

KEY TO TAXA OF MEXICAN CROTON

- 1) Petals well-developed in pistillate flower; indumentum lepidote;
styles multifid. *Subg. sect. 1. ELUTERIA*
- 2) Scales of ovary stelliform (radii separate to base).
- 3) Stamens 9-12; capsules muricate; seeds 9 mm. 1. C. arboreus Millsp.
- 3) Stamens c. 15; capsules smooth; seeds 5.5-6.5 mm. 2. (C. septemnervius McV.)
niven
- 2) Scales of ovary denticulate or lacerate, multiradiate.
- 4) Stamens 10-13.
- 5) Leaves palmately veined; capsules smooth; seeds 5-6 mm.
- 5a) Scales on ovary 0.3-0.7 mm across.
- 6) Leaves acuminate; filaments glabrous; seeds smooth. 3. C. pseudochina Schl.
- 6) Leaves acute; filaments hirsutulous; seeds mottled-
excavated. *seeds 5-6 mm* 4. C. guatemalensis Lotsy
- 5a) Scales on ovary 0.8-1 mm across; fruiting pedicels
~~5a~~ 1-2.5 mm. 5. C. pseudoniveus Lund.
- 5) Leaves pinnately veined.
- 7) Fruiting pedicels less than 10 mm long; filaments hirsutulous; ovary scales
0.5-0.7 mm.
- 8) Leaves acute or acuminate; stam. petals villose within. 6. C. icche Lundell
- 8) Leaves obtuse; stam. petals glabrous within. 7. C. perobtusus Lund.
- 7) Fruiting pedicels over 10 mm long; pedicels of stam. fls. 1.5-3.5 mm
long; filaments glabrous; ovary scales 0.3-0.4 mm. 8. C. schiedeanus Schl.
- 4) Stamens (13) 14-18; leaves palmately veined.
- 9) Filaments glabrous; capsules smooth; seeds 5-6 mm. 9. C. niveus
- 9) Filaments hirsutulous; capsules muricate; seeds
11 mm 10. C. eluterioides Lotsy

1) Petals reduced or absent in pistillate flower.

10) Petals present in staminate flower, ^{usually} sepals ^{usually} valvate (or if imbricate then receptacle glabrous).

11) Leaf blades unlobed; staminate sepals valvate in the bud; staminate receptacle pilose. (subg. Croton)[±]

12) Lower nodes of inflorescence with both staminate and pistillate flowers; ~~staminate petals villose within~~; stamens 15-50, filaments glabrous or hirsutulous; styles mostly bifid; seeds rugose/costate; leaves large, palmately veined, ^{mostly} with patelliform petiolar glands and large stipules. (sect. Cyclostigma) *Eutropia - Palanostigma*

13) Styles bifid; *(Cyclostigma)*

13a) Leaf blades with distinct patelliform glands at base

14) Filaments and petal faces glabrous or nearly so; stamens 17-25.

14' 15) Stipules ovate or lanceolate, 11a. C. draco

15) Stipules subulate 11b. C. panamensis

14) Filaments and adaxial petal faces hirsutulous; stamens 13-16.

12. C. tacanensis

13a) Leaf blades eglandular; stipules 8-12 mm; stem tips with dense floccose white tomentum; stamens 12-14, filaments glabrous; stam. petal faces glabrous; seeds 4.5-4.8 mm long, caruncle large (c. 2.5 mm broad), capping end of seed. 13. C. suberosus

13) Styles quadrifid to multifid; filaments hirsutulous (*Palanostigma*)

16) Leaf blades triplinerved, with patelliform glands at base; stipules less than 1 mm long; styles less than 3 mm long.

14. C. grewiiifolius

16) Leaf blades palmately veined, eglandular; stipules 10-16 mm long; styles 8 mm long.

15. C. stipulaceus

[*Eutropia* subsect *Eutropia* not present]

14' Stamens 11
 14' Stipules ^{sub} 8-12 mm; petals glab with ^{sess.} *pagi-veteris*
 14" " ^{minuti} 11-22 mm; seeds 9-10 mm, ^{glands} *vercetorum*
 14" ~2 mm; seeds 5.3-6.2 mm, ^{glands} *stipulaceus*
 14" Stamens 15-17, ^{petals} villose within; *siltepecensis*
 dioecious; stipules small.

bisexual

12) Lower nodes of/inflorescences with pistillate flowers only.

(17) Pistillate calyx actinomorphic, or sepals unequal in size, but not pinnately lobed.

18) Stamens 20 or more; stam. petals glabrous except margins.

