and style. [A, E, F, G, H, I: *Jardim, J.G.3959*; B: *Amorim 2318*; C, D*: Amorim 8000*].

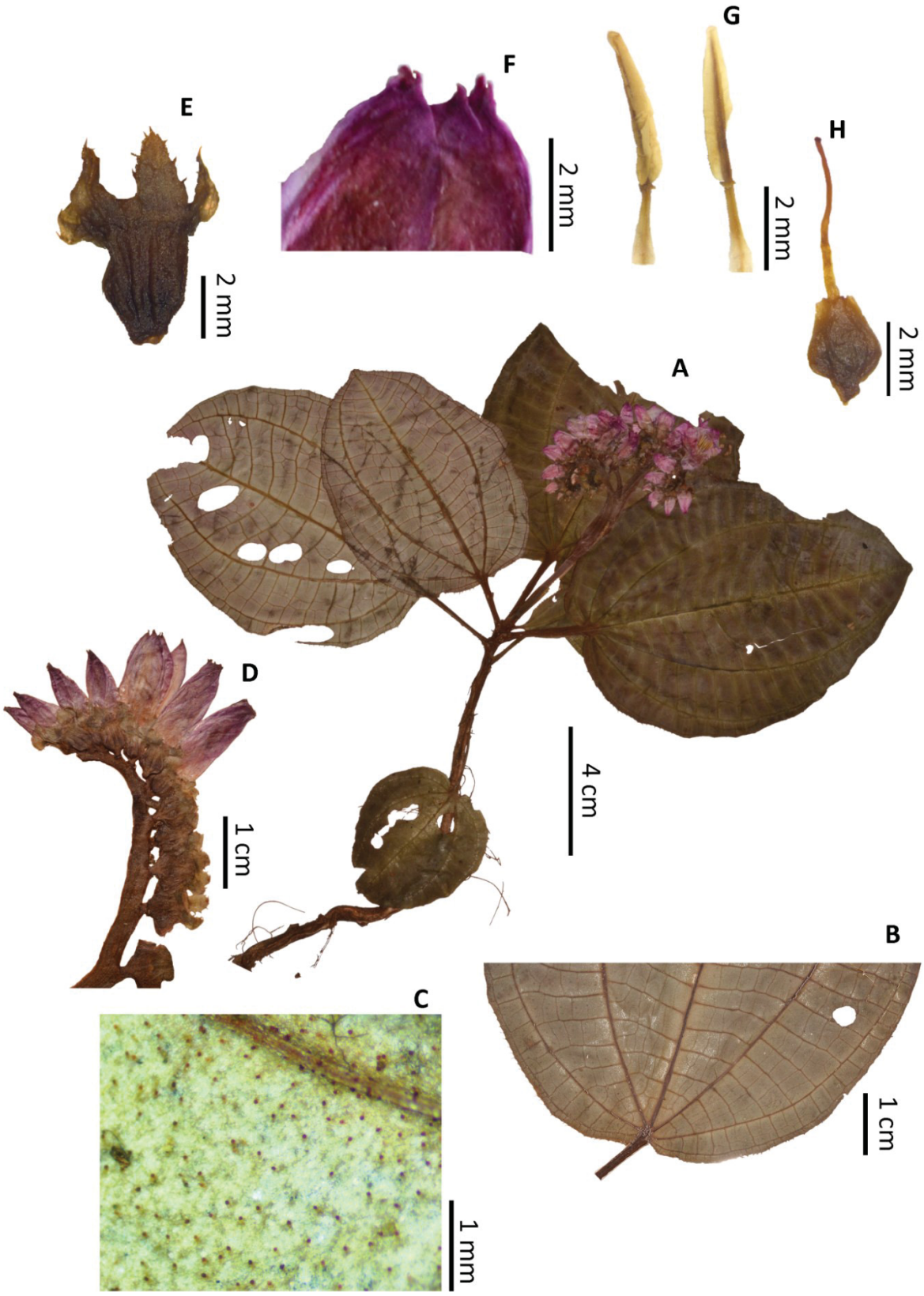

FIGURE 6. *Bertolonia carmoi*. A. Fertile branch. B. Leaf base, abaxial surface. C. Short-stalked glandular trichomes on the abaxial leaf surface. D. Inflorescence. E. Hypanthium and calyx, abaxial surface. F. Petals apex. G. Stamen, lateral (left) and dorsal (right) views. H. Ovary and style. [A, B, E, G: *Aona 3286*; C: *Valadão 495*; D. *Mori 12853*; F,H: *Pinheiro1678*].

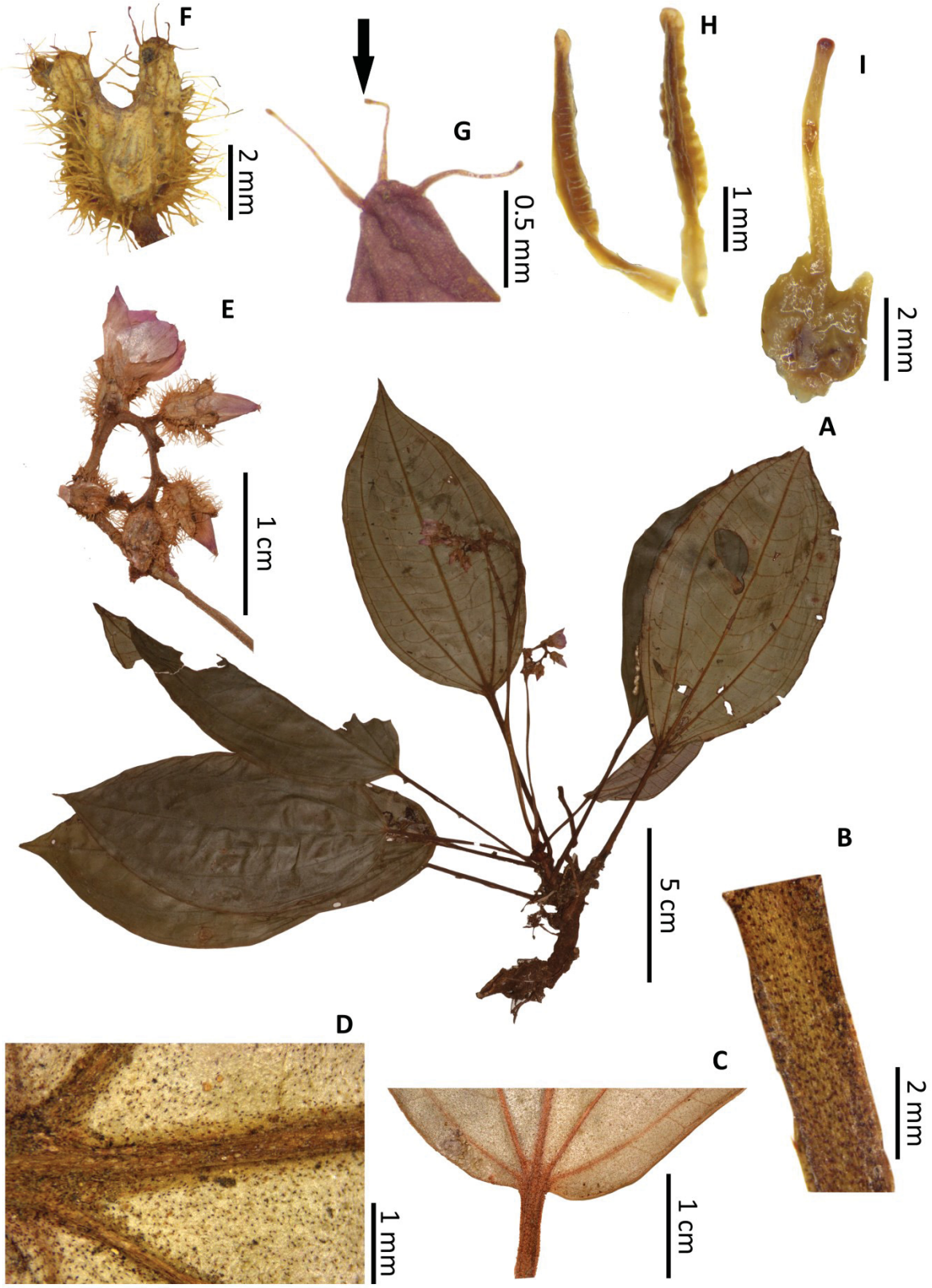

FIGURE 7. *Bertolonia cuspidata*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex, showing the apiculum with glands (arrow). H. Stamen, lateral (left) and dorsal (right) views. I. Ovary and style. [A, E, F, H, I: *Borges 461*; B: *Ferreira 1478*; C*: Borges 475*; D: *Amorim 4775*; G: *Fiaschi 1809*].

