

= *Mycena californiensis* =

Mycena californiensis is a species of fungus in the *Mycenaceae* family . It is a common and abundant species in the coastal oak woodlands of California , where it grows saprobically , feeding on the fallen leaves and acorns of various oak species . First described in 1860 by Berkeley and Curtis , the species was collected four years earlier during an exploring and surveying expedition . It was subsequently considered a doubtful species by later *Mycena* researchers , until a 1999 publication validated the taxon . *Mycena elegantula* is considered a synonym .

Making their appearance in late autumn to early winter , the small and fragile fruit bodies are characterized by reddish @-@ brown tones in the cap , stem , and the edges of the gills . If cut , the mushroom tissue will " bleed " a deep reddish to orangish latex . As is typical of the genus *Mycena* , caps of *M. californiensis* are bluntly conical , becoming bell @-@ shaped to convex , and eventually flatten out when old . They measure up to 2 cm (0 @.@ 8 in) in diameter , and are attached to thin , hollow stems that are up to 13 cm (5 @.@ 1 in) long .

= = History and taxonomy = =

The species was originally collected for science purposes by the American botanist Charles Wright during the North Pacific Exploring and Surveying Expedition of 1853 ? 56 . The single collection was found growing on fallen oak leaves at Mare Island Naval Shipyard , in Solano County , California in January 1856 . The specimen was sent by American mycologist Moses Ashley Curtis to his British colleague Miles Joseph Berkeley , who published a brief description of the species in 1860 , calling it *Agaricus californiensis* , in what was then the subgenus *Mycena* . Berkeley and Curtis noted that it differed from *A. aurantio @-@ marginatus* (known today as *Mycena aurantiomarginata*) in the nature of the gills , and they called it " a more graceful species . " In his 1887 *Sylloge Fungorum* , Pier Andrea Saccardo raised the subgenus *Mycena* to generic status , so the species became known as *Mycena californiensis* .

In his 1947 monograph of North American *Mycena* , Alexander H. Smith included it as an " excluded or doubtful species " , saying that the species " cannot be recognized until the microscopic characters of the type are known . " Researching his 1982 monograph of *Mycena* , Maas Geesteranus examined the holotype material ? the particular specimen designated by Berkeley and Curtis to represent the type of the species . Because of its deteriorated condition , however , he was unable to corroborate the distinguishing features proposed by Berkeley and Curtis , and he agreed with Smith 's assessment of the species .

In the late 1990s , as part of his studies on the *Mycena* of California , Brian Perry noted that a common species in California , usually referred to as *Mycena elegantula* or *M. sanguinolenta* , presented characteristics not congruent with either (in particular , *M. elegantula* had not previously been reported to contain latex) . He compared isotype material (material collected at the same time and place as the holotype) of *M. californiensis* with Californian specimens and the type of *M. elegantula* and found all of them to represent the same species , publishing the results with Dennis Desjardin in their 1999 *Mycotaxon* article " *Mycena californiensis* resurrected " . Part of the confusion , they noted , was apparently due to Smith 's concept of *M. elegantula* not agreeing with the species ' type (something also noticed by Geesteranus) .

Because *M. californiensis* is the earlier name (published in 1860 vs. 1895 for *Mycena elegantula*) , it has priority over the later name *M. elegantula* , according to the rules of botanical nomenclature .

= = Description = =

The cap of *M. californiensis* is initially conic or bell @-@ shaped , but flattens out in maturity , and typically reaches dimensions of up to 2 cm (0 @.@ 8 in) . The cap margins (edges) are curved inwards when young , but as they age they become wavy or crenate (with rounded scallops) , develop striations (radial grooves) and may even split . The surface of the cap is dull and smooth . Its color ranges from reddish @-@ brown to brownish @-@ orange in young specimens , with the

color fading as the mushroom matures ; the center of the cap is usually darker than the margins . The flesh is thin , and either the same color as the cap or lighter ; it may stain a dark red color when bruised .

The gills have an adnate attachment to the stem ? broadly attached slightly above the bottom of the gill , with most of the gill fused to the stem . They are not closely spaced together , and there are about 15 ? 20 of them . Some of the gills do not extend the full distance from the edge of the cap to the stem . These short gills , called lamellulae , form one to two groups of roughly equal length . All of the gills have a white to pinkish @-@ buff color , with the gill edges ranging from reddish @-@ orange to reddish @-@ brown to brownish @-@ orange . The hollow stem is 29 ? 130 mm (1 @.@ 1 ? 5 @.@ 1 in) long by 1 ? 3 mm (0 @.@ 04 ? 0 @.@ 12 in) thick , and roughly the same thickness throughout . The top of the stem may be either pruinose (appearing to be covered with a very fine whitish powder on a surface) or smooth , while the stem base is covered with " hairs " that may be strigose (large , coarse , and bristle @-@ like) to downy (soft and fuzzy) . The stem is some shade of brown . The mushroom tissue will " bleed " a brownish @-@ range to reddish brown latex when it is cut . The edibility of *M. californiensis* is unknown .

= = = Microscopic characteristics = = =

In deposit , such as with a spore print , the spores appear white . Further details are revealed with a light microscope : the spores are ellipsoid to almond @-@ shaped , smooth , thin @-@ walled , and measure 8 ? 12 by 4 ? 6 μm . The basidia (the spore @-@ bearing cells) are club @-@ shaped , four @-@ spored , and typically have dimensions of 26 ? 37 @.@ 5 by 7 ? 10 @.@ 5 μm . *M. californiensis* has cheilocystidia (cystidia on the gill edges) that measure 16 ? 50 by 6 @.@ 5 ? 20 μm . These cells have irregular projections that can range in size from 1 @.@ 5 ? 18 @.@ 8 by 1 @.@ 5 ? 6 @.@ 5 μm and are variously shaped , from knob @-@ like to cylindrical . The cells contain brownish contents that will stain darkly with Melzer 's reagent , a common chemical reagent used in mushroom identification . With the exception of the medullary hyphae of the stem (longitudinally @-@ arranged hyphae making up the stem surface) , all hyphae contain clamp connections .

= = = Similar species = = =

Mycena californiensis may be distinguished from the closely related *M. atromarginata* by its smaller size and the purplish tint to the edge of the gills , and from *M. purpureofusca* by its differently shaped , longer spores . Another *Mycena* commonly confused with *M. californiensis* is *M. sanguinolenta* , a species that also exudes reddish latex . It can be distinguished from *M. californiensis* by the fusiform (tapering at each end) cheilocystidia that do not have outgrowths . An additional difference between the two is that *M. sanguinolenta* is associated with conifer wood and debris .

= = Habitat and distribution = =

The fruit bodies grow in clusters or scattered on the decomposing leaves and acorns of oak trees , such as Coast Live Oak , Valley Oak and Black Oak . It is common in the coastal oak woodlands of California , where it appears from late autumn to early winter .