19) Styles bifid; pistillate flowers sessile; seeds *(to Eutropia?)*
coarsely ^{kninked?} ribbed; stipules subulate. 16. C. xalapensis

19) Styles quadrifid; pistillate flowers pedicellate (pedicels at least 1.5 mm long in fruit); seeds *stamens c. 25-35*
smooth or obscurely ribbed; stipules glandular, usually dissected or obsolete. *sect. Adenophyllum Griseb.*

20) Stipules less than 1 mm long; leaves sparsely pubescent beneath; gland-tipped cilia on margins sparse; seeds less than 4 mm long; plants often dioecious. 17. C. humilis

20) Stipules 1 mm long or more; leaves copiously to very densely pubescent beneath; marginal gland-tipped cilia abundant; seeds at least 4 mm long; plants monoecious. *(incl. gaudieri)*
← jucundus?

21) Stipule segments slender, leaves thin and flexible, moderately tomentose beneath. 18. C. ciliatoglandulifera

21) Stipule segments stout, leaves thick and rigid, very densely tomentose beneath. 19. C. pulcher

18) Stamens normally less than 20. *or more than 2 mm broad with recurved tips*

22) Pistillate sepals more or less reduplicate-valvate, \wedge often with glandular margins; stam. petals lanate within, filament *hirsutulous, sect. Lasiogyne (Bailon)*

23) Indumentum stellate. *(Lasiogyne - Lasiogyne)*

23A *Stip. petiolar glands*
24) Twigs not resinous at the tips; styles quadrifid; stipules over 5 mm long. *(LASIOGYNE)*

25) Stipules setaceous; [staminate petals glabrous abaxially]; pistillate sepals with stipitate-glandular margins. *Epicalyx absent*

26) Staminate bracts entire; stamens 14-16; *fls. distinctly pedicellate*
leaves whitish-tomentose beneath, ♀ 20. C. ameliae

26) Staminate bracts glandular-lobed; stamens 10-13; leaves greenish beneath. 21. C. glandulosepalus

Epicalyx present, stamens 17-18,
25) Stipules foliose; staminate petals hirsutulous on both sides; pistillate petals *sepals* subentire. 22. C. tabascensis

23B Stip. petiolar glands present. C. ortegae

24) Twigs resinous at tips; indumentum very sparse; stamens 10-12; pistillate sepals nearly or quite glabrous, entire; (Astracopsis) 23. C. campechianus

23) Indumentum lepidote, at least on calyx and undersides of leaves; stamens mostly 15-17. (sect Argyroglossum Baillon)

27) Leaves stellate above, stellate-lepidote beneath (scales deeply divided, 10-15-radiate); staminate petals glabrous abaxially; ovary stellate-tomentose. 24. C. culiacanensis

Masonii →

27) Leaves glabrous above, lepidote beneath (scales lacerate, multiradiate); staminate petals lepidote abaxially; ovary stellate-lepidote. 25. C. watsonii

monoecious
diocious → C. yucatanensis

22) Pistillate calyx not reduplicate-valvate.

28) Styles twice bifid to multifid, pistillate sepals 5

29) Leaves with 2 or more conspicuous patelliform glands at base, margins without stalked capitate glands, ~~dentate; stamens 10-12, filaments glabrous.~~

= adpersus 45

Leaves subentire, stamens 14-17, fil. hirsutulous below. Seeds verruculose, over 5mm long. 26. C. billbargiana

30) [Leaves cuspidate-acuminate, denticulate or serrulate; styles over 5 mm long. 26. C. stylosus]

30) Leaves duplicidentate; styles less than 5 mm long. → *Decariniun?* 27. C. macrodontus

29) Leaves eglandular at base (or glands, if present, less than 0.3 mm across, or similar to glands on leaf margins). *PILINIPHYTUM?*

+ glabrous abaxially

31) Leaves and pistillate calyx lobes not marginally ciliate with capitate glands; filaments hirsutulous, anthers glandular-pustulate; *(or fil. hirs.)* stam. petals villous within, shrubs.

32) Stipules setaceous, not over 1 mm broad; leaves whitish-tomentose beneath; ~~stam. petals +/- glabrous abaxially.~~

33) Monoecious, inflorescences terminal; trichomes largely uniradiate on upper leaf surface. 28. C. sutup

34) Dioecious, inflorescences axillary; trichomes largely stellate on upper leaf surface, *pist fl. subsessile* 29. C. axillaris seeds 4.7 mm

32) *Apparently monoecious;* Stipules foliose, over 1 mm broad; leaves greenish; ~~staminate petals~~ *seeds 3.7-4.1 mm.* 29a. C. alamosanus

31) Leaves and/or pistillate calyx lobes marginally ciliate with capitate glands; filaments glabrous; *subshrubs or herbs.* *BARHAMIA*

huajuapenseis →

34) Staminate bracts entire or bifid; leaves crenate, 5-10 cm long or more; pistillate sepals sparsely glandular on the margins; filaments and anthers not glandular-pustulate. 30. C. soliman

34) Staminate bracts lacinate; leaves entire, 1-2 cm long; pistillate sepals copiously glandular on margins; filaments and anthers glandular-pustulate. 31. C. escathos

28) Styles once bifid (branches at most emarginate).