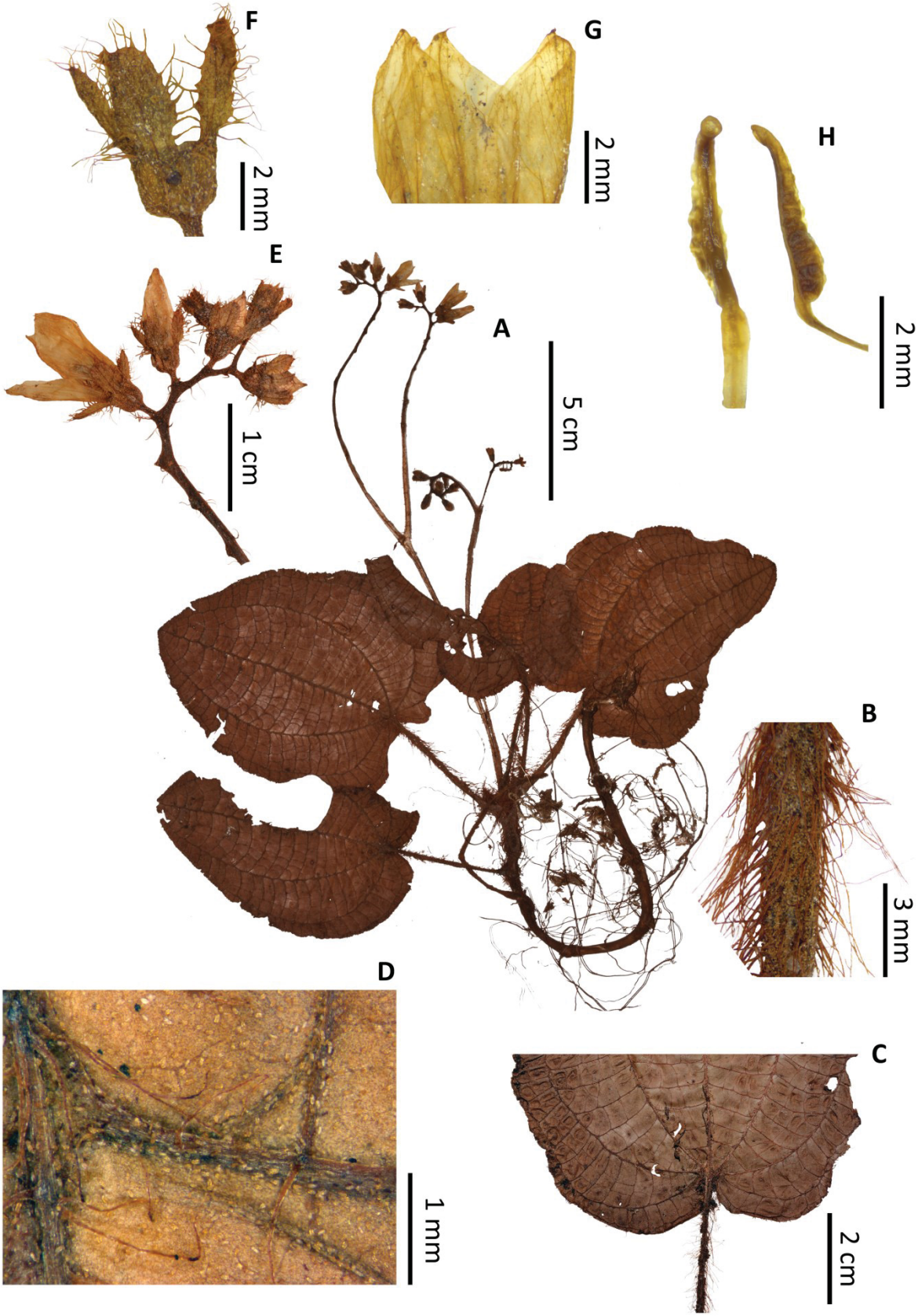

FIGURE 8. *Bertolonia hirsutissima*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short and long-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex. H. Stamen, dorsal (left) and lateral (right) views, note the extrorse pore on dorsal view. [A–H: *Goldenberg 1756*].

