Moraceae Phylogeny Poster

Plant Phylogeny Posters on ResearchGate

Moreae

trees/shrubs; mono-/dioecious
lvs alternate/opposite, distichous/spiralled
stipules either lateral or amplexicaul
infl unisexual, uniflorous or racemose, spicate,
capitate (often globose) or urceolate (*Ficus*);
bracteate; T4, free to connate
♂ flw: A4, filaments straight/inflexed in bud,
pistillode usu. +
♀ flw: ovary (mostly) free, stigmas 2
fr drupaceous or achene-like,
P persistent, fleshy
(dehiscent in some *Streblus* s.l.) or not
seeds with/without endosperm
testa usu. with thick vascularized part below hilum
cotyledons (un)equal, straight or folded

- trees/shrubs; mono-/dioecious; usu. lateral/terminal thorns; lvs distichous, pinnately veined; petioles adaxially pubescent; stipules free, lateral
  infl axillary, solitary or paired, abaxial sterile groove, interfloral bracts basally attached
  flw T4 free, valvate; ♂infl (sub)spicate; filaments inflexed in bud, pistillode +; ♀ infl uniflorous or subspicate, flw usu. pedicellate, stigma bifid, arms equal
  fr drupaceous, < 1 cm long, usu. loosely enclosed by enlarged persistent T
  Sri Lanka to New Guinea — **Taxotrophis** 6
- trees/shrubs; dioecious; lvs distichous, pinnately veined; stipules free, semi-amplexicaul
  infl solitary or paired in leaf axils, bracts subpeltate
  ♂ infl spicate, abaxial sterile groove, flw 4-parted, decussate-imbricate, A4, inflexed in bud, pistillode +; ♀ infl to 3 together, uni-/biflorous, P tubular 4-lobed, ovary adnate to P, stigmas 2, equal
  infr with enlarged fleshy P surrounding drupaceous fr (<18 mm long)
  Madagascar, Comoros, Seychelles — **Maillardia** 2
- trees; dioecious; lvs distichous, pinnately veined; stipules free, not fully amplexicaul
  infl usu. solitary in leaf axils or on leafless nodes, spicate, flw in longitudinal rows alternating with rows of bracts, bracts mostly basally attached, abaxial sterile groove +
  ♂ infl < 20 cm long, flw 4-parted, imbricate, A4, inflexed in bud, pistillode +; ♀ infl < 4.5 cm long, flw 4-parted, decussate-imbricate, ovary free, stigmas 2, unequal
  infr with enlarged fleshy P, surrounding slightly flattened drupaceous fr
  trop. Africa — **Milicia** 2
- trees; dioecious; shoot apices deciduous; lvs distichous, triplinerved or at least trinerved at base; stipules free, ± lateral
  infl solitary or paired, bracts variable; ♂ infl spicate, < 2.5 mm, flw 4-parted, T imbricate, ciliolate; pistillode small, apiculate
  ♀ infl subglobose, ca. 5 mm Ø, flw 4-parted, T ciliolate, stigma bifid, (un)equal, arms filiform to 5 mm long
  infr subglobose (slightly elongate), ca. 1 mm Ø, T fleshy, yellowish-greenish, drupes ca. 5 x 3–5 mm
  trop. Africa — **Afromorus** 1
- trees/shrubs; dioecious; lvs distichous (or spiral in *P. ascendens*), pinnately veined, occ. trinerved at the base; stipules free, lateral
  infl axillary, solitary or up to 5 together, spicate, with an abaxial sterile groove; interfloral bracts mostly peltate
  flw sessile in longitudinal rows, T4, valvate, ciliolate; ♂ infl < 20 cm long, flw with filaments inflexed in bud, pistillode +
  ♀ infl < 10 cm long, flw usu. 2 (to ∞), T free (except *P. philippinensis*), stigma bifid, arms equal
  fr drupaceous, red to black, T persistent, usu. not enlarged/fleshy, < 1 cm long; Malesia to Australia, New Zealand, Oceania, central/western S America — **Paratrophis** 12
- trees/shrubs; dioecious; lvs spiralled to distichous, pinnately veined; stipules connate or free
  infl solitary or paired in leaf axils, spicate, flw in longitudinal rows, bracts + but sparse, usu. subpeltate
  ♂ infl < 9 cm long, flw 4-parted, decussate-imbricate, A4, inflexed in bud, pistillode +; ♀ infl < 12 cm long, flw T4, separate,
  decussate-imbricate, ovary free, stigmas 2, equal; infr with enlarged fleshy P, surrounding drupaceous fr (ca. 5–6 mm long)
  trop. Africa, Madagascar, Comoros — **Ampalis** 2
- trees; dioecious; lvs alternate, distichous; pinnately veined, 3-lobed to entire; stipules free, lateral
  infl solitary or paired in leaf axils or below lvs, racemose to spicate to subcapitate or uniflorous, bracts basally attached to peltate
  ♂ flw 4-lobed to 4-parted, T decussate-imbricate, A(3–)4, straight in bud, pistillode usu. –
  ♀ flw tubular, 4-lobed to sub-entire, ovary basally adnate to P, stigmas 2, short, usu. tongue-shaped
  infr with drupaceous fr enclosed by fleshy enlarged P, latter red to orange, turning black at maturity; C/S America (Mexico to Argentina) — **Sorocea** 19
- trees, dioecious; lvs opposite, decussate, lamina triplinerved, 3-lobed to entire; stipules free, lateral
  infl solitary or paired in leaf axils, bracteate
  ♂ infl spicate with abaxial sterile groove, < 12 cm long, flw in longitudinal rows, T4, A2, straight in bud, pistillode +
  ♀ infl globose-capitate, 1–1.5 cm across, flw 4-lobed to 4-parted, stigmas 2, filiform
  infr globose, ca. 2.5–3.5 cm across, green; T fleshy, yellowish-greenish; trop. S America — **Bagassa** 1
- trees/shrubs; dioecious; lvs distichous, pinnately veined; stipules free, lateral
  infl axillary or just below lvs, solitary or paired, interfloral bracts basally attached
  ♂ infl spicate to racemose with abaxial sterile groove, T4, basally connate, A4, filaments inflexed in bud, pistillode +
  ♀ infl spicate to racemose or subcapitate, T4, connate, tubular P, ovary adnate to P or not, stigma bifid, arms equal
  fr drupaceous, < 1.5 cm long, adnate to P or not, P enlarged and fleshy or not; Neotropics — **Trophis** 5
- trees/shrubs; dioecious; lvs 3-5-nerved at base; stipules free, nearly lateral
  infl solitary or paired in leaf axils, without an obvious sterile groove, interfloral bracts –
  ♂ infl spicate or racemose, < 8 cm long, flw 4-parted, imbricate, A4, inflexed in bud, pistillode +
  ♀ infl subcapitate to spicate, < 16 cm long, flw T4, separate, decussate-imbricate, ovary free, stigmas 2, equal
  infr with enlarged fleshy P enclosing achene-like fr (ca. 1 mm long); Asia, N/C America (introduced worldwide) — **Morus** 16