28') Carpels 3; Stamens 7-20.

35) Leaves with distinct patelliform glands at base of blade (some at least over 0.5 mm across) or else glands clustered and conspicuous in aggregate).

36) Leaf blades entire or denticulate; stamens 13-17, filaments ^{glabrous or} hirsutulous; seeds smooth, 4-4.5 mm long.

37) Stipules reduced or obsolete (less than 1 mm long); ovary not sharply angled.

38) Filaments glabrous, staminate petal faces glabrous. ♀ fl. ± sessile 32. C. lasiopetaloides

♀ fl. pedicellate C. limnocharis

38) Filaments hirsutulous, staminate petals villose adaxially. 33. C. siltepecensis

37) Stipules subulate, mostly well over 1 mm long; ovary sharply angled; filaments glabrous, 37' staminate petals glabrous except margins. 34. C. flavescens

37' Stam. petals. hirsutulous within, stamens mostly 14, pistillate sepals 7

36) Leaf blades distinctly (often coarsely) dentate;

39) Foliar trichomes stellate. CORYLIFOL

37' Petals of ♀ fl. over 1 mm. C. gynopetalus

40) Pistillate calyx lobes entire.

37' Petals of ♀ fl. less than 1 mm. C. ramillatus

41) Filaments and anthers glandular-pustulate; stamens 16-20; staminate petals villose within; seeds c. 6 mm long, rugose. 35. C. mexicanus

41) Stamens 10-12, filaments glabrous; staminate petals villose within; 36. C. itzaeus

C. glandulosus →
hirtus
trinitatis

40) Pistillate calyx lobes spathulate, dentate; stamens 11, filaments glabrous; staminate petals glabrous on both faces. 37. C. malvaviscifolius

39) Foliar trichomes lepidote (scales on upper surface deeply divided); stamens 10-15, filaments glabrous; staminate petals villose within; seeds 4.6-4.8 mm long, rugulose. 38. C. lundellii
seeds 5.6-6.5 mm; st 16-18 oerstedianus ARGYRODENDRON

35) Leaves without distinct patelliform glands at base of blade.

42) Staminate calyx copiously stellate-pubescent. VELAME

43) Leaves glabrous above, pinnately veined, acuminate; stipules less than 1 mm long; dioecious; stamens 16-20, filaments hirsutulous below. 39. C. cortesianus (-13)

43) Leaves stellate-pubescent above, at least when young.

44) Stamens 13-20; shrub s.

45) Filaments glabrous; staminate petal faces glabrous; staminate flowers at least 2 or 3 per bract; stipules small (less than 2 mm long) or obsolete.

46) Leaves pinnately veined; seeds 3-3.5 mm long; inflorescences often unisexual.

47) Pedicels of staminate flowers less than 2 mm long; anthers 0.4-0.5 mm long; leaves entire, rounded to subcordate at base; young foliage whitish-tomentose.

disc *twigs whitish hispid or hirsutulous, stipules 40. C. miradorensis*

47) Pedicels of staminate flowers at least 2 mm long; anthers 0.6-0.8 mm long; leaves denticulate, distinctly (though narrowly) cordate at base; young foliage reddish-tomentose.

= heterochrous

long, stipules 1.5-9 mm 41. C. peraeruginosus

46) Leaves triplinerved or palmately veined; seeds 4-6 mm long.

48) Leaves entire or obscurely denticulate.

magdalena

49) ~~Leaves distinctly cordate at base; seeds over 5 mm long.~~ 42. C. sphaerocarpus

sonora

49) Leaves cuneate to rounded at base; ~~seeds less than 5 mm long~~ 43. C. (fragilis mazapensis)

masonii

48) Leaves coarsely dentate

44. C. francoanus

45) Filaments hirsutulous; staminate petals hirsutulous within.

50) Stamens (9) 13-18, filaments hirsutulous throughout; pistillate pedicels not over 1 mm long. 45. C. deppeanus

50) Stamens 9-11, filaments sparsely hirsutulous; pistillate pedicels 1.5 mm long or more.

46. C. flavoglandulosus

44) Stamens mostly 7-12; *(-15 or more in C. pottsii) & hypoleucis* herbs or undershrubs.

51) Pistillate flowers distinctly pedicellate, becoming well over 2 mm long in fruit.

51) Stipules small, less than 2 mm long; 52'

52) Filaments distinctly hirsutulous, stamens mostly 11-15, anthers 0.7-0.8 mm long; staminate petals c. 2 mm long, fruiting pedicels 3.5-5 mm long. 47. C. pottsii

rzedowskii?

