

Oyster Mushrooms (*Pleurotus* species) of Florida¹

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Summary

Oyster mushrooms are common edible fungi that grow year-round in Florida. They can often be found growing from wood in shelf-like clusters in both urban and natural environments. They are also one of the most popular genera of cultivated mushrooms, and several species are commonly sold in grocery stores. Oyster mushrooms belong to the genus *Pleurotus*, and all known species are edible. However, some similar-looking mushrooms can be poisonous, so always use extreme caution when consuming mushrooms that were not cultivated for the purpose of human consumption. This publication is intended to introduce the general public to the oyster mushrooms of Florida.

Introduction

Species in the genus *Pleurotus* are popular, edible fungi, commonly known as “oyster mushrooms.” They are widely cultivated, and some species are sold in grocery stores. Several species also grow in natural habitats in Florida. Oyster mushrooms grow on woody substrates such as fallen logs or standing dead wood and can be found in Florida throughout the year. Oyster mushrooms have been used for bioremediation applications. Because they can be cultivated on a wide variety of substrates, they are being investigated as a sustainable method of breaking down agricultural and agro-industrial waste (Sahithya et al. 2022; El-Ramady et al. 2022; Rajarathnam and Bano 1987). The purpose of this publication is to introduce Florida residents to these

recognizable and popular mushrooms and to provide basic information about their biology and identification.

Morphology and Identification

The name *Pleurotus* is of Greek origin, meaning “side-ear.” This refers to the characteristic lateral stipe (stalk) of oyster mushrooms, which extends off to the side of the mushroom rather than straight down from the underside of the cap (pileus) (Figure 1). The common name “oyster mushroom” refers to the appearance of the cap, which sometimes has the shape of an oyster shell. Oyster mushrooms come in shades of white, gray, brown, yellow, and sometimes pink. The most common species of oyster mushrooms are usually white, grayish, or light brown. However, color should not be used as a diagnostic feature, as it is known to vary within oyster mushroom species and can change under different environmental conditions (Jang et al. 2003; Rajarathnam and Bano 1987).

Oyster mushrooms often occur in “shelf-like” clusters, where fruiting bodies appear to grow on top of one another (Bessette et al. 2019; Kuo 2007). They are sometimes described as having a sweet and fruity smell (Bessette et al. 2007; Kuo 2007). *Pleurotus* species are fleshy mushrooms, which means they are soft-bodied and do not last for more than a few days in the wild before rotting. This is an important feature that can distinguish them from look-alike species, some of which have firmer fruiting bodies that are tougher and more durable.

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Pleurotus species always have light-colored spores. Spores are reproductive cells that mushrooms eject into the air where they can spread to new substrates. The most common species produce white spore prints, but others can also have whitish spore prints tinged with yellow, purple, or pink (Arora 1986; Bessette et al. 2019; Bessette et al. 2007; Kuo 2007). Take spore prints by removing a mushroom's stipe and placing the cap face down on paper or aluminum foil. Cover the cap using a cup or bowl for 12–24 hours, until the mushroom deposits a visible print of its spores.

Another important feature in identifying oyster mushrooms is stipe attachment (i.e., the way the stalk attaches to the underside of the cap) (Figure 1). Lateral stalks, which extend from the side of the cap rather than from the center of it, are typical of *Pleurotus* (Arora 1986; Bessette et al. 2019; Bessette et al. 2007). A “pleurotoid” cap shape, which resembles an oyster shell or a kidney bean, is also typical of this genus (Arora 1986; Bessette et al. 2007; Kuo 2007). It is important to note that mushroom morphology often varies between individuals, so these traits should never be used alone to decide on an identification. Some look-alike species may also have lateral stalks and pleurotoid caps, while some *Pleurotus* mushroom species or individuals may not have these features. It is best to consider multiple characteristics, especially spore color, before deciding on an identification.