Artocarpeae

trees/shrubs; monoecious
infl unisexual
A1(2), filaments straight in bud

- monoecious; lvs spiralled or distichous; stipules free
  infl capitate, occ. rami- or cauliflorous, flw numerous
  ♂ flw free, usu. mixed with peltate/clavate interfloral bracts, P tubular, entire or 2-4-lobed, A1, pistillode –
  ♀ flw connate and/or with interfloral bracts, P tubular, ovary free, stigmas 1 or 2, equal or unequal; fr syncarp, P fleshy
  Asia, Australasia — **Artocarpus** c.70
- infl with interfloral bracts (yellow dye)
  ♂ infl spicate, with sterile strip, P –, A1(-4), directly from axis, interspersed among numerous bracts
  ♀ infl rarely uniflorous, P tubular, ovary free or adnate to P, stigmas 2, equal
  fr adnate to fleshy P — **Clarisia** 3
- lvs distichous, simple, penninerved stipules free, lateral; trop. America
  - ♂ infl spicate, with sterile strips, flw in longitudinal rows, T2-5, ± connate, A1(-2), pistillode –
    ♀ infl globose-capitate, P ± tubular, thick, ovary free, stigmas 2, equal
    yellow dye
    fr syncarp, with fleshy P — **Batocarpus** 3