52' Stamens 14-17, anthers 0.6-0.7 mm; pistillate fls. subsessile (fruiting pedicels 0.7-1.5 mm long). lvs. lepidote 47a. C. hypoleucis

52) Filaments glabrous (or at most sparsely villose at base); anthers 0.4-0.6 mm long.

53) Pistillate sepals 5.

54) Pistillate sepals not strongly unequal; fruiting pedicels 3-10 mm long or more.

55) Leaves linear, petioles short, trichomes appressed; pistillate sepals less than 2 mm long. 49. C. pedicellatus

55) Leaf blades elliptic, petioles (at least of lower ~~linear~~ leaves) at least half the length of the blade; pistillate sepals 2.5-3.5 mm long. 50. C. lindheimerianus

ortegae? →

54) Pistillate sepals strongly unequal; fruiting pedicels less than 2 mm long.

51. C. leucophyllus

53) Pistillate sepals 6-8 or more; styles twice bifid; seeds prominulous-reticulate, 3.7-4.00 mm long. 52. C. subcapitatus

51') Stipules 2 mm long or more. 53. C. torreyanus

51) Pistillate flowers sessile or subsessile, fruiting pedicels not over c. 1 mm long; shrubs.

56) Monoecious; stamens 14-16; styles 3-4.5 mm long; petioles mostly over 5 mm long.

53. C. fruticosus

56) Dioecious; stamens 9-12; styles 1.5-2 mm long; petioles mostly less than 5 mm long.

54. C. sancti-lazari

54d. C. monanthogynus

42) → p. 27a

28') Carpels 2; stamens 4 or 5; staminate sepals usually 4.

17) Pistillate sepals distinctly unequal in size and/or distinctly pinnatifid.

57) Pistillate sepals entire or nearly so.

styla bif. w. fl. stip. 1st mostly 10-11, file fls.
Twigs & petioles yellow-hispid; seeds 4.2-4.3mm

C. orifolius/angustifolius

Leaves coarsely toothed; seeds c. 3.2-3.3mm

C. jutiapensis
filamentis hispidis

57) Pistillate sepals distinctly pinnatifid; stamens 11; styles quadrifid. JUCROTON

58) Disk of pistillate flower deeply lobed, adnate to the sepals; seeds smooth; herbs with silvery foliage.

55. C. argenteus

58) Disk of pistillate flower entire; seeds rugulose; shrubs with brownish pubescence.

56. C. conspurcatus

Geiseleria

Chomelensis

TIGLIUM
QUADRILOBUS

filaments glabrous;

42) Staminate calyx nearly or quite glabrous; seeds smooth. style bif.

56') Twigs stiff hispid (trichomes 2-2.5 mm long);
leaves cordate; stamens c. 20, 54a. C. tremulifolius

56') Twigs glabrous to appressed-stellate, ^{not cordate} leaves C. "mcvaughii"
stamens c. 35-45

57') Twigs glabrous; leaf blades coarsely dentate;
styles c. 3 mm long. 54b. C. ynesae

57') Twigs stellate-pubescent; styles 4-8 mm
long; stamens 10-11, filis. 54c. C. adpersus
glabrous.

Twigs appr-pub; styles c. 2.5 mm;
stamens c. 15 54d. C. lynchii

C. calvescens?

- 11) Staminate sepals imbricate in bud; stamens 12-16; styles quadrifid; seeds rugose or costate; leaf blades with petiolar glands.
- 59) Leaf blades entire; staminate receptacle densely villose; filaments densely villose; anthers 1 mm long or more; seeds compressed. 57. C. pyramidalis
- 59) Leaf blades deeply lobed; staminate receptacle glabrous; filaments glabrous; anthers 0.5 mm long or less; seeds tetragonal. 58. C. lobatus
- 10) Flowers apetalous (both sexes); staminate sepals imbricate; styles quadrifid; filaments hirsutulous.
- 60) Perennials; styles mostly not over 3 mm long.
- 61) Leaves rounded or very obtuse at tip; seeds 5-6 mm long; ^{o⁷ pedicel not over 1 mm;} (sometimes) monoecious. 59. C. punctatus
usually?
- 61) Leaves distinctly pointed at tip; strictly dioecious, ^{o⁷ pedicel exceeding 1 mm.}
- 62) ~~Staminate flowers strictly apetalous.~~
- 63) Seeds 3-5 mm long. 60. C. dioicus ←
- 63) Seeds 6-9 mm long. 61. C. wigginsii
- 62) ~~Staminate flowers with petals; seeds 3-4 mm long.~~ 62. C. californicus
- 60) Annuals; leaves green beneath; styles 4-6 mm long; seeds 3.5-4 mm long. 63. C. texensis