

= *Mycena leptcephala* =

Mycena leptcephala , commonly known as the nitrous bonnet , is a species of fungus in the Mycenaceae family . The mushrooms have conical grayish caps that reach up to 3 cm (1 @. @ 2 in) in diameter , and thin fragile stems up to 5 cm (2 @. @ 0 in) long . The gills are gray and distantly spaced . The spores are elliptical , typically measure 7 ? 10 by 4 ? 6 ?m , and are white in deposit . When viewed under a light microscope , the gills has abundant spindle @-@ shaped cystidia on the gill edges , but few on the gill faces . The mushroom is found in North America and Asia , where it grows singly or in groups on conifer needles , cones and sticks on the forest floor . It has a distinctive odor of bleach ; the edibility is unknown . Similar species include *Mycena alcalina* , *M. austera* , and *M. brevipes* .

= = Taxonomy = =

The species was first called *Agaricus leptcephalus* by Christian Hendrik Persoon in 1800 , and was transferred to the genus *Mycena* in 1876 by French mycologist Claude @-@ Casimir Gillet . Synonyms include *Agaricus alcalinus* var. *leptcephalus* (Fries , 1821) , *Mycena alcaline* var. *chlorinella* (J.E. Lange , 1914) , and *Mycena chlorinella* (Singer , 1936) . The latter was reduced to synonym in a 1980 publication by Dutch *Mycena* specialist Maas Geesteranus .

Mycena leptcephala is classified in the section *Fragilipedes* of the genus *Mycena* , along with other similar @-@ looking mushrooms , such as *M. aetites* , *M. austera* , *M. parca* , and *M. aronsenii* . Some of these have a nitrous smell similar to *M. leptcephala* .

The specific epithet *leptcephala* is derived from the Greek ?????? leptos , " thin " and ?????? kephale , " head " , and refers to the delicate cap . The mushroom is commonly known as the " nitrous bonnet " .

= = Description = =

The cap of *M. leptcephala* is 1 ? 3 cm (0 @. @ 4 ? 1 @. @ 2 in) in diameter , and initially a fat conical shape with the margin pressed close to the stem . As the cap expands , it becomes broadly conic to convex , sometimes broadly bell @-@ shaped , and sometimes convex with a flaring margin . The cap surface has a whitish sheen because of its pruinose coating . The coating gradually sloughs off , leaving the surface smooth and moist . The cap shows radial grooves that outline the position of the gills underneath . Its color is initially dusky brownish @-@ gray to blackish (after the pruinose coating has sloughed off) , soon fading from dark to light gray and finally ashy @-@ gray . The flesh is thin and fragile , grayish , and has a slightly sour (acidulous) taste , and a weakly alkaline odor that strengthens in intensity if the flesh is crushed . The gills are narrow , equal in width throughout , ascending @-@ adnate (the gills attach at much less than a right angle , appearing to curve upward toward stem) and toothed . They are subdistantly spaced , with 18 ? 27 gills reaching the stem , and one or two tiers of lamellulae (short gills that do not extend fully from the cap edge to the stem) interspersed between them . The color of the gills is pallid or cinereous , with pallid and even edges . The stem is 4 ? 6 cm (1 @. @ 6 ? 2 @. @ 4 in) long , 1 ? 2 mm thick , equal in width throughout , hollow , and very fragile . It is usually bluish @-@ black initially (darker than the cap) but gradually turns sordid brownish @-@ gray , and finally fades to pallid or cinereous . The surface is densely white @-@ pruinose overall , but soon polished and translucent when the pruinose coating wears off . The stem base is nearly smooth to rather densely white @-@ strigose . The species has a distinctive bleach @-@ like odor . Its edibility is currently unknown .

= = Microscopic characteristics = =

The spores are broadly ellipsoid , amyloid (meaning they will adsorb iodine when stained with Melzer 's reagent) , and measure 7 ? 10 by 4 ? 6 ?m . The basidia (the spore @-@ bearing cells) are usually four @-@ spored , although two- and three @-@ spored forms have been found on

which the spores measure 11×14 by 6×6 @ 5×5 m or 8×10 by 3×4 @ 5×5 m , respectively . The pleurocystidia (cystidia on the face of a gill) are scattered , rare or absent , 30×44 by 9×13 m , variable in shape , fusoid @-@ ventricose to club @-@ shaped , with some having a forked apex . The pleurocystidia that are club @-@ shaped occasionally have two or three finger @-@ like prolongations . The cheilocystidia (cystidia on the gill edge) are numerous , and similar in morphology to the pleurocystidia . The flesh of the gill is homogenous , composed of enlarged hyphae that stain vinaceous @-@ brown in iodine . The flesh of the cap has a well @-@ differentiated pellicle , the cells of which bear numerous rodlike prolongations . The hypoderm (a layer of tissue immediately below the pellicle) is well @-@ formed , while the remaining tissue is floccose ; all but the pellicle are vinaceous @-@ brown in iodine stain .

= = = Similar species = = =

The " stump fairy helmet " *Mycena alcalina* is a common species that is similar in appearance and odor to *M. leptocephala* . However , it grows on conifer wood and rarely on the ground . Microscopically , it has numerous cystidia on the gill edges . Although *M. leptocephala* usually has a weaker alkaline odor and a more fragile stem , the strength of the odor of *M. alcalina* is also quite variable , so differences in odor cannot be used as the sole distinguishing characteristic . *M. austera* , described from southern Norway in 1994 , differs from *M. leptocephala* by the lack of a nitrous odor , and differently shaped cheilocystidia and terminal cells of the cortical layer of the stem . Alexander H. Smith considers *M. brevipes* close to *M. leptocephala* , but the former mushroom has a short stem up to 3×5 cm (1×4 in) long , typically grows singly , and lacks an odor .

= = Habitat and distribution = =

Mycena leptocephala is a saprobic species , meaning it derives nutrients from the breakdown of organic matter . Fruit bodies are found growing scattered to gregarious on fallen sticks and on needle carpets under conifers , and are rather common during early summer and again in the autumn . Fruit bodies may be infected by the bonnet mold *Spinellus fusiger* .

In North America , the fungus is found in Canada (British Columbia , Manitoba , Nova Scotia) , to Washington and south to California and North Carolina . In South America , the mushroom has been collected in Venezuela . It also grows in the Archipelago of the Recherche , off the southern coast of Western Australia . In Europe , it is known from Britain , Finland , The Netherlands , Norway , and Spain . It has also been found in various locations in Asia : the Vindhya Range of India ; the Gwangneung Forest Museum in the Korea National Arboretum ; and the alpine zone of Changbai Mountain Nature Reserve , Jilin Province , China . The fungus is also known from Arctic and Alpine regions such as Iceland , Greenland , and the Murmansk region .