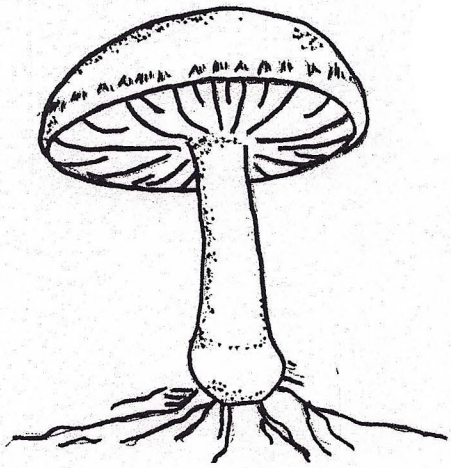
ILLINOIS

Mushrooming for Beginners

Types of Sporocarps

I. What are mushrooms?



Fruiting bodies or sporocarps function in spore production

Vegetative body (mycelium) composed of hair-like strands of hyphae. Mycelium is immersed in substrate (food)

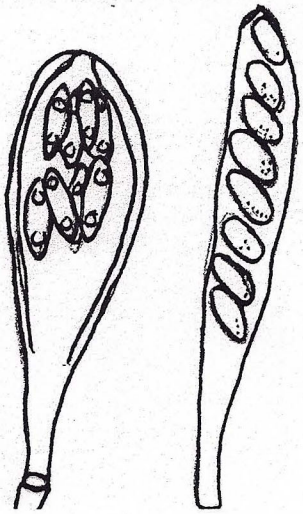
II. Sporocarps defined by how spores are produced (see key below) and the appearance of the spore-bearing surface on the sporocarp (see A 1-6 and B 1-8).

Key to the fungal phyla that produce visible fleshy sporocarps:
(Note microscope is needed to see the features used in key)

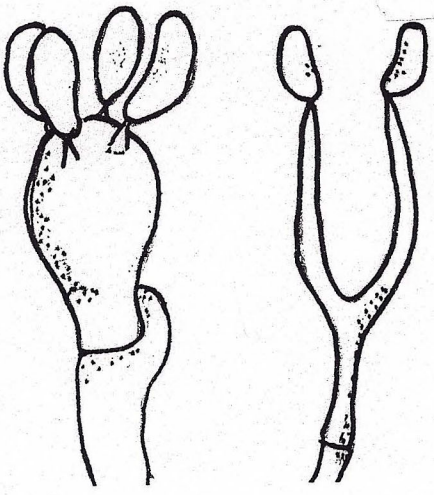
1. Spores are produced inside cells called asci (sing. ascus). The ascus is typically elongated (baseball bat shaped) with spores (ascospores) lined up inside. Ascospores typically number 8 but maybe as few as 1 or as many as a thousand.....ASCOMYCOTA (A)

1. Spores are produced on the surface of cells called basidia (sing. basidium). The basidium is typically club-shaped with horns (sterigma) where basidiospores are attached. Basidiospores number 2 to 4.....BASIDIOMYCOTA (B)

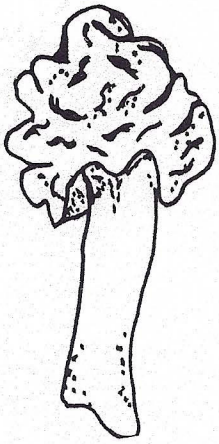
(A) Asci with ascospores

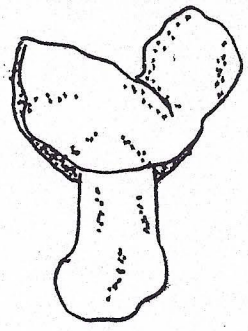


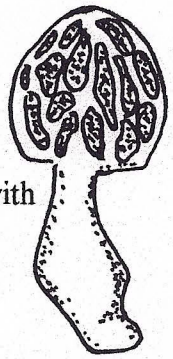
(B) Basidia with basidiospores



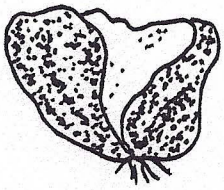
A. PHYLUM ASCOMYCOTA:

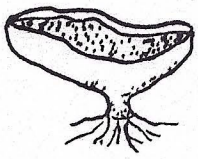


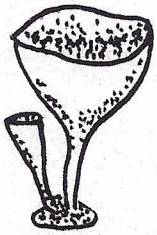




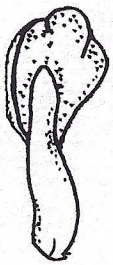
1. Morels and false morels → head with pits (spore-bearing surface) and ridges, brain-like, or saddle-like; stalk present.