Chlorophoreae

- dioecious, armed (at least juvenile parts); lvs evergreen or deciduous, distichous or spirally arranged, penninerved; stipules free, lateral
  interfloral bracts and/or T mostly with yellow dye
  ♂ infl racemose, spicate, or globose-capitate, T4, free or basally connate; stamens inflexed in bud (or straight in sect. *Cudrania*)
  ♀ infl globose-capitate, flw free or connate, ovary free or the lower part adnate to P, stigmas 2 (unequal) or 1; fr syncarp, P and exocarp fleshy, indehiscent
  pantropical (one sp. N Am, one temp. Asia) — **Maclura** 11

Parartocarpeae

shrubs/large trees, mono-/dioecious
abundant white exudate
lvs distichous/spiralled, simple, entire, pinnately veined, thin to thick coriaceous, glabrous, pubescent, scabrid, or hispid pubescent
stipules axillary, simple or paired, lateral
infl solitary/paired in leaf axils, unisexual (or bisexual with a single apical ♀ flw), uniflorous, cymose, or capitate
stamens or ovaries sunken into receptacle; pedunculate; involucre of 3–8 triangular bracts, basally connate
♂ infl with numerous flw, T4–5, A5, normally positioned or 1–3 in cavities in receptacle
with the anthers exerted through perforations in upper surface of receptacle, filaments free or united
♀ infl uniflorous or (sub)globose with ovaries solitary in each cavity, unilocular, style apical with a short exerted stigma
fr drupaceous, enclosed by persistent T, or aggregated into syncarps formed by enlargement of entire infl

- trees; monoecious; lvs distichous, pinnately veined; stipules free, lateral
  infl axillary; ♂ infl cymose, T5, imbricate, filaments inflexed in bud but apparently straightening gradually upon anthesis, pistillode minute, conical, pubescent, interfloral bracts few, basally attached
  ♀ infl uniflorous, pedunculate, involucral bracts 3, ±connate, T4, imbricate, stigma bifid, arms equal
  fr drupaceous, ca. 1 cm long, T enlarged and loosely enclosing fr
  S/SE Asia, S China — **Pseudostreblus** 1
- monoecious; lvs spirally arranged, simple, penninerved; stipules free, lateral
  infl ± capitate, with 3-6 fleshy bracts on margin, without obvious interfloral bracts or P (or these fused), stamens/ovaries immersed in cavities in head
  ♂ infl < 30 flw, each flw A2, filaments ± connate; ♀ infl 2-6 flw, consisting of only the naked ovary, stigma 1
  fr subglobose syncarp
  Malesia — **Hullettia** 2
- di- or monoecious; lvs spirally arranged, simple, penninerved; stipules connate, intrapetiolar
  infl globose, 3-8 bracts at base, no obvious interfloral bracts or P (or these completely fused)
  surface of infl head with processes, stamens/ovaries immersed in cavities in head; A1-3 in each cavity
  ovules solitary in cavities, stigma 1; fr syncarp, head fleshy (indurate surface)
  Malesia to Solomon Is. — **Parartocarpus** 2
- subshrubs or herbs; monoecious; latex –; lvs distichous, penni- to triplinerved; stipules free, lateral
  infl abaxially with sterile strip, bisexual (rarely unisex), T4, connate at base, valvate
  ♂ flw A4; ♀ flw sessile, ovary free, style lateral, stigmas 2 (unequal) or 1
  fr dehiscent drupe, surrounded by enlarged but not fleshy P
  Japan to New Caledonia, Madagascar (invasive in E USA) — **Fatoua** 2

