Rev. Biol. Neotrop. 3(1): 13-96. 2006

A synopsis of the Rubiaceae of the states of Mato Grosso and Mato Grosso do Sul, Brazil, with a key to genera, and a preliminary species list

Piero Giuseppe Delprete
Federal University of Goiás, Campus II, Institute of Biological Sciences - ICB-1, Department of General Biology/Botany, 74001-970 Goiânia, Goiás, Brazil; email: pdelprete@hotmail.com

Rocio Cortés-B.
Herbario Forestal, Universidad Distrital "Francisco José de Caldas", Apartado 20305, Bogotá, Colombia; email: retiniphyllum@yahoo.com

Abstract: The vegetation of the states of Mato Grosso and Mato Grosso do Sul, located in Central-Western Brazil, is undergoing rapid devastation due to escalating land use in the Cerrado Biome, and to the impact of timber companies in the Amazonian portion of Mato Grosso. Therefore, it is of extreme urgency to assess the diversity of plant and animal species present, in order to plan the appropriate measures for conservation efforts in these states. The Rubiaceae is one of the largest plant families of the area studied, and an updated list of genera and species is provided here. However, this study should be considered as a work in progress, due to the scarce knowledge of the flora of this area. An extensive study of bibliography and herbarium material provided the basic information for an updated synopsis of genera and a preliminary species list of the Rubiaceae encountered in the states of Mato Grosso and Mato Grosso do Sul, with a total of 68 genera and 269 species. A key to the genera, as well as a full description, synonymy and critical literature of each genus are provided. In addition, an extensive list of synonyms from the area studied and from most of the Neotropics, is given for each species.

Key words: Brazil, flora, Mato Grosso, Mato Grosso do Sul, Rubiaceae.

RESUMO: A vegetação dos Estados de Mato Grosso e Mato Grosso do Sul, localizados no Centro-Oeste do Brasil, está sendo submetida a um rápido processo de devastação, devido ao uso exponencial do solo no Bioma Cerrado, e ao impacto das companhias madereiras na porção amazônica do Mato Grosso. Por isso, é de extrema urgência a catalogação da diversidade de espécies de plantas e animais presentes, com o objetivo de programar as medidas apropriadas para a conservação nestes estados. As Rubiaceae representam uma das maiores famílias na área estudada, e uma lista atualizada de gêneros e espécies é aqui apresentada. Ao mesmo tempo, este estudo deve ser considerado como um trabalho em andamento, devido ao escasso conhecimento da flora desta área. Um estudo extenso de bibliografia e de material de herbário foi a base de informação para uma sinopse atualizada dos gêneros e uma listagem preliminar das espécies de Rubiaceae encontradas nos Estados de Mato Grosso e Mato Grosso do Sul, por um total de 68 gêneros e 269 espécies. São aqui apresentados pela primeira vez uma descrição completa, lista de sinônimos e literatura crítica para cada gênero, e uma chave dicotomica para a determinação dos gêneros. Além disso, cada espécie é complementada por uma listagem de sinônimos relacionados com a área de estudo e com a maioria dos Neotrópicos.

PALAVRAS-CHAVE: Brasil, flora, Rubiaceae, Mato Grosso, Mato Grosso do Sul, .

Introduction

The surface area of the state of Mato Grosso (MT) is 903,357.9 km^2, and that of Mato Grosso do Sul (MS) is 357,124.9 km^2 (IBGE, 2006); the total of 1,260,482.8 km^2 represents about 14% of the Brazilian territory. Several historical explorations have been undertaken

by famous naturalists in "Matto Grosso" (as it was called at that time, and including the two present states), usually as part of a larger trips into the interior of Brazil. The first naturalist to set foot in this state was Alexandre Rodrigues Ferreira in 1788 (Ferreira, 1970, 1975; Falcão, 1970), followed by Riedel in 1825-1826, botanist of the Langsdorff expedition (Silva, 1997, 1998), Weddell in 1843-1845, botanist of the Castelnau expedition (Castelnau, 1850-1855), and Tamberlik (year of the expedition unknown). However, the first extensive botanical exploration in Mato Grosso was accomplished by Spencer Le M. Moore, during 1891-1892. As a result of this expedition, Moore (1895) published an extensive report about his itinerary, geography, ecology, climatology and vegetation of Mato Grosso, which represented the basic reference for subsequent botanical studies undertaken in the 20th century. Three major biomes are present in these two states: Cerrado, Pantanal, and the Amazonian Basin, which are briefly discussed below.

Regarding the Brazilian Cerrado, Mendonça et al. (1998) presented a checklist of 6,062 species of flowering plants; however, other estimates cite a much higher number of species. For example, Castro et al. (1992, 1995) suggested between 5,268 and 7,024 species, while Grisebach (apud Ule, 1894) estimated 10,000 species. However, the most complete checklist produced remains that of Mendonça et al. (1998), where the Rubiaceae are ranked as fifth in size, with 47 genera and 250 species, after the Leguminosae (777 spp.), Asteraceae (557 spp.), Orchidaceae (491 spp.) and Poaceae (371 spp.). Aside from this, in the Cerrado Biome, the Rubiaceae are represented by all kinds of habits, from annual or perennial herbs, subshrubs, geofrutices, shrubs (with many rheophytic species), small to tall trees, to lianas, and are present in all vegetation types, i.e., *cerrado sensu stricto*, dry campos, seasonally flooded campos, seasonally flooded woodlands, rocky outcrops (*campos rupestres*), savanna woodland (*cerradão*), gallery forests, evergreen forests, seasonal forests, semi-deciduous forests, forest islands, swamps, and pond margins (Dubs, 1992; Prance & Schaller, 1982; Ratter et al., 1989). For the above reasons, the family Rubiaceae also represents a powerful model for the study of vegetation, with many species that can be used as ecological indicators for the analysis of areas of endemism, and for conservation biology. This biome is undergoing rapid devastation due to escalating land use, mostly because of soybean plantations and cattle ranching. It is estimated that less than 10% of the natural area is left in MT and MS, and urgent conservation programs are necessary.

The second biome present in this area is the Pantanal, the largest wetland of the planet. It extends from Bolivia and Paraguay to Brazil, with the largest portion located in the latter country. According to Silva & Moura (1998) the Brazilian portion of the Pantanal encompasses approximately 138,183 km^2, with about 65% in MS and 35% in MT. A complete description of this area can be found in Por (1995) and Swarts (2000). The vegetation of the Pantanal is highly variable, ranging from permanently flooded areas, seasonally inundated grasslands, gallery forests to seasonally dry forests. The plant diversity in the Pantanal is poorly known. Pott & Pott (1994) collected about 1,700 species of terrestrial flowering plants in the Brazilian Pantanal during a period of ten years. They beautifully illustrated 500 of them in their book, which is also one of the primary references for the present work. In a subsequent work, the same authors (Pott & Pott, 2000) published a comprehensive book on aquatic and semi-aquatic plants of the Pantanal, where they described and illustrated 247 species. However, the number of plant species present in this biome is not yet fully studied. This environment is also under imminent threats, mostly due to extensive cattle ranching. Although conservation programs have recently been initiated in the Pantanal, much remains to be done in order to preserve this unique environment.

The third biome of the area studied is the Amazonian Hylaea, present in the northern portion of Mato Grosso. Although several expeditions have been made in this area (e.g., Hoehne, 1914, 1923, 1951; Prance & Schaller, 1982; Ratter et al., 1989), this remains the most poorly known portion of the state. This is mostly due to the difficulty of access, as the majority of the remote Amazonian areas can

be reached only by river course. Within this area, many little-explored white sand areas are also present, which are renowned for their many endemic species. No estimate number of plant species is available for this area, which needs most urgent exploration in MT. The Amazonian forests of this state are under the relentless advancement of timber exploitation. It is probably subject to the fastest destruction rate of any Brazilian state within the Amazon Basin. Although some vast territories of MT have been set aside for conservation, especially reserves dedicated to the protection of indigenous tribes, as the Parque Indigena do Xingu, and the Indigenous Territories of Pareci, Nambikwara, Enawewnê-Nawê, Serra Morena, and Zoró. However, much remains to be done for the biodiversity assessment and the conservation of Amazonian Mato Grosso. Recent information about habitat fragmentation, proposed ecological corridors, sustainable management, biodiversity related to indigenous communities, and agroecology in MT and MS can be found in Costa (2003).

Following the invitation of Balthasar Dubs, project coordinator of the *Prodromus Florae Matogrossensis* (*PFM*), our study on the Rubiaceae of Mato Grosso was initiated in 1999 to update the revision of this family. A preliminary checklist of 50 genera and 234 species was available from the first edition of the *PFM* (Dubs, 1998), with plant names and synonyms checked by Daniela Zappi (K), that was of much help for the realization of the present work. This study was later expanded by the coordinator, in order to include both states of Mato Grosso (MT) and Mato Grosso do Sul (MS). Since 1999, we undertook a detailed analysis of the available literature and made several visits to the herbaria with large collections from the study area, which are listed in the acknowledgments. The literature used for the identification and updating of the species list is cited below each genus description. The generic delimitations are based on recent phylogenetic studies and monographic treatments, when available. All the species listed below were checked either by personal determination of herbarium specimens, or by obtaining the information from monographic treatments written by specialists. All the species are complemented with an extensive list of synonyms of taxa with type specimens from the area studied and, to an extent, from most of the Neotropics. In addition, the floristic treatments recently published by Delprete et al. (2004, 2005) and Taylor et al. (2004) have also been of much help for the delimitations of many species occurring in this area. In order to keep this treatment succinct, we opted to eliminate the bibliographic references of the taxa cited in synonymy. For the same reasons, we decided to eliminate the specimen citations for each species. As a result of this extensive bibliographic study and the many recent collections that have become available, many species were added to the initial checklist. At the same time, several species were removed from the original list because of misidentified material, and some other taxa were reduced to synonymy as more material became available for the definition and delimitation of the species studied. In addition, species commonly cultivated are included in the treatment, as botanical collections might be realized in secondary vegetation of abandoned farm land, or they might be rarely naturalized (e.g., *Coffea arabica*).

Complete descriptions of all genera were also added in the present treatment, which were produced by describing the material from area studied, as well as from contiguous states. In addition, a key to the genera has also been included, in order to facilitate the process of identification of new collections in MT and MS. The descriptions of the genera *Duroia*, *Genipa*, and *Kutchubaea* were updated following an unpublished manuscript of Claes Persson (in Delprete, submitted).

In conclusion, the present work includes: 1) a key to the Rubiaceae genera found in MT and MS, 2) a description and full synonymy of the 68 genera present in the area studied, 3) a species list for each genus, with complete synonymy, for a total of 269 species known to occur in the study area, and 4) a citation for most of the critical literature for all the genera.

In addition, because of the large number of synonyms included in the present work, a list of accepted taxa, synonyms, and invalid names, as recognized by the authors, is presented in Appendix 1.

Finally, it should be emphasized that this is a work in progress, and many more taxa are expected to be found in the large area studied, especially in the Amazonian portion of the state of Mato Grosso. It is our hope that this preliminary work will serve as a stimulus for more field work, as well as for the necessary training of a new generation of much needed taxonomists.

Key to the genera of Mato Grosso and Mato Grosso do Sul

1. Herbs or subshrubs, erect (non-climbing), prostrate or decumbent.
   2. Fruits with 2 seeds.
      3. Fruits fleshy at maturity.
         4. Herbs or subshrubs, erect.
            5. Leaves 4 per node; corolla rotate, greenish or cream-colored. ..... 25. ***Galium***
            5. Leaves opposite or whorled, 3-6 per node; stipules interpetiolar, narrow, or absent, subulate-linear, or mucroniform, or reduced to an interpetiolar line, sometimes divided into 3 setae or 1-toothed; corolla infundibuliform or hypocrateriform, pale blue to pale purplish-blue. ..... 16. ***Declieuxia***
         4. Herbs, erect (non-climbing), prostrate or decumbent.
            6. Leaves long-petiolate, opposite; blades cordate; stipules ovate, usually reflexed; fruits round or ellipsoid, slightly twisted, red to orange-red, fleshy. .... 28. ***Geophila***
            6. Leaves sessile, 4-8 per node (because of stipules with the same shape and size of the leaves), or rarely opposite, in this case with the stipules reduced to an interpetiolar line; blades lanceolate, linear or filiform; fruit bilobed, orange or white, spongy. ..... 25. ***Galium***
      3. Fruits dry at maturity.
         7. Fruit indehiscent, or longitudinally dehiscent (septicidal), or schizocarpic, dividing into 2 mericarps (not transversally dehiscent).
            8. Inflorescence terminal, cymose, thyrsoid or rarely 2-3-chasial (rarely monochasial), frequently terminating with small corymbs or rarely in glomerules, or as an interrupted spike-like, with sessile glomerules, these sessile and terminal (*G. brasiliensis*) ..... 24. ***Galianthe***
            8. Flowering branches with 1-15 globose, multiflorous glomerules, commonly subtended by 2 or 4 leaf-like bracts, equal or subequal, sometimes absent, or as flowering branches with 1-12 terminal and/or axillary, 1- or few-flowered fascicles.
               9. Fruit capsular, dehiscent (septicidal) at the basal or distal portion, with both cocci dehiscent or indehiscent, separating basally or distally at full maturity, or with one dehiscent coccus and the other indehiscent and separating distally or down to about half at full maturity. .... 62. ***Spermacoce*** (incl. ***Borreria***)
               9. Fruit schizocarpic or indehiscent.
                  10. Fruit schizocarpic, dividing into 2 indehiscent mericarps; seeds with a Y-shaped groove on the ventral surface. ..... 18. ***Diodella***
                  10. Fruit indehiscent; seeds with narrowly ellipsoid groove on the ventral surface. ..... 19. ***Diodia***
         7. Fruit transversally dehiscent.
            11. Ovary 3-4-locular; disk with 3 subulate appendices; stipules reduced to a line between the petioles. ..... 48. ***Perama***
            11. Ovary 2-locular; disk without appendices; stipules well developed, fimbriate.

12. Fruit dividing into 2 apical valves and a persistent basal portion. ....65. ***Staelia***
12. Fruit dividing into an apical mitra-shaped unit and a persistent basal portion.....40. ***Mitracarpus***

2. Fruits with 3 or more seeds.
13. Fruit schizocarpic, dividing into 3 or 4 indehiscent, 1-seeded mericarps..... .....55. ***Richardia***
13. Fruit indehiscent (spongy) or capsular (not schizocarpic), many-seeded.
14. Fruit indehiscent, spongy, blue or purple. ..... 11. ***Coccocypselum***
14. Fruit capsular, crustaceous or thinly woody, brown.
15. Ovary 3-4-locular; disk with 3 subulate appendices .....48. ***Perama***
15. Ovary 2-locular; disk without appendices.
16. Corolla lobes left-contorted in bud.
17. Plant semi-aquatic; stems erect; leaves opposite or whorled, 3-6(-8) per node; stamens exserted..... 36. ***Limnosipanea***
17. Plant terrestrial; stems erect, trailing or decumbent; leaves opposite; stamens included. ..... 61. ***Sipanea***
16. Corolla lobes valvate in bud.
18. Inflorescence 1- or few-flowered; corollas rotate or infundibuliform, less than 15 mm long; capsules less than 4 mm long.
19. Flowers 4-merous..... 43. ***Oldenlandia***
19. Flowers 5-merous.....47. ***Pentodon***
18. Inflorescence many-flowered, hemispheric; corollas hypocrateriform, 15-30(-40) mm long; capsules 4-6 mm long (ornamental, cultivated in private and public gardens). .....46. ***Pentas***

1. Terrestrial shrubs, trees, lianas, vines, herbs.
20. Herbaceous or woody vines, or lianas.
21. Stems armed with curved or coiled thorns (n.v.: cat's claws, unha-de-gato)..... .....67. ***Uncaria***
21. Stems unarmed.
22. Fruit with 2 seeds.
23. Plant basally woody and with terminal internodes herbaceous; stipules fimbriate, with many setae; inflorescence umbellate; fruit capsular..... .....21. ***Emmeorhiza***
23. Plant completely woody; stipules triangular (without setae); inflorescence paniculate; fruits drupaceous.
24. Liana or sarmentose shrub; stamens inserted at corolla mouth; fruit cylindrical, exocarp fleshy, endocarp woody.....38. ***Malanea***
24. Shrub with scandent branches, or climbing vine; stamens inserted at base of corolla tube; fruit orbicular, laterally compressed, bilobed, spongy. .....9. ***Chiococca***
22. Fruit with many seeds.
25. Stems herbaceous, less then 2 mm thick; fruits capsular; seeds dish-shaped, center surrounded by a membranaceous, elliptic to oblong wing. .. ..39. ***Manettia***
25. Stems woody, more than 2 mm thick; fruit drupaceous; seeds ovoid or angular, not winged. .....59. ***Sabicea***
20. Shrubs or trees.
26. Fruit dry at maturity.
27. Fruits densely clustered in a globose syncarp; each fruit with 2 indehiscent cocci, initially fleshy and turning dry at complete maturity...8. ***Cephalanthus***

27. Fruits not densely clustered in a globose syncarp; fruit capsular.
    28. Calyx and corolla with 4 free lobes; stamens 16-25, in two whorls; stipules bifid or deeply divided, so as to appear as four stipules, with two foliose lobes on each side..... 17. ***Dialypetalanthus***
    28. Calyx and corolla with a basal tube; stamens as many as the corolla lobes; stipules entire.
        29. Fruit 2-seeded, splitting into two 1-seeded, indehiscent mericarps, these hanging by a thread-like structure attached to the persistent septum.....37. ***Machaonia***
        29. Fruit many-seeded, capsular; seeds many per each locule, vertical or imbricate (not pendulous).
            30. Corolla zygomorphic, curved, campanulate; capsule obovate in outline, laterally strongly compressed. .....15. ***Coutarea***
            30. Corolla actinomorphic, straight, infundibuliform or tubular; capsule globose, obconical, turbinate or oblong, not laterally compressed.
                31. Rheophytic shrub; corolla 5.5-7.5 cm long, red. .....3. ***Augusta***
                31. Tree; corolla up to 5.5 cm long, red, green, white, yellowish-white, or yellow.
                    32. Corolla 2.5-5.5 cm long, red or green. .....23. ***Ferdinandusa***
                    32. Corolla less than 2.5 cm long, white, yellowish-white or yellow.
                        33. Some flowers with one expanded, petaloid calyx lobe (calycophyll).
                            34. Inflorescence cymose; calycophylls lilac, pink, white or pale green.
                                35. Calycophylls lilac to pink; capsule loculicidal. .....49. ***Pogonopus***
                                35. Calycophylls white or pale green; capsule septicidal. .....6. ***Calycophyllum***
                            34. Inflorescence paniculate-spiciform or thyrsoid to long-thyrsoid; calycophylls orange to red..... .....68. ***Warszewiczia***
                        33. Flowers without an expanded, petaloid calyx lobe.
                            36. Capsule oblong, narrowly ovoid or fusiform; corolla lobes valvate in bud; seeds elliptic-ovate or oblong in outline, bipolar.
                                37. Inflorescence axillary; valves of the capsule bifid, due to secondary loculicidal splitting. .....53. ***Remijia***
                                37. Inflorescence terminal; valves of the capsule entire (rarely secondary splitting at apex in old capsules).....35. ***Ladenbergia***
                            36. Capsule globose or obovoid (rarely subglobose); corolla lobes imbricate or narrowly imbricate in bud; seeds tetrahedral or polygonal, or hemi-elliptic in outline.
                                38. Capsule globose, 1.5-3 cm diam.; seeds with a hemi-elliptic membranaceous wing. .....60. ***Simira***
                                38. Capsule obovoid (rarely subglobose), 3,5-4 cm diam.; seeds commonly tetrahedral or polygonal, truncate at apex, not winged. ....4. ***Bathysa***

26. Fruit fleshy at maturity.
    39. Ovary and fruit superior. .....44. ***Pagamea***
    39. Ovary and fruit inferior.
        40. Fruit with 1-seeded locules.
            41. Ovary 5-locular; ovules 2 per locule; style 5-branched; fruit with 5 woody pyrenes, each pyrene 1-seeded by abortion of 1 ovule. .. 54. ***Retiniphyllum***
            41. Ovary 2-locular or 2-7-locular in *Guettarda* (rarely 4-6-locular in *Psychotria*); ovules 1 per locule; style 2-branched or 2-7-branched in *Guettarda* (rarely 4-6-branched in *Psychotria*); fruit 2-seeded or with 2-7 pyrenes in *Guettarda* (rarely with 4-6 pyrenes in *Psychotria*), each pyrene 1-seeded from a 1-ovulate locule.
                42. Ovules pendulous, inserted at the roof of the locules.
                    43. Stamens inserted at the base of the corolla; fruit orbicular, laterally compressed, bilobed, spongy. .....9. ***Chiococca***
                    43. Stamens inserted at corolla mouth; fruit cylindrical or oblong-elliptic, mesocarp fleshy, endocarp woody.
                        44. Ovary 2-7-locular. ..... 30. ***Guettarda***
                        44. Ovary 2-locular (rarely 4-6-locular in *Psychotria*).
                            45. Branches usually with thorns; stipules deltoid or narrowly triangular; calyx truncate. .....10. ***Chomelia***
                            45. Branches without thorns; stipules oblong-ovate or spatulate; calyx lobed. .....38. ***Malanea***
                42. Ovules erect, inserted at the base or at the center of the locules.
                    46. Corolla lobes contorted (rarely imbricate) in bud.
                        47. Stipules free, triangular; inflorescence axillary, fasciculate. .....12. ***Coffea***
                        47. Stipules connate at base, basally deltoid and apically aristate; inflorescence terminal, corymbose or paniculate..... 33. ***Ixora***
                    46. Corolla lobes valvate in bud.
                        48. Fruit 1-locular (by abortion of one locule, ovary 2-locular), sometimes with 2 locules separated by a thin septum.
                            49. Stipules usually free at base, ovate to triangular, truncate to obtuse; ovules connate, attached on a common basal column; corolla white; fruit generally longer than wide, commonly 1-seeded (rarely 2-seeded), white to cream-white. .....14. ***Coussarea***
                            49. Stipules usually connate at base, short-triangular, aristate or cuspidate (rarely mucronate); ovules not inserted on a basal column; corolla blue or white; fruit generally globose or wider than long, commonly 2-seeded, dark blue, dark purple or black. .....22. ***Faramea***
                        48. Fruit 2-locular (rarely 4-6-locular in *Psychotria*), locules separated by a thick septum.
                            50. Inflorescence rachis green, white or pink; corolla white to cream-white, pale yellow or rarely greenish; corolla tube laterally swollen at base. .....45. ***Palicourea***
                            50. Inflorescence rachis yellow, red, purple or orange; corolla yellow, pink, orange or red, with yellow, pink or purple lobes; corolla tube not swollen at base.
                                51. Stipules usually laciniate, fringed, subulate, aculeiform, aristate with teeth or cartilagineous appendages, or dorsal surface sometimes with teeth or appendages. .....58. ***Rudgea***

51. Stipules usually with 2 lobes on each side, sometimes pectinate or truncate, or rounded, triangular or prolonged apically (rarely scarcely developed).
    52. Stipules subcaducous or readily caducous; pyrenes with germination slits on lateral margins or with two small germination slits near the base on the ventral side.
        53. Stipules with interpetiolar appendages, these conical, linear, shortly bifid, bilobed, fimbriate at the apex, with glandular apical projections or laminar and erose or laciniate; pyrenes with two small germination slits near the base on the ventral side..... .....42. ***Notopleura***
        53. Stipules without interpetiolar appendages; pyrenes with germination slits on lateral margins. .....51. ***Psychotria***
    52. Stipules persistent, weathering on the stem; pyrenes with germination slits on ventral ridges with a preformed germination lid on ventral side.
        54. Inflorescence terminal, subtended by foliose or linear bracts; pyrenes with germination slits on ventral ridges. ... .7. ***Carapichea***
        54. Inflorescence axillary, not subtended by expanded bracts; pyrenes with a preformed germination lid on ventral side. .....56. ***Ronabea***

40. Fruit with few- to many-seeded locules.
    55. Corolla lobes valvate in bud (rarely imbricate in *Gonzalagunia*).
        56. Some or all flowers of each inflorescence with one, some or all calyx lobes expanded, petaloid (calycophylls), white, pink, yellow or red.....41. ***Mussaenda***
        56. Flowers without expanded, petaloid calyx lobes.
            57. Trees 5-15 m tall; corolla 30-70 mm long, pink or reddish orange grading to yellow distally; inflorescence corymbose; fruits fleshy or dry at maturity.... .....32. ***Isertia***
            57. Shrubs < 4 m tall; corolla < 30 mm long, white; inflorescence spiciform; fruit spongy or dry at maturity. .....29. ***Gonzalagunia***
    55. Corolla lobes contorted or imbricate in bud.
        58. Fruit 2.5-6 mm in diam.; seeds < 3 mm long.
            59. Branchlets densely strigulose; stipules connate at base, persistent; each flower subtended by a lanceolate-linear bract; ovary 2-locular; corolla white. ....5. ***Bertiera***
            59. Branchlets glabrous; stipules free at base, caducous; flowers not consistently subtended bracts; ovary 4-5-locular; corolla yellow or orange. ....31. ***Hamelia***
        58. Fruit > 14 mm in diam.; seeds > 3 mm long.
            60. Stems armed, with 2-3(-4) straight thorns per node (some of the nodes without thorns). .....52. ***Randia***

60. Stems unarmed.
    61. Flowers bisexual (male and female parts present and functional in the same flower); plants monoecious.
        62. Leaves drying black; corolla tube < 1.5 cm long, densely strigulose. .....27. ***Genipa***
        62. Leaves drying green or brown; corolla tube > 3 cm long, glabrous.
            63. Flowers strongly fragrant; corolla lobes 5-7 or 12-14 (biseriate in some cultivars); fruit narrowly obovoid or pyriform, 5-7-angular or not angular (cultivated as ornamental in private and public gardens).....26. ***Gardenia***
            63. Flowers slightly fragrant; corolla lobes 5-6; fruit ellipsoid, oblong or globose, not angular.
                64. Corolla zygomorphic, the buds with lobe portion curved to one side; stamens unequal; seeds perlaceous when fresh. .....50. ***Posoqueria***
                64. Corolla actinomorphic, the buds straight; stamens equal; seeds not perlaceous.
                    65. Corolla tube ≤ 3.5 cm long, yellow to yellow-orange at anthesis (old corollas orange)..... .....63. ***Sphinctanthus***
                    65. Corolla tube > 3.5 cm long, white at anthesis (old corollas yellowish).
                        66. Flowers solitary, on axillary short-shoots.
                        66. Flowers in corymbose, terminal inflorescences. .....66. ***Tocoyena***
    61. Flowers functionally unisexual (male and female parts present in the same flower, but only either the female or male parts functional in the same flower); plants dioecious.
        67. Stipules united to form a conical cap above apical bud, the cap readily caducous above a circular slit, leaving a circular scar above the node.
            68. Male and female flowers in cymose or fasciculate inflorescences; ovary 2-locular; fruit with 2 cells.....2. ***Amaioua***
            68. Male flowers in cymose or fasciculate inflorescences, female flowers usually solitary; ovary 1-locular; fruit with several cells (with false septa). .....20. ***Duroia***
        67. Stipules not united to form a cap above apical bud, persistent.
            69. Male flowers in spicate inflorescences, female flowers solitary. .....64. ***Stachyarrhena***
            69. Male flowers in cymose or fasciculate inflorescences, female flowers usually solitary.
                70. Male flowers 6-11-merous; fruit oblong, with a long-tubular, persistent calyx..... 34. ***Kutchubaea***
                70. Male flowers (3-)4-6(-8)-merous; fruit globose, with a reduced, persistent calyx.
                    71. Corolla tube < 10 mm long; calyx truncate or rarely denticulate; fruit succulent, with soft walls; seeds < 3 cm in diam., imbedded in a juicy pulp. ....13. ***Cordiera***
                    71. Corolla tube > 10 mm long; calyx dentate or lobed; fruit fleshy, with woody walls; seeds 3-7 cm in diam., imbedded in a gelatinous pulp..... .....1. ***Alibertia***

Synopsis of genera and preliminary species list

1. ALIBERTIA A. Rich. in DC., Prodr. 4: 443. Sep 1830 (A. Rich., Mém. Fam. Rubiaceé 154, tab. 11, fig. 1a-i. Dec 1830; reimpr. Mém. Soc. Hist. Nat. Paris, ser. 3, 5: 234, tab. 21, fig.1a-i. 1834). Type: *A. edulis* (Rich.) A. Rich. in DC. (*Genipa edulis* Rich.).

Syn.: *Borojoa* Cuatrec. ("1949" [1950]) *Genipella* Rich. ex DC. (1830), *nomen*., *Melanopsidium* Poit. ex A. Rich. in DC. (1830), *nom*., non *Melanopsidium* Colla (1824).

Shrubs or small to tall canopy trees, dioecious. Raphides absent. Stipules interpetiolar, free or connate at base or a basal sheath connate to the petioles; lanceolate or narrowly to broadly triangular or ovate, obtuse to acute at apex, persistent. Leaves opposite or rarely ternate, short- to long-petiolate; blades ovate, elliptic, obovate, oblong or oblanceolate, chartaceous to coriaceous; domatia tufts of hairs or absent. Inflorescences terminal; male inflorescences usually fasciculate; female inflorescences single-flowered. Male flowers 4-6(-8)-merous; calyx cup-shaped, margin usually truncate, dentate or lobed; corolla usually salverform, aestivation left-contorted, tube puberulent or sericeous, rarely glabrous outside, usually sericeous inside, stamens as many as corolla lobes, generally sessile or subsessile, dorsifixed near the base, filaments in the lower portion of the corolla tube, anthers usually narrowly oblong, included, pollen triporate, exine reticulate; style non-functional, slender, included, rarely slightly exserted, glabrous; style branches 2(–3), connivent; ovary absent. Female flowers (4-)5-7(-8)-merous, sessile or subsessile, calyx and corolla as in male flower, usually with 1-2 additional lobes; hypanthium globose, stamens non-functional, included, sessile or subsessile, anthers narrowly oblong or narrowly elliptic, usually smaller than in male flowers, pollen absent; style slender, included, glabrous, or rarely pilose, style branches 2-7, with distinct revolute margins that expose stigmatic papillae; ovary glabrous to puberulent, 3-7-locular; placenta axial; ovules 9-70 per locule. Fruit a berry, globose, with a woody pericarp (leathery or fleshy in species outside MT and MS), pulp fleshy inside. Seeds horizontal, imbedded in the fleshy pulp, large, lenticular, dorsoventrally compressed, ovate to obovate in outline.

Literature: Cuatrecasas, J., Rev. Acad. Colomb. Ci. Exact. Fís.-Quim. Nat. 7(28): 474-479. 1948; Cuatrecasas, J., Acta Agron. 3: 89-98. 1953; Persson, C., Amer. J. Bot. 87(7): 1018-1028. 2000; Delprete, P.G. & C. Persson in J.A. Steyermark et al., Fl. Venez. Guay. 8: 512-514. 2004; Persson, C. et al. in J.A. Steyermark et al., Fl. Venez. Guay. 8: 558-560. 2004; Persson, C. & P.G. Delprete, Fl. Neotrop. Monogr. (in progress).

Distribution: Genus of ca. 16 species, with center of diversity in the Amazon Basin, and a few species in Central America and Cuba, and 1 in the Brazilian Planalto; in MT and MS 1 species and 1 variety.

1-1A. *Alibertia edulis* (Rich.) A. Rich. var. ***edulis*** - *Alibertia edulis* (Rich.) A. Rich. in DC., Prodr. 4: 443. Sep 1830.

Syn.: *Genipa edulis* Rich.; *Gardenia edulis* (Rich.) Poir.; *Garapatica edulis* (Rich.) H. Karst.; *Cordiera edulis* (Rich.) Kuntze; *Sabicea edulis* (Rich.) Seem.; *Alibertia hexagyna* H. Karst.; *Cordiera hexagyna* (H. Karst.) Kuntze; *Alibertia tutumilla* Rusby; *Alibertia longistipulata* Riley; *Alibertia trinitatis* Sprague & R.O. Williams; *Alibertia tobagensis* Sprague & R.O. Williams; *Thieleodoxa nitidula* Bremek.; *Cordiera acuminata* Benth.; *Alibertia acuminata* (Benth.) Sandw.; *Alibertia acuminata* (Benth.) Sandw. var. *acuminata*.

2. AMAIOUA Aubl, Hist. Pl. Guiane., Suppl.: 13. 1775. Type: *A. guianensis* Aubl.

Syn.: *Amaiova* Juss., *orth.* var., *Amajoa* Desfont. *orth.* var., *Amajoua* Roem.& Schult., *Ehrenbergia* Spreng.

Shrubs or small to medium-sized trees, dioecious. Raphides absent. Stipules apical caps, splitting irregularly on one side; conical, circumscissile. Leaves opposite or ternate, short- to long-petiolate; blades ovate, elliptic, obovate, oblong to lanceolate, thinly to thickly coriaceous; domatia dense tufts of hairs or absent. Inflorescence terminal, paniculate, densely to sparsely branched or capitate or fasciculate in both male and female individu-

als. Flowers functionally unisexual (male and female flowers on separate individuals), protandrous. Calyx cup-shaped or short tubular, caducous; lobes 5 or 6, narrowly triangular or linear; or absent (calyx truncate or undulate). Corolla hypocrateriform, actinomorphic, white to cream-white; tube sericeous outside, puberulent or sericeous inside; lobes 5 or 6, left-contorted, oblong, acute at apex. Stamens included; anthers narrowly elliptic, round at base, acute or acuminate at apex, dorsifixed near the middle; filaments attached near the mouth of the corolla tube, short, glabrous. Pollen 3(-4)-porate, exine reticulate. Style included; lobes 2, ovate. Ovary 2-locular, ovoid; ovules many per locule. Fruit a fleshy berry. Seeds horizontal, medium-sized, laterally compressed.

Literature: Persson, C., Am. J. Bot. 87(7): 1018–1028. 2000; Steyermark, J.A., in Lasser & Steyermark, Fl. Venez. 9(2): 704–715. 1974; Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 227–832. 1972; Taylor, C.M. & J.A. Steyermark. in J. A. Steyermark et al., Fl. Venez. Guay. 8: 516-518. 2004.

Distribution: A genus of perhaps 9 Neotropical species ranging from Mexico and Cuba to Bolivia; in MT and MS 3 species.

2-1. *Amaioua corymbosa* Kunth in Humb. & Bonpl., Nov. Gen. Sp. 3: 419, pl. 294, fig. 31H-R. 1820.

Syn.: *Amaioua fagifolia* Desf.

2-2. *Amaioua guianensis* Aubl., Hist. Pl. Guiane Suppl. 13, pl. 375. 1775.

Syn.: *Amaioua guianensis* var. *macrantha* Steyerm.

2-3. *Amaioua intermedia* Mart. in Schult., Syst. Veg. 7(1): 90. 1829.

Syn.: *Amaioua guianensis* var. *confertifolia* K. Schum.; *Amaioua brasiliana* A. Rich. in DC.; *Amaioua laureaster* Mart.; *Amaioua guianensis* Aubl. var. *brasiliana* (A. Rich. in DC.) K. Schum.

3. AUGUSTA Pohl, *nom. cons.*, Flora 12: 118. "1828" [1829]. Type: *A. longifolia* Pohl

Synonyms: *Augustea* DC., *orth.* var.; non *Augusta* Leandro, *Bonifacia* Manso ex Steud.; *Lindenia* Benth.; *Schreibersia* Pohl, *nom.*, Siphonia Benth.; *Ucriana* sensu Spreng., non *Ucriana* Willd. (= *Tocoyena* Aubl.).

Rheophytic shrubs; raphides absent. Stipules interpetiolar, free or connate at base, narrowly triangular or deltoid, persistent. Leaves opposite, subsessile or short-petiolate; blades elliptic, oblanceolate or lanceolate, chartaceous to thinly coriaceous; domatia absent. Inflorescence terminal, cymose or corymbose, pauciflorous. Flowers bisexual, protandrous. Calyx extremely reduced, persistent; lobes 5, linear. Corolla tubular or narrowly infundibuliform, actinomorphic, red (hypocrateriform, white in species outside of Brazil); tube externally glabrous, internally puberulent; lobes 5, imbricate, ovate, elliptic or lanceolate, rounded or acute at apex. Stamens exserted just beyond the corolla; anthers narrowly elliptic, acute at base and at apex, dorsifixed near the middle; filaments attached near the mouth of the corolla tube, short, glabrous. Pollen 3-colporate, exine reticulate. Style exserted well beyond the corolla, erect-puberulent; lobes 2, oblong. Ovary 2-locular, obconical; ovules many per locule. Fruit a septicidal capsule, dehiscing basipetally, the valves secondarily splitting at apex, thinly woody. Seeds horizontal, minute, 3--5-angular.

Literature: Kirkbride, J. H. Brittonia 49: 354-379. 1997; Delprete, P.G. Brittonia 49: 487-497. 1997.

Distribution: According to Kirkbride (1997) and Delprete (1997), *Augusta* is a genus of 4 species, with the following distribution: *A. rivalis* (Benth.) J.H. Kirkbr., endemic to Central America, *A. austrocaledonica* (Brongn.) J.H. Kirkbr. and *A. vitiensis* (Seem.) J.H. Kirkbr., endemic to the South Pacific Ocean, and *A. longifolia* Pohl, endemic to Brazil. Delprete (1997) recognized two varieties in *A. longifolia*: var. *longifolia*, occurring in the Cerrado Biome, and var. *parviflora* (Pohl) Delprete, endemic to the Atlantic Forest of the state of Rio de Janeiro. In MT and MS 1 species and 1 variety.

3-1A. *Augusta longifolia* (Spreng.) Reheder var. ***longifolia,*** Delprete, Brittonia 49: 487-497. 1997.

Syn.: *Ucriana longifolia* Spreng., *Schreibersia longifolia* (Spreng.) Kuntze, *Augusta longifolia* (Spreng.) Rehder; *Augusta lanceolata* Pohl; *Augusta oblongifolia* Pohl; *Augusta glaucescens* Pohl; *Bonifacia riparia* Manso ex Steud., *nom. nud.*

4. BATHYSA Presl, Abh. Königl. Böhm. Ges. Wiss. 3: 514. 1845. Type: : *B. stipulata* (Vell.) Presl. (*Coffea stipulata* Vell.).

Syn.: *Schizocalyx* Wedd. (1854), *nom. cons.*, non Scheele (1843, Lamiaceae), *nom. rej.*, nec O. Berg (1856, Cucurbitaceae), nec Hochst (1844, Salvadoraceae), *nom. rej.*; *Schloenleinia* Klotzsch (1846); *Voigtia* Klotzsch (1846).

Small to medium-sized trees (rarely shrubs); raphides absent. Stipules interpetiolar, free or connate at base; narrowly triangular, deltoid or broadly triangular, persistent or readily caducous. Leaves opposite; short- to long-petiolate; blades ovate, elliptic, obovate, oblanceolate or lanceolate; chartaceous to subcoriaceous; domatia tufts of hairs, or absent. Inflorescence terminal, cymose, pauciflorous or multiflorous. Flowers bisexual, protandrous. Calyx extremely reduced, persistent, truncate, undulate or lobed, lobes 4-5 deltoid; calycophylls absent (or semaphylls 1 lobe per flower, present in the first flowers of inflorescence branchlets; white to cream-white, in species outside of MT and MS). Corolla infundibuliform or subrotate, actinomorphic, white to cream-white; tube externally glabrous or minutely puberulent; internally glabrous or puberulent, with a pubescent ring at orifice or at base inside; lobes 4-5, imbricate, broadly ovate or rounded. Stamens exserted well beyond the corolla; anthers elliptic, round at base and at apex, dorsifixed near the middle or near the base; filaments attached near the mouth of the corolla tube, long, equal, with a tuft of hairs at base. Pollen 3-colporate, reticulate. Style exserted well beyond the corolla, glabrous, or erect-puberulent; lobes 2, ovate or oblong. Ovary 2-locular, obconical or ovoid; ovules many per locule. Fruit a septicidal capsule, dehiscing basipetally, the valves secondarily splitting at apex, thinly woody. Seeds horizontal, minute, 3-5-angular, abruptly flat at polar end.

