Cornus L.

(Cornaceae)

VEGETATIVE KEY TO SPECIES IN CULTIVATION

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Vegetative identification key.

Introduction:

This key is based on vegetative characteristics, and therefore also of use when flowers and fruit are absent. The type of inflorescence (quite often present from leaf bursting throughout the winter) offers such an important differentiating factor that it is taken into account to distinguish the subgenera.

- Use a 10× hand lens to pubescence and papillae in general.
- Look at the entire plant. Young/non flowering specimens, shade, and strong shoots give an atypical view.
- Beware of hybridisation, especially with plants raised from seed other than wild origin.

Taxa treated in this key: see page 7.

Taxa referred to synonymy in this key: see page 7.

Questionable/freguently misapplied names: see page 7.

References:

- JDL herbarium specimens
- living specimens, in various arboreta, botanic gardens and collections
- literature:

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http://www.plantentuin.ugent.be

http://www.arboretumwespelaar.be/EN

KEY TO SUBGENERA and GROUPS

01 a Rhizomatous herb ≤30 cm tall. ..... **subgenus *Arctocrania* see page 3**

b Shrub or tree >60 cm tall. **02**

02 a Leaves single per node (at least on short shoots). ..... **subgenus *Mesomora* see page 3**

b Leaves paired per node. **03**

03 a Inflorescence/infructescence (or remnants) capitulate. **04**

b Inflorescence/infructescence (or remnants) not capitulate (corymbose or fasciculate). . **05**

04 a Plant deciduous AND lamina LS pubescent especially near/on venation with long spreading hairs (10× LENS) [bracts notched**].** ..... **subgenus *Cynoxylon* see page 3**

b Plant evergreen, OR/IF deciduous then lamina LS pubescent with short appressed hairs (10× LENS) [bracts acute**].** ..... **subgenus *Syncarpea* see page 4**

05 a Inflorescence/infructescence (or remnants) fasciculate. ..... **subgenus *Cornus* see page 3**

b Inflorescence/infructescence (or remnants) open corymbose. **06**

06 a Plant evergreen (small tree), lamina leathery. subgenus *Yinquania* ..... ***C. oblonga***

b Deciduous (shrub to small tree), lamina papery to thin leathery. **07**

07 a Secondary veins predominantly ≥5/side (lamina rarely with <5 veins/side). .... **subgenus *Kraniopsis* -GROUP A- see page 4**

b Secondary veins 5/side, OR predominantly 2-5/side (lamina rarely with >5 veins/side). .... **subgenus *Kraniopsis* -GROUP B- see page 5**

subgenus *Arctocrania*

Leaves near top of shoot in 1-3 closely arranged pairs (appearing whorl-like arranged), on lower nodes often reduced. ..... ***C. canadensis***

Leaves along shoot in distantly arranged pairs, equally sized for 2-3 nodes. ..... ***C. suecica***

subgenus *Mesomora*

Lamina width predominantly ≥6 cm, secondary veins 6-9/side [inflorescence/infructescence 6-15 cm Ø**].** ..... ***C. controversa***

Lamina width predominantly ≤6 cm, secondary veins ≤6/side [inflorescence/infructescence predominantly ≤6 cm Ø**].** ..... ***C. alternifolia***

subgenus *Cynoxylon*

Young shoot often glaucous. Lamina ovate to elliptic, secondary veins 6-7/side. ..... ***C. florida***

Young shoot green. Lamina elliptic to obovate, secondary veins 5-6/side. ..... ***C. nuttallii***

subgenus *Cornus*

01 a Petiole length increases remarkably from shoot end to base, +/- from 1 to 4 cm. Lamina base +/- obliquely cuneate to attenuate. Secondary veins (3-)4-5/side. ..... ***C. sessilis***

b Petiole not or rather slightly varying in length from 5-15 mm AND/OR lamina base cuneate to rounded AND/OR secondary veins 5-7/side. **02**

02 a Secondary veins 3-5/side. ..... ***C. mas***

b Secondary veins 5-7/side. **03**

03 a Lamina LS secondary vein axils with dense tufts of rusty hairs visible to the naked eye. ..... ***C. officinalis***

b Lamina LS secondary vein axils minutely pubescent with greyish hairs (10× LENS). ..... ***C. chinensis***

subgenus *Syncarpea*

01 a Plant deciduous. Lamina LS tertiary venation quite visible to the naked eye. **02**

b Plant evergreen. Lamina LS tertiary venation obscure. **03**

02 a Lamina margin crispy-undulate. ..... ***C. kousa***

b Lamina margin entire to crenulate. ..... ***C. multinervosa***

03 a Lamina US soft to the touch, glabrescent or soft pubescent. **04**

b Lamina US rough to the touch, scabrid pubescent. **05**

04 a Lamina LS glabrous, <u>OR/IF</u> pubescent then with brownish appressed hairs or brownish remaining dots - 10× LENS [floral bracts 15-40 mm**].** ..... ***C. hongkongensis***

b Lamina LS +/- densely pubescent with greyish appressed hairs - 10× LENS [floral bracts soon caducous ≤5 mm**].** ..... ***C. disciflora***