Dorstenieae

trees, shrubs, lianas, and herbs, monoecious (dioecious)
lvs alternate, less commonly (sub)opposite, distichous or spiralled
stipules lateral to fully amplexicaul
infl uni-/bisexual, cymose, spicate, globose, or discoid to turbinate
or cup-shaped, multiflorous or uniflorous (the latter in ♀ infl only),
bracteate or not, interfloral bracts mostly peltate
♂ flw: T(1–)2–4 or absent, A1–4
filaments straight or inflexed in bud, pistillode + or (more often) –
♀ flw free or connate or embedded in the receptacle, T2–4,
ovary free/not, stigmas 1 or 2 (un)equal
fr drupaceous due to persistent fleshy P and/or receptacle,
whole endocarp unit often ballistically ejected from infr
seeds with/without endosperm, large/small
cotyledons (un)equal

- trees or climbers; dioecious
  lvs and shoot apices deciduous; lvs distichous to (sub)opposite; stipules free, lateral
  ♂ infl spicate (to subcapitate), interfloral bracts +; ♂ flw T4, A4
  ♀ infl capitate/subcapitate/± globose
  chiefly trop./subtrop. Asia
  - ♀ infl interfloral bracts longer than flw
    P utricular, ovary free, stigmas 2 (unequal) or 1
    fr syncarp, P enlarging, membraneous, exocarp fleshy, indehiscent
    trop./subtrop. Asia (1 sp. Madagascar, Comores)
  - ♀ infl interfloral bracts longer than flw
    P utricular, ovary free, stigmas 2 (unequal) or 1
    fr syncarp, P enlarging, membraneous, exocarp fleshy, indehiscent
    trop./subtrop. Asia, Japan
    - ♂ infl 3-6 cm, pubescent; peduncle 2-4 cm; interfloral bracts peltate, pubescent
      ♂ flw sessile; T lobes triangular, pubescent; filaments 2× as long as T lobes; anthers ± globose; pistillode small
      ♀ infl rarely elongated, ca. 6 mm across, densely pubescent, peduncle ca. 1 cm, pubescent
      ♀ flw P bottle-like, enclosing ovary; style reddish to dark red, linear, 1-3 cm, 2-branched
      fr drupes, red, ovoid, few, large (6-8 mm), sessile; trop./subtrop. Asia, trop. Australia — **Bleekrodea** 3
    - stipules free, lateral
      infl bisexual (rarely unisexual)
      ♂ flw 1 to ∞, T4-5, A4-5; ♀ flw (0-)1(-2) per infl, P tubular, dentate, ovary free, stigmas 2, equal
      fr surrounded by enlarged, slightly fleshy P
      Malesia, Madagascar — **Malaisia** 1
    - monoecious; lvs distichous; fr dehiscent drupe
      - stipules almost but not quite fully amplexicaul
        infl spicate, male or bisexual with prom. sterile groove
        bracts peltate, anthers extrorse, pistillodes conical
        endosperm –
        Malesia (Malaya, Sumatra, Borneo, Sulawesi, Mindanao) — **Sloetia** 1
  - trees/shrubs; dioecious (or monoecious); lvs distichous, pinnately veined, cystoliths +; stipules free, nearly amplexicaul
    infl unisexual (or bisexual); ♂ infl spicate, abaxial sterile groove, bracts mostly peltate, T4, free or basally connate filaments inflexed in bud, pistillode small
    ♀ infl uniflorous, bracts mostly basally attached, T4, free, imbricate, 2 stigmas
    fr drupaceous, fleshy endocarp dehiscent, T enlarged and persistent but not fleshy
    Africa — **Sloetiopsis** 1
  - stamens straight in bud
    - dioecious (or monoecious); lvs (usu.) distichous; stipules free, amplexicaul
      infl bracteate, ± globose, involucral bracts ++; flw pedicellate, immersed in cavities formed by connate lower parts of interfloral bracts
      P of ♂ flw 2-4(-5)-lobed, A2-4, pistillode usu. –; P of ♀ flw lacking, ovary free, stigmas 2, equal
      fr syncarp, covered with indurate tips of interfloral bracts
      trop. Africa, Madagascar — **Treculia** 3