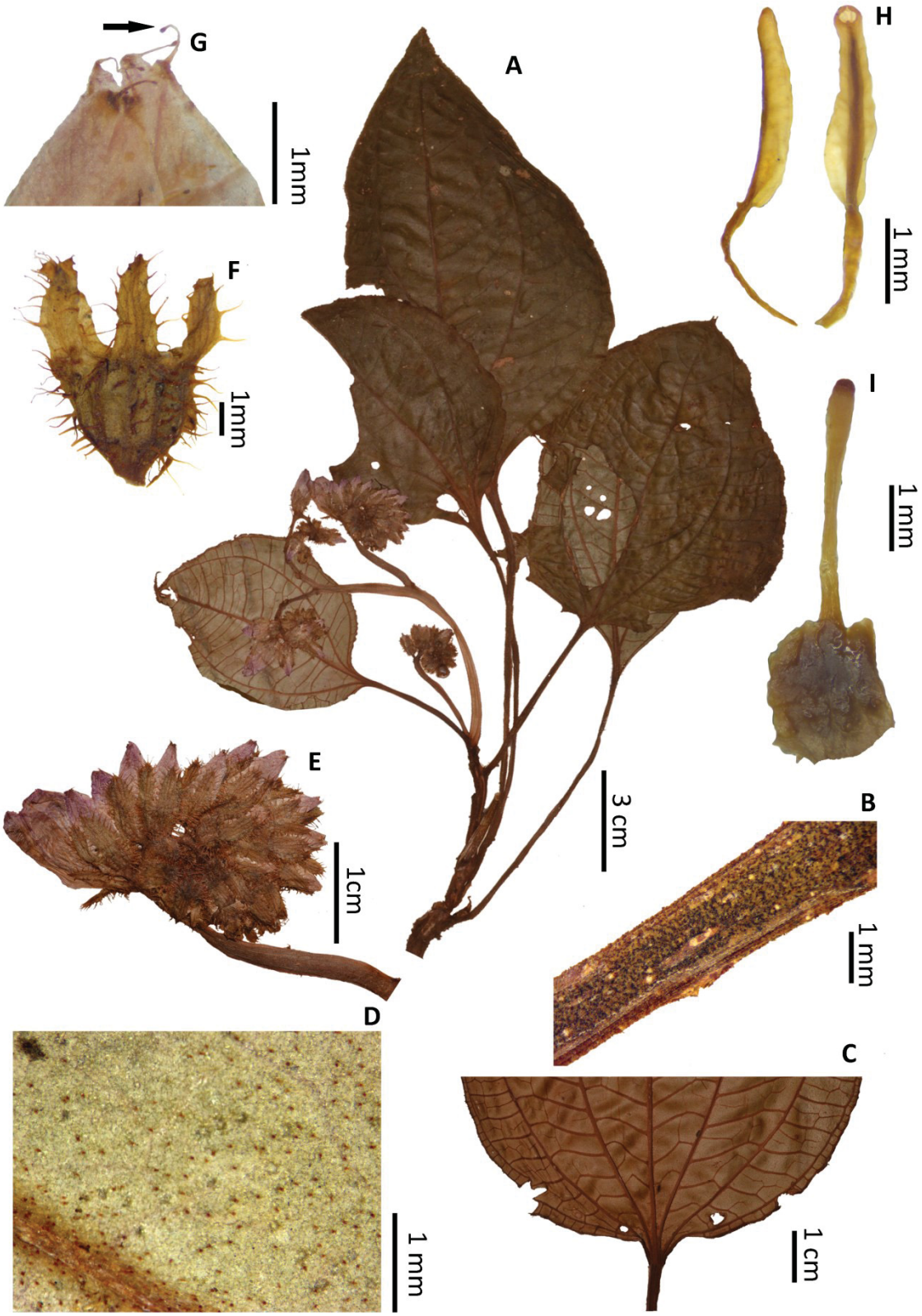

FIGURE 9. *Bertolonia igrapiuna*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex showing the apiculum with glands (arrow). H. Stamen, lateral (left) and dorsal (right) views, note the extrorse pore on dorsal view. I. Ovary and style. [A,B, E, G, I: *Amorim 6583*; C, F, H: *Jardim, J.G. 4820*; D*: Jardim, A.B. 24*].

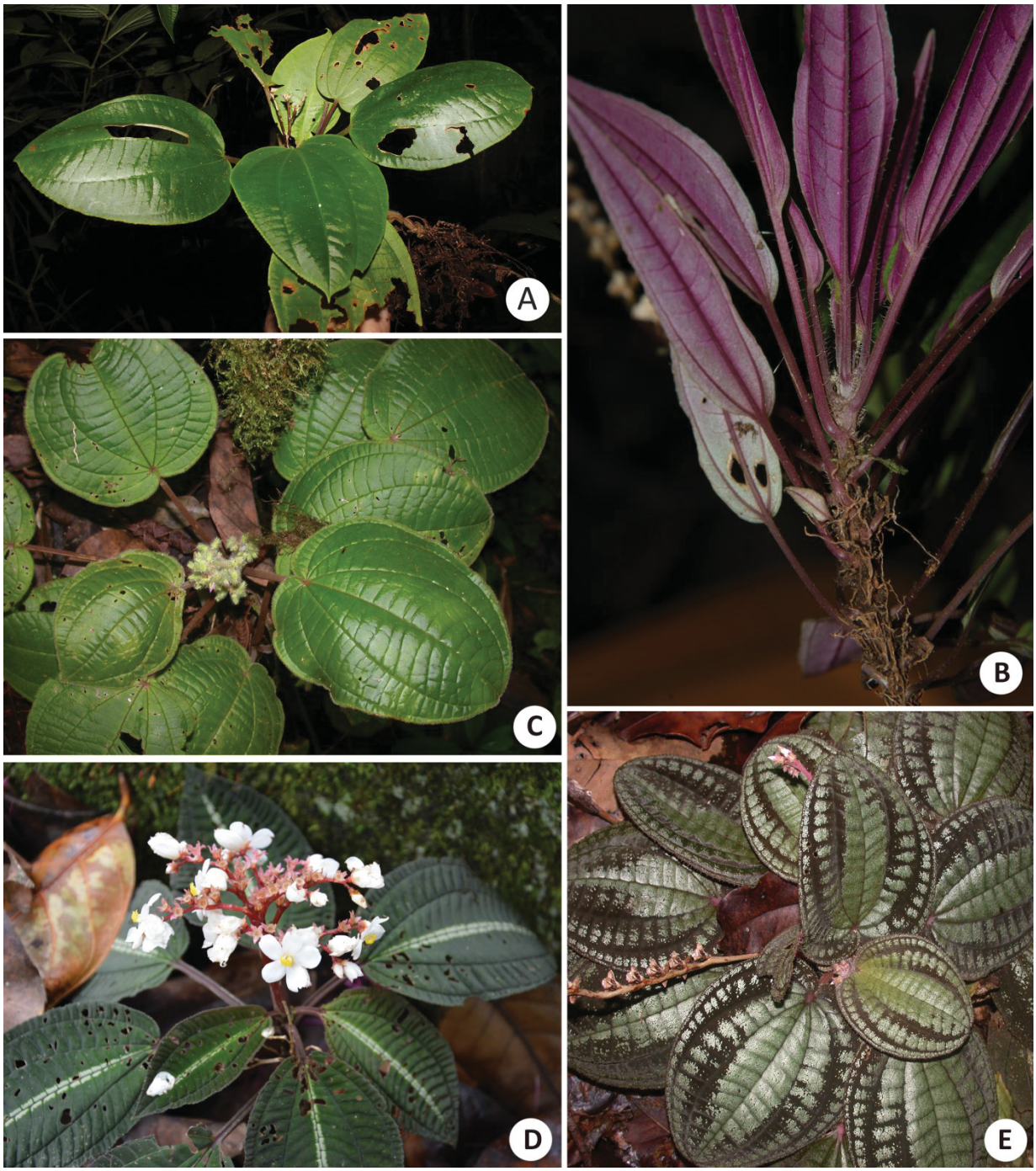

FIGURE 10. Specimens *in vivo*. A. *Bertolonia igrapiuna*. B. *B. linearifolia*. C. *B. reginatoi*. D. *B. vitoriana*. E. *Bertolonia sp,* belonging to the *B. maculata/B. marmorata* species complex. Photos: A, by L. F. Bacci; B by R. Goldenberg; C, D and E by A. M. A. Amorim.