05 a Lamina LS secondary vein axils predominantly with pit-like domatia - 10× LENS [peduncle thick, stout**].** ..... ***C. capitata***

b Lamina LS secondary vein axils with a few or without domatia or with axillary pubescence - 10× LENS [peduncle slender**].** ..... ***C. elliptica***

subgenus *Kraniopsis*

GROUP A:

Secondary veins predominantly ≥5/side (lamina rarely with <5 veins/side).

01 a Lamina LS secondary veins 6-9/side <u>AND</u> always several laminas present with 8(-9) veins/side. **02**

b Lamina LS secondary veins 5-6(-7)/side. **06**

02 a Lamina L/W <2/1:ovate to roundish ovate. ..... ***C. rugosa***

b Lamina L/W predominantly ≥2/1: ovate to elliptic. **03**

03 a Lamina midvein length 9-18 cm <u>AND</u> US (soon) glabrous (10× LENS). ..... ***C. macrophylla***

b Lamina midvein length <13(-15) cm, US appressed pubescent (10× LENS). **04**

04 a Lamina US rugose to bullate, apex acute to (sub-)acuminate. ..... ***C. sericea***

b Lamina US +/- flat to slightly rugose, apex acuminate to caudate. **05**

05 a Current year shoot 4-angled, appressed pubescent. ..... ***C. schindleri***

b Current year shoot round to slightly angled, sparsely pubescent. ..... ***C. hemsleyi***

06 a Lamina apex acuminate to caudate <u>AND</u> margin often +/- minutely undulate. **07**

b Lamina apex acute to acuminate, margin flat and entire. **08**

07 a Lamina largest width in or below the middle, LS soft to the touch, several secondary vein axils with tiny domatia (10× LENS). ..... ***C.* ×*horseyi***

b Lamina largest width in the middle, LS secondary rough to the touch, vein axils without domatia (10× LENS). ..... ***C.* ×*dunbarii***

08 a Lamina US +/- rugose to bullate with tertiary veins visible to the naked eye. **09**

b Lamina US +/- smooth to slightly rugose, tertiary veins slightly or not visible to the naked eye. **11**

09 a Lamina apex obtuse and top predominantly abruptly and short acute. ..... ***C. sanguinea*** subsp. ***australis***

b Lamina apex gradually acute to acuminate (rarely abruptly acute). **10**

10 a Wide-spreading shrub [fruit stone L > W**].** ..... ***C. alba***

b Stoloniferous shrub [fruit stone L ≤ W**].** ..... ***C. sericea***

11 a Lamina LS secondary vein axils pubescent with long hairs (10× LENS). ***C. bretschneideri***

b Lamina LS secondary vein axils glabrous and with tiny pit-like domatia (10× LENS). **12**

12 a Lamina LS +/- pale glaucous green, venation +/- pubescent with whitish hairs; papillate (≥10× LENS). ..... ***C. obliqua***

b Lamina LS green, venation pubescent with whitish and brownish hairs; without papillae (≥10× LENS). ..... ***C. amomum***

subgenus *Kraniopsis*

GROUP B:

Secondary veins 5/side, <u>OR</u> predominantly 2-5/side (lamina rarely with >5 veins/side).

01 a Lamina LS secondary veins 2-4/side. **02**

b Lamina LS secondary veins 3-5/side. **09**

02 a Lamina L/W predominantly <2/1. ..... **03**

b Lamina L/W predominantly ≥2/1. ..... **05**

03 a Lamina apex acute to +/- gradually acuminate or (sub-)caudate, LS venation pubescent with appressed hairs. ..... ***C. wilsoniana***

b Lamina apex acute or abruptly acuminate, LS venation with spreading hairs. **04**

04 a Lamina largest width predominantly in the middle, US soft to the touch, with soft hairs. ..... ***C. sanguinea***

b Lamina largest width predominantly towards base, US rough to the touch, with stiff hairs. ..... ***C. drummondii***

05 a Lamina LS secondary veins 2-3/side. ..... ***C. quinquenervis***

b Lamina LS secondary veins 3-4/side. **06**

06 a Lamina largest width in or below the middle. **07**

b Lamina largest width predominantly in the middle. **08**

07 a Lamina US secondary veins deeply impressed, tertiary veins conspicuous to the naked eye. ..... ***C. excelsa***

b Lamina US secondary veins slightly impressed, tertiary veins slightly visible to the naked eye. ..... ***C. wilsoniana***