    - di- or monoecious; lvs distichous, simple, penninerved; stipules free or connate, lateral or fully amplexicaul
      infl bi- or unisexual, axillary, solitary or paired, pedunculate, (sub)globose to turbinate, interfloral bracts peltate
      ♂ flw few to ∞, free, often ± immersed in infl head, T(2-)3-4 or vestigial to –, A1-4 straight in bud, pistillode + or –
      ♀ flw 1 to several, immersed in infl head, style exserted, P –; infr head becoming fleshy
      Neotropics — **Brosimum** 19
    - monoecious; lvs simple, penni- to subtriplinerved; stipules fused, amplexicaul
      infl bisexual, in bud enveloped by two scale lvs (modified stipules), discoid to turbinate, 6-8-lobed, membraneous involucre,
      fused with the surface of infl head in a ring around the central ♀ flw, covering many free stamens (♂ flw not discernable), at anthesis circumscissile, interfloral bracts –
      ♀ flw solitary, basally embedded in the receptacle, P tubular, 4-lobed or irregularly incised, ovary adnate to P
      infr becoming fleshy, crowned by the remains of the stamens; trop. Africa, Madagascar, and Seychelles — **Trilepisium** 1
    - monoecious (or androdioecious?); lvs simple, penni- to subtriplinerved; stipules free, (almost?) amplexicaul
      infl bisexual or ♂, discoid to subglobose, with peltate interfloral bracts and 1-3 rows of marginal bracts
      ♂ flw several to ∞, free, T3-4, connate, A(1-)2 inflexed in bud, pistillode –
      ♀ flw solitary, immersed in center of infl, ovary adnate to P
      infr head becoming fleshy, crowned by the remains of flw; trop. Africa — **Bosqueiopsis** 10
    - undershrubs, rhizomatous stems; monoecious; lvs simple, penninerved; stipules free, not fully amplexicaul
      infl bisexual, pedunculate, cup-shaped to funnel-shaped, with 4 reniform, imbricate bracts on the margin, interfloral bracts –
      ♂ flw many, free or connate below, T(3-)4(-5), A1-2(-3), straight in bud, pistillode –
      ♀ flw solitary in center of infl, free, T2(-3), free, or 4, connate, ovary free
      fr dehiscent drupe, surrounded by enlarged green P; trop. W Africa — **Scyphosyce** 2
    - monoecious; lvs ± subtriplinerved, stipules free, lateral
      infl bisexual, interfloral bracts –; ♂ flw several to many, free, T2-4, connate (tubular), A(1-)2(-3), straight in bud, pistillode –
      ♀ flw solitary (rarely 2?) in the center of infl, T4, connate (tubular), ovary free
      infr head becoming globose, bearing remains of ♂ flw; fr dehiscent drupe
      trop. W Africa — **Utsetela** 1
    - herbs, sub(shrubs), often ± succulent, often rhizomes or tuberous subterranean parts; monoecious; stipules free, lateral
      infl bisexual, marginal bracts or appendices of variable shape and size, interfloral bracts –
      ♂ flw ∞, T(1-)2-3(-4), A2-3 inflexed in bud, pistillode + or –
      ♀ flw 1 to ∞, usu. in center of infl, connate, often immersed, P tubular, ovary free, stigmas 1 or 2, equal or unequal
      fr dehiscent drupe, embedded in infr head; Neotropics, Africa (1 Asia) — **Dorstenia** 113
- trees/shrubs; di- or monoecious; unarmed or with spines; lvs distichous, lamina pinnately veined; stipules free, lateral
  infl bi- or unisexual, capitate, involucre rudimentary, bracts basally attached
  ♂ infl discoid capitate, multiflorous, T4, imbricate, A4, inflexed in bud, pistillode + but small; ♀ infl usu. uniflorous, T4, ovary free, stigmas 2, equal
  fr drupaceous, < 8 mm long, initially enclosed by enlarged but not fleshy T, which may open later
  India to S China, mainland SE Asia to Philippines and Moluccas — **Streblus** 3

