

= *Mycena mustea* =

Mycena mustea is a species of mushroom in the *Mycenaceae* family . First described as a new species in 2007 , the fungus is known only from Kanagawa , Japan , where it grows on dead fallen twigs in lowland forests . The mushroom 's dull violet to grayish @-@ violet cap , initially covered with a fine whitish powder , becomes smooth as it matures , and eventually reaches a diameter of up to 10 mm (0 @. @ 39 in) . The stem is slender , up to 90 mm (3 @. @ 5 in) long , and is covered with stiff white hairs at the base . Underneath the cap are distantly spaced pale brownish gills that are narrowly attached to the stem . Microscopic characteristics of the mushroom include the weakly amyloid spores (turning bluish to black when stained with Melzer 's reagent) , the club @-@ shaped cheilocystidia (cystidia on the gill edge) featuring one or more short knob @-@ like protuberances , the absence of pleurocystidia (cystidia on the gill face) , the diverticulate cap cuticle hyphae , and the absence of clamp connections .

= = Taxonomy , naming , and classification = =

The species was first collected in Japan by Hiraku Takahashi in 1999 , and reported as a new species in a 2007 publication . The specific epithet is the Latin word *mustea* , meaning " fresh " . The Japanese name is Sumire @-@ ashinagatake .

The infrageneric classification of the fungus is unclear , and depends on what taxonomic characters are deemed most important . According to Takahashi , the mushroom 's violet pigment , the inamyloid (not staining when treated with Melzer 's reagent) hymenophoral tissue (hymenium @-@ bearing tissue) , and the smooth hyphae of the outer layer of stem suggest a placement in the section *Adonideae* (Fr .) Quel . , as defined by the Dutch *Mycena* specialist Maas Geesteranus . However , if greater taxonomic emphasis is placed on the weakly amyloid basidiospores , it would be more appropriate in the section *Fragilipedes* (Fr .) QuéL .

= = Description = =

The cap is conical to convex to bell @-@ shaped , occasionally with a low and broad umbo , and reaches 7 to 10 mm (0 @. @ 28 to 0 @. @ 39 in) in diameter . When moist , it is partly translucent , and grooves corresponding to the position of the gills under the cap can be seen . The surface is somewhat hygrophanous ? it changes color as it loses or absorbs moisture . The surface is initially pruinose ? covered with what appears to be a fine white powder (remnants of the universal veil that covered the immature fruit body) ? but this soon sloughs off , leaving it smooth . The cap surface is a dull violet color when young , then becomes somewhat paler near the margin . The flesh is up to 0 @. @ 5 mm thick , white , and lacks any distinctive odor and taste . The slender stem is 40 to 90 mm (1 @. @ 6 to 3 @. @ 5 in) long by 0 @. @ 5 to 1 @. @ 5 mm (0 @. @ 020 to 0 @. @ 059 in) thick , cylindrical , centrally attached to the cap , and hollow . Its surface is dry , dull violet to grayish @-@ violet over the entire length . Like the cap surface , it is initially entirely pruinose , but becomes smooth in maturity . The base of the stem is covered with sharp , straight , and stiff white hairs . The gills are narrowly attached to the stem , and distantly spaced , with between 15 and 19 gills reaching the stem . The gills are up to 1 @. @ 2 mm broad , thin , and pale brownish . The gill edges are pruinose , and the same color as the gill faces .

= = Microscopic characteristics = =

The spores are roughly ellipsoid and measure 11 ? 12 by 6 ? 7 μm . They are smooth , colorless , inamyloid to weakly amyloid , and thin @-@ walled . The basidia (spore @-@ bearing cells) are 28 ? 37 by 8 ? 10 μm , club @-@ shaped , and mostly four @-@ spored . The cheilocystidia (cystidia on the gill edge) are club @-@ shaped , abundant , and measure 30 ? 45 by 8 ? 11 μm . They form a sterile gill edge . Near their tips they have one or more short knob @-@ like excrescences (outgrowths) that are colorless , and thin @-@ walled . *M. mustea* does not have cystidia on the gill

face (pleurocystidia) . The hymenophoral tissue is made of hyphae that are 5 ? 16 µm wide , cylindrical (often somewhat inflated) with thin walls , smooth , colorless , and inamyloid . The cap cuticle is made of parallel , bent @-@ over hyphae that are 2 ? 6 µm wide , cylindrical , and covered with scattered , warty or finger @-@ like hyaline (translucent) thin @-@ walled diverticulae . The layer of hyphae under the cap cuticle are parallel , hyaline or pale violet , dextrinoid (turning reddish @-@ brown in Melzer 's reagent) , and contain short and inflated cells that are up to 25 µm wide . The stem cuticle is made of parallel , bent @-@ over thin @-@ walled hyphae that are 2 ? 6 µm wide , cylindrical , smooth , and hyaline or pale violet . The stem tissue is made of longitudinally running , cylindrical hyphae that are 8 ? 15 µm wide , smooth , colorless , and dextrinoid . Clamp connections are absent in all tissues .

= = = Similar species = = =

Mycena mustea is similar to the North American species *M. umbrinovinosa* , which is distinguished by having a vinaceous @-@ brown to purplish @-@ black cap , irregularly shaped cheilocystidia that are covered at their tips with long , flexuous excrescences , and clamp connections . *Mycena mustea* is also similar to the European species *M. urania* , which differs in its blackish @-@ violet cap , broadly club @-@ shaped cheilocystidia covered with numerous , evenly spaced warts , and clamp connections . *Mycena mustea* also resembles the Japanese *M. fonticola* , a species described concurrently with *M. mustea* . Unlike that of *M. fonticola* , the cap of *M. mustea* typically becomes pale grayish @-@ purple when mature ; the cheilocystidia have several short finger @-@ like excrescences at their tips ; and the stem cuticle is made up of smooth hyphae . In contrast , the cap of *M. fonticola* becomes dark violet @-@ brown when mature ; there are no excrescences on the cheilocystidia ; and the hyphae of the stem cuticle are sparsely covered with diverticulae that resemble warts or fingers .

= = Habitat and distribution = =

Mycena mustea is known only from Kanagawa , Japan . The mushroom is found growing solitary to scattered on dead fallen twigs in lowland forests dominated by the hornbeam carpinus (*Carpinus tschonoskii*) and the Chinese evergreen oak (*Quercus myrsinaefolia*) .