= Suillellus amygdalinus =

Suillellus amygdalinus (formerly Boletus amygdalinus) is a fungus of the bolete family found in western North America . The fruit bodies , or mushrooms , are characterized by their thick , red to brown caps , red pores , and the strong bluing reaction observed when the mushroom tissue is injured or cut . The cap can reach diameters of up to 10 cm (3 @.@ 9 in) and the stipe 9 cm (3 @.@ 5 in) long by 3 cm (1 @.@ 2 in) thick at maturity . This mushroom has been found in manzanita and madrone woodlands of central California north to southern Oregon . Although the edibility of the mushroom is not known with certainty , it may be poisonous , and is not recommended for consumption . Other similar red @-@ pored , bluing boletes from North America , including Rubroboletus eastwoodiae , Boletus luridiformis , and B. subvelutipes , can be distinguished from S. amygdalinus either by the color of the cap , the degree of reticulation (a network of raised ridges) on the stipe , or by location .

= = Taxonomy = =

The species was first named Boletus puniceus by Harry D. Thiers in 1965 , based on specimens he found in Napa County , California , on 23 November 1963 . In 1975 , Thiers changed the name to Boletus amygdalinus (a nomen nudum) as he discovered that the epithet had already been used for a different bolete found in Yunnan , China , published in 1948 . The fungus was transferred to Suillellus in 2014 after molecular phylogenetics demonstrated that S. amygdalinus was in a lineage distinct from Boletus .

In Latin , amygdaline means relating to or resembling an almond .

= = Description = =

Suillellus amygdalinus is a large solid mushroom with a convex to somewhat flattened , irregular cap that can reach diameters of 6 to 10 cm (2 @.@ 4 to 3 @.@ 9 in) at maturity . The surface of the cap is dry , and matted with fibers ; the cap color of young specimens is red , but the mushrooms typically change to more brownish tones as they mature . The margin of the cap starts out curved inwards (incurved) and gradually becomes curved downwards (decurved) with age . The pores on the underside of the cap are 0 @.@ 5 to 1 mm (0 @.@ 02 to 0 @.@ 04 in) wide , angular , and red or red @-@ orange , while the tubes are 1 to 1 @.@ 5 cm (0 @.@ 4 to 0 @.@ 6 in) deep .

The stipe lacks a netted pattern (reticulation) and is yellow in color but is often covered by red hairs , especially near the base . The stipe is either equal in width throughout , or thicker in the middle ; it reaches dimensions of 5 ? 9 cm (2 @.@ 0 ? 3 @.@ 5 in) long by 1 ? 3 cm (0 @.@ 4 ? 1 @.@ 2 in) thick . The base of the stipe is typically bent . The flesh is 1 to 2 cm (0 @.@ 4 to 0 @.@ 8 in) thick , and yellow in color , but like all parts of the mushroom , will stain blue immediately upon bruising or cutting . Both the odor and taste of the fruit bodies are mild .

Although the edibility of S. amygdalinus is not known with certainty , authorities often recommend to avoid consuming blue @-@ staining , red @-@ pored boletes , as several are poisonous . The species was implicated in one group of poisonings in California in 1996 ? 97 , but because of the nature of the symptoms experienced , there was probably more than one type of mushroom consumed .

= = = Microscopic characteristics = = =

Suillellus amygdalinus produces a dark olive @-@ brown spore print . The spores are thick @-@ walled , smooth , and ellipsoid to somewhat spindle @-@ shaped , with dimensions of 11 @.@ 2 ? 16 by 5 @.@ 2 ? 8 µm . They become dark ochraceous when stained with Melzer 's reagent , and , because of the occasional presence of two large vacuoles , may appear as if they are two @-@ celled . The basidia (the spore @-@ bearing cells) are club @-@ shaped , contain numerous vacuoles , and measure 30 ? 35 by 9 ? 11 µm . Cystidia are present on sides of the tubes , and they

measure 45 ? 54 by 10 ? 12 µm . Clamp connections are not present in the hyphae of S. amygdalinus .

Various chemical color tests can be used to help identify fruit bodies suspected to be S. amygdalinus . A drop of dilute potassium hydroxide (KOH) will turn the cap flesh dingy orange , while it turns the cap cuticle red , or darker . Ammonia (as ammonium hydroxide , NH4OH) produces a dingy yellow on the flesh , and brown on the cap . Iron sulphate (FeSO4) produces either no change to a pale grey color with both the flesh and the cuticle . Hydrochloric acid (HCl) causes the flesh to turn orange or pink , but has no color reaction with the cuticle .

= = = Similar species = = =

There are several other red @-@ pored , bluing boletes that could be confused with S. amygdalinus . The poisonous European species Rubroboletus satanas and its North American counterpart R. eastwoodiae have lighter colored caps and a reticulate pattern on the stipe . B. subvelutipes is a highly variable species from eastern North America that includes red in its range of cap colors , and has a fuzzy coating of hairs near the base of its stipe ; it may represent a group of species . Another similar species is B. luridiformis , found in North America and Northern Europe under both broadleaf trees and conifers . Unlike S. amygdalinus , however , B. luridiformis has a dark brown to nearly blackish @-@ brown cap , and a yellow stipe with a dense covering of red pruina (dots) .

= = Distribution and habitat = =

Suillellus amygdalinus mushrooms grow on the ground in groups , or scattered about . The fungus has been reported from low @-@ elevation hardwood forests composed of live oak , manzanita and madrone in California , and Oregon . Fruiting occurs after the onset of autumn rains , usually between the October and January . The mushroom can be difficult to spot , as its cap is similar in coloring to the leaves of the madrone tree with which it is associated , and because the mushroom is frequently buried under leaves .