

Ciboria Fuckel.

Type species: *Ciboria caucus* (Reb.:Fr.) Fuckel. *Ciboria* is a heterogeneous assemblance of species characterized by \pm determinate stromata, an apothecial outer excipulum consisting of globose cells (textura globulosa) NOT embedded in a gelatinous matrix, and hyaline, unicellular ascospores. The genus is probably polyphyletic. The species on catkins of amentiferous trees constitute a monophyletic group. Based on scientific evidence and educated guess we distinguish **five groups** within the genus, the [true *Ciboria*](#) (on catkins), the [warted-spored *Ciboria*](#), which are presumably obligate parasites and produce apothecia on fruits of amentiferous trees, the [deciduous leaf inhabitants](#), forming a \pm well differentiated stroma on leaves of deciduous trees, the [herbaceous plant inhabitants](#), nutritioning on plant remnants of various kind (for groups three and four, see also [Rutstroemia](#)), and a fifth [group of uncommon features](#), consisting of presumably unrelated taxa classified on the basis of stromatal type.

Literature: Whetzel ([1945](#)), Buchwald ([1947](#)), Schumacher ([1978](#)), Schumacher & al. ([1995](#)), Holst-Jensen & al. ([1997b](#)).

1. Apothecia on catkins of amentiferous trees and shrubs [2](#).

1. Apothecia on fruits, inflorescences or leaves [6](#).

2 (1). Asci 4-spored. Apothecia ochraceous brown to pale brown, disc 1-4 mm diam., stipe 5-25 x 0.2-0.4 mm. Asci clavate, 60-105 x 5.8-7.5 μ m. Ascospores (7.5)10 - 12 (14.5) x 4-5.5 μ m. On male catkins of *Myrica gale*, *Salix* spp. and *Populus* spp., occasionally on leaves of *Acer* spp., *Salix* spp. and *Rubus chamaemorus*. Apothecia in spring and early summer *Ciboria acerina* Whetzel & N. F. Buchw.



Apothecia of *Ciboria acerina* on male catkin of *Myrica gale*. Norway, Oslo, Sognsvann, May 13th. 1996. (© Photo: Arne Holst-Jensen).

2. Asci 8-spored [3](#).

3 (2). Apothecia pale brown, disc 3-11 mm diam., stipe 5-35 x 0.3-1 mm. Asci 130-170 x 7-11 μ m. Ascospores subfusoid, 9.0-15.5 x 6-8 μ m. On male catkins of *Corylus avellana*. Apothecia in early spring *Ciboria coryli* (Schellenb.) N. F. Buchw.

3. Ascospores < 11 um long [4.](#)

4 (3). Apothecia on male catkins of *Betula*, pale to medium brown, disc 3-10 mm diam., stipe 5-30 x 0.3-1 mm. Asci cylindric-clavate, 75-145 x 6-10 um. Ascospores ellipsoid, 5.5-9.5 x 3-5.5 um. Apothecia in spring ***Ciboria betulicola*** Groves & Elliott



Apothecia of *Ciboria betulicola* on male catkins of *Betula pubescens*. Norway, Hedmark, Snødøldalen, June 13th. 1996. (© Photo: Arne Holst-Jensen).

4. Apothecia on other hosts [5.](#)

5 (4). Apothecia on catkins of *Populus*, *Salix* and *Corylus*, pale brown to medium brown, disc 4-15 mm diam., stipe 5-25 x 0.3-1.7 mm. Asci cylindric-clavate, 95-145 x 6-9 um. Ascospores ellipsoid, 7.5-11.0 x 4.5-6 um. Apothecia in spring ***Ciboria caucus*** (Rebent.: Fr.) Fuckel



Apothecium of *Ciboria caucus* on FEMALE catkin of *Salix lapponum*. Note the presence of *Pezizella amenti* on the decaying catkin. Norway, Oppland, Near the river Mya, 2 km W of Muen, June 13th. 1996. (© Photo: Arne Holst-Jensen).

5. Apothecia on catkins of *Alnus*, ochraceous brown to pale brown, disc 4-12 mm diam., stipe flexuous, 10-35 x 0.3-1.0 mm. Asci cylindric-clavate, 95-145 x 6-9 μ m. Ascospores 7.5-10.5 x 4.2-6 μ m. Apothecia in spring *Ciboria amentaceae* (Balbis) Fuckel



Apothecia of *Ciboria amentaceae* on decaying male catkins of *Alnus* sp. Norway, Vestfold, Brunlanes, Helgeroa, April 1994. (© Photo: Arne Holst-Jensen).

6 (1). Apothecia on decaying cone scales of *Abies*, dark brown to medium brown, disc 3-15 mm diam., stipe 2-7 x 0.7-1.5 mm. Asci 65-90 x 5.5-6.5 μ m. Ascospores 5.5-7.5 x 2.8-3.5 μ m. Apothecia in spring and early summer "*Ciboria* " *rufofusca* (Weberb.) Sacc.



