

# North American Fungi



Volume 6, Number 5, Pages 1-5  
Published April 6, 2011

## ***Caripia montagnei* (Basidiomycota: Tricholomataceae s. l.) in southeastern United States**

**J. Ginns**

*1970 Sutherland Road, Penticton, BC, V2A 8T8, Canada*

Ginns, J. 2011. *Caripia montagnei* (Basidiomycota: Tricholomataceae s. l.) in southeastern United States. *North American Fungi* 6(5): 1-5. doi: 10.2509/naf2011.006.005

Corresponding author J. Ginns [ginnsj@shaw.ca](mailto:ginnsj@shaw.ca). Accepted for publication February 26, 2011.  
<http://pnwfungi.org> Copyright © 2011 Pacific Northwest Fungi Project. All rights reserved.

---

**Abstract:** This is the first report of *Caripia montagnei* in the United States. The collection is described and illustrated, and compared with prior descriptions of the fungus.

**Key words:** *Caripia montagnei*, Florida, biogeography, fungal taxonomy, neotropical fungi, cantharelloid fungi, /omphalotaceae, Agaricales

---

**Introduction:** *Caripia montagnei* is a basidiomycete of the neotropics where it has been reported from northern Argentina, Bolivia, Brazil, British Guiana, Columbia, Costa Rica, French Guiana, Belize, Guadeloupe, Honduras, Mexico, Nicaragua, Panama, Surinam, Trinidad

and Venezuela (Berkeley 1842, Burt 1924, Corner 1950, 1966, Courtecuisse et al. 1996, Dennis 1970, Martin 1938, Murrill 1921, Ryvarden, 2007, 2010, Singer 1986, Thiers (<http://sciweb.nybg.org/Science2/vii2.asp> and enter *Caripia*). Little is known of its habitat;

Corner (1966) did not mention it and left the reader wondering whether the basidiomata arose from the soil or other substrates. The basidiomata are on rotten wood (Burt 1924), such as sticks (presumably on the forest floor), on aerial roots of orchids (Corner 1950), and often in large numbers (Martin 1938).

This species has not previously been reported in the United States. Thus a description and illustrations of a collection from Florida are provided.

**Materials and Methods:** The description is based upon a Florida collection from a coastal park between Panama City and Tallahassee (exact locality unknown), Jan. 1992, P.M. Banks (FL 3), DAOM 221607.

Colors beginning with a capital letter, e.g., Light Buff, follow Ridgway (1912). Microscopic features of the basidiomata were examined using Melzer's iodine, 2% (w/v) potassium hydroxide (KOH), and 0.05% (w/v) cotton blue in lactic acid (Kirk et al. 2001). Phloxine, ca 1% in KOH, was used to stain cytoplasm. Abbreviations for herbarium names, i.e., DAOM, are those listed in Thiers (<http://sweetgum.nybg.org/ih/>).

## Results:

*Caripia montagnei* (Berk.) Kuntze

Revisio generum plantarum 3:451, 1891.

Figures 1-5

*Hypolyssus montagnei* Berk., Hooker's  
London Journal of Botany 1:139, 1842.

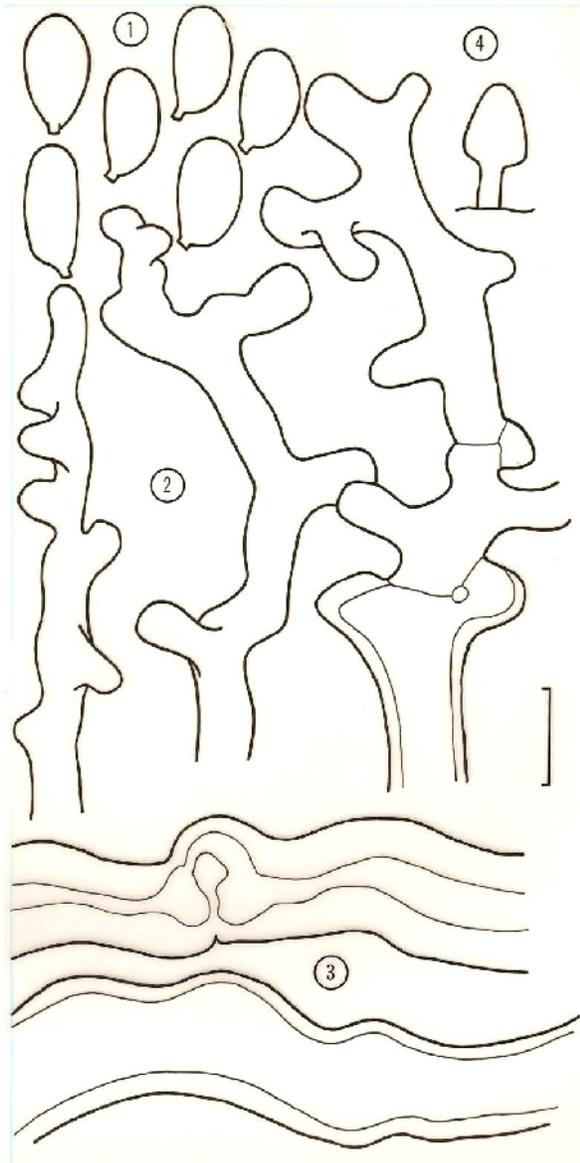
*Perona montagnei* (Berk.) Fr. ex G.W.  
Martin, Mycologia 30:440, 1938.

