KEYS TO GENERA OF MALPIGHIACEAE FOUND IN CENTRAL AMERICA
(GUATEMALA AND BELIZE TO PANAMA)

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KEY FOR SPECIMENS BEARING FLOWERS

1. Flowers all cleistogamous (ca. 1.5 mm in diameter, without visible petals, androecium, or gynoecium). *Gaudichaudia*

1. Flowers (some or all) chasmogamous (at least 6 mm in diameter, with showy petals, the androecium and gynoecium visible).

    2. Petals pink and/or white or white turning red or yellowish in age, pink turning reddish in age, lilac, or lilac fading to white.

        3. Bracteoles (some) terminating in a stalked peltate gland; trees or shrubs.

            4. Anthers with 2 dark longitudinal wings on outer locules; ovary tricarpellate; styles 3, slender and subulate, tapering to minute stigmas; lamina eglandular in upper (adaxial) surface. *Andersoniodoxa hammelii*

            4. Anthers unwinged; ovary bicarpellate; styles 2, stout, untapered, the stigmas broad; lamina bearing a row of small glands in upper (adaxial) surface, the glands distal and set in from margin. *Spachea*

        3. Bracteoles all eglandular or bearing 1 or 2 tiny abaxial or basal glands; trees, shrubs, or woody vines.

            5. Trees or shrubs; inflorescence unbranched.

                6. Inflorescence terminating a leafy shoot, an elongated pseudoraceme or with some bracts subtending few-flowered cincinni. *Byrsonima*

                6. Inflorescence lateral, axillary to current leaves or bracts or above the scars of fallen leaves or bracts, consisting of fascicles, umbels, corymbs, or short condensed pseudoracemes.

                    7. Pedicels sessile; stipules intra- and epipetiolar, the members of a pair proximally connate and distally distinct; leaves eglandular; anthers with the outer locules bearing introrse longitudinal wings, the connective exceeding locules at apex; styles slender and subulate with minute stigmas; fruit dry, dehiscent. *Pterandra*

7. Pedicels pedunculate; stipules interpetiolar, distinct or each connate with a stipule from opposite petiole to form an interpetiolar pair; leaves with lamina usually bearing 2 (–10) glands impressed in abaxial surface; anthers unwinged, the connective not exceeding locules at apex; styles of uniform thickness, the apex with a large internal or subterminal stigma and dorsally rounded, truncate, or hooked; fruit fleshy, mostly indehiscent (a few species with the pyrenes separating at maturity). *Malpighia*

5. Woody vines, or if described as shrubby the inflorescence branched.

8. Corolla radially symmetrical or nearly so, the petals subequal in size and shape but one with the claw wider than the other 4, pure white; pedicels sessile; sepals all eglandular. *Psychopterys*

8. Corolla bilaterally symmetrical, the posterior petal obviously different from the other 4, the petals white in a few species but mostly at least partly pink or lilac; pedicels mostly pedunculate, sessile in a few species; sepals all eglandular or (much more often) the lateral 4 sepals biglandular and the anterior sepal eglandular.

9. Styles with stigmas terminal and without any sort of dorsal extension at apex; anthers strongly heteromorphic. *Banisteriopsis*

9. Styles with stigmas internal, the apex dorsally rounded, truncate, acute, or extended into a short hook; anthers ± alike.

10. Flowers borne in umbels or corymbs of (2) 3–7 (–10); glands usually present on abaxial surface of lamina, swollen to peltate, or if flush with leaf surface the petals abaxially winged. *Heteropterys*

10. Flowers borne in elongated to condensed pseudoracemes; glands usually present on lamina, on margin or abaxial surface; petals abaxially smooth.

11. Glands on lamina (if present) strictly marginal; calyx glands sericeous, especially toward margins; stipules absent or borne on base of petiole. *Heteropterys prunifolia*

11. Glands on lamina (if present) flush with leaf surface; calyx glands glabrous; stipules borne on stem between petioles. *Mascagnia*

2. Petals yellow or greenish yellow, or yellow with a red central blotch, or yellow turning red or orange, or yellow and red.

12. Bracteoles larger than bracts, globose-cymbiform, borne just below flower, enclosing bud until flower opens; peduncles well developed, the pedicels absent or up to 2 (–5) mm long in fruit. *Mezia includens*

12. Bracteoles mostly similar to bracts or smaller than them, if larger not enclosing bud until flower opens; peduncles absent or short relative to the well-developed pedicels.

