

Quercus Linnaeus subgen. Cyclobalanopsis (Oersted) C. K. Schneider.

Trees or rarely shrubs, evergreen. Trunk bark usually smooth, rarely deeply splitting. Winter buds ovoid-globose, ovoid-conical, or rarely ovoid-ellipsoid; scales many, imbricate. Stipules extrapetiolar. Leaves spirally arranged. Male inflorescences pendulous; flowers loosely arranged or clustered on rachis; perianth usually 5- or 6-lobed; stamens as many as perianth lobes, sometimes less, filament slender; pistil rudimentary. Female inflorescences with a solitary flower or spiciform; cupules with 1 flower; perianth 5- or 6-lobed; staminodes sometimes present, small; ovary 3-loculed; styles (2 or)3(±4); stigmas capitate or dilated. Cupules solitary; bracts scalelike, whorled, connate, in rings or spirally fused. Nut usually 1 per cupule; abortive ovule persisting in subapical, lateral, or basal part of seed. Germination hypogean.

About 150 species: mainly in tropical and subtropical Asia; 69 species (43 endemic) in China. 
Cyclobalanopsis is often treated as a subgenus of Quercus, with all other species of Quercus belonging to subgenus Quercus.

Species of Cyclobalanopsis are among the main components of broad-leaved evergreen forests in China's southern provinces N to the Qinling Mountains and the Huai He basin. In general, Cyclobalanopsis has a more southern distribution and Quercus a more northern distribution.

1a. Leaf blade margin entire, crenate, repand, or apically with 1–4 or rarely more shallow serrations, or indistinctly serrulate.

2a. Leaf blade 12 cm or more.

3a. Cupules 1–1.5 cm in diam.

4a. Petiole 0.5–1 cm, not sulcate.

5a. Leaf blade abaxially glabrous, midvein impressed; cupules outside tomentose, enclosing ca. 1/3 of nut ................................................................. 17. C. sessilifolia

5b. Leaf blade abaxially slightly farinose, midvein raised; cupules outside glabrous or puberulent, enclosing ca. 1/2 of nut ............................................................... 18. C. augustinii

4b. Petiole 2–5 cm, adaxially sulcate.

6a. Branchlets and leaves glabrous; cupules cupular ........................................................................................................ 1. C. jenseniana

6b. Branchlets and leaves hairy; cupules bowl-shaped ................................................................................................. 23. C. tomentosinervis

3b. Cupules 1.5–4 cm in diam.

7a. Branchlets glabrous.

8a. Secondary veins 6–8 on each side of midvein ........................................ 15. C. albicaulis

8b. Secondary veins 9–12 on each side of midvein.

9a. Cupules bowl-shaped, enclosing ca. 2/3 of nut; nuts oblate, scar 2–2.5 cm in diam. .... 5. C. tenuicupula

9b. Cupules campanulate to obconic, enclosing less than 1/2 of nut; nuts ellipsoid, scar ca. 0.8 cm in diam. ................................................................. 20. C. saravanensis

7b. Branchlets tomentose.

10a. Petiole and leaves glabrous.

11a. Nuts subglobose, ca. 1.7 cm, sericeous ........................................ 3. C. camusiae

11b. Nuts oblong-ellipsoid, 3.5–4 cm, pilose ........................................ 4. C. semiserrata

10b. Petiole and leaves tomentose.

12a. Leaf blade midvein adaxially slightly raised; cupules campanulate to cylindric, enclosing ca. 2/3 of nut ............................................................... 2. C. fleuryi

12b. Leaf blade midvein adaxially impressed or flat; cupules bowl-shaped to discoid, enclosing base to 1/2 of nut.

13a. Midvein adaxially flat; cupule covering only base of nut, bracts in 4–6 rings; nut scar 0.7–1 cm in diam. ................................................................. 14. C. hui

13b. Midvein adaxially impressed; cupule covering 1/3–1/2 of nut, bracts in 8–10 rings; nut scar 1.2–1.4 cm in diam. ................................................... 27. C. helferiana

2b. Leaf blade less than 12 cm.

14a. Leaf blade apex obtuse, rounded, retuse, or with a short, blunt tip.
15a. Nuts oblate, subglobose, or broadly ovoid.  
16a. Leaf blade midvein adaxially flat; cupule covering only base of nut; nuts tomentose ............ 14. C. hui  
16b. Leaf blade midvein slightly impressed to impressed; cupule enclosing 1/3–1/2 of nut; nuts glabrous or glabrescent.  
17a. Petiole 0.2–0.8 cm; cupule bracts in 7–9 rings; nuts glabrous, scar 5–8 mm in diam. 10. C. obovatifolia  
17b. Petiole 0.8–1.5 cm; cupule bracts in 4–7 rings; nuts hairy when young, scar 4–5 mm in diam. 12. C. championii  
15b. Nuts ellipsoid to oblong-ellipsoid, or obovoid.  
18a. Petiole 1–1.5 cm; cupules 2–2.5 cm in diam.; nuts 1.7–2 cm in diam. ..............................  6. C. dinghuensis  
18b. Petiole less than 0.5 cm; cupules 1–1.5 cm in diam.; nuts 1–1.6 cm in diam.  
19a. Cupules saucer-shaped to cupular, 1.3–1.5(–1.8) cm in diam., covering only base of nut 11. C. neglecta  
19b. Cupules bowl-shaped, 1–1.2 cm in diam., enclosing ca. 1/3 of nut ...............................  7. C. litseoides  
14b. Leaf blade apex acute, acuminate, or caudate.  
20a. Leaf blade abaxially hairy.  
21a. Leaf blade abaxially stellate or stellate tomentose at least when young.  
22a. Nuts ellipsoid, ovoid-ellipsoid, or globose ................................................................. 65. C. poilanei  
22b. Nuts oblate to subglobose.  
23a. Petiole 0.2–0.8 cm; secondary veins 5–8 on each side of midvein; nuts glabrous, scar 5–8 mm in diam. ................................................................. 10. C. obovatifolia  
23b. Petiole (0.5–)1–2 cm; secondary veins 10–15 on each side of midvein; nuts velutinous, scar ca. 10 mm in diam. ...................................................................................... 13. C. chungii  
21b. Leaf blade abaxially woolly, villous, or tomentose at least when young.  
24a. Petiole 2–3.5 cm; leaf blade apex caudate, midvein abaxially impressed ........... 23. C. tomentosinervis  
24b. Petiole 0.5–1.4 cm; leaf blade apex acute to acuminate, midvein abaxially flat.  
25a. Petiole triangular in cross section; nut scar slightly convex ............................... 22. C. hypophaea  
25b. Petiole not triangular in cross section; nut scar flat or impressed.  
26a. Branchlets light brown woolly; petiole 0.6–0.8 cm; leaf blade tertiary veins inconspicuous; nuts ovoid-ellipsoid to ellipsoid ............................................................ 8. C. tiaoloshanica  
26b. Branchlets orangish brown tomentose; petiole 1–1.4 cm; leaf blade tertiary veins slender but evident; nuts oblate .............................................................................................................................................. 14. C. hui  
20b. Leaf blade abaxially glabrous at least when old or only puberulent.  
27a. Nuts oblate or subglobose, scar 1–2.5 cm in diam.  
28a. Leaf blade leathery; nuts oblate, ca. 1.7 cm in diam., scar ca. 1 cm in diam. ............ 3. C. camusiae  
28b. Leaf blade papery; nuts subglobose, 2.5–3 cm in diam., scar 2–2.5 cm in diam. ...... 5. C. tenuicupula  
27b. Nuts not oblate nor subglobose, scar 0.4–0.8 cm in diam.  
29a. Cupules campanulate to obconic or bowl-shaped, 2–3 cm in diam.  
30a. Leaf blade papery, pubescent when young; cupules campanulate to obconic, outside puberulent ................................................................. 15. C. albicaulis  
30b. Leaf blade subleathery, glabrous; cupules bowl-shaped, outside villous ............. 20. C. saravanensis  
29b. Cupules cupular, 0.8–1.8 cm in diam.  
31a. Leaf blade apex acute to acuminate.  
32a. Leaf blade abaxially glabrous, midvein impressed; cupules outside tomentose, enclosing ca. 1/3 of nut ................................................................. 17. C. sessilifolia  
32b. Leaf blade abaxially slightly farinose, midvein raised; cupules outside glabrous or puberulent, enclosing ca. 1/2 of nut ......................................................... 18. C. augustinii  
31b. Leaf blade apex caudate.  
33a. Petiole 0.5–0.8 cm; nuts 0.6–0.8(–1.5) cm in diam. ............................................................. 19. C. chevalieri  
33b. Petiole 1–2 cm; nuts 1–1.5 cm in diam.  
34a. Leaf blade papery; cupules 1.6–1.8 cm in diam., enclosing ca. 1/3 of nut; nuts ellipsoid, 1.5 cm in diam., velutinous at least apically ................................................. 16. C. delicatula  
34b. Leaf blade subleathery; cupules ca. 1.5 cm in diam., enclosing ca. 1/2 of nut; nuts ovoidconical, 1–1.3 cm in diam., glabrous ................................................................. 21. C. motuoensis  
1b. Leaf blade margin serrate or serrulate on at least apical 1/3.  
35a. Leaf blade 14 cm or more.  
36a. Leaf blade margin serrate or serrulate on apical 1/2 or less.
37a. Leaf blade secondary veins 18–22 on each side of midvein ......................................................... 24. *C. rex*

37b. Leaf blade secondary veins 8–14 on each side of midvein (sometimes to 16 in *C. thorelii*).

38a. Leaf blade less than 2.5 × as long as wide.

39a. Leaf blade apex shortly acute to ± caudate; cupules enclosing 1/2–2/3 of nut.

40a. Leaf blade papery; cupules enclosing ca. 2/3 of nut ................................................................. 5. *C. tenuicupula*

40b. Leaf blade leathery; cupules enclosing to 1/2 of nut ................................................................. 34. *C. kiukiangensis*

39b. Leaf blade apex with a short, blunt tip; cupules enclosing 1/4–1/3 of nut.

41a. Petiole 1–1.8 cm; leaf blade margin serrate; cupule bracts in 8–12 rings; nut scar 0.8–1 cm in diam. ........................................................................................................................ .... 37. *C. phanera*

41b. Petiole 2–3 cm; leaf blade margin serrulate; cupule bracts in 6–8 rings; nut scar ca. 0.7 cm in diam. ............................................................................................................................................ 38. *C. edithiae*

38b. Leaf blade 3 × or more as long as wide.

42a. Cupules discoid or cupular.

43a. Leaf blade pubescent when young; cupules 2.5–3 cm in diam.; nuts oblate, 2.2–3 cm in diam., scar 1–1.4 cm in diam. ................................................................................................................................. 35. *C. bella*

43b. Leaf blade glabrous; cupules 1–1.2 cm in diam.; nuts ellipsoid to ovoid-ellipsoid, 1–1.2 cm in diam., scar ca. 0.5 cm in diam. ................................................................................................................................. 56. *C. elevaticostata*

42b. Cupules semiglobose, campanulate, or cylindric.

44a. Nuts ellipsoid, oblong-ellipsoid, or obovoid, 1.2–1.6 cm in diam., scar 0.5–0.7 cm in diam. 63. *C. pachyloma*

44b. Nuts cylindric-ellipsoid, 2–3 cm in diam., scar 1.2–1.5 cm in diam.

45a. Leaf blade midvein adaxially slightly raised; pistillate inflorescences 2.5–3.5 cm; cupule bracts in 10–13 rings, margin subentire; nut scar ca. 1.2 cm in diam. .............................................. 2. *C. fleuryi*

45b. Leaf blade midvein adaxially flat; pistillate inflorescences ca. 1.5 cm; cupule bracts in 8 or 9 rings, margin dentate; nut scar ca. 1.5 cm in diam. ......................................................... 39. *C. kouangsiensis*

36b. Leaf blade margin serrate or serrulate at least on apical 2/3.

46a. Leaf blade abaxially with stellate or furcate hairs.

47a. Cupules oblate to semiglobose, 3–5 cm in diam., enclosing 2/3–4/5 of nut; nuts 3–4 cm in diam. ........................................................................................................................................... 25. *C. lamellosa*

47b. Cupules cupular or discoid, 1.5–2.5 cm in diam., covering base to 1/2 of nut; nuts 1.5–2.8 cm in diam.

48a. Petiole 1–2 cm; cupules discoid, 2–2.5 cm in diam.; nuts oblate, 2–2.8 cm in diam., scar 1–2 cm in diam. ........................................................................................................................................... 26. *C. kerrii*

48b. Petiole 2.5–4 cm; cupules cupular, 1.5–2 cm in diam.; nuts ovoid to ellipsoid, 1.2–1.7 cm in diam., scar ca. 0.8 cm in diam.

