Castanea Mill. (Fagaceae)

VEGETATIVE KEY TO SPECIES CULTIVATED IN WESTERN EUROPE

Jan De Langhe

(23 November 2011 - 26 November 2012)

Vegetative key.

This key is based on vegetative characteristics, visible during the longest period of the year.

Taxa treated in this key: see page 3.

Taxa referred to synonymy in this key: see page 3.

Frequently misapplied taxa: see page 3.

To improve accuracy:

- Use a hand lens to judge shape of teeth and pubescence in general.
- Look at the entire plant. Young specimens and strong shoots give an atypical view.
- Beware of hybridisation, especially with plants raised from seed gathered in collections.

Features based on:

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

Anagnostakis, S.L. - (2010) - Identification of Chestnut Trees, 15 p., www.mobot.org/plantscience/ResBot/Ches/AnagnostakisIdent2010.pdf
Bean, W.J. - (1976) - ***Castanea*** in Trees and Shrubs hardy in the British Isles VOL.1, p. 527-533.
Camus, A. - (1929) - Les chataigniers: monographie des genres ***Castanea*** et ***Castanopsis***, 604 p.
Camus, A. - (1929) - Les chataigniers: monographie des genres ***Castanea*** et ***Castanopsis*****,** atlas: 100 plates.
Grimshaw, J. & Bayton, R. - (2009) - ***Castanea*** in New Trees, p. 216-218.
Hillier, J. & Coombes, A. - (2002) - ***Castanea*** in The Hillier Manual of Trees & Shrubs, p. 61.
Huang, C., Zhang, Y. & Bartholomew, B. - (1999) - ***Castanea*** in Flora of China VOL.4, p. 315-317.
Krüssmann, G. - (1976) - ***Castanea*** in Handbuch der laubgehölze VOL. 1, p. 313-314.
Kurata, S. - (1971) - ***Castanea*** in Illustrated Important Forest Trees Of Japan VOL.1, p. 82-83.
Nixon, K.C. - (1999) - ***Castanea*** in Flora of North America VOL. 3.
Rehder, A. - (1940) - ***Castanea*** in Manual of cultivated trees and shrubs hardy in North America, p. 150-152.
Sisco, P. - Chestnut Identification - www.mindspring.com/~psisco/www/overview.html
Zander, R.H. (2000-2008) - Identification of chestnut (***Castanea***) species - www.mobot.org/plantscience/ResBot/Ches/chkey.htm

I am particularly grateful to Wolfgang Bopp, Koen Camelbeke, Maurice Foster, Paul Goetghebeur and Abraham Rammeloo for extra help with constructive comments and specimens.
Also thanks to the responsible persons of various arboreta, botanic gardens and collections where I could collect herbarium specimens since 1982.
Explicit thanks goes to Arboretum Kalmthout, Arboretum Wespelaar, Hillier Gardens and Arboretum and Ghent University Botanical Garden.

01 a Lamina margin +/- sharply serrate-dentate AND tooth acumen predominantly <2 mm (judge teeth at middle of margin). **02**

b Lamina margin sharply (bristle-like) serrate-dentate to coarsely dentate AND tooth acumen predominantly >2 mm often bristle-like (judge teeth at middle of margin). **03**

02 a Shrub or tree. Lamina midvein length <21 cm, apex acute AND LS +/- minutely pale/whitish stellate pubescent -LENS (cupule Ø ≤35 mm, 2-valved, spines <10mm, nut 1**).** ..... ***C. pumila***

b Low shrub <1 m. Lamina midvein length <14 cm, apex obtuse to acute AND LS +/- minutely yellowish/brownish stellate pubescent - LENS (cupule Ø ≤35 mm, 2-valved, nut 1**).** ..... ***C. alnifolia***

03 a Lamina L/W predominantly >3/1 AND margin bristle-like serrate-dentate, tooth predominantly bristle-like reduced (cupule Ø ≤35 mm, 2-valved, spines <10 mm, nut 1**).** ..... ***C. henryi***

b Lamina L/W predominantly <3/1, AND/OR margin variable but never predominantly bristle-like reduced (+/- bristle-like to sharply serrate-dentate, or serrate-dentate to coarsely dentate, tooth acuminate to triangular**).** **04**

04 a Lamina base predominantly cuneate (a few laminas with base broadly cuneate may occur**) AND apex acuminate with acumen narrowly enlarged (**cupule Ø 50-70 mm, 4-valved, spines dense + slender 10-20 mm, nuts 1-3**).** ..... ***C. dentata***

b Lamina base variable: broadly cuneate to rounded or cordate, AND/OR apex acute to acuminate but acumen not narrowly enlarged. **05**

05 a Lamina LS almost glabrous AND midvein length predominantly ≤14 cm (cupule Ø ≤40 mm, 4-valved, spines ≤12 mm, nuts 2-3-more**).** ..... ***C. seguinii***

b Lamina LS pubescent, AND/OR midvein length predominantly >14 cm. **06**

06 a Lamina margin bristle-like serrate-dentate, a few smaller bristle-like reduced teeth may occur (cupule Ø ≤35 mm, 4-valved, spines ≤12 mm, nuts 1-3**).** ..... ***C. crenata***

b Lamina margin at least in part of the leaves coarsely dentate, tooth +/- triangular with +/- bristle like acumen. **07**

07 a Lamina LS +/- green, base broadly cuneate to rounded or (sub- to obliquely-) cordate (cupule Ø 50-60(-100) mm, 4-valved, spines slender + very prickly 10-20 mm, nuts 1-3**).** ..... ***C. sativa***

b Lamina LS +/- whitish to greyish-white or yellowish, base broadly cuneate to rounded. 08

08 a Shoot and bud glabrous AND lamina LS +/- minutely pubescent with stellate hairs -LENS (cupule Ø ≤30 mm, 2-valved, spines dense + thick ≤15 mm, nut 1**).** ..... ***C. ozarkensis***

b Shoot, bud and lamina LS pubescent with simple and fasciculate hairs or with stellate hairs -LENS (cupule Ø ≤50(-70) mm, 4-valved, spines thick ≤20 mm, nuts 1-3**).** **09**

09 a Shoot pubescent with simple hairs. Lamina LS variably pubescent with simple and fasciculate hairs. ..... ***C. mollissima***

b Shoot and lamina LS +/- pubescent with minute stellate hairs. ..... ***C. ×neglecta***

Taxa treated in this identification key.

C. alnifolia
C. crenata
C. dentata
C. henryi
C. mollissima
***C. ×neglecta* (= *C. dentata* × *C. pumila*)**
C. ozarkensis
C. pumila
C. sativa

Taxa referred to synonymy in this identification key.

C. davidii = ***C. seguinii*** (FOC)
C. japonica = ***C. crenata*** (FOC)
C. pumila var. ***ozarkensis*** = ***C. pumila*** (FNA)

Frequently misapplied names.

In general, only specimens from known natural source are possible to identify accurately with this key. At least in part of collections a lot of the material are hybrids and show combinations of characters that are typical for several taxa simultaneously, especially regarding lamina margin, pubescence in general and features of the cupule.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	cm