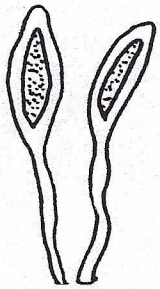




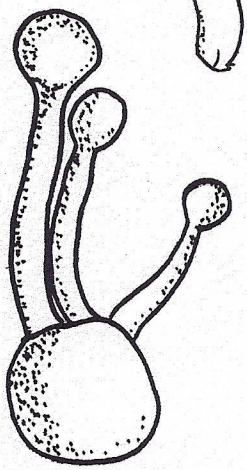


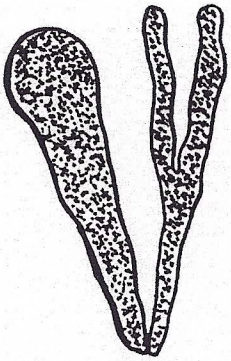
2. Cup fungi → cup-like; stalk present or not. Sporocarps often very small (< ½ in) but some up to several inches.





3. Earth tongues → sporocarp a single upright club with flattened to globose head (spore-bearing surface).

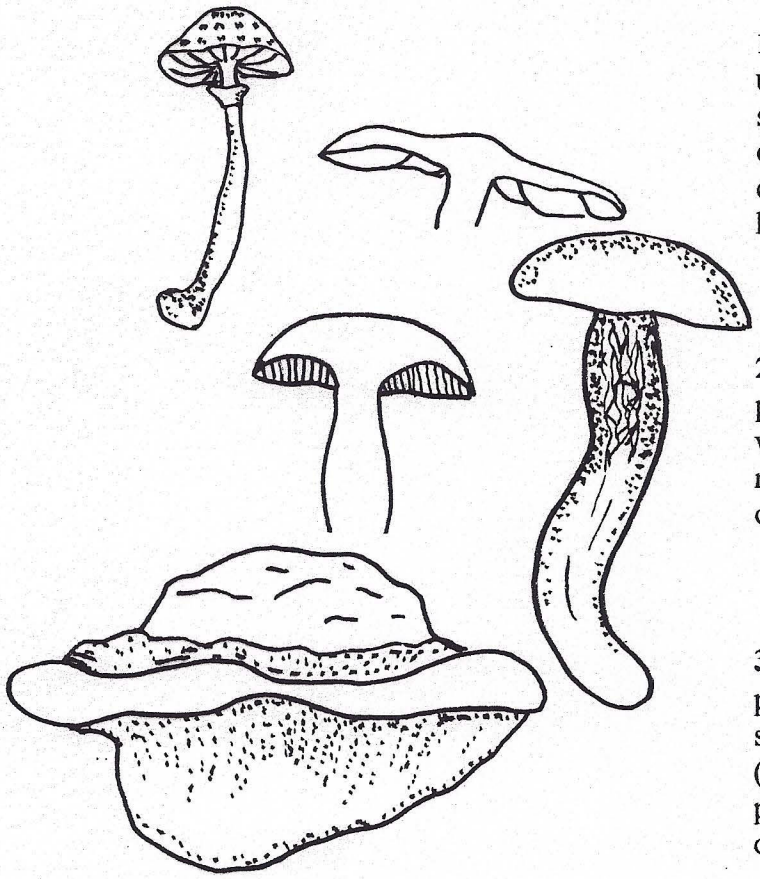




4. Flask fungi: **carbon fungi, hypomyces, cordyceps** → perithecia (sporocarps) made in a stroma with a bumpy surface.

5. Tubers and truffles → hypogeous (underground) sporocarps that often have strong odors to attract mammals who disperse the fungi in the act of mycophagy.

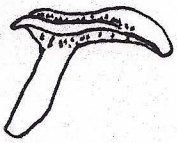
B. PHYLUM BASIDIOMYCOTA:

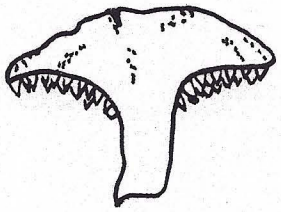


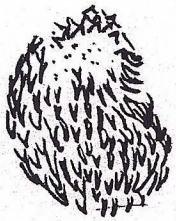
1. Mushrooms→gills (lamellae) on the underside of a pileus, stipe typically present; spore print typically obtainable by cutting off mature pileus and placing it gill-side down on paper. Cover and leave for 1 to 12 hours.