49a. Leaf blade abaxially densely pale brown stellate tomentose; nuts hairy, glabrescent 28. *C. gambleana*

49b. Leaf blade abaxially pruinose to whitish farinose and with adnate simple and furcate hairs but soon glabrescent; nuts glabrous or rarely pilose at apex .......................................................... 29. *C. oxyodon*

46b. Leaf blade abaxially simple hairs or glabrous.

50a. Nuts oblate.

51a. Leaf blade barbate in vein axils, midvein impressed; cupules oblate, 3.5–5 cm in diam. 43. *C. sichourensis*

51b. Leaf blade not barbate in vein axils, midvein raised to slightly so; cupules saucer-shaped, bowl-shaped, or cupular, 1.5–3 cm in diam.

52a. Petiole glabrous when young; cupules covering only base of nut; nuts glabrous or basally pilose ........................................................................................................................................... 42. *C. chapensis*

52b. Petiole hairy when young; cupules covering most of nut; nuts tomentose.
53a. Cupules ca. 3 cm in diam., bract margins subentire; nuts 2.5–3 cm in diam., scar ca. 2 cm in diam. ............................................................... 40. *C. thorelii*

53b. Cupules 1.5–1.8 cm in diam., bract margins dentate; nuts 1.3–1.8 cm in diam., scar ca. 1.2 cm in diam. ................................................................. 54. *C. austrocochinensis*

50b. Nuts ovoid to ellipsoid.
54a. Leaf blade base ± truncate to somewhat auriculate ........................................ 32. *C. yonganensis*
54b. Leaf blade base cuneate to subrounded.
55a. Leaf blade apex with a short, blunt tip; cupule bracts in 9–12 rings .................. 33. *C. litoralis*
55b. Leaf blade apex acute to acuminate; cupule bracts in 5–7 rings.
56a. Cupules 2–3 cm in diam., covering only base of nut; nuts 1.5–3 cm in diam. ........ 36. *C. blakei*
56b. Cupules 1–1.5 cm in diam., covering 1/3–1/2 of nut; nuts 1–1.2 cm in diam.
57a. Cupule bracts in 6 or 7 rings, margin subentire; nuts ca. 1 cm in diam., scar 3–5 mm in diam. ................................................................. 31. *C. multinervis*
57b. Cupule bracts in 5 rings, margin dentate; nuts ca. 1.2 cm in diam., scar ca. 7 mm in diam. ................................................................. 46. *C. pentacycla*

35b. Leaf blade less than 14 cm.
58a. Leaf usually less than 2.5(–3) × as long as wide.
59a. Leaf blade abaxially with stellate hairs at least when young.
60a. Leaf blade margin serrate on no more than apical 1/2.
61a. Cupules 3–3.5 cm in diam.; nuts ca. 2.5 cm in diam. ........................................ 41. *C. chingsiensis*
61b. Cupules 1–1.8 cm in diam.; nuts 1–1.5 cm in diam.
62a. Leaf blade elliptic to obovate-elliptic; pistillate inflorescences 1–2 cm, with 3–7 cupules 65. *C. poilanei*
62b. Leaf blade oblong to ovate-elliptic; pistillate inflorescences ca. 4 cm, with 2 or 3 cupules 66. *C. delavayi*
60b. Leaf blade margin serrate on apical ca. 2/3.
63a. Leaf blade margin bluntly serrate ................................................................. 26. *C. kerri*
63b. Leaf blade margin sharply serrate.
64a. Leaf blade secondary veins 9–11 on each side of midvein; cupules 2–3 cm in diam.; nuts oblate, 2.5–2.8 cm in diam. ................................. 57. *C. patelliformis*
64b. Leaf blade secondary veins 13–16 on each side of midvein; cupules ca. 1.5 cm in diam.; nuts broadly ovoid, ca. 1.2 cm in diam. ........................................ 64. *C. lobbia*
59b. Leaf blade abaxially with simple hairs or glabrous.
65a. Mature leaf blades abaxially glabrous or subglabrous.
66a. Leaf blade margin serrate for apical 2/3.
67a. Leaf blade secondary veins 7–9 on each side of midvein; cupules obconic ............. 33. *C. litoralis*
67b. Leaf blade secondary veins 11–17 on each side of midvein; cupules discoid, bowl-shaped, or cupular.
68a. Leaf blade secondary veins 11–13 on each side of midvein, midvein adaxially impressed; cupules discoid, covering only base of nut ........................................ 53. *C. disciformis*
68b. Leaf blade secondary veins 13–17 on each side of midvein, midvein adaxially raised; cupules bowl-shaped to cupular, enclosing 1/3 to most of nut.
69a. Branchlets with stellate hairs when young; leaf blade midvein adaxially raised; cupules ca. 3 cm in diam., enclosing almost all of nut; nuts 2.5–3 cm in diam. .................... 40. *C. thorelii*
69b. Branchlets glabrous; leaf blade midvein adaxially impressed; cupules ca. 1.5 cm in diam., enclosing 1/3–1/2 of nut; nuts 1.2–2 cm in diam. ........................................ 50. *C. lungmaiensis*
66b. Leaf blade margin serrate from middle to apex or only apically.
70a. Cupule bracts adherent to wall ................................................................. 19. *C. chevalieri*
70b. Cupule bracts not adherent to wall.
71a. Nuts 1–1.8 cm in diam.
72a. Petiole 0.5–0.8 cm; leaf blade apex with a short, blunt tip; cupule enclosing ca. 1/3 of nut, bracts in 5 or 6 rings; nut scar 3–5 mm in diam. ................................. 9. *C. daimingshanensis*
72b. Petiole 1.5–3 cm; leaf blade apex caudate; cupule enclosing ca. 1/2 of nut, bracts in 7 or 8 rings; nut scar ca. 10 mm in diam. ................................................................. 52. C. morii
71b. Nuts 2–3 cm in diam.
  73a. Nuts semiglobose or oblate, scar more than 2 cm in diam. ....................... 5. C. tenuicupula
  73b. Nuts cylindric-ellipsoid to broadly ovoid, scar less than 1 cm in diam.
  74a. Leaf blade apex acuminate, margin with awnlike and incurved serrations; cupules enclosing ca. 1/2 of nut; nuts cylindric to ellipsoid, scar slightly convex.
  74b. Leaf blade apex with a short, blunt tip, margin serrate to serrulate; cupules enclosing 1/4–1/3 of nut; nuts obovoid-ellipsoid, scar 0.8–1 cm in diam. ................................................................. 37. C. phanera
  75a. Petiole 1–1.8 cm; leaf blade margin serrate; cupule bracts in 8–12 rings; nut scar 0.8–1 cm in diam. ................................................................. 37. C. phanera
  75b. Petiole 2–3 cm; leaf blade margin serrulate; cupule bracts in 6–8 rings; nut scar ca. 0.7 cm in diam. ................................................................. 38. C. edithiae

65b. Mature leaf blades abaxially pubescent.
  66a. Leaf blade abaxially not pruinose.
  77a. Leaf blade secondary veins 8–12 on each side of midvein; cupules 0.8–1.2 cm in diam., bracts in 6–8 rings; nuts 0.7–1 cm in diam. ................................................................. 68. C. glaucoides
  77b. Leaf blade secondary veins 12–18 on each side of midvein; cupules 1.8–5 cm in diam., bracts in 9–11 rings; nuts 1.5–4 cm in diam.
  78a. Petiole 2.5–3.5 cm, tomentose at least when young; leaf blade secondary veins 15–18 on each side of midvein; cupules oblate, 3.5–5 cm in diam.; nut 3–4 cm in diam. . 43. C. sichourensis
  78b. Petiole 1–1.5 cm, glabrous; leaf blade secondary veins 12–14 on each side of midvein; cupules bowl-shaped, ca. 1.8 cm in diam.; nut ca. 1.5 cm in diam. ............. 67. C. jinpinensis

66b. Leaf blade abaxially pruinose.
  79a. Cupules obconic.
  80a. Petiole 1.5–2 cm, glabrous; leaf blade base subrounded and slightly oblique, secondary veins 13–15 on each side of midvein; cupule bract margins dentate .......... 46. C. pentacycla
  80b. Petiole 0.5–1 cm, puberulent; leaf blade base cuneate, secondary veins 8–10 on each side of midvein; cupule bract margins subentire ............. 69. C. xanthotricha
  79b. Cupules saucer-shaped, bowl-shaped, or cupular.
  81a. Leaf blade margin remotely serrulate .......................................................... 49. C. glauca
  81b. Leaf blade margin awnlike serrate.
  82a. Cupule bract margins entire or subentire.
  83a. Cupules cupular; nuts ca. 1 cm in diam., glabrous, scar 3–5 mm in diam. ..... 31. C. multinervis
  83b. Cupules bowl-shaped; nuts 1.1–1.4 cm in diam., loosely incanous, scar 6–7 cm in diam. ................................................................. 51. C. annulata
  82b. Cupule bract margins of at least basal 1 or 2 denticate or loosely dentate, others entire, subentire, or repand.
  84a. Leaf blade secondary veins 13–17 on each side of midvein .......... 50. C. lungmaiensis
  84b. Leaf blade secondary veins 10–13 on each side of midvein.
  85a. Nut scar ca. 1 cm in diam., flat; stylopodium 4– or 5-ringed .......... 30. C. austrostigma
  85b. Nut scar ca. 0.8 cm in diam., convex; stylopodium 3-ringed .......... 34. C. kiukiangensis

58b. Leaf blade 3 × as long as wide.
  66a. Leaf blade margin serrate on apical 1/2 or on subapical part.
  67a. Leaf blade mostly broader from middle to apex.
  88a. Mature leaf blades abaxially glabrous or glabrescent.
  89a. Petiole 1.5–2 cm; cupule outside usually densely tawny tomentose, wall ca. 1.5 mm thick; nut densely tawny tomentose when young but glabrescent, scar slightly convex ....... 63. C. pachylyoma
  89b. Petiole 0.5–0.8(–1.2) cm; cupule outside glabrous, wall less than 1 mm thick; nut glabrous, scar flat ................................................................. 19. C. chevalieri

88b. Mature leaf blades abaxially not glabrescent.
  90a. Nuts oblate, 1.4–1.7 cm in diam., scar ca. 1 cm in diam. .............................................. 13. C. chungii
  90b. Nuts obovoid-ellipsoid, ovoid, or ellipsoid, 0.9–1.4 cm in diam., scar 0.5–0.6 cm in diam.
91a. Leaf blade abaxially with simple or lepidote hairs, margin remotely serrate .......... 49. *C. glauca*
91b. Leaf blade abaxially stellate velutinous, margin with short, awnlike serrations .......... 62. *C. gilva*

87b. Leaf blade mostly broader from base to middle.

92a. Cupules 2.5–3.4 cm in diam.; nuts 2.2–3 cm in diam., scar 1–1.5 cm in diam.

93a. Petiole glabrous; cupules discoid, covering only base of nut; nuts oblate .................. 35. *C. bella*
93b. Petiole tomentose; cupules campanulate, enclosing more than 1/2 of nut; nuts cylindric-ellipsoid .......................................................................................................................... 39. *C. kouangsiensis*

92b. Cupules 0.6–1.8 cm in diam.; nuts 0.8–1.7 cm in diam., scar 0.4–0.8 cm in diam.

94a. Cupules obconic ........................................................................................................ 69. *C. xanthotricha*
94b. Cupules saucer-shaped, bowl-shaped, or cupular.

95a. Leaf blade abaxially pruinose; secondary veins inconspicuous.

96a. Leaf blade margin conspicuously serrate; cupule bracts connate at apex; nut scar slightly convex .................................................................................................................. 18. *C. augustinii*
96b. Leaf blade margin serrulate; cupule bracts not connate at apex; nut scar flat ... 61. *C. myrsinifolia*

95b. Leaf blade abaxially not pruinose; secondary veins evident.

97a. Petiole 0.5–0.8 cm ............................................................................................... 19. *C. chevalieri*
97b. Petiole 1–3 cm.

98a. Leaf blade glabrous; cupule enclosing ca. 1/3 of nut .................................. 56. *C. elevaticostata*
98b. Leaf blade abaxially variously pubescent; cupule enclosing ca. 1/2 of nut.

99a. Branchlets and petioles stellate tomentose; leaf blade secondary veins 10–14 on each side of midvein; cupule bract margins shallowly denticulate .................... 66. *C. delavayi*
99b. Branchlets and petioles glabrous; leaf blade secondary veins 7–10 on each side of midvein; cupule bract margins dentate.

100a. Leaf blade brownish when dry, margin remotely and shallowly serrate; cupules cupular, outside whitish pilose but glabrescent .................................. 59. *C. stewardiana*
100b. Leaf blade not brownish when dry, margin serrate; cupules bowl-shaped, outside grayish brown tomentose .................................................. 60. *C. longinux*

86b. Leaf blade margin serrate at least on apical 2/3.

