

= *Lactarius rufulus* =

Lactarius rufulus , commonly known as the rufous candy cap , is a species of fungus in the Russulaceae family . The fruit bodies have fleshy brownish @-@ red caps up to 10 cm (3 @. @ 9 in) wide , and closely spaced pinkish @-@ yellow gills . The stem is up to 12 cm (4 @. @ 7 in) long and 3 cm (1 @. @ 2 in) thick and colored similarly to the cap . The species , known only from California , Arizona , and Mexico , grows on the ground in leaf litter near oak trees . The fruit bodies resembles those of *L. rufus* , but *L. rufulus* tends to grow in clusters at a common base , rather than solitarily or in groups . A distinguishing microscopic characteristic is the near absence of large , spherical cells called sphaerocysts that are otherwise common in *Lactarius* species . *Lactarius rufulus* mushrooms are edible , and have an odor resembling maple syrup . They have been used to flavor confections and desserts .

= = Taxonomy = =

The species was first described by American mycologist Charles Horton Peck in 1907 , based on specimens collected at Stanford University in California . The type collections were made by A.M. Patterson and S. Nohara , botany students at the Leland Stanford Junior University who made a number of collections during the winter of 1906 ? 07 .

Lactarius rufulus is classified in the section *Thejogali* of the subgenus *Russularia* of the genus *Lactarius* . The surface characteristics of many species in section *Thejogali* (as defined by Hesler and Smith in 1979) are called rimulose @-@ areolate (irregularly cracked , with the cracks crossing one another) based on a surface with " numerous mounds of inflated cells " paired together with crevices .

The mushroom is commonly known as the " rufous candy cap " .

= = Description = =

The cap of *L. rufulus* is 3 ? 10 cm (1 @. @ 2 ? 3 @. @ 9 in) wide , broadly convex , becoming flattened and eventually shallowly funnel @-@ shaped , sometimes with a slight umbo . The cap margin (edge) is initially curved inwards but becomes curved upward in maturity . The surface is usually uneven or wrinkled . It is brownish @-@ red at first , but fades to orange @-@ brown with age . The attachment of the gills to the stem is adnate (squarely attached) to subdecurrent (running slightly down the length of the stem) . They are packed close together , at first pinkish @-@ yellow , but with age become a darker red or reddish @-@ brown . The gills are not forked , nor do they stain a different color when bruised . The stem is 4 ? 8 cm (1 @. @ 6 ? 3 @. @ 1 in) long , about 0 @. @ 5 ? 1 @. @ 5 cm (0 @. @ 2 ? 0 @. @ 6 in) thick , nearly equal or slightly enlarged downward , dry , smooth , and reddish @-@ brown . It may be solid or stuffed (filled with cotton @-@ like mycelia) , but may become partially hollow with age . The flesh is firm , white to pinkish @-@ orange , and does not stain when cut . The latex is scant , yellowish @-@ white on exposure , unchanging , and does not stain tissues . Its taste is acrid . The spore print is white to creamy yellow .

The mushroom is edible , with a mild taste and a slight odor of maple syrup . American author David Arora suggests that the fruit bodies may be used in a manner similar to the candy cap mushrooms , despite being not as fragrant . Chefs in the San Francisco Bay Area have been known to use it for desserts such as ice creams , cakes and caramels .

= = Microscopic characteristics = =

The spores are 7 ? 9 by 7 ? 9 μm , spherical or nearly so , ornamented with a partial to complete reticulum (a system of raised , net @-@ like ridges) , with prominences up to 0 @. @ 5 μm high . The basidia (spore @-@ bearing cells) are both two- and four @-@ spored , and measure 45 ? 52 by 9 ? 11 μm . The cap cuticle is a poorly formed layer of inflated cells with scattered filamentous

pileocystidia (cystidia on the cap) . Somewhat unusual for a *Lactarius* , *L. rufulus* lacks or has few swollen cells (sphaerocysts) in the cap and stem .

= = = Similar species = = =

Lactarius rubidus is similar in appearance to *L. rufulus* , but it has watery to whey @-@ like latex and develops a strong odor of maple syrup or butterscotch when dried . Another lookalike is *Lactarius thiersii* , but it has a smaller cap and stem and has mild @-@ tasting flesh and latex . The flesh and latex of *Lactarius rufus* have a strongly acrid taste , and its fruit bodies are stouter and lack an umbo . Additionally , *L. rufus* typically grows in a caespitose manner ? with the fruit bodies clustered at a common base , and has more pallid colors and a more intense odor than *L. rufulus* . *L. vinaceorufescens* has a yellowing latex .

= = Ecology , habitat and distribution = =

Lactarius rufulus is a mycorrhizal species , and lives in a mutualistic association with oak species . The fungus forms an ectomycorrhizae ? characterized by an external sheath that surround the rootlets of the oak . The fungus receives soluble carbohydrates that are byproducts of the plant 's photosynthesis , while affording the plant greater access to soil nutrients needed for growth . The fruit bodies of *L. rufulus* grow scattered or in groups on the ground under oak , usually from January to March ; their appearance is uncommon . Once thought to be only in California (where they are most prevalent in the southern part of the state) , they were reported from Mexico in 1998 , and from Arizona in 2006 .