Literature: Delprete, P.G., Brittonia 48: 35-44. 1996; Delprete, P.G., Brittonia 49: 480-486. 1997; Germano Filho, P., Rodriguesia 50: 49-75. "1998" [1999].

Distribution: From Central America to southern Brazil; about 15 species; in MT and MS 1 species.

4-1. *Bathysa cuspidata* (A. St. Hil.) K. Schum. in Mart., Fl. Bras. 6(6): 237, tab. 119. 1889. Syn.: *Exostema cuspidatum* A. St. Hil., *Schoenlenia cuspidata* (A. St. Hil.) Klotzsch in Hayne.

5. BERTIERA Aubl., Hist. Pl. Guiane 1: 180, t. 69. 1775. Type: *B. guianensis* Aubl.

Syn.: *Pomatium* Gaertn.; *Justenia* Hiern.

Shrubs or small pyramidal trees; raphides present. Stipules interpetiolar, free or connate at base, lanceolate, deltoid, acuminate or triangular, often aristate, persistent. Leaves opposite, short-petiolate; blades elliptic, oblong or lanceolate, chartaceous or papyraceous; domatia tufts of hairs. Inflorescence terminal, paniculate, with secondary branches terminating in dichasia of scorpioid cymes. Flowers bisexual, protandrous. Calyx tube extremely reduced, with small lobes, persistent; lobes 5 or 6, narrowly triangular, linear. Corolla narrowly infundibuliform, actinomorphic, white to cream-white; tube externally glabrous or strigose, internally pubescent at distal portion; lobes (4-)5(-6), left-contorted, narrowly triangular, acute at apex. Stamens included; anthers narrowly oblong or elongate, acute at base and at apex, dorsifixed near the base; filaments attached near the mouth of the corolla tube, short, glabrous. Pollen 3--5-colporate, exine reticulate. Style as long as the corolla tube, glabrous; lobes 2, elliptic or absent. Ovary 2-locular, obovoid or globose; placenta stalked, inserted on the center of the septum; ovules many per locule. Fruit a fleshy berry. Seeds peltate, minute, 3-5-angular.

Literature: Robbrecht, E. et al., Opera Bot. Belg. 6: 101-141. "1993" [1994].

Distribution: Tropical Africa and Tropical America. In the Neotropics ranging from Mexico, throughout Central America, the Greater Antilles, to Peru, Bolivia and Brazil: ca. 8 species; in MT and MS 1 species.

5-1. *Bertiera guianensis* Aubl., Hist. Pl. Guiane 1: 180, t. 69. 1775. Type: French Guiana, woods of Aroura, *Aublet s.n.* (holotype BM).

Syn.: *Bertiera diversiramea* Steyerm., **syn. nov.**, Mem. New York Bot. Gard. 17: 319. 1967. Type: Suriname, Wilhelmina Geberte, 4 km S of Juliana top, 700 m, *Irwin et al. 55299* (holotype NY, isotypes NY, U, US).

6. CALYCOPHYLLUM DC., Prodr. 4: 367. 1830. Type: *C. candidissimum* (Vahl) DC. (*Macrocnemum candidissimum* Vahl).

Syn.: *Eukylista* Spruce ex Benth. (1853); *Semaphyllanthe* L. Anderss. (1995).

Medium-sized to tall canopy trees with small spreading crown; bark reddish-brown, exfoliating in long vertical stripes, exposing the inner deep-green layer; buttresses absent; wood white. Raphides absent. Stipules interpetiolar, free or connate at base, deltoid to narrowly triangular, readily caducous. Leaves opposite, short- to long-petiolate; blades ovate, elliptic or obovate, chartaceous to coriaceous; domatia tufts of sparse hairs or absent. Inflorescence terminal, frondose or not, paniculate, densely or sparsely branched, or corymbose. Flowers (4-)5-7(-8)-merous, bisexual; protandrous; hypanthium ovoid; calyx extremely reduced or cup-shaped, persistent, lobes absent (calyx truncate or undulate) or small, broadly to narrowly triangular, calycophylls 1(-2) lobes per flower, present in the first flowers of inflorescence branchlets, white cream-white, yellowish-white or greenish-white or absent; corolla campanulate or narrowly infundibuliform, white, cream-white to pinkish-white, tube externally glabrous or minutely puberulent, internally glabrous or puberulent, with a pubescent ring at orifice inside, lobes imbricate or left-contorted, broadly to narrowly triangular or ovate, margin entire, rounded or acute at apex; stamens exserted just beyond the corolla; filaments attached near the mouth of the corolla tube, filiform, short (anthers subsessile), glabrous or with a tuft of hairs at base, anthers button-shaped or elliptic, round at base and at apex, dorsifixed near the middle; pollen 3-colporate, exine reticulate; ovary 2-locular; placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted just beyond the corolla, filiform, glabrous or erect-puberulent, style branches 2, oblong. Fruits capsular, thinly woody, turbinate, dehiscing septicidally for the apex, the valves secondarily splitting at apex; seeds many, vertical, imbricate, laterally compressed, wings bipolar, acute at both ends.

Literature: Andersson, L., Ann. Missouri Bot. Gard. 82: 409-427. 1995; Delprete, P.G., Brittonia 48: 35-44. 1996.

Distribution: Ranging from Mexico throughout Central America, the Greater Antilles, to Peru, Bolivia, Brazil, Paraguay and northern Argentina: ca. 10 species; in MT and MS 2 species.

6-1. *Calycophyllum multiflorum* Griseb., Symb. Fl. Argent. 155. 1879.

Syn.: *Calycophyllum spruceanum* (Benth.) Hook. f. var. *multiflorum* (Griseb.) Chodat & Hassler; *Calycophyllum spruceanum* (Benth.) Hook. f. var. *multiflorum* (Griseb.) Chodat & Hassler f. *intermedia* Chodat & Hassler; *Pisonia combretifolia* Morong & Britton, non *Pisonia combretiflora* Mart. ex J.A. Schmidt (Nyctaginaceae).

6-2. *Calycophyllum spruceanum* (Benth.) Hook. f. ex K. Schum. in Mart., Fl. Bras. 6(6): 192. 1889.

Syn.: *Eukylista spruceana* Benth.

7. CARAPICHEA Aubl., Hist. Pl. Guiane 167, t. 64. 1775. Type: *C. guianensis* Aubl.

Syn.: *Chesnea* Scopoli (1777), *nom. rej.* (vs. *Cephaelis*); *Nettlera* Raf., *nom. superfl.*, (1838); *Ipecacuanha* Arruda in H. Koster (1816); *Ipecacuana* Raf. (1838), *orth. var.*

Subshrubs to shrubs. Raphides present. Stipules interpetiolar, free or connate at base, persistent. Leaves opposite, short to long-petiolate; blades ovate, elliptic, obovate, oblong or narrowly elliptic, chartaceous, papyraceous; domatia absent. Inflorescence terminal, capitate to subcapitate (shortly branched, few- to many-flowered, with 2-8 bracts either subtending the inflorescence or inserted on the inflorescence branches. Flowers bisexual, 4-5-merous, protandrous; hypanthium obovoid; calyx tube extremely reduced or cup-shaped, lobed or undulate, persistent, lobes small, broadly to narrowly triangular (when present); corolla hypocrateriform, actinomorphic, white, tube glabrous throughout, lobes valvate, oblong- ovate, margin entire, acute at apex; stamens included, partially exserted, or exserted just beyond the corolla, filaments attached at middle or upper part of the corolla tube, short, equal, glabrous, anthers narrowly elliptic or narrowly oblong, round at base,

round or apiculate at apex, dorsifixed near the middle or near the middle; ovary 2-locular, placenta reduced, ovules basally or centrally inserted, erect, 1 per locule, style included or partially exserted, glabrous, style-branches 2, oblong. Fruit drupaceous, fleshy, with 2 woody pyrenes, orange-red to red; seeds vertical, plano-convex, ventrally sulcate, ovate to elliptic in outline.

Literature: Andersson, L., Kew Bull. 57: 363-374. 2002; Delprete, P.G., Brittonia 53: 396-404. 2001; Delprete, P.G., Brittonia 55: 88-89. 2003.

Distribution: Ranging from Colombia, Venezuela, to Peru and Brazil, throughout the Amazon Basin; 5-6 species; in MT and MS 1 species.

7-1. *Carapichea ipecacuanha* (Brot.) L. Andersson, Kew Bull. 57: 371. 2002.

Syn.: *Callicocca ipecacuanha* Brot., *Psychotria ipecacuanha* (Brot.) Stokes, *Cephaelis ipecacuanha* (Brot.) A. Rich., *Ipecacuanha officinalis* Arruda & Diss. ex H. Koster, *Uragoga ipecacuanha* (Brot.) Baill.

8. CEPHALANTHUS L., Sp. Pl. 95. 1753. Type: *C. occidentalis* L.

Acrodryon Spreng. ("1825"[1824]); *Axolus* Raf. (1838); *Eresimus* Raf. (1838).

Rheophytic shrubs to small trees; raphides absent. Stipules interpetiolar, free at base; deltoid to broadly triangular, persistent. Leaves opposite or whorled, 3-4 per node, short-petiolate; blades elliptic, obovate to lanceolate, chartaceous to thinly coriaceous; domatia tufts of hairs or absent. Inflorescence axillary or terminal, capitate, globose. Flowers bisexual, protandrous. Calyx short tubular, persistent; lobes 4 or 5, narrowly to broadly triangular, lanceolate or ovate. Corolla tubular or narrowly infundibuliform, actinomorphic, white to cream-white; tube externally glabrous; internally glabrous or puberulent; lobes 4 or 5, imbricate, elliptic, oblong or ovate at apex. Stamens included; anthers elliptic, acute at base, round at apex, dorsifixed near the middle; filaments attached at the middle of the corolla tube, glabrous. Pollen 3-colporate, exine foveolate. Style exserted well beyond the corolla, clavate, glabrous; lobes absent, stigmatic surface located at style apex. Ovary 2-locular, turbinate; placenta attached at top of septum; ovules 1 per locule, pendulous. Fruit densely clustered in a globose syncarp; each fruit with 2 indehiscent cocci, turning dry at complete maturity. Seeds pendulous, minute, oblong.

Literature: K. Schumann in Martius, Fl. Bras. 6(6): 127-130. 1889; Bacigalupo, N. in Burkart, Fl. Il. Entre Ríos 6(6): 46-48, fig. 21. 1974; Ridsdale, C.E., Blumea 23: 177-188. 1976; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 52-57. 2004.

Distribution: Ridsdale (1976) recognized 6 species for this genus, occurring in tropical and temperate regions of America, Africa and Asia; in MT and MS 1 species.

8-1. *Cephalanthus glabratus* (Spreng.) K. Schum. in Mart., Fl. Bras. 6(6): 128, tab. 94. 1889.

Syn. *Buddlea glabrata* Spreng.; *Cephalanthus sarandi* Cham. & Schltdl., *nom. superf.*

9. CHIOCOCCA P. Browne, Civ. Nat. Hist. Jamaica 164. 1756. Type: *C. alba* (L.) Hitchc. (based on *Lonicera alba* L.).

Syn.: *Margaris* DC. (1830); *Siphonandra* Turcz. (1848); Non *Siphonandra* Klotzsch (1851, Ericaceae).

Woody vines, small lianas, shrubs or treelets, with scandent or clambering branches. Raphides absent. Stipules interpetiolar, connate at base; narrowly triangular or deltoid; persistent. Leaves opposite, subsessile to short-petiolate; blades ovate, elliptic, obovate or oblong, chartaceous to subcoriaceous; domatia absent. Inflorescence axillary, paniculate or racemose, sparsely branched. Flowers 4-5(-6)-merous, bisexual, protandrous; hypanthium laterally compressed or terete, ovoid to obovoid in outline; calyx extremely reduced persistent, lobes broadly to narrowly triangular; corolla campanulate or broadly infundibuliform, white, cream-white, greenish-white or yellow, tube externally glabrous, internally glabrous, without a pubescent ring, lobes narrowly imbricate, broadly to narrowly triangular, margin entire, acute at apex; stamens included or partially exserted, filaments attached at base of the corolla tube, filiform,

shorter than corolla tube, glabrous, anthers button-shaped, elliptic or narrowly elliptic, round at base and at apex, dorsifixed near the base; pollen 3-colpate, exine echinate-perforate; ovary 2-locular, placentation axile, ovules apically inserted, 1 per locule, pendulous, style exserted just beyond the corolla, capitate, glabrous, style branches absent (2 minute, connivent lobes). Fruits drupaceous, fleshy or spongy, terete or laterally flattened, with 2 woody pyrenes; seeds pendulous, laterally compressed.

Literature: Standley, P.C., N. Am. Fl. 32(4): 285-289. 1934; Steyermark, J.A., Mem. New York Bot. Gard. 23: 373-384. 1972; Delprete, P.G., Rev. Biol. Neotrop. 1: 1(1-2): 4-10. "2004" [2005].

Distribution: Ranging from southern United States, throughout Central America, the Greater Antilles, to Peru, Bolivia, Brazil, Paraguay and northern Argentina: ca. 20 species; in MT and MS 1very variable species.

9-1. *Chiococca alba* (L.) Hitchc., Report Missouri Bot. Gard. 4: 94. 1893.

Syn.: *Lonicera alba* L.; *Chiococca racemosa* L. (based on *Lonicera alba* L.); *Chiococca brachiata* Ruiz & Pav.; *Chiococca pubescens* Humb. & Bonpl. ex Roem. & Schult., **syn. nov**.; *Chiococca parvifolia* Wullschlaegel ex Griseb.; *Chiococca anguifuga* Mart.; *Chiococca brachiata* var. *acuminata* Muell. **Arg., var.** *acutifolia* Muell. Arg., var. *biformis* Muell. Arg., var. *conjungens* Muell. Arg., var. *densifolia* (Mart.) Muell. Arg., var. *diplomorpha* Muell. Arg., var. *grandifolia* Muell. Arg., var. *intercedens* Muell. Arg., var. *intermedia* Muell. Arg., var. *lanceolata* Muell. Arg., var. *microphylla* Muell. Arg., var. *petiolaris* Muell. Arg., var. *rigidula* Muell. Arg., var. *subrhombea* Muell. Arg., var. *tenuifolia* Muell. Arg., var. *valida* Muell. Arg.; *Chiococca micrantha* J.R. Johnst., **syn. nov.**; *Chiococca alba* var. *parvifolia* (Wullschlaegel ex Griseb.) Steyerm., var. *micrantha* (J.R. Johnst.) Steyerm., **syn. nov.**; *Chiococca alba* var. *micrantha* f. *pilosa* Steyerm..

10. CHOMELIA Jacq., Enum. Pl. Carib. 1, 12. 1760, *nom. cons*. Type: *C. spinosa* Jacq.

Syn.: *Anisomeris* C. Presl (1834); *Carueli-na* Kuntze (1891).

Erect or scandent shrubs or small to medium-sized trees. Raphides absent. Thorns axillary straight, cylindrical, or stout modified lateral branches with vestigial nodes and sometimes with reduced leaves or absent. Stipules interpetiolar, free or connate at base, broadly to narrowly triangular, persistent, subcaducous or readily caducous. Leaves opposite, sessile , subsessile, short- to long-petiolate; blades broadly to narrowly ovate, elliptic, narrowly to broadly obovate, chartaceous to papyraceous to subcoriaceous; domatia tufts of sparse or dense hairs or absent. Inflorescence axillary, terminal or on axillary short shoots of 3-5 nodes, cymose, few- to many-flowered, with scorpioid branches or dichasiate, or fasciculate or uniflorous. Flowers 4-5-merous, bisexual, protandrous; hypanthium ovoid, obovoid, oblate or turbinate; calyx short- or long-tubular, persistent; lobes narrowly triangular, oblong, ovate or linear; corolla narrowly infundibuliform, white, cream-white or yellowish-white, tube externally glabrous, strigose or sericeous, internally glabrous, without a pubescent ring, lobes valvate or imbricate, ovate, lanceolate, linear-lanceolate, oblong, oblong-ovate or linear, margin entire or undulate, rounded, ovate, acute or short- to long-acuminate or with a romboidal or triangular internal appendix at apex; stamens included or partially exserted, filaments attached at the upper part or near the mouth of the corolla tube, short (anthers subsessile), glabrous, anthers elliptic, narrowly elliptic, oblong to narrowly oblong, round, acute, with pointed extension or tailed at base, round, acute or acuminate at apex, dorsifixed near the base; ovary 2-3-locular, placentation axile, ovules apically inserted, pendulous, 1 per locule, style included, partially exserted (only tips of branches exserted) or exserted just beyond the corolla tube, filiform, glabrous, style branches 2-3, ovate, oblong or linear. Fruits drupaceous, with 2-3 woody pyrenes, fleshy; seeds pendulous, cylindrical.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 17: 334-341. 1967.

Distribution: Ranging from Mexico, throughout Central America, the Greater Antilles, to Peru, Bolivia, Brazil, Paraguay and northern Argentina: ca. 80 species; in MT and MS 7 species.

10-1. *Chomelia intercedens* Muell. Arg., Flora 58: 451, 456. 1875.

10-2. *Chomelia myrtifolia* S. Moore, Trans. Linn., Soc., 2nd ser., 4: 373. 1895.

10-3. *Chomelia obtusa* Cham. & Schltdl., Linnaea 4: 185. 1829.

Syn.: *Anisomeris obtusa* (Cham. & Schltdl.) K. Schum.; *Caruelina obtusa* (Cham. & Schltdl.) Kuntze; *Chomelia obtusa* Cham. & Schltdl. var. *brevifolia* Muell. Arg.; *Chomelia obtusa* Cham. & Schltdl. var. *pubescens* Hassl.

10-4. *Chomelia occidentalis* Muell. Arg., Flora 58: 452, 457. 1875.

10-5. *Chomelia pohliana* Muell. Arg., Flora 58: 452, 457. 1875.

10-6. *Chomelia ribesioides* Benth. ex A. Gray, Proc. Amer. Acad. Arts 4: 38. 1860.

Syn.: *Malanea ribesioides* (Benth. ex A. Gray) Muell. Arg.

10-7. *Chomelia sessilis* Muell. Arg., Flora 58: 451, 456. 1875.

11. COCCOCYPSELUM P. Browne, *nom. et orth. cons*., Civ. Nat. Hist. Jamaica 144. 1756. Type: C. repens Sw. (conserved type).

Syn.: *Sicelium* P. Browne, *nom. rej*. (1756); *Tontanea* Aubl. (1775); *Bellardia* Schreber, *nom. rej.* (1789); non *Bellardia* Allioni (1785, Scrophulariaceae), nec Colla (1835, Asteraceae); *Condalia* Ruiz & Pav., *nom. rej*. (1794); non *Condalia* Cav., *nom. cons.* (1799, Rhamnaceae); *Lipostoma* D. Don (1830).

Perennial herbs, with prostrate, creeping, decumbent, or erect-ascending stems; stems green or purple, glabrous to pubescent. Raphides present. Stipules interpetiolar, small, simple, low ridge to triangular, aristate, linear to subulate, persistent, glabrous or pubescent, with colleters at the apex and basal colleters on both side of the awn. Leaves opposite, petiolate, herbaceous, membranaceous or fleshy, sometimes purple or blue-lavender below, domatia absent. Inflorescence axillary, sessile to pedunculate, capituliform or glomeriform, 1-20 flowered, bracts and bracteoles small, sometimes bracteoles absent. Flowers sessile, 4-merous, small, heterostylous; calyx lobes 4, usually narrowly triangular, elliptic or linear, persistent, slightly asymmetric; hypanthium globose or turbinate; corolla hypocrateriform or infundibuliform, blue, purple or white, orifice glabrous, 4-lobed, usually reflexed or patent, aestivation valvate, tube with a ring of moniliform hairs; stamens 4, included or exserted, inserted at the upper part of the corolla tube, anthers subsessile, dorsifixed, elliptic, narrowly elliptic or narrowly oblong, round at base and at apex, dorsifixed near the middle, pollen 3-porate, exine double-reticulate; ovary 2-locular; ovules numerous in each locule, horizontal, the placenta adnate to the ½ of the septum, placentation peltate, ovules many in each locule; style included or exserted, style branches 2, reflexed at maturity, elliptic or oblong, nectariferous disc bipartite, semi-globose. Fruit baccate, spongy, obovoid or elliptical, blue or purple, crowned by the persistent, green calyx; seeds numerous, minute, horizontal, orbicular, subangulate, plano-convex or 3-5-angular; testa granulate, brownish.

Literature: Steyermark, J. A in B. Maguire & Coll., Mem. New York Bot. Gard. 17: 299-307. 1967; Steyermark, J.A. in T. Lasser & J.A. Steyermark, Flora Venez. 9(1): 478-494. 1974; Steyermark, J.A., Ann. Missouri Bot. Gard. 74(1): 85-116. 1987; Steyermark, J.A., Ann. Missouri Bot. Gard. 74(2): 398-400. 1987; Robbrecht, E., Kew Mag. 10: 76-80. 1993; Costa, C. B. O gênero C*occocypselum* (Coccocypseleae-Rubiaceae) no Estado de São Paulo. Master Thesis, Univ. São Paulo, SP, Brazil. 1999; Costa, C. B., Revisão taxonômica de C*occocypselum* (Rubiaceae). Doctoral Dissertation, Univer. São Paulo, SP, Brazil. 2004; Costa, C. B. & P.G. Delprete in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 79-118. 2004; Costa, C. B. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 553-556. 2004.

Distribution: Ranging from Mexico, throughout Central America, the Greater Antilles, to Peru, Bolivia, Brazil, Paraguay and northern Argentina: ca. 18 species; in MT and MS 5 species.

11-1. *Coccocypselum aureum* (Spreng.) Cham. & Schltdl., Linnaea 4: 139. 1829.

Syn.: *Schwenkfeldia aurea* Spreng.; *Coccocypselum oblongatum* Urb.; *Rondeletia capitata* Benth.; *Coccocypselum aureum* var. *capitatum* (Benth.) Steyerm.; *Coccocypselum* x *oblongatum* (Urb.) Borhidi & Muniz.

11-2. *Coccocypselum condalia* Pers., Syn. Pl. 1: 312. 1805.

Syn.: *Condalia repens* Ruiz & Pav., *Coccocypselum umbellatum* Poir., *nom. superfl.*; *Oldenlandia cordata* Vell.; *Coccocyoselum brittonii* Rusby; *Coccocypselum decumbens* K. Krause; *Coccocypselum condalia* var. *caaguazuense* Hassler; *Manettia capitata* Wernham; *Coccocypselum trinitense* Steyerm.; *Coccocypselum croatii* Steyerm.; *Coccocypselum apurense* Steyerm.; *Coccocypselum huberi* Steyerm.

11-3. *Coccocypselum hasslerianum* Chodat, Bull. Herb. Boissier 2(4): 169. 1904.

Syn.: *Coccocypselum cordatum* K. Krause.

11-4. *Coccocypselum hirsutum* Bartl. ex DC., Prodr. 4: 396. 1830.

Syn.: *Coccocypselum brevipetiolatum* Steyerm.

11-5. *Coccocypselum lanceolatum* (Ruiz &. Pav.) Pers., Syn. Pl. 1: 132. 1805.

Syn.: *Condalia lanceolata Ruiz* & Pav.; *Coccocypselum canescens* Willd. ex Roem. & Schult.; *Berlandiera mollis* Willd. ex DC.; *Oldenlandia hirsuta* Vell.; *Coccocypselum dichroolasium* Mart.; *Tontanea canescens* (Willd. ex Roem. & Schult.) Standl.; *Coccocypselum crassifolium* Standl.

12. COFFEA L., Sp. Pl. 172. 1753. Type: *C. arabica* L.

Subshrubs, shrubs or small trees; raphides absent. Stipules interpetiolar, free or connate at base, deltoid, persistent. Leaves opposite or whorled, 3 or 4 per node, short- to long-petiolate, blades elliptic, obovate or oblong, chartaceous to subcoriaceous; domatia dense tufts of hairs or tuft-pits or absent. Inflorescence axillary, fasciculate. Flowers bisexual, protandrous. Calyx cup-shaped, with undulate margin or with small lobes, persistent; lobes 4 or 5, broadly triangular to broadly ovate. Corolla hypocrateriform or narrowly infundibuliform, actinomorphic, white, cream-white, pinkish-white to pink; tube externally glabrous, internally glabrous or villous; lobes 4-8, right-contorted or convolute, ovate, elliptic or oblong, rounded or acute at apex. Stamens included or exserted or exserted; anthers narrowly elliptic or narrowly oblong, round at base and at apex, dorsifixed near the base; filaments attached at the middle of the corolla tube, short or long, shorter than corolla tube, glabrous or puberulent at basal portion. Pollen 3-4-colporate, exine reticulate. Style exserted, glabrous; lobes 2, lanceolate or linear. Ovary 2-locular, ovoid, obovoid or globose; ovules centrally inserted, 1 per locule. Fruit a fleshy berry, red to purple. Seeds vertical, large, dorsoventrally convex, ventrally sulcate, elliptic to broadly elliptic in outline.

Literature: Mueller Argoviensis in Martius, Fl. Bras. 6(5): 75. 1881; K. Schumann in Engler & Prantl, Nat. Pflanzenfam. 4(4): 104. 1891; Smith & Downs, Sellowia 7: 45. 1956; Bridson & Verdcourt, in Polhill, Fl. Trop. East Africa, Rubiaceae (Part 2): 703. 1988; Delprete, P.G. et al., in A. Reis, Fl. Ilustr. Catarin. RUBI (1): 119-124. 2004.

Distribution: A paleotropical genus of about 100 species, eight of which are cultivated for production of coffee beans. *Coffea arabica*, *C. liberica*, *C. robusta* and *C. canephora* are the most common cultivated species, which are sometimes found in the Neotropics as escapes or rarely naturalized (Delprete, pers. obs.). In MT and MS only one species was reported to be cultivated.

12-1. *Coffea arabica* L., Sp. Pl. 172. 1753. [cultivated or rarely naturalized].

Syn.: For synonyms see Bridson & Verdcourt (1988).

13. CORDIERA A. Rich. in DC., Prodr. 4: 445. Sep 1830. [A. Rich., Mém. Fam. Rubiaceé 142, tab. 10, fig. 2A-N. Dec 1830; reimpr. Mém. Soc. Hist. Nat. Paris, ser. 3, 5: 222, tab. 20, fig. 2A-N. 1834]. Type: *C. triflora* A. Rich.

Syn.: *Gardeniola* Cham. ("1835" [1834]); *Gardenia* subgen. *Gardeniola* Cham.("1835"

[1834]); *Scepseothamnus* Cham. (1834); *Thieleodoxa* Cham., *pro parte* (1834); *Garapatica* H. Karst. (1859).

Shrubs, treelets or trees, rarely subshrubs or geofrutices (xylopodial low shrubs); dioecious; bark smooth, fissured, sometimes scaly or longitudinally striated, grayish-white, grayish-brown to reddish-brown; wood very hard, yellowish-white. Stipules interpetiolar, facing each other in bud, free or connate at base, membranaceous or chartaceous, sheathing or transverse ovate to broadly ovate, triangular, rarely ovate, persistent. Leaves opposite, subsessile to long-petiolate; blades ovate, elliptic, oblong-elliptic, oblanceolate to obovate, acuminate, caudate, rarely acute or rounded at apex, papyraceous to subcoriaceous, rarely coriaceous, domatia tuft-pits or tufts of sparse hairs, or absent. Inflorescences terminal; male inflorescences usually fasciculate, rarely thyrsoid, a 3-flowered dichasia, or solitary, 3-11(-14)-flowered; female inflorescences single-flowered. Male flowers (3-)4(-5)-merous; calyx cup-shaped, margin usually truncate, rarely denticulate; corolla usually salverform, aestivation left-contorted, tube sparsely to densely puberulent or glabrous outside, often covered by resin, glabrous inside, stamens as many as corolla lobes, generally sessile or subsessile, dorsifixed near the base, filaments in the lower portion of the corolla tube, anthers usually narrowly oblong, included, pollen 3-colporate, exine reticulate; style non-functional, slender, included, rarely slightly exserted, glabrous; style branches 2(-3), connivent; ovary absent. Female flowers (4-)5(-6)-merous, sessile or subsessile, calyx and corolla as in male flower, but generally having one more corolla lobe; stamens non-functional, included, sessile or subsessile, anthers narrowly oblong or narrowly elliptic, usually smaller than in male flowers, pollen absent; style slender, included, glabrous or rarely pilose, style branches 2-3(-4), with distinct revolute margins that expose stigmatic papillae; ovary glabrous to puberulent, 2-3(-5)-locular; placenta axial; ovules 3-20 per locule. Fruits berry-like, globose or turbinate, pericarp fleshy, sessile, glabrous to minutely puberulent, black or yellow; seeds wedge-shaped or ellipsoidal, embedded in a juicy placental pulp.

Literature: Cuatrecasas, J., Rev. Acad. Colomb. Ci. Exact. Fís.-Quim. Nat. 7(28): 474-479. 1948; Cuatrecasas, J., Acta Agron. 3: 89-98. 1953; Persson, C., Amer. J. Bot. 87(7): 1018–1028. 2000; Delprete, P.G. & C. Persson in J.A. Steyermark et al., Fl. Venez. Guay. 8: 512-514. 2004; Persson, C. et al. in J.A. Steyermark et al., Fl. Venez. Guay. 8: 558-560. 2004; Persson, C. & P.G. Delprete, Fl. Neotrop. Monogr. (in progress).

Distribution: Ranging from Mexico, throughout Central America, the Greater Antilles, to Peru, Bolivia, Brazil, Paraguay and northern Argentina: ca. 25-27 species; in MT and MS 7 species.

13-1. *Cordiera elliptica* (Cham.) Kuntze, Rev. Gen. Pl. 1: 279. 1891.

Syn.: *Thieleodoxa elliptica* Cham.; *Alibertia elliptica* (Cham.) K. Schum.

13-2. *Cordiera hadrantha* (Standl.) C.H. Perss. & Delprete, **comb. nov**.

Syn.: *Alibertia hadrantha* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 177. 1936.

13-3. *Cordiera humilis* (K. Schum.) Kuntze, Rev. Gen. Pl. 1: 279. 1891.

Syn.: *Alibertia humilis* K. Schum.; *Alibertia sessilis* var. *reticulata* K. Schum.; *Alibertia amplexicaulis* S. Moore.

13-4. *Cordiera macrophylla* (K. Schum.) Kuntze, Rev. Gen. Pl. 1: 279. 1891.

Syn.: *Alibertia macrophylla* K. Schum.; *Alibertia verrucosa* S. Moore.

13-5. *Cordiera myrciifolia* (K. Schum.) C.H. Perss. & Delprete var. ***myrciifolia***, Fl. Venez. Guayana 8: 559. 2004.

Syn.: *Alibertia myrciifolia* K. Schum.; *Alibertia uniflora* Standl.; *Alibertia myrciifolia* Spruce ex K. Schum. var. *tepuiensis* Steyerm.; *Alibertia triloba* Steyerm.

13-6. *Cordiera sessilis* (Vell.) Kuntze, Rev. Gen. Pl. 1: 279. 1891.

Syn.: *Gardenia sessilis* Vell., *Alibertia sessilis* (Vell.) K. Schum.; *Alibertia melloana* Hook. f.

13-7. *Cordiera triflora* A. Rich. in DC., Prodr. 4: 445. Sep 1830.

Syn.: *Alibertia triflora* (A. Rich. in DC.) K. Schum; *Alibertia tenuifolia* K. Krause; *Alibertia steinbachii* Standl.; *Alibertia benensis* Standl.

14. COUSSAREA Aubl., Hist. Pl. Guiane 1: 98. 1775. Type: *C. violacea* Aubl.

Syn.: *Pecheya* Scopoli (1777; proposed as a substitute of *Coussarea*).

Shrubs or small to medium-sized trees. Raphides present. Stipules interpetiolar, free or connate at base, broadly to narrowly triangular, sometimes acuminate, persistent. Leaves opposite or whorled, 3 per node, subsessile to long-petiolate; blades broadly ovate to narrowly ovate, or broadly to narrowly elliptic, oblong, oblanceolate to lanceolate, chartaceous, papyraceous or subcoriaceous; domatia tufts of dense hairs, pits or crypts, or absent. Inflorescence terminal, few- or many-flowered (rarely uniflorous), paniculate, cymose, corymbose or fasciculate. Flowers 4(-5)-merous, bisexual, protandrous; hypanthium obconical; calyx cup-shaped or short-tubular, with undulate margin or with minute lobes, persistent; corolla hypocrateriform or narrowly infundibuliform, white to cream-white, tube glabrous, puberulent or pubescent outside, glabrous inside, without a pubescent ring, lobes valvate, narrowly triangular or lanceolate, margin entire, acute at apex; stamens included or partially exserted, filaments attached at the middle or at the upper part of the corolla tube, short, glabrous, anthers narrowly oblong or elongate, round at base, round or acute at apex; ovary 2-locular or 1-locular by abortion of one locule (initially 2-locular), ovules basally inserted, 1 per locule, style included, as long as the corolla tube or exserted just beyond the corolla tube, glabrous, style branches 2, oblong, narrowly oblong to linear. Fruits drupaceous, subglobose, ellipsoid or ovoid, leathery or fleshy, commonly 1-seeded (by abortion of one ovule; or rarely 2-seeded), seed ascending, ellipsoid-ovoid.

Literature: Taylor, C.M. in G. Harling & L. Andersson, Fl. Ecuador 62: 245-272. 1999; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 562-567. 2004; Delprete, P.G., Blumea 51: 355-364. 2006.

Distribution: Ranging from Mexico, through Central America, Cuba, to Peru, Bolivia, and Brazil: ca. 120 species; the taxonomic delimitation of the species of this genus is a state of flux, for this reason, no synonyms are given the species listed below; in MT and MS 5 species.

14-1. ***Coussarea cornifolia*** (Benth.) Benth. & Hook. f., Gen. Pl. 2: 121. 1873.

Syn.: *Faramea cornifolia* Benth.

14-2. ***Coussarea frondosa*** S. Moore, Trans. Linn. Soc. 2nd ser., 4: 375. 1895.

14-3. ***Coussarea hydrangeifolia*** (Benth.) Benth. & Hook. f. ex Muell. Arg., in Mart., Fl. Bras. 6(5): 94. 1881.

Syn.: *Faramea hydrangeaefolia* Benth.

14-4. ***Coussarea platyphylla*** Muell. Arg., Flora 58: 466, 475. 1875.

14-5. ***Coussarea regnelliana*** Muell. Arg., Flora 58: 466, 475. 1875.

15. COUTAREA Aubl., Hist. Pl. Guiane 1: 314. 1775. Type: *C. speciosa* Aubl. [= *C. hexandra* (Jacq.) K. Schum.]

Shrubs or small to medium-sized trees; bark fissured; wood white; young branches often lenticellate. Raphides absent. Stipules interpetiolar, free at base, broadly triangular to deltoid, persistent. Leaves opposite, short-petiolate; blades ovate, to elliptic, chartaceous to thinly coriaceous; domatia tufts of sparse or dense hairs, or absent. Inflorescence terminal, paniculate, frondose or not, sparsely branched. Flowers (5-)6-7-merous, bisexual, protandrous; flower buds curved; hypanthium laterally compressed, obconical or obovate in outline; calyx cup-shaped, persistent, lobes linear; corolla campanulate, zygomorphic, white, cream-white, pale green, pink, red, violet to purple, tube reduplicate at edges, externally glabrous, internally glabrous, without a pubescent ring inside, lobes imbricate, ovate to deltoid, margin entire, rounded at apex; stamens partially exserted, filaments attached at base of the corolla tube, slender, long, slightly unequal, glabrous throughout or puberulent

at basal portion (glabrous above), anthers linear, round at base and at apex, dorsifixed near the base; pollen 3-colpate, exine echinate-perforate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted just beyond the corolla, glabrous, style branches 2, ovate. Capsules obovate to oblong-ovate in outline, laterally compressed, woody, dehiscing loculicidally from the apex; seeds many, ascendingly imbricate, oblong-ovate in outline, wings concentric, with entire margin.

Literature: Ochoterena-Booth, H. 1994. Revisión taxonómica del género *Coutarea* Aublet. Master thesis, Universidad Autonoma de Mexico; Delprete, P. G. in G. Harling & L. Andersson, Fl. Ecuador 62: 44-50. 1999.

Distribution: Ranging from Mexico, throughout Central America, Greater Antilles, to Peru, Bolivia, Brazil to northern Argentina: 2 species; in MT and MS 1 species.

15-1. *Coutarea hexandra* (Jacq.) K. Schum., in Mart., Fl. Bras. 6(6): 196, pl. 108. 1889.

Syn.: *Portlandia hexandra* Jacq.; *Coutarea hexandra* var. *typica* K. Schum.; *Coutarea hexandra* var. *speciosa* (Aubl.) K. Schum.; *Coutarea speciosa* Aubl.; *Coutarea hexandra* var. *amazonica* K. Schum., var. *fluminensis* K. Schum., var. *pubescens* (Pohl) K. Schum; *Coutarea hexandra* f. *pubescens* (Pohl) Steyerm.; *Coutarea pubescens* Pohl; *Coutarea hexandra* var. *pubescens* (Pohl) K. Schum. f. *tarapotensis* K. Schum.; *Coutarea hexandra* var. *campanilla* (DC.) Steyerm.; *Coutarea campanilla* DC.; *Coutarea hexandra* var. *calycina* Chodat & Hassler; *Coutarea hexandra* f. *albiflora* Chodat & Hassler; *Coutarea hexandra* f. *roseiiflora* Chodat & Hassler, f. *grandiflora* Chodat & Hassler; *Coutarea scherffiana* André;

Coutarea lindeniana Baill.; *Coutarea flavescens* Sessé & Moç. in DC.; *Portlandia acuminata* Willd. ex Roem. & Schult.; *Bignonia triflora* Pav. ex DC.

16. DECLIEUXIA Kunth in Humb. & Bonpl., Nova Gen. Sp. 3: ed. fol. 275. "1818" [1819]. Type: *D. chiococcoides* Kunth

Syn.: *Congdonia* Muell. Arg. (1876).

Perennial herbs, subshrubs or shrubs. Raphides present. Stipules interpetiolar, free or forming a line or a collar around the stem, fimbriate, topped by 1 central seta or 3-7 setae, each seta with an apical colleter or a ridge with 1-6 colleters, persistent. Leaves opposite or whorled, 3-5 per node, sessile, subsessile or short-petiolate; blades ovate, elliptic, obovate, oblong, lanceolate or linear (rarely cordate or orbicular), chartaceous, papyraceous to subcoriaceous; domatia tufts of sparse or dense hairs or absent. Inflorescence terminal, cymose, frondose or not, few- to many-flowered, or dichasiate, sometimes with scorpioid branches, rarely uniflorous. Flowers 4-merous, bisexual, protandrous; hypanthium obovoid; calyx tube extremely reduced, persistent, lobes 2 or 4, broadly to narrowly triangular, oblong, ovate, lanceolate to linear; corolla hypocrateriform or narrowly infundibuliform, white, cream-white, bluish-white or pale to deep blue, tube externally glabrous or pubescent internally glabrous and without a pubescent ring inside, lobes valvate, ovate, elliptic, narrowly oblong to narrowly triangular, margin entire, rounded or acute at apex; stamens included or exserted just beyond the corolla tube, filaments attached at the upper part or near the mouth of the corolla tube, filiform, long, glabrous, anthers narrowly oblong to linear, round at base and at apex, dorsifixed near the base; ovary 2-locular, placenta reduced, ovules basally inserted, erect, 1 per locule, style included or exserted just beyond the corolla, glabrous, style branches 2, elliptic or oblong. Fruits drupaceous, fleshy in early stage, remaining fleshy or turning dry; seeds 2, vertical, laterally compressed, lenticular.

Literature: Kirkbride, J. H., Mem. New York Bot. Gard. 28: 1-87. 1976; Kirkbride, J. H., Brittonia 49: 354-379. 1997; Kirkbride, J. H., Ann. Missouri Bot. Gard. 70: 204-205. 1983.