101a. Leaf blade abaxially with stellate or furcate hairs.

102a. Cupules discoid or saucer-shaped, 2–3 cm in diam.
103a. Cupules discoid, 2–2.5 cm in diam.; nuts oblate .......................................................... 26. *C. kerrii*
103b. Cupules saucer-shaped, ca. 3 cm in diam.; nuts ovoid-conical ................................ 58. *C. yingjiangensis*
102b. Cupules cupular, 1–1.8(–20) cm in diam.

104a. Leaf blade margin glandular serrate ................................................................. 45. *C. ningangensis*
104b. Leaf blade margin minutely serrate to serrate.

105a. Leaf blade secondary veins 9–14 on each side of midvein, midvein flat, margin remotely minutely serrate ....................................................... 44. *C. argyrotricha*
105b. Leaf blade secondary veins 16–24 on each side of midvein, midvein impressed, margin serrate.

106a. Leaf blade abaxially densely pale brown stellate tomentose; nuts hairy, glabrescent 28. *C. gambleana*
106b. Leaf blade abaxially pruinose to whitish farinose and with adnate simple and furcate hairs
but soon glabrescent; nuts glabrous or rarely pilose at apex .................................. 29. *C. oxyodon*

101b. Leaf blade abaxially with simple hairs or glabrous.

107a. Nuts ovoid to ellipsoid.

108a. Leaf blade base ± truncate to somewhat auriculate ........................................ 32. *C. yonganensis*
108b. Leaf blade base cuneate to subrounded.

109a. Cupules 2–3 cm in diam., covering only base of nut ............................................ 36. *C. blakei*
109b. Cupules 1–1.5 cm in diam., covering 1/3–1/2 of nut.

110a. Cupules outside puberulent or velutinous.

111a. Cupules outside puberulent, bract margins subentire; nuts ca. 1 cm in diam. 31. *C. multinervis*
111b. Cupules outside velutinous, bract margins dentate; nuts ca. 1.5 cm in diam. 47. *C. stenophyloides*
110b. Cupules outside tomentose.

112a. Cupules 1–1.3 cm in diam.; nuts ellipsoid, ca. 1 cm in diam. ............................... 48. *C. gracilis*
112b. Cupules ca. 1.5 cm in diam.; nuts broadly ovoid to oblate, 1.2–2 cm in diam. 50. *C. lungmaiensis*
107b. Nuts oblate.

113a. Cupules covering only base of nut.

114a. Petiole glabrous when young; leaf blade secondary veins 15–20 on each side of midvein  114b. Petiole tomentose when young; leaf blade secondary veins 11–13 on each side of midvein

113b. Cupules covering 1/3 to nearly all nut.

115a. Leaf blade midvein impressed ..................................................  50. C. lungmaiensis

115b. Leaf blade midvein raised to slightly so.

116a. Cupules 1.5–1.8 cm in diam.; nuts 1.3–1.8 cm in diam., scar ca. 1.2 cm in diam. .................................................................  54. C. austrocochinchinensis

116b. Cupules ca. 3 cm in diam.; nuts 2.5–3 cm in diam., scar 1.8–2 cm in diam.

117a. Leaf blade secondary veins 13–16 on each side of midvein; fruit maturing during current year ................................................................................................................ 50. C. lungmaiensis

117b. Leaf blade secondary veins 17–22 on each side of midvein; fruit maturing on 1-year-old branchlets ...........................................  55. C. subhinoidea


大叶青冈 da ye qing gang


Trees to 35 m tall. Branchlets thick, sulcate, glabrous, densely lenticellate; lenticels pale brown. Petiole 3–5 cm, adaxially sulcate, glabrous; leaf blade elliptic, oblong-elliptic, or obovate-oblong, 12–20(–30) × 6–8(–13) cm, subleathery to leathery, glabrous, base cuneate, broadly cuneate, or subrounded, margin entire, apex acute to acuminate; midvein abaxially prominent, adaxially impressed; secondary veins 12–18 (–24) on each side of midvein, curving near margin; tertiary veins abaxially slender, evident. Female inflorescences 3–5(–9) cm; rachis lenticels grayish brown, oblong. Inflorescences 5–10 cm. Cupule cupular, 0.8–1 × 1.3–1.5 cm, enclosing 1/3–1/2 of nut, outside and inside with thick orange-brown indument but outside glabrescent, wall less than 1 mm thick; bracts in 6–9 rings, margin denticulate. Nut oblong-ovoid, obovoid, or ovoid-conical, 1.7–2.2 × (0.8–)1.3–1.5 cm, yellowish velutinous, glabrescent; scar (3–)6 mm in diam., raised; stylopodium persistent. Fl. Apr–Jun, fr. Oct–Nov of following year.

• Mixed mesophytic forests on mountain slopes, valleys, and along rivers; 300–1700 m. Fujian, Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Yunnan, Zhejiang.


法斗青冈 fa dou qing gang


Trees to 25 m tall. Branchlets densely orangish brown tomentose, glabrescent and densely lenticellate. Petiole 2–6 cm, tawny tomentose when young; leaf blade oblong-elliptic to ovate-elliptic, 14–27 × 4–9 cm, leathery, densely orangish brown tomentose when young but glabrescent, abaxially whitish, base cuneate, margin entire or apically undulate and serrulate, apex acute to shortly acuminate; midvein adaxially slightly raised; secondary veins 10–12(–15) on each side of midvein; tertiary veins abaxially conspicuous. Male inflorescences 10–15 cm, tawny tomentose. Female inflorescence solitary in leaf axils toward apex of branchlets, 2.5–3.5 cm, rachis thick and densely orangish brown tomentose; cupules 4 or 5.

Inflorescence rachis short, ca. 7 mm thick, thicker than branchlet. Cupule campanulate to cylindric, 3–4 × 2.5–4 cm, enclosing ca. 2/3 of nut, outside and inside with feltlike orangish brown indumentum, wall to 6 mm thick; bracts in 10–13 rings, margin subentire. Nut cylindric-ellipsoid, 3.4–5 × 2–3 cm, densely tawny tomentose; scar ca. 1.2 cm in diam., convex; stylopodium persistent, 5–8 mm. Fl. Mar–Apr, fr. Oct–Dec.

Dense forests in mountains; 500–1500 m. Fujian, Guangdong, Guangxi, Guizhou, Hainan, Hunan, Jiangxi, Yunnan [Laos, Vietnam].


法斗青冈 fa dou qing gang

**Quercus camusiae** Trelease ex Hickel & A. Camus in Lecomte, Fl. Indo-Chine 5: 957. 1929; **Cyclobalanopsis faadoouensis** Hu; **Q. geminata** Hickel & A. Camus (1923), not Small (1897).

Trees to 15 m tall. Branchlets brown tomentose when young, sparsely hairy with age. Petiole 2–3 cm, glabrous; leaf blade green, elliptic-lanceolate to oblong-lanceolate, (9–)11–17 × 3–5 cm, leathery, glabrous, base cuneate to oblique, margin entire or rarely apically

2- or 3-serrulate, apex acuminate to shortly caudate; midvein adaxially raised; secondary veins 8–12 on each side of midvein; tertiary veins abaxially evident. Infra-
trescence ca. 2 cm. Cupule shallowly bowl-shaped, ca. 8
mm × 2–2.5 cm, enclosing 1/2–2/3 of nut, outside and
inside tawny tomentose, wall ca. 3 mm thick; bracts in
5–7 rings, margin entire. Nut subglobose, ca. 1.7 cm,
pale brown sericeous; scar ca. 1 cm in diam., convex;
stylopodium persistent, ca. 2 mm in diam. Fr. Sep.

Dense broad-leaved evergreen forests in mountains; 1400–2000 m.
SE Yunnan [Vietnam].


无齿青冈  wu chi qing gang


Trees to 10 m tall. Branchlets tomentose when young, glabrescent. Petiole 1–2 cm, glabrous; leaf blade ovate-oblong to obovate-oblancoceleate, 13–25 × 3–7 cm, thinly papery, glabrous, base cuneate, margin entire, apex acuminate to obtuse; midvein and secondary veins abaxially prominent and adaxially slightly raised or flat; secondary veins 9–12 on each side of midvein, curving near margin. Cupule bowl-shaped, ca. 1.2 × 2.5 cm, enclosing 1/2–2/3 of nut, outside brown velutinous, inside brownish tomentose, wall thin; bracts in 5–7 rings, margin undulate denticulate. Nut oblong-ellipsoid, 3.5–4 × ca. 2.2 cm, pilose, apex rounded; scar ca. 1.5 cm in diam., convex; stylopodium persistent.

Wet broad-leaved evergreen forests in valleys; 400–500 m. SE Xizang, Yunnan [Bangladesh, NE India, Myanmar, Thailand].


吊罗山青冈  bao dou qing gang


Trees to 30 m tall. Branchlets whitish, glabrous, slightly sulcate, densely lenticellate; lenticels whitish. Petiole 2–4 cm, black when dry, glabrous; leaf blade oblong to obovate-elliptic, 10–25 × 5–10 cm, papery, glabrous, abaxially grayish green, adaxially glossy-green, base broadly cuneate, margin entire to remotely crenate and apically serrate, apex somewhat caudate; midvein adaxially impressed; secondary veins 9–12 on each side of midvein, adaxially prominent, parallel; tertiary veins abaxially slender, evident. Female inflorescence 2–6 cm; cupules 3–5. Infructescence ca. 10 cm, with 1–5 fruit. Cupule bowl-shaped, ca. 1.5 × 2–4 cm, enclosing ca. 2/3 of nut, outside thinly grayish velutinous, wall ca. 1 mm thick; bracts in 6 or 7 rings, margin undulate denticulate. Nut oblate, 2–2.5 × 2.5–3 cm, apex depressed; scar 2–2.5 cm in diam., flat; stylopodium persistent, slightly raised. Fl. Apr, fr. Sep.

• 900–1000 m. Yunnan (Jinping Xian).

Very close if not identical to Cyclobalanopsis sichourensis; it may no longer be possible to maintain them as separate when additional collections are available.


鼎湖青冈  ding hu qing gang


Trees to 8 m tall. First-year branchlets grayish brown, sulcate, waxy, tawny woolly-tomentose; 2nd-year branchlets dark ashy, glabrescent. Petiole 1–1.5 cm; leaf blade oblong-elliptic, 8–9 × 2–2.5 cm, pale brown tomentose, glabrescent, abaxially grayish green, adaxially dark green, base cuneate to narrowly rounded, margin entire and slightly recurved, apex rounded; secondary veins 12 or 13 on each side of midvein. Infructescences on terminal new shoots, less than 1 cm, usually 2-fruited. Cupule bowl-shaped, ca. 1.8 × 2–2.5 cm, enclosing ca. 1/3 of nut, outside grayish brown tomentose but glabrescent, wall ca. 4 mm and hard; bracts in 4 or 5 rings, margin entire. Nut ellipsoid, 3–3.5 × 1.7–2 cm; scar ca. 5 mm in diam., slightly convex; stylopodium persistent, evident.

• Broad-leaved evergreen forests in mountains; ca. 1000 m. Guangdong (Dinghu Shan).


木姜叶青冈  mu jiang ye qing gang


Trees to 10 m tall. Branchlets sparsely tomentose, glabrescent. Leaves sessile; leaf blade obovate-oblancoceleate to narrowly elliptic, 2.5–7 × 0.8–3 cm, glabrous, abaxially grayish green, adaxially dark green, base cuneate, margin entire, apex obtuse; secondary veins 6–9 on each side of midvein. Female inflorescences ca. 1 cm; cupules 2, apical. Cupule bowl-shaped, 5–6 × ca. 10 mm, enclosing ca. 1/3 of nut, outside, remotely grayish brown tomentose; bracts in 5–7 rings, margin entire or denticulate. Nut ellipsoid, 1.5–1.8 × ca. 1 cm, apex pubescent; scar flat; stylopodium persistent, evident.

• Sparse forests in mountains; 700–1000 m. SE Guangdong, SW Guangxi.


吊罗山青冈  diao luo shan qing gang


Trees to 12 m tall. First-year branchlets minutely angular, with light brown woolly floss; 2nd-year branchlets indistinctly lenticellate. Leaves crowded apically on branchlets; petiole 6–8 mm, pale brown woolly when young; leaf blade oblong to obovate-
elliptic, 4–10 × 1.2–3 cm, leathery, concolorous, abaxially light brown floccose-tomentose when young, base cuneate, margin entire or apically 2–5-crenate, apex acute; midvein adaxially flat; secondary veins 5–7 on each side of midvein; tertiary veins inconspicuous.