2. Boletes → pores on the underside of the pileus, stipe present, fleshy sporocarp (not woody); typically growing on the ground, mycorrhizal. Spore print typically obtainable.

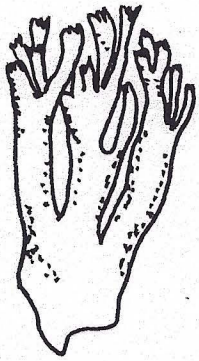
3. Polypores and bracket fungi → pores, pileus/stipe present or not, tough to woody sporocarp; typically growing on wood (maybe buried), typically saprophytic or parasitic. Spore print typically **not** obtainable.

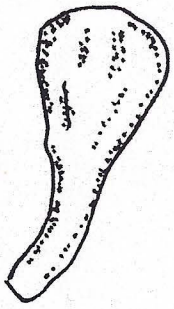




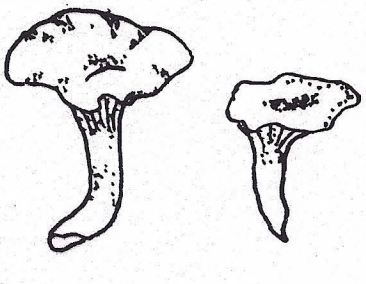


4. Hydnums or teeth fungi → spore bearing surface spines or teeth, pileus/stipe present or not.



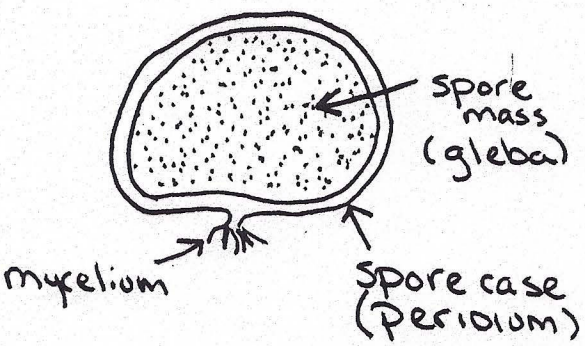


5. Coral fungi → with smooth amphigenous (on all sides) spore surface borne on upright clubs, single or branched; no pileus.

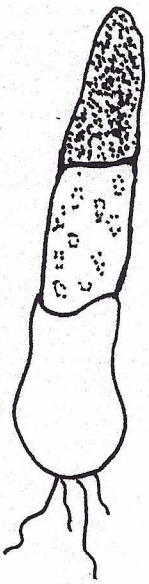


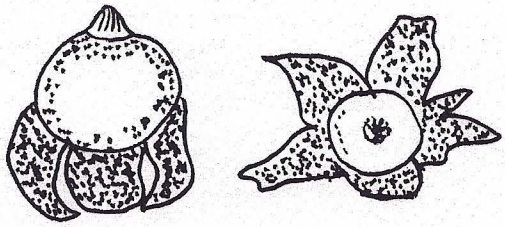
6. Chanterelles → smooth, wrinkled or ridged on underside of pileus. Ridges typically running down the stipe. Sporocarp often vase-shaped.

B. PHYLUM BASIDIOMYCOTA (continued):

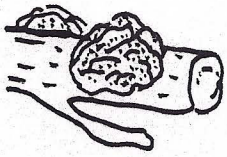


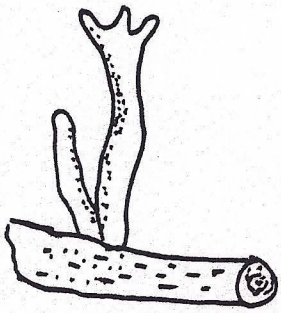
7. Puffballs, earthstars, stinkhorns, bird's nest fungi, stomach fungi, hypogeous gasteromycetes (Stomach or gasteromycetes) ➔ sporocarp greatly varies; spores born inside, often rain splashs, insects, or mammals are used for spore dispersal.





8. Jelly and ear fungi ➔ sporocarp is gelatinous; shape can be cup-like, brain-like, coral-like or earlike.





COMMON WILD EDIBLE FUNGI IN ILLINOIS

- A selection of those most easily learned by the beginner -

1. ***Morchella elata*** – black morel. April - May. Various habitats including under dead elms and living ash trees.