Distribution: Ranging from southern Mexico, throughout Central America, Cuba, to Colombia, Venezuela, and Brazil: ca. 28 species; in MT and MS 3 species.

16-1. *Declieuxia cordigera* Mart. & Zucc. ex Schult. & Schult., Mantissa, Syst. Veg. 3: 112. 1827.

16-2. *Declieuxia fruticosa* (Willd. ex Roem. & Schult.) Kuntze, Rev. Gen. Pl. 1: 279. 1891.

Syn.: *Houstonia fruticosa* Willd. ex Roem. & Schult.; *Declieuxia chiococcoides* Kunth var. *genuina* Muell. Arg., var. *papillosa* Muell. Arg., var. *lucida* Muell. Arg., var. *hirta* Muell. Arg., var. *lucida* Muell. Arg., var. *mexicana* (DC.) Muell. Arg., var. *linearis* Muell. Arg., var. *opaca* Muell. Arg., in Mart., var. *pallida* Muell. Arg., var. *puberula* Muell. Arg., var. *puberulina* Muell. Arg., var. *guianensis* Muell. Arg.; *Declieuxia fruticosa* (Willd. ex Roem. & Schult.) Kuntze var. *guianensis* (Muell. Arg.) Standl., ssp. *mexicana* (DC.) Borhidi; *Declieuxia mexicana* DC.; *Declieuxia alba* Zucc. ex Schult. & Schult.; *Declieuxia mollis* Zucc. ex Schult. & Schult.; *Declieuxia origanoides* Zucc. ex Schult. & Schult.; *Declieuxia rubioides* Zucc. ex Schult. & Schult.; *Declieuxia chiococcoides* Kunth var. *vincoides* (Mart. & Zucc. ex Schult. & Schult.) Muell. Arg.; *Declieuxia vincoides* Mart. & Zucc. ex Schult. & Schult.; *Declieuxia glauca* Mart. ex Cham. & Schltdl.; *Declieuxia mucronata* Mart. ex Cham. & Schltdl.; *Declieuxia pulverulenta* Mart. ex Cham. & Schltdl.; *Declieuxia foliosa* Pohl ex DC.; *Psyllocarpus foliosus* Pohl ex DC.; *Declieuxia glabra* Pohl ex DC.; *Psyllocarpus glaber* Pohl ex DC.; *Psyllocarpus trichotomus* Pohl ex DC.; *Declieuxia brevicollis* Muell. Arg.; *Declieuxia clinopodioides* Muell. Arg.; *Declieuxia revoluta* Muell. Arg.; *Declieuxia alfredi* Ernst; *Declieuxia anceps* K. Schum. ex Glaziou, *nom. nud.*; *Declieuxia calophylla* Standl.; *Declieuxia fruticosa* (Willd. ex Roem. & Schult.) Kuntze var. *mexicana* (DC.) Standl.

16-3. *Declieuxia verticillata* Muell. Arg., Flora 59(28): 438. 1876.

Syn.: *Declieuxia hedemoides* Standl.

17. DIALYPETALANTHUS Kuhlmann, Arch. Jard. Bot. Rio de Janeiro 4: 363. 1925. Type: *D. fuscescens* Kuhlmann.

Medium-sized to tall canopy trees; raphides present. Stipules interpetiolar, free at base, bifid, sometimes deeply divided, so as to appear as four stipules, with two foliose lobes each side, persistent. Leaves short- to long-petiolate; blades elliptic to broadly elliptic or narrowly to broadly obovate, stiffly chartaceous to subcoriaceous; domatia absent. Inflorescence terminal, frondose, thyrsoid. Flowers bisexual; protandrous. Calyx tube absent, lobes 4, free at base, persistent, rounded. Corolla rotate, with free lobes, actinomorphic, white to cream-white, tube absent; lobes 4, imbricate, rounded. Stamens 16-25, in two whorls, exserted among the corolla lobes; anthers narrowly oblong, round at base, with acuminate extensions at apex, dorsifixed near the base; filaments attached on a ring above the ovary, basally connate (forming a minute tube at the base of the corolla), in two whorls of unequal length, short, glabrous. Pollen 3-zonocolporate, exine foveolate-perforate. Style exserted well beyond the corolla lobes, glabrous; lobes 2, ovate. Ovary 2-locular; placentation axile, ovules many per locule. Capsule septicidal and loculicidal (both modes of dehiscence contemporaneous), thinly woody. Seeds ascendingly imbricate, minute to medium-sized, fusiform, laterally compressed; wings bipolar, acute at both ends.

Literauture: Kuhlmann, Arch. Jard. Bot. Rio de Janeiro 4: 363-365. 1925; Kuhlmann, Rodriguesia 6(15): 25-27. 1925; Rizzini & Occhioni, Lilloa 243-286. 1949; Rizzini & Occhioni, Rodriguesia 15(27); 181-183. 1952; Piesschaert et al., Ann. Missouri Bot. Gard. 84: 201-223. 1997; Fay et al., Kew Bull. 55: 853-864. 2000.

Distribution: Monotypic genus, endemic to the Amazon Basin, found only South of the Amazon River, in Brazil, Peru and Bolivia. Only known from a few collections from the Amazonian portion of MT.

17-1. *Dialypethalanthus fuscescens* Kuhlmann, Arch. Jard. Bot. Rio de Janeiro 4: 363. 1925.

18. DIODELLA J. K. Small, Fl. Miami 177. 1913. Type: *Diodella rigida* (Cham. & Schltdl.) J. K. Small [= *Diodella apiculata* (Willd. ex Roem. & Schult.) Delprete].

Erect or decumbent, annual or perennial herbs, subshrubs or shrubs; raphides present. Stipules interpetiolar, basal sheath connate to the petioles, with 3-9 setae, each seta with an apical colleter, persistent, often withering on the stem (no abscission layer is formed). Leaves opposite or ternate, often seeming whorled by the presence of reduced axillary brachyblasts with fasciculate leaves, sessile to short-petiolate; blades ovate, elliptic, oblong,

narrowly oblong, lanceolate or cordate, membranaceous, chartaceous to papyraceous; domatia absent. Inflorescence axillary, capitate. Flowers bisexual, protandrous. Calyx tube extremely reduced, with small or large lobes, persistent; lobes 2, 4 or 5, oblong, lanceolate, ovate or linear. Corolla hypocrateriform or narrowly infundibuliform, actinomorphic, white, cream-white, pinkish-white, pink, bluish-white to pale blue; tube externally glabrous, internally pubescent at distal portion; lobes 2, 4 or 5, valvate, narrowly ovate to oblong-ovate, acute at apex. Stamens partially exserted or exserted just beyond the corolla, anthers elliptic or narrowly elliptic, round at base and at apex, dorsifixed near the middle or near the base; filaments attached near the mouth of the corolla tube or at lobes sinuses, long, glabrous. Pollen multi-colporate, exine foveolate-perforate. Style exserted just beyond or well beyond the corolla, glabrous; lobes 2, elliptic, oblong or narrowly oblong. Ovary 2-locular, obconical or obovoid; ovules basally inserted, 1 per locule. Fruit schizocarpic, breaking up into 2 indehiscent cocci, papyraceous. Seeds vertical, ovate or subellipsoid, dorsoventrally convex, ventrally sulcate with a Y-shaped depression.

Literature: Small, J. K., Man. Southeast. Fl. 1264. 1933; Bruza, A revision of the Diodia complex (Rubiaceae), Doctoral Dissertation, Mississippi State Univ. 1982; Cabral, E L. & N. M. Bacigalupo, Darwiniana 37(1-2): 163. 1999; Dessein, S., Systematic studies in the Spermacoceae (Rubiaceae), Doctoral Dissertation, K.U. Leuven. 2003; Delprete, P.G. in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 167-179. 2004; Cabral, E L. & N. M. Bacigalupo, Brittonia 129-140. 2005; Bacigalupo, N.M. & E.L. Cabral, Darwiniana 44(1): 98-104. 2006.

Distribution: Tropical, subtropical and temperate areas of the New World; in MT and MS 5 species.

18-1. *Diodella apiculata* (Willd. ex Roem. & Schult.) Delprete in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 169. 2004.

Syn.: *Spermacoce apiculata* Willd. ex Roem. & Schult., *Diodia apiculata* (Willd. ex Roem. & Schult.) K. Schum.; *Spermacoce rigida* Willd. ex Roem. & Schult.; *Spermacoce rigida* Kunth., non Salisb. (1796); *Spermacoce grandiflora* Spreng.; *Diodia rigida* Cham. & Schltdl. (based on *Spermacoce rigida* Willd. ex Roem. & Schult., *nomen*.); *Diodia latiflora* DC.; *Diodia conferta* DC.; *Spermacoce conferta* DC.; *Diodia grandiflora* (Spreng.) DC.; *Diodia setigera* DC.; *Diodia rudis* Miq.; *Diodia rigida* Cham. & Schltdl. var. *barbicocca* K. Schum.; *Diodia rigida* Cham. & Schltdl. var. *macrantha* K. Schum.; *Diodella rigida* (Cham. & Schltdl.) J. K. Small; *Diodia rigida* Cham. & Schltdl. var. *buckii* Urb.; *Diodia pulchella* Brandegee.

18-2. *Diodella radula* (Willd. & Hoffmanns. ex Roem. & Schult.) Delprete in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 174. 2004.

Syn.: *Spermacoce radula* Willd. & Hoffmanns. ex Roem. & Schult., non *Spermacoce radula* Spreng., *nom. superfl*., *Diodia radula* (Willd. & Hoffmanns. ex Roem. & Schult.) Cham. & Schltdl.; *Diodia muriculata* DC.

18-3. *Diodella rosmarinifolia* (Pohl ex DC.) Bacigalupo & E.L. Cabral, **comb. nov.**

Syn.: *Diodia rosmarinifolia* Pohl ex DC., Prodr. 4: 564. 1830. Type: Brazil, Pohl s.n. (holotype G-DC).

18-4. *Diodella sarmentosa* (Sw.) Bacigalupo & E.L. Cabral, Darwiniana 44(1): 100, fig. 3. 2006.

Syn.: *Diodia sarmentosa* Sw.; *Diodia scandens* Sw. ex Benth.; *Diodia riparia* Sagot ex K. Schum.

18-5. *Diodella teres* (Walt.) Small., Flora of Miami: 177. 1913.

Syn.: *Diodia teres* Walt.; *Diodia prostrata* Sw., *Diodia teres* Walt. var. *angustata* A. Gray; *Diodia teres* Walt. ssp. *angustata* (A. Gray) Steyerm.; *Diodia teres* Walt. ssp. *angustata* (A. Gray) Steyerm. f. *latior* Steyerm.; *Diodia teres* Walt. ssp. *prostrata* (Sw.) Steyerm.; *Diodia teres* Walt. ssp. *prostrata* (Sw.) Steyerm. var. *prostrata* f. *latifolia* Steyerm., f. *leiocarpa* Steyerm.

19. DIODIA L., Sp. Pl. 104. 1753. Type: *D. virginiana* L

Erect or decumbent, annual or perennial herbs, subshrubs or shrubs; raphides present. Stipules interpetiolar, basal sheath connate

to the petioles, with 3-9 setae, each seta with an apical colleter, persistent, often withering on the stem (no abscission layer is formed). Leaves opposite or ternate, often seeming whorled by the presence of reduced axillary brachyblasts with fasciculate leaves, sessile to short-petiolate; blades ovate, elliptic, oblong, narrowly oblong, lanceolate or cordate, membranaceous, chartaceous to papyraceous; domatia absent. Inflorescence axillary, capitate. Flowers bisexual, protandrous. Calyx tube extremely reduced, with small or large lobes, persistent; lobes 2, 4 or 5, oblong, lanceolate, ovate or linear. Corolla hypocrateriform or narrowly infundibuliform, actinomorphic, white, cream-white, pinkish-white, pink, bluish-white to pale blue; tube externally glabrous, internally pubescent at distal portion; lobes 2, 4 or 5, valvate, narrowly ovate to oblong-ovate, acute at apex. Stamens partially exserted or exserted just beyond the corolla, anthers elliptic or narrowly elliptic, round at base and at apex, dorsifixed near the middle or near the base; filaments attached near the mouth of the corolla tube or at lobes sinuses, long, glabrous. Pollen multi-colporate, exine foveolate-perforate. Style exserted just beyond or well beyond the corolla, glabrous; lobes 2, elliptic, oblong or narrowly oblong. Ovary 2-locular, obconical or obovoid; ovules basally inserted, 1 per locule. Fruit indehiscent, papyraceous or crustaceous, longitudinally sulcate (between the two cocci). Seeds vertical, narrowly oblong to narrowly ellipsoid, dorsoventrally convex, ventrally sulcate with narrowly elliptic depression (not Y-shaped).

Literature: Small, J. K., Man. Southeast. Fl. 1264. 1933; Bruza, A revision of the Diodia complex (Rubiaceae), Doctoral Dissertation, Mississippi State Univ. 1982; Cabral, E L. & N. M. Bacigalupo, Darwiniana 37(1-2): 163. 1999; Dessein, S., Systematic studies in the Spermacoceae (Rubiaceae), Doctoral Dissertation, K.U. Leuven. 2003; Delprete, P.G. in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 180-185. 2004; Cabral, E L. & N. M. Bacigalupo, Brittonia 129-140. 2005.

Distribution: Tropical, subtropical and temperate areas of the New World; in MT and MS 3 species.

19-1. *Diodia kunzei* K. Schum. in Mart., Fl. Bras. 6(6): 15. 1888.

19-2. *Diodia macrophylla* K. Schum. in Mart., Fl. Bras. 6(6): 401. 1889.

Syn.: Non *Oldenlandia macrophylla* DC. [= *Pentodon pentandrus* (Schumach. & Thonn.) Vatke]

19-3. *Diodia saponariifolia* Cham. & Schltdl.) K. Schum. in Mart., Fl. Bras. 6(6): 16. 1888.

Syn.: *Borreria saponariifolia* Cham. & Schltdl., *Diodia saponarioides* (Cham. & Schltdl.) Presl., *orth. var*.

20. DUROIA L. f., Suppl. 30, 209. 1782, *nom. cons. emend. prop*. Type: *D. eriopila* L. f.

Syn.: *Pubeta* L. (1775), *nom. rej*., *Coupoui* Aubl. (1775), *nom. rej. prop*., *Cupirana* Miers (1878), *nom. illeg. superfl.*

Small to tall trees, dioecious; in a few species with terminal internodes hollow, inflated, and inhabited by ants. Raphides absent. Stipules forming an acute circumscissile cap over the shoot apex, shed immediately as shoot extends, or sometimes remaining as spathe-like structure on terminal and subterminal nodes. Leaves opposite or in whorls of 3-5, often clustered at the branch tips, short- to long-petiolate; blades obovate or elliptic, commonly acuminate at apex; domatia absent. Inflorescences terminal; male inflorescences commonly fasciculate, rarely umbellate, (7-)10-26-flowered; female inflorescence 1(-3)-flowered. Male flowers (4-)6(-7)-merous; calyx tubular or cup-shaped, usually truncate, or margin with lobes broadly to narrowly triangular to linear; corolla hypocrateriform or narrowly infundibuliform, white to cream-white, aestivation contorted, tube retrorsely, rarely antrorsely sericeous outside, glabrous inside, or slightly tomentose at base inside; stamens as many as corolla lobes, sessile, inserted near the middle or in the lower portion of the corolla, anthers narrowly oblong or lorate, included, pollen 3-porate, exine reticulate; ovary absent, style non-functional, slender, included, sometimes slightly exserted, glabrous or tomentose at base, furrowed, with 2-3 short connivent branches. Female flowers 7-9-merous, sessile; calyx and corolla shape as in male flowers;

stamens non-functional, included; style with slightly exserted tip, glabrous, style branches 4-5; ovary sericeous or very sparsely puberulent. Fruit berry-like, ellipsoid, sometimes globose or subglobose, leathery, sessile, brownish or grayish, crowned with the persistent calyx; seeds numerous, horizontal, sublenticular, embedded in a fleshy placental pulp.

Literature: Persson, C., Am. J. Bot. 87(7): 1018-1028. 2000; Persson, C., Rev. Biol. Neotrop. 2(2): 65-74. 2005; Persson, C. & E. Ljungstrand, Taxon 55(1): 236-237. 2006; Steyermark, J.A. in Lasser & Steyermark, Fl. Venez. 9(2): 679-703. 1974; Steyermark, J. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 227-832. 1972; Taylor, C.M. & Steyermark J. A., Fl. Venez. Guay. 8: 579-587. 2004.

Distribution: Ranging from Costa Rica to Bolivia; ca. 25 species; in MT and MS 3 species.

20-1. *Duroia eriopila* L. f., Suppl. Pl. 209. 1781. [dubious report from MT].

20-2. *Duroia micrantha* (Ladbr.) Zarucchi & J.H. Kirkbr., Ann. Missouri Bot. Gard. 77: 851. 1990.

Syn.: *Duroia sprucei* Rusby.

20-3. *Duroia prancei* Steyerm., Mem. New York. Bot. Gard. 23: 345. 1972.

21. EMMEORHIZA Pohl ex Endl., Gen. Pl. 565. 1838. Type: *E. brasiliensis* (C. Presl) Walp. (*Endlichera brasiliensis* C. Presl)

Syn.: *Endlichera* C. Presl (1832), *nom. rej.*

Vines, terminal internodes herbaceous, basally woody. Raphides present. Stipules interpetiolar, sheathing and connate to the petioles, fimbriate, with 3-9 setae, each seta with an apical colleter, persistent often withering on the stem (no abscission layer is formed). Leaves opposite or ternate, often seeming whorled by the presence of reduced axillary brachyblasts with fasciculate leaves, sessile, subsessile to short-petiolate; blades ovate, narrowly ovate, broadly to narrowly elliptic, rhombic to oblong, chartaceous to papyraceous; domatia absent. Inflorescence terminal, paniculate, with secondary branches terminating with many-flowered umbels. Flowers 4-merous, bisexual, protandrous; hypanthium obconical to narrowly obconical; calyx tube extremely reduced, persistent, lobes minute to small, narrowly triangular, lanceolate, narrowly lanceolate to linear; corolla broadly infundibuliform, white, cream-white, tube externally glabrous, internally pubescent at basal portion or villous, without a pubescent ring inside, lobes valvate, narrowly ovate, margin entire, acute at apex; stamens exserted well beyond the corolla, filaments attached near the mouth of the corolla tube or at lobes sinuses, equal, glabrous, anthers elliptic to narrowly elliptic, thecae round at base and at apex, dorsifixed near the middle; pollen multi-colporate, exine echinate-perforate; ovary 2-locular, ovules centrally inserted, 1 per locule, style exserted well beyond the corolla, glabrous, style branches 2, oblong. Fruits capsular, coriaceous, dehiscing septicidally from apex, the valves not splitting; seeds 2, vertical, laterally compressed, narrowly oblong in outline, wings bipolar, somewhat acute at both ends, margin entire.

Literature: Steyermark, J.A., Fl. Venez. 9(3): 1870-1876. 1974; Delprete, P.G. et al., in A. Reis, Fl. Ilustr. Catarinense RUBI (1): 186-192. 2004.

Distribution: Ranging from Colombia, Venezuela, Trinidad, Guianas, to Bolivia throughout Brazil and to northern Argentina: 1 species.

21-1. *Emmeorhiza umbellata* (Spreng.) K. Schum. in Mart., Fl. Bras. 6(6): 408. 1888.

Syn.: *Borreria umbellata* Spreng., *Endlichera umbellata* K. Schum.; *Borreria (?) aralioides* Cham. & Schltdl.; *Endlichera brasiliensis* Presl, *Emmeorhiza brasiliensis* (Presl) Walp.; *Emmeorhiza pohliana* Presl; *Emmeorrhiza umbellata* (Spreng.) K. Schum. ssp. *umbellata* var. *tomentosa* Steyerm.; *Emmeorrhiza umbellata* (Spreng.) K. Schum. ssp. *septentrionalis* var. *septentrionalis* Steyerm.; *Emmeorrhiza umbellata* (Spreng.) K. Schum. ssp. *septentrionalis* var. *pubens* Steyerm.

22. FARAMEA Aubl., Hist. Pl. Guiane 1: 102. 1775. Type: *F. corymbosa* Aubl.

Syn.: *Potima* Hedwig (1806); *Tetramerium* Gaertn. (1806), *nom. rej.*; *Encopea* C. Presl (1845); *Homaloclados* Hook. f. in Benth. & Hook. f. (1873); *Thiersia* Baill. (1879).

Subshrubs to shrubs or small to medium-sized trees. Raphides present. Stipules interpetiolar, connate at base, broadly triangular to deltoid, aristate, persistent. Leaves opposite, sessile, subsessile or short- to long-petiolate; blades ovate to narrowly ovate, elliptic, narrowly elliptic, oblong, oblanceolate, lanceolate, chartaceous, papyraceous to subcoriaceous; domatia crypts or absent. Inflorescence axillary or terminal, paniculate, corymbose or cymose, densely or sparsely branched, few- or many-flowered, or capitate, subtended or not by bracts, or fasciculate, or uniflorous. Flowers 4-5-merous, bisexual, protandrous; hypanthium ovoid or globose, sometimes didymous; calyx extremely reduced, cup-shaped or short- to long-tubular, with undulate margin or with small or foliose lobes, persistent, lobes, when present, broadly to narrowly triangular; corolla hypocrateriform or narrowly infundibuliform, white, cream-white, bluish-white, pale to deep blue, tube externally glabrous, internally glabrous, without a pubescent ring inside, lobes valvate, narrowly triangular, margin entire, acute at apex; stamens included, partially exserted or exserted just beyond the corolla, filaments attached near the mouth of the corolla tube, filiform, glabrous, anthers oblong to linear, round at base, round, acute, acuminate or with acute extensions at apex, dorsifixed near the base, ovary 2-locular or 1-locular by abortion of one locule (initially 2-locular), placenta reduced, ovules basally inserted, 1 per locule, style exserted just beyond the corolla; filiform throughout, or terete throughout, not fleshy; glabrous, or antrorse-puberulent, or antrorse-pubescent; lobes 2; ovate, or oblong, or long-linear. Fruits baccate, fleshy or leathery; seeds 1-2, vertical, laterally compressed, ovoid, obovoid or reniform.

Literature: Steyermark, J.A., Bradea 1(16): 145-150. 1972; Taylor, C.M. in G. Harling & L. Andersson, Fl. Ecuador 62: 272-314. 1999; Delprete, P.G., Blumea 51: 355-364. 2006.

Distribution: Ranging from southern Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 200 species; in MT and MS 13 species.

22-1. *Faramea bracteata* Benth., Linnaea 23: 452. 1850.

22-2. *Faramea capillipes* Muell. Arg., Flora 58: 470. 1867.

22-3. *Faramea chapadensis* S. Moore, J. Bot. 42: 100. 1904.

22-4. *Faramea coussaroides* S. Moore, Trans. Linn. Soc., 2nd ser., 4: 375. 1895.

22-5. *Faramea involucellata* Muell. Arg. in Mart., Fl. Bras. 6(5): 157. 1881.

22-6. *Faramea malmei* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 209. 1936.

22-7. *Faramea mattogrossensis* Standl., Publ. Field Mus. Nat. Hist., Bot. Ser. 22: 187. 1940.

22-8. *Faramea multiflora* A. Rich. in DC., Prodr. 4: 497. 1830.

Syn.: *Faramea salicifolia* Presl; *Faramea amazonica* Muell. Arg.; *Faramea egensis* Muell. Arg.; *Psychotria cyanea* Vell., non Muell. Arg.; *Coffea umbellata* Vell.; *Faramea maynensis* Spruce ex Rusby; *Rudgea scandens* K. Krause; *Faramea benensis* Rusby; *Faramea talamancarum* Standl.; *Faramea cuencana* Standl.; *Faramea laxula* K. Krause; *Faramea multiflora* var. *amazonica* (Muell. Arg.) Steyerm., var. *epedunculata* Steyerm., var. *maynensis* (Rusby) Steyerm., var. *salicifolia* (Presl) Steyerm., var. *benensis* (Rusby) Steyerm.

22-9. *Faramea sessiliflora* Aubl., Hist. Pl. Guiane 1: 104, t. 40, f. 2. 1775 [as "sessiflora" p. 104].

22-10. *Faramea sessilifolia* (Kunth) DC., Prodr. 4: 497. 1830.

Syn.: *Tetramerium sessilifolium* Kunth.; *Faramea longifolia* Benth.; *Faramea coarinensis* Muell. Arg.; *Faramea longifolia* var. β *petiolaris* Muell. Arg.; *Faramea planitiarium* Standl.; *Faramea costata* Steyerm., **syn. nov**.

22-11. *Faramea singularis* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 211. 1936.

22-12. *Faramea stenomeris* Standl., Publ. Field Mus. Nat. Hist., Bot. Ser. 22: 188. 1940.

22-13. ***Faramea torquata*** Muell. Arg., Flora 58: 471. 1867.

23. FERDINANDUSA Pohl, Pl. Brasil. 2: 8. 1829. Type: Not designated.

Syn: *Ferdinandea* Pohl., Flora 10: 153. 1827, non *Ferdinanda* Lagasca, Gen. Sp. Pl. Nov. 31. 1816 (Asteraceae); *Aspidanthera* Benth. (1841); *Gomphosia* Wedd. (1848).

Small to medium-sized trees or rarely tall canopy trees; bark fissured, pale brown; wood pale yellowish-white. Raphides absent. Stipules interpetiolar, free or connate at base, lanceolate or oblong, narrowly triangular at apex, readily caducous. Leaves opposite or whorled, 3 per node, short- to long-petiolate; blades broadly ovate, broadly elliptic, elliptic, oblanceolate or lanceolate; papyraceous, subcoriaceous or thickly coriaceous; domatia absent. Inflorescence axillary, paniculate or cymose, frondose or not, densely or sparsely branched, few- or many-flowered. Flowers 4-5-merous, bisexual, protandrous; hypanthium obovoid or narrowly obconical; calyx tube extremely reduced or cup-shaped, with undulate margin or with small lobes, persistent; lobes broadly to narrowly triangular; corolla hypocrateriform or narrowly infundibuliform, white, cream-white, orange, red or pale green, tube externally glabrous, internally glabrous throughout or pubescent at basal portion, without a pubescent ring, lobes imbricate or left-contorted, rounded, margin entire, shallowly bilobed or with a median indentation at apex; stamens included, exserted just beyond or well beyond the corolla, filaments attached at the upper part of the corolla tube, filiform, long, equal or subequal, glabrous, anthers button-shaped, or elliptic, or narrowly elliptic; thecae round at base; round at apex, dorsifixed near the middle, or dorsifixed near the base; pollen 3-4-colporate, exine reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style included or exserted just beyond or well beyond the corolla, filiform, glabrous, style branches 2, ovate, elliptic or oblong. Fruits capsular, woody, dehiscing septicidally form apex, with valves secondarily splitting at apex in old capsules; seeds many, peltate, laterally compressed, irregularly narrowly oblong to fusiform in outline, wings bipolar, longitudinal margin nearly entire, and irregularly deeply fringed at both ends.

Literature: Steyermark, J.A., Mem. New York. Bot. Gard. 23: 275-285. 1972; Anunciação, E., Revisão taxonômica de *Ferdinandusa* (Rubiaceae). Doctoral Dissertation, São Paulo Univ., SP, Brazil. 2004.

Distribution: Ranging from Nicaragua, throughout Central America, to Colombia, Bolivia, and Brazil: ca. 23 species; in MT and MS 3 species.

23-1. ***Ferdinandusa elliptica*** Pohl, Pl. Bras. 2: 9. "1828" [1831].

Syn.: *Ferdinandusa ovalis* Pohl.

23-2. ***Ferdinandusa rudgeoides*** (Benth.) Wedd., Ann. Sc. Nat., Ser. 4, 1: 78. 1854.

Syn.: *Aspidanthera rudgeoides* Benth.

23-3. ***Ferdinandusa speciosa*** Pohl, Pl. Brasil. 2: 8. "1828" [1831].

Syn.: *Ferdinandusa speciosa* Pohl f. *pubescens* (Wedd.) Steyerm.; *Ferdinandusa pubescens* Wedd.

24. GALIANTHE Griseb., Symb. Fl. Argent. 24: 157. 1879. Type: Not designated.

Syn.: *Triodon* DC. (1830), non Rich. (1805), nec Baumg. (1816); *Ebelia* Rchb. (1841); *Borreria* Meyer sec. *Galianthe* (Griseb.) K. Schum. in Mart. (1888); *Borreria* Meyer subg. *Galianthe* (Griseb.) Standl. (1931).

Annual or perennial herbs, subshrubs or shrubs; raphides present. Stipules sheathing, with 3-9 setae, each seta with an apical colleter, persistent, sometimes withering on the stem (no abscission layer is formed). Leaves opposite or ternate, often seeming whorled by the presence of reduced axillary brachyblasts with fasciculate leaves, sessile to short-petiolate; blades narrowly ovate, elliptic, oblong or linear, membranaceous, chartaceous or papyraceous; domatia absent. Inflorescence terminal, corymbose or long-thyrsoid with corymbose lateral branches. Flowers bisexual, protandrous. Calyx tube extremely reduced,

with small lobes, persistent; lobes 2 or 4, narrowly triangular or linear. Corolla narrowly to broadly infundibuliform, actinomorphic, white, cream-white, bluish-white to pale blue; tube externally glabrous, puberulent or pubescent, internally variably pubescent; lobes 4, valvate, narrowly triangular, narrowly ovate or oblong, acute at apex. Stamens included, partially exserted or exserted just beyond the corolla; anthers elliptic, narrowly elliptic or oblong, round at base and at apex, dorsifixed near the base; filaments attached near the mouth of the corolla tube or at lobes sinuses, short or long, glabrous. Pollen 6-8-colporate; exine echinate-perforate or echinate-reticulate. Style exserted just beyond the corolla or partially exserted or included, glabrous; lobes 2, ovate or oblong. Ovary 2-locular, obovoid or turbinate; ovules centrally inserted, 1 per locule. Fruit septicidal capsule, dehiscing basipetally, chartaceous. Seeds vertical, minute or medium-sized, dorsoventrally convex, ventrally sulcate.

Literature: Cabral, E. L., Bol. Soc. Argent. Bot. 27: 235-249. 1991; Pire & E. L. Cabral, Darwiniana 31: 1-10. 1992; Cabral, E. L. Bonplandia 7: 1-29. 1993; E. L. Cabral & Bacigalupo, Ann. Missouri Bot. Gard. 84: 857-877. 1997; Pire, Ann. Missouri Bot. Gard. 84: 878-887. 1997; E. L. Cabral & Bacigalupo, Bonplandia 10: 119-128. 2000; E. L. Cabral & Bacigalupo, Bol. Soc. Argent. Bot. 34: 149-155. 2000; Dessein, Systematic studies in the Spermacoceae (Rubiaceae), Doctoral Thesis, K.U. Leuven. 2003.

Distribution: Endemic to South America, with center of diversity in Brazil, Bolivia, Uruguay, Paraguay, and northern Argentina; ca. 45 species; in MT and MS 6 species.

24-1. *Galianthe brasiliensis* (Spreng.) E.L. Cabral & Bacigalupo, Ann. Missouri Bot. Gard. 84: 861, fig. 2. "1997" [1998].

Syn.: *Diodia brasiliensis* Spreng.; non *Spermacoce brasiliensis* Spreng. (= *Spermacoce tenella* Kunth); *Diodia polymorpha* Cham. & Schlecht; *Diodia polymorpha* Cham. & Schlecht. var. *anthospermoides* (Cham. & Schlecht.) K. Schum.; *Diodia polymorpha* Cham. & Schlecht. var. *macrophylla* Cham. & Schlecht.; *Diodia polymorpha* Cham. & Schlecht. var. *microphylla* Cham. & Schlecht.; *Diodia anthospermoides* Cham. & Schlecht.; *Triodon anthospermoides* (Cham. & Schlecht.) DC.; *Triodon glomeratum* DC.; *Triodon polymorphum* (Cham. & Schltdl.) DC.; *Triodon polymorphum* (Cham. & Schltdl.) DC. var. *macrophyllum* (Cham. & Schltdl.) DC.; *Diodia polymorpha* Cham. & Schltdl. DC. var. *microphylla* (Cham. & Schlecht) Standl.

24-2. *Galianthe cristata* (S. Moore) E.L. Cabral, Bol. Soc. Argent. Bot. 27: 241. 1992.

Syn.: *Borreria cristata* S. Moore; *Spermacoce matogrossensis* Govaert

24-3. *Galianthe eupathorioides* (Cham. & Schltdl.) E.L. Cabral, Bol. Soc. Argent. Bot. 27: 242. 1992.

Syn.: *Borreria eupathorioides* Cham. & Schltdl.

24-4. *Galianthe fastigiata* Griseb., Goett. Abh. 24: 157. 1879.

Syn.: *Borreria verbenoides* Cham. & Schltdl. f. *secunda* Cham. & Schltdl., f. *tertia* Cham. & Schltdl., f. *cuarta* Cham. & Schltdl.; *Borreria fastigiata* (Griseb.) K. Schum.; *Borreria leiophylla* K. Schum.; *Spermacoce fastigiata* (Griseb.) Niederl.; *Spermacoce leiophylla* (K. Schum.) Kuntze; *Spermacoce fastigiata* (Griseb.) Kuntze; *Borreria thalictroides* auct. non K. Schum.

24-5. *Galianthe pseudopetiolata* E.L. Cabral, Bonplandia 7: 26. 1993.

24-6. *Galianthe verbenoides* (Cham. & Schltdl.) Griseb., Symb. Fl. Argent. 24: 157. 1879.

Syn.: *Borreria verbenoides* Cham. & Schltdl. f. *prima* Cham. & Schltdl.; *Borreria valerianoides* f. *prima* Cham. & Schlecht.; *Spermacoce verbenoides* (Cham. & Schltdl.) Niederl.; *Spermacoce eupatorioides* (Cham. & Schltdl.) Kuntze; *Spermacoce valerianoides* (Cham. & Schltdl.) Kuntze; *Spermacoce verbenoides* (Cham. & Schltdl.) Kuntze, *comb. superfl.*; *Borreria thalictroides* K. Schum. var. *latifolia* Chodat & Hassler; *Borreria chodatiana* Standl. (based on *Borreria thalictroides* var. *latifolia* Chodat & Hassler); *Spermacoce verbenoides* (Cham. & Schltdl.) Herter, *comb. superfl.*; *Borreria verbenoides* Cham. & Schltdl. var. *eupatorioides* (Cham. & Schltdl.) L.B. Sm. & Downs; *Galianthe chodatiana* (Standl.) E.L. Cabral; *Galianthe eupatorioides* (Cham. & Schltdl.) E.L. Cabral; *Galianthe valerianoides* (Cham. & Schltdl.) E.L. Cabral; *Spermacoce chodatiana* (Standl.) Govaert.

25. GALIUM L., Sp. Pl. 105. 1753, *nom. cons. des.* Type: *G. verum* L.

Syn.: *Galium* sect. *Relbunium* Endl. (1838); *Relbunium* (Endl.) Hook. f. in Benth. & Hook. f. (1873).

Erect, sprawling or climbing herbs, annual or perennial herbs (subshrubs outside MT and MS). Raphides present. Stipules commonly of same shape and size of the leaves, persistent. Leaves whorled, including the leaf-like stipules, commonly 4 (rarely 6-8) per node (including the 2 leaf-like stipules); subsessile or sessile ; blades ovate, narrowly ovate, elliptic, narrowly elliptic, oblong, lanceolate or linear; membranaceous or chartaceous; domatia absent. Inflorescence axillary or terminal, paniculate or cymose, frondose or not, 1-, few- or many-flowered. Flowers (3-)4-5-merous, bisexual, morphologically unisexual (staminate and pistillate flowers on separate individuals), functionally unisexual (staminate and pistillate flowers on separate individuals) or unisexual and bisexual on the same individual (polygamous-monoecious); hypanthium ovoid; calyx tube absent, lobes free at base, caducous, lobes ovate, lanceolate to narrowly ovate; corolla campanulate, urceolate or rotate, white, cream-white, greenish-white, yellow, yellowish-white, (pink, red or maroon in South American species outside MT and MS), tube (when present) externally glabrous, internally glabrous, pubescent or hispid, lobes valvate, ovate, margin entire, rounded at apex; stamens alternate to the corolla lobes, filaments short, glabrous, anthers elliptic or oblong, round at base and at apex, dorsifixed near the middle; ovary 2-locular, placenta axile, reduced, ovules centrally inserted, vertical, ovules 1 per locule, styles 2, sometimes united at base, capitate, glabrous. Fruit baccate (schizocarpic and breaking up into 2 dehiscent dry cocci outside MT and MS); seeds 2, vertical, dorsally convex, attached to the pericarp.

Literature: Dempster, L.T., Allertonia 5(3): 283-344. 1990; Dempster, L.T. & P.G. Delprete in A. Reis, Fl. Ilustr. Catarin. RUBI (1): 273-342. 2004.

Distribution: Cosmopolitan of ca. 400 species in tropical and temperate environments; in the New World ranging from Alaska to southern Argentina and Chile: ca. 60 neotropical species; in MT and MS 3 species.

25-1. *Galium hypocarpium* (L.) Endl. ex Griseb., Fl. Brit. W. I. 4: 351. 1861.

Syn.: *Valantia hypocarpia* L., *Rubia hypocarpia* (L.) DC.; *Rubia chilensis* Molina; *Galium croceum* Ruiz & Pav.; *Galium ovale* Ruiz & Pav.; *Rubia incana* Kunth; *Rubia orinocensis* Kunth; *Rubia nitida* Kunth; *Rubia hispida* Willd. ex Spreng, *nom. nud.*; *Galium fluminense* Vell.; *Rubia relbun* Cham. & Schltdl.; *Rubia indecora* Cham. & Schltdl.; *Rubia crocea* DC.; *Rubia ramosissima* Pohl ex DC.; *Rubia ramosissima* var. *hispida* Wawra; *Rubia ovalis* DC.; *Rubia rupestris* Gardner; *Rubia affinis* Gardner; *Rubia glabra* Gardner; *Galium rupestre* Walp.; *Galium gardneri* Walp. (*nom. nov*. for *Rubia glabra* Gardner); *Galium relbun* D. Clos; *Galium albicans* Wedd. (based on *Rubia incana* Kunth; non *Galium incanum* Sibth. & Small); *Galium quitense* Wedd. (based on *Rubia nitida* Kunth; non *Galium nitidum* Sieber, nec *G. nitidum* Willd.); *Galium brasiliense* Wawra; *Relbunium orinocense* K. Schum.; *Galium pauciflorum* Willd. ex K. Schum., *nom. nud.*; *Relbunium hypocarpium* Hemsl. var. *relbun* (D. Clos) K. Schum., var. *indecorum* (Cham. & Schltdl.) K. Schum., var. *incanum* (Kunth) K. Schum., var. *alpestre* K. Schum. (based on *Rubia orinocensis* Cham. & Schltdl.), var. *viridiflorum* Chodat; ssp. *nitidum* Ehrend., ssp. *grandifolium* Ehrend., ssp. *fluminense* Ehrend.; *Relbunium nitidum* K. Schum.; *Relbunium ovale* K. Schum.; *Relbunium croceum* K. Schum.; *Relbunium bangii* Rusby; *Relbunium wettstenii* A. Zahlbr.; *Relbunium relbun* (D. Clos) Herter; *Relbunium glaberrimum* Standl.; *Relbunium rupestre* Ehrend.; *Relbunium indecorum* (Cham. & Schltdl.) Ehrend.; *Relbunium gracillimum* Ehrend.; *Galium hypocarpium* ssp. *gracillimum* (Ehrend.) Dempster, ssp. *indecorum* (Cham. & Schltdl.) Dempster.

25-2. *Galium megapotamicum* Spreng., Syst. Veg. 4: 39. 1827.