Female inflorescences 5–15 mm; cupules 2 or 3. Cupule cupular, ca. 1.2 cm in diam., enclosing ca. 1/3 of nut, outside grayish brown pubescent, inside brown villous, wall ca. 1 mm thick; bracts in 6 or 7 rings, margin of basal ones denticulate, apical 2 or 3 ones narrow and with margin entire. Nut ovoid-ellipsoid to ellipsoid, 2–2.2 × 1.4–1.6 cm, puberulent, glabrescent but apically remaining puberulent with age; scar 6–9 mm in diam., flat or impressed; stylopodium persistent, slightly raised. Fl. Jan.–Feb. fr. Oct.–Dec.

- Broad-leaved evergreen forests in mountains; 900–1400 m. Hainan (Diao-luo Shan).

Very close to Cyclobalanopsis hui.


Quercus daimingshanensis (S. Lee) C. C. Huang.

Trees to 15 m tall. Branchlets glabrous. Petiole 5–8 mm, glabrous; leaf blade obovate-elliptic to elliptic, 4–7 × 1.5–3 cm, glabrous, abaxially whitish, adaxially dark green, base cuneate, margin apically remotely serrulate, apex with a short, blunt tip; secondary veins 7–9 on each side of midvein, abaxially slightly raised, adaxially inconspicuous; tertiary veins abaxially slender, evident. Female inflorescence ca. 1 cm; cupules 3–5. Cupule bowl-shaped, ca. 5 mm × 1.2 cm, enclosing ca. 1/3 of nut, outside whitish velutinous; bracts in 5 or 6 rings, margin of apical 2 denticate, others entire. Nut oblong-ellipsoid, 2–2.2 × ca. 1.3 cm, glabrous; scar 3–5 mm in diam., flat; stylopodium persistent, evident. Fl. Mar.–Apr. fr. Oct.

- Mixed mesophytic forests in mountains; ca. 1000 m. C Guangxi (Daming Shan).


Trees or shrubs (2–)5–11 m tall. Petiole 2–8 mm, hairy when young, glabrescent; leaf blade narrowly obovate to oblong-elliptic, 2.5–6(–9) × 1.5–2.5(–3.5) cm, abaxially pruinose and loosely covered with stellate hairs but glabrescent, adaxially dark green, base cuneate, margin entire or apically slightly repand, apex rounded to sometimes shortly acute or shortly acuminate; midvein and secondary veins abaxially prominent, adaxially slightly impressed; secondary veins 5–8 on each side of midvein; tertiary veins abaxially obscure. Infructescences 1–2 cm, with 1–3 fruit. Cupules with a stalk 3–8 mm, bowl-shaped, 6–10 mm × (1.1–)1.5–2 cm in diam., enclosing ca. 1/3 of nut, outside grayish brown velutinous, inside grayish brown sericeous; bracts in 7–9 rings, margin of basal and apical ones denticulate, others dentate. Nut oblate to subglobose, 0.8–2 × 1–1.6 cm, glabrous; scar 5–8 mm in diam., flat; stylopodium persistent, umbonate. Fr. Nov.

- Broad-leaved evergreen forests on mountain slopes and peaks; 1600–1800 m. Fujian, Guangdong, S Hunan.


Cyclobalanopsis bambusifolia (Hance) Chun ex Y. C. Hsu & H. W. Jen; Quercus bambusifolia Hance (1875), not Fortune (1860) nor T. M. Masters (1874); Q. neglecta (Schottky) Koidzumi.

Trees to 20 m tall. Branchlets grayish brown sericeous, glabrescent. Leaves crowded toward branchlet apex; petiole 2–5 mm, glabrous; leaf blade narrowly lanceolate to elliptic-lanceolate, 3–11 × 0.5–1.8 cm, subleathery, abaxially whitish and glabrous or basally villous, base cuneate, margin entire or indistinctly 1- or 2-crenate toward apex, apex rounded; midvein adaxially slightly raised or flat; secondary veins 7–14 on each side of midvein, inconspicuous; tertiary veins abaxially inconspicuous to obscure. Female inflorescences 5–10 mm, rachis grayish brown tomentose when young; cupules 2–many. Infructescences 5–10 mm, usually 1-fruited. Cupule saucer-shaped to cupular, 5–10 mm × 1.3–1.5(–1.8) cm, covering base of nut, outside grayish brown velutinous, inside brown tomentose, wall ca. 1 mm thick; bracts in 4–6 rings, margin entire or triangular denticate. Nut obovoid to ellipsoid, 1.5–2.5 × 1–1.6 cm, puberulent, glabrescent; scar 5–7 mm in diam., slightly convex; stylopodium persistent, evident. Fl. Feb.–Mar. fr. Aug.–Nov.

Dense forests in mountains; 500–2200 m. Guangdong, Guangxi, Hainan [Vietnam].


岭南青冈 ling nan qing gang


Trees to 20 m tall; trunk to 1 m d.b.h.; bark dark ash and slice splitting. Branchlets sulcate, densely grayish brown stellate tomentose. Leaves crowded toward branchlet apex; petiole 0.8–1.5 cm, densely pale orangish brown tomentose; leaf blade obovate, sometimes oblong-elliptic, 3.5–10(–13) × 1.5–4.5 cm, thickly leathery, abaxially pale orangish brown mealy and densely stellate tomentose, hairs pale orangish
brown when young but darker with age, adaxially dark green and glabrous, base cuneate, margin recurved and entire or rarely undulate-crenate toward apex, apex with a short, blunt tip to rarely retuse; midvein and secondary veins adaxially impressed; secondary veins 6–10 on each side of midvein; tertiary veins abaxially obscure. Female inflorescences to 4 cm, brown velutinuous; cupules 3–10. Cupule bowl-shaped, 4–10 mm × 1–1.3(–2) cm, enclosing 1/3–1/2 of nut, outside brown to brownish velutinous, inside densely pale yellowish brown tomentose, wall ca. 1 mm thick; bracts in 4–7 rings, margin usually entire or sometimes basal 1 or 2 undulately denticate. Nut broadly ovoid to oblate, 1.5–2 × 1–1.5(–1.8) cm, hairy when young, glabrescent, base and apex rounded; scar 4–5 mm in diam., flat. Fl. Dec–Mar, fr. Nov–Dec.

- Broad-leaved evergreen forests in mountains; 100–1700 m. Fujian, Guangdong, Guangxi, Hainan, Taiwan, Yunnan.

13. *Cyclobalanopsis chungii* (F. P. Metcalf) Y. C. Hsu & H. W. Jen ex Q. F. Zheng, Fl. Fujianica 1: 405. 1982. 福建青冈 *fu jian qing gang* *Quercus chungii* F. P. Metcalf, Lingnan. Sci. J. 10: 481. 1931. Trees to 15 m tall. Branchlets densely brown velutinuous, glabrescent. Petiole (0.5–)1–2 cm, grayish brown velutinous; leaf blade oblong-elliptic, 6–10(–12) × 1.5–4 cm, subleathery, abaxially densely grayish brown stellate tomentose (hairs 8–10-forked), base broadly cuneate to subrounded, margin serrulate toward apex or rarely entire but not recurved, apex acute to somewhat caudate; midvein and secondary veins abaxially prominent, adaxially flat; secondary veins 10–15 on each side of midvein, abaxially raised; tertiary veins abaxially conspicuous. Female inflorescences 1.5–2 cm, rachis and bracts densely tawny tomentose; cupules 2–3 cm. Cupule bowl-shaped, 2–3 cm in diam., enclosing 1/3–1/2 of nut, outside pale brown pubescent, glabrescent, base rounded to cuneate, decurrent along veins, and oblique, margin entire or slightly crenate, apex with long acuminate to caudate but sometimes shortly acuminate; midvein adaxially slightly impressed; secondary veins 6–8 on each side of midvein. Female inflorescences 2–3 cm. Infructescence rachis whitish, glabrous. Cupule bowl-shaped, 2–3 cm in diam., enclosing 1/3–1/2 of nut, outside pale brown puberulent; bracts in 6–8 rings, margin entire or middle ones crenulate. Nut oblong-ellipsoid, ca. 4 × 2–3 cm, glabrous; scar rounded; stylopodium persistent, umbionate. Fl. Oct, fr. Nov–Dec of following year.

- Mixed or dense wet broad-leaved evergreen forests in mountains; 300–1200 m. Guangdong, Guangxi, Hunan.

15. *Cyclobalanopsis albicaulis* (Chun & W. C. Ko) Y. C. Hsu & H. W. Jen, J. Beijing Forest. Univ. 15(4): 45. 1993. 白枝青冈 *bai zhi qing gang* *Quercus albicaulis* Chun & W. C. Ko in Chun & F. C. How, Acta Phytotax. Sin. 7: 33. 1958. Trees to 30 m tall. Branchlets whitish, glabrous, cylindric when young, minutely sulcate and with papillate lenticels with age. Petiole 2–3.5 cm, glabrous; leaf blade oblong-elliptic, 7–13 × 1.5–3(–4) cm, subleathery, abaxially pale brown tomentose but glabrescent, base cuneate and slightly oblique, margin recurved and entire or indistinctly serrulate toward apex, apex acuminate to obtuse; midvein and secondary veins abaxially prominent, adaxially flat; secondary veins 6–10 on each side of midvein; tertiary veins abaxially slender, evident. Female inflorescences 1–2 cm; cupules 2–5, apical. Infructescence ca. 1 cm; fruit 1 or 2. Cupule shallow bowl-shaped to deeply discoid, 4–10 mm × 1.5–3 cm, covering base of nut, outside and inside densely feltlike tawny tomentose, wall ca. 1 mm thick; bracts in 4–6 rings, margin denticate. Nut oblate, 1.5–2 × 1.5–2.5 cm, densely tawny tomentose, glabrescent; scar 7–10 mm in diam., impressed; stylopodium raised. Fl. Apr–May, fr. Oct–Dec.

- Mixed or dense wet broad-leaved evergreen forests in mountains; 300–1200 m. Guangdong, Guangxi, Hainan.

16. *Cyclobalanopsis delicatula* (Chun & Tsiang) Y. C. Hsu & H. W. Jen, Acta Bot. Yunnan. 1(1): 148. 1979. 上思青冈 *shang si qing gang* *Quercus delicatula* Chun & Tsiang, J. Arnold Arbor. 28: 324. 1947. Trees to 13 m tall. First-year branchlets ca. 2 mm thick, glabrous. Petiole slender, 1–2 cm, glabrous; leaf blade ovate, oblong-elliptic, or sometimes obovate-elliptic, 6–9 × 2–3.5 cm, papery, base cuneate, margin entire or shallowly crenate toward apex, apex crenate; secondary veins 7 or 8 on each side of midvein, abaxially slightly raised, glabrescent; tertiary veins abaxially inconspicuous to obscure. Infructescence ca. 1 cm, with
1 or 2 fruit. Cupule cupular, ca. 1.5 × 1.6–1.8 cm, enclosing ca. 1/3 of nut, outside and inside grayish brown and pubescent, wall ca. 1 mm thick; bracts in 7 or 8 rings, margin of apical 2 or 3 entire, others denticulate. Nut ellipsoid, 2–2.5 × ca. 1.5 cm, at least apically velutinous, base and apex rounded; scar ca. 5 mm in diam., flat; stylopodium persistent, umbonulate. Fl. Apr–May, fr. Oct–Nov.

- Mixed mesophytic forests in mountains; 300–700 m. Guangdong, Guangxi, Hunan.


**云山青冈** yun shan qing gang


Trees to 25 m tall. Branchlets waxy, glaucous, lenticellate; lenticels grayish brown, rounded, hairy, glabrescent. Petiole 5–10 mm, glabrous; leaf blade lenticellate; lenticels grayish brown tomentose, inside grayish brown, wall 1–2 mm thick; bracts in 5–8 rings, margin of apical 2 or 3 entire, others denticulate, apex acute to shortly acuminate; secondary veins 10–14 on each side of midvein, inconspicuous; tertiary veins abaxially obscure. Female inflorescences ca. 1.5 cm. Cupule cupular, 1–1.5 cm in diam., enclosing ca. 1/3 of nut, outside grayish brown tomentose, inside grayish brown feltlike tomentose, wall ca. 1 mm thick; bracts in 5–7 rings, margins of basal 2 or 3 denticulate, others subentire. Nut obvoid to ellipsoid-obovoid, 1.7–2.4 × 0.8–1.5 cm, base with a few rings; scar 5–7 mm in diam., slightly convex; stylopodium persistent; rounded. Fl. Apr–May, fr. Oct–Nov.

Mixed mesophytic forests in mountains; 1000–1700 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Jiangsu, Jiangxi, Sichuan, Taiwan, Zhejiang [Japan].