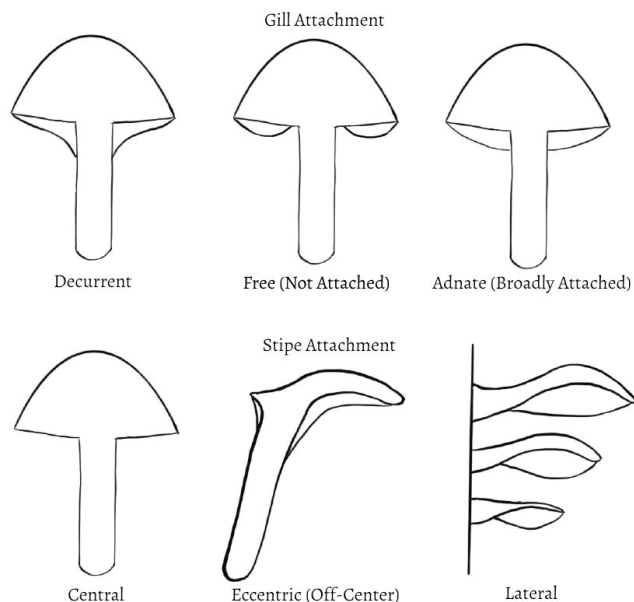


Figure 1. A comparison between gill attachment to the stipe and stipe attachment to the underside of the cap. Decurrent gills run down the stipe and are often seen in species of *Pleurotus*. Free gills (which are not attached to the stipe) and adnate gills (which are attached but do not run down the stipe) are examples of gill attachment types found in other mushroom species. *Pleurotus* species often have a lateral or eccentric stipe (off to the side or off-center of the underside of the cap), but sometimes they may have a central attachment that is similar to other species of mushrooms.

Credits: Ansley Burtch, University of Florida

Oyster mushrooms typically have decurrent gills (i.e., they run partially down the stalk) and sometimes the gills may be crowded (meaning the gills are somewhat close to each other). The gills may also be forked or have crossveins near the stalk (in other words, the gills may be connected in the middle in some places) (Bessette et al. 2019; Bessette et al. 2007; Kuo 2007). There are many species that have a similar shape and habitat to *Pleurotus* species, so exercise caution when attempting to identify wild mushrooms.

Habitat and Ecology

Oyster mushrooms are saprotrophs that decompose dead wood. In natural settings, they always occur on wood and are commonly found on fallen logs or standing dead trees (Figure 2). They will never fruit directly from soil, making them different from some look-alike species. *Pleurotus* grow year-round in Florida, but they are most common after periods of heavy rainfall and tend to proliferate in summer and winter. During cultivation, oyster mushrooms can grow on a wide variety of cellulose-rich substrates and other plant materials, such as coffee grounds, old paper, cotton waste, and sugarcane pulp (El-Ramady et al. 2022; Obodai et al. 2003; Sánchez 2009). Occasionally, oyster mushrooms have been observed in Florida as problematic decay fungi on woody substrates inside houses, particularly in places where leaks keep the wood very wet (Figure 3).

Taxonomy

The two most common species of *Pleurotus* found in Florida are *P. ostreatus* and *P. pulmonarius*. Another species found in Florida is *Pleurotus levis*, though it is less common. It is sometimes referred to as the “lynx paw oyster” because it has fine hairs on its cap and is white to whitish yellow in color (Kuo 2007). *Pleurotus djamor* has also been observed in south Florida according to iNaturalist, though it is much rarer than the other species in the state ([iNaturalist.org](https://www.inaturalist.org)).

Many taxonomists recognize several species complexes within the genus *Pleurotus*. A species complex occurs when a single scientific name encompasses multiple closely related species that are not easily distinguished. The names *P. ostreatus* and *P. pulmonarius*, for example, may each represent more than one species, so the actual number of *Pleurotus* species is uncertain (Panék et al. 2019). Furthermore, recent genetic data have shown two distinct groups within *P. pulmonarius* (Panék et al. 2019). Unfortunately, their colors and other morphological traits vary within both genetic groups depending on environmental factors such as light, temperature, and moisture. Therefore, it is currently

difficult to distinguish the two groups without genetic analysis. More research using genetic data is necessary to delimit the species of *Pleurotus* present in Florida and elsewhere in North America.