Syn.: *Galium apricum* Vell.; *Galium camporum* Pohl ex DC.; *Galium radicosum* Steud.; *Relbunium hirtum* subsp. *camporum* (Pohl ex DC.) K. Schum.; *Relbunium hirtum* subsp. *camporum* f. *floribundum* K. Schum.; *Relbunium hirtum* subsp. *reflexum* K. Schum.; *Relbunium hirtum* subsp. *re-*

flexum K. Schum. f. *glabriflora* K. Schum.; *Relbunium hirtum* var. *camporum* (Pohl ex DC.) Standl.; *Relbunium megapotamicum* (Spreng.) Ehrend.; *Relbunium megapotamicum* (Spreng.) Ehrend. subsp. *camporum* (Pohl ex DC.) Ehrend.

25-3. *Galium noxium* (A. St. Hil.) Dempster, Allertonia 5(3): 292. 1990.

Syn.: *Rubia noxia* A. St. Hil., *Relbunium noxium* (A. St. Hil.) K. Schum.; *Rubia valantioides* Cham. & Schltdl., non *Galium valantioides* M. Bieb.; *Galium paratyense* Vell.; *Rubia aspera* Pohl ex DC.; *Rubia diffusa* Pohl ex DC.; *Relbunium asperum* (DC.) K. Schum.; *Relbunium diffusum* (DC.) K. Schum.; *Relbunium diffusum* (DC.) K. Schum. var. *glabrum* K. Schum., non *Rubia glabra* Gardner; *Relbunium vaillantioides* (Cham. & Schltdl.) K. Schum., *orth. var.*; *Relbunium hypocarpium* (L.) Endl. ex Griseb. f. *denticulata* Chod. & Hassl.; *Relbunium noxium* (A. St. Hil.) K. Schum. var. *pilcomayense* Hassl.; *Galium noxium* (A. St. Hil.) Dempster subsp. *noxium*; *Galium noxium* (A. St. Hil.) Dempster subsp. *valantioides* (Cham. & Schltdl.) Dempster.

26. GARDENIA Ellis, Philos. Trans. 51: 935, pl. 23. 1761, *nom. cons*. Type: *G. jasminoides* J. Ellis [= *G. augusta* (L.) Merrill]

Shrubs or small trees. Raphides absent. Stipules interpetiolar, free, connate at base to or long-sheathing, ovate, deltoid, narrowly triangular to lanceolate, sometimes acuminate at apex, persistent or subcaducous. Leaves opposite, or whorled, 3 per node, subsessil or short-petiolate; blades ovate, broadly to narrowly elliptic, broadly to narrowly obovate or oblong, chartaceous, papyraceous or subcoriaceous; domatia tufts of sparse hairs or tuft-pits, or absent. Inflorescence terminal, axillary or pseudoaxillary, cymose or corymbose, 1- or few-flowered. Flowers 5-8-merous, biseriate in some cultivars, bisexual, protandrous, very fragrant; hypanthium obconical or obovoid; calyx tube extremely reduced or short- to long-tubular, persistent; lobes minute, small or foliose, broadly to narrowly triangular, ovate, elliptic, ligulate, oblong, oblong-obovate, spatulate or lanceolate; corolla uni- or bi-seriate in some cultivars, campanulate, hypocrateriform or narrowly infundibuliform, white, cream-white in early stages, turning yellowish-white to yellow at later stages, tube externally glabrous or puberulent, internally pubescent, lobes 5-8 or 10-16 in bi-seriate cultivars, left-contorted, ovate, obovate, rounded or elliptic, margin entire or undulate, rounded, ovate or acute at apex; stamens included or partially exserted, anthers subsessile, narrowly oblong, elongate to linear, acute at base and at apex, sometimes with acute extensions at apex, dorsifixed near the base; pollen 3-porate, exine rugulate, released as tetrads; ovary 2-6-locular, placentation parietal, ovules many per locule, style included or exserted just beyond the corolla tube, capitate or clavate, glabrous or puberulent or pubescent at basal portion, styles branches 2-6, ovate, elliptic, oblong, narrowly oblong. Fruits baccate, leathery, with a fleshy pulp; seeds many, horizontal, subglobose, dorsoventrally or laterally compressed, broadly elliptic to narrowly elliptic in outline.

Literature: Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarin. RUBI (2): 349-352. 2005; Smith, A. C., Amer. J. Bot. 61(2): 109-128. 1974.

Distribution: A genus of ca. 200 species native of the Old World, with 1 species commonly the cultivated in the Neotropics (and around the world) for its fragrant and beautiful flowers.

26-1. *Gardenia augusta* (L.) Merr., Int. Herb. Amb. 485. 1917. [cultivated]

Syn: *Varneria augusta* L.; *Gardenia jasminoides* J. Ellis; *Gardenia florida* L.

27. GENIPA L., Syst. Nat. ed. 10, 2: 931. 1759. Type: *G. americana* L.

Small to large trees; bark smooth, grayish. Stipules interpetiolar free or connate at base, persistent or subpersistent. Leaves opposite, petiolate; blades narrowly obovate, obovate, rarely elliptic, acute or acuminate, sometimes rounded at apex, chartaceous; domatia absent. Inflorescences terminal or pseudoaxillary, becoming woody with age; hermaphroditic inflorescences compound cymes, 5-30(-60)-flowered, female inflorescence 1(-2)-flowered; hermaphroditic flowers 5(-6)-merous; bracts and bracteoles ovate, sometimes with fimbriate margin; calyx tubular, wavy,

jagged or with tiny deltoid awns at margin; corolla salverform to funnelform, aestivation contorted, tube retrorsely sericeous outside, villous and hirsute in median or upper portion inside, and with a distinct ring of antrorse hairs in the basal or median portion; stamens as many as corolla lobes, sessile or subsessile, stamens inserted near the top of the corolla tube, anthers narrowly oblong, subdorsifixed, exserted, pollen 3-colporate, exine reticulate; style slender exserted, glabrous, with 2 connivent branches, these with a ridged outer surface; ovary glabrous, 1-2-locular; placenta axial-parietal, ovules numerous. Female flowers 5-6-merous, pedicellate; calyx as in hermaphroditic flowers, but larger; corolla shape as in hermaphroditic flowers; stamens nonfunctional, exserted; anthers, smaller than in hermaphroditic flowers, and without pollen; style slender, exserted; style branches 2, ridged on outer surface, and with revolute margins; ovary as in hermaphroditic flowers, but larger. Fruit berry-like, ellipsoidal or subglobose, leathery, glabrous, calyx persistent or subpersistent, yellowish brown, khaki-coloured, brownish or grayish brown; seeds numerous, flat or sublenticular, embedded in a fleshy placental pulp.

Literature: Persson, C., Nordic J. Bot. 20(3): 257-269. 2000; Persson, C., Brittonia 55(2): 176-201. 2003; Steyermark, J.A. in Lasser & Steyermark, Fl. Venez. 9(2): 660-669. 1974; Steyermark, J. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 346-355. 1972; Zappi, D.C. et al., Kew Bull. 50: 761–771. 1995; Steyermark, J.A. & C. Persson in Steyermark, J.A. & al., Fl. Venez. Guay. 8: 605-608. 2004.

Distribution: ranging from Mexico and the West Indies to Argentina, 2-3 species; in MT and MS 2 species.

27-1. *Genipa americana* L., Syst. Nat. ed. 10, 931. 1759. [native and cultivated]

Syn.: *Gardenia genipa* Sw. (based on *Genipa americana* L.); *Genipa oblongifolia* Ruiz & Pav..; *Genipa caruto* Kunth; *Genipa humilis* Vell.; *Genipa pubescens* DC.; *Genipa barbata* Presl.; *Genipa americana* var. *caruto* (Kunth) K. Schum.; *Genipa americana* var. *caruto* (Kunth) K. Schum. f. *grandifolia* Chod. & Hassl., f. *parvifolia* Chod. & Hassl.; *Genipa excelsa* K. Krause; *Genipa codonocalyx* Standl.; *Genipa venosa* Standl.; *Genipa americana* var. *caruto* (Kunth) K. Schum. f. *jorgensenii* Steyerm.

27-2. *Genipa spruceana* Steyerm., Mem. New York Bot. Gard. 23: 353 (1972).

28. GEOPHILA D. Don, Prodr. Fl. Nepal 136. 1825, *nom. cons*. Type: *G. reniformis* D. Don

Syn.: *Carinta* Wight (1905); *Geocardia* Standl. (1914).

Trailing, delicate herbs, rooting at nodes and internodes. Raphides present. Stipules interpetiolar, free or sheathing at base, orbicular to ovate (sometimes bifid), usually reflexed, persistent. Leaves opposite, long-petiolate; blades suborbicular, reniform or cordate, membranaceous or chartaceous; domatia absent. Inflorescence terminal, cymose or capitate, few-flowered. Flowers (4-)5-7-merous, bisexual; hypanthium ovoid to narrowly ellipsoid; calyx cup-shaped, persistent, lobes small, narrowly triangular to linear; corolla hypocrateriform or infundibuliform, white to cream-white, tube externally glabrous, internally puberulent, with a pubescent ring at stamens insertion point, lobes valvate, ovate, acute at apex; stamens included, filaments attached at the middle of the corolla tube, short (anthers subsessile), glabrous; stamens short, anthers narrowly-oblong to linear, round at base, round or acute at apex, dorsifixed near the middle; ovary 2-locular, ovules centrally inserted, vertical, 1 per locule, style included, filiform, glabrous, style branches 2, ovate. Fruits drupaceous, with 2 woody pyrenes, orange to dark red, usually contorted at maturity; seeds vertical.

Literature: Andersson, L. in G. Harling & L. Andersson, Fl. Ecuador 62: 235-239. 1999; Taylor, C.M. & J.A. Steyermark in Steyermark, J.A. & al., Fl. Venez. Guay. 8: 608-610. 2004.

Distribution: Genus of pantropical distribution; in the Neotropics ranging from southern Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 10 species; in MT and MS 1 species.

28-1. *Geophila repens* (L.) I. M. Johnst., Sargentia 8: 281. 1949.

Syn.: *Rondeletia repens* L., *Carinta repens* (L.) L.B. Sm. & Downs; *Psychotria herbacea* Jacq.; *Psychotria violacea* Aubl.; *Geophila violacea* (Aubl.) DC.; *Geophila cordata* Miq.; *Mapourea herbacea* (Jacq.) Muell. Arg.; *Geophila herbacea* (Jacq.) K. Schum.; *Carinta herbacea* (Jacq.) W. F. Wight; *Geocardia cordata* (Miq.) Standl.; *Geocardia violacea* (Aubl.) Standl.

29. GONZALAGUNIA Ruiz & Pav., Prodr. 12 (prim.). 1794. Type: *G. dependens* Ruiz & Pav.

Syn.: *Buena* Cav. (1800), non *Buena* Pohl (1826, = *Cosmibuena* Ruiz & Pav.); *Gonzalea* Pers. (1805); *Duggena* Vahl ex Standl. (1916).

Scandent shrubs or small trees with scandent lateral branches. Raphides absent. Stipules interpetiolar, free or connate at base, broadly to narrowly triangular, acuminate to aristate at apex, persistent. Leaves opposite, subsessile or short- to long-petiolate; blades ovate to narrowly ovate, elliptic to narrowly elliptic or oblong, chartaceous, papyraceous, or subcoriaceous; domatia absent. Inflorescence terminal, spiciform, pendulous (or erect, outside MT and MS). Flowers 4-5-merous, bisexual, protandrous; hypanthium globose; calyx tube extremely reduced or cup-shaped, persistent, lobes small, ovate, deltoid, narrowly triangular, ligulate, or oblong; corolla hypocrateriform or narrowly infundibuliform, white to cream-white or red, tube externally puberulent, pubescent, villous or sericeous, internally glabrous or pubescent at basal, medial or distal portion, without a pubescent ring, lobes valvate or imbricate, broadly to narrowly ovate, elliptic, oblong to narrowly oblong, margin entire or undulate, obtuse, rounded or acute at apex; stamens included or partially exserted, filaments attached at the middle or upper part of the corolla tube, anthers subsessile, narrowly oblong or elongate, acute at base and at apex, dorsifixed near the base; pollen 3-4-colporate, exine perforate; ovary 2-locular (or 4-locular outside MT and MS), placenta stalked, inserted on the center of the septum, ovules many per locule, style included or partially exserted, glabrous, style branches 2 (or 4 outside MT and MS), oblong, narrowly oblong to linear. Fruits drupaceous, spongy, or slightly spongy at early stage and dry and indehiscent at dispersal stage, or schizocarpic and breaking up into 2 mericarps (or 4 outside MT and MS), with cartilaginous pyrenes; seeds many, horizontal, 3-5-angular.

Literature: Ståhl, B. in G. Harling & L. Andersson, Fl. Ecuador 62: 70-101. 1999.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 35 species; in MT and MS 1 species.

29-1. *Gonzalagunia dicocca* Cham. & Schltdl., Linnaea 4: 194. 1829.

Syn.: *Gonzalea dicocca* (Cham. & Schltdl.) Steud.; *Gonzalagunia surinamensis* Bremek.; *Gonzalagunia dicocca* Cham. & Schltdl. subsp. *dicocca* var. *guianensis* Steyerm.; *Gonzalagunia dicocca* Cham. & Schltdl. subsp. *venezuelensis* Steyerm.

30. GUETTARDA L., Sp. Pl. 991. 1753. Type: *G. speciosa* L.

Syn.: *Matthiola* L. (1753), *nom. rej.*, non Aiton (1812); *Halesia* P. Browne (1756), *nom. rej.*, non Ellis ex L. (1759); *Edechia* Loefl., (1758); *Dicrobotryum* Willd. ex Schult. in Roem. & Schult. (1819); *Sardinia* Vell. ("1825" [1829]); *Donkelaaria* Lem. (1855); *Tournefortiopsis* Rusby (1907).

Shrubs or small trees to medium-sized trees (tall canopy trees outside MT and MS). Raphides absent, or straight, stout modified lateral branches, with vestigial nodes, sometimes with reduced leaves. Stipules interpetiolar or intrapetiolar, free at base, deltoid or narrowly triangular, persistent or readily caducous. Leaves opposite or whorled, 3-4 per node, short- to long-petiolate; blades ovate, elliptic or oblong, chartaceous, papyraceous or subcoriaceous; domatia hairy-pockets, or absent. Inflorescence axillary, pedunculate, with 2-7 scorpioid branches, few- to many-flowered. Flowers (4-)5-6(-9)-merous, bisexual or unisexual and bisexual on the same individual (polygamous-dioecious), protandrous; hypanthium globose; calyx cup-shaped, persistent, lobes small, broadly triangular, deltoid or ovate; corolla hypocrateriform or broadly infundibuliform, white, cream-white, yellow, bluish-white, pale blue, violet to purple, tube

externally pubescent, internally glabrous or pubescent, with or without a pubescent ring at base inside, lobes valvate, imbricate or left-contorted, ovate, rounded or oblong, margin entire, undulate or fringed, rounded at apex; stamens included or partially exserted, filaments attached near the mouth of the corolla tube, anthers subsessile, oblong or linear, acute at base and at apex, dorsifixed near the base; pollen 3-4-porate, exine reticulate; ovary 2-7-locular, placentation axile, ovules centrally inserted, 1 per locule, style included, filiform, glabrous or antrorse-puberulent, style branches 2-7, ovate to oblong. Fruits drupaceous, fleshy, with 2-7 pyrenes; seeds pendulous.

Taxonomical notes: According to recent molecular phylogenies produced by Achille et al. (2006), *Guettarda* as traditionally delimited (e.g., Steyermark, 1974), is a paraphyletic taxon, with species present in at least three separate clades: a Paleotropical clade, a Neotropical clades, a Neotropical clade with *G. speciosa* L. (the type of the genus *Guettarda*) included in it, and a separate clade with *G. acreana* K. Krause. The presence of *Guettarda speciosa* inside a monophyletic group of Neotropical *Guettarda* species is definitely enigmatic. In the phylogenies available, *G. speciosa* , ranging from the African East coast, islands of the Indian and Pacific Oceans, China to Ryuku Island of Japan, is nested within a clade of species endemic to the Greater Antilles. Nevertheless, more species need to be added to Achille's phylogenetic study in order to detect monophyletic groups in the *Guettarda* complex. For practical reason, in this floristic treatment *Guettarda* is maintained as traditionally recognized.

Distribution: Africa, islands of the Pacific and Indian Oceans, and Tropical America. In the Neotropics ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil, adapted to a vast variety of environments: ca. 120 species; in MT and MS 4 species.

30-1. ***Guettarda burchelliana*** Muell. Arg., Flora 58: 450, 456. 1875.

30-2. ***Guettarda mattogrossensis*** S. Moore, Trans. Linn. Soc. 2nd ser. 4: 372. 1895.

30-3. ***Guettarda pohliana*** Muell. Arg., Flora 58: 450, 456. 1875.

30-4. ***Guettarda viburnoides*** Cham. & Schltdl., Linnaea 4: 182. 1829.

31. HAMELIA Jacq., Enum. Pl. Carib. 2, 16. 1760. Type: *H. patens* Jacq.

Syn.: *Duhamelia* Pers., Syn. Pl. 1: 203. 1805, *nom. superfl.*; *Tangaraca* Adans. (1763); *Tepesia* Gaertn. (1806).

Shrubs or small trees; bark thin, pale gray to pale brown, with sparse lenticels; wood white, soft. Raphides present. Stipules interpetiolar, free at base, narrowly triangular or ovate, persistent or subcaducous. Leaves opposite or whorled, 3-5 per node, long-petiolate; blades ovate, elliptic or obovate, chartaceous or papyraceous; domatia tufts of dense hairs, or absent. Inflorescence axillary or terminal, cymose or dichasiate, few- to many-flowered. Flowers 4-5-merous, bisexual, protandrous; hypanthium globose; calyx cup-shaped, persistent, lobes small, deltoid, rounded or linear; corolla tubular, campanulate or broadly infundibuliform, yellow or orange to red, tube externally glabrous or pubescent, internally glabrous, without a pubescent ring, lobes imbricate, broadly triangular or ovate, margin entire, acute at apex. Stamens included or exserted just beyond the corolla, filaments attached at base of the corolla tube, free or basally connate (forming a minute tube at base of the corolla), glabrous, anthers oblong to linear, acute at base, acute or acuminate at apex, dorsifixed near the base; pollen 3-colpate, exine foveolate; ovary (4-)5-locular, placentation axile, peltate to the entire length of the septum, ovules horizontal, many per locule, style included, lobes (4-)5, minute, ovate. Fruit baccate, fleshy, red to deep purple; seeds many, small, horizontal, 3-5-angular.

Literature: K. Schumann in Martius, Fl. Bras. 6(6): 319-323. 1889; Elias, T., Mem. New York Bot. Gard. 26: 81-144. 1976; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 377-384. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, Brazil and northern Argentina: ca. 20 species; in MT and MS 1 species.

31-1. *Hamelia patens* Jacq., Enum. Pl. Carib. 16. 1760.

Syn.: *Hamelia erecta* Jacq.; *Hamelia coccinea* Sw.; *Hamelia sphaerocarpa* Ruíz & Pav.; *Duhamelia patens* Pers.; *Duhamelia sphaerocarpa* (Ruíz & Pav.) Pers.; *Hamelia suaveolens* Kunth; *Duhamelia odorata* Willd. ex Roem. & Schult.; *Hamelia patens* var. *quinifolia* DC.; *Hamelia latifolia* Reichb. ex DC.; *Hamelia lanuginosa* Mart. & Gal.; *Hamelia nodosa* Mart. & Gal.; *Hamellia* [sic] *corymbosa* Sessé & Moç.; *Hamelia tubiflora* Wernham; *Hamelia pedicellata* Wernham; *Hamelia viridifolia* Wernham; *Hamelia brachystemon* Wernham; *Hamelia brittoniana* Wernham; *Hamelia intermedia* Urb. & Ekman.

32. ISERTIA Schreber, Gen. 234. 1789. Type: *I. coccinea* (Aubl.) Vahl (*Guettarda coccinea* Aubl.).

Syn.: *Cassupa* Bonpl. in Humb. & Bonpl. (1806); *Brignolia* DC. (1830), non *Brignolia* Bertoloni (1813); *Bruinsmania* Miq. (1843); *Creatantha* Standl. (1931); *Yutajea* Steyerm. (1987).

Small to medium-sized trees; bark fissured, wood white, soft. Raphides absent. Stipules intrapetiolar and interpetiolar, formed by 4 narrowly triangular units, persistent. Leaves opposite, long-petiolate; blades ovate, elliptic or obovate, chartaceous, papyraceous or subcoriaceous; domatia absent. Inflorescence terminal, paniculate, rarely thyrsoid, densely or sparsely branched, few- to many-flowered. Flowers 4-7-merous, bisexual, protandrous; hypanthium turbinate; calyx cup-shaped, persistent, lobes small, broadly triangular or rounded; corolla tubular or hypocrateriform, white to cream-white, yellow, orange, pink or red, tube externally glabrous or tomentose, glabrous and with a dense ring of pubescent hairs at orifice, lobes valvate or imbricate, ovate or oblong, margin entire, acute at apex; stamens included, partially exserted or exserted just beyond the corolla; filaments attached near the mouth of the corolla tube, anthers subsessile, oblong, round at base, acute at apex, dorsifixed near the middle; pollen 3-4-colporate, exine perforate; ovary 2-7-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style included or exserted just beyond the corolla, filiform, glabrous or puberulent, style branches 2-7, oblong. Fruits drupaceous, with 2-7 woody pyrenes (in MT and MS), remaining fleshy or turning dry at maturity; seeds many, horizontal, 3-5-angular, testa foveolate.

Literature: Boom, B.M., Brittonia 36: 425-454. 1984.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 15 species; in MT and MS 2 species.

32-1. *Isertia hypoleuca* Benth., Hooker's J. Bot. 3: 220. 1841.

Syn.: *Isertia coccinea* Vahl var. *hypoleuca* (Benth.) K. Schum.; *Cassupa scarlatina* K. Schum. & K. Krause; *Isertia hoenei* K. Krause.

32-2. *Isertia parviflora* Vahl, Eclog. Am. 2: 28. t. 15. 1798.

Syn.: Non *Isertia parvifolia* Standl.; *Brignolia acuminata* DC.; *Brignolia pubigera* Benth.; *Bruinsmania isertioides* Miq.; *Isertia glabra* Ducke; *Isertia parviflora* Vahl var. *hirta* Steyerm.; *Yutajea liesneri* Steyerm.

33. IXORA L., Sp. Pl. 110. 1753. Type: *I. coccinea* L.

Syn.: *Schetti* Adans. (1763); *Sideroxyloides* Jacq. (1763); *Patabea* Aubl. (1775); *Siderodendrum* Schreb. (1789); *Bemsetia* Raf. (1838); *Panchezia* Montr. (1860), *nom. rej.*; *Charpentiera* Vieill. (1865); *Thouarsiora* Homolle ex Arènes (1960).

Shrubs or small to medium-sized trees. Raphides absent. Stipules interpetiolar, connate at base, deltoid to narrowly triangular, aristate, persistent. Leaves opposite or whorled, 3-4 per node, sessile, subsessile or short-petiolate; blades ovate, elliptic, obovate, oblong or lanceolate; subcoriaceous to coriaceous; domatia absent. Inflorescence axillary or terminal, paniculate, cymose, corymbose, densely or sparsely branched, few- to many-flowered. Flowers 4-5-merous, bisexual, protandrous; hypanthium ovoid; calyx cup-shaped, persistent, lobes small, broadly ovate, ovate or deltoid; corolla hypocrateriform, white, cream-white, yellow, pink or red, tube externally glabrous or minutely puberulent, internally glabrous, without a pubescent ring inside, lobes left-con-

torted (rarely imbricate), broadly ovate, ovate, oblong or linear, margin entire, rounded, acute or short- to long acuminate at apex; stamens partially exserted, or exserted just beyond the corolla; filaments attached near the mouth of the corolla tube, anthers subsessile, oblong or linear, round at base, acute at apex, dorsifixed near the base; pollen 3-zonocolporate, exine reticulate or reticulate-foveolate; ovary 2-locular, placenta stalked, inserted in the center of the septum, ovules 1 per locule, style exserted well beyond the corolla, filiform, glabrous, style branches 2, ovate or oblong. Fruit baccate, globose or bi-globose, fleshy or leathery, red; seeds 2, vertical, dorsoventrally convex or globose, not ventrally sulcate.

Literature: De Block, P., Opera Bot. Belg. 9: 1-218. 1998; Fosberg, F.R. & H.-H. Sachet, Baileya 23(2): 74-85. 1989; Delprete, P.G., Sida 20(4): 1471-1480. 2003; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 410-423. 2005.

Distribution: Pantropical genus of ca. 350 species; in the Neotropics ranging from Mexico, throughout Central America, Greater Antilles, to Colombia, Bolivia, and Brazil: ca. 45 species in the Neotropics; in MT and MS 3 native species and 4 cultivated.

33-1. *Ixora brevifolia* Benth., Linnaea 23: 448. 1850.

Syn.: *Ixora thyrsoidea* Muell. Arg.; *Ixora warmingii* Muell. Arg.; *Ixora glaziovii* Muell. Arg.; *Ixora membranacea* Muell. Arg.

33-2. *Ixora casei* Hance in Walp., Ann. Bot. Syst. 2: 74. 1852. [cultivated]

Syn.: *Ixora duffii* Baine; *Ixora pulcherrima* Volkens; *Ixora confertifolia* Val.; *Ixora volkensii* Hosok.; *Ixora carolinensis* var. *volkensii* (Hosok.) Fosb.; *Ixora macrothyrsa* sensu auct. [non (Teysm. & Binnend.) T. Moore (1878)]; *Ixora carolinensis* Hosok.; *Ixora carolinensis* var. *typica* (Hosok.) Fosb.; *Ixora williamsii* Sandw.

33-3. *Ixora chinensis* Lam., Encycl. Meth. 3: 344. 1789. [cultivated]

Syn.: *Ixora stricta* Roxb.; *Ixora dixiana* Gentil

33-4. *Ixora coccinea* L., Sp. Pl. 110. 1753; L., Gen. Pl., ed. 5, 48. 1754. [cultivated]

Syn.: *Ixora montana* Lour.; *Ixora grandilora* Lodd.; *Ixora frasei* Gentil; *Ixora lutea* Hutch.; *Ixora bandhuca* Roxb.; *Ixora coccinea* L. var. *bandhuca* (Roxb.) Corner; *Ixora coccinea* L. var. *lutea* (Hutch.) Corner; *Ixora coccinea* L. var. *coccinea* f. *coccinea* Veitch. ex Forberg & Sachet; *Ixora coccinea* L. var. *coccinea* f. *lutea* (Hutch.) Forberg & Sachet; *Ixora coccinea* L. var. *hermannii* Fosberg & Sachet; *Ixora coccinea* L. var. *intermedia* Fosberg & Sachet.

33-5. *Ixora finlaysoniana* Wall. ex G. Don, Gen. hist. 3: 572. 1834. [cultivated]

33-6. *Ixora spruceana* Muell. Arg., Flora 58: 455, 459. 1875.

33-7. *Ixora venulosa* Benth., Linnaea 23: 446. 1850.

34. KUTCHUBAEA Fischer ex DC., Prodr. 4: 373. 1830.

Syn.: *Kotchubaea* Regel ex Hook. f. (1873), orth. var.; *Einsteinia* Ducke (1934); *Ibetralia* Bremek. (1934).

Medium-sized to tall canopy trees, dioecious. Raphides absent. Stipules interpetiolar, connate at base, sometimes sheathing, with resin producing colleters inside, persistent. Leaves opposite, petiolate; blades obovate or elliptic, commonly acuminate at apex; domatia absent. Inflorescences terminal; male inflorescences cymose, few- to many-flowered; female inflorescence 1-flowered. Male flowers 6-11-merous; calyx tubular, sometimes cupshaped, usually truncate, rarely lobate; corolla salverform, aestivation contorted, tube retrorsely sericeous or antrorsely hirsute, sometimes glabrous outside, sericeous in upper portion inside; stamens as many as corolla lobes, sessile or minutely stalked, filament inserted near the middle or in the upper portion of the corolla, anthers narrowly oblong or lorate, included, pollen 3-porate, exine reticulate; ovary absent, style non-functional, slender, included, glabrous, rarely pilose-sericeous in upper half, smooth or slightly ridged, with 2 short connivent branches. Female flowers 6-8(-9)-merous, on short to medium-sized pedicels; calyx and corolla shape as in male flo-

wers; stamens non-functional, included or tips barely exserted, anthers smaller than in male flowers, pollen absent; style with tip slightly exserted, pilose-sericeous in upper half, style branches 2; ovary appressed hirsute. Fruit berry-like, ellipsoid, leathery, pedicellate, usually yellowish at maturity, calyx persistent; seeds numerous, flattened triangular or flattened spherical, broadly ellipsoid, embedded in a fleshy placental pulp.

Literature: Persson, C., Am. J. Bot. 87: 1018-1028. 2000; Persson, C., Rev. Biol. Neotrop. 2(2): 65-74. 2005; Steyermark, J.A. T. in Lasser & Steyermark, Fl. Venez. 9(2): 669-679. 1974; Steyermark, J.A. Rubiaceae, in B. Maguire and Coll., Mem. New York Bot. Gard. 23: 227-832. 1972; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 631-634. 2004.

Distribution: Ranging from Colombia to Bolivia; ca. 12 species; 1 species in Amazonian MT.

34-1. *Kutchubaea insignis* Fisch. ex DC., Prodr. 4: 373. 1830.

35. LADENBERGIA Klotzsch in Hayne, Getr. Darst. Gew. 14: tab. 15. 1846. Type: *L. moritziana* Klotzsch in Hayne

Syn.: *Cinchona* [sect.] *Cascarilla* Endl. (1838); *Cascarilla* (Endl.) Wedd. (1848); *Cascarilla* [sect.] *Pseudoquina* Wedd. (1849); *Cascarilla* [sect.] *Carua* Wedd. (1849); *Cascarilla* [sect.] *Calyptria* Wedd. (1849); *Cascarilla* [sect.] *Muzonia* Wedd. (1849); *Muzonia* (Wedd.) N. Osorio (1874).

Small, medium-sized or tall canopy trees. Raphides absent. Stipules interpetiolar, free or connate at base, deltoid, broadly triangular, ovate, obovate, oblong or ligulate, subcaducous or readily caducous. Leaves opposite (rarely whorled, 3 per node), short- to long-petiolate; blades ovate, narrowly ovate, elliptic, broadly elliptic, obovate, chartaceous, papyraceous or subcoriaceous, domatia sparse or dense tufts of hairs, or absent. Inflorescence terminal, frondose or not, paniculate or cymose, sparsely branched, pauci- or multi-florous. Flowers bisexual, protandrous; hypanthium obconical to turbinate; calyx cup-shaped, campanulate or short-tubular, with small lobes, persistent, truncate, undulate or lobed, lobes (when present) 5-7, deltoid, narrowly triangular, lanceolate or narrowly ovate, calycophylls absent. Corolla hypocrateriform or narrowly infundibuliform, actinomorphic, white to cream-white, tube externally puberulent, pubescent, strigose or sericeous, internally glabrous or papillose, lobes 5-7, valvate, lanceolate or linear-lanceolate, margin entire, acute at apex; stamens included or partially exserted (only tips exserted, filaments attached at the middle or at the upper part of the corolla tube, short (anthers subsessile), equal, glabrous, anthers narrowly oblong, elongate or linear, round at base and at apex, dorsifixed near the base; pollen 3-colporate, foveolate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style as long as the corolla tube or included, glabrous, or puberulent at basal portion, or pubescent at basal portion; lobes 2, ovate or oblong. Fruit capsular, oblong, thinly woody, dehiscing septicidally from apex, the valves entire (rarely secondarily splitting at apex). Seeds ascendingly imbricate, medium-sized, laterally compressed, elliptic-ovate or oblong in outline, wings bipolar, margin nearly entire, dentate or fimbriate.

Literature: Andersson, L., Nord. J. Bot. 17(3): 255-299. 1997.

Distribution: Ranging from Costa Rica through Bolivia and Brazil: ca. 34 species; in MT and MS 4 species.

35-1. *Ladenbergia amazonensis* Ducke, Trop. Woods 31: 21. 1932.

35-2. *Ladenbergia chapadensis* S. Moore., Trans. Linn. Soc. 2ns ser., 4: 367. 1895.

35-3. *Ladenbergia cujabensis* Klotzsch in Hayne, Getr. Darst. Gew. 14: tab. 15. 1846.

Syn.: *Remijia cujabensis* (Klotzsch) Wedd., *Cinchona cujabensis* Manso ex Klotsch in Hayne, *pro syn*.

35-4. *Ladenbergia graciliflora* K. Schum. in Mart., Fl. Bras. 6(6): 145. 1889.

36. LIMNOSIPANEA Hook. f., Hooker's Icon. Pl. 11: 38. 1868. Type: *L. spruceana* Hook. f. (cf. Standley, 1921).

Syn.: *Limnosipania* Hook. f. in Benth. & Hook. f. (1873), *orth. var.*; *Sipania* Seem. (1853), non *Sipanea* Aubl. (1775).

Erect, aquatic or semi-aquatic annual herbs (2-4 months life span). Raphides absent. Stipules interpetiolar, reduced to a line and with a small mucron or a seta at the center, persistent, withering on the stem (no abscission layer is formed) or readily caducous. Leaves opposite, or whorled, 3-6 per node, sessile; blades ovate, lanceolate, membranaceous or chartaceous; domatia absent. Inflorescence terminal, cymose, few- to many-flowered. Flowers 4-6-merous, bisexual, protandrous; hypanthium globose; calyx tube extremely reduced, persistent, lobes oblong, lanceolate to linear; corolla hypocrateriform, white, cream-white, pinkish-white, tube externally glabrous or strigose, internally villous, with a pubescent ring at orifice, lobes left-contorted, ovate or oblong-ovate, margin entire or undulate, obtuse or rounded at apex; stamens included, filaments attached near the mouth of the corolla tube, glabrous, anthers narrowly elliptic or oblong, round at base, round at apex, dorsifixed near the middle; pollen 3-colporate, exine finely reticulate; ovary 2-locular, placenta stalked, inserted in the center of the septum, ovules many per locule, style exserted just beyond the corolla, filiform, glabrous, style branches 2, oblong. Fruits capsular, crustaceous, small, dehiscing loculicidally from apex; seeds many, horizontal, small, 3-5-angular.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 17: 282-284. 1967, Delprete, P.G. & J.A. Steyermark. Limnosipanea. In. Steyermark et al. (Eds), FI. Venez. Guayana 8 : 638-639, 2004.

Distribution: Ranging from southern Panama to Bolivia, and Brazil; 4-5 species; in MT and MS 3 species.

36-1. ***Limnosipanea erythreoides*** (Cham.) K. Schum. in Mart., Fl. Bras. 6(6): 253, tab. 123. 1889.

Syn.: *Sipanea erythraeoides* Cham.

36-2. ***Limnosipanea palustris*** (Seem.) Hook. f. in Hooker's Icon. Pl. 11: 38, pl. 1050. 1868.

Syn.: *Sipania* [sic] *palustris* Seem., non (A. Rich.) J.H. Kirkbr. 1997, *nom. illeg. hom.*; *Limnosipanea schomburgkii* Hook. f.; *Limnosipanea schomburgkii* var. *robustior* Pilger.

36-3. ***Limnosipanea spruceana*** Hook. f. in Hooker's Icon. Pl. 11: 38, pl. 1050. 1868.

Syn.: *Limnosipanea kuntzei* Standl.; *Limnosipanea guaricensis* Pittier; *Limnosipanea ternifolia* Pittier.

37. MACHAONIA Bonpl. in Humb. & Bonpl., Pl. Aequin. 1: 101, pl. 29. 1816. Type: *M. acuminata* Bonpl.

Syn.: *Bunophila* Willd. ex Schult. & Schult. f. (1827); *Tertrea* DC. (1830).

Shrubs or small trees, with scandent lateral branches. Raphides absent. Thorns axillary straight, straight, stout, modified lateral branches, often with vestigial nodes, sometimes with reduced leaves, or compound, or dendroid, derived from modified lateral branches, with vestigial nodes, sometimes with reduced leaves, or absent. Stipules interpetiolar, free at base; broadly triangular; persistent. Leaves opposite, seemingly fasciculate by extreme reduction of the nodes on lateral short-shoots (brachyblasts), subsessile to short-petiolate; blades ovate, elliptic to very narrowly elliptic or obovate, chartaceous or papyraceous; domatia tufts of sparse hairs or absent. Inflorescence terminal, frondose or not, paniculate or cymose, densely or sparsely branched, few- to many flowered. Flowers 4-5-merous, bisexual, protandrous; hypanthium obconical or obovoid; calyx tube extremely reduced, rotate or cup-shaped, lobes small, elliptic, ligulate, oblong, ovate (pterophyllous, all calyx lobes expanding into a rotate pterophyll after anthesis in Central American species); corolla broadly infundibuliform, white, cream-white or yellowish-white, tube externally glabrous or puberulent, internally pubescent at mouth, without a pubescent ring, lobes imbricate, ovate or rounded, round at apex; stamens included, partially exserted or exserted just beyond the corolla, filaments attached at the upper part of the corolla tube, long, glabrous, anthers button-shaped or elliptic, round at base, round at apex, dorsifixed near the base; pollen 3-colporate; ovary 2-3-locular, placenta attached at top of septum, ovules pendulous, 1 per locule, style exserted just beyond the corolla or partially exserted, glabrous, style branches 2, ovate or elliptic. Fruits schizocarpic, narrowly turbinate, chartaceous or thinly

woody, breaking up into 2 indehiscent cocci; seeds 2, pendulous, narrowly oblong, cylindrical.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 356-357. 1972; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 424-429. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles to Bolivia and Brazil: ca. 25 species; in MT and MS 2 species.

37-1. *Machaonia acuminata* Bonpl. in Humb. & Bonpl., Pl. Aequin. 1: 101, tab. 29. 1806.

[probably synonymous with *Machaonia spinosa* Cham. & Schltdl.]

37-2. *Machaonia spinosa* Cham. & Schltdl., Linnaea 4: 2. 1829.

Syn.: *Cinchona brasiliensis* Hoffmanns. ex Humb.; *Machaonia spinosa* Cham. & Schltdl.

38. MALANEA Aubl., Hist. Pl. Guiane 1: 106, t. 49. 1775, *nom. cons*. Type: *M. sarmentosa* Aubl.

Woody vines to large lianas, or shrubs, or small trees with sarmentose lateral branches. Raphides absent. Stipules interpetiolar, free or connate at base, narrowly triangular, narrowly ovate, obovate, elliptic, ligulate, oblong or oblanceolate, subcaducous or readily caducous. Leaves opposite, subsessile to short-petiolate; blades broadly ovate to ovate, broadly elliptic to elliptic, papyraceous, subcoriaceous or subcoriaceous; domatia tufts of sparse hairs, pits or tuft-pits, or absent. Inflorescence axillary, paniculate or paniculate-spiciform and with short-fasciculate lateral branches, or cymose, commonly few-flowered. Flowers 4-5-merous, bisexual, protandrous; hypanthium ovoid or oblate; calyx campanulate, persistent, lobes ovate or broadly to narrowly triangular; corolla broadly infundibuliform, white, cream-white to yellowish-white, tube externally glabrous or sparsely pubescent, internally pubescent at distal portion, without a pubescent ring inside, lobes valvate or narrowly imbricate, narrowly ovate, lanceolate or oblong, margin entire, rounded or acute at apex; stamens partially exserted or exserted just beyond the corolla, filaments attached at the upper part of the corolla tube, long, glabrous, anthers elliptic or narrowly elliptic, round at base and at apex, dorsifixed near the base, ovary 2-locular, placenta attached at top of septum, ovules pendulous, 1 per locule, style exserted just beyond the corolla, filiform, glabrous, antrorse-puberulent or antrorse-pubescent, style branches 2, oblong. Fruits drupaceous, fleshy, oblong-ellipsoid, with 2 woody pyrenes; seeds pendulous, cylindrical, broadly to narrowly elliptic in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 12: 244-263. 1965; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 430-434. 2005.

Distribution: Ranging from Belize, throughout Central America, to Colombia, Bolivia, and Brazil: ca. 34 species; in MT and MS 1 species.

38-1. *Malanea macrophylla* Bartl. ex Griseb., Fl. Brit. W. Ind. 337. 1861.