**窄叶青冈** zhai ye qing gang


Trees to 10 m tall. Branchlets sulcate, with orangish brown scalelike wings when young, glabrescent. Petiole 0.5–2 cm, glabrous; leaf blade ovate-lanceolate to elliptic-lanceolate, 6–12 × 1–4 cm, abaxially slightly farinose, adaxially glabrous, base cuneate and usually oblique, margin slightly recurved and usually serrate in juvenile tree but entire or apically conspicuously serrate in mature tree, apex acuminate; midvein adaxially raised; secondary veins 10–15 on each side of midvein, inconspicuous, usually not fusing; tertiary veins obscure to very slender, evident. Female inflorescences solitary in axil of new shoots, 3–4 cm; cupules 5–10. Cupule cupular, 0.6–1 × 1–1.3 cm, enclosing ca. 1/2 of nut, outside glabrous or puberulent, inside grayish brown sericeous, wall less than 1 mm thick; bracts in 5–7 rings, margin entire to crenulate, basal ones somewhat spreading, apical ones connate or adherent to cupule wall. Nut ovoid to oblong-ovoid, 1–1.7 × 0.8–1.2 cm, glabrous, apex rounded to somewhat depressed; scar ca. 6 mm in diam., slightly convex; stylopodium persistent. Fl. Apr–May, fr. Oct of following year.

Forests in mountains; 1200–2700 m. Guangxi, Yunnan [Vietnam].


**黑果青冈** hei guo qing gang


Trees to 20 m tall. Branchlets slender and sulcate, with a whitish waxy layer by 2nd year. Petiole 5–8(–12) mm; leaf blade green, elliptic, obovate-elliptic, or lanceolate, 6–11 × 2–4 cm, subleathery, puberulent or glabrous when young, base cuneate, margin entire to remotely repand and serrulate apically, apex caudate; midvein adaxially impressed; secondary veins 8–11 on each side of midvein, slender, evident. Infructescences 2–4 cm, with 2–5 fruit. Cupule cupular, 0.5–1.2 × 0.8–1.8 cm, enclosing 1/3–1/2 of nut, outside glabrous, inside brown sericeous, wall less than 1 mm thick; bracts in 5–7(–9) rings, margins dentate. Nut ovoid to oblong-ellipsoid, 1–1.5(–2) × 0.6–0.8 (–1.5) cm, glabrous; scar ca. 5 mm in diam., flat. Fr. Dec.

Mixed mesophytic and broad-leaved evergreen forests; 600–1500 m. Guangdong, Guangxi, Yunnan [Vietnam].


**薄叶青冈** bao ye qing gang


Trees to 50 m tall. Branchlets slender, sulcate, glabrous. Leaf blade ovate-elliptic to oblong-elliptic, 10–14 × 2.5–4.5 cm, papery, glabrous, adaxially grayish green, abaxially grayish green, base cuneate, margin entire, apex caudate; midvein adaxially impressed; secondary veins (6–)9 or 10 on each side of midvein, inconspicuous. Cupule campanulate to obconic, ca. 1.5 × 2 cm, enclosing less than 1/2 of nut, outside gray villous, inside orangish tomentose, wall 1–2 mm thick; bracts in 8 or 9 rings, margin entire. Nut ellipsoid, 1.5–2 × 1.5–2 cm, glabrous; scar ca. 8 mm in diam., convex.

Wet forests in mountains; ca. 1700 m. Yunnan [Laos, Vietnam].


Trees to 30 m tall. Branchlets dark, sulcate, densely lenticellate; lenticels whitish, rounded, glabrous. Petiole 1.5–2 cm, glabrous; leaf blade oblong to ovate-elliptic, 7–10 × 3–4 cm, subleathery, concolorous, glabrous, base rounded and slightly oblique, margin entire or apically remotely serrate, apex caudate; midvein adaxially impressed; secondary veins 7–9 on each side of midvein, slender, inconspicuous; tertiary veins obscure. Infructescences solitary in axil of a higher leaf, 2–4 cm, with 1 or 2 fruit. Cupule cupular, 0.8–1 × ca. 1.5 cm, enclosing ca. 1/2 of nut, outside glabrous, inside sericeous; bracts in 6 rings, margin remotely triangular-denticulate. Nut depressed globose, 1.4–1.8 × 1–1.3 cm, glabrous; scar ca. 4 mm in diam., slightly convex; stylopodium persistent, ca. 2 mm. Fr. Oct.

• Broad-leaved evergreen forests; ca. 1700 m. SE Xizang (Mêdog Xian).


*Quercus hypophaeas* Hayata, Icon. Pl. Formosan. 3: 182. 1913; *Lithocarpus hypophaeas* (Hayata) Hayata; *Pasania hypophaeas* (Hayata) H. L. Li.

Trees to 18 m tall. Branchlets slender, whitish hairy. Petiole 5–10 mm, triangular in cross section, densely gray tomentose; leaf blade narrowly elliptic-lanceolate, 5–9.5 × 1.5–2.3 cm, subleathery, abaxially whitish tomentose and hairs adnate, adaxially bright green, base cuneate, margin entire, apex acuminate; midvein adaxially prominent and adaxially flat; secondary veins 8–14 on each side of midvein, slender, evident, not fusing; tertiary veins abaxially obscure. Cupule saucer-shaped, 5–8 mm × 1–1.8 cm, outside whitish pubescent; bracts in 7–11 rings. Nut oblate, 1.7–2.1 × 1.2–1.8 cm; scar 5–8 mm in diam., slightly convex. Fl. Dec.–Jan, fr. Jan.–Feb of following year.

• Broad-leaved evergreen forests; near sea level to 1100 m. SE Taiwan.


Trees to 20 m tall. Branchlets sulcate, villous when young, soon glabrescent. Petiole 2–3.5 cm, adaxially sulcate; leaf blade ovate to oblong-elliptic, 7–15 × 3–5 cm, leathery, abaxially grayish brown tomentose (denser so along veins), adaxially bright green and glabrous, base broadly cuneate to subrounded, margin entire or apically indistinctly serrulate, apex caudate; midvein adaxially impressed; secondary veins 11–15 on each side of midvein; tertiary veins abaxially evident. Female inflorescences 5–7 cm; rachis villous. Cupule bowl-shaped, ca. 8 mm × 1.3–1.5 cm, enclosing ca. 1/3 of nut, outside pubescent, inside orangish brown sericeous, wall less than 1 mm thick; bracts in 6 or 7 rings, margin of apical 2 entire, others triangular denticulate. Nut ovoid-ellipsoid, 1.5–1.7 × 1.3–1.5 cm, glabrous; scar 5–8 mm in diam., convex; stylopodium persistent. Fr. Dec.

• Broad-leaved evergreen forests; ca. 2300 m. SE Guizhou, S to SE Yunnan.


*Quercus rex* Hemsley, Hooker’s Icon. Pl. 27: t. 2663. 1901.

Trees to 30 m tall. Branchlets pale brown tomentose, glabrescent. Leaves often crowded apically on branches; petiole 2–3 cm, brown tomentose; leaf blade obovate to obovate-oblanceolate, 15–20(–27) × (4–)6–9 cm, densely brown tomentose when young, glabrescent, base cuneate, margin apically remotely minutely serrate, apex shortly acuminate to acute; midvein and secondary veins abaxially prominent but adaxially impressed or flat; secondary veins 18–22 on each side of midvein, tertiary veins abaxially evident. Cupule saucer-shaped, 1.5–1.8 × 3.5–5(–6) cm, enclosing 1/3–1/2 of nut, outside and inside tawny tomentose, wall to 4 mm thick; bracts in 7 or 8 rings, margin entire or sinuate, basal ones free from wall. Nut oblate, 2.5–3.5 × 3.5–5 cm, pale grayish orange tomentose when young, apically and basally hairy with age, apex rounded to impressed; scar 2–2.5 cm in diam., depressed; stylopodium often deciduous. Fl. Apr.–May, fr. Oct.–Nov.

Dense forests in valleys; 1100–1800 m. S to W Yunnan [NE India, Laos, Myanmar, Vietnam].


*Quercus lamellosa* Smith in Rees, Cycl. 29: *Quercus* no. 23. 1814; *Cyclobalanopsis fengii* Hu & W. C. Cheng; *C. lamellosoides* (C. C. Huang) Y. T. Chang; *C. nigrinervis* Hu; *Q. lamellosoides* C. C. Huang.

Trees to 40 m tall. Branchlets tawny tomentose, glabrescent. Petiole 2–4 cm; leaf blade ovate-elliptic, 16–30(–39) × 6–8(–10) cm, leathery, abaxially pruinose or with pale brown, shortly stellate hairs and sometimes glabrescent, adaxially green and glabrous, base cuneate to subrounded, margin serrate or entire on basal 1/3, apex acuminate to caudate; midvein and secondary veins abaxially prominent but adaxially impressed; secondary veins 18–25(–33) on each side of midvein; tertiary veins abaxially conspicuous. Infructescences usually with 1–3 fruit. Cupule oblate to semiglobose, 2–3 × 3–5 cm, enclosing 2/3–4/5 or sometimes all nut,
outside and inside orangish tomentose, wall 2–5 mm on sides and 3–8 mm at base; bracts in 7–10 rings, thinly lamellate, margin subentire but denticulate when ripe. Nut oblate, 2–3 × 3–4 cm, tomentose, glabrescent, apex flat, rounded, or umbo nate; scar 2–3 cm in diam., flat to slightly convex; stylod i opus persistent, ca. 5 mm in diam. Fl. Apr.–May, fr. Nov.–Dec.

Mixed mesophytic forests in mountains; 1300–2500 m. W Guangxi, Xizang, Yunnan [Bhutan, NE India, N Myanmar, Nepal, Sikkim, N Thailand].


Trees to 20 m tall. Branchlets densely tawny tomentose, glabrescent or rarely remaining hairy. Petiole 1–2 cm, tomentose; leaf blade oblong-elliptic, lanceolate, or oblong-ob lanceolate, 9–18(–24) × 3–7(–9) cm, densely tawny tomentose when young, glabrescent, abaxially stellate hairy with age, base rounded to broadly cuneate, margin serrate on apical 2/3, apex obtuse to shortly acuminate; midvein flat or adaxially slightly raised; secondary veins 10–14 on each side of midvein; tertiary veins abaxially evident. Female inflorescences solitary, 2–5(–7) cm. Cupule discoid, 5–10 mm × 2–2.5(–3.8) cm, covering base to 1/2 of nut, outside and inside orangish tomentose, wall 2–5 mm thick; bracts in 7–11 rings, margin denticulate or entire. Nut oblate, 0.7–1.2 × 2–2.8 cm, apex depressed to flat; scar 1–2 cm in diam., slightly convex; stylod i opus persistent, umbo nate, grayish sericeous-pubescent. Fl. Mar.–May, fr. Oct.–Nov.

Sparse forests in mountains; 100–1800 m. Guangxi, Guizhou, Hainan, Yunnan [N Thailand, Vietnam].

This species and Cyclobalanopsis hel f eriana are closely related, and the relationship between them and their distribution needs further study. As interpreted by Hjelmquist (Dansk Bot. Ark. 23(4): 505. 1968), only C. helf eriana, and not C. kerrii, occurs in China.


Trees to 20 m tall. Branchlets densely pale brown tomentose, glabrescent, densely lenticellate; lenticels brown, raised. Petiole 3–4 cm, grayish stellate tomentose; leaf blade oblong-elliptic to elliptic-lanceolate, 12–20 × 2–5 cm, abaxially densely pale brown stellate tomentose, base rounded to broadly cuneate, margin serrate, apex acuminate; midvein abaxially prominent and adaxially impressed; secondary veins 16–24 on each side of midvein; tertiary veins abaxially obscure. Female inflorescences borne toward the apex of new shoots, axillary, solitary, ca. 1 cm, tomentose. Cupule cupular, ca. 1 × 1.5–1.8 cm, enclosing ca. 1/2 of nut, outside pale brown tomentose, inside pale brown sericeous, wall ca. 1 mm thick; bracts in 5–7 rings, margin denticulate. Nut ovoid to ellipsoid, ca. 2 × 1.5 cm, hairy, glabrescent; scar ca. 8 mm in diam., slightly convex. Fl. Apr.–May, fr. Oct.–Nov.

Mixed mesophytic forests in mountains; 1100–3000 m. Guizhou, Hubei, Sichuan, Xizang, Yunnan [NE India].


Trees to 20 m tall. Branchlets tomentose, glabrescent, densely lenticellate; lenticels brown, raised. Petiole 3–4 cm, grayish stellate tomentose; leaf blade oblong-elliptic to elliptic-lanceolate, 12–20 × 2–5 cm, abaxially densely pale brown stellate tomentose, base rounded to broadly cuneate, margin serrate, apex acuminate; midvein abaxially prominent and adaxially impressed; secondary veins 16–24 on each side of midvein; tertiary veins abaxially obscure. Female inflorescences borne toward the apex of new shoots, axillary, solitary, ca. 1 cm, tomentose. Cupule cupular, ca. 1 × 1.5–1.8 cm, enclosing ca. 1/2 of nut, outside pale brown tomentose, inside pale brown sericeous, wall ca. 1 mm thick; bracts in 5–7 rings, margin denticulate. Nut ovoid to ellipsoid, ca. 2 × 1.5 cm, hairy, glabrescent; scar ca. 8 mm in diam., slightly convex. Fl. Apr.–May, fr. Oct.–Nov.

