= Pycnoporellus alboluteus =

Pycnoporellus alboluteus , commonly known as the orange sponge polypore , is a species of polypore fungus in the family Fomitopsidaceae . Distributed throughout the boreal conifer zone , the fungus is found in mountainous regions of western North America , and in Europe . It causes a brown cubical rot of conifer wood , especially spruce , but also fir and poplar . The soft , spongy orange fruit bodies grow spread out on the surface of fallen logs . Mature specimens have tooth @-@ like or jagged pore edges . A snowbank mushroom , P. alboluteus can often be found growing on logs or stumps protruding through melting snow . Although the edibility of the fungus and its usage for human culinary purposes are unknown , several species of beetles use the fungus as a food source .

= = Taxonomy = =

The species was originally described as Fomes alboluteus by Job Bicknell Ellis and Benjamin Matlack Everhart in 1895 . Collected by botanist Charles Spencer Crandall , the type specimens were found growing on the charred trunks of Abies subalpina in the mountains of Colorado , at an elevation of 10 @,@ 000 feet (3 @,@ 000 m) . In its taxonomic history , it has been transferred to several genera . The original authors moved it to Polyporus in 1898 , considering it allied to Polyporus leucospongia . They also noted that the pores developed teeth @-@ like elongations like those of genus Irpex . Other generic transfers include Scindalma by Otto Kuntze in the same year , Aurantiporellus by William Alphonso Murrill in 1895 , Aurantiporus by Murrill in 1905 , Phaeolus by Albert Pilát in 1937 , and Hapalopilus by Appollinaris Semenovich Bondartsev and Rolf Singer in 1943 . It was given its current name in 1963 when Czech mycologists Franti?ek Kotlaba and Zden?k Pouzar placed it in Pycnoporellus .

The generic name Pycnoporellus is Ancient Greek for " with countless pores " . The specific epithet alboluteus is a combination of the Latin words for " white " and " yellow " . Curtis Gates Lloyd did not approve of the name , opining : " I hardly see how Ellis could have given it a worse name if he had tried , for it is neither " white " nor " yellow " , but orange as Ellis described it . The young growth may possibly be white , but not when developed . " The fungus is commonly known as the " orange sponge polypore " .

= = Description = =

The fruit bodies of P. alboluteus are annual , and are resupinate ; they can be spread out on the substrate surface for up to 1 m (3 @.@ 3 ft) . Fresh fruit bodies are bright orange , finely grooved , and have a soft and spongy upper surface . The pore surface is orange with angular pores that are usually larger than 1 mm in diameter . It features thin partitions that split to form a teeth @-@ like layer . The flesh is soft and pale orange , up to 2 mm thick , with a felt @-@ like texture . The tubes are the same color as the pores , and continuous with the flesh , measuring up to 2 cm (0 @.@ 8 in) thick . Bruised pores sometimes turn black . All tissues of the fungus turn bright red if a drop of dilute potassium hydroxide is applied . Fresh fruit bodies retain considerable moisture and can be squeezed of liquid like a sponge . The fruit body can be readily removed in large sheets from the wood it grows on . The edibility of the fruit body is unknown . It has a fragrant odor .

In deposit , the spores are white . Spores are cylindrical , smooth , hyaline (translucent) , inamyloid , and measure 9 ? 12 by 3 ? 3 @.@ 5 µm . Pycnoporellus alboluteus has a monomitic hyphal system , meaning it is made of generative hyphae , which are thin @-@ walled , branched , and narrow . Hyphae in the flesh layer are thin- to thick @-@ walled , frequently branched , and measure 2 ? 10 µm in diameter , while those of the pores are roughly similar in morphology , but measure 3 ? 5 µm . Both forms have a thin incrustation on their walls that gives them a rough appearance when viewed with a light microscope . The hymenium (spore @-@ bearing tissue layer) is 40 ? 60 µm thick , and has abundant cystidia , which are hyaline , and measure 7 ? 9 µm in diameter . They are cylindrical , thin @-@ walled to moderately thick @-@ walled , hyaline , have a septum at the base ,

and measure 60 ? 120 by 5 ? 10 µm . The basidia (spore @-@ bearing cells) are club @-@ shaped , four @-@ spored , and have dimensions of 25 ? 35 by 6 ? 7 µm .

= = = Similar species = = =

Field characteristics used to identify Pycnoporellus alboluteus include its orange color , toothlike pore edges , and the soft texture of its flesh . Other reddish @-@ colored polypores with which Pycnoporellus alboluteus can be confused include Polyporus alboluteus , P. fibrillosus , and P. cinnabarinus . They can be distinguished by the size of their pores : P. alboluteus has pores that measure 1 ? 3 mm , those of P. fibrillosus are 1 ? 2 per mm , while those of P. cinnabarinus are 2 ? 4 per mm . The shelf @-@ like fruit bodies of Pycnoporellus fulgens have distinct caps , smaller pores measuring 0 @.@ 3 ? 0 @.@ 5 mm , and less tendency to be pulled away from the substrate in sheets . Oligoporus leucospongia is another snowbank fungus that prefers downed conifer logs . It can be distinguished from P. alboluteus by its whitish cottony upper surface . Another orange fungus , Ceriporia spissa , is tightly appressed to the wood substrate , with a soft , gelatinous body texture .

= = Ecology , habitat and distribution = =

Pycnoporellus alboluteus causes a brown cubical rot on fallen logs of coniferous trees . The fruit bodies usually grow on the underside of the log , and may start developing while still immersed in snow . Although new fruit bodies usually begin growing in the spring , they may persist throughout the year . In Europe , it usually grows on Picea species , but also on Abies . In North America , it also grows on Populus . The fungus has a circumpolar distribution , and is found in the boreal conifer zone , particularly in the montane zone , 8 @,@ 000 ? 10 @,@ 000 feet (2 @,@ 400 ? 3 @,@ 000 m) . In North America , the fruit bodies begin growth under snow in the spring , continuing until midsummer , while in Europe , it is usually encountered in autumn . It is abundant in the Rocky Mountain region of North America , but rare in the eastern United States and Canada . As a timberline fungus subject to high altitudes , the fruit bodies are subjected to bright light , high winds , and low relative humidity , all of which have a drying effect . They counteract these extremes by absorbing water quickly , and drying slowly .

In Europe , it is one of 32 threatened species proposed for protection under the Bern Convention . It has been recorded from Czechoslovakia , and Poland , where it is mostly found in old @-@ growth forests . It is rare in northern Europe , where it has been found in Finland growing on Picea abies and Alnus incana , and in Sweden .

In North America , the fruit bodies of the fungus serve as a food source for the rove beetle species Scaphisoma castaneum , the pleasing fungus beetle species Dacne cyclochilus , and minute tree @-@ fungus beetles , including Octotemnus laevis .

= = = Cited literature = = =

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