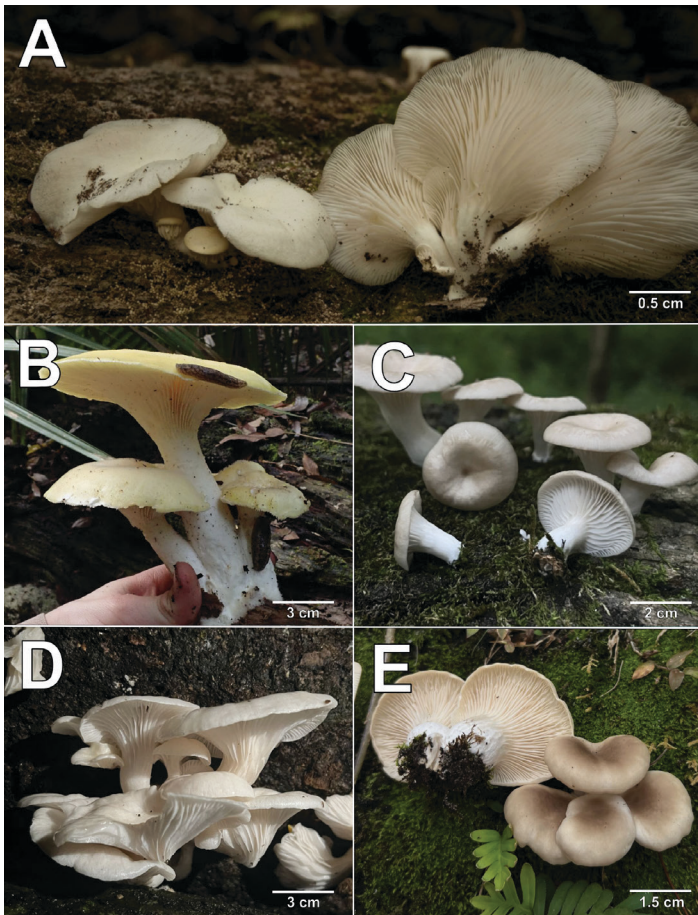


Figure 2. Fresh specimens of Florida oyster mushrooms. (A) *Pleurotus pulmonarius* with a lateral stalk but without a pleurotoid cap; (B) *Pleurotus* cf. *levis* with yellow coloration; (C) *Pleurotus ostreatus* with a central stalk; (D) *Pleurotus pulmonarius* with a typical oyster mushroom appearance that includes whitish coloration and eccentric-to-lateral stipe attachment; and (E) *Pleurotus ostreatus* with an eccentric-to-lateral stalk and a pleurotoid cap. Scale bars shown are approximate. Credits: Scott Ostuni, Fungal Diversity Survey (A); Andrew Kunik, University of Florida (B and E); and Ansley Burtch, University of Florida (C and D)

Oyster Look-Alike Fungi

When attempting to identify *Pleurotus* species, it is important to recall their morphological traits, as discussed above. Oyster mushrooms will always grow from wood or woody debris, have light-colored spores, and be soft and fleshy (not tough or woody). Using these characteristics, it is often possible to rule out some potential look-alikes. However, some other Florida fungi may share these characteristics, so it is important to know how to differentiate them. The following mushrooms also grow on wood and share similar morphological characteristics with oyster mushrooms (Figure 4).