Olmedieae Castilleae

trees/shrubs, mono-/dioecious (or androdioecious)
self-pruning branches (often)
lvs alternate/opposite, distichous or spiralled
stipules lateral to amplexicaul
infl mostly unisexual, capitate, mostly discoid to
urceolate, involucrate, T4 (mostly), connate or not
♂ infl usu. ∞-flowered; A4 or fewer, filaments straight
or less often inflexed in bud, pistillode mostly –
♀ infl one to ∞-flowered,
ovary free or not, stigmas 2, filiform
fr mostly drupaceous, mostly enclosed by a fleshy P
or embedded in a fleshy receptacle
seeds with/without endosperm
testa thin, vascularized
cotyledons mostly equal

- dioecious; lvs alternate, simple, penninerved, stipules free, amplexicaul
  infl urceolate, enclosing numerous flw; ♂ infl splitting open at anthesis, ♂ flw T3-6, A3-6, pistillode +
  ♀ infl remaining closed until fr mature, ♀ flw T free, imbricate, ovary free, style long, exserted from infl, stigmas 1 or 2
  fr dehiscent drupe, infr splitting open at maturity
  New Caledonia — **Sparattosyce** 1(2)
- dioecious; lvs distichous, entire, penninerved, stipules free, lateral
  infl densely capitate, with an involucre of several rows of imbricate bracts; ♂ flw T4, A4, pistillode filiform
  ♀ flw without well-defined P, ovary free, surrounded by free, bract-like scales, stigmas 2, unequal
  fr dehiscent drupe, not immersed in infr
  New Guinea — **Antiaropsis** 2
- trop. America
  - monoecious; stipules free, amplexicaul
    infl on short-shoots, usu. with 1-2 ♀ infl and/or < 6 (rarely more) ♂ ones
    ♂ infl with 3-4 involucral bracts, flw ∞, interfloral bracts –, T2-4, A2-4, pistillode rarely +; ♀ infl sessile, uniflorous, flw basally adnate to axis, T3-4
    infr head becoming fleshy
    trop. America — **Mesogyne** 1
  - di- or monoecious; stipules free, semiamplexicaul; infl on short-shoots, usu. 1-2 ♀ infl and/or < 8 ♂ ones
    ♂ infl discoid, flw ∞, free, interfloral bracts –, T2-7, free, A2-4, pistillode –
    ♀ infl sessile or pedunculate, flw 1(-2), P 4-lobed,
    infr head becoming fleshy
    trop. Africa, Yemen, Madagascar, Sri Lanka to Australasia to Tonga — **Antiaris** 1
  - monoecious; aculeate (armed with prickles); lvs distichous, penninerved; stipules free, amplexicaul
    ♂ infl (sub)globose-capitate, with a few interfloral bracts, T4, ± connate
    ♀ infl (sub)discoid-capitate, with basal bracts, flw 1-15, P tubular, 4-lobed to 4-dentate, ovary free, stigmas 2, equal
    fr syncarp, with fleshy P and membraneous exocarps
    Neotropics — **Poulsenia** 1-2
  - trees/shrubs; dioecious; lvs distichous, lamina pinnately veined; stipules free, not fully amplexicaul
    infl unisexual, involucre well-developed; ♂ infl discoid, multiflorous, T4, valvate, A4, inflexed in bud, pistillode –
    ♀ infl usu. uniflorous, P tubular, 4-dentate, ovary free, stigmas 2, equal
    fr drupaceous, surrounded by fleshy persistent P and subtended by spreading, fleshy involucral bracts
    Neotropics — **Olmedia*** 1
  - dioecious (rarely monoecious); stipules free, amplexicaul
    ♂ infl < 4 together, discoid or ± cup-shaped, the inner involucral bracts often ± petaloid; flw interfloral bracts –, T(0-)4(-6), A1-4, pistillode –
    ♀ infl solitary, rarely in pairs, discoid to hemispherical, flw 1 to ∞, interfloral bracts usu. +, T(3-)4-6(-10)
    infr head becoming fleshy, T and interfloral bracts enlarged and hardened
    trop. America — **Naucleopsis** 20-25
  - di- or monoecious; stipules connate, amplexicaul; cladoptosis (against lianas)
    ♂ infl < 4 together, P –, stamens ∞ inserted solitarily or in pairs between interstaminal bracts
    ♀ infl solitary, flw 3 to many, free or basally connate, interfloral bracts rare, T4(-5)
    fr with P or infr head becoming fleshy
    C/S America — **Castilla** 3
  - mostly dioecious; stipules free, not fully amplexicaul
    ♂ infl pedunculate, discoid to globose, often crowded; flw numerous, free or basally connate, interfloral bracts –, T4, ± connate, A(2-)4, pistillode –
    ♀ infl mostly solitary, subsessile to pedunculate; flw numerous/free, few/connate, or one; interfloral bracts –
    T(2-)4 ± connate, ovary almost entirely adnate to P; fr enclosed in fleshy P
    trop. America — **Maquira** 5
  - di- or monoecious; stipules free, not fully amplexicaul
    ♂ infl usu. in groups, discoid, receptacle revolute, flw ∞, interfloral bracts –, T4, ± connate, A(2-)4, pistillode rare
    ♀ infl solitary or in pairs, flw 1, 3 or many, free, interfloral bracts –, T4
    fr free or ± adnate to fleshy P
    trop. S America — **Helicostylis** 7
  - di- or monoecious; stipules free, amplexicaul
    ♂ infl often many, mostly discoid, flw 1 to ∞, free, interfloral bracts –, T(2-)4, free or connate, A(2-)4(-6), pistillode –
    ♀ infl solitary or accompanied by ♂ ones, flw (1 to) ∞, mostly free, interfloral bracts –, T(3-)4, pistillode –
    fr free or ± adnate to fleshy P
    trop. America — **Perebea** 9-10
  - dioecious; stipules free, amplexicaul
    ♂ infl 1-4 together, discoid, P –; A ∞, free, inserted between concentrically arranged bracts
    ♀ infl solitary or in pairs, uniflorous, T4, connate (tubular), ovary entirely adnate to P
    fr enclosed in fleshy P
    trop. America — **Pseudolmedia** 9