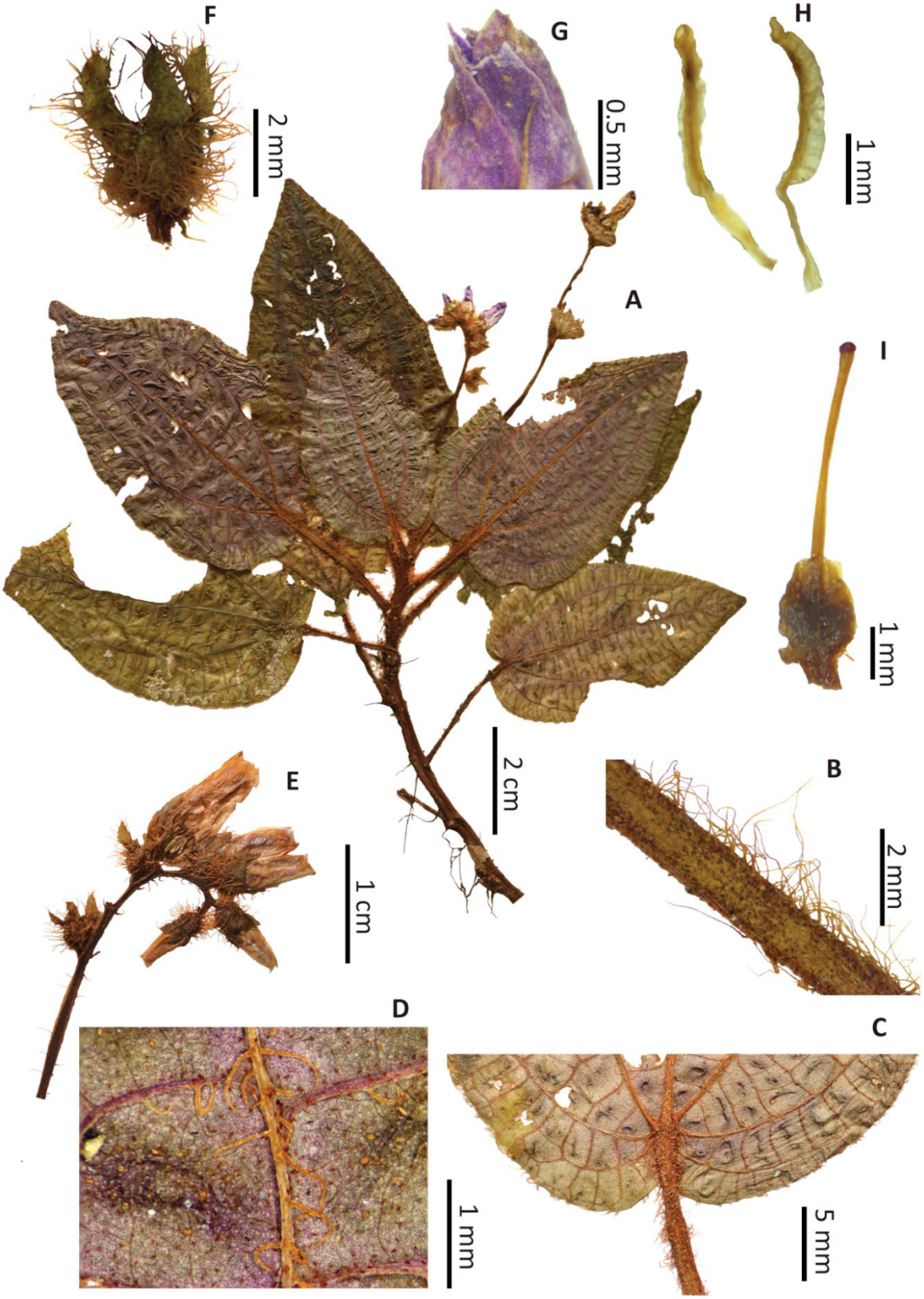

FIGURE 11. *Bertolonia kollmannii*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short and long-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex. H. Stamen, dorsal (left) and lateral (right) views, note the extrorse pore on dorsal view. I. Ovary and style. [A,B,D,F,G,H,I: *Amorim 5548*; C, E: *Carvalho 6995*].

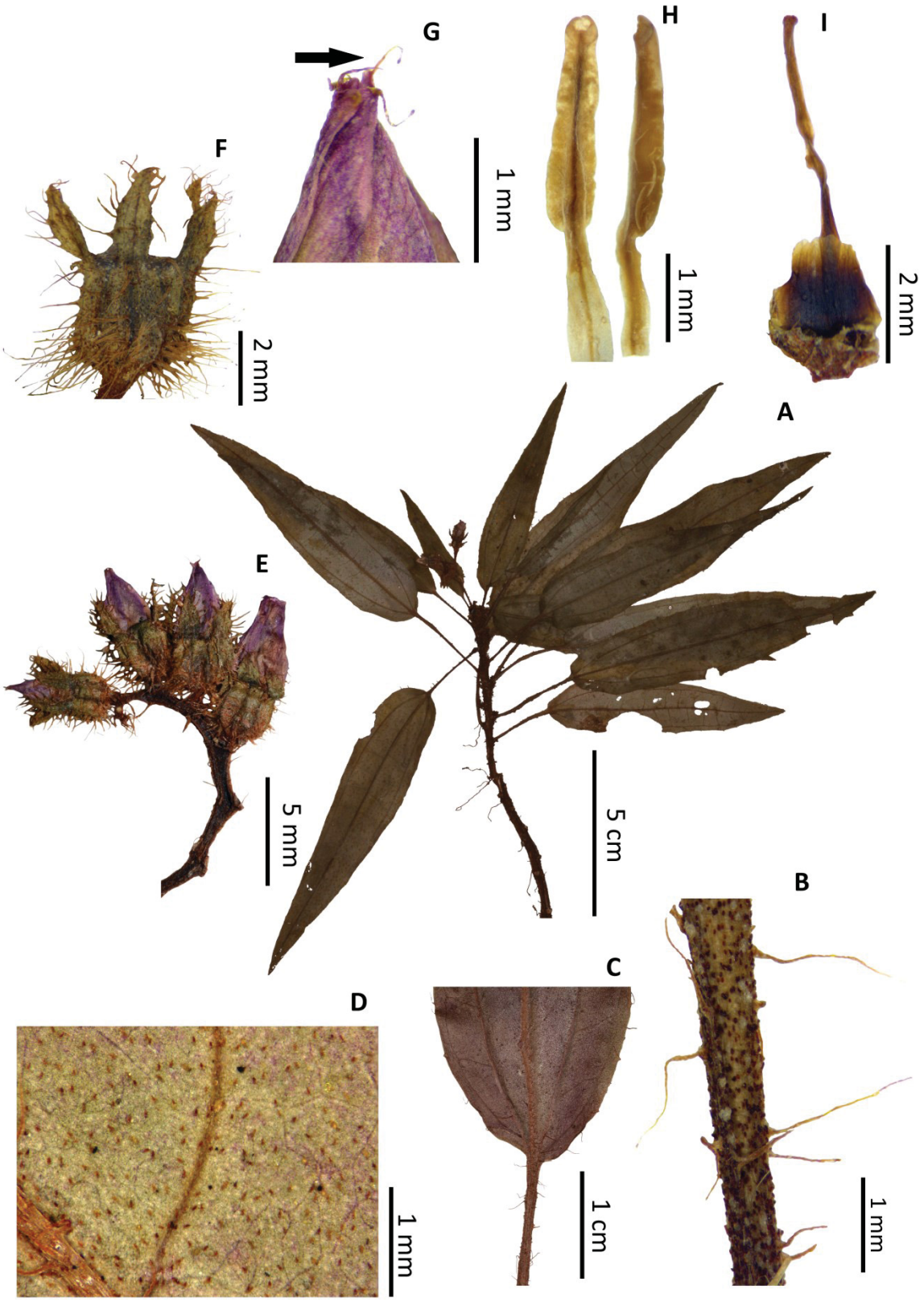

FIGURE 12. *Bertolonia linearifolia*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex, showing the apiculum with glands (arrow). H. Stamen, dorsal (left) and lateral (right) views, note the extrorse pore on dorsal view. I. Ovary and style. [A, B, F, H: *Cardoso 1677*; C, E, G, I: *Perdiz 229;* D*: Cardoso 1543*].