Apothecia of "*Ciboria*" *rufofusca* on cone scales of *Abies alba*. Norway, Østfold, Jeløya, Alby gård. (© Photo: Roy Kristiansen).

6. Apothecia on fruits, bulbils, acorns or leaves [7.](#)
- 7 (6). Apothecia on stromatized fruits or female floral organs [8.](#)
7. Apothecia on leaves [12.](#)
- 8 (7). Apothecia on stromatized patches of fruits (carpels) of *Alnus* or *Betula* ; very slow growing on PDA (potato dextrose agar), mass ascospore isolates reaching a diameter of 10-20 mm after 6-12 months [9.](#)
8. Apothecia on fruits or floral organs of other hosts. [10.](#)
- 9 (8). On fruits (carpels) of *Alnus*, pale brown, disc 1.5-3 mm diam., stipe 1-10 x 0.5-1 mm. Asci 100-125 x 5.5-7.5 um. Ascospores narrowly ellipsoid to subfusoid, multiguttulate, minutely verrucose, 12-18 x 3-4.5 um. Apothecia in early spring "***Ciboria* " *lentiformis*** (Velen.) T. Schumach. ined. (= *Ciboria alni* (O. Rostr.) N. F. Buchw. nom. illeg. = *Ciboria seminicola* (Kienh. & Cash) Hechler & Steindl)
9. On fruits (carpels) of *Betula*, pale brown, disc 1.5-3 mm diam., stipe 4-14 x 0.5-1 mm. Asci 110-160 x 6-8 um. Ascospores narrowly ellipsoid, biguttulate, minutely verrucose, 9.5-15 x 4-5.5 um. Apothecia in late spring "***Ciboria* " *betulae*** (Woronin) White
- 10 (8). Apothecia on female inflorescences of *Alnus*, yellowish to olivaceous brown, disc 1-3 mm diam., stipe 2-25 x 0.7-1.5 mm. Asci 110-140 x 7-10 um. Ascospores ellipsoid, 7.8-10.6 x 4.2-5.5 um. Apothecia in autumn "***Ciboria* " *viridifusca*** (Fuckel) Höhn (= "*Ciboria* " *amenticola* (P. Karst.) Boud.)
10. Apothecia on bulbils of *Polygonum viviparum* or acorns of *Quercus*. [11.](#)
- 11 (10). Apothecia on stromatized bulbils of *Polygonum viviparum*, pale to medium brown, disc 0.5-2.5 mm diam., stipe 1-12 x 0.3-0.6 mm. Asci 150-180 x 10-12 um. Ascospores biguttulate, 13-17 x 5.5-7 um. Apothecia in summer and autumn. "***Ciboria* " *polygonivivipari*** Eckbl.
11. Apothecia on stromatized acorns of *Quercus*, medium to purplish brown, disc 3-15 mm diam., stipe 3-30 x 0.8-2 mm. Ascospores 6-11 x 4-6 um. Apothecia in autumn "***Ciboria* " *batschiana*** (Zopf) N. F. Buchw.
- 12 (7). Apothecia on leaves of deciduous trees [13.](#)
12. Apothecia on plant remnants of *Rubus chamaemorus* [14.](#)
- 13 (12). On leaves of *Alnus*, more exceptionally *Betula* and *Populus*, dark to medium pale brown, disc 0.5-3 mm diam., stipe 0.5-7 x 0.3-0.6 mm. Asci 65-95 x 6-8 um. Ascospores 6.5-10 x 4.2-5.3 um. Apothecia in spring and early summer from stromatized patches on decaying

leaves "*Ciboria* " *conformata* (P. Karst.) Svrcek

13. On leaves of *Salix* spp. Several collections from Northern Europe fall into this category. The taxonomy of this group is under investigation in our lab.

14 (12). Apothecia reddish brown to pale brown, disc 4-7 mm diam., stipe rather thick, 10-38 x 0.7-2.1 mm. Asci 80-120 x 5.5-7 um. Ascospores biguttulate, 9-13.5 x 5-6 um. Apothecia from stromatized patches on leaves and stems in spring and early summer "*Ciboria* " *latipes* Holst-Jensen & T. Schumach.

14. Apothecia medium brown to dark brown, disc 0.5-3 mm diam., cupulate to plane, short-stipitate, stipe slender 1-15 x 0.2-0.8 mm. Asci 90-120 x 9-11.5 um. Ascospores ellipsoid, biguttulate, unicellular, 11.5-15.5 x 5-6 um. Apothecia from stromatized leaf veins and petioles of host in early summer "*Rutstroemia* " *chamaemori* L. Holm & K. Holm