13. Petals abaxially ± densely sericeous or appressed-tomentose.

14. Bracts, bracteoles, and sepals bearing many stalked glands all around the margin. *Christianella mesoamericana*

14. Bracts, bracteoles, and sepals with their margins eglandular.

15. Styles apparently 2, the anterior style rudimentary or absent. *Dicella aciculifera*

15. Styles 3, all well developed and ± equal.

16. Lateral 4 sepals each bearing 1 large central abaxial gland and the anterior sepal eglandular, or all 5 sepals eglandular. *Jubelina wilburii*

16. Lateral 4 sepals each bearing 2 large abaxial glands, the anterior sepal eglandular.

17. Apex of styles with stigmas quite terminal and without any sort of dorsal extension; anthers pubescent on locules; pedicels sessile. *Diplopterys*

17. Apex of styles with stigmas internal and dorsally rounded or truncate; anthers glabrous; pedicels pedunculate.

18. Stipules borne on petiole at or just above base; stigmas transversely expanded. *Callaeum*

18. Stipules borne on stem between petioles; stigmas round. *Carolus sinemariensis*

13. Petals abaxially glabrous or sparsely sericeous on midrib.

    19. Stamens 5. *Gaudichaudia*

    19. Stamens 10.

        20. Styles slender and subulate, tapering to minute stigmas; trees, shrubs, or subshrubs.

            21. Leaves eglandular; pedicels sessile in most species; fruit fleshy, the seeds borne in an indehiscent trilocular stone. *Byrsonima*

            21. Leaves mostly bearing glands on petiole and/or proximally on margin of lamina; pedicels pedunculate; fruit dry, breaking apart into 3 1-seeded cocci. *Galphimia*

        20. Styles slender to stout, of uniform thickness or widened at apex, the stigmas large; trees, shrubs, or vines.

            22. Petals concealed by sepals during enlargement of bud, until anthesis.

                23. Leaves densely and persistently metallic-sericeous below. *Niedenzuella stannea*

                23. Leaves glabrate below or only very thinly sericeous, the hairs not hiding epidermis. *Heteropterys*

            22. Petals (at least the outermost) exposed during enlargement of bud.

                24. Petals strongly dissimilar in color and margin, the lateral 4 pure yellow and ± entire, the posterior reddish or yellow with red veins and deeply lacerate-fimbriate. *Adelphia hiraea*

                24. Petals ± alike in color and margin, although posterior petal may differ from lateral 4 in size, shape, and stance.

                    25. Apex of styles (2 or all 3) dorsally extended into a long hook or flap-bearing appendage. *Stigmaphyllon*

                    25. Apex of styles dorsally rounded, truncate, acute, or short-hooked.

                        26. Trees or shrubs; stipules borne on base of petiole; 1 or both bracteoles often bearing 1 (2) abaxial glands; carpels 2 or 3, developing into an indehiscent fleshy fruit; styles 2 or 3, distinct or partly to completely connate. *Bunchosia*

26. Woody vines, occasionally shrubby but then without the characters of stipules, bracteoles, carpels, fruits, and styles given above for *Bunchosia*.

    27. Petiole biglandular at base. *Heteropterys*

    27. Petiole eglandular at base.

        28. Pedicels sessile or raised on a peduncle up to 1.5 mm long.

            29. Apex of styles with stigmas internal and dorsally rounded, truncate, or acute; stipules 1–8 mm long, subulate, borne on petiole between base and apex, persistent. *Hiraea*

            29. Apex of styles with stigmas terminal and without any sort of dorsal extension; stipules borne on stem between petioles, triangular, less than 1 mm long, persistent or deciduous.

                30. Petals lacerate, laciniate, or fimbriate; flowers borne mostly in umbels of 4, rarely in umbels or very short pseudoracemes of 3–4 pairs. *Banisteriopsis*

                30. Petals entire or denticulate; flowers borne in short dense pseudoracemes of 8–25. *Bronwenia*

        28. Pedicels pedunculate, the peduncle mostly over 1.5 mm long.

            31. Flowers borne in umbels of 4 (–6).

                32. Lamina densely and persistently metallic-sericeous below with the epidermis ± completely hidden by the vesture, the hairs originally bronze or golden but fading to silver in age; glands on lamina borne on abaxial surface between midrib and margin. *Heteropterys macrostachya*

32. Lamina mostly ± glabrescent below at maturity, if persistently subsericeous the lamina glands restricted to margin. *Tetrapterys*

31. Flowers borne in elongated to congested pseudoracemes, or in corymbs of more than 6 flowers.

33. Petioles of larger leaves (1.5–) 2 cm long or longer, usually bearing a pair of large glands at or slightly below apex or slightly above apex against midrib. *Stigmaphyllon*

33. Petioles of larger leaves up to 0.9 cm long, eglandular.

34. Flowers borne in corymbs. *Mascagnia*

34. Flowers borne in elongated pseudoracemes. *Tetrapterys*

KEY FOR SPECIMENS BEARING FRUITS

1. Fruit with a soft, fleshy, edible exocarp, indehiscent or in a few species the flesh-covered pyrenes separating at maturity; trees, shrubs, or subshrubs.