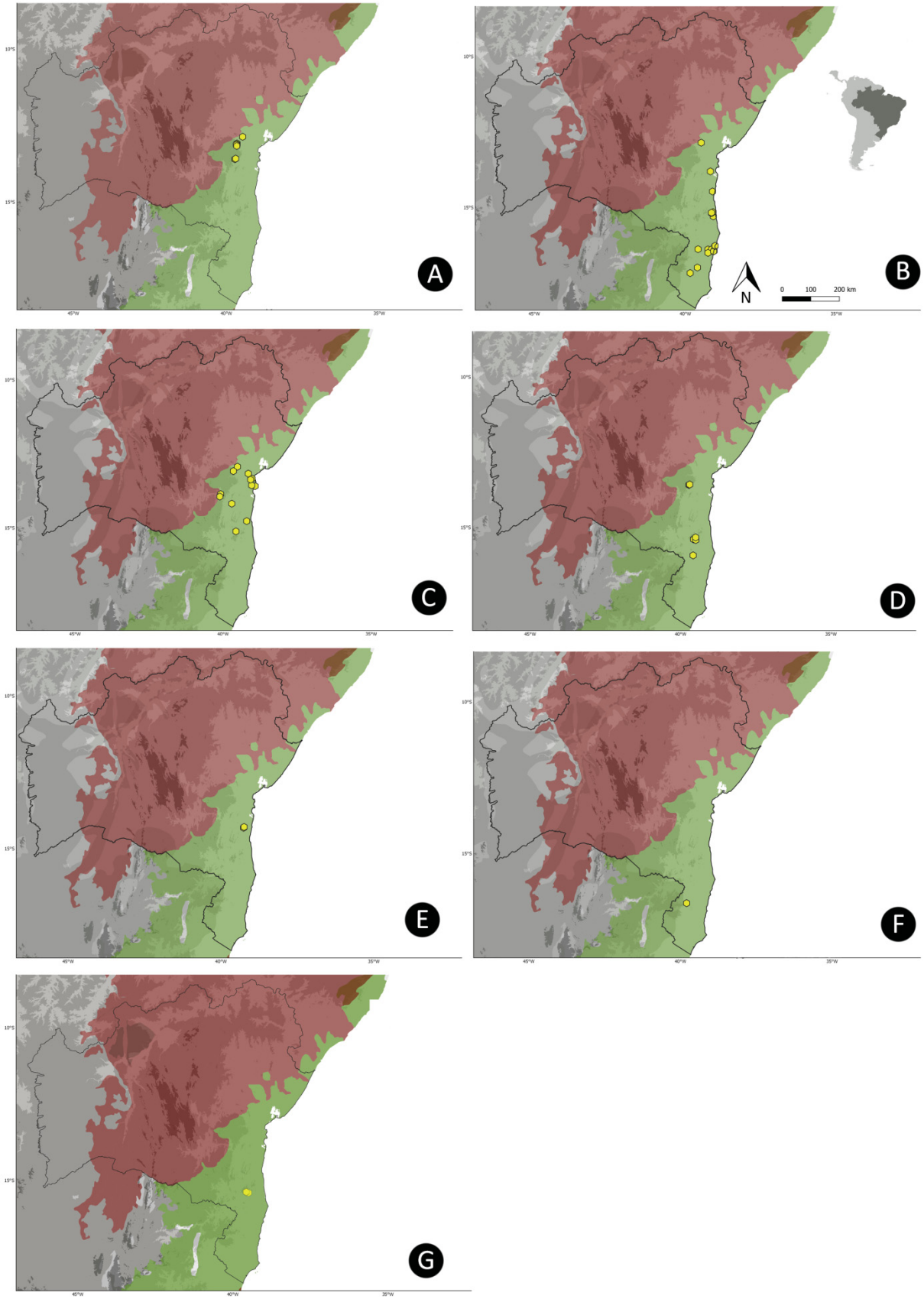

FIGURE 13. Distributions of species of *Bertolonia* in Bahia. A. *Bertolonia linearifolia*. B. *Bertolonia maculata*. C. *Bertolonia marmorata*. D. *Bertolonia reginatoi*. E. *Bertolonia riocontensis* F. *Bertolonia violacea*. G. *Bertolonia vitoriana*.

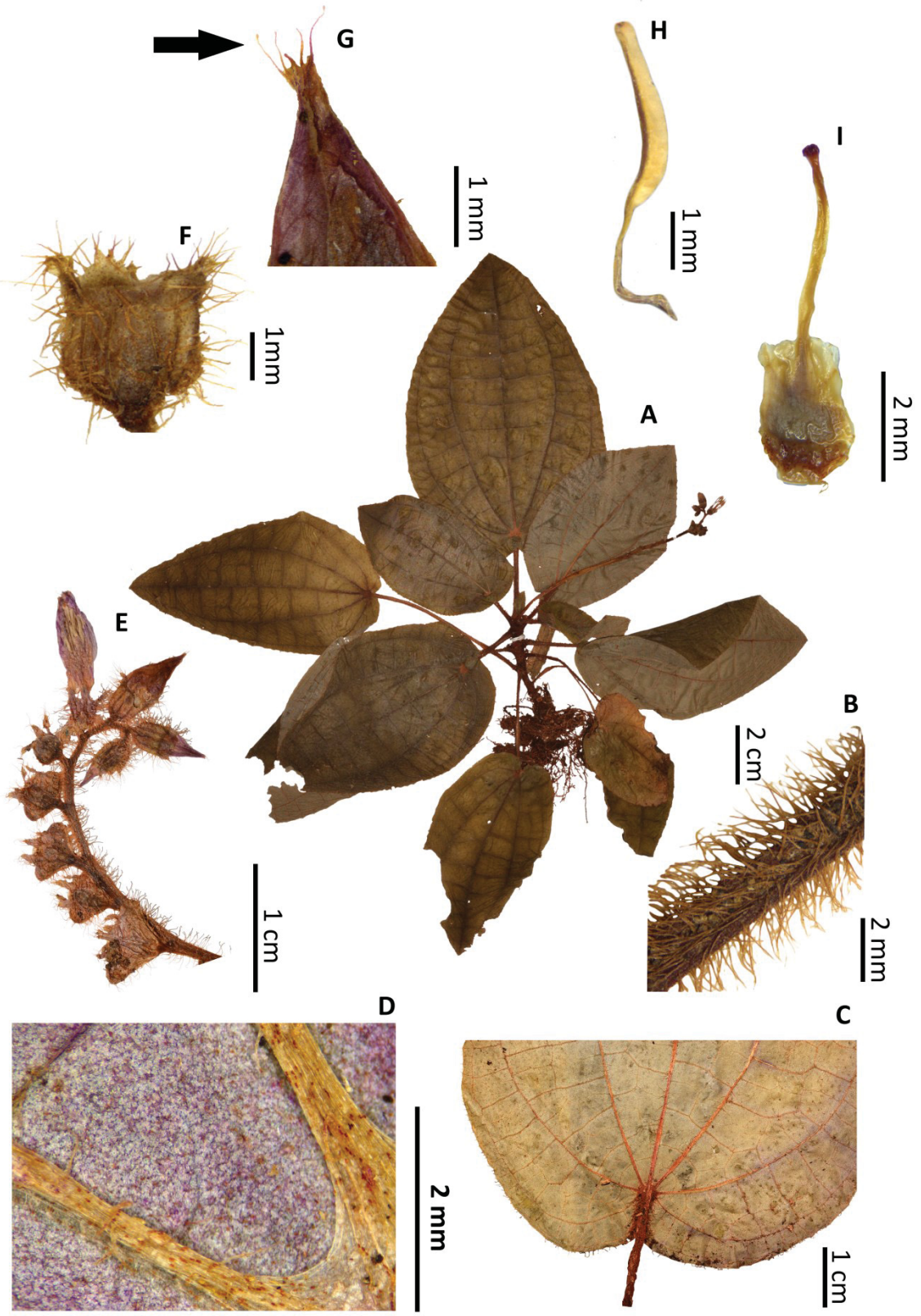

FIGURE 14. *Bertolonia maculata*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex, showing the apiculum with glands (arrow). H. Stamen, lateral view. I. Ovary and style. [A: *Pereira 27*; B, F: *Mattos-Silva 1292*; C*: Paixão1889*; D: *Amorim 6802;* E: *Carvalho 357*; G: Webster *25094*; H,I: *Santos 355*].