Syn.: *Malanea bahiensis* Muell. Arg.; *Malanea macrophylla* Bartl. ex Griseb. var. *macrophylla* f. *bahiensis* (Muell. Arg.) Steyerm., **syn. nov.**; *Malanea macrophylla* Bartl. ex Griseb. var. *macrophylla* f. *cuneata* Steyerm., **syn. nov.**

39. MANETTIA Mutis ex L., *nom. cons*., Mant. 2: 553, 558. 1771. Type: *M. reclinata* L.

Syn.: *Lygistum* P. Browne (1756), *nom. rej*.; *Petesia* P. Browne (1759); *Nacibea* Aubl. (1775); *Guagnebina* Vell. ("1825" [1829], 1831); *Conotrichia* A. Rich. (1830); *Vanessa* Raf. ("1836" [1837]); *Endolasia* Turcz. (1848).

Climbing herbs or woody vines (erect subshrubs in central Brazil). Raphides present. Stipules interpetiolar, free at base, broadly triangular to deltoid, persistent. Leaves opposite, short- to long-petiolate; blades ovate, elliptic, oblong, lanceolate or almost linear, chartaceous or papyraceous; domatia tufts of sparse hairs, or absent. Inflorescence axillary, frondose or not, thyrsoid, dichasiate, fasciculate, rarely uniflorous. Flowers 4-8-merous, bisexual, protandrous; hypanthium oblate; calyx tube extremely reduced or cup-shaped, persistent, truncate or with small to foliose lobes narrowly triangular, lanceolate, ovate or linear; corolla tubular, urceolate, hypocrateriform or

narrowly infundibuliform, white, cream-white, yellow, pink, red, bluish-white to pale blue, or corolla tube red and lobes yellowish or greenish, tube externally glabrous, puberulent or pubescent, internally glabrous, puberulent, pubescent, without a pubescent ring, lobes valvate, deltoid, narrowly triangular or elliptic, margin entire, rounded or acute at apex; stamens partially exserted or exserted just beyond the corolla tube, filaments attached near the mouth of the corolla tube, long, glabrous, anthers narrowly elliptic or oblong, acute at base and at apex, dorsifixed near the middle or near the base; pollen 3-4-colporate, exine reticulate, or double reticulate; ovary 2-locular, placentation axile, placenta peltate to the entire length of the septum, ovules many per locule, style included or exserted just beyond the corolla, glabrous, style branches 2, oblong or ligulate. Fruits capsular, crustaceous or thinly woody, dehiscing septicidally from apex, the valves secondarily splitting at apex or not; seeds many, horizontal, membranaceous, broadly to narrowly elliptic in outline, wings extremely reduced, concentric, with entire margin.

Literature: Wernham, J. Bot. 57, Suppl.: 1-44. 1919; Chung, Phytologia 15: 272-288. 1967; Chung, Phytologia 17: 353-366. 1968; Macias, L. Estudos taxonômicos do gênero *Manettia* Mutis ex L. (Rubiaceae) no Brasil, Paraguai, Argentina e Uruguai, Doctoral Thesis, Univ. Est. Campinas, São Paulo. 1998; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 435-466. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, Brazil, and northern Argentina: ca. 120 species; in MT and MS 3 species.

39-1. *Manettia cordifolia* Mart., Königl. Akad. Wiss. Königl. Gen.-Conserv. Wiss. Saaml. München 9: 95, pl. 7. 1824.

Syn.: *Manettia ignita* var. *cordifolia* (Mart.) K. Schum.; *Manettia attenuata* Nees & Mart.; *Manettia cordifolia* var. *attenuata* (Nees & Mart.) Wernham; *Guagnebina ignita* Vell.; *Manettia glabra* Cham. & Schltdl.; *Manettia gracilis* Cham. & Schltdl.; *Manettia micans* Poepp.; *Manettia grandiflora* Miq.; *Manettia asperula* Benth.; *Manettia gracilis* var. *glabra* (Cham. & Schltdl.) Benth.; *Manettia leianthiflora* Griseb.; *Manettia ignita* (Vell.) K. Schum. var. *glabra* (Cham. & Schltdl.) K. Schum., var. *incana* K. Schum., var. *angustifolia* K. Schum., var. *micans* (Poepp.) K. Schum.; *Manettia burchellii* Wernham; *Manettia boliviana* Wernham; *Manettia cordifolia* var. *glabra* f. *boliviana* (Wernham) Chung; *Manettia cordifolia* var. *filiformis* Wernham; *Manettia stipulosa* Wernham; *Manettia paranensis* Standl.; *Manettia cordifolia* var. *paranensis* (Standl.) Chung.

39-2. *Manettia luteo-rubra* (Vell.) Benth., Linnaea 23: 445. 1850.

Syn.: *Guagnebina luteo-rubra* Vell.; *Manettia filicaulis* Wawra; *Manettia paraguariensis* Chodat; *Manettia quinquenervia* Sprague; *Manettia bradei* Standl.; *Manettia samuelssoniana* Standl.; *Manettia luteo-rubra* var. *paraguariensis* (Chodat) Chung.

39-3. *Manettia reclinata* L., Mant. 558. 1771.

Syn.: *Nacibea coccinea* Aubl.; *Manettia coccinea* (Aubl.) Willd.; *Nacibea reclinata* (L.) Poir.; *Manettia coccinea* (Aubl.) Willd.; *Manettia uniflora* Kunth; *Manettia havanensis* Kunth; *Manettia cuspidata* Bertero ex Spreng.; *Manettia panamensis* Duchass. & Walp.; *Manettia divaricata* Wernham; *Manettia sanctae-martae* Wernham; *Manettia spraguei* Wernham.

40. MITRACARPUS Zucc. in Schult. & Schult. f., Syst. Veg., Mant. 3: 210 (as "*Mitracarpum*"). 1827. Type: *M. scabrus* Zucc. in Schult. & Schult. f.

Syn.: *Staurospermum* Thonning in Schumach. (1827).

Erect, annual perennial herbs, or subshrubs to shrubs. Raphides present. Stipules sheathing and connate to the petioles, fimbriate, with 3-9 setae, each seta with an apical colleter, persistent. Leaves opposite or ternate, often seeming whorled by the presence of reduced axillary branches (brachyblasts) with fasciculate leaves, sessile, subsessile or short-petiolate; blades broadly to very narrowly elliptic, rhombic, oblong to narrowly oblong to linear, membranaceous, chartaceous, stiffly chartaceous or papyraceous; domatia tufts of sparse hairs, or absent. Inflorescence axillary or terminal, capitate, subtended by 2 or 4 leaf-

like bracts, (1-)few- to many-flowered. Flowers 4-merous, bisexual, protandrous; hypanthium globose or turbinate; calyx tube extremely reduced, persistent, lobes small, narrowly triangular or linear; corolla hypocrateriform, white to cream-white, tube externally glabrous or puberulent, internally glabrous or puberulent, with a pubescent ring at base, lobes valvate, ovate, margin entire, acute or short acuminate at apex; stamens included or partially exserted, filaments attached near the mouth of the corolla tube or at lobes sinuses, short, glabrous, anthers elliptic or narrowly elliptic, round at base and at apex, dorsifixed near the base; pollen 6-7-colporate, exine echinate-perforate; ovary 2-locular, placenta reduced, ovules centrally inserted, vertical, 1 per locule, style exserted just beyond the corolla or partially exserted, filiform, glabrous, style branches 2, ovate. Fruits capsular, crustaceous or thinly woody, dehiscing transversally, releasing the apical portion as one unit shaped as a mitre, the basal portion remaining attached to the peduncle; seeds vertical, dorsoventrally convex, ventrally sulcate with an X-like sulcus.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 777-784. 1972; Bacigalupo in Burkart, Fl. Il. Entre Rios 6(6): 27-30, figs. 11-12. 1974; Souza, E. B. de. Estudos taxonômicos dos gêneros *Staelia* Cham. & Schltdl. e *Mitracarpus* Zucc. ex Roem. & Schult. (Spermacoceae - Rubiaceae) no estado de Pernambuco - Brasil. Master Thesis, Fed. Rur. Univ. Pernambuco, Recife, PB, Brazil. 1997. 150 pp.; Souza, E. B. & M. F. Sales, Brittonia 53: 482-486. 2001; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 467-480. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, Brazil, Paraguay, and northern Argentina: ca. 40 species; in MT and MS 6 species.

40-1. *Mitracarpus eritrichoides* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 223. 1936.

40-2. *Mitracarpus hasslerianus* Chodat, Bull. Herb. Boiss., 2nd sér., 4: 191. 1904.

40-3. *Mitracarpus hirtus* (L.) DC., Prodr. 4: 572. 1830.

Syn.: *Spermacoce hirta* L.

40-4. *Mitracarpus lhotzkyanus* Cham., Linnaea 9: 219. 1834.

40-5. *Mitracarpus parvulus* K. Schum. in Mart., Fl. Bras. 6(6): 84. 1889.

40-6. *Mitracarpus villosus* (Sw.) Cham. & Schltdl., Linnaea 3: 363. 1828.

Syn.: *Spermacoce villosa* Sw.; "*Mitracarpus hirtus*" apud Standl., non *Mitracarpus hirtus* (L.) DC.; "*Mitracarpus hirtus* (L.) DC." *sensu* D. Adams in W. Burger & C.M. Taylor; "*Spermacoce hirta*" auctores, non L.; *Mitracarpus rude* Benth.; *Mitracarpus torresianum* Cham. & Schltdl.

41. MUSSAENDA L., Sp. Pl. 177. 1753. Type: *M. frondosa* L.

Syn.: *Belilla* Adans. (1763); *Landia* Commers. ex A. L. Juss. (1789), non *Landia* Downbey (1784, Krameriaceae); *Spallanzania* DC. (1830), non *Spallanzania* Pollini (1816, Rosaceae); *Asemanthia* Ridl. (1940), non *Asemnantha* Hook. f. (1873).

Shrubs, cultivated. Raphides absent. Stipules interpetiolar, free or connate at base, broadly to narrowly triangular, persistent. Leaves opposite, short- to long-petiolate; blades ovate, narrowly ovate, or broadly to narrowly elliptic or oblong, chartaceous or papyraceous; domatia tufts of sparse hairs or absent. Inflorescence terminal, cymose, sometimes with scorpioid secondary branches, few- to many flowered. Flowers 5-merous, bisexual, protandrous; hypanthium obovoid or globose; calyx tube extremely reduced, caducous, lobes small to large, narrowly triangular to linear; calycophylls 1-3 lobes per flower, present in the first flowers of inflorescence branchlets, or 5 lobes per flower present in most flowers in some cultivars, white cream-white, yellow, pale to deep pink, lilac, red, purple; corolla hypocrateriform or narrowly infundibuliform, white, cream-white, yellow or orange, tube externally pubescent, internally puberulent at distal portion or pubescent throughout, without a pubescent ring inside, lobes valvate, deltoid or ovate, margin entire, rounded or acute at apex; stamens included or partially exserted, filaments attached at base or at the upper part of the corolla tube, short or long, glabrous, anthers elongate, acute

at base and at apex, dorsifixed near the base; pollen 3-5-colporate, exine perforate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style included, glabrous, style branches 2, oblong or lanceolate. Fruits baccate and somewhat fleshy or capsular, thinly woody and dehiscing loculicidally from apex; seeds horizontal, minute, 3-5-angular, dorsoventrally compressed.

Literature: Hieronimus in Oliver, Fl. Trop. Africa 3: 65. 1877; K. Petit, Bull. Jard. Bot. État 25: 149. 1955; F. Hallé, Adansonia sér. 2, 1: 266. 1961; Verdcourt in Polhill, Fl. Trop. East Afr., Rubiaceae, Part 2: 460-467. 1976; W. Burger & C. M. Taylor in W. Burger, Fl. Costar., Fieldiana, Bot. n. s. 33: 194-195. 1993; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 481-485. 2005.

Distribution: Endemic to the Paleotropics, with ca. 150 species; several species are cultivated in the Neotropics for their ornamental value, 4 of them are know to be commonly cultivated in MT and MS.

41-1. *Mussaenda erythrophylla* Schumach. & Thonn., Beskr. Guin. Pl. 116. 1827. [cultivated]

41-2. *Mussaenda luteola* Delile, Cent. Pl. Afr. Voy. Méroé 65. 1826. [cultivated]

41-3. *Mussaenda parviflora* Miq., Ann. Mus. Bot. Lugd. Bat. 3: 110. 1867. [cultivated]

41-4. *Mussaenda philippica* A. Rich., Mem. Fam. Rubiac. 165. 1830. (reimpr. Mem. Soc. Hist. Nat. Paris 5: 245. 1834). [cultivated]

42. NOTOPLEURA (Benth.) Bremek., Recueil Trav. Bot. Néerl. 31: 289. 1934. Lectotype: *N. marginata* (Benth.) Bullock (cf. Bullock, 1958; *Coffea marginata* Benth.).

Syn.: *Psychotria* sect. *Notopleura* Benth. in Oersted (1852); *Montamans* Dwyer (1980).

Terrestrial or rarely epiphytic, herbs, subshrubs or shrubs. Raphides present. Stipules interpetiolar, connate at base to sheathing, often connate to the petioles, truncate or bifid, with interpetiolar appendages, these conical, linear, shortly bifid, bilobed, fimbriate at the apex, with glandular apical projections or laminar and erose or laciniate, persistent, subcaducous or readily caducous. Leaves opposite, short- to long-petiolate; blades broadly to narrowly ovate, broadly elliptic to elliptic, broadly to narrowly obovate, oblong to narrowly oblong, oblanceolate or lanceolate, chartaceous, papyraceous or subcoriaceous, rarely subsucculent in epiphytic species; domatia absent. Inflorescence pseudoaxillary (produced in terminal position with stem growing from an axillary bud, resulting in an inflorescence of one axis at each node) or seemingly terminal, paniculate, sparsely or densely branched, or capitate, sometimes subtended by bracts. Flowers 4-5(-6)-merous, bisexual, protandrous; hypanthium ovoid, oblate or turbinate; calyx tube extremely reduced or cup-shaped, persistent, lobes small, broadly to narrowly triangular; corolla tubular or narrowly infundibuliform, white, cream-white, yellow, yellowish-orange or orange, tube externally glabrous or pubescent, internally glabrous or pubescent at basal, medial or distal portion, lobes valvate, deltoid to narrowly triangular, margin entire or short-acuminate at apex, sometimes with pronounced appendages; stamens included, partially exserted or exserted just beyond the corolla, filaments attached to the middle or upper part of the corolla tube, short or long, glabrous, anthers narrowly elliptic, oblong or narrowly oblong, round at base and at apex, dorsifixed near the middle or near the base; ovary 2-5(-6)-locular, placenta reduced, ovules basally inserted, 1 per locule, style included, partially or fully exserted, glabrous, style branches 2-5(-6), linear. Fruits drupaceous, fleshy or spongy, with 2 woody pyrenes; pyrenes ascending, dorsoventrally convex, ventrally sulcate, with two small germination slits near the base on the ventral side.

Literature: Hooker, J.D. in G. Bentham & J.D. Hooker, Gen. Pl. 2: 124. 1873.; Taylor, C.M., Ann. Missouri Bot. Gard. 88: 478-515. 2001.

Distribution: Ranging from Mexico, Central America, Greater and Lesser Antilles, Colombia, Bolivia to northern Brazil: ca. 62 species; 1 species in Amazonian MT.

42-1. *Notopleura tapajozensis* (Standl.) Bremek., Rec. Trav. Bot. Néerl. 31: 290. 1934.

Syn.: *Psychotria tapajozensis* Standl.

43. OLDENLANDIA L., Sp. Pl. 119. 1753. Lectotype: *O. corymbosa* L. (cf. Hitchcock & Green, 1929).

Syn.: *Listeria* Necker ex Raf. (1820), non *Listera* R. Br., *nom. cons.* (1813), nec *Listeria* Spreng. (1817); *Gonotheca* Blume in DC. (1830), non *Gonotheca* Raf. (1818, Asteraceae); *Edrastima* Raf. (1834); *Karamyschewia* F.E. Fischer & C.A. Mey. in R. F. Hohenacker (1838); *Theyodis* A. Rich. (1848); *Mitratheca* K. Schum. (1903); *Eionitis* Bremek. (1952).

Erect, trailing or decumbent, annual or perennial, delicate herbs. Raphides present. Stipules short-sheathing, connate to the petioles, with 2-5 setae, persistent. Leaves opposite, sessile to subsessile; blades elliptic to very narrowly elliptic to linear, membranaceous to chartaceous; domatia absent. Inflorescence terminal and/or axillary, paniculate or cymose or fasciculate, sparsely branched, 1- to 5-flowered. Flowers 4-merous, bisexual, protandrous; hypanthium globose; calyx tube extremely reduced, persistent, lobes minute, narrowly triangular; corolla infundibuliform or campanulate, white, cream-white, pinkish- or bluish-white, tube externally glabrous, internally glabrous or pubescent at basal portion, lobes valvate, ovate or narrowly triangular, margin entire, acute at apex; stamens included, partially exserted or exserted just beyond the corolla, filaments attached near the mouth of the corolla or at lobes sinuses, glabrous, anthers button-shaped or elliptic, round at base and at apex, dorsifixed near the base; pollen 3-colporate, exine reticulate or finely reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules few to many per locule, style partially exserted or exserted just beyond the corolla, filiform, glabrous, style branches 2, ovate or elliptic. Capsules chartaceous to crustaceous, multicostate, topped by the persistent calyx teeth, dehiscing loculicidally from apex; seeds several, minute, horizontal, globose, ellipsoid or 3-5-angular, finely reticulate.

Literature: K. Schum. in Mart., Fl. Bras. 6(6): 268-274. 1889; Verdcourt in Polhill, Fl. Trop. East Africa, Rubiaceae, Part I: 268-315. 1976; Steyermark, J.A., Ann. Missouri Bot. Gard. 75: 736-738. 1988; Terrell, Phytologia 68: 125-133. 1990; Terrell & Lewis, Phytologia 71: 221-243. 1991; Burger & Taylor, Fieldiana, Bot. n. s. 33: 196-198. 1993; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 486-501. 2005.

Distribution: The definition of this genus is in a state of flux; as defined by Verdcourt (1976), is a pantropical genus; in the New World ranging from southern North America to Chile and Argentina, with ca. 15 species; in MT and MS 3 species.

43-1. *Oldenlandia corymbosa* L., Sp. Pl. 119. 1753.

Syn.: *Hedyotis corymbosa* (L.) Lam.

43-2. *Oldenlandia lancifolia* (Schumach.) DC., Prodr. 4: 425. 1830.

Syn.: *Hedyotis lancifolia* Schumach.; *Oldenlandia herbacea* sensu Bremek.

43-3. *Oldenlandia salzmannii* (DC.) Hook. f., in Benth. & Hook. f., Gen. Pl. 2: 58. 1873.

Syn.: *Anotis salzmannii* DC.; *Hedyotis salzmannii* (DC.) Steud.; *Hedyotis thesiifolia* A. St. Hil.; *Oldenlandia thesiifolia* (A. St. Hil.) K. Schum.

44. PAGAMEA Aubl., Hist. Pl. Guiane 1: 112. 1775. Type: *P. guianensis* Aubl.

Shrubs or small to medium-sized trees. Raphides absent. Stipules long-sheathing, truncate rings or long-tubular, fimbriate at margin, persistent, sometimes remaining on stem as a series of triangular units on either sides of the nodes. Leaves opposite, short- to long-petiolate; blades elliptic to very narrowly elliptic, narrowly obovate, obovate, oblong to narrowly oblong, chartaceous to coriaceous; domatia tufts of sparse or dense hairs or absent. Inflorescence axillary, paniculate or paniculate-spiciform and with lateral branches fasciculate or terminating in globose few- to many-flowered heads, cymose, spicate, thyrsoid, capitate, or fasciculate. Flowers 4-5(-6)-merous, bisexual, protandrous; hypanthium globose; calyx cup-shaped truncate, with undulate margin or with small lobes, persistent, lobes, when present, broadly ovate to ovate

or broadly triangular, oblong or ovate; corolla rotate, subrotate, tubular or narrowly campanulate, white, cream-white or greenish-white, tube externally glabrous, minutely puberulent, puberulent, pubescent or strigose, internally pubescent at distal portion or at orifice, lobes valvate, narrowly ovate, oblong-ovate, ligulate, oblong or narrowly oblong, margin entire, rounded or short acuminate at apex; stamens partially exserted or exserted just beyond the corolla, filaments attached near the mouth of the corolla, short or long, glabrous, anthers elliptic, narrowly elliptic or oblong, round at base and at apex, dorsifixed near the base; ovary superior, 2-locular, placenta reduced, ovules basally inserted, 1 per locule, style partially exserted or exserted just beyond the corolla, filiform, glabrous, style branches 2, elliptic or oblong. Fruits drupaceous, fleshy, with 2 woody pyrenes positioned above the calyx line; seeds ascending, dorsoventrally convex, ventrally sulcate.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 12: 270-285. 1965; Steyermark, J.A. in T. Lasser & J.A. Steyermark, Fl. Venezuela 9(2): 967-1007. 1974; Vicentini, A. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 666-678. 2004.

Distribution: Ranging from Colombia to Bolivia and Brazil: ca. 25 species; in MT and MS 2 species.

44-1. *Pagamea coriacea* Spruce ex Benth., J. Linn. Soc. (London) 1: 110. 1857; emend. Prog. in Mart., Fl. Bras. 6(1): 287. 1868.

Syn.: *Pagamea coriacea* Spruce ex Benth. var. *acuta* Steyerm.; *Pagamea coriacea* var. *pubescens* Steyerm.

44-2. *Pagamea guianensis* Aubl., Hist. Pl. Guiane 1: 113, tab. 44. 1775.

45. PALICOUREA Aubl., Hist. Pl. Guiane 1: 172. 1775. Type: *P. guianensis* Aubl.

Syn.: *Stephanium* Schreber (1789); non *Stephanium* A. L. de Juss. (1789), *nom. superfl*. (Capparaceae); *Colladonia* Spreng. ("1825" [1824]), non *Colladonia* DC. (1830, Apiaceae); *Rhodostoma* Scheidw. (1842); *Psychotria* sect. *Palicourea* (Aubl.) Muell. Arg. (1881).

Subshrubs to shrubs, sometimes rheophytic, or small to medium-sized trees. Raphides present. Stipules sheathing at base, bifid, with two short to long narrowly triangular lobes each side, persistent, subcaducous or readily caducous. Leaves opposite or whorled, 3-5 per node, sessile or subsessile to long-petiolate; blades cordate, broadly to narrowly ovate, broadly to narrowly elliptic, or obovate, broadly to narrowly obovate, oblong to narrowly oblong, spatulate, oblanceolate, lanceolate, chartaceous, papyraceous, subcoriaceous to thickly coriaceous; domatia tufts of sparse or dense hairs or absent. Inflorescence terminal, paniculate, spicate, corymbose or thyrsoid, racemose, frondose or not, densely or sparsely branched, few- to many-flowered. Flowers 4-5-merous, bisexual, protandrous; hypanthium ovoid, obovoid or globose; calyx tube extremely reduced, persistent, lobes small or large, sometimes foliose, ovate, deltoid, narrowly triangular or lanceolate; corolla tubular, often curved, asymmetrically expanded, gibbous at base, yellow, yellowish-white, orange, pink, red, blue, violet to purple (rarely white to cream-white), tube externally glabrous, minutely puberulent, puberulent, minutely pubescent, pubescent, tomentose, hirsute, strigose or villous, internally glabrous and with a pubescent ring at base inside, lobes valvate, ovate, deltoid to narrowly triangular, margin entire, acute or short acuminate at apex; stamens included, partially exserted or exserted just beyond the corolla, filaments attached to the middle or upper part of the corolla tube, short or long, glabrous, anthers elliptic, narrowly elliptic, lanceolate or oblong, round, acute or with pointed extension at base, round or acute at apex, dorsifixed near the base; ovary 2-5(-6)-locular, placenta reduced, ovules basally inserted, 1 per locule, style included, exserted just beyond or well beyond the corolla, glabrous, style branches 2, ovate, elliptic or oblong. Fruit drupaceous, with woody pyrenes; fleshy; seeds ascending, dorsoventrally convex, ventrally sulcate, or hemi-elliptical in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 717-777. 1972; Steyerm. in Lasser & Steyerm., Fl. Venezuela 9(3): 1683-1830. 1974; C. M. Taylor, Ann. Missouri Bot. Gard. 84: 224-262. 1997;

Taylor, C.M. in G. Harling & L. Andersson, Fl. Ecuador 62: 134-235. 1999; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 680-695. 2004; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 502-512. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 280 species; in MT and MS 18 species.

45-1. *Palicourea bracteosa* Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 222. 1930.

Syn.: *Psychotria edaphotrix* Steyerm.

45-2. *Palicourea coriacea* (Cham.) K. Schum. in Engl. & Prantl, Nat. Pflanzenfam. 4(4): 115. 1891.

Syn.: *Patabea coriacea* Cham., non *Psychotria coriacea* Poir. ex Spreng.[=*Chione exserta* (DC.) Urb.]; *Psychotria xanthophylla* Muell. Arg.

45-3. *Palicourea corymbifera* (Muell. Arg.) Standl., Publ. Field Columbian Mus., Bot. Ser. 7: 127. 1930.

Syn.: *Psychotria corymbifera* Muell. Arg.; *Psychotria verrucosa* Muell. Arg.; *Palicourea expetens* Standl.

45-4. *Palicourea crocea* (Sw.) Roem. & Schult., Syst. Veg. 5: 193. 1819.

Syn.: *Psychotria crocea* Sw.; *Psychotria subcrocea* Muell. Arg.; *Psychotria cujabensis* Schltdl.

45-5. *Palicourea grandiflora* (Kunth) Standl., Publ. Field Columbian Mus., Bot. Ser. 7: 466. 1931.

Syn.: *Nonatelia grandiflora* Kunth.

45-6. *Palicourea grandifolia* (Willd. ex Roem. & Schult.) Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 226. 1936.

Syn.: *Psychotria grandifolia* Willd. ex Roem. & Schult.; *Nonatelia macrophylla* Kunth; *Psychotria amazonica* Muell. Arg.; *Psychotria sprucei* Muell. Arg.; *Palicourea sprucei* (Muell. Arg.) K. Schum.; *Palicourea grandifolia* var. *sprucei* (Muell. Arg.) Steyerm.

45-7. *Palicourea guianensis* Aubl., Hist. Pl. Guiane 1: 173. 1775.

Syn.: *Psychotria guianensis* Raeusch.; *Psychotria guianensis* (Aubl.) Rusby, nom. superfl.; *Palicorea guianensis* Aubl. var. *tetramera* Bremek.; *Palicorea guianensis* Aubl. var. *trimera* Bremek.; *Palicourea guianensis* Aubl. subsp. *occidentalis* Steyerm.

45-8. *Palicourea lagesii* K. Schum. & K. Krause, Verh. Bot. Vereins Prov. Brandenburg 1: 110. "1908" [1909].

45-9. *Palicourea lanata* (Muell. Arg.) Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 381. 1931.

Syn.: *Psychotria lanata* Muell. Arg.

45-10. *Palicourea macrobotrys* (Ruiz & Pav.) Roem. & Schult., Syst. Veg. 5: 194. 1819.

Syn.: *Psychotria macrobotrys* Ruiz & Pav.; *Palicourea nicotianaefolia* Cham. & Schltdl.; *Psychotria mansoana* Muell. Arg.; *Palicourea lasioneura* K. Krause; *Palicourea williamsii* Rusby.

45-11. *Palicourea marcgravii* A. St. Hil., Pl. Rem., Brés. 231, tab. 22. 1824.

Syn.: *Psychotria marcgravii* Spreng., nom.; *Palicourea noxia* Mart.; *Palicourea hebeantha* DC.

45-12. *Palicourea nitidella* (Muell. Arg.) Standl., Publ. Field Columbian Mus., Bot. Ser. 7: 142. 1930.

Syn.: *Psychotria nitidella* Muell. Arg.

45-13. *Palicourea ovalifolia* (Rusby) Standl., Publ. Field Columbian Mus., Bot. Ser. 7: 323. 1931.

Syn.: *Psychotria ovalifolia* Rusby

45-14. *Palicourea paraensis* (Muell. Arg.) Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 226. 1936. Syn.: *Psychotria paraensis* Muell. Arg.

45-15. *Palicourea radians* (Muell. Arg.) Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 219. 1930.

Syn.: *Psychotria radians* Muell. Arg.

45-16. *Palicourea rigida* Kunth in Humb. & Bonpl., Nov. Gen. Sp. 3: 370. 1819.

Syn.: *Psychotria rigida* Bredem. ex Roem. & Schult.; *Palicourea diuretica* Mart.; *Psychotria byrsophylla* Spreng.; *Psychotria sonans* Mart.; *Palicourea rigida* ssp. *hirtibacca* Steyerm.

45-17. *Palicourea subspicata* J. Hub., Bol. Mus. Paraense Hist. Nat. 4: 613. 1906.

45-18. *Palicourea triphylla* DC., Prodr. 4: 526. 1830.

Syn.: *Psychotria triphylla* (DC.) Muell. Arg.

46. PENTAS Benth., Hooker's Bot. Mag. 70: pl. 4086. 1844. Type: *P. carnea* Benth.

Syn.: *Neurocarpacea* R. Br., in Salt (1814); *Orthostemma* Wall. ex Voigt (1845); *Vignaldia* A. Rich. (1847); *Vignudia* Schweinf. (1867).

Erect herbs or small shrubs, cultivated. Raphides present. Stipules interpetiolar, sheathing at base, connate to the petioles, fimbriate, with 2-12 setae, each seta with an apical colleter, persistent. Leaves opposite or whorled, 3-5 per node, subsessile or short- to long-petiolate; blades narrowly ovate, elliptic or lanceolate, chartaceous or papyraceous; domatia absent. Inflorescence terminal, frondose, cymose, many-flowered. Flowers bisexual; protandrous; hypanthium obovoid; calyx tube extremely reduced, with small lobes; persistent; lobes 5, narrowly triangular; corolla hypocrateriform or narrowly infundibuliform, white to cream-white, pink, red, violet or purple; tube externally glabrous or pubescent; internally pubescent throughout, without a pubescent ring inside; lobes 5, valvate, or narrowly imbricate, ovate, lanceolate, or oblong, margin entire, acute at apex. Stamens included or partially exserted; anthers elongate, round at base, subsessile. Pollen 3-4-colporate, exine finely reticulate or perforate. Style exserted well beyond the corolla; terete throughout, not fleshy; glabrous; lobes 2; linear. Ovary 2-3-locular, placentation axile; ovules many per locule. Fruit a septicidal capsule, dehiscing basipetally, the valves secondarily splitting at apex, chartaceous. Seeds horizontal, 3-5-angular.

Literature: Verdcourt in Polhill, Fl. Trop. East Afr., Rubiaceae, Part 1: 183-213. 1976; Burger, W. & C. M. Taylor in W. Burger, Fl. Costar., Fieldiana, Bot. n. s. 33: 216-217. 1993; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 513-517. 2005.

Distribution: Endemic to Africa, Madagascar and islands of the Indian Ocean, with ca. 40 species; in the Neotropics 1 species is cultivated as ornamental.

46-1. *Pentas lanceolata* (Forssk.) Deflers, Voy. Yemen, 142. 1889. [cultivated]

Syn.: *Ophiorrhiza lanceolata* Forssk.; *Manettia lanceolata* (Forssk.) Vahl.; *Neurocarpaea lanceolata* (Forssk.) R. Br.; *Pseudomussaenda lanceolata* (Forssk.) Wernham; *Vignadia quartiniana* A. Rich.; *Pentas quartiniana* (A. Rich.) Oliv.; *Pentas verrucosa* Chiov.; *Pentas carnea* sensu auctores, non *Pentas carnea* Benth. *sensu stricto* (cf. Verdcourt, 1951, 1976).

47. PENTODON Hochstetter, Flora 27: 551. 1844. Type: *P. decumbens* Hochstetter

Erect or decumbent, aquatic or semi-aquatic, annual herbs; raphides present. Stipules interpetiolar, connate to the petioles or sheathing, low ridge, truncate or sheath broadly ovate to broadly triangular, centrally mucronate (sometimes 2- or 3-mucronate), fimbriate, topped by 1, 3 or 6-9 setae, persistent, withering on the stem (no abscission layer is formed). Leaves opposite, subsessile or short-petiolate; blades ovate, elliptic, obovate or lanceolate, membranaceous or chartaceous; domatia absent. Inflorescence axillary or terminal, paniculate or cymose, pauciflorous or uniflorous. Flowers bisexual, protandrous. Calyx tube extremely reduced, with small lobes, persistent; lobes 5, deltoid, narrowly triangular or lanceolate. Corolla narrowly infundibuliform, actinomorphic, white, cream-white, pinkish-white, bluish-white to pale blue; tube externally glabrous, internally glabrous or pubescent, sometimes with a pubescent ring at orifice inside; lobes 5, valvate, narrowly triangular or narrowly ovate, acute at apex. Stamens included or partially exserted (only tips exserted); anthers narrowly elliptic, round at base and at apex, dorsifixed near the base; filaments attached at the middle, upper part or near the mouth of the corolla tube, short, glabrous. Pollen 3-colporate, exine reticulate. Style partially exserted (only tips of branches exserted) or included, glabrous; lobes 2, linear. Ovary 2-locular, obovoid, placentation axile; ovules many per locule. Fruit a loculicidal capsule, dehiscing only at apex, chartaceous to crustaceous. Seeds horizontal, minute, 3-5-angular.

Literature: Bremekamp, C.E.B., Verh. Kon. Ned. Akad. Wet., Afd. Nat., ser. 2, 48(2):

175-176. 1952 (as "*Pentodon pentander*"); Rogers, G.K., J. Arnold Arb. 68: 137-183. 1987; Burger, W. & C.M. Taylor in W. Burger, Fl. Costaric., Fieldiana, Bot. n. s. 33: 217. 1993.

Distribution: According to Rogers (1987), a genus of 2 species distributed in the New World, Africa, Arabian Peninsula, Madagascar, Seychelles and the Cape Verde Islands. In tropical and subtropical America only 1 species is present.

47-1. *Pentodon pentandrus* (Schumach. & Thonn.) Vatke, Oesterr. Bot. Zeitschr. 25: 231. 1875.

Syn.: *Hedyotis pentandra* Schumach. & Thonn.; *Oldenlandia pentandra* (Schumach. & Thonn.) DC.; *Hedyotis halei* Torr. & Gray; *Pentodon halei* (Torr. & Gray) A. Gray; *Oldenlandia halei* (Torr. & Gray) Chapm.; *Oldenlandia macrophylla* DC.; non *Diodia macrophylla* K. Schum.

48. PERAMA Aubl., Hist. Pl. Guiane 1: 54. 1775. Type: *P. hirsuta* Aubl.

Syn.: *Buchia* Kunth (1817); *Mattuschkaea* Schreb., *Mattuschea* Batsch (orth. var.), *Mattuschkea* Kunth (orth. var.), *Mattuskea* Raf. (orth. var.), non *Mattuschkia* Gmel. (1791, Saururaceae).

Erect or sprawling, annual herbs. Raphides present. Stipules interpetiolar, free at base, reduced to a line between the petioles, persistent. Leaves in basal rosettes or cauline, opposite or 3-4 per node, sessile or subsessile; blades ovate to narrowly ovate, elliptic to very narrowly elliptic, oblong, lanceolate or linear, membranaceous, chartaceous or papyraceous; domatia absent. Inflorescence axillary or terminal, frondose or not, spicate, or simple or compound dichasia, terminating in spicate, globose to oblong heads or rarely in few-flowered cymules. Flowers 3-5-merous, bisexual, protandrous; hypanthium ovoid; calyx tube extremely reduced, persistent, lobes minute, narrowly triangular, lanceolate, subulate or linear; corolla hypocrateriform and with a constriction below stamens attachments or narrowly infundibuliform, white, cream-white, bluish-white, yellowish-white, yellow, pale blue, pink or pale violet, tube externally glabrous, puberulent, strigose or villous, internally glabrous or pubescent at mouth, lobes valvate, deltoid, or narrowly triangular, or ovate, or suborbicular; margin entire; acute at apex; stamens included or partially exserted; filaments attached at the middle or upper part of the corolla tube, short, glabrous, anthers narrowly elliptic, round and lanate to barbate at base, dorsifixed near the base; ovary 2-4-locular, placenta reduced, ovules apically inserted, pendulous, 1 per locule, style exserted just beyond the corolla, filiform, glabrous, style branches 2, ovate or elliptic. Fruit capsular, circumcissile, dehiscing transversally, releasing the apical portion (operculum) as one unit, the basal portion remaining attached to the peduncle; crustaceous; seeds ascending. ovoid to obovoid.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 10: 232-250. 1963; Steyermark, J.A. & J. H. Kirkbride, Brittonia 29: 191-198. 1977. Robbrecht, E., Opera Bot. Belg. 6: 26. "1993" [1994]; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 695-698. 2004.

Distribution: Ranging from Colombia to Peru and Brazil; ca. 13 species; in MT and MS 2 species.

48-1. *Perama dichotoma* Poepp. & Endl., Nov. Gen. Sp. Pl. 3: 29, fig. 235. "1841" [1845].

Syn.: *Perama scaposa* Gleason & Standl.; *Perama dichotoma* Poepp. & Endl. var. *scaposa* (Gleason & Standl.) Steyerm., var. *hirsutula* (Gleason & Standl.) Steyerm.

48-2. *Perama hirsuta* Aubl., Hist. Pl. Guiane 1: 54, t. 18. 1775.

Syn.: *Mattuschkaea hirsuta* (Aubl.) Vahl.; *Mattuschkaea hispida* Kunth; *Perama setulosa* Miq.; *Perama ericoides* Poepp. & Endl.; *Mattuschkaea incana* Spreng.; *Perama stricta* Benth.; *Perama hirsuta* Aubl. var. *stricta* (Benth.) Bremek.

49. POGONOPUS Klotzsch, Monatsber. Koenigl. Preuss. Acad. Wiss. Berlin 1853: 500. 1853. Type: *P. ottonis* Klotzch [= *P. speciosus* (Jacq.) K. Schum. var. *speciosus*].

Syn.: *Carmenocania* Wernh. (1912); *Chrysoxylon* Wedd. (1849), *nom. superfl.*, non *Chrysoxylon* Casar. (1843; Mimosaceae); *Howardia*

Wedd. (1841), non *Howardia* Klotzsch (1960), *nom. superfl*. (Aristolochiaceae)

Shrubs or small to medium-sized trees; raphides absent. Stipules interpetiolar, free at base; deltoid or broadly triangular; persistent. Leaves opposite; long or short-petiolate; blades elliptic or obovate; chartaceous or thinly coriaceous; domatia hairy-pockets, tuft-pits or absent. Inflorescence terminal, frondose paniculate, densely or paniculate sparsely branched. Flowers bisexual, protandrous. Calyx extremely reduced; caducous, lobes 4 or 5; deltoid or triangular. Calycophylls semaphyllous, 1 lobe per flower (rarely 2–3 lobes per flower), present in the first flowers of inflorescence branchlets; pale pink, deep pink, red or purple. Corolla tubular; actinomorphic; pink, red, violet to purple; tube glabrous throughout with a pubescent ring at base inside; lobes 4 or 5, valvate, deltoid or ovate, acute at apex. Stamens exserted well beyond the corolla; anthers elliptic or oblong, round or acute at base, round or acute at apex; dorsifixed near the middle; filaments attached to base of the corolla tube, with a tuft of hairs at base. Pollen 3-colporate, exine reticulate. Style exserted well beyond the corolla, filiform, glabrous; lobes 2, ovate or oblong. Ovary 2-locular, ovoid or turbinate, ovules many per locule. Fruit a loculicidal capsule, dehiscing basipetally, thinly woody. Seeds horizontal, minute, 3-5-angular.

Literature: Delprete, P.G., Fl. Neotr. Monogr. 77: 1-226. 1999.

Distribution: Ranging from Central America to tropical South America, with amphitropic distribution 3 species; in MT and MS 1 species.

49-1. *Pogonopus tubulosus* (A. Rich. in DC.) K. Schum. in Mart., Fl. Bras. 6(6): 265. 1889.