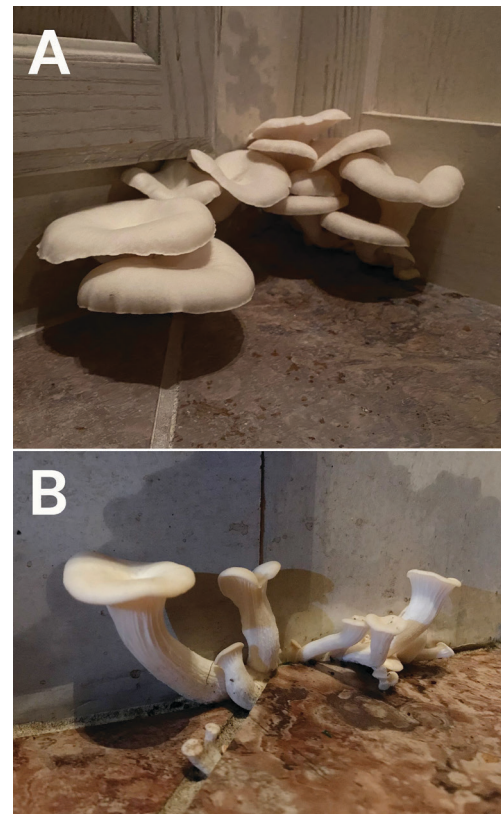


Figure 3. *Pleurotus* species growing indoors on wood that was wet from water leaks.

Credits: Tammy Czigan, Jacksonville, Florida

Pleurocybella porrigens (referred to in some older books as *Phyllotus porrigens*), known as “Angel Wings,” is one of the most important oyster mushroom look-alikes. It has a similar shelf-like growth habit, white-to-yellow flesh, a lateral stalk, white spores, and decurrent gills (Largent and Baroni 1988). *Pleurocybella porrigens* has been associated with several deadly poisonings in Japan, and recent studies have isolated the cytotoxin porrigenic acid from this fungus (Hasegawa et al. 2007; Kawagishi 2023; Saviuc et al. 2012). Consequently, it is extremely important to take care when attempting to distinguish between *Pleurocybella* and *Pleurotus*. *Pleurocybella porrigens* typically has thinner flesh than any of the *Pleurotus* species and is often (but not always) smaller in size. With a microscope, it is also possible to determine that *P. porrigens* has globose (round) spores, while those of *Pleurotus* species are subglobose to ellipsoid (and thus much longer than those of *P. porrigens*) (Largent and Baroni 1988). Although *Pleurocybella porrigens* may not be present in Florida, it has been documented from the Southeastern United States and is therefore an important mushroom to know.



Figure 4. Comparison of four look-alike species to *Pleurotus*. (A) *Favolus brasiliensis*, (B) *Hohenbuehelia* cf. *petaloides*, (C) *Crepidotus* sp., and (D) *Pleurocybella porrigens*.

Credits: Matthew E. Smith, UF/IFAS (A and B); Andrew Kunik, University of Florida (C); and Garrett Sharpe, North Carolina State University (D)

Another group of oyster mushroom look-alikes occurring in Florida belong within the genus *Hohenbuehelia*. These fungi resemble *Pleurotus* species in shape, often featuring pleurotoid caps and lateral stipes. However, *Hohenbuehelia* species tend to have tougher, more rubbery flesh and are generally much smaller than *Pleurotus*. Microscopically, species in the genus *Hohenbuehelia* have large and pronounced cystidia (sterile inflated cells) in their gill tissue, while oyster mushrooms do not (Largent and Baroni 1988).

Several species in the genus *Crepidotus* might be confused with oyster mushrooms. Species of *Crepidotus* similarly grow in a shelf-like habit but can be easily differentiated from *Pleurotus* species because *Crepidotus* species produce a brown spore print and usually have smaller caps (Largent and Baroni 1988). *Crepidotus mollis* has a flabbier surface than any of the *Pleurotus* species; its cap has a stretchy, elastic upper layer that is not present in *Pleurotus* (Arora 1986; Largent and Baroni 1988; Roody 2003). *Crepidotus applanatus* typically lacks a stipe or has a rudimentary stipe, which is short and barely visible, while *Pleurotus* species usually have a much longer and more robust stipe (Arora 1986).