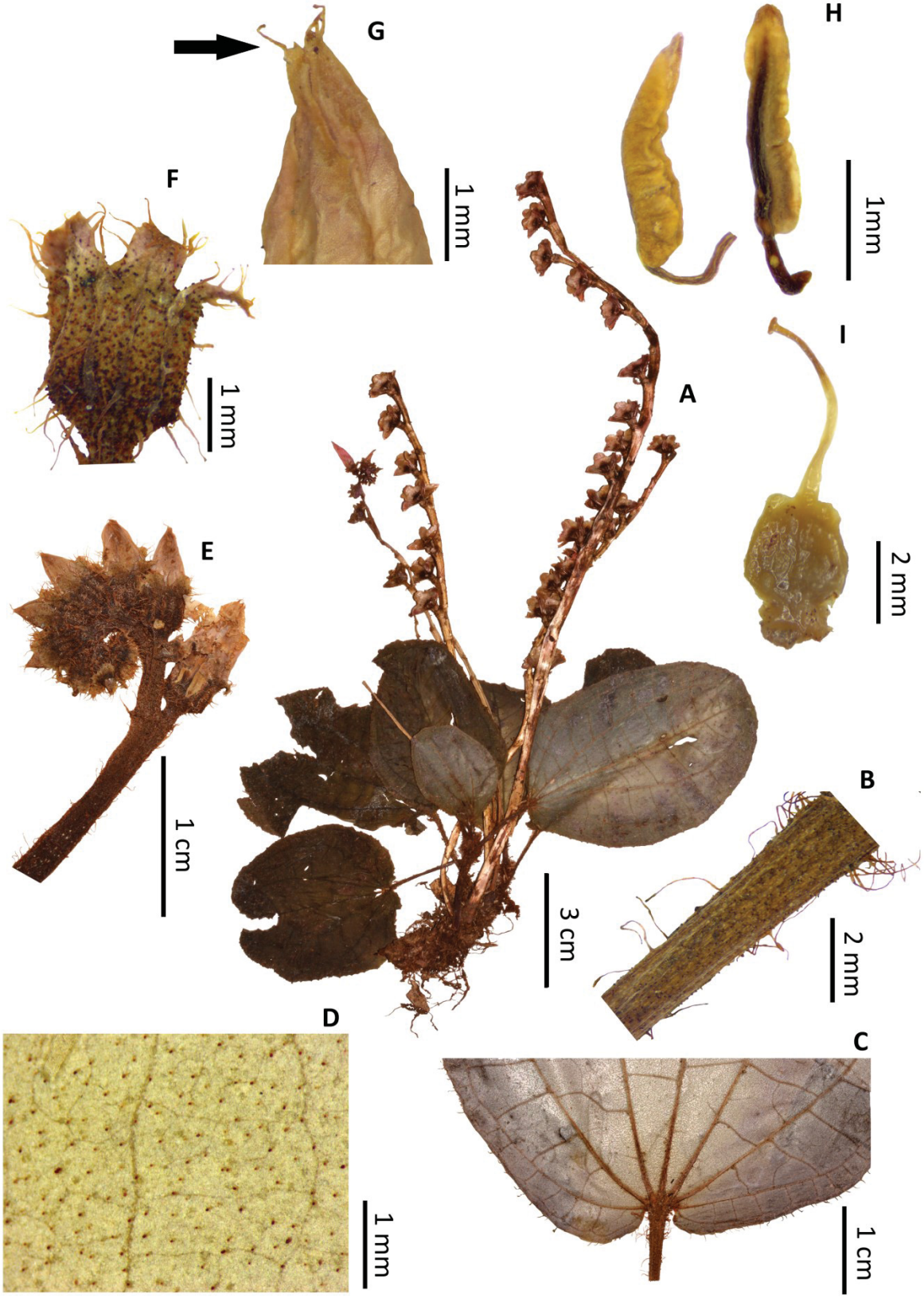

FIGURE 15. *Bertolonia marmorata*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex, showing the apiculum with glands (arrow). H. Stamen, lateral (left) and dorsal (right) views. I. Ovary and style. [A, H: *Paixão 1179*; B, C: *Cardoso 1712*; D, F*: Paixão 319*; E, I: *Borges 728*; G: *Carvalho 820*].

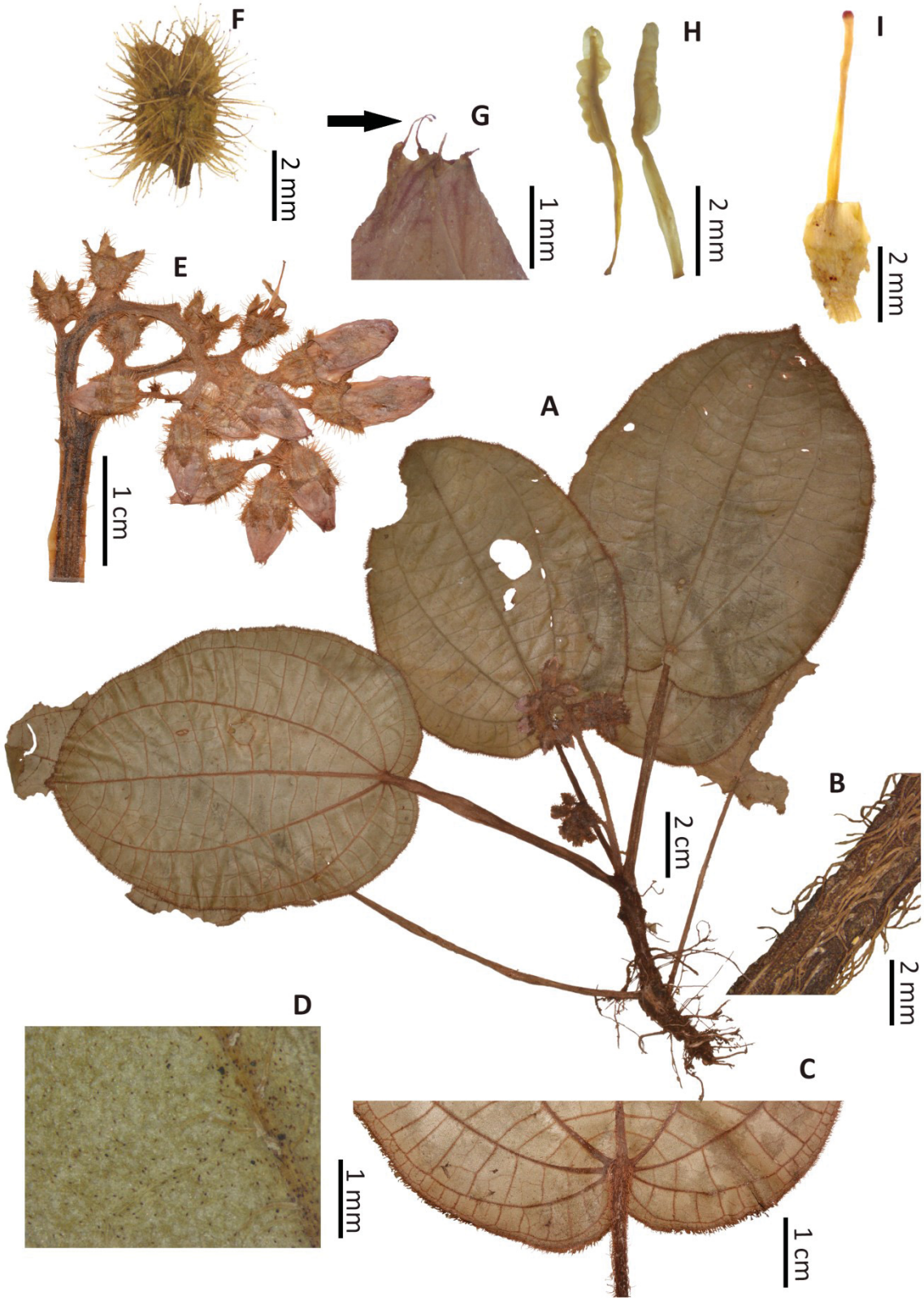

FIGURE 16. *Bertolonia reginatoi*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex, showing the apiculum with glands (arrow). H. Stamen, dorsal (left) and lateral (right) views. I. Ovary and style. [A: *Borges 341*; B, C: *Bacci 278*; D: *Goldenberg 1750*; E, G, H: *Lopes 418*; F: *Reginato 1268*; I: *Thomas 11384*].