Ficeae

- trees, shrubs, climbers, stranglers, or woody epiphytes; di- or monoecious; lvs usu. alternate
  infl urceolate (syconium) bisexual (with all three kinds of flw) or functionally unisexual (either with ♂ flw and gall flw or with seed flowers)
  some cauliflorous; stamens straight in bud
  fr (fig) syncarp (mainly from infl wall)
  pantropical — **Ficus** c.750

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MORACEAE
Fig Family

mostly woody
laticifers, latex milky (in most)
lvs spiral, with reticulate (boxy), fine venation
stipules ensheathing stem
infl congested (flowers in complex infls,
occ. with congenital fused branches)
flw 4-merous, unisexual
♂ flw: bracts peltate
fr an achene (or drupe) with infl axis and P
later accrescent, fleshy

~40 genera
~1125 species

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COLE TCH, GARDNER EM (2021) MORACEAE PHYLOGENY POSTER

- subfamilies, tribes, and genera with plesio-/apomorphic and (non)diagnostic traits
- hypothetical tree based on molecular phylogenetic data (up to 2021) updated regularly
- ca. 40 genera with ca. 1125 species
- phylogeny, classification, and features assembled from the References below
- branch lengths deliberate, not expressing actual time scale
- the characters listed do not necessarily apply to all members of the respective clade

Notes

Brosimum including *Helianthostylis* and *Trymatococcus*
**Olmedia aspera* (= *Trophis caucana*) within Olmediae/Castilleae but position therein still uncertain
Pachytrophe sunk into *Ampalis*
Prainea sunk into *Artocarpus* (Zerega et al. 2010)
Utsetela and *Scyphosyce* each nested in separate distinct clades with several species of *Dorstenia*

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Abbreviations

+ present, ++ very common/abundant, – absent, ∞ many, occ. occasionally, s.t. sometimes, usu. usually
A androecium/stamens, C corolla, G gynoecium, K calyx, P perianth, T tepals
flw flowers, fr fruit, infl inflorescence, infr infructescence, lvs leaves