Favolus brasiliensis, also known as *Neofavolus alveolaris*, is a fleshy, white mushroom with a shelf-like growth habit similar to that of *Pleurotus* species. The presence of pores rather than gills on the underside of the cap can easily distinguish this look-alike species from oyster mushrooms. *Favolus brasiliensis* is widespread in the neotropics and is also well documented from Florida (Zabin et al. 2024). Species of *Favolus* are notoriously difficult to tell apart from one another, however, and at least one other morphologically similar species of *Favolus* (*F. reniformis*) is also found in Florida (Zabin et al. 2024). Research indicates that species of *Favolus* are edible, but their flesh is tough or leathery (Zabin et al. 2024).

Several species in the genus *Lentinus* can also be mistaken for *Pleurotus* mushrooms because of their whitish color, occasionally off-center stipes, decurrent gills, and spore color that ranges from white to yellow or orange. However, species in the genus *Lentinus* have much tougher flesh than the softer, thicker, and more pliable oyster mushrooms (Largent and Baroni 1988). *Lentinus* mushrooms frequently have shaggy stipes, and some species have scales on their caps; both features are rare or absent in *Pleurotus* species. Furthermore, under a microscope, the gills of *Lentinus* species are serrated, while the gills of *Pleurotus* species are smooth (Largent and Baroni 1988).

Oudemansiella canarii, another potential look-alike, is also white-spored and similar in color to *Pleurotus*. However, this species always has a central stipe (extending from the center of the cap's underside), while oyster mushrooms that grow wild in Florida rarely do. *Oudemansiella canarii* typically has distinctive warts or scales on the cap, is often viscid (slimy) when fresh, and has several distinctive microscopic features. *Oudemansiella* species can be identified by their globose (round) to subglobose (almost round) spores, as well as the presence of large cheilocystidia (sterile cells) that protrude along the edges of the gills (Largent and Baroni 1988).

Finally, *Panellus stiptichus* may be confused with oyster mushrooms due to its pleurotoid-shaped cap, shelf-like growth pattern, and white spores. However, *P. stiptichus* is much smaller and tougher than any *Pleurotus* species (Largent and Baroni 1988).

Pleurotus in the Grocery Store

Three species of oyster mushroom are commonly sold in grocery stores in Florida: *P. eryngii* (king oyster mushroom), *P. citrinopileatus* (golden oyster mushroom), and *P. ostreatus* (oyster mushroom). All three are popular species in commercial and personal cultivation and are widely available. Although *P. ostreatus* is considered native to North America, both *P. eryngii* and *P. citrinopileatus* are not (Estrada et al. 2010; Ohira 1990). In some parts of the Eastern United States, *P. citrinopileatus* has escaped cultivation and may potentially become invasive (Bruce 2018). Species that are not native to North America have the potential to negatively impact local fungal biodiversity. Accordingly, when purchasing spores to cultivate oyster mushrooms for personal use, it is advisable to avoid cultivating *P. citrinopileatus* to ensure that this species does not spread into Florida's natural habitats. A fourth species, *Pleurotus djamor* (the pink oyster mushroom), is a widely distributed species in nature but is less commonly sold in grocery stores. In Florida, this species is sometimes available at farmer's markets, small specialty markets, or local restaurants.

Edibility

All species of the genus *Pleurotus* are considered edible; they have never been found responsible for cases of human poisoning. However, wild mushrooms should never be eaten unless they can be positively identified. Even if a species is known to be edible, eating uncooked or rotting mushrooms may cause gastrointestinal distress. Accordingly, take care to cook all mushrooms before consumption

and throw out any rotting mushrooms. When in doubt about an ingested fungus in the state of Florida, contact the American Association of Poison Control Centers hotline (800-222-1222) or Dr. Matthew E. Smith (352-273-2837, trufflesmith@ufl.edu).