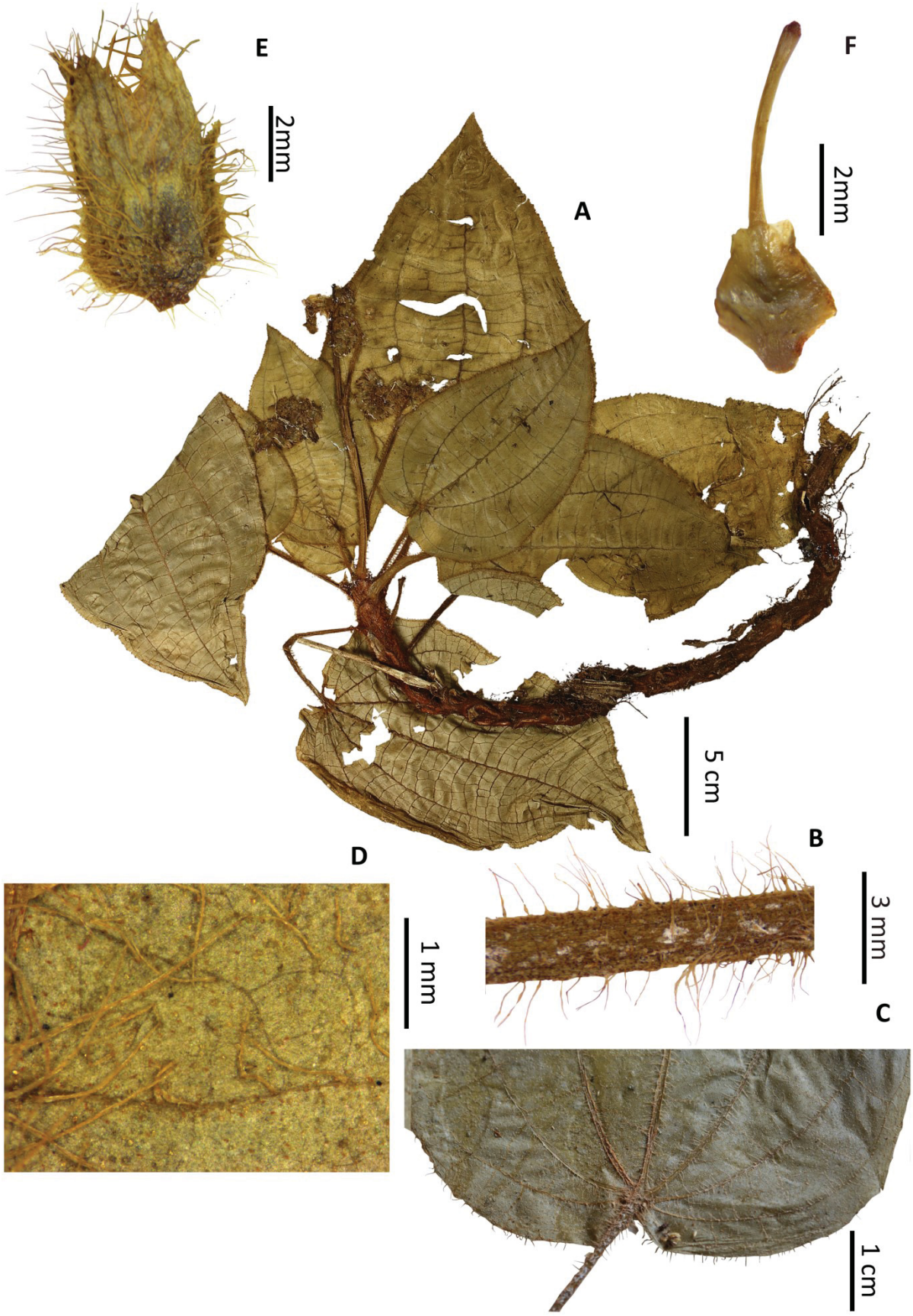

FIGURE 17. *Bertolonia riocontensis*. A. Fertile branch. B. Leaf base, abaxial surface. C. Shot and long-stalked trichomes on the abaxial leaf surface. D. Hypanthium and calyx, abaxial surface E. Ovary and style. [A, C, D, E: *Jardim 1823*; B: *Bacci 191*].

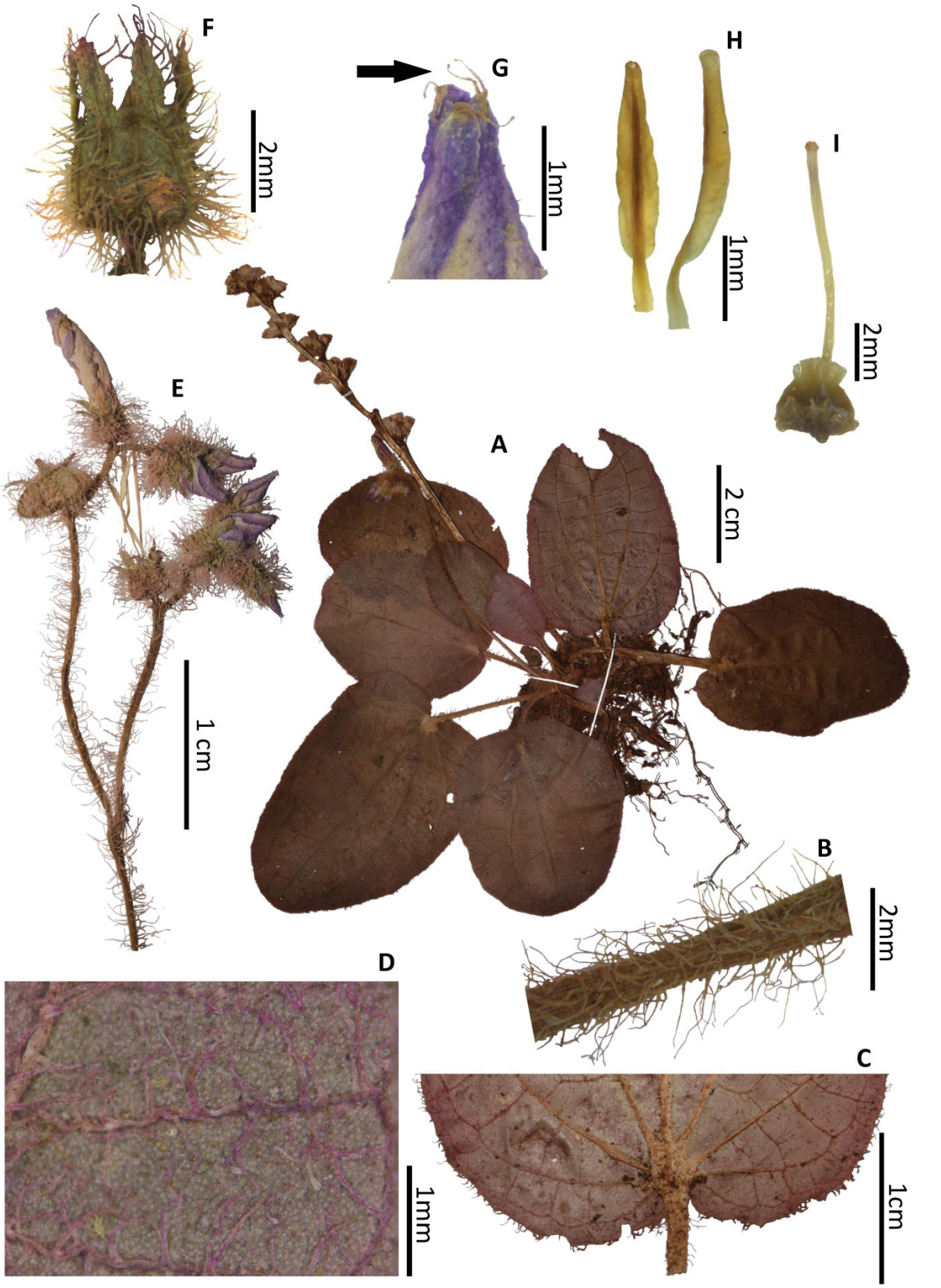

FIGURE 18. *Bertolonia violacea.* A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Purplish trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex showing the apiculum with glands (arrow). H. Stamen, dorsal (left) and lateral (right) views, note the extrorse pore on dorsal view. I. Ovary and style. [A,C: *Kollmann 11578*; B, D, E, F, G, H, I: *Fontana 5909*].