08 a Lamina LS +/- pale/glaucous and papillate [inflorescence dome-shaped**].** ..... ***C. racemosa***

b Lamina LS green without papillae [inflorescence flattened corymbose**].** ..... ***C. foemina***

09 a Tree with roughly ridged bark. Petiole often 2-3 cm. ..... ***C. walteri***

b Shrub (rarely small tree with smooth, fissured or exfoliating bark), AND/OR petiole ≤2 cm. **10**

10 a Lamina broadly ovate to roundish, apex often round with tiny abrupt tip. ..... ***C. darvasica***

b Lamina elliptic to ovate or broadly ovate, apex obtuse with abrupt tip or acute to acuminate. **11**

11 a Lamina US rough to the touch, pubescent with stiff hairs. ..... ***C. drummondii***

b Lamina US soft to the touch, +/- pubescent with soft hairs. **12**

12 a Lamina L/W predominantly ≥2/1 AND lamina US tertiary veins +/- inconspicuous to the naked eye. **13**

b Lamina L/W predominantly ≤2/1, AND/OR lamina US tertiary veins conspicuous to the naked eye. **14**

13 a Lamina LS +/- pale/glaucous and papillate [inflorescence dome-shaped**].** ..... ***C. racemosa***

- Inflorescence flattened corymbose. ..... ***C. ×arnoldiana***

b Lamina LS green without papillae [inflorescence flattened corymbose**].** ..... ***C. foemina***

14 a Lamina LS without papillae (≥10× LENS), midvein and secondary veins pubescent with brownish hairs or with brownish and whitish hairs (10× LENS). **15**

b Lamina LS papillate (≥10× LENS), midvein and secondary veins pubescent with whitish hairs (10× LENS). **17**

15 a Lamina apex predominantly abruptly acuminate and +/- (slightly) twisted. ..... ***C. amomum***

b Lamina apex acute to short-acuminate. **16**

16 a Bark exfoliating on third year and older branches. ..... ***C. iberica***

b Bark not exfoliating. ..... ***C. meyeri***

17 a Lamina US +/ smooth to slightly rugose, tertiary veins slightly or not visible to the naked eye. ..... ***C. obliqua***

b Lamina US +/- rugose to bullate with tertiary veins visible to the naked eye. **16**

16 a Current year shoot surface warty lenticellate. ..... ***C. pumila***

b Current year shoot sparsely lenticellate. ..... ***C. alba***

Taxa treated in this key.

C. alba
C. alternifolia
C. amomum
***C.* ×*arnoldiana* (*C. obliqua* × *C. racemosa*)**
C. bretschneideri
C. canadensis
C. capitata
C. chinensis
C. controversa
C. darvasica
C. drummondii
***C.* ×*dunbarii* (*C. asperifolia* × *C. macrophylla*)**
C. elliptica
C. excelsa
C. florida
C. foemina
C. hemsleyi
C. hongkongensis
***C.* ×*horseyi* (*C. amomum* × *C. macrophylla*)**
C. kousa
C. macrophylla
C. mas
C. meyeri
C. multinervosa
C. nuttallii
C. obliqua
C. oblonga
C. officinalis
C. quinquenervis
C. racemosa
C. rugosa
C. sanguinea
- subsp. ***australis***
C. schindleri
C. sericea
C. sessilis
C. suecica
C. walteri
C. wilsoniana

Taxa referred to synonymy in this key.

C. australis = ***C. sanguinea*** subsp. ***australis***
C. amomum subsp. ***amomum*** = ***C. amomum***
C. amomum subsp. ***obliqua*** = ***C. obliqua***
C. asperifolia = ***C. drummondii***
C. baileyi = ***C. sericea***
C. brachypoda = ***C. macrophylla***
C. coreana = ***C. walteri***
C. fulgenscens = ***C. schindleri***
C. hessei = ***C. alba***
C. koenigii = ***C. sanguinea*** subsp. ***australis***
C. monbeigii = ***C. schindleri***
C. occidentalis = ***C. sericea***
C. paucinervis = ***C. quinquinervis***
C. poliophylla = ***C. schindleri*** subsp. ***poliophylla***
C. purpusii = ***C. obliqua***
C. stolonifera = ***C. sericea***
C. stricta = ***C. foemina***

Questionable/frequently misapplied names.

Most plants seen in collections with the name ***C. asperifolia*** and ***C. glabrata*** are of doubtful identity and therefore not included in this key yet.