

= *Amanita atkinsoniana* =

Amanita atkinsoniana is a species of fungus in the Amanitaceae family . It is found in the northeastern , southeastern , and southern United States as well as southern Canada , where it grows solitarily or in small groups on the ground in mixed woods . The fruit body is white to brownish , with caps that measure up to 12 @. @ 5 cm (4 @. @ 9 in) in diameter , and stems up to 20 cm (7 @. @ 9 in) long and 2 @. @ 5 cm (1 @. @ 0 in) thick . The surface of the cap is covered with reddish @-@ brown to grayish @-@ brown conical warts . The stem has a bulbous base covered with grayish @-@ brown scales . The fruit bodies smell faintly like bleaching powder . Although not known to be poisonous , the mushroom is not recommended for consumption .

= = Taxonomy = =

The species was first described by American botanist William Chambers Coker in 1917 , in his monograph of Amanitas of the eastern United States . Coker 's description was based on several specimens he had collected from various locations in North Carolina in September and October 1914 . The specific name honors George Atkinson , a Cornell University mycologist who collected and described mushrooms in the southern and eastern United States in the late 19th century . In 1952 , Marcel Locquin chose to place it in the genus *Armillaria* as *Armillaria atkinsoniana* , but this change was not adopted by later authors .

Amanita atkinsoniana is classified in the stirps *Microlepsis* of subsection *Solitariae* , in the section *Lepidella* of the genus *Amanita* . Species in the subsection *Solitariae* are distinguished by several characteristics : a volva composed of cellular structures of varying shape ; rows of large cylindrical to slender club @-@ shaped cells that are never dominant ; a stem that typically has a bulbous base and remnants of the volva on the surface that are concentrated towards the base ; the volva is not membranous nor nearly membranous , never forming a limb at the base of the stem , and never forming patches on the surface of the cap , where the outer layer consists of hyphae pressed against the surface .

= = Description = =

The cap of *A. atkinsoniana* is 6 ? 12 @. @ 5 cm (2 @. @ 4 ? 4 @. @ 9 in) wide , and depending on its age , ranges in shape from convex to flattened , sometimes with a shallow central depression . Its color can vary from whitish to yellowish @-@ white , brownish @-@ gray , brownish @-@ orange to grayish @-@ brown , and is lighter on the margin . The cap surface is covered with the remnants of the universal veil as small reddish @-@ brown to grayish @-@ brown , easily removable , conical warts . Approaching the edge of the cap , the warts gradually become small , woolly patches . The cap margin is smooth or has faint grooves mirroring the underlying gills , and has partial veil remnants hanging along the edge . The gills are free from attachment to the stem , close to crowded together , moderately broad , yellowish @-@ white , and occasionally have a slight reddish stain . The lamellulae (short gills that do not extend completely from the cap margin to the stem) are truncate (cut off sharply) to attenuate . The stem is 8 ? 20 cm (3 @. @ 1 ? 7 @. @ 9 in) long and 1 ? 2 @. @ 5 cm (0 @. @ 4 ? 1 @. @ 0 in) wide , equal or tapering slightly toward apex , whitish , and floccose to smooth . The basal bulb is club @-@ shaped , ventricose @-@ fusiform or turnip @-@ shaped , rounded or pointed , usually covered with rings of reddish @-@ brown scales or warts of universal veil remains , often extending up the stem for a short distance . The universal veil on the stem base is quite unusual in *Amanita* , because it forms warts that extend nearly to the very bottom of the bulb . The stem often roots into the soil beneath the bulb with an elongated cord of mycelium known as a pseudorhiza . The partial veil forms an ring that is somewhat membranous , fragile to moderately persistent , and yellowish @-@ white to pale yellow . Eventually , as the mushroom matures , it collapses on the stem as a thin membrane . The flesh is white , with a weak odor of bleaching powder .

== Microscopic characteristics ==

The spore print is white . The spores are ellipsoid to elongated , hyaline (translucent) , thin @-@ walled , and have dimensions of 9 ? 12 @.@ 5 by 5 @.@ 5 ? 8 μm . They are amyloid , meaning they will absorb iodine when stained with Melzer 's reagent . The basidia (spore @-@ bearing cells) are 35 ? 60 by 7 ? 13 @.@ 5 μm , club @-@ shaped , four @-@ spored , with clamps at their bases . The cheilocystidia (cystidia found on the edge of the gill) are 15 ? 45 by 10 ? 30 μm , ellipsoid to club @-@ shaped , and abundant . The cap cuticle is up to 165 μm thick , and is made of interwoven to radial hyphae , 2 @.@ 5 ? 8 μm diameter , which is slightly to strongly gelatinized . The universal veil on the cap consists of mainly roughly spherical to ellipsoid but also club @-@ shaped and elongated cells , up to 75 by 40 μm , arranged in short , terminal chains and relatively sparse hyphae , measuring 3 ? 7 @.@ 5 μm in diameter . At the base of the stem the universal veil tissue is very similar to that on the cap . Clamp connections are present in the hyphae .

== Edibility ==

Pomerleau (1980) considers the mushroom as " doubtfully edible " , while Orson and Hope Miller , in their field guide to North American mushrooms , list it as " possibly poisonous " (although they also indicate that no specific reports of toxins have been reported from the species) , and recommend that in general , no species in *Amanita* subgenus *Lepidella* should be consumed .

== Similar species ==

Because of the colored volva , *A. atkinsoniana* resembles *A. onusta* , which differs from *A. atkinsoniana* by the small to medium @-@ sized fruit bodies with a grayish veil as dark gray to brownish gray warts and a basal bulb which is usually somewhat rooting . Sometimes the fruit bodies of *A. atkinsoniana* are confused with *A. microlepis* which can be distinguished by the presence of reddish @-@ brown to grayish @-@ brown volval remnants and the rooting bulb of *A. atkinsoniana* .

== Distribution and habitat ==

The fruit bodies of *Amanita atkinsoniana* grow on the ground in mixed coniferous and deciduous forests . They have been collected in Alabama , Georgia , Massachusetts , Maryland , Michigan , North Carolina , New Jersey , New York , Pennsylvania , Tennessee , Texas , Virginia , Vermont , and West Virginia . One field guide notes a preference for association with oak where there is ground cover of blueberry (*Vaccinium*) bushes . The mushroom has also been collected in Quebec , Canada . The southern extent of its range extends to the Mexican state of Michoacán . The mushroom fruits most commonly during late summer and fall after heavy rains .