Syn.: *Macrocnemum tubulosum* A. Rich. in DC.; *Chrysoxylon tubulosus* (A. Rich. in DC.) Kuntze; *Calycophyllum tubulosum* (A. Rich. in DC.) DC.; *Howardia richardi* Wedd., *nom. superfl.*; *Pogonopus febrifugus* (Wedd.) Hook. f.; *Howardia febrifuga* Wedd.; *Chrysoxylon febrifugum* Wedd., *nom. inval.*; *Pogonopus febrifugus* Hook. f. var. *macrosema* Hutch.

50. POSOQUERIA Aubl., Hist. Pl. Guiane 1: 133. 1775. Type: *P. longiflora* Aubl.

Syn.: *Cyrtanthus* Schreb. (1789); *Solena* Willd. (1798), *nom. superfl.*, non *Solena* Loureiro (1790, Cucurbitaceae); *Stannia* H. Karst. (1848); *Martha* F. Muell. (1866).

Shrubs or small to tall canopy trees. Raphides absent. Stipules interpetiolar, free at base, ovate, narrowly triangular, oblong, ligulate to lanceolate, readily caducous. Leaves opposite, subsessile or short- to long-petiolate; blades ovate, elliptic to narrowly elliptic, obovate to narrowly obovate or oblong, papyraceous, subcoriaceous, coriaceous or thickly coriaceous; domatia absent. Inflorescence terminal, cymose or corymbose, few- to many-flowered. Flowers 5-merous, bisexual, protandrous; hypanthium obconical or obovoid; calyx cup-shaped, persistent, lobes small, rounded, ovate, broadly to narrowly triangular to lanceolate; corolla hypocrateriform, zygomorphic, flower bud laterally bent at apex (corolla lobes), white to cream-white, tube long and narrow, externally glabrous, internally glabrous or papillose, without a pubescent ring, lobes imbricate or left-contorted, ovate, oblong-ovate, oblong to lanceolate, margin entire, obtuse or rounded at apex; stamens exserted just beyond the corolla, filaments attached near the mouth of the corolla tube, long, unequal, glabrous, or puberulent or pubescent at basal portion (glabrous above), anthers fused in two couples and one left single (presenting the pollen in a globose mass), oblong or narrowly oblong, round or acute at base, acute or acuminate at apex, dorsifixed near the base; pollen 3-colporate, 3-pororate or 3-aperturate, exine reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted just beyond the corolla tube, papillate-verrucose or puberulent at basal portion and glabrous above, style branches 2, oblong. Fruit baccate, leathery, ovoid, large; seeds horizontal, perlaceous, dorsoventrally compressed, ovate, obovate or rounded in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 17: 322-333. 1967; Macias, L. Revisão taxonômica do gênero *Posoqueria* (Rubiaceae). Master Thesis, Univ. Est. Campinas, SP, Brazil. 1988; Tay-

lor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 702-705. 2004.

Distribution: Ranging from Mexico, throughout Central America, to Colombia, Bolivia, and Brazil: ca. 13 species; in MT and MS 1 species.

50-1. *Posoqueria latifolia* (Rudge) Roem. & Schult., Syst. Pl. 5: 227. 1819.

Syn.: *Solena latifolia* Rudge; *Posoqueria trifida* Poepp.; *Tocoyena longifolia* Kunth.

51. PSYCHOTRIA L., Syst. ed. 10, 929. 1759, *nomen conserv*. Type: *P. asiatica* L.

Syn.: *Psychothria* L., *orth. var*.; *Psychotrophum* P. Browne (1756), *nom. rej*.; *Myristiphyllum* P. Browne (1756); *Mapouria* Aubl. (1775); *Nonatelia* Aubl. (1775); *Tapogomea* Aubl. (1775); *Grumilea* Gaertn. (1788); *Cephaelis* Sw. (1788); *Suteria* DC. (1830); *Uragoga* Baill. (1879); *Chytropsia* Bremek. (1934); *Gamotopea* Bremek. (1934); *Naletonia* Bremek. (1934); *Petagomea* Bremek. (1934).

Erect, trailing or decumbent, annual or perennial herbs (rarely epiphytic herbs or shrubs), or subshrubs to shrubs (sometimes rheophytic), or small to tall canopy trees. Raphides present. Stipules interpetiolar, free or connate at base, often connate to the petioles, truncate, broadly to narrowly triangular, ovate, obovate, oblong, lanceolate, ligulate, oblong, or sheathing at base and bifid, with two small to narrowly-triangular lobes on each side, persistent, subcaducous or readily caducous. Leaves opposite or whorled, 3-4 per node; sessile , subsessile or short- to long-petiolate; blades cordate, broadly to narrowly ovate, broadly to very narrowly elliptic, broadly to narrowly ovate, rhombic, oblong to narrowly oblong, spatulate, pandurate, oblanceolate, lanceolate, membranaceous, chartaceous, papyraceous, subcoriaceous or thickly coriaceous, rarely succulent in epiphytic species; domatia tufts dense hairs, hairy-pockets, pockets, or absent. Inflorescence axillary or terminal, frondose or not, paniculate, densely or sparsely branched, with branches terminating in globose few- to many-flowered heads or in many-flowered umbels, racemose, spicate, cymose, corymbose, thyrsoid, long-thyrsoid with corymbose lateral branches, simple or compound dichasia terminating in spicate, globose to oblong heads or rarely in pauciflorous cymules, condensed dichasia 3-10-flowered subtended by bracts, capitate and subtended or not by bracts, fasciculate and subtended by leaf-like bracts or uniflorous. Flowers 4-5(-6)-merous, bisexual, protandrous; hypanthium ovoid, obovoid or turbinate; calyx tube extremely reduced, cup-shaped or short- to long tubular, truncate, persistent or caducous, lobes, when present, minute to large, broadly ovate, ovate, broadly to narrowly triangular, lanceolate or narrowly-lanceolate; corolla campanulate, narrowly campanulate, tubular, hypocrateriform, narrowly to broadly infundibuliform or rarely subrotate, white, cream-white, pinkish-white, reddish-white, yellow, or yellowish-white, pink, bluish-white, pale to deep blue, tube externally glabrous, puberulent, pubescent or tomentose, internally glabrous or puberulent or pubescent St. medial or distal portion, without a pubescent ring, lobes valvate, ovate to narrowly ovate, broadly to narrowly triangular, elliptic, oblong, oblong-ovate, narrowly oblong lanceolate, linear-lanceolate, margin entire, ovate, acute, short-acuminate or with a romboidal or triangular internal appendix at apex; stamens included, partially exserted or exserted just beyond or well beyond the corolla, filaments attached at the lower, middle or upper part of the corolla tube or near the mouth of the corolla tube, short to long, equal, glabrous, puberulent or pubescent at basal portion, anthers button-shaped, elliptic, narrowly elliptic, oblong to narrowly oblong, round or acute at base, round, acute or acuminate at apex, dorsifixed near the middle or near the base; pollen 3-5-colporate or 3-5-colpate or inaperturate, exine reticulate, irregularly reticulate, finely reticulate, tectate or perforate; ovary 2- or 4-5-locular (rarely 6-locular), placenta reduced, ovules basally inserted, 1 per locule, style include, partially exserted or exserted just beyond or well beyond the corolla, glabrous or puberulent at basal portion, style branches as many as the locules, oblong or linear. Fruit drupaceous, with 2 woody pyrenes (rarely 4-5), fleshy or spongy; pyrenes ascending, ovate in outline, planoconvex, ventrally sulcate, with germination slits on lateral margins.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 406-717. 1972; Steyermark, J.A. in T. Lasser & J.A. Steyermark, Fl. Venezuela 9(3): 1111-1683. 1974; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark, Fl. Venez. Guay. 8: 706-775. 2004; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 525-616. 2005.

Distribution: Pantropical of ca. 1500 species; in the Neotropics ca. 800 species ranging from Mexico, Central America, Greater, Lesser Antilles, Colombia, Bolivia, Brazil to northern Argentina; in MT and MS 37 species.

51-1. *Psychotria amplectans* Benth., J. Bot. (Hooker) 3: 230. 1841.

Syn.: *Psychotria paradoxa* Muell. Arg.; *Psychotria romboutsii* Bremek.

51-2. *Psychotria borjensis* Kunth in Humb. & Bonpl., Nov. Gen. Sp. (quarto) 3: 357. 1818.

Syn.: *Mapouria borjensis* (Kunth) Muell. Arg.; *Mapouria umbrosa* Muell. Arg.

51-3. *Psychotria brachybotria* Muell. Arg. in Mart., Fl. Bras. 6(5): 327. 1881.

Syn.: *Psychotria iquitoensis* Standl.

51-4. *Psychotria bracteocardia* (DC.) Müll. Arg. in Mart., Fl. Bras. 6(5): 362. 1881.

Syn.: *Psychotria glabrescens* Muell. Arg.; *Uragoga glabrescens* (Muell. Arg.) Kuntze; *Cephaelis glabrescens* (Muell. Arg.) Standl.

51-5. *Psychotria campyloneura* Muell. Arg. in Mart., Fl. Bras. 6(5): 302. 1881.

Syn.: *Psychotria deflexa* ssp. *campyloneura* (Benth.) Steyerm.

51-6. *Psychotria capitata* Ruiz & Pav., Fl. Peruv. 2: 59, pl. 206, fig. a. 1799.

Syn.: *Psychotria setifera* Benth.; *Psychotria inundata* Benth.; *Psychotria setifera* Benth.; *Psychotria chlorotica* Muell. Arg., var. *lanceolata* Muell., var. *obovata* Muell. Arg.; *Psychotria roraimensis* Wernham; *Psychotria cubitalis* Standl. & Steyerm.; *Psychotria heterocarpa* Standl. & Steyerm.; *Psychotria capitata* ssp. *capitata* var. *capitata* f. *trichophora* Steyerm., ssp. *inundata* (Benth.) Steyerm., ssp. *inundata* var. *roraimensis* (Wernham) Steyerm., ssp. *inundata* var. *septentrionalis* Steyerm.

51-7. *Psychotria carthagenensis* Jacq., Enum. Pl. Carib. 16. 1762.

Syn.: *Psychotria alba* Ruiz & Pav.; *Psychotria foveolata* Ruiz & Pav.; *Psychotria ficigemma* DC.; *Psychotria fockeana* Miq.; *Mapouria tristis* Muell. Arg.; *Mapouria alba* (Ruiz & Pav.) Muell. Arg.; *Mapouria catharinense* Muell. Arg.; *Uragoga alba* (Ruiz & Pav.) Kuntze; *Psychotria tristicula* Standl.; *Mapouria fockeana* (Miq.) Bremek.

51-8. *Psychotria colorata* (Willd. ex Roem. & Schult.) Muell. Arg. in Mart., Fl. Bras. 6(5): 372. 1881.

Syn.: *Cephaelis colorata* Willd. ex Roem. & Schult.; *Psychotria megapontica* Muell. Arg.; *Cephaelis amoena* Bremek.; *Psychotria calviflora* Steyerm.; *Psychotria colorata* (Willd. ex Roem. & Schult.) Muell. Arg. ssp. *megapontica* (Muell. Arg.) Steyerm.

51-9. *Psychotria corumbensis* (S. Moore) Hoehne, Ind. Bibl. Num. Pl. Col. Com. Rondon 387. 1951.

Syn.: *Mapouria corumbensis* S. Moore.

51-10. *Psychotria cornigera* Benth., J. Bot. (Hooker) 3: 227. 1841.

Syn.: *Psychotria bahiensis* DC. var. *cornigera* (Benth.) Steyerm.; *Psychotria subcuspidata* Muell. Arg. [specimens of *P. cornigera* from MT have been identified as *Psychotria bahiensis* DC., but according to Taylor & Steyermark (2004), this species is endemic to Bahia].

51-11. *Psychotria deflexa* DC., Prodr. 4: 510. 1830.

51-12. *Psychotria hoffmannseggiana* (Willd. ex Roem. & Schult.) Muell. Arg. in Mart., Fl. Bras. 6(5): 336. 1881.

Syn.: *Cephaelis hoffmannseggiana* Willd. ex Roem. & Schult.; *Cephaelis dichotoma* Willd. ex Roem. & Schult., *nom. ill.*, non Rudge (1805); *Cephaelis rubra* Willd. ex Roem. & Schult.; *Cephaelis microcephala* Miq., *nom. ill.*, non Humb. & Bonp. ex Roem. & Sxhult.; *Psychotria microcephala* Miq.; *Psychotria erythrophylla* Muell. Arg.; *Psychotria hoffmannseggiana* (Willd. ex Roem. & Schult.) Muell. Arg. var. *erythrophylla* (Muell. Arg.) Steyerm.

51-13. *Psychotria iodotricha* Muell. Arg. in Mart., Fl. Bras. 6(5): 375. 1881.

Syn.: *Psychotria atricapilla* Bremek.; *Psychotria iodotricha* Muell. Arg. ssp. *atricapilla* (Bremek.) Steyerm.

51-14. *Psychotria kuhlmannii* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 239. 1936.

51-15. *Psychotria leiocarpa* Cham. & Schltdl., Linnaea 4: 22. 1829.

Syn.: *Psychotria leiocarpa* Cham. & Schltdl. var. *intermedia* Muell. Arg.; *Ronabea myodendron* A. Rich. in DC.

51-16. *Psychotria lupulina* Benth., Hook. J. Bot. 3: 230. 1841.

Syn.: *Psychotria nervosa* Benth.; *Psychotria leucophaea* Poepp. & Endl.; *Psychotria maypurensis* Humb. & Bonpl. ex Roem. & Schult.; *Patabea alba* Kunth; *Cephaelis cymosa* Spreng.; *Psychotria lupulina* Benth. var. *stipulacea* Muell. Arg.; *Psychotria rudgei* Bremek.; *Cephaelis justiciifolia* Rudge; non *Psychotria justiciifolia* Standl.; *Psychotria lupulina* Benth. var. *rhodoleuca* (Muell. Arg.) Steyerm.; *Psychotria rhodoleuca* Muell. Arg.; *Psychotria persimilis* Muell. Arg.; *Psychotria flavovirens* Suess.; *Psychotria langsdorffiana* Muell. Arg.; *Psychotria lupulina* Benth. ssp. *rhodoleuca* (Muell. Arg.) Steyerm. var. *maypurensis* (Humb.& Bonpl.) Steyerm.; *Psychotria lupulina* Benth. ssp. *rhodoleuca* (Muell. Arg.) Steyerm. var. *maypurensis* (Humb.& Bonpl.) Steyerm. f. *pubens* Steyerm.

51-17. *Psychotria malmei* (Standl.) Zappi in B. Dubs, Prodr. Fl. Matogross., Ser. B 3: 258. 1998.

Syn.: *Cephaelis malmei* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 189. 1936.

51-18. *Psychotria mapourioides* DC., Prodr. 4: 509. 1830.

Syn.: *Mapouria guianensis* Aubl.; non *Psychotria guianensis* Raeusch., *nom. nud*.; non *Psychotria guianensis* (Aubl.) Rusby; *Psychotria nitida* Willd.; *Psychotria mapouria* Roem. & Schult., *nom. ill. superfl*.; *Palicourea chionantha* DC.; *Psychotria luschnathii* Klotzsch; *Psychotria floribunda* Griseb.; *Psychotria luschnathiana* Schlecht.; *Mapouria luschnathiana* (Schlecht.) Muell. Arg.; *Mapouria chionantha* (DC.) Muell. Arg.; *Mapouria tobagensis* Urb.; *Psychotria trinitensis* Urb.; *Mapouria opaca* Bremek.; *Psychotria mapourioides* DC. var. *chionantha* (DC.) Steyerm.; *Psychotria mapourioides* DC. var. *opaca* (Bremek.) Steyerm.; *Psychotria mapourioides* DC. var. *tobagensis* (Urb.) Steyerm.

51-19. *Psychotria officinalis* (Aubl.) Sandwith, Kew Bull. 1931: 473. 1931.

Syn.: *Nonatelia officinalis* Aubl.; *Psychotria officinalis* (Aubl.) Raeusch., *nom. nud*.; *Psychotria involucrata* Sw., non auct.; *Psychotria villosa* Vell., non Ruiz & Pav. (1799); *Psychotria barbiflora* DC.; *Patabea tenerior* Cham.; *Psychotria tenerior* (Cham.) Muell. Arg. [for notes on synonyms, see Delprete et al., 2005].

51-20. *Psychotria oreadum* S. Moore, Trans. Linn. Soc. 2nd ser., 4: 376. 1895.

Syn.: *Psychotria oreadum* var. *viridis* S. Moore

51-21. *Psychotria paniculata* (Aubl.) Raeusch., Nom. Bot. 56. 1797.

Syn.: *Nonatelia paniculata* Aubl.; *Psychotria flexuosa* Willd., *nom. superfl. ill*.

51-22. *Psychotria platypoda* DC., Prodr. 4: 510. 1830.

Syn.: *Cephaelis dichotoma* Rudge, non Willd. ex Roem. & Schult.; *Psychotria dichotoma* (Rudge) Bremek., *nom. illeg*., non Humb. & Bonpl. ex Roem. & Schult.

51-23. *Psychotria podocephala* (Muell. Arg.) Standl., Publ. Field Columbian Mus., Bot. Ser. 7: 109. 1930.

Syn.: *Mapouria podocephala* Muell. Arg.

51-24. *Psychotria poeppigiana* Muell. Arg. in Mart., Fl. Bras. 6(5): 370. 1881.

Syn.: *Cephaelis tomentosa* (Aubl.) Vahl; non *Psychotria tomentosa* Hemsl.; *Tapogomea tomentosa* Aubl.; *Uragoga tomentosa* (Aubl.) Kuntze; *Uragoga tomentosa* (Aubl.) K. Schum.; *Callicocca tomentosa* (Aubl.) Gmel.; *Cephaelis hirsuta* Mart. & Gal.; non *Psychotria hirsuta* Sw.; *Psychotria poeppigiana* Muell. Arg. ssp. barcellana (Muell. Arg.) Steyerm.; *Psychotria barcellana* Muell. Arg.; *Cephaelis barcellana* (Muell. Arg.) Standl.

51-25. *Psychotria prunifolia* (Kunth) Steyerm., Mem. New York Bot. Gard. 23: 655. 1972.

Syn.: *Cephaelis prunifolia* Kunth; *Cephaelis microcephala* Willd ex Roem. & Schult.; *Psychotria microcephala* (Willd ex Roem. & Schult.) Muell. Arg.; non *Psychotria microcephala* Miq.; *Psychotria microcephala* (Willd. ex Roem. & Schult.) Muell. Arg. var. *tripotamica* Muell. Arg.; *Psychotria xanthocephala* Muell. Arg.

51-26. *Psychotria racemosa* Rich., Actes Soc. Hist. Nat. Paris 1: 107. 1792.

Syn.: *Notatelia racemosa* Aubl.; *Oribasia racemosa* (Aubl.) Gmel.; *Psychotria racemosa* (Aubl.) Raeush.; *Psychotria longistipulata* Benth.

51-27. *Psychotria rondonii* Delprete, **nom. nov.**

Syn.: *Cephaelis krauseana* Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 181. 1930. *Psychotria krauseana* (Standl.) Zappi in B. Dubs, Prodr. Fl. Matogross., Ser. B 3: 258. 1998, *nom. illeg.*; non *Psychotria krauseana* Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 212. 1930. - Type: Brazil, Mato Grosso, Rio Arinos, Dec 1914 (fl), *J.C. Kuhlmann 1410* (holotype B, destroyed; **lectotype** RB, **here selected**).

The new name of this species is dedicated to General Cândido Rondon (1865-1958; Diacon, 2004, 2006), the leader of the expedition to the Mato Grosso (Commission of Telegraphic Lines in Mato Grosso and Amazonas; see Hoene, 1914, 1923, 1951), where J. C. Kuhlmann participated as the botanist of the team.

51-28. *Psychotria sciaphila* S. Moore, Trans. Linn. Soc. 2 ser, 4: 379. 1896.

Syn.: *Psychotria sciaphila* S. Moore ssp. *longicalyx*, Mem. New York Bot. Gard. 23: 641. 1972.

51-29. *Psychotria sellowiana* (DC.) Muell. Arg., in Mart., Fl. Bras. 6(5): 239. 1881.

Syn.: *Palicourea sellowiana* DC.; *Palicourea fastigiata* Kunth.

51-30. *Psychotria sphaerocephala* Muell. Arg., Flora 59: 550, 553. 1876.

Syn.: *Cephaelis sphaerocephala* (Muell. Arg.) B.L. Rob.

51-31. *Psychotria stipulosa* Muell. Arg. in Mart., Fl. Bras. 6(5): 334. 1881.

Syn.: *Psychotria homoplastica* S. Moore; *Cephaelis stipulosa* (Muell. Arg.) Standl.

51-32. *Psychotria tomentella* (S. Moore) Zappi in B. Dubs, Prodr. Fl. Matogross., Ser. B 3: 259. 1998.

Syn.: *Mapouria tomentella* S. Moore, Trans. Linn. Soc. 2 ser, 4: 381. 1896.

51-33. *Psychotria tricephala* (Muell. Arg.) Zappi in B. Dubs, Prodr. Fl. Matogross., Ser. B 3: 259. 1998.

Syn.: *Mapouria tricephala* Muell. Arg. in Mart., Fl. Bras. 6(5): 423. 1881.

51-34. *Psychotria tricholoba* Muell. Arg. in Mart., Fl. Bras. 6(5): 343. 1881.

Syn.: *Cephaelis tricholoba* (Muell. Arg.) Standl.

51-35. *Psychotria turbinella* Muell. Arg. in Mart., Fl. Bras. 6(5): 374. 1881.

Syn.: *Psychotria sororiella* Muell. Arg.; *Cephaelis sororiella* (Muell. Arg.) Standl.; *Psychotria turbinella* Muell. Arg. var. *sororiella* (Muell. Arg.) Steyerm.

51-36. *Psychotria ulviformis* Steyerm., Mem. New York Bot. Gard. 23: 638. 1972.

Syn.: *Tapogomea alba* Aubl., non Ruiz & Pav. (1799); *Callicocca alba* (Aubl.) Gmel.; *Cephaelis alba* (Aubl.) Willd.; *Uragoga alba* (Aubl.) Kuntze; *Uragoga alba* (Aubl.) Pulle, *comb. superfl.*; *Gamotopea alba* (Aubl.) Bremek.; *Geophila picta* Rolfe, non Wall. (1830); *Cephaelis paraensis* Standl.; non *Psychotria paraensis* Muell. Arg. (1881); *Geophila paraensis* J. Huber ex Standl., *nom. nud. pro syn.*

51-37. *Psychotria venulosa* Muell. Arg., in Mart., Fl. Bras. 6(5): 294. 1881.

Syn.: *Psychotria deflexa* ssp. *venulosa* (Muell. Arg.) Steyerm.

52. RANDIA L., Sp. Pl. 1192. 1753. Type: *R. mitis* L.

Syn.: *Foscarenia* Vell. ex Vand. (1788); *Basanacantha* Hook. f., in Benth. & Hook. f. (1873).

Shrubs or small to medium-sized trees with scandent branches, or rarely lianas; dioecious or rarely hermaphroditic. Raphides absent. Thorns axillary, (2-)3-4 per node, straight, stout or needle-shaped, or absent in some

nodes. Stipules interpetiolar, connate at base, broadly to narrowly triangular, broadly ovate or lanceolate, persistent. Leaves opposite, often seemingly fasciculate by extreme reduction of the nodes on lateral short-shoots, sessile or sort- to long-petiolate; blades broadly ovate to ovate, elliptic, obovate, oblong to lanceolate, chartaceous, papyraceous or subcoriaceous; domatia tufts of sparse or dense hairs, or absent. Inflorescence axillary or on lateral short shoots or terminal on axillary short shoots of 3-5 nodes; male inflorescence fasciculate or corymbose, few- to many-flowered, female inflorescences 1-flowered. Male flowers 4-6-merous, hypanthium ovoid or globose, calyx extremely reduced or cup-shaped, with undulate margin or lobed, persistent, lobes small to foliose, ovate, oblong-obovate or lanceolate, corolla hypocrateriform or narrowly infundibuliform, white to cream-white, or yellowish-white, sometimes turning yellow at later stages of anthesis, tube externally glabrous, puberulent, hirtellous, strigose or sericeous, internally glabrous, pubescent or villous, without a pubescent ring inside, lobes left-contorted, ovate, suborbicular, oblong, oblong-ovate to lanceolate, margin entire, obtuse, rounded or acute at apex, stamens included, partially exserted or exserted just beyond the corolla, filaments attached at the upper part or near the mouth of the corolla tube, short or long, equal, glabrous, anthers elliptic, narrowly elliptic to oblong, round at base and at apex, dorsifixed near the base, pollen 3-porate or 3-pororate, exine reticulate, foveolate, psilate or perforate, released as tetrads, ovary absent, style non functional, included, glabrous, with 2 minute, connivent branches; female flowers 5-7-merous, hypanthium ovoid, calyx and corolla as in male flower, stamens non-functional, included or partially exserted, anthers non-functional, usually smaller than in male flowers, pollen absent, ovary 1-locular, with incomplete placenta, or 2-locular and with placentation parietal, peltate to the entire length of the septum, ovules many per locule, style partially exserted or exserted just beyond the corolla, glabrous, style branches 2, ovate. Fruit baccate, leathery, ovoid to oblate; seeds horizontal, immersed in a gelatinous pulp turning black when exposed to air, perlaceous, dorsoventrally compressed, irregularly elliptic in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 325-343. 1972; Gustafsson, C., Taxonomy and phylogeny of *Randia* (Rubiaceae, Gardenieae). Doctoral Dissertation, Göteborg Univ., Göteborg, Sweden. 2004; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 617-623. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 80 species; in MT and MS 2 species.

52-1. *Randia calycina* Cham., Linnaea 9: 246. 1834.

Syn.: *Basanacantha calycina* K. Schum.

52-2. *Randia nitida* (Kunth) DC., Prodr. 4: 437. 1830.

Syn.: *Mussaenda nitida* Kunth; *Mussaenda spinosa* Jacq.; *Basanacantha erythropoda* Rusby; *Basanacantha phyllosepala* Williams & Cheesm.; *Basanacantha spinosa* var. *guatemalensis* K. Schum. ex Loes.; *Basanacantha spinosa* var. *nitida* (Kunth) K. Schum.; *Basanacantha spinosa* var. *paraguarensis* Chod. & Hassler; *Basanacantha spinosa* var. *parviflora* Chod. & Hassler.

Randia armata (Sw.) DC.

Specimens of *Randia nitida* from MT and MS have been identified as "*Randia armata* (Sw.) DC.", but according to Gustafsson (2004) this species occurs only in northern South America, and is absent in central Brazil.

53. REMIJIA DC., Biblioth. Universelle Sci., Sci. Arts 41: 155. 1829. Type: *R. ferruginea* (A. St. Hil.) DC. (*Cinchona ferruginea* A. St. Hil.).

Shrubs or small trees or medium-sized trees. Raphides absent. Stipules interpetiolar, free or connate at base, broadly to narrowly triangular, ovate, obovate, oblong or ligulate, subcaducous or readily caducous. Leaves opposite, or whorled, 3-5 per node, short- to long-petiolate, sometimes with basal pouches inhabited by ants; blades ovate, elliptic to narrowly elliptic, broadly obovate to obovate, oblong or oblanceolate, stiffly chartaceous, papyraceous, subcoriaceous to coriaceous; domatia tufts of sparse or dense hairs, or absent. Inflorescence axillary, paniculate,

thyrsoid or cymose, few- to many-flowered. Flowers 5-6-merous, bisexual, protandrous; hypanthium obconical, ovoid or oblate; calyx cup-shaped, campanulate or short- to long-tubular with undulate margin or lobed, persistent, lobes small, when present, broadly to narrowly triangular to lanceolate; corolla hypocrateriform, white to cream-white, tube externally puberulent, pubescent, hirsute or sericeous, internally glabrous or pubescent at mouth, lobes valvate, linear-lanceolate to linear, margin entire, acute at apex; stamens included, or partially exserted, filaments attached to the middle of the corolla tube, short or long, equal, glabrous, anthers narrowly elliptic, narrowly oblong, elongate or linear, round at base and at apex, dorsifixed near the base; pollen 3-4-colporate, exine foveolate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style included or partially exserted, glabrous, antrorse-strigose, pubescent at basal portion or setose-hirsute at basal portion, style branches 2, ovate, elliptic or oblong. Fruit capsular, ovoid, oblong or fusiform, dehiscing septicidally from the apex or from the base, valves sometimes secondarily splitting at apex, thinly woody; seeds horizontal, laterally compressed, irregularly elliptic in outline, wings bipolar, membranaceous, margin nearly entire or dentate to fimbriate.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 249-269. 1972; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 779-792. 2004.

Distribution: Ranging from Colombia to Peru and Brazil: ca. 40 species; in MT and MS 2 species.

53-1. *Remijia ferruginea* (A. St. Hil.) DC., Prodr. 4: 357. 1830.

Syn.: *Cinchona ferruginea* A. St. Hil.

53-2. *Remijia firmula* (Mart.) Wedd., Hist. Quinquin. 93. 1849.

Syn.: *Cinchona firmula* Mart.; *Remijia spruceana* Benth. ex K. Schum.

54. RETINIPHYLLUM Bonpl. in Humb. & Bonpl., Pl. Aequin. 1: 86, pl. 25. "1805" [1808]. Type: *R. secundiflorum* Bonpl.

Syn.: *Commianthus* Benth. (1841); *Synisoon* Baill. (1879); *Retiniphyllum* sect. *Commianthus* (Benth.) Muell. Arg. in Mart. (1881); *Retiniphyllum* sect. *Ammianthus* Spruce ex Muell. Arg. in Mart.(1881).

Shrubs or small trees to medium-sized trees. Raphides absent. Stipules interpetiolar, connate at base, truncate (long-sheathing, splitting on one side outside of MT and MS), persistent. Leaves opposite, short-petiolate; blades ovate, elliptic or obovate, chartaceous or coriaceous; domatia absent. Inflorescence terminal, spicate; bracteoles subtending each flower reduced, glabrous, with colleters inside; involucel subtending each flower discoid, with colleters inside. Flowers 5-merous, bisexual, protandrous; hypanthium globose, ovoid or obovoid; calyx cup-shaped, truncate or lobed, persistent, lobes, when present, small, deltoid; corolla hypocrateriform or faintly zygomorphic (slightly curved), white to cream-white (pinkish-white, pink, pinkish-red or red outside of MT and MS), tube externally strigose or sericeous (puberulent or tomentose outside of MT and MS), internally with a pubescent ring at base inside, lobes left-contorted, oblong or lanceolate, margin entire, rounded or acute at apex; stamens exserted well beyond the corolla, often reflexed on top of the lobes, filaments attached near the mouth of the corolla tube, short, equal, pubescent throughout, anthers elliptic, with truncate extensions at base and with acute extensions at apex, dorsifixed near the base; pollen 3-zonocolporate, exine reticulate, finely reticulate or tectate-perforate; ovary 5-locular, placentation axile, attached at top of septum, pendent, ovules 2 per locule, style exserted well beyond the corolla, antrorse-pubescent, style branches lobes 5, minute, oblong. Fruit drupaceous, fleshy, with woody pyrenes, red; pyrenes dorsally verrucate; seeds vertical, elliptic to narrowly elliptic in outline, reniform.

Literature: Steyermark in B. Maguire & Coll., Mem. New York Bot. Gard. 12(3): 178-285. 1965; Cortés-B., R. Systematics and biogeography of *Retiniphyllum* (Rubiaceae). Doctoral thesis, City Univ. New York, USA. 2003; Cortés-B., R. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 793-800. 2004.

Distribution: A neotropical genus found mostly in white-sand soils of the Guayana and

Brazilian Shields, with few species extending into the Amazon Region, Central, and Eastern Brazil, and one in Peru: 22 species; in MT and MS 2 species.

54-1. *Retiniphyllum kuhlmannii* Standl., Publ. Field Columbian Mus., Bot. Ser. 8: 356. 1931.

54-2. *Retiniphyllum parviflorum* Steyerm., Brittonia 33: 397. 1981.

55. RICHARDIA L., Sp. Pl. 330. 1753. Type: *R. scabra* L.

Syn.: *Ricardia* Adans. (1763), *orth. var.*, non *Richardia* Kunth (1818; = *Zantedeschia* C. Prengel); *Richardsonia* Kunth (1818; published as intentional correction of *Richardia* L.); *Plethyrsis* Raf. (1840).

Sprawling or decumbent, annual or perennial herbs. Raphides present. Stipules sheathing and connate to the petioles, fimbriate, with 3-9 setae, each seta with an apical colleter, persistent. Leaves opposite, sessile or subsessile ; blades ovate, elliptic to narrowly elliptic, lanceolate or linear, chartaceous to stiffly papyraceous; domatia absent. Inflorescence terminal, capitate, subtended by 4 to many leaf-like bracts. Flowers (3-)4-6-merous, bisexual, protandrous; hypanthium obovoid; calyx tube extremely reduced, persistent, lobes small to large, lanceolate; corolla campanulate, hypocrateriform or narrowly infundibuliform, white, cream-white, pink, lavender, bluish-white to pale blue, tube externally glabrous, internally glabrous or pubescent at basal portion, lobes valvate, ovate or lanceolate, margin entire, acute at apex; stamens partially exserted or exserted just beyond the corolla; filaments attached near the mouth of the corolla or at lobes sinuses, long, equal, glabrous, anthers elliptic, round at base and at apex, dorsifixed near the base; pollen multi-colporate, exine rugulate, echinate-perforate or echinate-reticulate; ovary 2-6-locular, placentation axile, reduced, ovules basally inserted, ovules 1 per locule, style included or exserted just beyond the corolla, glabrous, style branches 2-3, ovate or oblong. Fruit schizocarpic, breaking up into 2-6 mericarps, thinly woody or crustaceous; seeds vertical, ellipsoid-ovoid, ovoid to obovoid, elaborate on dorsal sculpuring of mericarps.

Literature: K. Schumann in Martius, Fl. Bras. 6(6): 91. 1888 (como "*Richardsonia*"); Smith & Downs, Sellowia 7: 68, 1956; Bacigalupo in Cabrera, Fl. Prov. Buenos Aires 4(5a) : 359 1965; Steyermark, Fl. Venezuela 9(3): 1876-1879. 1974; Lewis, W. H. & R. L. Oliver, Brittonia 26: 271-301. 1974; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 624-648. 2005.

Distribution: Ranging from Mexico, throughout Central America, Greater and Lesser Antilles, to Colombia, Bolivia, and Brazil: ca. 15 species; in MT and MS 5 species.

55-1. *Richardia brasiliensis* Gomes, Mem. Ipecacacuanha Bras. 31, pl. 2. 1801.

Syn.: *Richardsonia brasiliensis* (Gomes) Hayne; *Richardsonia emetica* Mart.; *Richardsonia rosea* A. St. Hil.; *Richardsonia scabra sensu* A. St. Hil.; *Richardia rosea* (A. St. Hil.) Schult. in L.; *Richardia emetica* (Mart.) Schult. in L.; *Richardsonia adscendens* Pav. ex DC.; *Richardia adscendens* Pav. ex DC.; *Richardia villosa* Sessé & Moç. ex DC.; *Richardia rosea* f. *albiflora* Kuntze; *Richardia rosea* f. *lilacina* Kuntze; *Richardsonia brasiliensis* var. *dubia* Beauverd & Felippone.

55-2. *Richardia grandiflora* (Cham. & Schltdl.) Steud., Nom. Bot., ed. 2: 459. 1841.

Syn.: *Richardsonia grandiflora* Cham. & Schltdl.; *Richardsonia divergens* Pohl ex DC.; *Richardsonia lateralis* Pohl ex DC.; *Richardsonia sparsa* Pohl ex DC.; *Spermacoce divergens* Pohl ex DC., *pro syn.*; *Spermacoce lateralis* Pohl ex DC., *pro syn.*; *Spermacoce sparsa* Pohl ex DC., *pro syn.*; *Richardia divergens* (Pohl ex DC.) Steud.; *Richardia lateralis* (Pohl ex DC.) Steud.; *Richardia sparsa* (Pohl ex DC.) Steud.; *Richardsonia grandiflora* f. *albiflora* Kuntze, *nom. nud.*; *Richardsonia grandiflora* f. *lilacina* Kuntze, *nom. nud*.

55-3. *Richardia pedicellata* (K. Schum.) Kuntze, Rev. Gen. Pl. 1: 296. 1891.

Syn.: *Richardsonia pedicellata* K. Schum.; *Richardsonia acutifolia* K. Krause; *Richardia acutifolia* (K. Krause) Standl. ex Hoene.

55-4. *Richardia scabra* L., Sp. Pl. 330. 1753.

Syn.: *Richardsonia scabra* (L.) A. St. Hil.; *Richardia pilosa* Ruiz & Pav.; *Richardsonia pilosa* (Ruiz & Pav.) Kunth; *Spermacoce involucrata*

Pursh; *Spermacoce hirsuta* Willd. ex Roem. & Schult.; *Richardia cubensis* A. Rich.; *Richardia procumbens* Sessé & Moç.

55-5. *Richardia stellaris* (Cham. & Schltdl.) Steud., Nom. Bot. Ed. 2, 1: 459. 1840.

Syn.: *Richardsonia stellaris* Cham. & Schltdl.; *Richardsonia astroites* K. Schum.; *Richardia astroites* (K. Schum.) Kuntze; *Richardia pedicellata* (K. Schum.) Kuntze var. *micrantha* Kuntze; *Richardsonia stellaris* f. *linearifolia* Chod. & Hassl.; *Richardsonia stellaris* f. *robusta* Chod. & Hassl.

56. RONABEA Aubl., Hist. Pl. Guiane 1: 134, t. 59. 1775. Type: *R. latifolia* Aubl.

Syn.: *Psychotria* sect. *Oppositiflorae* Benth. & Hook. f.; *Mapouria* sect. *Eumapouria* [= Sect. *Mapouria*] ser. *Axillares* Muell. Arg.

Subshrubs to shrubs. Raphides present. Stipules interpetiolar, free or connate at base, triangular to subulate, persistent. Leaves opposite; subsessile or petiolate; blades ovate, elliptic, chartaceous to subcoriaceous; domatia tufts of hairs or absent. Inflorescence axillary, subcapitate or condensed-cymose, with bracts subtending secondary branches, sessile to short-pedunculate. Flowers 5-merous, small, bisexual, protandrous; hypanthium turbinate. Calyx tube reduced, lobes 5 minute to large, broadly ovate, ovate, broadly to narrowly triangular, lanceolate or narrowly-lanceolate. Corolla hypocrateriform, white or cream-white, tube externally glabrous, internally pubescent at medial or distal portion; lobes valvate, narrowly ovate or narrowly triangular, margin entire, acute at apex. Stamens 5, included; filaments attached at the middle or upper part of the corolla tube, short, equal; anthers narrowly oblong, dorsifixed near the middle. Ovary 2-locular, placenta reduced, ovules basally inserted, 1 per locule, style included, or partially exserted, glabrous, style branches 2, oblong. Fruit drupaceous, with 2 woody pyrenes, fleshy, blue to black; pyrenes 2, ascending, bony, ovate in outline, plano-convex, ventrally sulcate, opening by a preformed ventral lid.

Literature: Bremekamp, C.E.M. in A. Pulle, Fl. Surinam, Rubiaceae, p. 236-238. 1934; Taylor, C.M., Syst. Geogr. Pl. 74: 35-42. 2004.

Distribution: Ranging from Belize to Colombia, Trinidad, the Guianas, Bolivia and Brazil: 3 species; in MT and MS 1 species.

56-1. *Ronabea latifolia* Aubl., Hist. Pl. Guiane 1: 134, t. 59. 1775.

Syn.: *Psychotria axillaris* Willd., Sp. Pl. 1: 962. 1798, *nom. superfl.*, non Vell. (1827); *Mapouria subsessilis* var. *latifolia* Muell. Arg.; *Ronabea erecta* Aubl.; *Psychotria erecta* (Aubl.) Standl. & Steyerm.; *Coffea subsessilis* Benth.; *Mapouria subsessilis* (Benth.) Muell. Arg.; *Psychotria fluctuans* Standl. (substitute name for *P. subsessilis* Benth., 1852); *Psychotria erecta* f. *fluctuans* (Standl.) Steyerm.; *Mapouria subsessilis* (Benth.) Muell. Arg. var. *angustifolia* Muell. Arg.; *Psychotria fluctuans* var. *angustifolia* (Muell. Arg.) Standl.; *Mapouria latifolia* var. *hispidula* Bremek.

