

= Hygrophoropsis =

Hygrophoropsis is a genus of gilled fungi in the family Hygrophoropsidaceae . It was circumscribed in 1888 to contain the type species , *H. aurantiaca* , a widespread fungus that , based on its appearance , has been affiliated with *Cantharellus* , *Clitocybe* , and *Paxillus* . Modern molecular phylogenetic analysis shows that the genus belongs to the suborder Coniophorineae of the order Boletales .

There are 16 accepted species of Hygrophoropsis , found in both the Northern and Southern Hemispheres . Hygrophoropsis is a saprophytic genus that causes brown rot in the wood it colonises . The fruit bodies grow on the ground in woodlands , on moss , peat , and on woodchips . They are convex to infundibuliform (funnel @-@ shaped) and have decurrent , forked brightly colored gills . The spores are dextrinoid , meaning that they stain reddish @-@ brown in Melzer 's reagent . Because *H. aurantiaca* has orange gills , it has been mistaken for a chanterelle , and hence it has been called a false chanterelle .

= = Taxonomy = =

Hygrophoropsis was originally circumscribed in 1888 by German mycologist Joseph Schröter as a subgenus of *Cantharellus* . It contained a single species , the widespread *H. aurantiaca* , commonly known as the false chanterelle . German naturalist Bernhard Studer @-@ Steinhäuslin concluded in 1900 that the fungus was more appropriately placed in the genus *Clitocybe* , based on its white spores , decurrent gills , and lack of a ring on the stipe . This classification was adopted in the early writings of influential mycologist Rolf Singer , who in 1943 proposed that Hygrophoropsis should be a subgenus of *Clitocybe* .

French naturalist Emile Martin @-@ Sans elevated Hygrophoropsis to the status of genus in his 1929 publication *L'Empoisonnement par les champignons et particulièrement les intoxications dues aux Agaricacées du groupe des Clitocybe et du groupe des Cortinari* , while attributing authorship to his countryman René Maire . According to Martin @-@ Sans , he concurred with Maire 's assessment of Hygrophoropsis , suggesting that it represented a form intermediate between *Cantharellus* and *Clitocybe* , and was thus worthy of generic rank . The name Hygrophoropsis refers to a likeness (Greek : ????? , oopsis) to the genus *Hygrophorus* .

Hygrophoropsis *aurantiaca* has been confused with the true chanterelles (genus *Cantharellus*) because of overall similarities in appearance . A combination of characters ? including forked gills , frequently off @-@ centre stipe placement , and dextrinoid spores ? suggested to others a relationship with *Paxillus* . These characteristics prompted Singer to classify the genus Hygrophoropsis in the Paxillaceae in 1946 , although others placed it in the Tricholomataceae , a family that has been described as a wastebasket taxon . Singer initially included only two species , both with dextrinoid spores ? *H. aurantiaca* and *H. tapinia* . He justified the placement of Hygrophoropsis in the Paxillaceae largely on fruit body morphology and spore size : " The discovery of a second species , *H. tapinia* , with smaller spores and an external appearance frankly suggesting *Paxillus curtisii* but never met with in *Clitocybe* , makes the affinity between Hygrophoropsis and *Paxillus* an established fact . " In 1975 , he added *H. olida* , a species with inamyloid but cyanophilous spores , whose characteristics otherwise aligned with the type species .

Hygrophoropsis is now the type genus of the family Hygrophoropsidaceae , circumscribed by Robert Kühner in 1980 to contain it and the genus *Omphalotus* . Singer considered this family to be " transient between Tricholomatales and Boletales " . Molecular phylogenetic analysis confirmed its affinity lay in the order Boletales in 1997 , though later research showed that it is not closely related to *Paxillus* or other gilled boletes . Instead , it is most closely related to the genus *Leucogyrophana* . Hygrophoropsis and *Leucogyrophana* are sister to *Coniophora* , near the base of the cladogram representing the Boletales .

The presence of several pigments in the type species , including variegatic acid , variegatorubin , and several other derivatives of pulvinic acid , suggests a chemotaxic relationship with the Boletaceae , Coniophoraceae , and Paxillaceae ? families of Boletales with members that have

similar compounds .

= = Description = =

Hygrophoropsis species have fruit bodies with concave caps that often have wavy margins and rolled @-@ in edges . The texture of the cap surface ranges from somewhat tomentose to velvety . Typical fruit body colors are orange , brownish @-@ yellow (fulvous) or paler , buff , and cream . The gills have a decurrent attachment to the stipe . They are narrow with blunt edges , often multiply forked , and readily detachable from the stipe . The flesh is soft and generally the same colour as the fruit body surface , or lighter . The taste and odour of the flesh is usually nondescript , or similar to cultivated mushrooms . In contrast , *H. rufa* can have a distinct ozone @-@ like smell , reportedly reminiscent of the orchid *Oncidium ornithorhynchum* or a photocopier .

The spore print colour ranges from whitish to cream . Microscopically , Hygrophoropsis lacks cystidia and has spores that are dextrinoid , meaning that they stain reddish @-@ brown in Melzer 's reagent . Clamp connections are present in the hyphae . With respect to overall appearance , Hygrophoropsis species closely resemble those in genus *Cantharellula* ; the latter genus , however , has amyloid rather than dextrinoid spores .

= = Habitat , distribution , and ecology = =

Collectively , Hygrophoropsis is a widespread genus , found in both Northern and Southern Hemispheres . Hygrophoropsis aurantiaca is the most widely distributed species , found on several continents . The other species are not well @-@ known and have more limited ranges . Fruit bodies grow on the ground in woodlands , on moss , and peat , and on woodchips . Hygrophoropsis is a saprophytic genus , and causes brown rot in the wood it colonises . Some species may be facultatively mycorrhizal .

Hygrophoropsis aurantiaca secretes large amounts of oxalic acid ? a reducing agent and relatively strong acid ? into the soil around its woody substrate . This chemical stimulates weathering of the humus layer of forest soil , as the organic matter in soil breaks down into smaller molecules . This influences the solubility and turnover of nutrients (particularly phosphorus and nitrogen) , which in turn affects their availability for use by forest trees .

= = Species = =

A 2008 estimate in the Dictionary of the Fungi placed five species in the genus . As of November 2015 , Index Fungorum accepts 16 species in Hygrophoropsis :

Hygrophorus pallidus , recorded by Charles Horton Peck in 1902 , is considered by mycologist Thomas Kuyper to be not validly published and " better regarded as a nomen confusum " , a taxonomic opinion corroborated by Geoffrey Kibby . Now considered the type species for the genus *Aphroditeola* , *A. olida* was formerly classified in Hygrophoropsis , but it lacks dextrinoid basidiospores , and phylogenetically it is classified in the Agaricales . Other species formerly placed in Hygrophoropsis but since transferred to other genera include : *H. stevensonii* (Berk . & Broome) Corner 1966 (now *Gerronema stevensonii*) ; *H. albida* (Fr .) Maire 1933 (now *Gerronema albidum*) ; *H. umbonata* (J.F.Gmel.) Kühner & Romagn . 1953 (now *Cantharellula umbonata*) ; and *H. umbriceps* (Cooke) McNabb 1969 (now *Cantharellus umbriceps*) .