Mixed mesophytic forests in mountains; 1100–3000 m. Guizhou, Hubei, Sichuan, Xizang, Yunnan [NE India].
cupular, 1.5–2 cm in diam., enclosing ca. 1/2 of nut, outside thinly grayish brown tomentose, inside white sericeous, wall less than 1 mm thick; bracts in 6–8 rings, margin dentate. Nut ovoid to subglobose, 1.5–2.2 × 1.2–1.7 cm, glabrous or rarely pilose at apex; scar ca. 8 mm in diam., slightly convex; stylopodium ca. 4 mm in diam., with 3 or 4 rings. Fl. May–Jun, fr. Sep–Oct.

Mixed mesophytic forests on mountain slopes and in valleys; 700–2800 m. Guangdong, Guangxi, Guizhou, Hubei, Hunan, Jiangxi, Shaanxi, Sichuan, SE Xizang, Yunnan, Zhejiang [Blutan, NE India, Myanmar, Nepal].


incurved. Nut ellipsoid, ca. 4.5 × 2.5–2.8 cm; scar conically convex. Fl. Dec, fr. Jun–Jul of following year.

- Mixed mesophytic forests in mountains; 900–1000 m. Hainan (Dongfang Xian).


Trees to 30 m tall. Branchlets subangular, pubescent, reddish tomentose when young, subleathery, adnate pubescent when young, glabrescent; scar 1–1.4 cm in diam., depressed; stylopodium persistent, to 3 mm. Fl. Feb–Apr, fr. Oct–Dec.

Guangxi, Hainan. Wet forests in mountains and hills; 200–700 m. Guangdong, Guangxi, Hainan.


Trees to 35 m tall. Branchlets glabrous; 2nd-year branchlets densely lenticellate. Petiole slender, 1.5–3 cm, glabrous; leaf blade narrowly ovate-elliptic to obovate-oblongate, 7–19 × 1.5–2 cm, subleathery, reddish tomentose when young, soon glabrescent, base cuneate, margin apical 2/3 serrate, apex acuminate; midvein adaxially raised; secondary veins 8–14 on each side of midvein and abaxially raised; tertiary veins abaxially slender, evident. Female inflorescences 1–2 cm; cupules 1 or 2. Cupules saucer-shaped to shallowly bowl-shaped, 5–10 mm × 2–3 cm, covering base of nut, outside pale grayish brown tomentose, inside orangish brown sericeous, wall ca. 1 mm thick; bracts in 6 or 7 rings, margin entire or dentate. Nut ellipsoid to ovoid, 2.5–3.5 × 1.5–3 cm; scar 7–11 mm in diam., flat to depressed; stylopodium persistent, umbonate, base loosely pale grayish brown villous, late glabrescent. Fl. Mar, fr. Oct–Dec.

Dense forests on mountain valleys; 100–2500 m. Guangdong, Guangxi, Guizhou, Hainan [Laos, Vietnam]. Specimens from China that have been determined as Cyclobalanopsis chrysocalyx (Hickel & A. Camus) Hjelmquist are referable to C. bella.


栋子青冈 li zi qinggang

Quercus blakei Skan, Hooker’s Icon. Pl. 27: t. 2662. 1901; Q. parvifolia var. parvifolia Merrill.

Trees to 35 m tall. Branchlets glabrous; 2nd-year branchlets densely lenticellate. Petiole slender, 1.5–3 cm, glabrous; leaf blade narrowly ovate-elliptic to obovate-oblongate, 7–19 × 1.5–2 cm, subleathery, reddish tomentose when young, soon glabrescent, base cuneate, margin apical 2/3 serrate, apex acuminate; midvein adaxially raised; secondary veins 8–14 on each side of midvein and abaxially raised; tertiary veins abaxially slender, evident. Female inflorescences 1–2 cm; cupules 1 or 2. Cupules saucer-shaped to shallowly bowl-shaped, 5–10 mm × 2–3 cm, covering base of nut, outside pale grayish brown tomentose, inside orangish brown sericeous, wall ca. 1 mm thick; bracts in 6 or 7 rings, margin entire or dentate. Nut ellipsoid to ovoid, 2.5–3.5 × 1.5–3 cm; scar 7–11 mm in diam., flat to depressed; stylopodium persistent, umbonate, base loosely pale grayish brown villous, late glabrescent. Fl. Mar, fr. Oct–Dec.
**Quercus edithiae** Skan, Hooker’s Icon. Pl. 27: t. 2661. 1901; *Q. tephrosia* Chun & W. C. Ko.

Trees to 20 m tall. Branchlets slightly angular, glabrous; 2nd-year branchlets lenticellate; lenticels loose, small. Petiole 2–3 cm, glabrous; leaf blade oblong-elliptic to somewhat obovate, 5–16 × 2–6 cm, leathery, adaxially dark green, grayish, or whitish, base cuneate, margin apical 1/3 remotely serrulate, apex with a short, blunt tip; midvein adaxially flat; secondary veins 9–12 on each side of midvein, inconspicuous; tertiary veins abaxially conspicuous. Female inflorescences 1–2 cm; cupules 3 or 4. Inflorescence rachis short, ca. 1 cm long, inconspicuous; tertiary veins abaxially prominent, adaxially slightly raised; secondary veins 10–14 on each side of midvein, branching near margin; tertiary veins abaxially conspicuous. Cupules woody, saucer-shaped, ca. 1 × 3–3.5 cm, enclosing more than 1/2 of nut, outside orangish brown velutinous, inside orangish brown prostrate villous, wall 2–3 mm thick; bracts in 6–8 rings, margin of basal 2 or 3 subentire, others dentilicate. Nut ellipsoid to cylindric-ellipsoid, 3–4.5 × 2–3 cm; scar ca. 7 mm in diam., slightly convex; stylodium persistent, umbo late, puberulent. Fr. Oct.–Dec.

**Quercus houyuanqiang** Skan, Hooker’s Icon. Pl. 27: t. 2661. 1901; *Q. tephrosia* Chun & W. C. Ko. 2nd-year branchlets lenticellate; lenticels loose, small. Petiole 2–3 cm, glabrous; leaf blade oblong-elliptic to somewhat obovate, 5–16 × 2–6 cm, leathery, adaxially dark green, grayish, or whitish, base cuneate, margin apical 1/3 remotely serrulate, apex with a short, blunt tip; midvein adaxially flat; secondary veins 9–12 on each side of midvein, inconspicuous; tertiary veins abaxially conspicuous. Female inflorescences 1–2 cm; cupules 3 or 4. Inflorescence rachis short, ca. 1 cm thick, with 1 or 2 fruit. Cupule bowl-shaped, 1.2–1.5 × 1.8–2.5 cm, enclosing 1/4–1/3 of nut, outside orangish brown velutinous, inside orangish brown prostrate villous, wall 2–3 mm thick; bracts in 6–8 rings, margin of basal 2 or 3 subentire, others dentilicate. Nut ellipsoid to cylindric-ellipsoid, 3–4.5 × 2–3 cm; scar ca. 7 mm in diam., slightly convex; stylodium persistent, umbo late, puberulent. Fr. Oct.–Dec.

Broad-leaved evergreen forests in mountains; 400–1800 m. Guangdong, Guangxi, Hainan [Vietnam].


**Quercus koumeii** Hu; *C. shiangpyngensis* Hu; *C. lanaiensis* Chun & W. C. Ko. 2nd-year branchlets lenticellate; lenticels loose, small. Petiole 1–3 cm, hairy, glabrescent; leaf blade ovate to oblong-elliptic, 12–17 × 3.5–7 cm, subleathery, light orangish brown tomentose when young, glabrescent, abaxially grayish brown, adaxially bright green, base broadly cuneate to subrounded, margin entire near base but otherwise spinose serrate, apex acute to caudate; midvein adaxially raised; secondary veins 13–16 on each side of midvein, branching near margin; tertiary veins abaxially slender, evident. Cupule bowl-shaped to cupular, 1.5–2 × ca. 3 cm, enclosing most of nut and ca. 0.5 mm longer than it, apically incurved, outside and inside tawny tomentose, wall ca. 2 mm thick; bracts in 8 or 9(–12) rings, margin subentire. Nut oblate, 1–1.5 × 2.5–3 cm, densely light brown tomentose, apex depressed; scar ca. 2 cm in diam., flat. Fl. Apr, fr. Sep–Oct.


**Quercus koumeii** Hu; *C. shiangpyngensis* Hu; *C. lanaiensis* Chun & W. C. Ko. 2nd-year branchlets lenticellate; lenticels loose, small. Petiole 1–3 cm, hairy, glabrescent; leaf blade ovate to oblong-elliptic, 12–17 × 3.5–7 cm, subleathery, light orangish brown tomentose when young, glabrescent, abaxially grayish brown, adaxially bright green, base broadly cuneate to subrounded, margin entire near base but otherwise spinose serrate, apex acute to caudate; midvein adaxially raised; secondary veins 13–16 on each side of midvein, branching near margin; tertiary veins abaxially slender, evident. Cupule bowl-shaped to cupular, 1.5–2 × ca. 3 cm, enclosing most of nut and ca. 0.5 mm longer than it, apically incurved, outside and inside tawny tomentose, wall ca. 2 mm thick; bracts in 8 or 9(–12) rings, margin subentire. Nut oblate, 1–1.5 × 2.5–3 cm, densely light brown tomentose, apex depressed; scar ca. 2 cm in diam., flat. Fl. Apr, fr. Sep–Oct.


**Cyclobalanopsis koumeii** Hu; *C. shiangpyngensis* Hu; *C. lanaiensis* Chun & W. C. Ko. 2nd-year branchlets lenticellate; lenticels loose, small. Petiole 1–3 cm, hairy, glabrescent; leaf blade ovate to oblong-elliptic, 12–17 × 3.5–7 cm, subleathery, light orangish brown tomentose when young, glabrescent, abaxially grayish brown, adaxially bright green, base broadly cuneate to subrounded, margin entire near base but otherwise spinose serrate, apex acute to caudate; midvein adaxially raised; secondary veins 13–16 on each side of midvein, branching near margin; tertiary veins abaxially slender, evident. Cupule bowl-shaped to cupular, 1.5–2 × ca. 3 cm, enclosing most of nut and ca. 0.5 mm longer than it, apically incurved, outside and inside tawny tomentose, wall ca. 2 mm thick; bracts in 8 or 9(–12) rings, margin subentire. Nut oblate, 1–1.5 × 2.5–3 cm, densely light brown tomentose, apex depressed; scar ca. 2 cm in diam., flat. Fl. Apr, fr. Sep–Oct.

**Cyclobalanopsis koumeii** Hu; *C. shiangpyngensis* Hu; *C. lanaiensis* Chun & W. C. Ko. 2nd-year branchlets lenticellate; lenticels loose, small. Petiole 1–3 cm, hairy, glabrescent; leaf blade ovate to oblong-elliptic, 12–17 × 3.5–7 cm, subleathery, light orangish brown tomentose when young, glabrescent, abaxially grayish brown, adaxially bright green, base broadly cuneate to subrounded, margin entire near base but otherwise spinose serrate, apex acute to caudate; midvein adaxially raised; secondary veins 13–16 on each side of midvein, branching near margin; tertiary veins abaxially slender, evident. Cupule bowl-shaped to cupular, 1.5–2 × ca. 3 cm, enclosing most of nut and ca. 0.5 mm longer than it, apically incurved, outside and inside tawny tomentose, wall ca. 2 mm thick; bracts in 8 or 9(–12) rings, margin subentire. Nut oblate, 1–1.5 × 2.5–3 cm, densely light brown tomentose, apex depressed; scar ca. 2 cm in diam., flat. Fl. Apr, fr. Sep–Oct.
Conspicuous. Cupule saucer-shaped, 5–12 mm × 2.5–3.5 cm, covering base of nut, outside sparsely orangish brown tomentose, inside orangish brown sericeous, wall 3–5 mm thick; bracts in 6–9 rings, margin dentate. Nut oblate, 1–2.2 × 1.5–2.7 cm, glabrous or basally pilose, base flat, apex rounded to slightly depressed; scar ca. 1.5 cm in diam., flat or depressed; stylopodium ca. 3 mm in diam., unobnate. Fr. Oct–Dec.

Wet broad-leaved evergreen forests in mountain valleys; 1300–2000 m. S to SE Yunnan [Vietnam].