57. ROSENBERGIODENDRON Fagerl., Svensk Bot. Tidskr. 42: 150. 1948. Type: *R. formosum* (Jacq.) Fagerl. (*Mussaenda formosa* Jacq.)

Shrubs or small trees, with scandent branches. Raphides absent. Stipules interpetiolar, connate at base, broadly triangular, persistent or subcaducous. Leaves opposite, subsessile to short-petiolate; blades elliptic to narrowly elliptic or obovate, chartaceous or papyraceous; domatia absent. Inflorescence on axillary short shoots of 3-5 nodes, 1-flowered. Flowers 5-6-merous, bisexual, protandrous; hypanthium narrowly obovoid or turbinate; calyx short-to long-tubular, persistent, lobes 5-6, narrowly triangular to almost linear; corolla hypocrateriform, white to cream-white, tube long and narrow (of variable length on the same branch), externally glabrous or antrorsely sericeous, internally glabrous or antrorse sericeous at distal portion, without a pubescent ring, lobes left-contorted, ovate or narrowly oblong, margin entire, short-acuminate to long-acuminate at apex; stamens partially exserted, filaments attached at the upper part of the corolla tube, anthers sessile or subsessile narrowly oblong or elongate, round at base, round or acute at apex, dorsifixed near the middle; pollen commonly 3-many-pantoporate or 3-many-zonoporate, exine psilate; ovary 1-locular and with incomplete placenta (with 2 rudimentary locules), or 2-locular, placentation parietal and axial, peltate to the entire length of the septum, ovules many per locule, style exserted just beyond the corolla or partially exserted (only tips of branches ex-

serted), clavate, pubescent at distal portion, style branches 2, ovate or oblong. Fruit baccate, thinly woody, or leathery, with a gelatinous pulp; seeds horizontal, dorsoventrally compressed, irregularly elliptic in outline.

Literature: Gustafsson, C. G. R., Brittonia 50: 452-466. 1998.

Distribution: Ranging from Panama to Bolivia and Brazil: 3 species; in MT and MS 1 species.

57-1. *Rosenbergiodendron longiflorum* (Ruiz & Pav.) Fagerl., Svensk. Bot. Tidskr. 42: 148. 1948.

Syn.: *Gardenia longiflora* Ruiz & Pav.; *Randia ruiziana* DC. (based on *Gardenia longiflora* Ruiz & Pav.); *Randia formosa* var. *longiflora* (Ruiz & Pav.) K. Schum.; *Randia speciosa* DC.; *Basanacantha macrocarpa* Rusby; *Randia williamsii* Standl.

58. RUDGEA Salisb., Trans. Linn. Soc. London. 327. 1807. Type: *R. lancifolia* Salisb.

Syn.: *Strempelia* A. Rich. in DC. (1830); *Pachysanthus* C. Presl (1844).

Shrubs or small to medium-sized trees. Raphides present. Stipules interpetiolar, free or connate at base to long-sheathing, laciniate, fimbriate or fringed, with cartilaginous, tooth-like extensions, or basal sheath with a central dendroid unit (formed by the basal fusion of the setae), persistent, subcaducous or readily caducous. Leaves opposite or whorled, 3-4 per node, sessile , subsessile or short to long-petiolate; blades ovate, broadly to narrowly elliptic, obovate, oblong or lanceolate, chartaceous, papyraceous, subcoriaceous to thickly coriaceous; domatia glabrous or ciliated pits, or absent. Inflorescence terminal, paniculate, frondose or not, with branches terminating in globose few- to many-flowered heads or terminating with many-flowered umbels, or cymose or capitate and subtended or not by bracts, or fasciculate, few- to many-flowered, rarely 1-flowered. Flowers bisexual, 4-7-merous, protandrous; hypanthium obconical, narrowly obconical or obovoid; calyx tube extremely reduced or cup-shaped, truncate or lobed, persistent, lobes small or large, broadly to narrowly triangular, lanceolate or linear; corolla tubular, hypocrateriform or narrowly infundibuliform, actinomorphic or zygomorphic, white, cream-white inside or yellowish-white, tube externally glabrous, puberulent or sparsely to densely pubescent, internally glabrous, variably puberulent or pubescent at basal or distal portion, without a pubescent ring inside, lobes valvate, ovate, oblong, lanceolate, narrowly triangular, linear or filiform, margin entire, rounded, acute, cucullate at apex, sometimes with a romboidal or triangular appendix; stamens included, partially exserted, or exserted just beyond or well beyond the corolla, filaments attached at base, middle or upper part of the corolla tube, short or long, equal, glabrous, anthers elliptic, narrowly elliptic, oblong, narrowly oblong or elongate, round at base and at apex, dorsifixed near the middle; ovary 2-locular, placenta reduced, ovules basally inserted, erect, 1 per locule, style included, partially exserted or variably exserted, glabrous or puberulent-papillose at distal portion, style-branches 2, oblong, linear or long-linear. Fruit drupaceous, fleshy, with 2 woody pyrenes, red to blackish-blue; seeds vertical, plano-convex, not ventrally sulcate, ovate to obovate in outline.

Literature: Muell. Arg. in Mart. Fl. Bras. 6(5): 163-220. 1881; Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 17: 396-425. 1967; Steyerm. in Lasser & Steyerm., Fl. Venezuela 9(2): 1048-1101. 1974; Zappi, Kew Bull. 58: 513-596. 2003; Zappi, D. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 805-816. 2004; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 649-690. 2005.

Distribution: Ranging from Mexico, throughout Central America, to Colombia, Bolivia, and Brazil: ca. 215 species; in the MT and MS 13 species.

58-1. *Rudgea amazonica* Muell. Arg., Flora 59: 460. 1876.

58-2. *Rudgea cornifolia* (Kunth) Standl., Publ. Field Columbian Mus., Bot. Ser. 7: 432. 1931.

Syn.: *Psychotria cornifolia* Kunth (Nov 1819); *Psychotria cornifolia* Humb.& Bonpl. ex

Roem. & Schult. (Dec 1819); *Psychotria inundata* K. Krause, nom. illeg., non Benth. (1841); *Rudgea micrantha* Muell. Arg.; *Psychotria krauseana* Standl.; *Rudgea fimbriata* (Benth.) Standl. in Standl. & Calderon; *Psychotria fimbriata* Benth.; *Strempelia fimbriata* Bremek.

58-3. *Rudgea crassiloba* (Benth.) B.L. Rob., Proc. Am. Acad. 45: 408. 1910.

Syn.: *Coffea crassiloba* Benth.; *Rudgea schomburgkiana* Benth.

58-4. *Rudgea cujabensis* Muell. Arg. in Mart., Fl. Bras. 6(5): 215. 1881.

58-5. *Rudgea erioloba* Benth., Linnaea 23: 459. 1850.

58-6. *Rudgea frondosa* S. Moore, Trans. Linn. Soc., 2nd Ser., 4: 381. 1895.

58-7. *Rudgea goyazensis* Muell. Arg., Flora 59: 450, 461. 1876.

58-8. *Rudgea jasminoides* (Cham.) Muell. Arg., Flora 59: 452. 1876.

Syn.: *Coffea jasminoides* Cham.; *Rudgea gaudichaudii* Muell. Arg.

58-9. *Rudgea longiflora* Benth., Linnaea 23: 457. 1850.

Syn.: *Rudgea lacerostipula* K. Schum. ex Glaziou.

58-10. *Rudgea obtusa* Standl., Field Mus. Nat. Hist., Bot. Ser. 11: 265. 1936.

58-11. *Rudgea palicoureoides* (Mart.) Muell. Arg., Flora 59: 455. 1876.

Syn.: *Psychotria palicoureoides* Mart., Flora 24, 2, beibl. 64. 1841.

58-12. *Rudgea stipulacea* (DC.) Steyerm., Mem. New York Bot. Gard. 17: 421. 1967.

Syn.: *Coffea stipulacea* DC.; *Rudgea longistipula* Muell. Arg.; *Psychotria maguirei* Standl.; *Ixora duidae* Standl.; *Psychotria avia* Standl. & Steyerm.; *Rudgea avia* (Standl. & Steyerm.) Steyerm.

58-13. *Rudgea viburnoides* (Cham.) Benth., Linnaea 23: 458. 1850.

Syn.: *Coffea viburnoides* Cham.; *Rudgea krukovii* Standl.

59. SABICEA Aubl., Hist. Pl. Guiane 1: 192. 1775. Type: *S. aspera* Aubl.

Syn.: *Schwenkfelda* Schreber (1789); *Paiva* Vell. ("1825" [1829]).

Herbaceous or woody vines (erect small shrubs in central Brazil). Raphides absent. Stipules interpetiolar, free at base, ovate, frequently reflexed, persistent. Leaves opposite, subsessile to short-petiolate; blades ovate, elliptic or lanceolate, chartaceous, papyraceous or subcoriaceous; domatia tufts of sparse hairs or absent. Inflorescence axillary, paniculate, corymbose or capitate, subtended by bracts, few- to many-flowered. Flowers 4-6-merous, bisexual; hypanthium globose or turbinate; calyx cup-shaped, persistent, lobes small, deltoid to narrowly triangular; corolla hypocrateriform or broadly infundibuliform, white to cream-white, tube externally hirsute, internally glabrous and with a pubescent ring at orifice, lobes valvate, deltoid to narrowly triangular, margin entire, acute at apex; stamens included or exserted just beyond the corolla, filaments attached to the middle of the corolla tube, short, equal, anthers linear, acute at base and at apex, dorsifixed near the base; pollen 3-4-colporate, exine finely reticulate; ovary 2-5-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style included, filiform, glabrous, styles branches 3-5, oblong. Fruit baccate, fleshy, red to purple; seeds small, horizontal, 3-5-angular or ovoid to obovoid.

Literature: Wernham, H. F. A monograph of the genus *Sabicea*. British Museum (Natural History), London 1914; Andersson, L. in G. Harling & L. Andersson, Fl. Ecuador 62: 101-114. 1999.

Distribution: Africa, Madagascar and tropical America; in the Neotropics ranging from Mexico, throughout Central America, Greater Antilles, to Colombia, Bolivia, and Brazil: ca. 45 species; in MT and MS 8 species; the definition of neotropical species is in a state of flux, and the taxa listed below are simply indicative, as some of them, after careful revision, might be reduced to synonymy.

59-1. *Sabicea amazonensis* Wernham, Monogr. Sabicea 47. 1914.

59-2. *Sabicea aspera* Aubl., Hist. Pl. Guiane 194, t. 76. 1775.

59-3. *Sabicea brasiliensis* Wernham, Monogr. Sabicea 51. 1914.

59-4. *Sabicea glabrescens* Benth., J. Bot. (Hooker) 3: 219. 1941.

59-5. *Sabicea humilis* S. Moore, Trans. Linn. Soc., 2nd Ser., 4: 369. 1895.

59-6. *Sabicea mattogrossensis* Wernham, Monogr. Sabicea 62. 1914.

59-7. *Sabicea moorei* Wernham, Monogr. Sabicea 39. 1914.

59-8. *Sabicea villosa* Willd. ex Roem. & Schult., Syst. Veg. 5: 265. 1819.

60. SIMIRA Aubl., Hist. Pl. Guiane 170, t. 65. 1775. Type: *S. tinctoria* Aubl.

Syn.: Non *Simira* Raf. (1836); *Sickingia* Willd. (1801); *Sprucea* Benth. (1853), nom. superfl., non *Sprucea* Wilson & Hook. f. (1845); *Arariba* Mart. (1860); *Blandibractea* Wernham (1917); *Wernhamia* S. Moore (1922); *Calderonia* Standl. (1923); *Exandra* Standl. (1923); *Flexanthera* Rusby (1927).

Small to tall canopy trees; bark fissured; wood turning red when exposed to air. Raphides absent. Stipules interpetiolar, free at base, deltoid to narrowly triangular, sometimes acuminate, persistent. Leaves opposite, short- to long-petiolate; blades broadly elliptic to elliptic, oblong, narrowly oblong, broadly to narrowly obovate, pandurate or oblanceolate, chartaceous, subcoriaceous to thickly coriaceous; domatia tufts of sparse or dense hairs, or absent. Inflorescence terminal, paniculate, frondose or not, densely or sparsely branched, few- to many-flowered. Flowers 4-6-merous, bisexual, protandrous; hypanthium globose, ovoid or turbinate; calyx cup-shaped or short tubular, lobed, caducous, lobes small, broadly to narrowly triangular or ovate; corolla campanulate or narrowly infundibuliform, white, cream-white, reddish-white or greenish-white, tube externally glabrous, puberulent or pubescent, internally glabrous or puberulent, with or without a pubescent ring at orifice inside, lobes narrowly imbricate, broadly ovate, ovate, broadly triangular to deltoid (rarely rounded), margin entire, rounded at apex; stamens included, partially exserted or exserted just or well beyond the corolla, filaments attached at base of the corolla tube, long, equal, glabrous or with a tuft of hairs at base, anthers elliptic, narrowly elliptic, oblong, narrowly oblong, elongate or linear, round or acute at base, round or acute at apex, dorsifixed near the middle or near the base; pollen 3-colporate, exine reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted just or well beyond the corolla, glabrous or puberulent, style branches 2; ovate, oblong or narrowly oblong. Fruit capsular, dehiscing loculicidally and septicidally from the apex, thickly woody (or thinly woody in some species outside MT and MS), pale brown, sometimes with lenticels; seeds vertical, peltate, hemi-elliptic in outline, wings lateral, membranaceous.

Literature: Barbosa, M.R. de V. & A.L. Peixoto, Acta Amazon. 19: 27-46. 1989; Barbosa, M.R. de V. & A.L. Peixoto, Novon 10: 110-112. 2000; Bremekamp, C.E.B., Acta Bot. Neerl. 3: 150-153. 1954; Delprete, P.G., Brittonia 50: 318-323. 1998; Delprete, P.G. & M. Nee, Brittonia 49: 303-308. 1997; Kirkbride, J.H., Brittonia 49: 354-379. 1997; Peixoto, A.L., Arq. Univ. Fed. Rural Rio de Janeiro 5: 115-128. 1982; Steyermark, J.A. in B. Maguire & Coll., New York Bot. Gard. 23: 299-309. 1972; Taylor, C.M., Novon 9: 568-570. 1999.

Distribution: Ranging from southern Mexico, throughout Central America, Colombia, Bolivia, and Brazil: ca. 45 species; in MT and MS 2 species.

60-1. *Simira corumbensis* (Standl.) Steyerm., Mem. New York Bot. Gard. 23: 306. 1972.

Syn. *Sickingia corumbensis* Standl.

60-2. *Simira hexandra* (S. Moore) Steyerm., Mem. New York Bot. Gard. 23: 307. 1972.

Syn. *Sickingia hexandra* S. Moore.

60-3. *Simira rubescens* (Benth.) Bremek. ex Steyerm., Mem. New York Bot. Gard. 23: 301. 1972.

Syn.: *Sprucea rubescens* Benth.; *Macrocnemum tinctorium* Roem. & Schult.; *Macrocnemum tinctorium* Kunth, *nom. superfl.* (later homon.); *Condaminea tinctoria* (Kunth) DC.; *Sickingia tinctoria* (Kunth) K. Schum.; *Sickingia japurensis* K. Schum.; *Sickingia xanthostema* K. Schum.; *Simira erythroxylon* (Willd.) Bremek. var. *saxicola* Steyerm.

61. SIPANEA Aubl., Hist. Pl. Guiane 1: 147. 1775. Type: *S. pratensis* Aubl.

Syn.: *Virecta* L. f. (1782), non *Virecta* Smith in A. Rees (1817), nom. superfl., (= *Virectaria* Bremek.); *Sipanea* sect. *Virecta* (L.) Steyerm. (1967).

Erect, trailing or decumbent herbs. Raphides absent. Stipules interpetiolar, free at base, narrowly triangular, persistent. Leaves opposite, sessile, subsessile to short-petiolate; blades ovate, oblong or elliptic to narrowly elliptic, chartaceous, papyraceous or subcoriaceous; domatia absent. Inflorescence axillary or terminal, paniculate and sparsely branched, or cymose or corymbose, few- to many-flowered, rarely 1-flowered. Flowers 4-5-merous, bisexual; hypanthium globose, glabrous or pubescent; calyx cup-shaped, persistent, lobes foliose, lanceolate or linear; corolla hypocrateriform, white, cream-white or pink, tube externally pubescent or hirsute, internally pubescent throughout, with a pubescent ring at orifice, lobes left-contorted, rounded, margin entire, rounded at apex; stamens included, filaments attached at the middle or upper part of the corolla tube, short, glabrous, anthers linear, acute at base and at apex, dorsifixed near the base; pollen 3-colporate, exine reticulate; ovary 2-locular; placentation axile, peltate on the basal portion of the septum, ovules many per locule, style included, filiform, glabrous, style branches 2, long-linear. Fruit capsular, dehiscing basipetally from the apex, thinly woody to papyraceous; seeds ascendingly imbricate, 3-5-angular or spherical to ellipsoidal.

Literature: Steyermark, J.A., Mem. New York Bot. Gard. 17: 261-282. 1967; Delprete, P.G. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 828-832. 2004.

Distribution: Ranging from Nicaragua, throughout Central America, Colombia, Bolivia and Brazil: ca. 19 species; in MT and MS 3 species.

61-1. *Sipanea biflora* (L. f.) Cham. & Schltdl., Linnaea 4: 168. 1829.

Syn.: *Virecta biflora* L.f.; *Sipanea radicans* Endl.

61-2. *Sipanea hispida* Benth. ex Wernham, J. Bot. 55: 173. 1917.

Syn.: *Sipanea trianae* Wernham; *Sipanea brasiliensis* Wernham; *Sipanea pratensis* Aubl. var. *major* Hassler, *Sipanea hispida* Benth. ex Wernham var. *major* (Hassler) Steyerm.

61-3. *Sipanea veris* S. Moore, Trans. Linn. Soc. 2, 4: 368. 1895.

Syn.: *Sipanea spraguei* Wernham; *Sipanea acinifolia* Spruce ex Sprague

Sipanea pratensis Aubl.

Specimens of *Sipanea hispida* from MT and MS have been identified as "*Sipanea pratensis* Aubl.", but this species occurs only in northern South America, and is absent in central Brazil. *Sipanea hispida* is easily distinguished from *S. pratensis* by the corolla lobes round at apex and hispid capsules (vs. corolla lobes commonly acute at apex and hirsute-strigose or hipidulous capsules in *S. pratensis*).

62. SPERMACOCE L., Sp. Pl. 102. 1753. Type: *S. tenuior* L.

Syn.: *Tardavel* Adans. (1763); *Chaenocarpus* Necker ex A. Juss. (1817), non *Chaenocarpus* Spreng. (1831), nec *Léveillé* (1843); *Borreria* G. Mey. (1818), *nom. cons.*; *Bigelovia* Spreng. (1824), non J. E. Sm. (1819), nec Raf. (1817), nec DC. (1836); *Octodon* Thonning in Schumach. (1827); *Hexasepalum* Bartl. in DC. (1830); *Diodia* sect. *Dasycephala* DC. (1830); *Tessiera* DC. (1830); *Jurgensia* Raf. (1838); *Pterostephus* C. Presl (1845); *Diphragmus* C. Presl (1845); *Hypodematium* A. Rich. (1848.), *nom. rej.*, non O. Kunze (1833); *Dasycephala* (DC.) Hook. f. in Benth. & Hook. f. (1873); *Hemidiodia* K. Schum. in Mart. (1888); *Paragophyton* K. Schum. (1897); *Spermacoceodes* Kuntze (1898); *Dichrospermum* Bremek. (1952); *Arbulocarpus* Tennant (1958); *Spermacoce* L. sec. *Borreria* (G. Mey.) Verdc.

(1975); *Borreria* subg. *Dasycephala* (Hook. f.) Bacigalupo & Cabral (1996).

Erect, sprawling or decumbent, annual or perennial herbs, or subshrubs (rarely shrubs), sometimes aquatic. Raphides present. Stipules sheathing and connate to the petioles, fimbriate, with 3-9 setae, each seta with an apical colleter, persistent, often withering on the stem (no abscission layer is formed). Leaves opposite or ternate, often seeming whorled by the presence of reduced axillary short-shoots (brachyblasts), sessile, subsessile or short-petiolate; blades narrowly ovate, elliptic to narrowly, oblong or linear, membranaceous, chartaceous or papyraceous; domatia tufts of sparse hairs or absent. Inflorescence terminal and/or axillary, capitate, usually subtended by leaf-like bracts. Flowers (3-)4-5(-6)-merous, bisexual, protandrous, heterostylous; hypanthium obovoid or turbinate; calyx tube extremely reduced, lobed, persistent, lobes small, narrowly triangular or linear; corolla narrowly to broadly infundibuliform, white, cream-white, bluish-white to pale blue, tube externally glabrous or puberulent, internally glabrous, puberulent or pubescent at medial or distal portion, with moniliform hairs, lobes valvate, narrowly ovate, narrowly triangular or oblong, margin entire, acute at apex; stamens included, partially exserted or exserted just beyond the corolla, filaments attached medial or distal portion, near the mouth of the corolla tube or at lobes sinuses, short or long, anthers elliptic, narrowly elliptic or oblong, round at base and at apex, dorsifixed near the base, glabrous; pollen 3-many-colporate, exine perforate, or echinate-foveolate, or echinate-perforate, or echinate-reticulate; ovary 2-locular, placenta reduced, ovules centrally inserted, erect, 1 per locule, style included, partially exserted or exserted just beyond the corolla, glabrous, style branches 2, ovate or oblong. Fruit capsular, dehiscing septicidal from the apex, with both cocci dehiscent or one dehiscent and the other indehiscent, chartaceous or crustaceous; seeds vertical, planoconvex, ventrally sulcate, ovate in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 805-831. 1972; Gillis, W.T., Phytologia 29: 185-187. 1974; Verdcourt, B., Kew Bull. 366. 1975; Verdcourt, B. in R.M. Polhill, Flora of Trop. East Africa. Rubiaceae, Part I: 339-374. 1976; Govaerts, R., World Checklist of Seed Plants 2 (1): 14-19. 1996; Nicolson, D.H., Smithsonian Contr. Bot. 77: 196-198. 1991; Adams, D. in W. Burger & C.M. Taylor, Fl. Costar., Fieldiana, Bot. n. s. 33: 313-320. 1993; Fosberg, R.F., M.-H. Sachet & R.L. Oliver, Smithsonian Contr. Bot. 81: 117-121. 1993; Zappi, D.C. & L. Stannard in B.L. Stannard, Flora of the Pico das Almas 575-577. 1995; Bacigalupo N.M. & E. Cabral, Opera Bot. Belg. 7: 297-308. 1996; Cabral, E. & N.M. Bacigalupo, Opera Bot. Belg. 7: 309-327. 1996; Cabral, E. & N.M. Bacigalupo, Darwiniana 37: 259-277. 1999; Dessein, S., Systematic studies in the Spermacoceae (Rubiaceae), Doctoral Dissertation, 403 p. K.U. Leuven, 2003; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 702-776. 2005.

Distribution: Widely distributed in tropical and subtropical areas of America, Asia, Africa and Pacific islands: ca. 300 species; in MT and MS 27 species

62-1. *Spermacoce capitata* Ruiz & Pav., Fl. Peruv. 1: 61, tab. 91, fig. b. 1798.

Syn.: *Borreria capitata* (Ruiz & Pav.) DC.; *Spermacoce ferruginea* A. St.-Hil.; *Borreria ferruginea* (A. St.-Hil.) DC.; *Borreria elongata* DC.; *Borreria lutescens* DC.; *Borreria spherica* DC.; *Borreria suaveolens* auct., non G. F. W. Meyer (1818); *Spermacoce orinocensis* Roem. & Schult.; *Spermacoce aturensis* Kunth; *Borreria kappleriana* Miq.; *Borreria nectarifera* Rusby; *Borreria capitata* var. *capitata* f. *ferruginea* (A. St.-Hil.) Steyerm.; *Borreria capitata* var. *capitata* f. *glabra* Steyerm.

62-2. *Spermacoce dasycephala* (Cham. & Schltdl.) Delprete in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 719. 2005.

Syn.: *Diodia dasycephala* Cham. & Schltdl., *Spermacoce repens* Willd. ex Cham. & Schltdl., non Sessé & Moc. (1893), nec Larranaga (1923), nec (DC) F. R. Fosberg & D. Powell (1980); *Borreria advena* Fisch. & Meyer; *Borreria dasycephala* (Cham. & Schltdl.) Bacigalupo & E. L. Cabral.

62-3. *Spermacoce eryngioides* (Cham. & Schltdl.) Kuntze, Revis. Gen. Pl. 3(2): 123. 1898.

Syn.: *Borreria eryngioides* Cham. & Schltdl.; *Borreria diffusa* DC.; *Spermacoce diffusa* DC., non Kunth (1818); *Borreria affinis* DC.; *Spermacoce affinis* DC.; *Bigelovia* (as "*Bigelowia*") *eryngioides* (Cham. & Schltdl.) Hook. f. & Arn.; *Borreria tenera* auct., non DC. nec Chodat & Hassler.

62-4. *Spermacoce glabra* Rich. in Michx., Fl. Bor. Am. 1: 82. 1803.

Syn.: *Spermacoceodes glabrum* (Rich.) Kuntze.

62-5. *Spermacoce gracillima* (DC.) Delprete, **comb. nov.**

Syn.: *Borreria gracillima* DC., Prodr. 4: 559. 1830. Type: BRAZIL: Without locality, *Pohl 1242* (holotype, G-DC; isotype, F).

62-6. *Spermacoce laevis* Lam., Illustr. 1: 273, tab. 94, fig. 2. 1791.

Syn.: *laevis* (Lam.) Griseb.; *Spermacoce capitellata* Willd. ex Roem. & Schult.; *Spermacoce guianensis* Bremek.; *Borreria capitellata* (Willd. ex Roem. & Schult.) Cham. & Schltdl.; *Borreria hebecarpa* DC.; *Borreria trichantha* Miq.; *Borreria herbert-smithii* Rusby; *Tardavel laevis* (Lam.) Standl.

62-7. *Spermacoce lagurus* (S. Moore) Govaerts, World Checkl. Seed Pl. 2: 16. 1996.

Syn.: *Borreria lagurus* S. Moore.

62-8. *Spermacoce latifolia* Aubl., Hist. Pl. Guiane 55. 1775.

Syn.: *Borreria latifolia* (Aubl.) K. Schum.; *Borreria sideritis* Cham. & Schltdl.; *Borreria scabrida* DC.; *Borreria platyphylla* DC.; *Borreria latifolia* var. *scabrida* (DC.) K. Schum.; *Tardavel latifolia* (Aubl.) Standl.; *Borreria latifolia* f. *scabrida* (DC.) Steyerm.

62-9. *Spermacoce linearis* Willd. ex Roem. & Schult., Syst. Veg. 3: 530. 1818.

Syn.: *Diodia hyssopifolia* (Roem. & Schult.) Cham. & Schltdl.; *Spermacoce hyssopifolia* Willd. ex Roem. & Schult., *nom. illeg.*; *Borreria hyssopifolia* (Willd. ex Roem. & Schult.) Bacigalupo & E. L. Cabral.

62-10. *Spermacoce mitreoloides* (Standl.) Govaerts, World Checkl. Seed Pl. 2: 17. 1996.

Syn.: *Borreria mitreoloides* Standl.

62-11. *Spermacoce neohispida* Govaerts, World Checkl. Seed Pl. 2: 18. 1996.

Syn.: *Borreria hispida* Spuce ex K. Schum.

62-12. *Spermacoce ocymifolia* Willd. ex Roem. & Schult., Syst. Veg. 3: 530. 1818.

Syn.: *Borreria virgata* Cham. & Schltdl.; *Spermacoce portoricensis* Balb. in DC.; *Hemidiodia ocymifolia* (Willd. ex Roem. & Schult.) K. Schum.; *Spermacoce coerulea* Pohl in DC.; *Borreria asperula* DC.; *Diodia ocymifolia* (Willd. ex Roem. & Schult.) Bremek.; *Borreria ocymifolia* (Willd. ex Roem. & Schult.) Bacigalupo & E. L. Cabral.

62-13. *Spermacoce ovalifolia* (Martens & Gal.) Hemsl., Biol. Centr. Amer. Bot. 2: 59. 1881.

Syn.: *Borreria ovalifolia* Mart. & Gal.; *Spermacoce pringlei* S. Watson; *Spermacoce ernstii* R. Fosberg & D. Powell.

Many specimens of this species have been identified as "*Borreria ocymoides* (Burm.) DC." but, in agreement with Adams (1993), this is an Asiatic taxon.

62-14. *Spermacoce perangusta* (S. Moore) Delprete, **comb. nov.**

Syn.: *Borreria perangusta* S. Moore, J. Bot. 42: 100. 1904. Type: Brazil: Mato Grosso, Porto Murtinho, *A. Roberts 884* (holotype, BM).

62-15. *Spermacoce palustris* (Cham. & Schltdl.) Delprete in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 740. 2005.

Syn.: *Diodia palustris* Cham. & Schltdl.; *Diodia alata* Nees & Mart., non (Aubl.) DC.; non *Spermacoce alata* Aubl.; *Dasycephala alata* (Nees & Mart.) Hook. f.; *Borreria palustris* (Cham. & Schltdl.) Bacigalupo & E. L. Cabral.

62-16. *Spermacoce poaya* A. St. Hil., Pl. Usuelles Bras., tab 12. 1824.

Syn.: *Borreria poaya* (A. St. Hil.) DC.; *Spermacoce gentianoides* St.-Hil.; *Borreria asclepiadea* Cham. & Schltdl.; *Borreria flavescens* DC.; *Borreria nervosa* DC.; *Chlorophytum nervosum* Pohl ex DC.; *Borreria pratensis* DC.; *Chlorophytum pratense* Pohl ex DC.; *Spermacoce latifolia* Pohl ex DC., *nomen*., non Aubl.; *Borreria aspera* Mart. & Gal.

62-17. *Spermacoce quadrifaria* (E.L.Cabral) Govaerts, World Checklist Seed Pl. 2: 18. 1996.

Syn.: *Borreria quadrifaria* E.L.Cabral

62-18. *Spermacoce runkii* (K. Schum.) Kuntze, Rev. Gen. Pl. 3: 123. 1898.

Syn.: *Borreria runkii* K. Schum.

62-19. *Spermacoce scabiosoides* (Cham. & Schltdl.) Kuntze, Rev. Gen. Pl. 3: 123. 1898.

Syn.: *Borreria scabiosoides* Cham. & Schltdl.

62-20. *Spermacoce schumanniana* (Taub. ex Ule) Govaerts, World Checkl. Seed Pl. 2: 18. 1996.

Syn.: *Borreria schumanniana* Taub. ex Ule in Cruls.

62-21. *Spermacoce schumannii* (Standl. ex Bacigalupo) Delprete in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 754. 2005.

Syn.: *Diodia schumannii* Standl. ex Bacigalupo; *Diodia gymnocephala* K. Schum., *nomen confusum*; non *Borreria gymnocephala* DC.; non *Borreria schumanniana* Taub. ex Ule; non *Spermacoce schumanniana* (Taub. ex Ule) Govaerts; *Borreria flavovirens* Bacigalupo & E. L. Cabral.

62-22. *Spermacoce simplicicaulis* (K. Schum. ex Sucre) Govaerts, World Checkl. Seed Pl. 2: 19. 1996.

Syn.: *Borreria simplicicaulis* K. Schum. ex Sucre

62-23. *Spermacoce suaveolens* (G. Mey.) Kuntze, Rev. Gen. Pl. 3: 124. 1898.

Syn.: *Borreria suaveolens* G. Mey.; *Spermacoce linoides* Pohl ex DC.; *Borreria tenella* K. Schum. var. *suaveolens* (G. Mey.) K. Schum.; *Spermacoce suaveolens* f. *glabra* Kuntze; *Spermacoce suaveolens* f. *pubescens* Kuntze; *Borreria suaveolens* var. *linoides* (DC.) Standl.; *Borreria capitata* (Ruiz & Pav.) DC. var. *suaveolens* (Meyer) Steyerm.

62-24. *Spermacoce tenella* Kunth in Humb. & Bonpl., Nov. Gen. Sp. 3: 345. 1819.

Syn.: *Spermacoce brasiliensis* Spreng.; *Borreria tenella* (Kunth) Cham. & Schltdl.; *Borreria tenella* (Kunth) Cham. & Schltdl. var. *angustifolia* DC.; *Borreria linoides* DC.; *Borreria tenella* var. *genuina* K. Schum., var. *linoides* (DC.) K. Schum., var. *platyphylla* K. Schum.; *Spermacoce suaveolens* (G. Mey.) Kuntze var. *tenella* (Kunth) Kuntze; *Tardavel tenella* (Kunth) Standl.; *Borreria suaveolens* G. Mey. var. *linoides* (K. Schum.) Standl., var. *platyphylla* (K. Schum.) Standl.; *Borreria capitata* (Ruiz & Pav.) DC. var. *tenella* (Kunth) Steyerm.

62-25. *Spermacoce tenuis* Pohl ex DC., *in syn*., Prodr. 4: 543. 1830.

Syn.: *Borreria tenuis* DC.; non *Spermacoce tenuis* Sessé & Moç. (1893); *Spermacoce tenuis* (DC.) Kuntze, *comb. superfl*.

62-26. *Spermacoce verticillata* L., Sp. Pl. 102. 1753.

Syn.: *Borreria verticillata* (L.) G. Mey.; non *Spermacoce verticillata* sensu Vell. (1825; = *Spermacoce tenella* Kunth); *Borreria stricta* G. Mey.; *Borreria stellata* Roem. & Schult.; *Spermacoce mucronata* Nees; *Spermacoce reclinata* Nees; *Borreria commutata* Spreng.; *Bigelowia commutata* Spreng.; *Bigelowia verticillata* (L.) Spreng.; *Spermacoce globosa* Schumac. & Tonn. non Pohl; *Borreria kohautiana* Cham. & Schltdl.; *Borreria globularioides* Cham. & Schltdl.; *Borreria podocephala* DC.; *Borreria minima* DC.; *Borreria graminifolia* M. Martens & Galeotti; *Borreria oaxana* M. Martens & Galeotti; *Borreria haenkeana* M. Martens & Galeotti; *Borreria thymocephala* Griseb.; *Borreria oligodonta* Steyerm.

62-27. *Spermacoce vulpina* (Standl.) Govaerts, World Checkl. Seed Pl. 2: 19. 1996.

Syn.: *Borreria vulpina* Standl.

63. SPHINCTANTHUS Benth., J. Bot. (Hooker) 3: 212. 1841. Type: *S. rupestris* Benth.

Syn.: *Conosiphon* Poepp. in Poepp. & Endl. (1841).

Shrubs or small trees. Raphides absent. Stipules interpetiolar, connate at base, broadly triangular to deltoid, persistent. Leaves opposite, subsessile or short to long-petiolate; blades ovate, elliptic to narrowly elliptic, obovate or oblanceolate, chartaceous or papyraceous; domatia absent. Inflorescence terminal or on axillary short shoots of 3-5 nodes, cymose, 1-few-flowered. Flowers 5-6-merous, bisexual, protandrous; hypanthium obconical, oblate or turbinate; calyx tube extremely reduced

or cup-shaped, lobed, persistent, lobes small, broadly to narrowly triangular, corolla hypocrateriform, sometimes with a constriction below stamens attachments, white, cream-white to yellowish-white, turning yellow at later stages of anthesis, tube externally puberulent, internally glabrous or puberulent, with a pubescent ring at base, lobes left-contorted, narrowly ovate, narrowly triangular or oblong, margin entire, acute at apex; stamens exserted, filaments attached near the mouth of the corolla tube, very short, anthers subsessile, narrowly elliptic or oblong, round at apex, dorsifixed near the base; pollen 3-porate, exine reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted just beyond the corolla, fleshy, clavate, glabrous, lobes absent, stigmatic surface located at style apex. Fruit baccate, thinly woody, round to oblate, with a gelatinous pulp; seeds horizontal, dorsoventrally compressed, ovate, obovate or rounded in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 23: 322-325. 1972.

Distribution: Ranging from Colombia to Venezuela, Peru and Brazil: ca. 7 species; in MT and MS 2 species that might be synonymous.

63-1. *Sphinctanthus hasslerianus* Chodat, Bull. Herb. Boissier, ser. 2, 4: 170. 1904.

63-2. *Sphinctanthus microphyllus* K. Schum. in Mart., Fl. Bras. 6(6): 354. 1889.

64. STACHYARRHENA Hook. f., Hooker's Icon. Pl. 11: 54. 1870. Type: *S. spicata* Hook. f.

Shrubs or small to medium-sized trees; dioecious. Raphides absent. Stipules interpetiolar, connate at base, truncate, broadly triangular or broadly ovate, persistent or subcaducous. Leaves opposite; short- to long-petiolate; blades ovate, narrowly elliptic, elliptic, narrowly obovate, obovate, oblong, oblanceolate to lanceolate, stiffly chartaceous, papyraceous to subcoriaceous; domatia absent. Inflorescence terminal, male inflorescence spicate or thyrsoid, female inflorescence uniflorous. Flowers functionally unisexual (male and female flowers on separate individuals). Calyx cup-shaped, truncate or with undulate margin, persistent. Corolla campanulate, actinomorphic, white to cream-white; tube externally glabrous or puberulent, internally puberulent, pubescent or hirsute; lobes 5, left-contorted, ovate, acute at apex. Stamens partially exserted; anthers narrowly elliptic or narrowly oblong, round at base, acute at apex, dorsifixed near the base; filaments attached near the mouth of the corolla tube, short, glabrous. Pollen 3-colporate, exine reticulate. Style exserted just beyond the corolla, clavate, glabrous; lobes absent, stigmatic surface located at style apex. Ovary 4- or 5-locular, turbinate, ovules many per locule. Fruit a berry, thinly woody outside. Seeds horizontal, embedded in a gelatinous pulp, large, dorsoventrally compressed, ovate to obovate or rounded in outline.

Literature: Steyermark, J.A. in B. Maguire & Coll., Mem. New York Bot. Gard. 12: 219-222. 1965; Kirkbride, J. H., Rev. Bras. Bot. 6: 109-114. 1983; Steyermark J.A. & C. Persson in J.A. Steyermark et al., Fl. Venez. Guay. 8: 837-839. 2004;

Distribution: Ranging from Central America to central Brazil; ca. 10 species; in MT and MS 1 species.

64-1. *Stachyarrhena spicata* Hook. f., Hooker's Icon. Pl. 11: 54, tab. 1068. 1870.

Syn.: *Schradera spicata* Spruce ex Hook. f., *nom. num. pro syn.*; *Stachyarrhena spicata* Hook. f. var. *multinervis* K. Schum.

65. STAELIA Cham. & Schltdl., Linnaea 3: 364, tab. 3, fig. 3. 1828. Type: *S. thymoides* Cham. & Schltdl.

Erect, annual or perennial herbs or subshrubs; raphides present. Stipules sheathing, fimbriate, with 3–9 setae, each seta with an apical colleter, persistent. Leaves opposite, often seeming whorled by the presence of reduced axillary brachyblasts with fasciculate leaves, sessile to short-petiolate; blades narrowly ovate, narrowly elliptic, elliptic, obovate or rhombic; chartaceous, papyraceous to thinly coriaceous; domatia sparse or dense tufts of hairs or absent. Inflorescence axillary and terminal, capitate or fasciculate, subtended by bracts. Flowers bisexual, protandrous. Calyx extremely reduced, persistent; lobes 2, narrowly triangular or linear. Corolla actinomor-

phic, white to cream-white; tube externally puberulent, internally glabrous and with a pubescent ring at base inside; lobes 4, valvate, ovate, acute at apex. Stamens included or partially exserted; anthers elliptic or narrowly elliptic, round at base and at apex, dorsifixed near the base; filaments attached near the mouth of the corolla tube, glabrous. Pollen 7- to multi-aperturate, exine finely reticulate. Style exserted just beyond the corolla or partially exserted, glabrous; lobes 2, ovate. Ovary 2-locular, turbinate; ovules centrally inserted, 1 per locule. Fruit capsular, circumscissile, dehiscing transversally, releasing the apical portion in two units with one persistent calyx lobe, the basal portion remaining attached to the peduncle, crustaceous to thinly woody. Seeds vertical, minute, dorsoventrally convex, ventrally sulcate.