2. Leaves and bracteoles eglandular; styles slender and subulate, the stigmas minute; inflorescence terminating a leafy shoot, an elongated pseudoraceme or with some bracts subtending few-flowered cincinni. *Byrsonima*

2. Leaves usually bearing glands impressed in abaxial surface of lamina; bracteoles eglandular or some bracteoles bearing large abaxial glands; styles slender to stout, of uniform thickness or widened at apex, the stigmas large; inflorescence axillary, without leaves or with at most 1 pair of leaves, elongated or condensed and corymbiform or umbellate.

3. Flowers borne in elongated pseudoracemes, mostly unbranched but in 2 species sometimes ternate at base; bracteoles (one or both) often bearing 1 large abaxial gland, sometimes 2; styles 2 or 3, distinct or partly to completely connate and then apparently only 1; stipules borne on base of petiole. *Bunchosia*

3. Flowers borne in umbels or corymbs or short condensed pseudoracemes; bracteoles all eglandular; styles 3, distinct; stipules borne on stem between petioles. *Malpighia*

1. Fruit dry; trees, shrubs, or slender to woody vines.

    4. Fruit indehiscent at maturity, a hard nut subtended by 5 dry wings formed by enlargement of the sepals; woody vines; Costa Rica. *Dicella aciculifera*

    4. Fruit schizocarpic at maturity, breaking apart into mericarps; trees, shrubs, or slender to woody vines.

        5. Mericarps or cocci smooth or at most ribbed, unwinged; trees or shrubs.

            6. Fruit consisting of 2 mericarps, developing from a bicarpellate ovary; styles 2, stout, untapered, the stigmas broad; lamina bearing a row of small glands in upper (adaxial) surface, the glands distal and set in from margin. *Spachea*

            6. Fruit consisting of 3 mericarps, developing from a tricarpellate ovary; styles 3, slender and subulate, tapering to minute stigmas; lamina eglandular in upper (adaxial) surface.

                7. Bracteoles (some) terminating in a stalked peltate gland. *Andersoniodoxa hammelii*

                7. Bracteoles all eglandular.

                    8. Flowers borne in sessile or subsessile fascicles of 4–6 in the axils of leaves or bracts or above the scars of fallen leaves or bracts; leaves eglandular; pedicels sessile. *Pterandra*

                    8. Flowers borne in terminal elongated pseudoracemes or panicles of several pseudoracemes; leaves mostly bearing glands on petiole and/or proximally on margin of lamina; pedicels pedunculate. *Galphimia*

        5. Mericarps winged, the wing(s) reduced in some species to winglets; trees, shrubs, or slender to woody vines.

            9. Mericarps with outgrowths or wings very short relative to size of nut.

                10. Flowers borne in elongated many-flowered pseudoracemes; sepals revolute at apex. *Heteropterys*

                10. Flowers borne in umbels of (3) 4 (–6); sepals erect or appressed.

                    11. Pedicels subsessile or borne on peduncles up to 0.2 times as long as pedicels; Atlantic coast. *Stigmaphyllon bannisterioides*

                    11. Pedicels and peduncles subequal in length; Pacific coast of Panama. *Tetrapterys subaptera*

9. Mericarps samaroid, with either dorsal or lateral wing(s) (or both) well developed.

12. Samaras with dorsal wing dominant, the nut bearing on its sides only short winglets or crests or quite smooth.

13. Wing of samara with the abaxial edge thickened, the veins diverging and branching from it toward the thinner adaxial edge. *Heteropterys*

13. Wing of samara with the adaxial edge thickened, the veins diverging and branching from it toward the thinner abaxial edge.

14. Lamina densely and persistently metallic-sericeous below.

15. Petiole eglandular or bearing 1 or 2 pairs of small raised peltate glands on distal half; lamina often bearing 2–4 (5) pairs of small peltate and often stipitate glands on abaxial surface. *Banisteriopsis muricata*

15. Petiole bearing 1 pair of large prominent glands at or just above or below the apex; other glands on lamina none or on margin.