**Basidiomata** stipitate. The primordia (Fig. 4) when 0.7 mm tall, resembling a mushroom with a conical pileus, when larger, funnel-shaped with a narrow, reflexed margin, when mature, goblet-

shaped (obconic), up to 10 mm tall, 5 mm diam.

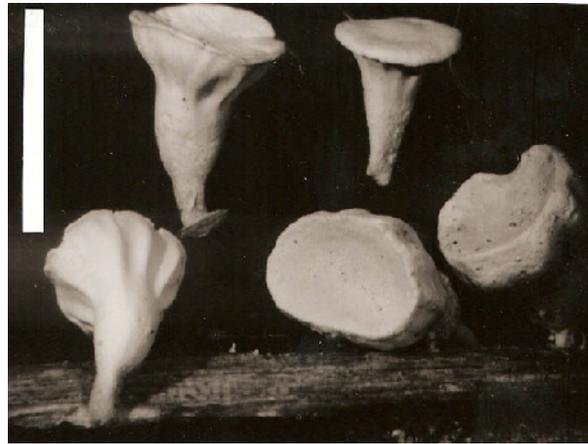
**Pileus** plane to slightly concave, white, minutely furfuraceous. **Hymenium** covering the exterior of the apical half of the goblet's bowl, smooth to weakly longitudinally undulating, Cream Color, thin, a delicate, brittle crust; lower half of goblet's bowl white, minutely furfuraceous. **Stipe** 3.5 mm long, 1 mm diam, exterior white, pilose, core solid, white.

**Hyphal system** monomitic. **Hyphae** of stipe surface and the sterile, lower exterior of the bowl erect, weakly woven, 2-3  $\mu\text{m}$  diam, thin-walled but immediately beneath the thin exterior layer they are parallel, broader and thick-walled. Pileus surface with a hyphal layer less than 50  $\mu\text{m}$  thick; hyphae thin-walled, relatively short-celled, diverticulate, arising from broader, thick-walled hyphae. Context hyphae rather loosely interwoven, essentially longitudinally arranged, (2.5-) 3-7  $\mu\text{m}$  diam; branches common, a clamp connection at each septum; walls 0.5  $\mu\text{m}$  to 2.0  $\mu\text{m}$  thick on 4.5-6.0  $\mu\text{m}$  diam hyphae, i.e., leaving an obvious lumen which stains pink with phloxine and blue in cotton blue, nonamyloid, acyanophilous, not dissolving in KOH, but after 20 minutes in KOH the exterior of some hyphae slightly roughened perhaps indicating a softening of the wall. **Hymenium and subhymenium** about 60  $\mu\text{m}$  thick; hyphae 3-4  $\mu\text{m}$  diam; walls up to 0.5  $\mu\text{m}$  thick. **Cystidioles** scattered, arising at the same level as basidia, not projecting at all or up to 5  $\mu\text{m}$ , not encrusted, fusoid, 5  $\mu\text{m}$  diam; walls hyaline, thin to thickened, nonamyloid. **Basidia** clavate, 24-28 x 6  $\mu\text{m}$ , four sterigmate. **Basidiospores** ellipsoid, some with the basal half slightly attenuated, often adhering in groups of four and sticking to the hymenium, 5.4-6.6 (-7.0) x (2.6-) 2.8-3.4 (-3.6)  $\mu\text{m}$  (n = 20); contents red in cotton blue mounts when viewed under phase contrast microscopy; walls thin, hyaline, smooth, nonamyloid, acyanophilous, with a distinct, blunt apiculus.