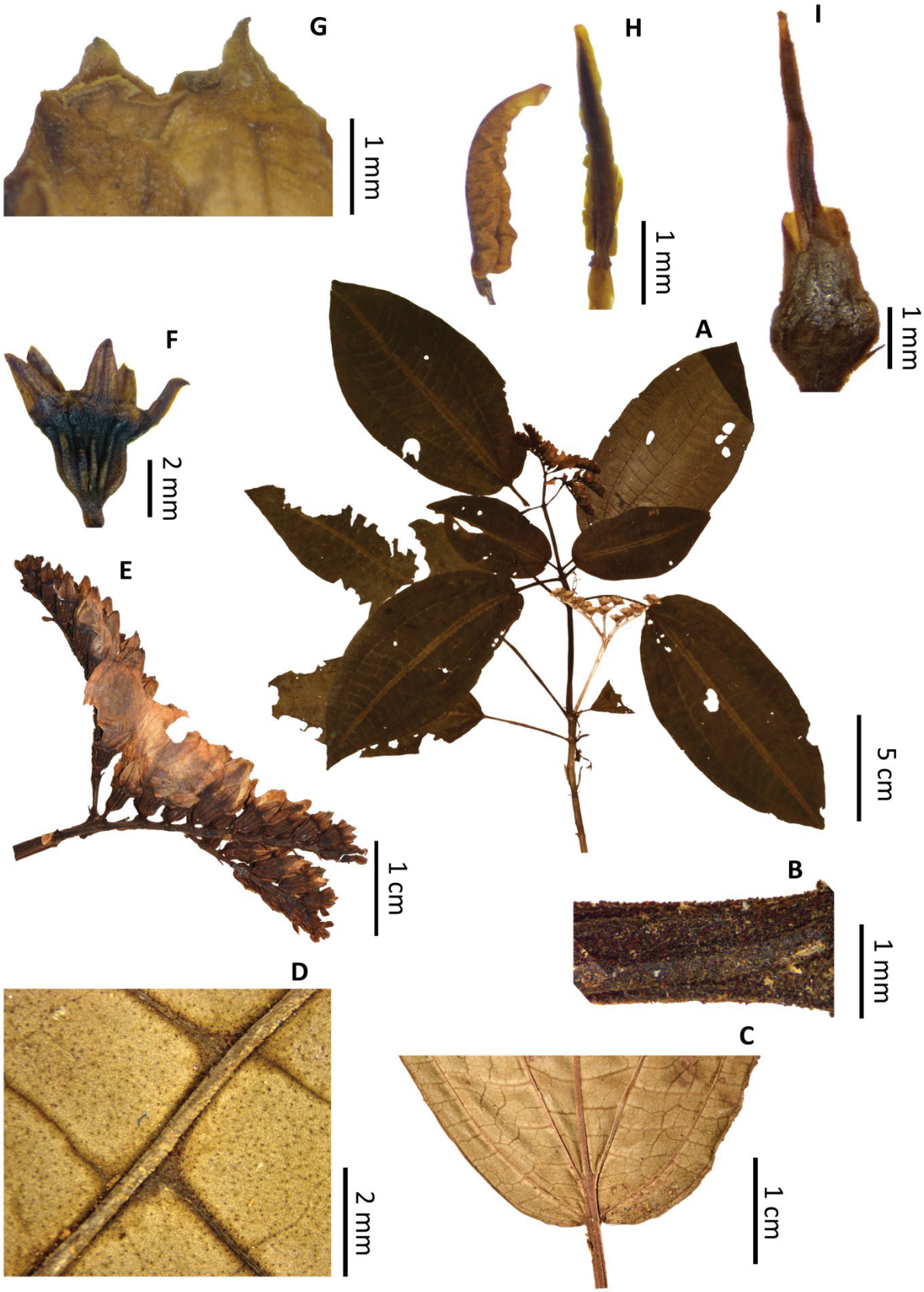

FIGURE 19. *Bertolonia vitoriana*. A. Fertile branch. B. Trichomes on the petiole. C. Leaf base, abaxial surface. D. Short-stalked glandular trichomes on the abaxial leaf surface. E. Inflorescence. F. Hypanthium and calyx, abaxial surface. G. Petals apex. H. Stamen, lateral (left) and dorsal (right) views, note the introrse pore on lateral view. I. Ovary and style. [A, B, D, E, I: *Borges 338*; C: *Amorim 7201*; F*: Reginato 1277*; G: *Amorim 6559; H*: *Amorim 4408*].

CONSIDERAÇÕES FINAIS

Ao longo do estudo e da análise dos espécimes de *Bertolonia* no estado da Bahia, Brasil, foram identificadas três espécies novas do gênero: *Bertolonia igrapiuna, B. riocontensis* e *B. violacea*, sendo estas descritas e ilustradas no capítulo 1 da dissertação. Com a inclusão desses novos táxons, o gênero passou a ter 34 espécies, sendo 12 destas endêmicas da Bahia, ocorrendo em regiões de Mata Atlântica ou em áreas de transição entre Mata Âtlantica e Caatinga. O capítulo 2 da Dissertação apresenta a flora do gênero *Bertolonia* no estado da Bahia, que conta com chave de identificação, descrições, comentários, mapas de distribuição e ilustrações das plantas de cada espécie ocorrente no estado.

Dentro do gênero, *B. maculata* e *B. marmorata* são muito semelhantes, principalmente quando se trata de suas características vegetativas. Essas semelhanças geram dificuldades na identificação entre os indivíduos das duas espécies. Além disso, alguns espécimes encontram-se dentro da variação morfológica entre as duas espécies, formando um complexo *B. maculata*/*B. marmorata*. Alguns desses espécimes possuem adaptações no crescimento do caule e ocupam áreas mais secas de transição entre a Mata Atlântica e a Caatinga, regiões reconhecidamente com pouca diversidade de Melastomataceae. Apesar do avanço no conhecimento do grupo, são necessários estudos aprofundados na delimitação das espécies e morfotipos que fazem parte desse complexo.

A partir do presente trabalho, cinco dos nove estados de ocorrência do gênero possuem tratamento taxonômico. Os estados do Rio de Janeiro, com oito espécies, Minas Gerais, com três espécies, Alagoas e Pernambuco, com ocorrência de apenas uma espécie, ainda não possuem tratamento. Das 15 espécies de *Bertolonia* que ocorrem na Bahia, oito são classificadas como Criticamente em Perigo, quatro como Ameaçadas, uma como Vulnerável e duas como Menos Preocupante. Neste contexto, esta dissertação, é essencial para subsidiar outros tipos de trabalhos em outras áreas como conservação e ecologia na Mata Atlântica. O trabalho é ainda mais necessário por tratar de um grupo endêmico de hot spot de biodiversidade mundial.