16. Pedicels sessile or rarely raised on peduncles up to 1.5 mm long; flowers borne 6–8 per umbel or very short dense pseudoraceme. *Banisteriopsis lyrata*

16. Pedicels raised on peduncles (1.5–) 2 mm long or (often) longer; flowers borne 8–35 per umbel or congested pseudoraceme. *Stigmaphyllon*

14. Lamina glabrate below at maturity, or thinly sericeous or tomentose, or tomentose with T-shaped hairs.

17. Lamina deeply auriculate at base with the lobes overlapping in larger leaves and fringed on the margin with filiform glands up to 5.5 mm long. *Stigmaphyllon ciliatum*

17. Lamina cuneate to cordate at base without overlapping lobes, the margin eglandular or with sessile glands.

18. Flowers borne in umbels or congested pseudoracemes of 7–50.

19. Flowers mostly borne in umbels, if in congested pseudoracemes the pedicels raised on peduncles at least 3 mm long. *Stigmaphyllon*

19. Flowers borne in elongated pseudoracemes; pedicels sessile or raised on peduncles up to 1.5 mm long. *Bronwenia*

18. Flowers borne in umbels of (3) 4 (–6).

20. Pedicels raised on peduncles 2.5–34 mm long, expanded distally. *Stigmaphyllon ellipticum*

20. Pedicels sessile, not expanded distally.

21. Nut of samara smooth or at most rugose on sides. *Banisteriopsis*

21. Nut of samara bearing crests or winglets on sides. *Diplopterys*

12. Samaras with lateral wing(s) dominant, the dorsal wing smaller or reduced to a winglet or crest, or absent.

22. Samara with the lateral wings rarely entire, usually each irregularly divided into 3–5 narrowly rectangular segments. *Mascagnia allopterys*

22. Samara with the lateral wings not irregularly divided.

23. Samara asymmetrical or, if symmetrical, V- or Y-shaped, at maturity dangling from a slender threadlike carpophore attached to underside of wing. *Gaudichaudia*

23. Samara symmetrical, X-shaped, elliptical, orbicular, triangular, or butterfly-shaped, not dangling from a carpophore at maturity.

24. Samara with 4 lateral wings, 2 on each side. *Tetrapterys*

24. Samara with 1 continuous lateral wing or 2, 1 on each side.

25. Samara with the lateral wings confluent at least at base, confluent or notched to distinct at apex; lamina glands, if present, borne on abaxial surface between midrib and margin.

26. Flowers borne in elongated or congested pseudoracemes or corymbs of 10 or more flowers, sometimes fewer on lateral branches of the inflorescence; samara up to 36 mm across. *Mascagnia*

26. Flowers borne in umbels of 4 or corymbs of 6; samara at least 45 mm across in its longest dimension.

    27. Bracteoles globose-cymbiform, borne just below flower with the pedicel absent or very short [up to 2 (–5) mm long in fruit], the inner bracteole enclosing bud until anthesis, the outer enclosing bud and inner bracteole, the bracteoles persistent or deciduous before maturation of the fruit; samara orbicular, about as wide as high; anterior sepal eglandular, the lateral 4 each bearing 2 large, compressed, distinct or partially to completely connate abaxial glands; stipules borne on stem between petioles, caducous; Panama. *Mezia includens*

    27. Bracteoles flat or concave but not enclosing bud, borne below a well-developed pedicel, persistent or deciduous in fruit; samara elliptical, much wider than high; sepals all eglandular or the lateral 4 each bearing 1 large abaxial gland; stipules borne on base of petiole, persistent; Panama and Costa Rica. *Jubelina wilburii*

25. Samara with the 2 lateral wings distinct at both base and apex; lamina glands, if present, strictly marginal except often a pair at base against midrib.

    28. Pedicels sessile.

        29. Flowers borne in umbels of 4–many; stipules 1–8 mm long, subulate, borne on petiole between base and apex; sepals all eglandular or the lateral 4 bearing (6–) 8 abaxial glands. *Hiraea*

        29. Flowers borne in elongated pseudoracemes; stipules 0.1–0.9 mm long, triangular, borne on petiole at or slightly above base or on stem beside petiole, occasionally absent; sepals all eglandular. *Psychopterys*

    28. Pedicels usually raised on a peduncle, rarely subsessile.

        30. Bracts, bracteoles, and sepals bearing many stalked glands all around the margin. *Christianella mesoamericana*

        30. Bracts, bracteoles, and sepals with their margins eglandular.

31. Lamina densely and persistently metallic-sericeous below; Panama and Costa Rica. *Niedenzuella stannea*

31. Lamina glabrous below or at most sparsely sericeous.

    32. One bracteole of each pair bearing 1 large abaxial gland; pedicel shorter than peduncle or about the same length; petiole eglandular or (often) bearing 2 large protuberant glands on distal half. *Adelphia hiraea*

    32. Both bracteoles eglandular; pedicel much longer than peduncle; petiole eglandular or bearing 2–4 (–6) small glands at various heights.

        33. Stipules borne on petiole at or just above base. *Callaeum*

        33. Stipules borne on stem between petioles. *Carolus sinemariensis*