**Figures 1-4.** *Caripia montagnei*. DAOM 221607: 1. Six basidiospores. 2. Three segments of diverticulate hyphae from pileus surface. 3. Two segments of thick-walled context hyphae. 4. Sketch of basidiomata primordia, 0.7 mm tall. Scale bar = 5  $\mu$ m and applies to Figs. 1-3.

**Habitat:** On decorticated, decayed, weathered angiosperm wood, presumably of a fallen branch or log.



**Figure 5.** *Caripia montagnei* basidiomata. DAOM 221607. Scale bar = 10 mm.

**Discussion:** See

[http://oregonstate.edu/dept/botany/mycology/joey/imghtml/Caripia\\_montagnei.html](http://oregonstate.edu/dept/botany/mycology/joey/imghtml/Caripia_montagnei.html) for a color photo of *Caripia montagnei*. Burt (1924), Martin (1938), Corner (1950, 1966) and Singer (1986) published detailed descriptions of *C. montagnei* based upon specimens they studied. Burt's microscopic data are sparse, but Martin reexamined most of Burt's specimens and confirmed their identification. Corner's Brazilian collection contained basidiomes in all stages of development (Corner 1966 Fig. 36), except very young ones. The Florida basidiomata (Fig. 5) are small and centrally stipitate with a broadly obconical pileus. Martin (1938), based upon 15 collections, described more variation in some characters than seen in the Florida collection. He reported basidiomata up to 18 mm tall, about twice the size of the Florida basidiomata, stipes brown in maturity, basidiomata "arising from a thick, irregular, ochraceous subiculum," and the hymenium 100-110  $\mu$ m thick. Corner (1950) also mentioned fruiting "with conspicuous [basal] mycelium," but this comment may be from Martin for it is not clear which features in Corner's treatment were based upon his observations and which were from the description by other mycologists. There is no

basal subiculum or conspicuous mycelium in the Florida collection.

The basidiospore sizes in various reports of *C. montagnei* are similar, i.e., 5-6 x 3-3.5 µm in Martin (1938) and Corner (1950), 5-6 x 2.5-3.3 µm in Corner (1966), and 4.8-5.8 x 2.2-3.0 µm in Singer (1986), and basidiospores in the Florida collection are essentially the same size.

Mata et al. (2007) noted that several species of *Gymnopus* (Pers.) Roussel and *Micromphale* Gray that are in a clade with *Caripia* Kuntze have a fetid or disagreeable odor. Fresh basidiomata of *C. montagnei* smell of garlic (Corner 1966), not an offensive odor to most of us.

The apparent absence of *C. montagnei* in the chain of Caribbean islands from Cuba south to Guadeloupe and, until now, along the Gulf coast from Texas to Florida is perplexing. Perhaps *C. montagnei* requires a very specific habitat and is not just on wood.

Burt (1924), presumably on the basis of Masee's description, listed as a probable synonym the name *Hypolyssus foetidus* Masee from the Caribbean island of St. Vincent. Martin (1938), working from the original descriptions, concluded that the names *H. foetidus* and *H. sprucei* Masee from Brazil were synonyms of *C. montagnei*. Ryvarden (2010), perhaps following Martin, listed both of Masee's names as synonyms of *C. montagnei*. Comparative studies of type specimens for these names have not been found.

Opinions on the taxonomic position of the genus *Caripia* have varied. Corner (1950, p. 35) referred it to the cantharelloid fungi (p. 35, 197) because (1) young living basidiomes have "very slight marginal growth to form a very rudimentary pileus." (2) there is a "caducous white tomentum which covers the young fruitbodies of *Caripia*" (p. 197) that suggests a veil, albeit sparse and simple, and (3) this white