Quercus sichourensis (Hu) C. H. Huang & Y. T. Chang

Trees to 20 m tall. Branchlets thick, slightly sulate, sparsely hairy, lenticellate; lenticels grayish brown, rounded, raised. Petiole 2.5–3.5 cm, brown tomentose when young; leaf blade oblong to ovate-elliptic, 12–21 × 5–9 cm, thickly leathery, abaxially whitish, pilose, and barbate in vein axils, adaxially bright green, base rounded to broadly cuneate, margin beyond basal 1/4 remotely serrate, apex shortly acute; midvein adaxially impressed; secondary veins 15–18 on each side of midvein; tertiary veins abaxially conspicuous. Cupule oblate, ca. 2.5 × 3.5–5 cm, enclosing nearly all of nut, outside pale brown tomentose, inside pale orangish brown sericeous, wall ca. 1.5 mm thick; bracts in 9 or 10 rings, margin dentate. Nut oblate, ca. 2 × 3–4 cm, pale orangish tomentose, apex impressed and umbonate; scar slightly narrower than nut diam., convex.

■ Broad-leaved evergreen forests in mountains; 800–1500 m. SE Yunnan.


Trees. Branchlets yellowish brown tomentose when young, glabrescent. Petiole 1–2 cm, tomentose when young, glabrescent; leaf blade ovate to obovate-elliptic, 6.5–12 × 2–4.5 cm, leathery, abaxially yellowish gray and with stellate velutinous hairs, adaxially bright green, base rounded and oblique, margin remotely minutely serrate, apex acuminate, mucronate; midvein and secondary veins adaxially flat; secondary veins 9–14 on each side of midvein; tertiary veins obscure on both surfaces. Infructescences less than 1 cm, 1-fruited. Cupule conic, 5–7 mm × 1–1.7 cm, enclosing ca. 1/2 of nut, outside golden tomentose, inside yellowish brown sericeous, wall ca. 2 mm thick; bracts in 6 or 7(–9) rings. Nut broadly ovoid, 0.8–1.5 cm, golden tomentose, apex rounded; stylopodium; ca. 3 mm in diam., subrounded; staminate persistent, conspicuous.

■ Mixed mesophytic forests in mountains; 1400–1500 m. SE Yunnan (Malipo Xian).


Quercus stenophylloides Hayata, Icon. Pl. Formosan. 4: 21. 1914; Cyclobalanopsis stenophylla (Blume) Schottky var. stenophylloides (Hayata) J. C. Liao; Q. salicina Blume var. stenophylloides (Hayata) S. S. Ying; Q. stenophylla (Blume) Makino var. stenophylloides (Hayata) A. Camus.
Trees to 17 m tall. Branchlets slender, gray, glabrous. Petiole 1.5–2 cm, glabrous; leaf blade oblong-elliptic to lanceolate, 7–12 × 1.5–3.5 cm, leathery, abaxially farinose and with prostrate simple hairs but usually glabrescent, adaxially green, base narrowly acute to rounded, margin with short, awnlike serrations, apex acuminate to caudate; secondary veins 11–13 on each side of midvein, extending into serration; tertiary veins abaxially inconspicuous to obscure. Female inflorescences 2–2.5 cm, cupules 6 or 7. Cupule cupular, 1–1.5 × ca. 1.2 cm, enclosing ca. 1/2 or less of nut, outside and inside grayish velutinous, wall less than 1 mm thick; bracts in 6 or 8 rings, margin dentate. Nut ellipsoid, 1.7–2 × ca. 1.5 cm, glabrous; scar ca. 5 mm in diam., flat; stypodium persistent, conspicuous, 3-ringed. Fl. Apr–May, fr. Sep–Oct of following year.

- Broad-leaved evergreen forests in mountains; (500–)1100–2600 m. C to N Taiwan.

The Japanese Cyclobalanopsis salicina (Blume) Oersted has been reported in Taiwan (J. C. Liao, Fl. Taiwan, ed. 2, 2: 84. 1996). Cyclobalanopsis salicina and C. stenophylloides are very closely related, but the plants in Taiwan are apparently populations of C. stenophylloides growing on sandstone ridges at lower elevations than is typical for this species.


细叶青冈 xi ye qing gang


Trees to 15 m tall. Branchlets tomentose when young, glabrescent. Petiole 1–1.5 cm; leaf blade oblong-ovate to ovate-lanceolate, 4.5–9 × 1.5–3 cm, abaxially whitish and with prostrate simple hairs, adaxially bright green, base cuneate to subrounded, margin apical 2/3 sharply serrulate, apex acuminate to caudate; secondary veins 7–13 on each side of midvein, slender, inconspicuous (especially near margin); tertiary veins abaxially inconspicuous. Female inflorescences 1–1.5 cm, rachis and bracts tomentose; cupules 2 or 3, borne apically. Cupule bowl-shaped, 6–8 mm × 1–1.3 cm, enclosing 1/2–3/5 of nut, outside and inside with prostrate grayish brown tomentose hairs; bracts in 5 or 6 rings, margin of basal 2 conspicuously dentate, others denticulate. Nut ellipsoid, 1.5–2 × ca. 1 cm, apex hairy; scar ca. 5 mm in diam., slightly convex; stypodium persistent, short. Fl. Apr–Jun, fr. Oct–Nov.


Part of the Cyclobalanopsis glauca complex but with smaller leaves than is typical for that species, C. gracilis could nevertheless be treated as conspecific with C. glauca.


青冈 qing gang

Quercus glauca Thunberg in Murray, Syst. Veg., ed. 14, 858. 1784; Cyclobalanopsis glauca var. kuyuensis (J. C. Liao) J. C. Liao; C. repandifolia (J. C. Liao) J. C. Liao; Q. glauca var. kuyuensis J. C. Liao; Q. longipes Hu; Q. repandifolia J. C. Liao; Q. sasakii Kanehira; Q. vaniottii H. Léveillé.

Trees to 20 m tall. Branchlets glabrous. Petiole 1–3 cm; leaf blade obovate or oblong-elliptic, 6–13 × 2–5.5 cm, often wider apically from middle, leathery, abaxially often becoming pruinose and with prostrate white simple or scalylike hairs but glabrescent, adaxially glabrous, base rounded to broadly cuneate, margin apical 1/2 remotely serrate, apex acuminate to somewhat caudate; secondary veins 9–13 on each side of midvein; tertiary veins abaxially inconspicuous. Infructescences 1.5–3 cm, with 2 or 3 fruit. Cupule bowl-shaped, 6–8 mm × 0.9–1.4 cm, enclosing 1/3–1/2 of nut, outside white puberulent or glabrous, inside white sericeous; bracts in 5 or 6 rings, crowded, margin entire or denticulate. Nut ovoid, oblong-ovoid, or ellipsoid, 1–1.6 × 0.9–1.4 cm, glabrous or rarely hairy; scar ca. 5 mm in diam., flat or slightly convex. Fl. Apr–May, fr. Oct.

Broad-leaved evergreen forests and mixed mesophytic forests on mountain slopes or in valleys; below 100–2600 m. Anhui, Fujian, Gansu, Guangdong, Guangxi, Guizhou, W Hubei, Hunan, Jiangsu, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Afghanistan, Bhutan, N India, Japan, Kashmir, Korea, Nepal, Sikkim, Vietnam].

Cyclobalanopsis glauca is part of a widespread complex, with a number of segregate species of uncertain status having been named. Additional studies are needed to clarify the relationships and specific limits within this complex. The status of C. globosa Lin & Liu (Bull. Taiwan For. Res. Inst. 110: 77. 1965), from Taiwan, is uncertain. It is very close to C. glauca and is probably not sufficiently distinct to be recognized as a separate species.


龙迈青冈 long mai qing gang


Trees to 30 m tall. Branchlets conspicuously sulcate, glabrous. Petiole 2–2.5(–4) cm, adaxially sulcate,
glabrous; leaf blade green, oblong, obovate-elliptic, or ovate-lanceolate, 9.5–11.5 × 3–4 cm, subleathery, abaxially grayish green and with simple hairs or glabrous, adaxially green and glabrous, base cuneate to subrounded, margin basally entire but apically awnlike serrate, apex acuminate to caudate; midvein abaxially prominent and adaxially impressed; secondary veins 13–17 on each side of midvein; tertiary veins abaxially conspicuous. Female inflorescences ca. 2.5 cm; rachis slender, sparsely tomentose. Cupule bowl-shaped, 0.7–1 × ca. 1.5 cm, enclosing 1/3–1/2 of nut, outside sparsely tomentose; bracts in 7–9 rings, margin of basal ones 1 or 2 denticulate, others subentire to repand-dentate. Nut broadly ovoid to oblate, 1.2–2 cm, apex flat or depressed and velutinous; scar flat and rounded. Fl. Mar–Apr, fr. Oct–Nov.


Trees to 15 m tall. Branchlets grayish brown, sulcate and convex lenticellate, cylindric and dark gray by 2nd year. Leaf blade oblong-elliptic, elliptic, or ovate-lanceolate, 9–13 × 3.5–5 cm, abaxially whitish and veins grayish brown (whitish on tertiary veins) with prostrate simple hairs, adaxially smooth, base broadly cuneate to subrounded, margin awnlike serrate to sharply serrulate, apex acuminate to caudate; midvein and secondary veins adaxially impressed; secondary veins 10–14 on each side of midvein, often fusing at serralation; tertiary veins abaxially prominent. Infructescences solitary, subapical on branchlet, 1–2 cm, 3–5-fruited. Cupule shallowly bowl-shaped, 6–8 mm × 1.2–1.5 cm, outside thinly grayish brown pubescent, inside grayish brown sericeous, wall ca. 1 mm thick; bracts in 7–9 rings, margin entire. Nut ovoid, 1.2–1.5 × 1.1–1.4 cm, loosely incanous; stigmas 3 or 4, often separated; scar 6–7 mm in diam., convex; stylopodium persistent, often basally 4-ringed. Fl. Mar–Apr, fr. Oct–Nov.

Broad-leaved evergreen forests in mountains. W Sichuan, E Xizang, Taiwan.


台湾青冈 tai wan qing gang


Trees to 30 m tall. Branchlets thick, glabrous or arachnoid hairy when young, conspicuously lenticellate. Petiole 1.5–3 cm, glabrous; leaf blade oblong to ovate-elliptic, 6–10 × 2.5–4 cm, glabrous or sparsely sericeous when young, base subrounded to broadly cuneate and slightly oblique, margin apical 1/2 serrate, apex caudate; midvein and secondary veins abaxially prominent, adaxially flat or slightly impressed; secondary veins 8–11 on each side of midvein; tertiary veins abaxially slender, evident. Infructescence 2–3 cm; rachis glabrous, lenticellate. Cupule cupular to campanulate, 1.4–1.8 × 1.5–2 cm, enclosing ca. 1/2 of nut, outside brown velutinous, inside brown tomentose, wall ca. 1 mm thick; bracts in 7 or 8 rings, basal ones divergent from cupule wall, apical ones with margin dentate and apex obtuse. Nut ovoid to cylindric, 1.5–2.5 × 1–1.8 cm, glabrous or rarely hairy, apex rounded; scar ca. 1 cm in diam., flat or slightly convex; stylopodium persistent, ca. 1 mm in diam. Fl. Apr–May, fr. Oct–Nov of following year.


碟斗青冈 die dou qing gang


Trees 10–14 m tall. Branchlet tawny velutinous, glabrescent. Petiole ca. 2 cm, tawny tomentose when young, glabrescent; leaf blade oblong to obovate-elliptic, 6–13 × 2.5–4 cm, subleathery, glabrous; leaf blade oblong to ovate-lanceolate, 9.5–11.5 × 3–4 cm, subleathery, glabrescent, base broadly cuneate to subrounded and often oblique, margin serrations incurved and shortly aristate, apex acuminate to caudate; midvein abaxially prominent but adaxially impressed; secondary veins 11–13 on each side of midvein, slender, evident, curving; tertiary veins abaxially conspicuous. Infructescences ca. 5 mm. Cupule discoid, rim flat when ripe, 3–4 cm in diam., covering base of nut, outside densely prostrate grayish brown tomentose, inside with an erect orangish brown feltlike tumentum, wall ca. 4 mm thick; bracts in 8–10 rings, margin denticulate but apical 2 or 3 entire. Nut olate, 1.5–2 × ca. 2 cm, apex flattened; scar ca. 2 cm in diam., depressed; stylopodium persistent, raised, puberulent. Fl. Mar–Apr, fr. Aug–Dec of following year.