References

- Arora, D. 1986. *Mushrooms Demystified*. Ten Speed Press.
- Bessette, A. E., A. R. Bessette, and D. P. Lewis. 2019. *Mushrooms of the Gulf Coast States: A Field Guide to Texas, Louisiana, Mississippi, Alabama, and Florida*. University of Texas Press. <https://doi.org/10.7560/318157>
- Bessette, A. E., A. R. Bessette, W. C. Roody, and D. L. Dunway. 2007. *Mushrooms of the Southeastern United States*. Syracuse University Press.
- Bruce, A. 2018. "Population Genomic Insights into the Establishment of Non-Native Golden Oyster Mushrooms (*Pleurotus citrinopileatus*) in the United States." *Minds at University of Wisconsin*. <http://digital.library.wisc.edu/1793/79004>
- El-Ramady, H., N. Abdalla, Z. Fawzy, et al. 2022. "Green Biotechnology of Oyster Mushroom (*Pleurotus ostreatus* L.): A Sustainable Strategy for Myco-Remediation and Bio-Fermentation." *Sustainability* 14 (6): 3667. <https://doi.org/10.3390/su14063667>
- Estrada, A. E. R., M. del Mar Jimenez-Gasco, and D. J. Royse. 2010. "*Pleurotus eryngii* Species Complex: Sequence Analysis and Phylogeny Based on Partial EF1 α and RPB2 Genes." *Fungal Biology* 114 (5–6): 421–428. <https://doi.org/10.1016/j.funbio.2010.03.003>
- Hasegawa, T., M. Ishibashi, T. Takata, T. Takano, and T. Ohta. 2007. "Cytotoxic Fatty Acid from *Pleurocybella porrigens*." *Chemical and Pharmaceutical Bulletin* 55 (12): 1748–1749. <https://doi.org/10.1248/cpb.55.1748>
- Jang, K., C. Jhune, J. Park, et al. 2003. "Characterization of Fruitbody Morphology on Various Environmental Conditions in *Pleurotus ostreatus*." *Mycobiology* 3: 145–150. <https://www.koreamed.org/SearchBasic.php?RID=2052986>
- Kawagishi, H. 2023. "Chemical Elucidation of Acute Encephalopathy by Ingestion of Angel-Wing Mushroom (*Pleurocybella porrigens*)—Involvement of Three Constituents in Onset." *Proceedings of the Japan Academy* 99 (7): 191–197. <https://doi.org/10.2183/pjab.99.012>

Kuo, M. 2007. *100 Edible Mushrooms*. University of Michigan Regional Press. <https://doi.org/10.3998/mpub.157982>

Largent, D. L., and T. J. Baroni. 1988. *How to Identify Mushrooms to Genus VI: The Modern Genera*. Mad River Press.

Obodai, M., J. Cleland-Okine, and K. A. Vowotor. 2003. "Comparative Study on the Growth and Yield of *Pleurotus ostreatus* Mushroom on Different Lignocellulosic By-Products." *Journal of Industrial Microbiology and Biotechnology* 30 (3): 146–149. <https://doi.org/10.1007/s10295-002-0021-1>

Ohira, I. 1990. "A Revision of the Taxonomic Status of *Pleurotus citrinopileatus*." *Reports of the Tottori Mycological Institute* 28: 143–150.

Rajaratnam, S., and Z. Bano. 1987. "Pleurotus mushrooms: Morphology, Life Cycle, Taxonomy, Breeding, and Cultivation." *Critical Reviews in Food Science and Nutrition* 26 (2): 157–223. <https://doi.org/10.1080/10408398709527465>

Roody, W. C. 2003. *Mushrooms of West Virginia and the Central Appalachians*. The University Press of Kentucky.

Sahithya, K., T. Mouli, and A. Biswas. 2022. "Remediation Potential of Mushrooms and Their Spent Substrate Against Environmental Contaminants: An Overview." *Biocatalysis and Agricultural Biotechnology* 42: 102323. <https://doi.org/10.1016/j.bcab.2022.102323>

Sánchez, C. 2009. "Cultivation of *Pleurotus ostreatus* and Other Edible Mushrooms." *Applied Microbiology and Biotechnology* 85: 1321–1337. <https://doi.org/10.1007/s00253-009-2343-7>

Saviuc, P., and V. Danel. 2012. "New Syndromes in Mushroom Poisoning." *Toxicological Reviews* 25: 199–209. <https://doi.org/10.2165/00139709-200625030-00004>

