= Mycena adscendens =

Mycena adscendens , commonly known as the frosty bonnet , is a species of fungus in the family Mycenaceae . The fungus produces small white fruit bodies (mushrooms) with caps up to 7 @.@ 5 mm (0 @.@ 3 in) in diameter that appear to be dusted with sugar @-@ like granules . Caps are supported by thin , hollow stems up to 20 mm (0 @.@ 8 in) long , which are set on a disc @-@ like base . It is distributed in the United States , where it has been found from Washington to California , Europe , and Turkey . The fruit bodies grow on fallen twigs and other woody debris on the forest floor , including fallen hazel nuts . The variety carpophila is known from Japan . There are several small white Mycena species that are similar in appearance to M. adscendens , some of which can be reliably distinguished only by examining microscopic characteristics .

= = Taxonomy = =

The species , originally named Agaricus adscendens by Wilhelm Gottfried Lasch in 1829 , was first collected in the Province of Brandenburg , in what was then the Kingdom of Prussia (now Germany) . It was Dutch mycologist Maas Geesteranus who assigned the species its current name in a 1981 publication . According to Maas Geesteranus , Miles Berkeley 's 1836 Agaricus tenerrimus is the same species as Mycena adscendens , as well as all later synonyms based on this basionym : Mycena tenerrima , published by Lucien Quélet in 1872 ; Prunulus tenerrimus by William Alphonso Murrill in 1916 ; and Karel Cejp 's 1930 Pseudomycena tenerrima . Although Index Fungorum agrees with Maas Geesteranus 's synonymy , other authorities treat the species as independent . An additional synonym is Agaricus (Mycena) farinellus , described by Johann Feltgen from Luxembourg in 1906 .

The variety M. adscendens var. carpophila , published by Dennis Desjardin in 1995 , was originally proposed as M. tenerrima var. carpophila by Jakob Emanuel Lange in 1914 .

Mycena adscendens is the type species of section Sacchariferae of the genus Mycena , which contains white species with floccose caps (covered with tufts of soft woolly hairs) . Other members of this section include M. floccifera , M. discopus , and M. nucicola . The mushroom is commonly known as the " frosty bonnet " . The specific epithet adscendens , derived from the Latin , means " ascending " or " curving up from a prostrate base " . Tenerrima derives from the Latin tener , meaning " tender " or " delicate " .

= = Description = =

The cap is white and small , with a diameter typically ranging from 2 @.@ 5 to 7 @.@ 5 mm (0 @.@ 1 to 0 @.@ 3 in) . Initially convex to cucullate (hood @-@ shaped) , it flattens during maturity , developing visible surface grooves that correspond to the gills underneath the cap ; the surface may also be covered with glistening particles , remnants of the partial veil . The cap is pallid gray with a whitish margin when young , but soon becomes white overall . The flesh is membranous , fragile , and thin (less than 0 @.@ 5 mm) . The gills are free from attachment or narrowly attached (adnexed) to the stem . They are up to 0 @.@ 5 mm broad , distantly @-@ spaced (usually numbering between 7 and 12) , and sometimes adhering to each other to form a slight collar (a pseudocollarium) around the stem . They are translucent @-@ white throughout their development , with a fringed , white edge . The hollow stem is 0 @.@ 5 to 2 cm (0 @.@ 2 to 0 @.@ 8 in) long , and usually curved and threadlike . The bottom of the stem is enlarged into a slight bulb , which is initially nearly spherical . At the very base of the stem is a small , white , and hairy disk @-@ like base that attaches to the substrate . The edibility of the mushroom is unknown , but like many small Mycenas , they are insubstantial and not likely to be considered for the table .

The variety carpophila is characterized by its tiny white cap up to 1 mm in diameter , and narrowly conical caulocystidia (cystidia found on the stem) .

= = = Microscopic characteristics = = =

Mycena adscendens produces a white spore print . The spores are broadly ellipsoid , amyloid , and have dimensions of 8 ? 10 by 5 ? 6 @.@ 5 µm . Basidia (spore @-@ bearing cells) are two @-@ spored , club @-@ shaped , and measure 14 ? 17 by 7 ? 9 µm . Pleurocystidia (cystidia on the gill faces) may be present or absent . If present , they are similar to the cheilocystidia (cystidia on the gill edges) . The cheilocystidia are abundant , measuring 28 ? 44 by 8 ? 12 µm . They are variable in shape , often fusoid @-@ ventricose (fuse @-@ shaped with a swollen center) or with 2 ? 3 needle @-@ like projections arising from the apex ; the projections are sometimes forked . The swollen parts of the cheilocystidia are covered with short rodlike protuberances or warts . The flesh of the gills is vinaceous @-@ brown when stained in iodine . The flesh of the cap is made up of greatly enlarged cells , with the surface covered with club @-@ shaped to almost globular cells measuring 25 ? 40 by about 20 µm . Their walls are finely verrucose (covered with small warts) , and all but the verrucose cells are vinaceous @-@ brown in iodine . Clamp connections are abundant in the hyphae .

= = = Similar species = = =

Other Mycenas that resemble M. adscendens include M. alphitophora and M. stylobates . The former is distinguished from M. adscendens by a stem base that is not swollen or disc @-@ like , the latter by its larger and sturdier fruit body and lack of granules on the cap . A poorly known Japanese species , M. cryptomeriicola , is similar to M. adscendens , but has non @-@ amyloid spores and lacks clamps . M. nucicola is most reliably distinguished from M. adscendens by microscopic characteristics : M. nucicola has four @-@ spored basidia , clamp connections are rare in the hyphae of the gill tissue , and the spores are less broad (typically 4 @.@ 2 ? 5 µm) . The Finnish species M. occulta grows on the decaying needles of Norway spruce and Scots pine . It differs from M. adscendens in that its gills do not form a pseudocollarium , it lacks clamps in the hyphae and cells of the hymenium , and the terminal cells in its cap cuticle are densely covered with protuberances .

= = Habitat and distribution = =

Fruit bodies of Mycena adscendens are found scattered to grouped together in twos or threes on fallen twigs , bark , and woody debris of hardwoods during the spring and autumn ; it fruits less frequently on the wood of conifers . Fruitings are most common after periods of wet weather . They are also found growing on hazel nuts that have fallen to the ground ; two other Mycenas known to grow on this substrate include M. discopus and M. nucicola . In the United States , it is known from Washington to California . It is also found in Europe , and has been collected in Amasya Province , Turkey . The variety carpophila , originally described from Denmark , was reported from Japan in 2003 .