越南青冈 yue nan qing gang

Trees to 15 m tall. Branchlets brownish, with stellate hairs, glabrescent, lenticellate; lenticels brownish, oblong. Petiole 1–2 cm, with stellate hairs, glabrescent; leaf blade green, oblong-lanceolate to lanceolate, 10–17(–20) × 3–5 cm, thinly leathery, pubescent when young, glabrescent, base cuneate, margin beyond basal 1/3 remotely minutely serrate, apex shortly acute to acuminate; secondary veins 12–17 on each side of midvein, adaxially slightly raised; tertiary veins abaxially conspicuous. Cupule cupular, 1.3–1.5 × 1.5–1.8 cm, enclosing all but nut apex, outside and inside tawny tomentose, wall ca. 2 cm thick; bracts in 8–10 rings, margin dentate. Nut oblate, 1.1–1.4 × 1.3–1.8 cm, angular, yellowish brown tomentose, apex rounded; scar ca. 1.2 cm in diam., as large as nut base, flat; stylopodium persistent.

Sparse forests in mountain valleys and on river banks; 700–1000 m. Yunnan [Thailand, Vietnam].


Dense forests in mountain valleys; 300–500 m. Hainan (Ledong Xian).


Mountains; ca. 2500 m. W Yunnan (Yingjiang Xian).


Wet broad-leaved evergreen forests in mountains; 400–1000 m. Guangdong, Guangxi, Hainan, S Jiangxi.


Trees to 20 m tall. Branchlets slender, dark purple when dry, slightly sulcate, subglabrous, lenticellate; lenticels gray. Petiole slender, 1–1.5 cm; leaf blade ovate-lanceolate, 9–12 × 3–4 cm, abaxially green, farinose, sparsely with stellate hairs, and glabrescent, base rounded to broadly cuneate and sometimes oblique, margin serrate, apex acuminate. Fruit solitary. Cupule saucer-shaped, ca. 3 cm in diam., wall ca. 2 mm thick. Nut ovoid-conical, ca. 2 × 3 cm.

Mountains; ca. 2500 m. W Yunnan (Yingjiang Xian).
**Quercus stewardiana** A. Camus, Chênes, Atlas 1: 12. 1934; **Cyclobalanopsis stewardiana** var. *longicaudata* Y. C. Hsu & al.

Trees to 12 m tall. Branchlets glabrous. Petiole 1.5–3 cm, glabrous; leaf blade elliptic-lanceolate to oblong-elliptic, 6–12 × 2–4 cm, sericeous and simple hairy when young, abaxially whitish (browning when dry) and sparsely hairy or glabrescent, adaxially dark green, base cuneate, margin apical 1/2 remotely shallowly serrate, apex acuminate to caudate; secondary veins 9–14 on each side of midvein, usually almost reaching margin but not fusing; tertiary veins abaxially inconspicuous. Female inflorescences 1.5–3 cm. Cupule cupular, 5–8 mm × 1–1.8 cm, enclosing 1/3–1/2 of nut, outside whitish pubescent, inside glabrous, wall less than 1 mm thick; bracts in 6–9 rings, margin entire. Nut ovoid to ellipsoid, 1.4–2.5 × 1–1.5 cm, glabrous, apex rounded; scar ca. 6 mm in diam., flat; stylopodium conspicuous, 5- or 6-ringed. Fl. Jun, fr. Oct.

Mixed mesophytic forests in mountain valleys; 200–2500 m. Anhui, Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Jiangxi, Shaanxi, Sichuan, Taiwan, Yunnan, Zhejiang [Japan, Korea, Laos, N Thailand, Vietnam].

The occurrence of *Cyclobalanopsis myrsinifolia* in Taiwan as a native, rather than an introduced and cultivated species, is uncertain.


**赤皮青冈** 赤皮青冈


Trees to 30 m tall. Branchlets densely pale orangish brown to tawny stellate tomentose. Petiole 1–1.5 cm, puberulent; leaf blade oblanceolate to obovate-elliptic, 6–12 × 2–3.5 cm, abaxially pale brown stellate velutinous, base cuneate, margin apical 1/2 with short, awnlike serrations, apex acuminate; secondary veins 11–18 on each side of midvein, abaxially slightly raised; tertiary veins abaxially obscure. Female inflorescence ca. 1 cm, rachis and bracts densely pale orangish brown tomentose; cupules usually 2. Cupule bowl-shaped, 6–8 mm × 1.1–1.5 cm, enclosing ca. 1/4 of nut, outside and inside pale grayish brown puberulent, wall ca. 1 mm thick; bracts in 6 or 7 rings, margin entire or denticulate. Nut obovoid-ellipsoid, 1.5–2 × 1–1.3 cm, apex puberulent; scar 5–6 mm in diam., slightly raised; stylopodium persistent, puberulent. Fl. May, fr. Oct.

Broad-leaved evergreen forests in mountains; 300–1500 m. Fujian, Guangdong, Guizhou, Hunan, Taiwan, Zhejiang [Japan].


**毛果青冈** 毛果青冈


Trees to 17 m tall. Branchlets orangish brown tomentose, glabrescent. Petiole 1.5–2 cm; leaf blade...
oovate, oblong-elliptic, or lanceolate, 7–14 × 2–5 cm, leathery, orangish woolly hairy when young, glabrescent, base cuneate, margin apical 1/2 remotely serrate, apex acute to caudate; secondary veins 8–11 on each side of midvein; tertiary veins abaxially slender, evident. Female inflorescences 1.5–3 cm, densely brown tomentose, with 2–5 cupules. Cupule semiglobose to campanulate, (1–)2–3 × 1.5–3 cm, enclosing ca. 1/3–2/3 of nut, outside usually densely tawny, tomentose, inside tawny thickly feltlike tomentose, wall ca. 1.5 mm thick; bracts in 7 or 8 rings, margin entire or dentate. Nut ellipsoid, oblong-ellipsoid, or obovoid, 1.2–1.6 cm in diam., densely tawny tomentose when young but glabrescent, apex rounded; scar 5–7 mm in diam., slightly convex; stylopodium persistent, 2–3 cm in diam. Fl. Mar, fr. Sep–Oct.

- Wet forests on mountain slopes and in valleys; 200–1000 m. Fujian, Guangdong, Guangxi, Guizhou, Hunan, Jiangxi, Taiwan, Yunnan.


**Huangbei Qinggang**


Trees to 15 m tall. Branchlets glabrous, lenticellate; lenticels grayish brown, rounded. Petiole 1.5–2 cm, glabrous; leaf blade oblong-elliptic to rarely obovate, 7–13 × 3–5 cm, subleathery, abaxially whitish and with stellate hairs, adaxially glabrous, base narrowly rounded to cuneate, margin sharply serrate, apex acuminate; secondary veins 13–16 on each side of midvein, abaxially prominent, adaxially flat or slightly raised. Cupule bowl-shaped, ca. 8 mm × 1.5 cm, enclosing 1/3–1/2 of nut, outside whitish tomentose; bracts in 6–8 rings, margin dentate. Nut broadly ovoid, ca. 1.5 × 1.2 cm, glabrous, apex flat; scar slightly convex.

**Quercus and Pinus** forests in mountains; 2800–3300 m. W Yunnan [NE India].


**Huangmao Qinggang**


Trees to 16 m tall. Branchlets densely pale orangish brown feltlike tomentose. Petiole 1–1.5 cm, tawny tomentose when young, glabrescent; leaf blade elliptic to ovate-elliptic, 4–8 × 3–6 cm, tawny tomentose when young, abaxially hairs persisting or glabrescent, adaxially glabrescent, base rounded to broadly cuneate, margin apically few serrulate or entire, apex acuminate to shortly caudate; secondary veins 10–15 on each side of midvein, adaxially impressed; tertiary veins abaxially conspicuous to inconspicuous, ± parallel. Female inflorescences borne apically on new shoots, 1–2 cm; cupules 3–7. Cupule shallowly bowl-shaped, ca. 8 mm × 1.5–1.8 cm, enclosing 1/4–1/3 of nut, outside tawny to ashy tomentose, inside pale orangish brown sericeous, wall ca. 1.8 mm thick; bracts in 7 or 8 rings, margin entire or basal 1 or 2 denticulate and apical ones crenate. Nut ellipsoid, ovoid-ellipsoid, or globose, 1.5–2 × 1.3–1.5 cm; scar 5–7 mm in diam., flat. Fl. Apr, fr. Apr of following year.

Broad-leaved evergreen forests in mountains; below 1300 m. Guangxi [N Thailand, Vietnam].


**Huangmiao Qinggang**

**Quercus delavayi** Franchet, J. Bot. (Morot) 13: 158. 1899.

Trees to 20 m tall; branchlets, petioles, young leaf blades densely, mature leaf blades abaxially, and inflorescences pale orangish brown stellate tomentose. Petiole 1–2.5 cm; leaf blade oblong to ovate-elliptic, 8–12 × 2–4.5 cm, subleathery, adaxially glabrescent, base broadly cuneate to subrounded, margin apical 1/2 serrate, apex acuminate to shortly acuminate; midvein abaxially prominent and adaxially impressed; secondary veins 10–14 on each side of midvein; tertiary veins abaxially inconspicuous. Female inflorescences axillary, solitary, ca. 4 cm, cupules 2 or 3. Cupule shallowly bowl-shaped, 5–8(–10) mm × 1–1.5(–1.9) cm, enclosing ca. 1/2 of nut, outside pale orangish brown tomentose, inside pale orangish brown sericeous, wall ca. 2 mm thick; bracts in 6 or 7 rings, margin shallowly denticulate. Nut ellipsoid to ovoid, ca. 1.8 × 1–1.5 cm, tomentose, glabrescent, apex indented; scar 6–8 mm in diam., convex; stypodium persistent. Fl. Apr–May, fr. Sep–Oct of following year.

- Lauraceous or mixed *Quercus and Pinus* forests in mountains; 1000–2800 m. Guangxi, Guizhou, Sichuan, Yunnan.


**Jinping Qinggang**

Trees. Branchlets glabrous or pubescent when young. Petiole 1–1.5 cm, glabrous; leaf blade oblong-elliptic, 7–11 × 3–4.5 cm, abaxially with grayish brown simple hairs (more densely along veins), base narrowly rounded, margin shallowly serrate on apical 1/3, apex acuminate; secondary veins 12–14 on each side of midvein; tertiary veins abaxially slender, evident. Cupules solitary, sessile, bowl-shaped, ca. 1.5 × 1.8 cm, enclosing ca. 1/2 of nut, outside apically densely yellowish brown tomentose but middle and basal hairs relatively sparse; bracts in 9–11 rings, margin entire but most basal ones denticulate. Nut ovoid, ca. 1.8 × 1.5 cm, glabrous; scar ca. 1 cm in diam., flat.

滇青冈  *dian qing gang*

*Quercus glaucoides* (Schottky) Koidzumi (1916), not M. Martens & Galeotti (1843); *Q. schottkyana* Rehder & E. H. Wilson.

Trees to 20 m tall. Branchlets grayish green, tomentose when young, glabrescent. Petiole 0.5–2 cm; leaf blade long elliptic to obovate-ob lanceolate, 5–12 × 2–5 cm, leathery, abaxially grayish green and tawny woolly-tomentose but somewhat glabrescent, adaxially green, base cuneate to subrounded, margin beyond basal 1/3 serrate, apex acuminate to caudate; midvein abaxially prominent but adaxially impressed; secondary veins 8–12 on each side of midvein; tertiary veins abaxially conspicuous. Female inflorescences 1.5–2 cm. Cupule bowl-shaped, 6–8 × 8–12 mm, enclosing 1/3–1/2 of nut, outside pale brown tomentose, inside pale brown sericeous; bracts in 6–8 rings, margin subentire.

Nut ellipsoid to ovoid, 1–1.4 × 0.7–1 cm, pubescent when young, glabrescent; scar 5–6 mm in diam., slightly convex; stylopodium persistent, short. Fl. May, fr. Oct.

• Broad-leaved evergreen forests in mountains; 1500–2500 m. Guizhou, Sichuan, Yunnan.


思茅青冈  *si mao qing gang*


Trees to 8 m tall. Branchlets slender, dark purple, finely sulcate, sparsely lenticellate by 2nd year; lenticels white, small. Petiole 5–10 mm, puberulent; leaf blade narrowly elliptic to elliptic, 5–8 × 1.5–3 cm, subleathery, abaxially grayish green and with simple hairs and base of midvein with brown sericeous hairs, adaxially green, base cuneate, margin apical 1/2 remotely serrulate, apex acuminate; midvein adaxially slightly impressed; secondary veins 8–10 on each side of midvein, slender, evident; tertiary veins abaxially inconspicuous. Inflorescences 2–5 cm. Cupule obconic, 4–6 × 6–10 mm, enclosing ca. 2/5 of nut, outside puberulent, inside pale brown sericeous, wall less than 1 mm thick; bracts in 5 or 6 rings, margin denticulate to subentire. Nut ovoid to ellipsoid, 0.9–1.3 × 0.7–1 cm; scar 4–6 mm in diam., convex; stylopodium persistent, raised, puberulent.

Mixed mesophytic forests in mountains; 800–1300 m. Yunnan [Laos, Vietnam].