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Rosales

- lvs compound, stipulate, serrate, never(?) two-ranked and rarely opposite
  flw hypanthium; K valvate, P free, often clawed, usu. A∞
  nectary on hypanthium or at the base of A, carpels often free
  fr aggregate of achenes/drupelet, pome fleshy, hypanthium/receptacle also involved, follicles common
  cyanogenesis — **Rosaceae**
- mucilage cells +
  infl cymose
  hypanthium +, nectariferous
  K valvate, C clawed
  stigma dry
  ovule 1/carpel, epitropous
  micropyle endostomal
  - styles branched
    ovules apotropous
    - dioecious; lvs opposite, margins entire, stipules –
      infl fasciculate, bracts and bracteoles –
      hypanthium –; P +, uniseriate
      nectary –; G1-2(-3), ± separate
      fr nutlet, P accrescent, wing-like
      seed coat undistinguished — **Barbeyaceae**
    - A = and opposite C/alternate with P
      capsule septicidal
      ovule basal; cotyledons large
      - lvs spiral, stipules subulate, persistent; flw single, terminal, 5-8-merous
        epicalyx of 4-8 lobes (in middle of pedicel); K basally connate, C contorted
        nectaries on base of C, or on subbasal appendages
        anthers extrorse, long, opening from apex; G(8), deeply longitudinally ridged, opposite K
        fr beaked, segments opening from the base, woolly inside, columella +,
        K deciduous above the "hypanthium"; seeds laterally flattened — **Dirachmaceae**
        - flw small, K connate (longitudinal median ridge)
          C cucullate, enfolding A, usu. clawed; A4-5, opposite C
          filaments adnate to base of C
          fr with raised annular rim at base
          [+ deciduous hypanthium]
          seeds often laterally flattened (arillate) — **Rhamnaceae**
      - thorny, deciduous shrubs; roots with N-fixing *Frankia*
        hairs lepidote/stellate, scaly indumentum
        lvs margins entire, stipules –
        P uniseriate, ± petal-like
        A2×P; borne in throat of tube; pollen 3-nucleate, G1
        hypanthium accrescent, fleshy, closely enveloping fr — **Elaeagnaceae**
    - lvs two-ranked, strongly serrate, asymmetric base
      sec. veins pinnate, proceed to apex of teeth
      stipules +
      flw small, some perfect
      T4-9, G2, A4-9
      fr samara or nutlet, seeds flat — **Ulmaceae**
  - fr indehiscent,
    K and/or hypanthium persistent
    endosperm reduced/lacking
    9 fam, 261 genera, 7725 spp.
    - hairs unicellular and multicellular-glandular
      lvs lamina with sec. veins proceeding straight to nonglandular teeth and higher-order veins convergent on those teeth
      [urticoid]
      stipules cauline
      - lvs two-ranked, serrate,
        ascending veins not proceeding straight into teeth
        stipules ± intrapetiolar
        prominent prophyllar buds
        fr rounded achene/drupe — **Cannabaceae**
      - hairs unicellular
        (usu. micropapillate)
        sec. veins palmate,
        stipules cauline-intrapetiolar
        flw imperfect
        stigmas:
        single vascular bundle
        fr not or barely flattened
        embryo curved
        - lvs blades with boxy venation,
          white below or otherwise variegated
          stipules +
          infl cymose, branched; ♀ infl often capitate
          flw small, G1; anthers often explosive
          fr nut/achene — **Urticaceae**
        - dioecious
          latex system +
          lamina with pinnate sec. veins
          - plants mostly woody; laticifers, latex milky
            lvs spiral, with boxy, fine venation
            stipules also ensheathing stem
            infl congested; flw 4-merous, ♂ flw with peltate bracts
            fr an achene (or drupe) with
            infl axis and P later accrescent, fleshy — **Moraceae**
        - P valvate (imbricate)
          ♂ flw: A incurved in bud
          (explosively straightening)
          pollen 2- or 5-porate
          pistillode +
          seed coat undistinguished
    - flw small (<7 mm across),
      usu. protogynous
      P +, uniseriate,
      sepal-like, imbricate
      A equal and opposite P
      pollen porate; nectary –
      G(2), only abaxial one fertile
      stigmas sessile, separate,
      spreading, receptive area
      extending down adaxial surface
      and ± confluent
      ovule 1, apical, pendulous
      fr a drupe
      endosperm scanty
      polyembryony common