tomentum of young caps falls off (p. 197). He (1966) speculated it might "be a degenerate agaric" with affinities to *Pleurotus* (Fr.) P. Kumm. (Pleurotaceae) species with thick-walled hyphae and he drew attention to some similarities with *Panellus mirabilis* Singer (Tricholomataceae), which differs principally in having amyloid, larger (up to 10 µm long) basidiospores. Singer (1986) considered *C. montagnei* to be allied to the stereoid fungi, i.e., the genera *Cotylidia* P. Karst., *Cymatoderma* Jungh. and *Skepperia* Berk. (Podoscyphaceae). Index Fungorum ([www.indexfungorum.org](http://www.indexfungorum.org)) places *C. montagnei* in the Marasmiaceae. Moncalvo et al. (2002) and Mata et al. (2007) recognized within the Euagarics clade /omphalotaceae two strongly supported, major clades (/omphalotiod and /lentinuloid). *Caripia montagnei* was within the /lentinuloid subsumed in the poorly supported /micromphale. In an extensive analysis that focused on *Gymnopus* s. l. (Mata et al. 2007), *C. montagnei* was embedded in the /micromphale with *Micromphale foetidum* (Sowerby) Singer (genus type), *M. brassicolens* (Romagn.) P.D. Orton, *G. dyssodes* (Halling) Halling, *G. impudicus* (Fr.) Antonín, Halling & Noordel., *G. iocephalus* (Berk. & M.A. Curtis) Halling and *G. salakensis* A.W. Wilson, Desjardin & E. Horak. The phylogenetic placement of *C. montagnei* has been based upon one sample (Montcalvo et al. 2002, Mata et al. 2007); sequencing of additional collections is needed.

**Acknowledgements:** The constructive comments of an anonymous reviewer are appreciated. This study was initiated while I was at DAOM and I appreciate the cooperation of the director and staff, especially Ms M.N.L. Lefebvre, who prepared figures 1-4.

**Literature cited:**

Berkeley, M.J. 1842. Enumeration of fungi collected by Dr. Hostmann in Surinam. Hooker's London Journal of Botany 1:138-142.

Burt, E.A. 1924. The Thelephoraceae of North America XIII. Annals of the Missouri Botanical Garden 11:1–36.

<http://dx.doi.org/10.2307/2394094>

Corner, E.J.H. 1950. A monograph of *Clavaria* and allied genera. Annals of Botany Memoir 1:1–740.

Corner, E.J.H. 1966. A monograph of cantharelloid fungi. Oxford University Press, London. 255 p.

Courtecuisse, R., G.J. Samuels, M. Hoff, A.Y. Rossman, C. Cremers, S.M. Huhndorf and S.L. Stephenson. 1996. Checklist of fungi from French Guiana. Mycotaxon 57:1–86.

Dennis, R.W.G. 1970. Fungus flora of Venezuela and adjacent countries. Kew Bulletin Additional Series III, London. 531 p.

Kirk, P.M., P.F. Cannon, J.C. David and J.A. Stalpers. 2001. Ainsworth & Bisby's dictionary of the fungi, 9<sup>th</sup> ed. CAB International, Wallingford. 655 p.

Martin, G.W. 1938. New or noteworthy fungi from Panama and Columbia II. Mycologia 30:431–441. <http://dx.doi.org/10.2307/3754468>

Mata, J.L., K.W. Hughes and R.H. Petersen. 2007. An investigation of /omphalotaceae (Fungi; Euragarics) with emphasis on the genus *Gymnopus*. Sydowia 58:191–289.

Moncalvo, J.-M., R. Vilgalys, S.A. Redhead, J.E. Johnson, T.Y. James, M.C. Aime, V. Hofstetter, S.J.W. Verduin, E. Larsson, T.J. Baroni, R.G. Thorn, S. Jacobsson, H. Cléménçon and O.K. Miller. 2002. One hundred and seventeen clades of euagarics. Molecular Phylogenetics and Evolution 23:357–400.

[http://dx.doi.org/10.1016/S1055-7903\(02\)00027-1](http://dx.doi.org/10.1016/S1055-7903(02)00027-1).

Murrill, W.A. 1921. A double mushroom. Mycologia 13:119–122.

Ridgway, R. 1912. Color standards and color nomenclature. R. Ridgway, Washington, D.C. 44 p. + 52 colored plates.

Ryvarden, L. 2007. Studies in neotropical polypores 23. New and interesting wood-inhabiting fungi from Belize. Synopsis Fungorum 23:32–50. Fungiflora, Oslo.

Ryvarden, L. 2010. Stereoid fungi of America. Synopsis Fungorum 28:60–61. Fungiflora, Oslo.

Singer, R. 1955. New and interesting species of Basidiomycetes IV. Mycologia 47:763–777. <http://dx.doi.org/10.2307/3755585>

Singer, R. 1986. The Agaricales in modern taxonomy. 4<sup>th</sup> ed. Koeltz Scientific Books, Koenigstein. 981 p. + 88 plates.