

= *Mycena adonis* =

Mycena adonis , commonly known as the scarlet bonnet , is a species of fungus in the *Mycenaceae* family . Found in Asia , Europe , and North America , it produces small orangish to reddish inedible mushrooms with caps up to 1 @. @ 2 cm (0 @. @ 5 in) in diameter , held by thin pinkish @-@ white stems reaching 4 cm (1 @. @ 6 in) long . The fungus prefers to grow in conifer woods and peat bogs , suggesting a preference for acidic environments . The appearance of several atypical fruitings of *Mycena adonis* on deciduous wood in the Netherlands in the late 1970s was attributed to increases in atmospheric pollution that raised the acidity of the wood substrate . Mushrooms resembling *M. adonis* include *M. acicula* , *M. aurantiidisca* , and *M. rosella* .

= = Taxonomy = =

The species was first named *Agaricus adonis* in 1792 by Jean Baptiste François Pierre Bulliard , and placed in *Mycena* by Samuel Frederick Gray in 1821 . Rolf Singer successively moved it to *Hemimycena* (1943) , then *Marasmiellus* (1951) . Singer later changed his mind about these placements , and his 1986 *Agaricales in Modern Taxonomy* , he considered the species a *Mycena* ; the binomials resulting from the prior generic transfers are synonyms .

The mushroom is commonly known as the " scarlet bonnet " . Samuel Frederick Gray called it the " *Adonis high @-@ stool* " in his 1821 *Natural Arrangement of British Plants* , while Mordecai Cubitt Cooke named it the " delicate *Mycena* " .

= = Description = =

The cap initially has a sharply conic shape , but expands to a narrow bell @-@ shape or a broad cone in maturity , typically reaching 0 @. @ 5 to 1 @. @ 2 cm (0 @. @ 2 to 0 @. @ 5 in) in diameter . The cap margin , which is initially pressed against the stem , is opaque or nearly so at first . It is scarlet red when fresh and moist , becoming orange or yellowish orange before losing moisture . The mushroom is hygrophanous , and fades to an orange buff color when dry . The flesh is thin , the same color as the cap , fragile , and without any distinctive taste or odor . The gills are ascending @-@ adnate (the gills attach at much less than a right angle , appearing to curve upward toward stem) or attached by a tooth , subdistant to close , with 14 ? 16 gills reaching the stem . Additionally , there are two or three tiers of lamellulae ? short gills that do not extend fully from the cap edge to the stem . The gills are narrow , and yellowish or with a reddish tinge at first ; the margins are paler and the same color as the faces . The stem is 2 ? 4 cm (0 @. @ 8 ? 1 @. @ 6 in) long and 1 ? 2 mm (0 @. @ 0 ? 0 @. @ 1 in) thick , and roughly equal in width throughout . It is tubular , fragile , initially pruinose (covered with a fine powder) , polished and smooth with age , pale yellow , becoming whitish , with the base often dirty yellow or brownish . *Mycena adonis* mushrooms are inedible .

= = Microscopic characteristics = =

The spores are narrowly ellipsoid , nonamyloid , and measure 6 ? 7 by 3 ? 3 @. @ 5 µm . The basidia (spore @-@ bearing cells) are four @-@ spored and measure 20 ? 22 by 6 ? 7 µm . The cheilocystidia and pleurocystidia (cystidia found on the edges and faces , respectively , of the gills) are abundant and similar in shape and markings , 40 ? 58 by 10 ? 15 µm , tapering somewhat on either end and usually with a long needle @-@ shaped neck (which is branched in some) . The cystidia are generally smooth , but when dried material is mounted in potassium hydroxide for observation under light microscopy , an amorphous substance apparently holds spores and debris around the neck or apex , making them appear encrusted . The flesh of the gill is very faintly vinaceous @-@ brown when stained in iodine . The cap flesh has a thin , poorly differentiated pellicle with a region of slightly enlarged cells beneath it ; the remainder is filamentous , and the filamentous portion stains vinaceous @-@ brown in iodine .

= = = Similar species = = =

There are several other mycenas with which *Mycena adonis* could be confused . *M. acicula* is typically a smaller mushroom with a deep orange @-@ red cap rather than the typical bright salmon @-@ pink color of *M. adonis* . Since the colors and sizes of *M. acicula* and *M. adonis* are similar , a microscope is needed to reliably distinguish between them , with spore size and shape being different . *M. strobilinoides* can be distinguished from *M. adonis* by its orange cap and amyloid spores . *M. aurantiidisca* can be distinguished from *M. adonis* by its lack of scarlet to pinkish tones in the cap and lack of gelatinized cortical hyphae . *Mycena oregonensis* is differentiated from *M. adonis* by its orange to yellow cap and lack of scarlet to pinkish tones . *M. roseipallens* has a smaller fruit body , wider spores , a less intensely colored and less conical cap , and grows on the decaying wood of elm , ash , and alder .

= = Ecology , habitat and distribution = =

The fruit bodies of *Mycena adonis* grow solitarily or in groups in conifer forests , and appear in the spring and autumn . The fruit bodies grow in groups or scattered on needle beds under spruce and hemlock in the wet coastal conifer forests , or in the higher mountains , where it is not uncommon in the spring and autumn months . In one instance , fruit bodies were found growing on the deciduous trees Spanish Maple (*Acer granatense*) and willow (*Salix alba*) near Amsterdam , Holland . It was hypothesized that the bark of these trees had become more acid in recent years because of increasing atmospheric pollution (specifically , increases in the levels of sulfuric and nitric acid from industrial smoke) , providing a more suitable substrate for the fungus .

The fungus is found in western North America , and in 2007 , it was reported from the valley of the Ussuri River in the northeast of China . It is also found in Europe (Britain , Germany , Holland Scotland) and the Canary Islands . *Mycena* specialist Alexander H. Smith has found the species in Washington , Oregon , and California .