

= *Antrodia serialiformis* =

*Antrodia serialiformis* is a species of polypore fungus in the family Fomitopsidaceae . The fungus is resupinate , consisting of a fertile spore @-@ bearing pore surface lying flat on the underside of decaying wood , although one or more fan @-@ shaped overlapping caps may also be formed . Although quite common in the eastern United States , it was not recognized as a distinct species until 2009 , owing to its resemblance to the closely related *Antrodia serialis* . Differences in ecology , spore size , and DNA sequences distinguish the two lookalikes .

= = Taxonomy = =

*Antrodia serialiformis* was described as a new species by Jiří Kout and Josef Vlasák in the journal *Mycotaxon* in 2009 . The publication resulted from research conducted by Kout for his 2009 work on ecology and taxonomy of polypores , a PhD dissertation conducted under the supervision of Vlasák . The holotype material was collected from Wissahickon Creek Park ( Philadelphia ) in 2008 ; the species description is based on collections made from 2001 ? 2008 . Vlasák had first noted the presence of the species and its similarity to the common European species *Antrodia serialiformis* in a 2004 publication . The degree of variability between the DNA sequences of the internal transcribed spacer regions *Antrodia serialiformis* and *A. serialis* confirm that the two species are genetically distinct . The specific epithet *serialiformis* refers to its resemblance to *A. serialis* ( the Latin adjective -formis derives from forma , meaning " having the form of " ) .

Molecular analysis shows that *Antrodia leucaena* , *A. infirma* , *A. primaeva* , and *A. variiformis* are closely related species .

= = Description = =

The perennial fruit bodies of *A. serialiformis* are effused @-@ reflexed ( that is , on a vertical surface that is partially lying flat on the substrate with the hymenium covering the upper surface , and partially pileate ) . In its upper part it has small caps that are often elongated along the growing surface , up to 20 mm ( 0 @. @ 8 in ) or more in length , with a tough texture . The individual caps , which reach dimensions of up to 10 by 20 mm ( 0 @. @ 4 by 0 @. @ 8 in ) by 7 mm ( 0 @. @ 3 in ) , have roughly horizontal upper surfaces that are velvety , and brownish with a narrow white margin . On the underside of the cap , the pore surface is initially white , but turns dirty brown as it matures . The individual pores are round and small , numbering from 3 to 4 per millimeter . The tubes are the same color as the pore surface , and up to 5 mm ( 0 @. @ 2 in ) deep . The flesh is white and up to 1 mm thick . Fruit bodies are often infested with microlepidoptera species , which causes the pore surface to be powdery .

*Antrodia serialiformis* has a dimitic hyphal system , meaning that predominantly two types of hyphae comprise the fruit body . The generative hyphae ( relatively undifferentiated hyphae that can develop reproductive structures ) are thin @-@ walled , with clamp connections , and are 2 ? 3 µm wide . The skeletal hyphae ( thick @-@ walled and long ) predominate ; they are hyaline ( translucent ) , straight , and 2 ? 5 µm in width . Cystidia are absent , and cystidioles ( cells in the hymenium about the same size as the basidia , but remaining sterile ) are inconspicuous . The basidia are club @-@ shaped , four @-@ spored , and have a clamp connection at their bases ; they measure 12 ? 18 by 4 ? 6 µm . The thin @-@ walled spores are ellipsoid to somewhat tapered at both ends , hyaline , inamyloid ( non @-@ staining in Melzer 's reagent ) , and measure 4 @. @ 5 ? 5 @. @ 5 by 2 ? 2 @. @ 3 µm .

= = = Mycelial cultures and compatibility tests = = =

Grown on agar plates , the mycelia of *A. serialiformis* and *A. serialis* have identical chemical reactivity , and are rather similar in appearance , although the authors note that the former 's was more cottony than the latter 's . The authors mated several combinations of North American

collections using vegetative compatibility tests , and confirmed the presence of different mating alleles ? indicating that all of the North American collections represented a single species . Similar pairings performed between North American and European collections showed the species to be incompatible , and therefore distinct .

= = = Similar species = = =

*Antrodia serialiformis* is similar in appearance to *A. serialis* , but the latter has larger spores ( 6 @. @ 3 ? 8 by 2 @. @ 2 ? 3 @. @ 3  $\mu\text{m}$  ) . The two can be distinguished in the field by their substrate preferences : while *A. serialis* usually fruits on coniferous wood , *A. serialiformis* grows strictly on old decorticated oak trunks .

= = Habitat and distribution = =

The fungus grows on lying oak logs in Pennsylvania , Maryland , Virginia , North Carolina , and Tennessee . However , owing to its similarity with *Antrodia serialis* , it is likely the two have been confused in the past , and so the true limits of its distribution are unclear . The authors suggests that it probably occurs in other southeastern states of the US as well , and consider it " one of the most common polypore species in the eastern USA " . *A. serialiformis* is sometimes found together with the much rarer *Antrodia oleracea* , a grayish , strictly resupinate species .