Literature: K. Schumann in Martius, Fl. Bras. 6(6): 71-78. 1888; Bacigalupo in Burkart, Fl. Il. Entre Rios 6(6): 30-32. 1974; E. B. de Souza, Estudos Taxonômicos dos gêneros *Staelia* Cham. & Schltdl. e *Mitracarpus* Zucc. ex Roem. & Schult. (Spermacoceae-Rubiaceae) no Estado de Pernambuco, Dissert. Mestrado, Univ. Fed. Rur. Pernambuco. 1997; Souza, E. B. & M.F. Sales, Acta Bot. Bras. 18: 919-926. 2004; Delprete, P.G. et al. in A. Reis, Fl. Ilustr. Catarinense RUBI (2): 777-781. 2005.

Distribution: Restricted to South America; 12-14 species, and 10 of them occurring in Brazil; in MT and MS 5 species.

65-1. *Staelia lanigera* (DC.) K. Schum., Fl. Bras. 6(6): 73. 1889.

Syn.: *Tessiera lanigera* DC.

65-2. *Staelia reflexa* DC., Prodr. 4: 573. 1830.

65-3. *Staelia thymoides* Cham. & Schltdl., Linnaea 3: 364. 1828.

65-4. *Staelia vestita* K. Schum., Fl. Bras. 6(6): 78. 1889.

65-5. *Staelia virgata* (Link ex Roem. & Schult.) K. Schum., Fl. Bras. 6(6): 76. 1889.

Syn.: *Spermacoce virgata* Link ex Roem. & Schult.; *Mitracarpus virgatus* (Link ex Roem. & Schult.) Cham. & Schltdl.

66. TOCOYENA Aubl., Hist. Pl. Guiane 1: 131, t. 50. 1775. Type: *T. longiflora* Aubl.

Syn.: *Ucriana* Willd. (1797), non *Ucriana* sensu Spreng., *nom. conf.* (= *Augusta* Pohl; cf. Rehder, 1935; Delprete, 1997); *Gardenia* sensu Vell. (1831), *pro parte* (incl. *Gardenia ferrea* = *Melanopsidium* Colla; cf. Delprete, 2000).

Shrubs or small to tall canopy trees. Raphides absent. Stipules interpetiolar, connate at base, deltoid to narrowly triangular, subcaducous. Leaves opposite, short- to long-petiolate; blades ovate, elliptic, obovate, oblong or lanceolate, chartaceous, papyraceous, subcoriaceous to thickly coriaceous; domatia tufts of sparse or dense hairs or absent. Inflorescence terminal, cymose or corymbose, few- to many-flowered. Flowers 5-6-merous, bisexual, protandrous; hypanthium obovoid or oblate; calyx cup-shaped, lobed, persistent, lobes small, broadly to narrowly triangular; corolla hypocrateriform, white to cream-white, tube externally glabrous or puberulent, internally glabrous, puberulent or pubescent, without a pubescent ring, lobes left-contorted, narrowly ovate, narrowly triangular, lanceolate or oblong, margin entire, truncate, rounded or acute at apex; stamens partially exserted, filaments attached near the mouth of the corolla tube, short, glabrous, anthers narrowly elliptic, oblong or narrowly oblong, round at base and at apex, dorsifixed near the base; pollen 3-porate, exine reticulate; ovary 2-locular, placentation axile, placenta peltate to the entire length of the septum, ovules many per locule, style partially exserted or exserted just beyond the corolla, glabrous, or pubescent at distal portion, style branches 2, ovate or elliptic. Fruit baccate, leathery, globose to ovoid, with fleshy pulp; seeds many, horizontal, dorsoventrally compressed, ovate to obovate in outline.

Literature: K. Schumann in Martius, Fl. Bras. 6(6): 344-350. 1889; Prado, A. L., Revisão taxonômica do gênero *Tocoyena* Aubl. (Rubiaceae) no Brasil, Master Dissertation, Univ. Est. Campinas, 1987; Silberbauer-Gottsberger, I. et al., Pl. Syst. Evol. 181: 143-169. 1992.

Distribution: Ranging from Costa Rica to southern Brazil: ca. 20 species; in MT and

MS 4 species.

66-1. *Tocoyena brasiliensis* Mart., Flora 24, suppl. 2: 82. 1841.

66-2. *Tocoyena foetida* Poepp. & Endl., Nov. Gen. 3, tab. 29. 1841.

Syn.: *Tocoyena acutiflora* Mart.

66-3. *Tocoyena formosa* (Cham. & Schltdl.) K. Schum. in Mart., Fl. Bras. 6(6): 347, tab. 142. 1889.

Syn: *Gardenia formosa* Cham. & Schltdl.

66-4. *Tocoyena guianensis* K. Schum. in Mart., Fl. Bras. 6(6): 346. 1889.

Syn: *Tocoyena guianensis* K. Schum. var. *communis* Steyerm.; *Tocoyena guianensis* K. Schum. var. *glabriuscula* Steyerm.;

67. UNCARIA Schreber, *nom. cons*., Gen. 125. 1789. Type: *U. guianensis* (Aubl.) Gmel.

Syn.: Non *Uncaria* Burch. (1822, Pedaliaceae); *Ourouparia* Aubl. (1775), *nom. rej*.; *Restiaria* Loureiro (1790), non Kuntze (1891); *Agylophora* Necker ex Raf. (1820).

Woody vines to large lianas, sometimes shrubs with scandent or sarmentose lateral branches. Raphides absent. Thorns axillary, strongly curved, cat claw-shaped, or lightly curved. Stipules interpetiolar, free at base; deltoid, obovate or cordate; persistent, or subcaducous. Leaves opposite, short- to long-petiolate; blades ovate, elliptic, obovate or oblong, papyraceous, subcoriaceous to coriaceous; domatia tufts of sparse hairs, hairy-pockets or tuft-pits, or absent. Inflorescence terminal, paniculate, with branches terminating in globose few- to many-flowered heads, sometimes at the top of lateral thorns. Flowers 4-5(-6)-merous, bisexual or functionally unisexual (staminate and pistillate flowers in separate individuals), protandrous; hypanthium ovoid; calyx funnel-shaped or short tubular, persistent, lobes small, broadly to narrowly ovate; corolla hypocrateriform, white to cream-white, or yellow when young and turning red in later stages, tube externally retrorsely puberulous, villous or sericeous, internally glabrous or sericeous, without a pubescent ring, lobes narrowly imbricate, rounded, ovate, narrowly ovate or oblong, margin entire, rounded at apex; stamens partially exserted, filaments attached near the mouth of the corolla tube, short, anthers elongate, with pointed extension at base, with acute extensions at apex, dorsifixed near the base; pollen 3-colporate, exine striato-reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted well beyond the corolla, glabrous, capitate (lobes absent), stigmatic surface located at style apex. Fruit capsular, dehiscing septicidally from the apex, thinly woody; seeds many, ascendingly imbricate, laterally compressed, membranaceous, irregularly narrowly oblong to fusiform in outline, wings bipolar, margin entire.

Literature: Steyermark, J.A. in T. Lasser & J.A. Steyermark, Fl. Venez. 9(1): 32-39. 1974; Andersson, L. in G. Harling & L. Andersson, Fl. Ecuador 50: 106-109. 1994; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 844-845. 2004.

Distribution: Tropical Africa and America, ca. 34 species; in the Neotropics 2 species, ranging from Guatemala throughout Central America, the Greater and Lesser Antilles, to Colombia through Bolivia and Brazil; in MT and MS 1 species.

67-1. *Uncaria guianensis* (Aubl.) Gmel., Syst. Nat. 2: 370. 1791.

Syn.: *Ourouparia guianensis* Aubl.; *Uncaria aculeata* Willd. in Usteri (based on *Ourouparia guianensis*); *Uncaria spinosa* Raeusch.

68. WARSZEWICZIA Klotzsch., Flora 36: 716. 1853. Lectotype: *W. coccinea* (Vahl) Klotzsch (*Macrocnemum coccineum* Vahl; cf. Pfeiffer, 1874).

Syn.: *Warscewiczia* Steyerm., *orth. var*.

Shrubs, or small to medium-sized trees; bark fissured; wood white. Raphides absent. Stipules interpetiolar, free or connate at base, narrowly triangular, subcaducous. Leaves opposite, short- to long-petiolate; blades broadly ovate to ovate, elliptic or obovate, chartaceous or papyraceous; domatia tufts of sparse hairs or absent. Inflorescence terminal, paniculate-spiciform or thyrsoid to long-thyrsoid, with short, fasciculate or corymbose lateral bran-

ches. Flowers 5-merous, bisexual, protogynous; hypanthium obovoid or turbinate; calyx tube extremely reduced, lobed, persistent, lobes minute, ovate or narrowly triangular, calycophylls 1 lobe per flower present in 1-2 flowers each inflorescence fascicles, red to deep red (absent, or white, cream-white to greenish-white species expected to occur in Amazonian MT); corolla narrowly campanulate or broadly infundibuliform, greenish-yellow to yellow (white in species expected to occur in Amazonian MT), tube externally glabrous or puberulent, internally pubescent throughout or villous, without a pubescent ring, lobes narrowly imbricate, ovate or rounded, margin entire, rounded at apex; stamens exserted well beyond the corolla, filaments attached near the mouth of the corolla tube, long, equal, glabrous or pubescent at basal portion (glabrous above), anthers button-shaped or elliptic, round at base and at apex, dorsifixed near the base; pollen 3-colporate, exine reticulate; ovary 2-locular, placentation axile, peltate to the entire length of the septum, ovules many per locule, style exserted well beyond the corolla, filiform, glabrous or antrorse-pubescent, style branches 2, ovate or oblong. Fruit capsular, dehiscing septicidally from apex, thinly woody; seeds horizontal, minute, dorsoventrally compressed, irregularly elliptic in outline, wings concentric and with fringed margin.

Literature: S. C. S. Pantoja, Revisão taxinômica do gênero *Warscewiczia* Klotzsch (Rubiaceae, Rondeletieae). Master Dissertation, Univ. Fed. Rio de Janeiro/Museu Nacional. 1994; Taylor, C.M. & J.A. Steyermark in J.A. Steyermark et al., Fl. Venez. Guay. 8: 846-847. 2004.

Distribution: Ranging from Guatemala to Colombia, Bolivia and Brazil: about 4-7 species; in MT and MS 1 species.

68-1. *Warszewiczia coccinea* (Vahl) Klotzsch, Monatsb. Akad. Berl. 1853: 496. 1853.

Syn.: *Macrocnemum coccineum* Vahl; *Mussaenda coccinea* (Vahl) Poir. in Lam.; *Calycophyllum coccineum* (Vahl) DC.; *Warszewiczia schombugkiana* Klotzsch; *Warszewiczia pulcherrima* Klotzsch; *Warszewiczia poeppigiana* Klotzsch; *Warszewiczia splendens* Wedd.; *Warszewiczia maynensis* Wedd.; *Warszewiczia macrophylla* Wedd.

Acknowledgements

This work was completed during a fellowship for Visiting Scientist to PD from the National Counsel of Technological and Scientific Development (Conselho Nacional de Desenvolvimento Científico e Tecnológico - CNPq) of the Brazilian Government (grant 309885/2003-5), at the Federal University of Goiás (UFG). Our sincere gratitude goes to Vera Lúcia Gomes-Klein, UFG professor, for the coordination of the general project, and to Walmirton Thadeu D'Alessandro, Director of the Institute of Biological Sciences (ICB) of the UFG, and to colleagues of the ICB for the support and the pleasant professional environment. The directors and curators of the following herbaria are kindly acknowledged for loan of material and/or for providing working space during the visits of the senior author: BM, CPAP, G, IBGE, K, MBM, MO, NY, R, RB, U, UB, UFG, UFMT, and US. We also wish to thank Claes Persson, Cristina Bestetti, and one anonymous reviewer for valuable comments and corrections that much improved this work.

References

Achille, F., T. Motley, P. P. Lowry II & J. Jéremie. 2006. Polyphyly in *Guettarda* L. (Rubiaceae, Guettadeae) based on ITS sequence data. Ann. Missouri Bot. Gard. 93: 106-124.

Adams, D. 1993. *Spermacoce*. In: Burger, W. & C. M. Taylor. 1993. Rubiaceae. In: W. Burger (ed.), Flora Costaricensis. Fieldiana, Bot. n. s. 33: 313-320.

Bridson, D. & B. Verdcourt. 1988. *Coffea*. In: R.M. Polhill (Ed.), Flora of Tropical East Africa, Rubiaceae (Part 2): 703-723. A.A. Balkema, Rotterdam.

Castelnau, F. de. 1850-1855. Expédition dans les parties centrales de l'Amérique du Sud, de Rio de Janeiro à Lima, et de Lima au Para: exécuté par ordre du gouvernement Français pendant les années 1843 à 1847. P. Bertrand, Paris.

Castro, A. A. J. F., F. R. Martins, J. Y. Tamashiro & G. J. Shepherd. 1992. A Riqueza florística dos Cerrados brasileiros: considerações sobre o conhecimento da sua flora arbustivo-arbórea magnoliofítica. In: XVI Reunião Nordestina de Botânica. Resumos, p. 41. Universidade Regional do Cariri, Crato, CE, Brasil.

Castro, A. A. J. F., F. R. Martins & G. J. Shepherd. 1995. Comparação florístico-geográfica (Brasil) de amostras de Cerrado. In: XLVI Congresso Nacional de Botânica. Resumos, p. 125. USP/Sociedade Botânica do Brasil, Ribeirão Preto, São Paulo, Brasil.

Costa, R. B. (Org.). 2003. Fragmentação florestal e alternativas de desenvolvimento rural na Região Centro-Oeste. Editora UCDB/ Midiograf Gráfica e Editora, Londrina, PR, Brasil.

Delprete, P. G. (Coordinator). Rubiaceae, Part I: Introduction, Key to Genera, and Genera from A to L. In: M. J. Jansen-Jacobs (Ed.), Flora of the Guianas (submitted).

Delprete, P. G., L. B. Smith & R. B. Klein. 2004. Rubiáceas, Volume 1 - Gêneros A-G: 1. *Alseis* até 19. *Galium*. (com observações ecologicas por R. Klein, A. Reis & O. Iza). In: A. Reis (Ed.), Flora Ilustrada Catarinense, I Parte, Monografia RUBI, pp. 1-344. Herbário Barbosa Rodrigues, Itajaí, Santa Catarina, Brasil.

Delprete, P. G., L. B. Smith & R. B. Klein. 2005. Rubiáceas, Volume 2 - Gêneros G-Z: 20. *Gardenia* até 46. *Tocoyena* (com observações ecologicas por R. Klein, A. Reis & O. Iza). In: A. Reis (Ed.), Flora Ilustrada Catarinense, I Parte, Monografia RUBI, pp. 345-843. Herbário Barbosa Rodrigues, Itajaí, Santa Catarina, Brasil.

Diacon, T. A. 2004. Stringing together a nation - Cândido Mariano da Silva Rondon and the construction of a modern Brazil, 1906-1930. Duke University Press, Durham, NC, USA.

Diacon, T. A. 2006. Rondon: o marechal da floresta. Tradução L. T. Motta. Coordenação E. Gaspari & L. M. Schwarcz. Companhia das Letras, São Paulo, SP, Brasil.

Dubs, B. 1992. Birds of Southwestern Brazil. Betrona, Küsnacht, Switzerland.

Dubs, B. 1998. Prodromus Florae Matogrossensis - Part I. Checklist of Angiosperms, Part II. Types from Mato Grosso. The Botany of Mato Grosso. Series B, N. 3. Betrona-Verlag, Küsnacht, Switzerland.

Falcão, E. C. 1970. Alexandre Rodrigues Ferreira e a sua "viagem filosofica" as capitanias do Grao-Para, Rio Negro, Mato Grosso e Cuiaba (1783-1792). Rev. Med. Paulista N. 76.

Ferreira, A. R. 1970. Viagem filosofica as Capitanias do Grao-Para, Rio Negro, Mato Grosso e Cuiaba. 2 vols. Edgard de Cerqueira Falcão, São Paulo (reimpr. em "As Memoria Antropologica" Rio de Janeiro, 1974).

Ferreira, A. R. 1975. Roteiro das viagens, que fez pelas capitanias do Para, Rio Negro, Mato Grosso e Cuyaba (1792). In: Thekla Hartmann (Ed.), A contribuicão da iconografia para o conhecimento de indios barsileiros do século XIX. São Paulo.

Hoehne, F. C. 1914. Botanica. Relatorio apresentado ao Snr. Coronel de Engenharia Candido Marianno da Silva Rondon, Chefe da Commissão Brasileira, por F. C. Hoehne, botanico da Expedição. Rio de Janeiro, RJ, Brasil.

Hoehne, F. C. 1923. Phytophysionomia do Estado de Matto-Grosso e ligeiras notas a respeito da composição e distribuição da sua flora. Companhia Melhoramentos de São Paulo, São Paulo, SP, Brasil.

Hoehne, F. C. 1951. Indice bibliográfico e numérico das plantas colhidas pela Comissão Rondon ou Comissão de Linhas Telegráficas, Estratégicas de Mato-Grosso ao Amazonas, de 1908 até 1923; pelos botânicos: F.C. Hoehne e J.G. Kuhlmann e outros. Instituto de Botânica, São Paulo, SP, Brasil.

IBGE, 2006. Instituto Brasileiro de Geografia e Estatistica. http://www.ibge.gov.br/ (accessed on 21 April 2006).

Mendonça, R. C., J. M. Felfili, B. M. T. Walter, M. C. S. Junior, A. V. Rezende, T. S. Filgueiras, & P. E. Nogueira. 1998. Flora vascular do cerrado. In: S. M. Sano & S. P. de Almeida (Eds.), Cerrado, Ambiente e Flora. EMBRAPA, Planaltina, DF, Brasil.

Moore, S. L. M. 1895. The Phanerogamic Botany of the Matto Grosso Expedition, 1891-92. Trans. Linn. Soc. London, Bot. 4: 265-516, pl. 21-39.

Por, F. D. 1995. The Pantanal of Mato Grosso (Brazil): World's Largest Wetlands. Monographie Biologicae, Vol. 73. Kluwer Academic, Dordrecht, The Netherlands.

Pott, A. & V. J. Pott. 1994. Plantas do Pantanal. EMBRAPA-SPI. Corumbá, MS, Brasil.

Pott, V. J. & A. Pott. 2000. Plantas aquáticas do Pantanal. EMBRAPA-SPI. Brasília, DF, Brazil. Notes RGB Edinb. 45: 503-525.

Prance, G. T. & G. P. Schaller. 1982. Preliminary study on some vegetation types of the Pantanal, Mato Grosso, Brasil. Brittonia 34: 228-251.

Ratter, J. A., A. Pott, V. J. Pott, C. da Cunha, & M. Haridasan. 1989. Observations on woody vegetation types in the Pantanal and at Corumbá, Brasil. Notes Roy. Bot. Gard. Edinburg 45: 503-525.

Silva, D. G. B. da (Org.). 1997. Os Diários de Langsdorff, Vol.2 (São Paulo, de 1825 a 22 de novembro de 1826). 333 p. Associação Internacional de Estudos Langsdorff e a Casa de Oswaldo Cruz, Rio de Janeiro.

Silva, D. G. B. da (Org.). 1998. Os Diários de Langsdorff, Vol.3 (Mato Grosso e Amazônia, 21 de novembro de 1826 a 20 de maio de 1828). 298 p. Associação Internacional de Estudos Langsdorff e a Casa de Oswaldo Cruz, Rio de Janeiro.

Silva, J. S. V. & M. A. Moura. 1998. Delimitação do Pantanal Brasileiro e suas subregiões. Pesq. Agropec. Bras. 33: 1703-1711.

Swarts, F. A. (Ed.). 2000. The Pantanal of Brazil, Bolivia and Paraguay - Selected Discourses on the World's Largest Remaining Wetland System. Hudson MacArthur Publishers, Waterland Research Institute, Gouldsboro, PA, U.S.A.

Taylor, C. M., J. A. Steyermark, P. G. Delprete, A. Vicentini, R. Cortés, D. Zappi, C. B. Costa & E. A. Araujo. 2004. Rubiaceae. In: J. A. Steyermark, P. E. Berry, K. Yatskievych & B. K. Holst, Flora of the Venezuelan Guayana, vol. 8, pp. 497-848. Missouri Botanical Garden Press, St. Louis, MO, U.S.A.

Ule, E. 1894. Annexo VI. Relatório do Dr. Ernesto Ule, Botanico da Comissão. In: L.F. Cruls, Comissão Exploradora do Planalto Central do Brasil, Relatório. p. 329-343. H. Lombaerts & C. Rio de Janeiro, RJ, Brasil.

Appendix 1. Nomenclatural list

Considering the large number of synonyms included in the present work, a list of accepted taxa (**bold face**) and synonyms, as recognized by the authors is presented below. Synonyms, and invalid names (*italics*) are followed by the numbers that correspond to the accepted taxon, according the numeration given in the text [e.g., *Chiococca anguifuga* Mart. (9-1) = **Chiococca alba**; *Lipostoma* D. Don (11) = **Coccocypselum**].

Acrodryon Spreng. (8)
Agylophora Necker ex Raf. (67)
Alibertia A. Rich. in DC. (1)
A. acuminata (Benth.) Sandw. (1-1A)
A. acuminata (Benth.) Sandw. var. *acuminata* (1-1A)
A. amplexicaulis S. Moore (13-3)
A. benensis Standl. (13-7)
A. edulis (Rich.) A. Rich. in DC. (1-1)
A. edulis (Rich.) A. Rich. in DC. var. **edulis** (1-1A)
A. elliptica (Cham.) K. Schum. (13-1)
A. hadrantha Standl. (13-2)
A. hexagyna H. Karst. (1-1A)
A. humilis K. Schum. (13-3)

Dasycephala (DC.) Hook. f. (62)
D. alata (Nees & Mart.) Hook. f. (62-15)
Declieuxia Kunth (16)
D. alba Zucc. ex Schult. & Schult. (16-2)
D. alfredi Ernst (16-2)
D. anceps K. Schum. ex Glaziou (16-2)
D. brevicollis Muell. Arg. (16-2)
D. calophylla Standl. (16-2)
D. chiococcoides Kunth (16-2)
D. chiococcoides var. *genuina* Muell. Arg. (16-2)
D. chiococcoides var. *guianensis* Muell. Arg. (16-2)
D. chiococcoides var. *hirta* Muell. Arg. (16-2)
D. chiococcoides var. *linearis* Muell. Arg. (16-2)
D. chiococcoides var. *lucida* Muell. Arg. (16-2)
D. chiococcoides var. *mexicana* (DC.) Muell. Arg. (16-2)
D. chiococcoides var. *opaca* Muell. Arg. (16-2)
D. chiococcoides var. *pallida* Muell. Arg. (16-2)
D. chiococcoides var. *papillosa* Muell. Arg. (16-2)
D. chiococcoides var. *puberula* Muell. Arg. (16-2)
D. chiococcoides var. *puberulina* Muell. Arg. (16-2)
D. chiococcoides var. *vincoides* (Mart. & Zucc. ex Schult. & Schult.) Muell. Arg. (16-2)

D. clinopodioides Muell. Arg. (16-2)
D. cordigera Mart. & Zucc. ex Schult. & Schult. (16-1)
D. foliosa Pohl ex DC. (16-2)
D. fruticosa (Willd. ex Roem. & Schult.) Kuntze (16-2)
D. fruticosa ssp. *mexicana* (DC.) Borhidi (16-2)
D. fruticosa var. *guianensis* (Muell. Arg.) Standl. (16-2)
D. fruticosa var. *mexicana* (DC.) Standl. (16-2)
D. glabra Pohl ex DC. (16-2)
D. glauca Mart. ex Cham. & Schltdl. (16-2)
D. hedemoides Standl. (16-3)
D. mexicana DC. (16-2)
D. mollis Zucc. ex Schult. & Schult. (16-2)
D. mucronata Mart. ex Cham. & Schltdl. (16-2)
D. origanoides Zucc. ex Schult. & Schult. (16-2)
D. pulverulenta Mart. ex Cham. & Schltdl. (16-2)
D. revoluta Muell. Arg. (16-2)
D. rubioides Zucc. ex Schult. & Schult. (16-2)
D. verticillata Muell. Arg. (16-3)
D. vincoides Mart. & Zucc. ex Schult. & Schult. (16-2)
Dialypethalanthus Kuhlmann (17)
D. fuscescens Kuhlmann (17-1)
Dichrospermum Bremek. (62)
D. Willd. ex Schult. in Roem. & Schult. (30)
Diodella J. K. Small (18)
D. apiculata (Willd. ex Roem. & Schult.) Delprete (18-1)
D. radula (Willd. & Hoffmanns. ex Roem. & Schult.) Delprete (18-2)
D. rigida (Cham. & Schltdl.) J. K. Small (18-1)
D. rosmarinifolia (Pohl ex DC.) Bacigalupo & E. L. Cabral (18-3)
D. sarmentosa (Sw.) Bacigalupo & E. L. Cabral (18-4)
D. teres (Walt.) Small. (18-5)
Diodia L. (19)
D. sect. *Dasycephala* DC. (62)
D. alata Nees & Mart. (62-15)
D. anthospermoides Cham. & Schlecht. (24-1)
D. apiculata (Willd. ex Roem. & Schult.) K. Schum. (18-1)
D. brasiliensis Spreng. (24-1)
D. conferta DC. (18-1)
D. dasycephala Cham. & Schltdl. (62-2)
D. grandiflora (Spreng.) DC. (18-1)
D. gymnocephala K. Schum. (62-15)
D. hyssopifolia (Roem. & Schult.) Cham. & Schltdl. (62-9)
D. kunzei K. Schum. (19-1)
D. latiflora DC. (18-1)
D. macrophylla K. Schum. (19-2)
D. muriculata DC. (18-2)
D. ocymifolia (Willd. ex Roem. & Schult.) Bremek. (62-12)
D. palustris Cham. & Schltdl. (62-15)
D. polymorpha Cham. & Schlecht (24-1)
D. polymorpha var. *anthospermoides* (Cham. & Schlecht.) K. Schum. (24-1)
D. polymorpha var. *macrophylla* Cham. & Schlecht. (24-1)
D. polymorpha var. *microphylla* Cham. & Schlecht. (24-1)
D. prostrata Sw. (18-5)
D. pulchella Brandegee. (18-1)
D. radula (Willd. & Hoffmanns. ex Roem. & Schult.) Cham. & Schltdl. (18-2)
D. rigida Cham. & Schltdl. (18-1)
D. rigida var. *barbicocca* K. Schum. (18-1)
D. rigida var. *buckii* Urb. (18-1)
D. rigida var. *macrantha* K. Schum. (18-1)
D. riparia Sagot ex K. Schum. (18-4)
D. rosmarinifolia Pohl ex DC. (18-3)
D. rudis Miq. (18-1)
D. saponariifolia Cham. & Schltdl.) K. Schum. (19-3)

P. chlorotica var. *obovata* Muell. Arg. (51-6)
P. colorata (Willd. ex Roem. & Schult.) Muell. Arg. (51-8)
P. colorata ssp. *megapontica* (Muell. Arg.) Steyerm. (51-8)
P. coriacea Poir. ex Spreng. [=*Chione exserta* (DC.) Urb.]
P. cornifolia Humb.& Bonpl. ex Roem. & Schult., (58-2)
P. cornifolia Kunth (58-2)
P. cornigera Benth. (51-10)
P. corumbensis (S. Moore) Hoehne (51-9)
P. corymbifera Muell. Arg. (45-3)
P. crocea Sw. (45-4)
P. cubitalis Standl. & Steyerm. (51-6)
P. cujabensis Schltdl. (45-4)
P. cyanea Vell. (22-8)
P. deflexa DC. (51-11)
P. deflexa ssp. *campyloneura* (Benth.) Steyerm. (51-5)
P. deflexa ssp. *venulosa* (Muell. Arg.) Steyerm. (51-37)
P. dichotoma (Rudge) Bremek. (51-22)
P. edaphotrix Steyerm. (45-1)
P. erecta (Aubl.) Standl. & Steyerm. (56-1)
P. erecta f. *fluctuans* (Standl.) Steyerm. (56-1)
P. erythrophylla Muell. Arg. (51-12)
P. ficigemma DC. (51-7)
P. fimbriata Benth. (58-2)
P. flavovirens Suess. (51-16)
P. flexuosa Willd. (51-21)
P. floribunda Griseb. (51-18)
P. fluctuans Standl. (56-1)
P. fluctuans var. *angustifolia* (Muell. Arg.) Standl. (56-1)
P. fockeana Miq. (51-7)
P. foveolata Ruiz & Pav. (51-7)
P. glabrescens Muell. Arg. (51-4)
P. grandifolia Willd. ex Roem. & Schult. (45-6)
P. guianensis (Aubl.) Rusby (45-7)
P. guianensis Raeusch. (45-7)
P. herbacea Jacq. (28-1)
P. heterocarpa Standl. & Steyerm. (51-6)
P. hoffmannseggiana (Willd. ex Roem. & Schult.) Muell. Arg. (51-12)
P. hoffmannseggiana var. *erythrophylla* (Muell. Arg.) Steyerm. (51-12)
P. homoplastica S. Moore (51-31)
P. inundata Benth. (51-6)
P. inundata K. Krause (58-2)
P. involucrata Sw. (51-19)
P. iodotricha Muell. Arg. (51-13)
P. iodotricha ssp. *atricapilla* (Bremek.) Steyerm. (5-13)
P. ipecacuanha (Brot.) Stokes (8-1)
P. iquitoensis Standl. (51-3)
P. krauseana (Standl.) Zappi (51-27)
P. krauseana Standl. (58-2)
P. kuhlmannii Standl. (51-14)
P. lanata Muell. Arg. (45-9)
P. langsdorffiana Muell. Arg. (51-16)
P. leiocarpa Cham. & Schltdl. (51-15)
P. leiocarpa var. *intermedia* Muell. Arg. (51-15)
P. leucophaea Poepp. & Endl. (51-16)
P. longistipulata Benth. (51-26)
P. lupulina Benth. (51-16)
P. lupulina ssp. *rhodoleuca* (Muell. Arg.) Steyerm. (51-16)
P. lupulina spp. *rhodoleuca* var. *maypurensis* f. *pubens* Steyerm. (51-16)
P. lupulina var. *maypurensis* (Humb.& Bonpl.) Steyerm. (51-16)
P. lupulina var. *rhodoleuca* (Muell. Arg.) Steyerm. (51-16)
P. lupulina var. *stipulacea* Muell. Arg. (51-16)
P. luschnathiana Schlecht. (51-18)
P. luschnathii Klotzsch (51-18)
P. macrobotrys Ruiz & Pav. (45-10)
P. maguirei Standl. (58-12)
P. malmei (Standl.) Zappi (51-17)
P. mansoana Muell. Arg. (45-10)
P. mapouria Roem. & Schult. (51-18)
P. mapourioides DC. (51-18)
P. mapourioides var. *chionantha* (DC.) Steyerm. (51-18)
P. mapourioides var. *opaca* (Bremek.) Steyerm. (51-18)
P. mapourioides var. *tobagensis* (Urb.) Steyerm. (51-18)
P. marcgravii Spreng. (45-11)
P. maypurensis Humb. & Bonpl. ex Roem. & Schult. (51-16)
P. megapontica Muell. Arg. (51-8)
P. microcephala Miq. (51-12)
P. microcephala (Willd ex Roem. & Schult.) Muell. Arg. (51-25)
P. microcephala var. *tripotamica* Muell. Arg. (51-25)
P. nervosa Benth. (51-16)
P. nitida Willd. (51-18)
P. nitidella Muell. Arg. (45-12)
P. officinalis (Aubl.) Raeusch. (51-19)

R. crassiloba (Benth.) B.L. Rob., (58-3)
R. cujabensis Muell. Arg. (58-4)
R. erioloba Benth. (58-5)
R. fimbriata (Benth.) Standl. in Standl. & Calderon (58-2)
R. frondosa S. Moore (58-6)
R. gaudichaudii Muell. Arg. (58-8)
R. goyazensis Muell. Arg. (58-7)
R. jasminoides (Cham.) Muell. Arg. (58-8)
R. krukovii Standl. (58-13)
R. lacerostipula K. Schum. ex Glaziou (58-9)
R. longiflora Benth. (58-9)
R. longistipula Muell. Arg. (58-12)
R. micrantha Muell. Arg. (58-2)
R. obtusa Standl. (58-10)
R. palicoureoides (Mart.) Muell. Arg. (58-11)
R. scandens K. Krause (22-8)
R. schomburgkiana Benth. (58-3)
R. stipulacea (DC.) Steyerm. (58-12)
R. viburnoides (Cham.) Benth. (58-13)

Sabicea Aubl. (59)
S. amazonensis Wernham (59-1)
S. aspera Aubl. (59-2)
S. brasiliensis Wernham (59-3)
S. edulis (Rich.) Seem. (1-1A)
S. glabrescens Benth. (59-4)
S. humilis S. Moore (59-5)
S. mattogrossensis Wernham (59-6)
S. moorei Wernham (59-7)
S. villosa Willd. ex Roem. & Schult. (59-8)
Sardinia Vell. (30)
Scepseothamnus Cham. (13)
Schetti Adans. (33)
Schizocalyx Wedd. (4)
Schizocalyx Hochst (Salvadoraceae, see 4)
Schizocalyx O. Berg (Cucurbitaceae, see 4)
Schizocalyx Scheele (Lamiaceae, see 4)
Schloenleinia Klotzsch (4)
S. cuspidata (A. St. Hil.) Klotzsch in Hayne (4-1)
Schradera spicata Spruce ex Hook. f. (64-1)
Schreibersia longifolia (Spreng.) Kuntze (3-1A)
Schwenkfelda Schreber (59)
Schwenkfeldia aurea Spreng. (11-1)
Semaphyllanthe L. Andersson (6)
Sicelium P. Browne (11)
Sickingia Willd. (60)
S. corumbensis Standl. (60-1)
S. hexandra S. Moore (60-2)
S. japurensis K. Schum. (60-3)
S. tinctoria (Kunth) K. Schum. (60-3)
S. xanthostema K. Schum. (60-3)
Siderodendrum Schreb. (33)
Sideroxyloides Jacq. (33)
Simira Aubl. (60)
S. corumbensis (Standl.) Steyerm. (60-1)
S. erythroxylon (Willd.) Bremek. var. *saxicola* Steyerm. (60-3)
S. hexandra (S. Moore) Steyerm. (60-2)
S. rubescens (Benth.) Bremek. ex Steyerm. (60-3)
Sipanea Aubl. (61)
S. sect. *Virecta* (L.) Steyerm. (61)
S. acinifolia Spruce ex Sprague (61-3)
S. biflora (L. f.) Cham. & Schltdl. (61-1)
S. brasiliensis Wernham (61-2)
S. erythraeoides Cham. (36-2)
S. hispida Benth. ex Wernham (61-2)
S. hispida var. *major* (Hassler) Steyerm. (61-2)
S. palustris (A. Rich.) J.H. Kirkbr. (= *Sipanea wilson-brownei* Cowan)
S. pratensis Aubl. var. *major* Hassler (61-2)
S. radicans Endl. (61-1)
S. spraguei Wernham (61-3)
S. trianae Wernham (61-2)
S. veris S. Moore (61-3)
Sipania [sic] Seem. (36)
S. [sic] *palustris* Seem. (36-2)
Siphonandra Turcz. (9)
Siphonandra Klotzsch (Ericaceae, see 9)
Solena Willd. (50)
Solena Loureiro (Cucurbitaceae, see 50)
S. latifolia Rudge (50-1)
Spallanzania DC. (41)
Spallanzania Pollini (Rosaceae);
Spermacoce L. (62)
S. sec. *Borreria* (G. Mey.) Verdc. (62)
S. affinis DC. (62-3)
S. alata Aubl. (62-15)
S. apiculata Willd. ex Roem. & Schult. (18-1)
S. aturensis Kunth (62-1)
S. brasiliensis Spreng. (62-24)
S. capitata Ruiz & Pav. (62-1)
S. capitellata Willd. ex Roem. & Schult. (62-6)
S. chodatiana (Standl.) Govaert (24-6)
S. coerulea Pohl in DC. (62-12)
S. conferta DC. (18-1)
S. dasycephala (Cham. & Schltdl.) Delprete (62-2)
S. diffusa DC. (62-3)
S. divergens Pohl ex DC. (55-2)
S. ernstii R. Fosberg & D. Powell (62-13)
S. eryngioides (Cham. & Schltdl.) Kuntze (62-3)

Tertrea DC. (37)
Tessiera DC. (62)
T. lanigera DC. (65-1)
Tetramerium Gaertn. (22),
T. sessilifolium Kunth. (22-10)
Theyodis A. Rich. (43)
Thieleodoxa Cham. (13)
T. elliptica Cham. (13-1)
T. nitidula Bremek. (1-1A)
Thiersia Baill. (22)
Thouarsiora Homolle ex Arènes (33)
Tocoyena Aubl. (66)
T. acutiflora Mart. (66-2)
T. brasiliensis Mart. (66-1)
T. foetida Poepp. & Endl. (66-2)
T. formosa (Cham. & Schltdl.) K. Schum. (66-3)
T. guianensis K. Schum. (66-4)
T. guianensis var. *communis* Steyerm. (66-4)
T. guianensis var. *glabriuscula* Steyerm. (66-4)
T. longifolia Kunth (50-1)
Tontanea Aubl. (11)
T. canescens (Willd. ex Roem. & Schult.) Standl. (11-5)
Tournefortiopsis Rusby (30)
Triodon DC. (24)
T. anthospermoides (Cham. & Schlecht.) DC. (24-1)
T. glomeratum DC. (24-1)
T. polymorphum (Cham. & Schltdl.) DC. (24-1)
T. polymorphum var. *macrophyllum* (Cham. & Schltdl.) DC. (24-1)
T. polymorphum var. *microphyllum* (Cham. & Schlecht) Standl. (24-1)

Ucriana Willd. (66)
U. longifolia Spreng. (3-1A)
U. aculeata Willd. in Usteri (67-1)
Uncaria Schreber (67)
Uncaria Burch. (Pedaliaceae, see 67)
U. guianensis (Aubl.) Gmel. (67-1)
U. spinosa Raeusch. (67-1)
Uragoga Baill. (51)
U. alba (Aubl.) Kuntze (51-36)
U. alba (Aubl.) Pulle (51-36)
U. alba (Ruiz & Pav.) Kuntze (51-7)
U. glabrescens (Muell. Arg.) Kuntze (51-4)
U. ipecacuanha (Brot.) Baill. (7-1)
U. tomentosa (Aubl.) K. Schum. (51-24)
U. tomentosa (Aubl.) Kuntze (51-24)

Valantia hypocarpia L. (25-1)
Vanessa Raf. (39);
Varneria augusta L. (26-1)
Vignaldia A. Rich. (46)
V. quartiniana A. Rich. (46-1)
Vignudia Schweinf. (46)
Virecta L. f. (61)
Virecta Smith in A. Rees (= *Virectaria* Bremek.)
V. biflora L.f. (61-1)
Voigtia Klotzsch (4)

Warscewiczia Steyerm. (68)
Warszewiczia Klotzsch (68)
W. coccinea (Vahl) Klotzsch (68-1)
W. macrophylla Wedd. (68-1)
W. maynensis Wedd. (68-1)
W. poeppigiana Klotzsch (68-1)
W. pulcherrima Klotzsch (68-1)
W. schombugkiana Klotzsch (68-1)
W. splendens Wedd. (68-1)
Wernhamia S. Moore (60)

Yutajea Steyerm. (32)
Y. liesneri Steyerm. (32-2)

Received 03.V.2006
Accepted 20.XII.2006