2. ***Morchella semilibera*** – peckerhead, half-frees, pinheads. April - May. Various habitats including living ash trees.

3. ***Morchella esculenta*** – common morel, yellow morel. May. Various habitats including under dead elms and in old apple orchards.

4. ***Cantharellus cibarius*** – chanterelle. Summer. Chanterelles grow *on soil* and are well known for their fruity, apricot-like odor, best detected when you have a handful. The poisonous Jack O'Lantern Mushroom is often cited in field guides as a look-alike, but it grows in clusters *on wood* and features true gills, rather than wrinkles or veins.

5. ***Craterellus cornucopioides*** – black trumpet, horn of plenty. Fall. On soil under mixed hardwoods.

6. ***Hericium erinaceum*** and ***Hericium americanum*** – bear's head, hedgehog. Fall. On larger, dead hardwood logs.

7. ***Laetiporus sulphureus*** – sulfur shelf, chicken of the woods. Fall. On living and dead hardwoods; causes a brown cubical heartrot of living trees.

8. ***Grifola frondosa*** – hen of the woods. Fall. Fruits at the base of living or recently killed trees, usually oaks.

9. ***Calvatia gigantea*** – giant puffball. Fall. On soil along margins of woodlands, brushy areas.

10. ***Lycoperdon pyriforme*** – pear-shaped puffball. Fall. Often in large clusters on dead hardwood logs. Use caution in initially identifying this species to distinguish it from the button stage of certain gill mushrooms; easily learned with minimum practice.

11. ***Pleurotus ostreatus*** – oyster mushroom. Late September to late October. Most common on dead standing trees or fallen logs.

12. ***Coprinus comatus*** – shaggy mane. Fall. On soil, often in urban areas - lawns, mulch beds. Collect it while young and fresh because it rapidly deteriorates like other inky cap species.

POPULAR PUBLICATIONS - MUSHROOM/FLESHY FUNGI IDENTIFICATION

GENERAL MUSHROOM IDENTIFICATION

Arora, D. 1986. Mushrooms demystified. 2 Ed. Ten Speed Press.

Barron. G. 1999. Mushrooms of Northeast North America. Excellent.

Bessette, A., A. Besette, and D. Fischer 1997. Mushrooms of Northeastern North America. Syracuse Univ. Press. Very good but large-sized and expensive.

Binion, D, et al. 2008. Macrofungi Associated with Oaks of Eastern North America. West Virginia University Press.

Courtenay, B., and H. Burdsall. 1982. A field guide to mushrooms and their relatives. Van Nostrand Reinhold Company. All fungi in this guide found in Wisconsin.

Lincoff, G. 1981. The Audubon Society field guide to North American mushrooms. Chanticleer Press Inc.

Marteka, V. 1980. Mushrooms wild and edible. A seasonal guide to the most easily recognized mushrooms. W. W. Norton and Company.

McFarland, J. and G. Mueller. 2009. Edible and Wild Mushrooms of Illinois and Surrounding States. University of Illinois Press. Excellent.

McKnight, K., and V. McKnight. 1987. Peterson Field Guides - A field guide to Mushrooms of North America. Houghton Mifflin Company. Drawings instead of photographs.

Miller, O. K. 1971. Mushrooms of North America. E. P. Dutton and Company. Excellent.

Miller. O. K., and H. Miller. 2006. North American Mushrooms. FalconGuide.

Phillips, R. 1991. Mushrooms of North America. Little, Brown, and Company.

Smith, A., and N. Smith-Weber. 1980. The mushroom hunter's field guide - all color and enlarged. University of Michigan Press. Excellent, but limited number of species.

MORELS

Smith-Weber, N. 1988. A morel hunter's companion. Two Peninsula Press. Excellent.

Kuo, M. 2007. Morels. The University of Michigan Press: Ann Arbor, MI. Very Good.

POISONING

Ammirati, J., J. A. Traquir, and P. A. Horgen: 1985. Poisonous Mushrooms of the Northern United States and Canada. University Minnesota Press.

Benjamin, D. R. 1995. Mushrooms: poisons and panaceas. A handbook for naturalists, mycologists, and physicians. W. H. Freeman and Co.

Lincoff, G., and D. Mitchell. 1977. Toxic and hallucinogenic mushroom poisoning. Van Nostrand Reinhold Company.

Mushrooming for Beginners
Webinar
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