Zabin, D. A., V. Spirin, J. Vlasák, and C. Coelho-Nascimento. 2024. "Taxonomic Reinvestigation of *Favolus* in the Neotropics Utilizing Morphological and Multigene Phylogenetic Analyses." *Mycological Progress* 23: 44. <https://doi.org/10.1007/s11557-024-01979-9>

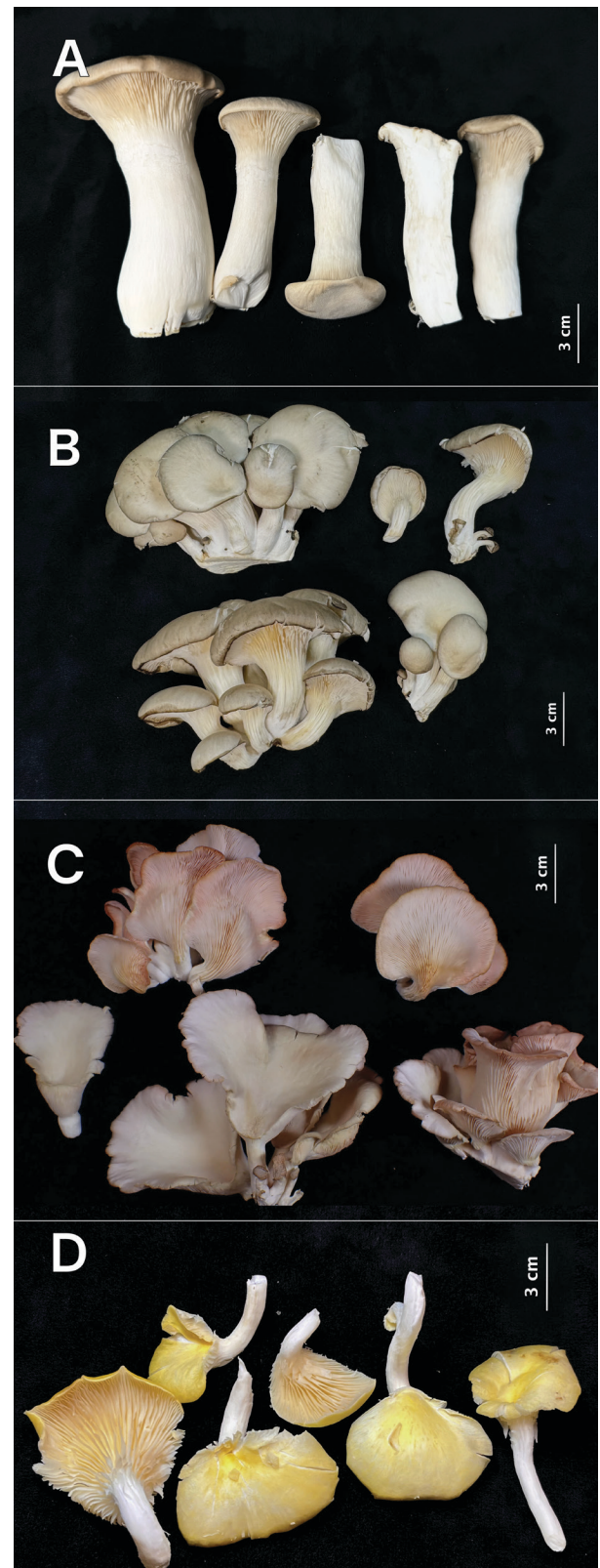


Figure 5. Three *Pleurotus* species that may be commonly sold in grocery stores (A, B, D) and one species that is rarely sold in stores (C): (A) *Pleurotus eryngii*, (B) *Pleurotus ostreatus*, (C) *Pleurotus djamor*, and (D) *Pleurotus citrinopileatus*. We do not recommend cultivating *P. citrinopileatus* in Florida because of its potential to escape into natural areas and compete with local wood decay fungi. Credits: Ansley Burtch, University of Florida (A, B, and C); Matthew E. Smith, UF/IFAS (D)